

Uniface Printing

A White Paper by
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Understanding the Process

Printing in Uniface is comprised of five elements: the device tables, the printer attribute models stored in the PRATT table, the ASN/INI files, the operating system printing functions (symbionts, print manager, queues, etc.), and the printer, disk, or other output device. This document discusses the role of each element in the print process.

When a print command is issued within Uniface (through the use of the Uniface ^print function), Uniface builds a temporary file using the printer attribute model specified in the print statement or pop-up (“PRINTER” by default) and the device table associated with the model. The entity PRATT is found in application model PRINTER (conceptual schema PRINTER in Version 5) and follows the path \$SYS, unless redirected in the ASN file. The name of the temporary file is the schema name plus an operating system-specific suffix, *.pnm* or *.prt;n* where *n* is a sequential number). The filename is returned through \$result.

If a print queue is specified in the attribute model, Uniface issues the applicable operating system command (based on the installation platform) to submit the file for printing. The operating system has control over the printing process and submits the file to the printer where it is interpreted and physically transcribed. By default, Uniface will delete the temporary file after submission unless a print option has been used to negate deletion.

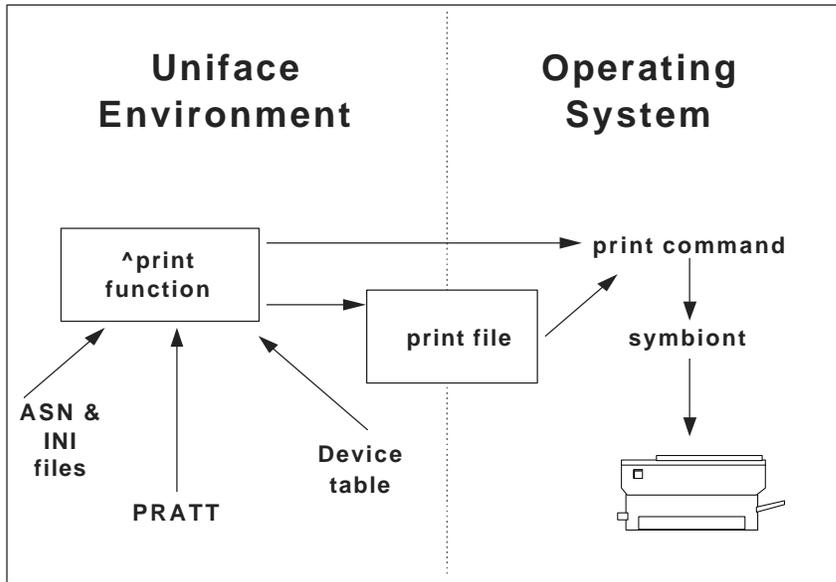
If no print queue is specified, Uniface places the temporary file in the current working directory, unless the ASN or an operating system command has redirected the output.

When dealing with printing issues, it is important to determine which part (or parts) of the process are involved with the problem. It is good procedure to start with the printer attribute model and work through the entire process until the problem is isolated. Printing problems originating in one part of the procedure may actually manifest in another. See Isolating Printer Problems.

Printing problems can be classified as follows:

- Device table issues (creating the file)
- Printer attribute model issues (creating and submitting the file)
- ASN file problems
- OS/Queue issues (printing the file)
- Printer issues (printing the file)

Diagram of the Uniface Print Environment



Device Tables

General Information

Device translation tables are used by Uniface to interact with **output** peripheral devices such as printers and display terminals (screens). This section discusses the use of these tables for printing, however, many of the issues discussed apply to any device table. This document does not include a discussion of keyboard translation tables (input devices).

Device translation tables are a collection of sequences (control codes) associated with specific logical functions (such as boldface, formfeed, and init). The sequences normally begin with the escape character and are referred to as escape sequences. These sequences are specific to the type of printer, for example, an HP Laserjet does not use the same sequences as a DEC LN03. Source for device tables is stored in USOURCE (UMISC - Version 5.2). The compiled tables are stored in UOBJ (UOBJECT - Version 5.2). The developer also has the ability to place the compiled device table into a Dynamic Object Library (DOL) in Version 6. This section discusses how Uniface uses these sequences when building a print file.

Uniface supplies a base set of device translation tables. It is possible that none of the supplied tables will work correctly with a specific printer. In order to guarantee that the device table will work with a specific printer, the developer must validate the sequences generated by Uniface with the sequences used by the printer. This section provides examples of validating sequences.

This section also includes examples of modifying device tables for specific printing situations and common problems, such as wrong paper size.

Building a Print File

When Uniface receives a printing request, the printer attribute model selected is used to determine which device table is to be used to generate the print file (See Printer Attribute Models). Uniface opens the device table and uses it to insert the appropriate sequences depending on both the form requirements and the device table itself. The ^init sequence is the first sequence written into the file. Following are examples of Uniface device tables and the print files generated by Uniface. By comparing the device table with the print file and the printed report, it is possible to see how Uniface uses the sequences when building a file. The form used in the examples has no extra attributes specified (i.e., no boldface, underlining, inverse shading, etc.).

Print files can be examined by leaving the print queue field of the printer attributes model blank (which causes Uniface to write the file to disk) and then using the Uniface text editor in view mode. Note that not all of the non-printing characters have a representation, for example, the escape character does not appear in the print files shown here.

In the interest of space, only portions of the device section of each device table are shown and only the first portion of the print file produced. The device tables and print files have been formatted for this document, and therefore, may not appear within Uniface as printed here.

The report as printed:

<u>Order No.</u>	<u>Order Date</u>	<u>Category</u>	<u>Last Item</u>	<u>Total Price</u>
ORD001	01-jan-1994	CAT01	ITEM02	1.50
		CAT02	ITEM05	4.00
ORD002	04-jan-1994	CAT01	ITEM02	1.50
ORD003	05-jan-1994	CAT01	ITEM01	3.00
		CAT02	ITEM02	0.75
ORD004	06-jan-1994	CAT01	ITEM02	1.50
		CAT02	ITEM03	0.85

Uniface Device Table - P LASERJET2 (modified)

^BEGIN_DEVICE
^027E^027&l2A^027(s0P^027&k0G^INIT
^027(s0S ^NORMAL

(Lines removed)

^027&l0o6D^027(s10H ^MODE_0(77,64) Portrait, 6 LPI
^027&l0o8D^027(s16.66H ^MODE_1(128,85) Small Portrait, 8 LPI
^027&l1o6D^027(s10H ^MODE_2(112,43) Landscape, 6 LPI

(Lines removed)

^012 ^FORMFEED
^013 ^RETURN
^010 ^LINEFEED
^END_DEVICE

Uniface Print File - HP-Laserjet

E&l2A(s0P&k0G&l0o6D(s10H(s0S(s0B&d@(0N
(s0B&dDOrder No. Order Date Category Last Item Total Price(s0B&d@
ORD001 01-jan-1994 CAT01 ITEM02 4.00
(10U (0N(s0B&d@ (10U (0N(s0B&d@ (10U (0N(s0B&d@
(10U (0N(s0B&d@ (10U (0N(s0B&d@
CAT02 ITEM05 9.00

Uniface Device Table - P LN03 (Modified)

^BEGIN_DEVICE
^027c ^INIT
^027[?20^032J^027[11m^027[0w^013 ^CLOSE
^027[0m ^NORMAL

(Lines removed)

^027[?20^032J^027[11m^027[0w ^MODE_0(80,66) portrait, pitch 10.3
^027[6^032J^027[11m^027[2w ^MODE_1(96,66) portrait, pitch 12
^027[6^032J^027[11m^027[3w ^MODE_2(105,66) portrait, pitch 13.2

(Lines removed)

^012 ^FORMFEED
^013 ^RETURN
^010 ^LINEFEED
^END_DEVICE

Uniface Print File - LN03

c[?20 J[11m[0w[0m[0m(B [0;4m

Order No.	Order Date	Category	Last Item	Total Price[0m		
ORD001[0m	01-jan-1994[0m	CAT01[0m	ITEM02[0m	4.00 [0m		
		CAT02[0m	ITEM05[0m	9.00 [0m		

Uniface Device Table - P POSTSCRIPT

NOTE: Postscript shown through Mode 0 only.

```
^BEGIN_DEVICE
%!PS-Adobe-1.0^010%% Creator:^032Uniface^010save^010/s^032
{show}def^010/L^032{gsave^0323^0322^032rmoveto^032-
3^0320^032rlineto^032LW^032setlinewidth^032stroke^032grestore}def^010/R^032
{gsave^0323^0322^032rmoveto^0323^0320^032rlineto^032LW^032setlinewidth^032
stroke^032grestore}def^010/U^032{gsave^0323^0322^032rmoveto^0320^0326^032
rlineto^032LW^032setlinewidth^032stroke^032grestore}def^010/D^032{gsave^0323
^0322^032rmoveto^0320^032-
5^032rlineto^032LW^032setlinewidth^032stroke^032grestore}def^010/Cr^032{LM
^032currentpoint^032exch^032pop^032moveto}def^010/Lf^032{currentpoint^032LH
^032sub^032dup^032BM^032lt^032{pop^032pop^032showpage^032grestore^032
gsave}{moveto}ifelse}def^010/Line^032{6^032mul^0320^0322^032rmoveto^0320
^032rlineto^032currentpoint^032LW^032setlinewidth^032stroke^032moveto^0320^032-
2^032rmoveto}def^010/A^032{gsave^032-
6^0320^032rmoveto^032show^032grestore}def^010/HA^032{gsave^032-
6^0321^032rmoveto^032show^032grestore}def^010/HHA^032{gsave^032-
6^0322^032rmoveto^032show^032grestore}def^010      ^INIT
)s^010showpage^010restore^010      ^CLOSE
)s^010Nor^032setfont^032( ^NORMAL
)s^010Ita^032setfont^032( ^ITALIC
)s^010Bol^032setfont^032( ^BOLD
)s^010BolIta^032setfont^032(      ^BOL_ITA
^NUL      ^_UNDERSCORE
initgraphics^010/LM^03254^032def^010/TM^032811^032def^010/BM^03220^032def
^010/LH^03211^032def^010/LW^032.5^032def^010/FS^03210^032def^010/deffnt^032
{findfont^032FS^032scalefont^032def}def^010/Nor^032/Courier^032deffnt^010/Bol
^032/Courier-Bold^032deffnt^010/Ita^032/Courier-Oblique^032deffnt^010/BolIta^032/Courier-
BoldOblique^032deffnt^010LM^032TM^032moveto^010Nor^032setfont^010gsave^010(
      ^MODE_0(80,72)      normal A4
```

Uniface Print File - Postscript

```
%!PS-Adobe-1.0
%Creator: Uniface
```

```

save
/s {show}def
/L {gsave 3 2 rmoveto -3 0 rlineto LW setlinewidth stroke grestore}def
/R {gsave 3 2 rmoveto 3 0 rlineto LW setlinewidth stroke grestore}def
/U {gsave 3 2 rmoveto 0 6 rlineto LW setlinewidth stroke grestore}def
/D {gsave 3 2 rmoveto 0 -5 rlineto LW setlinewidth stroke grestore}def
/Cr {LM currentpoint exch pop moveto}def
/Lf {currentpoint LH sub dup BM lt {pop pop showpage grestore gsave}{moveto}ifelse}def
/Line {6 mul 0 2 rmoveto 0 rlineto currentpoint LW setlinewidth stroke moveto 0 -2 rmoveto}def
/A {gsave -6 0 rmoveto show grestore}def
/HA {gsave -6 1 rmoveto show grestore}def
/HHA {gsave -6 2 rmoveto show grestore}def
initgraphics
/LM 54 def
/TM 811 def
/BM 20 def
/LH 11 def
/LW .5 def
/FS 10 def
/deffnt {findfont FS scalefont def}def
/Nor /Courier deffnt
/Bol /Courier-Bold deffnt
/Ita /Courier-Oblique deffnt
/BolIta /Courier-BoldOblique deffnt
LM TM moveto
Nor setfont
gsave
()s
Nor setfont ( Order No.   Order Date   Category   Last Item   Total Price)s Cr
( _____)s Cr
()s Lf
( ORD001   01-jan-1994   CAT01   ITEM02   4.00)s Cr
()s Lf
(           CAT02   ITEM05   9.00)s Cr

```

Validating Escape Sequences

In order to validate the escape sequences being used by Uniface, it is necessary to have the printer documentation showing the actual sequences used by the printer. In this document, the HP Laserjet PCL 5 series will be used for the example presented. The HP Laserjet PCL 5 documentation indicates the following functions and commands:

Reset	<esc>E
Page size - letter	<esc>&I2A
Primary spacing - fixed	<esc>(s0P
Line termination - CR=CR; LF=LF; FF=FF	<esc>&k0G

Compare these sequences to the ^INIT sequence above. The Uniface sequence matches the HP documentation, therefore these are valid sequences for HP Laserjets using PCL 5.

Modifying Device Tables

It is not possible for Uniface to provide device tables for every printer available, nor ones that address specific printing situations. Instead, the user is able to modify any of the supplied device tables or to create one.

Version 6 - To modify an existing device table:

Source definitions of device tables are not automatically available in Version 6. Follow the instructions given in the Uniface Reference Manual, Section 6.2 “Creating device translation tables” to load the source definitions. Also, there must be a pre-existing library for the variation.

1. Select Deployment - Runtime Set up - Device Tables.
2. Highlight the listing of the device table to be modified.
3. Uniface will display the source listing.
4. Alter the sequence.
5. Select Save As from the File menu.
6. Select the correct variation, enter the new device name (can be the same as the USYS device table), and press OK.

Version 5.2 - To modify an existing device table:

1. Go to the central definitions screen and detail on device table.
2. Enter P_* in the device name field (will return only printer device tables).
3. Detail on the central definition pushbutton.
4. Accept on the listing of the device table to be modified.
5. Uniface will decompile the source listing and display it.
6. Before modifying, a new device name and variation must be entered.

NOTE: Although the same device name can be used, the USYS variation should not be used.

For example, P_POSTSCRIPT with variation MY_PROJECT.

7. Alter the sequence.
8. Accept out of the screen.
9. Exit IDF and then re-enter for changes to take effect.

The most common problem with the Uniface-supplied device tables is that they are pre-set for paper size A4 (the standard European paper size). The modifications needed for these device

tables are shown in the chart below (one portrait and one landscape mode are shown for each table; additional changes may be necessary to correct other modes):

Device Table	Mnemonic	Modification
P_LASERJET2	^INIT	Change from: ^027E^027&l26A... to: ^027E^027&l2A...
	^MODE_0	Change from: ^MODE_0(77,64) to: ^MODE_0(80,66)
	^MODE_3	Change from ^MODE_3(184,58) ^MODE_3(178,60)
P_POSTSCRIPT	^MODE_0	Change from: ...TM^032811... to: ...TM^032745... Change from: ^MODE_0(80,72) to: ^MODE_0(80,66)
	^MODE_1	Change from: ...LH^03211... to: ...LH^0328.21212... Change from: ...LW^032.5... to: ...LW^032.4... Change from: ...FS^03210... to: ...FS^0329.4 Change from: ^MODE_1(132,50) to: ^MODE_1(132,66)
P_LN03	^MODE_0	Change from: ^027[6^032... to: ^027[?20^032...
	^MODE_7	Change from: ^027[7^032... to: ^027[?21^032...

Creating a new device table:

To create a new device table for an unsupported printer type, select a device table with similar sequences, or use P_DEFAULT. P_DEFAULT does not contain any escape sequences.

Decompile and re-name the device table source following the instructions above. Insert the proper sequences matching them to their mnemonics. Compile and test.

Mode Issues

The numbers in parenthesis following the mode indicate the number of characters per line and the number of rows per page, respectively. These numbers can be adjusted for optimal printing on a specific printer. Make sure that the number of lines per page does not exceed the default number of lines per page that the printer is capable of supporting. If it does, extra formfeeds result, giving completely printed pages alternating with partially printed pages. Also, for Uniface to correctly insert the formfeed character, a bottom margin of at least one must be specified in the printer attribute model.

Special Printing Cases

There are special printing cases which can be handled through the use of device tables, such as changing fonts and bar-coding. These cases are discussed in the Printing Examples document.

Printer Attribute Models

Printer attribute models are used to describe to Uniface a specific print environment. Each model is defined as a record in the table, PRATT. PRATT is contained in the application model, PRINTER (conceptual schema, PRINTER - version 5.2). PRINTER follows the \$SYS path unless redirected through the ASN file. The contents of PRATT can be viewed and edited by the developer, either through the Uniface-supplied form (usysatt.frm) or developer-created forms. To create additional forms to access PRATT, the developer must install the Uniface meta dictionary.

PRATT Fields

The individual attributes (fields) of the model as seen on usysatt.frm are (name in second column is PRATT field name):

Name of model	LAYOUT
Device table	PRINTER
Print queue	DEVICE
Print options	OPTIONS
Device mode	PITCH
Left margin	LEFTM
Right margin	RIGHTM
Top margin	TOP
Bottom margin	BOTTOM

Additional fields are: FORMNAME and MOD, which are not in the database, PAGEL, PAGEW, and LINESP which are not currently supported.

The name of the model (LAYOUT) is the primary key of PRATT. It is 16 characters long. In versions 6 and 5.2, the model, PRINTER, is automatically loaded into the Uniface print form. This model is not defined by default, but must be defined on the first access by the developer.

In addition to the print/ask function, it is possible for the developer to replace the default schema (usysatt.frm) with one that allows a developer-specific default model to be used. The model name has no function beyond identifying the PRATT record. It should be meaningful to the end user.

The device table (PRINTER) also is 16 characters long. It must be the same as a device table stored in UOBJ or UOBJECT (version 5.2). The device table specified must be compatible with the actual physical printing device to be used. The control codes associated with the logical functions for the specified device table are used when Uniface creates the print file. See also Device Tables. The same device table can be used for all models which reference the same printer, or other device tables may be used, as long as they are compatible with the printer (see examples in this section).

Print queue (DEVICE), also 16 characters long, specifies what happens to the print file after it has been created. If blank, the print file is written to the current working directory (unless redirected through the ASN). If the field value begins with an "at" sign (@), the text following the @ will be spawned as a command to the operating system with the name of the print file as a parameter. If the field value is "printman," Uniface invokes the Windows printmanager. If the field value is non-blank and is not "printman," Uniface will generate the appropriate operating system command to print the file, appending any print options specified.

NOTE: Version 6 documentation contains an error in the Developers' Guide in Section 9.2.4 "Print Queue" under the subheading, "Printing output and deleting print files." The second paragraph contains the sentence, "The contents of the Print Modes entry..." and it should read, "The contents of the Print Options entry..."

Print options (OPTIONS), a variable-length field, allows definition of additional operating system print command options. The value of this field is appended to the operating system print command. It can be used to specify things such as number of copies. When blank, Uniface uses appropriate defaults for the operating system. The defaults include deletion of the print file. If this value is not blank, the default options are overridden and must be explicitly included.

Mode (PITCH) normally controls the selection of number of columns and lines, character width, line depth, and page orientation. Each device table has its own set of modes. Selecting the device table for the printer attribute model determines the selection of valid modes for the model. The printer control codes are maintained through the device tables. See also Device Tables.

The margin fields, left, right, and top (LEFTM, RIGHTM, TOP) allow the user to adjust the printing on the page. The bottom margin (BOTTOM) also controls whether Uniface will insert a formfeed (non-blank value required) or default to the printer (blank value). Problems with printing running off the bottom of the page and formfeeds not occurring properly are sometimes the result of not having a value in this field. It is recommended that a value of at least 1 always be used.

Viewing and Updating the Printer Attribute Model using usysatt.frm

For Version 6:

1. Perform a <GOLD><P>.
2. Click on the Detail Button next to the Print Job Model.
3. From Print Job Model click on the New or Edit button to get to Printer Attribute Model (usysatt.frm).

To update, type in the new values and click on the OK button or <ACCEPT>.

For Version 5.2:

1. Perform a <GOLD><P>.
2. <DETAIL> on the Attributes Model field.

To update, type in the new values and <ACCEPT>.

The device table and mode fields will supply a list of choices if detailed. In version 5.2, the model name, if blank, can also be detailed for a list of choices.

Examples of PRATT entries

Following are examples showing various print models.

Name: PRINTER_LAZ_P
Device Table: P_LASERJET2
Print Queue: printman
Print Options:
Device Mode: 0
Left Margin:
Right Margin:
Top Margin:
Bottom Margin: 1

COMMENTS: This printer attribute model would build a print file specifically for an HP Laserjet printer using PCL 5. The print file would be submitted to Windows print manager (and would print on the default printer). It will be portrait mode and Uniface will insert formfeeds. If the device table, P_LASERJET2 is not modified, this will use A4 paper and print 6 lines per inch, 77 characters per line and 64 lines per page. See Device Tables for more information on altering command sequences.

Name: PRINTER_UNIX_LAN
Device Table: P_LASERJET2
Print Queue: prt1
Print Options: -n5 -oraw
Device Mode: 3
Left Margin:
Right Margin:
Top Margin:
Bottom Margin: 1

COMMENTS: This printer attribute model would build a print file specifically for an HP Laserjet printer using PCL 5. The print file would be submitted to the Unix queue prt1 with the parameters -n5 -oraw (The actual command would be lp -s -d prt1 -n5 -oraw *print_file*). The -n5 is a Unix print option which produces 5 copies of the print request. It will be landscape mode and Uniface will insert formfeeds. If the device table, P_LASERJET2 is not modified, this will use A4 paper and print 8 lines per inch, 184 characters per line and 58 lines per page. See Device Tables for more information on altering command sequences.

Name: ASCII80
Device Table: P_DEFAULT
Print Queue:
Print Options:
Device Mode: 2
Left Margin:
Right Margin:
Top Margin:
Bottom Margin: 1

COMMENTS: This printer attribute model would build a print file containing no special command codes or sequences. The print file would be written to disk (in the current working directory unless otherwise redirected). It will be portrait mode and Uniface will insert formfeeds. If the device table, P_DEFAULT is not modified, this will print 80 characters per line and 66 lines per page. See Device Tables for more information on altering command sequences.

Name: PRINTER_VMS
Device Table: P_LN03
Print Queue:
Print Options:
Device Mode: 0
Left Margin:
Right Margin:
Top Margin:
Bottom Margin: 1

COMMENTS: This printer attribute model would build a print file specifically for an DEC LN03 printer. The print file would be written to disk (in the current working directory unless otherwise redirected). It will be portrait mode and Uniface will insert formfeeds. If the device table, P_LN03 is not modified, this will use A4 paper and print 80 characters per line and 66 lines per page using a horizontal pitch of 10.3. See Device Tables for more information on altering command sequences.

Dynamically updating PRATT without using usysatt.frm

It is possible for developers to create forms using PRATT which dynamically update the values based on user responses, profiles, or criteria. For example, a user who requests multiple copies of a print file, can trigger proc coding to update the print options field.

Types of problems associated with PRATT

Types of problems include:

- Referencing a non-existent model (no record in PRATT)
- Specifying a non-existent or incorrect device table
- Specifying a device table that exists in an inaccessible variation
- Specifying a non-existent or incorrect queue (or command, if @ is used)
- Specifying the wrong mode for the printing desired
- Not specifying a bottom margin of at least 1

OS/Queue and Printer Issues

When Uniface completes the building of the print file and a print queue was specified in the model, it issues the operating system-dependent print command to submit the file to the specified queue. From this point in the process, Uniface is no longer involved. There are, however, several additional factors which can affect the printed results.

While operating systems generally handle printing in a similar fashion, each uses its own terminology to describe the process. It's important to be familiar with the specific OS issues which may affect your system. This information can be found in the OS documentation. Of concern normally are such items as print symbionts, spoolers, and print queues and their characteristics.

When troubleshooting Uniface printing problems, it's imperative to verify that other applications successfully print to the same device under the same environment conditions (symbiont, spooler, and queue, as applicable).

Isolating Printer Problems

In order to address printing problems, it's necessary to first isolate the element at fault. There are two main categories of printing problems: nothing prints; printing is not correct. Below are steps to identify the element at fault dependent on the type of problem.

Nothing Prints

One of the most common problems is no model or queue specified. Uniface will use the printer attribute model, PRINTER, by default, but this model is not defined by default. A model should have the following field values, at a minimum: Printer model name, device table (for the Windows environment this should be P_MSWIN3, not MSWIN3), and, optionally, print queue (this is required under Windows in order to print automatically, and should be "PRINTMAN"). If print queue is not specified, it is possible to check for the presence of the print file which will be printed out to disk in the current working directory (unless redirected through the ASN file).

If a file is still not produced, possible problems include directory permission or privileges (more common on VMS platforms), and disk space. An error message will be generated in these cases, but will usually appear very rapidly on the screen, so you should set the message level to the appropriate level and check the message frame after the print attempt.

Printing Not Correct

It's important to differentiate between technical printing problems and problems relating to form design with respect to printing. The best way to track down the technical printing problems is to step through the process, checking each step for correctness and accuracy.

- Print statement - check that it is accurate and references the correct model (use debugger, if needed).
- Device table - check that the table referenced does exist and contains the correct sequences for your specific printer (remember the A4 problem).
- Printer attribute model - check that all the necessary field values are present and correct.
- ASN file problems - check for inadvertent redirection (including PRATT).

At this point, you should have a print file which you can examine using the text editor in VIEW mode. Check the sequences in the file for correctness.

- OS/Queue - verify that the symbiont/queue being used is not altering the Uniface print file. Some will strip out part of the escape sequences. Files that have been stripped, print with part of the sequences as the first line of data. You will need to find out from your system documentation which is stripping the file and add the appropriate print option or correct the environment, as appropriate.
- Printer - make sure that the printer settings are in sync with the printer attribute model.

Faxing from Uniface under Windows

Contributed By Ed Gadziemski

This document describes how to fax from a Uniface application running under MS-Windows. The same procedure works if you just want to change from the default printer to a different printer.

Copy the WIN.INI file in the c:\windows directory to a new file called WIN.FAX (or use extension appropriate to the printer being used). From the [devices] entry in WIN.FAX, copy the entire string that defines the fax. For example, on my system it is:

```
FX-WORKS=FX-WORKS,COM1:
```

Replace the line in the [windows] entry that begins device=. The new line will look like this (depending on your fax setup):

```
device=FX-WORKS,FX_WORKS,COM1:
```

Note that the original equal sign (=) in the fax define changes to a comma.

Next, create a batch file called WINDEF.BAT in the c:\windows directory. Place the following code in the batch file:

```
@echo off
if "%1"==" " goto END
if "%1"=="FAX" goto FAX
if "%1"=="PRT" goto PRT
:FAX
if exist win.prt goto END
if not exist win.fax goto END
ren win.ini win.fax > nul
ren win.prt win.ini > nul
goto END
:END
```

Use the PIF Editor from the Main group of Windows to create a Program Information File. Change these settings and save as WINDEF.PIF:

```
Program Filename:    WINDEF.BAT
Start-up Directory:  c:\windows
Display Usage:      Windowed
```

In the Uniface print form you created for the fax, place the following code in each trigger from which you initiate the print:

```
spawn "#windef.pif FAX"; change the default printer to fax
print "printer"
spawn "#windeef.pif PRT" ; reset default to printer
```

References

Document	Chap. No.	Chapter Title	Section Title
v6 Env. Specific	2	Customization	2.1.1 Printer
v6 Env. Specific	2	Customization	2.2.8 [PRINTER] and [SCREEN]
v6 Env. Specific	3	Extra Functionality	3.4 Printing
v6 Ref. Manual	1	Application Objects Repository	1.1 What is the Application Objects Repository?
v6 Ref. Manual	1	Application Objects Repository	1.2.2 Application Model PRINTER
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