



Mail Merge Processor

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Overview:

Imager Mail Merge Processor provides a robust set of tools to automate faxing from batch orientated Windows Print applications. If the application can print a document to a printer, using fax merge it can be automated to send the same document to a fax machine.

Three main components form the basis for our Mail Merge Processor Solution: A Fax Print Driver, a Control Dialog Executable, and an OEM Supplied DLL. The print driver installs as a normal Windows print driver, and outputs pages to TIF, DCX, or PCX formats. The Control Dialog is a separate EXE application, spawned by the print driver on startup, and provides all of the User Interface screens. The OEM Supplied DLL is implemented as a simple DLL which is used to monitor the text stream during printing.

A second tier of components rounds out the picture. These components include a Cover Page Generator, Forms Merge Engine, and numerous Fax Viewers. These second tier components are not absolutely required to implement Mail Merge Processor, but add considerable flexibility in providing a complete end-user solution.

Our two goals in providing Mail Merge Processor extensions are: to work with as many applications as possible; and to minimize the amount of programming required to integrate fax support. To this end, we have included support for the following:

Embedded control codes within the print stream:

Control strings can be embedded in the print stream, either as part of the report, or pre-appended as a separate page to the report. These control strings are then picked up by the OEM Supplied DLL out of the print stream. Control strings are identified either by a start and end sequence, or by a row/column position on the page.

Recognized control functions:

Ignore Line - don't print a specified line

Break at start of page - start a new file at the top of current page

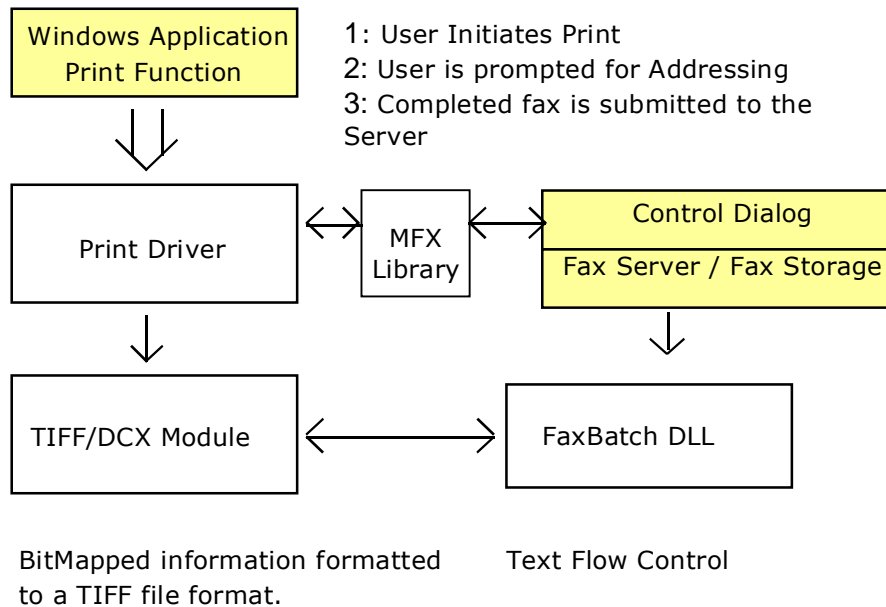
Break at end of page - start a new file at the top of next page

Ignore Page - don't print the current page

Using these methods should be sufficient to solve most fax enabling problems.

The following sections provide a detailed description of each of the component objects, an overview of how the process works, and recipes for enabling common applications.

Component Objects:



Print Driver:

The Print Driver translates Windows GDI calls into multi-paged fax images. It talks to the Control Dialog at start of each job, requesting the name of the file to create, and the name of the control string template definition file. It talks to the OEM Supplied DLL while formatting text, passing each text string in the print stream to the DLL before sending it through to the GDI for rendering onto the Fax Image.

Control Dialog:

The Control Dialog is provided by the Fax Server Vendor, and provides a simple addressing UI. This UI can also be set up to handle the Mail Merge Processor setup information. The Control Dialog tells the print driver the name of the output tiff file.

Fax Server:

The Fax Server is the ultimate destination for the burst fax jobs. The Fax Server is provided by the OEM vendor.

Fax Images:

These are the burst jobs created under control of the Print Driver, and OEM supplied DLL.

Mail Merge Processor DLL:

This dll is the brains behind the Mail Merge Processor scene. The main idea is that the Mail Merge Processor dll controls the bursting of jobs into separate files, and then prepares a report for the Control dialog, containing a destination address for each of the separated jobs.

A Behind the Scenes look at Fax Merging:

The following steps outline how an application is fax enabled:

1) Set up a sample print job.

A control string definition template is first selected (or defined). The user then goes about adding the control string information to the report. These strings include a Fax Number, To field, and perhaps a 'start of job' indicator.

2) Print the report to the fax print driver.

On startup, the print driver spawns a Control Dialog EXE. At this point the user optionally verifies that the correct string definition template file is selected, and chooses an output fax file name.

3) The print driver requests the OEM supplied DLL to parse the text stream.

All text is first sent to the OEM supplied DLL for parsing before being printed. The function call returns a control value, indicating 'ignore line', 'start a new job at start of page', 'start a new job at start of next page', or 'punt this page'.

4) The control dialog adds the job to the fax server.

Once printing is complete, the control dialog places the burst jobs into the output fax server.

Control String Template Definition:

A suggested control string definition template is minimally defined as follows:

Start & End Str	Length	Returns	Description
\$SOJ\$	0	6	Start of job
\$EOJ\$	0	7	End of job
/zz	0	2	Page punt (don't print this page)
/cx	0	1	Comment
/tn	256	0	Destination name
/tc	256	0	Destination company name
/tp	120	0	Destination fax phone number
/tt	120	0	Destination tel phone number
/te	120	0	Error phone fax number (if undelivered)
/fn	256	0	From name
/fc	256	0	From company name
/fp	120	0	From fax phone number
/ft	120	0	From tel phone number
/ss	1	0	Transmit resolution (default is fine)
/st	8	0	Scheduled transmit time (24 hr clock)
/sd	8	0	Schedules transmit date
/sr	4	0	Maximum # of retries. Default is 2
/sw	4	0	Sets the wait time between retries (minutes)
/sq	256	0	Name of fax queue database to submit job to
/sp	1	0	Suppress page header (CIS) (y/n)
/sx	4	0	Transmit as 'short pages' with minimum height '#'
/ct	256	0	Name of cover sheet template
/cl	256	0	Name of logo file for cover sheet
/cm	256	0	Name of ASCII text file containing cover page message
/cs	256	0	Cover sheet subject field
/cc	256	0	Name of signature file for cover sheet
/af	256	0	Name of an attachment file

NOTE: No token can be a prefix of another token. E.g. you cannot have a token "/c" and another token "/ct". This is because the Mail Merge Processor DLL may parse a single line multiple times (as subsequent segments of the line are delivered by the print driver). In this case, the token "/ct" may first be erroneously identified as the token "/c". Also note that the Mail Merge Processor DLL must correctly handle identifying the same token in the same line multiple times. For example:

If the line "/cs This is the Subject" occurs in the document file it may be delivered to the Mail Merge Processor DLL in several successive calls with the following strings:

```
"/c"  
"s This is"  
" the Subject"
```

The Mail Merge Processor DLL will first parse "/c"
then "/cs This is"
then "/cs This is the Subject"

Return Codes are defined as follows:

- 1 - Error, function is not supported (string is passed through, no further calls to this API will be made for this print job)
- 0 - Pass string through to output
- 1 - Discard string, do not print
- 2 - Discard entire page
- 3 - Reserved/Unused
- 4 - Force new file at start of *current* page; do not discard string
- 5 - Force new file at start of next page; do not discard this string
- 6 - Force new file at start of *current* page; also discard string
- 7 - Force new file at start of next page; also discard the string

File Format Definition:

Control Strings are defined by the OEM, and are read and interpreted by the OEM supplied DLL. Two recognized string types can be used:

Embedded:

[Start Sequence] [Maximum String Length] [Terminating Char String]
[Terminating Char Set] [flags]

Flags:

- X -don't print the 'start' and 'end' sequence strings in the output stream
- C - set strings to case sensitive. Default is 'case insensitive'.

Position:

[Row/Col/+-/Page] [Maximum String Length] [Start Offset] [Terminating Char Set]

The '+-' value indicates how many pixel columns to the left or right to match the input criteria

The Start Offset indicates how many ASCII characters to the right of the string to start pulling out information.

Debugging a String Definition Template:

To help build a string table, the OEM supplied DLL should output all strings to a 'shadow dump' file. The sample utility outputs all text to an mmshadow.txt file. If a particular token string is not being properly located, then looking at the shadow file and the log file (IMG32MM.LOG or IMG16MM.LOG) is the first place to start.

Some applications, including WORD sometimes does odd things when sending the strings to the print driver. In normal cases, all strings are sent top to bottom, right to left. Any change in formatting (size, Character font, other attribute changes) generally result in the text being broken down into multiple strings. To ensure that the token and user data all get passed in as one string, it helps to keep all formatting information constant. Should you have problems, try re-formatting the complete string to be a different font, or font size.

A 'don't print this page' anywhere on the page means that the current page will not be rendered to the output file, but that all control strings will still be interpreted. This is a great way to insert additional control information which you know will not be faxed.

Recipes for Fax Enabling Common Windows Applications:

Following are sample instructions for fax enabling common applications. Each of these examples demonstrates the flexibility of the Mail Merge Processor toolset, in that little to no programming is required to achieve the desired result.

Mail Merge (Word processing, contact manager)

- Create a list of recipients (mail merge list)
- Create the form letter (includes cover sheet page)
- Link the recipient list to the form letter
- Add necessary control strings to a separate page at the end of the letter:
 - Address name and Phone number
 - Transmission details
 - Additional attachment files
 - End of Job, Don't render Page
- Mail merge document to the fax printer

Process:

The print capture driver calls the OEM supplied DLL, which detects each 'end of job', in the print stream, and prepares a list of Tiff files and addresses to send to. At end of printing, the Control Dialog looks for and finds this control file, and submits all indicated jobs to the server.

Accounting Package (invoices, account statements, purchase orders)

- Enable the 'shadow file' feature of the fax print driver.
- Print out a standard invoice report to the fax printer.
- Look at the 'shadow file' (which contains Row/Col/String), and figure out appropriate Row/Col position containing addressing information.
- Create a Control File which properly defines control string locations
- Run the print process again, and in the Control Dialog, define the following:
 - Name of Control File
 - Default strings for each job (Cover page, From name, transmit details, etc.)
- Select OK from the Control Dialog, and start the capture process.

Process:

The print capture calls the OEM supplied DLL, which detects each 'end of job', in the print stream, (based on a row/column position of a recognizable text string), and prepares the job list. The Control Dialog in turn processes the job list at end of printing.
