Printing

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List of Printing Methods

The following is a complete listing of printing methods that we have implemented:

1. **Old method** - Below is the list of printers and the settings for them.

PS1000
9600 baud, 8 data bits, No parity, 2 stop bit, Software flow control.
Attempts to wake up printer.

PS1001
9600 baud, 8 data bits, No parity, 2 stop bit, Software flow control.
Attempts to wake up printer.

PS1004
9600 baud, 8 data bits, No parity, 2 stop bit, Software flow control.
Attempts to wake up printer.

Monarch Line printer
9600 baud, 8 data bits, No parity, 1 stop bit, Hardware flow control.
Does not attempt to wake up printer.

pddumb
9600 baud, 8 data bits, No parity, 1 stop bit, No flow control.
Does not attempt to wake up printer.
Does not wait for device to go ready.

Comtec 5022 (non-Symbol version)
19200 baud, 8 data bits, No parity, 1 stop bit, Hardware flow control.
Does not attempt to wake up printer.

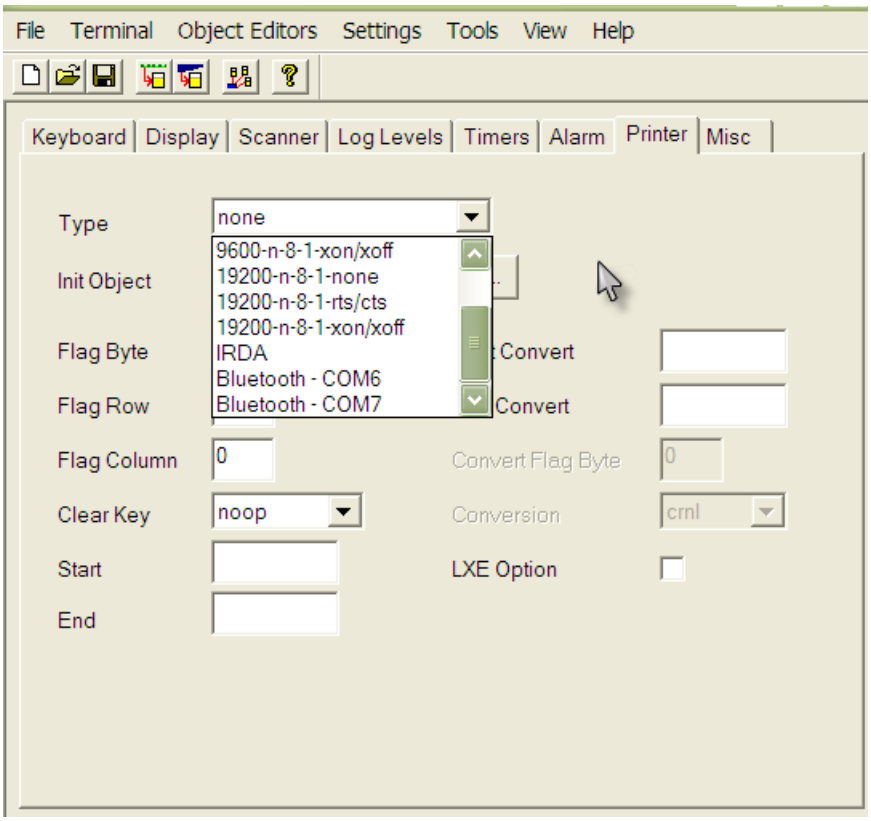
Monarch 9450 Rascal
9600 baud, 8 data bits, No parity, 1 stop bit, Hardware flow control.
Attempts to wake up printer.
Configure printer using following string: ^A|5|N|8|D

CodeWriter 4102
9600 baud, 8 data bits, No parity, 1 stop bit, Hardware flow control.
Does not attempt to wake up printer.
Configure dip switches as follows:
(S1-1 OFF, S1-2 ON, S1-3 OFF, S1-4 ON, S1-5 ON, S1-6 ON, S1-7 ON, S1-8 ON)

Comtec 5022-S (Symbol version primarily for 3800 terminals)
19200 baud, 8 data bits, No parity, 1 stop bit, Hardware flow control.
Attempts to wake up printer.

Any other printer number sent down will be treated as code 4, a pddumb printer.

2. **Serial method** - The list has standard COM ports and baud rate settings.



Serial Parameter Selections

When you see a selection in the pull down list for “Printer Type”, it has this format:

(Baud Rate)-(Parity)-(Data Bits)-(Flow Control)

Example:

19200-n-8-1-rts/cts

This setting is:

19,200 Baud
No Parity
8 Data Bits
1 Stop Bit
RTS/CTS flow control (also referred to as hardware flow control)

You will select from the list the one that matches the way you have your printer set up.

3. IrDA Printer Selection

You would select this type if the desired printer is an IrDa model. There are no other parameters that you need to select. TwinClient will open the standard IrDa Port and send printer data.

This is a wireless “line of site” printing method, so make sure that the two IrdA ports (printer and terminal) are aligned within the distance specified by the printer. This is usually a few inches.

4. Bluetooth Printer Selection

Bluetooth printers need to be “paired” to the RF terminals. The “pairing” process will cause the printer to be associated with a Bluetooth COM port on the RF device.

Please make sure to select the port to which the printer is “paired”. Please refer to the terminal and printer documentation on how to “pair” the device.

Bluetooth is a wireless RF-based method. It will typically have a range of up to 30 feet, and does not require the device to be lined up, like IrDa does.

Monarch "Rascal" Model 9490

Introduction

We recently ran some tests on the Monarch "Rascal" printer model number 9490. The testing was intended to find a way to make this older printer work with current PowerNet software.

The following is a record of this testing. This note could be used by those integrators who wish to use this printer with PowerNet software.

Important Note: This testing does not guarantee PowerNet support for this printer type. It is possible the support for this printer may be incomplete.

Possible problem areas could be:

Data Lose:	Due to lack of flow control
Wakeup Issues:	Wakeup mechanism unknown

Test Results

1. Our "Rascal" Printer option under PowerNet Server and TN products is for the Rascal Model 9450 and not the 9490.

   Our Rascal support has this setup:

   SOFTWARE SETTINGS "MONARCH 9450 RASCAL"

   9600 baud, 8 data bits, No parity, 1 stop bit, Hardware flow control.
   Attempts to wake up printer.
   Configure printer using following string: ^A|5|N|8|D|^

   Cables:

Terminal	Symbol Part Number
31xx Series	111658716
33xx Series	11658714
38xx Series	11658706

2. The Monarch 9490 is not compatible with the model 9450. The PDL language is different and the hardware requirements are different.

   If you attempt to drive this printer with our Rascal option, it will complain that the printer is not attached.

3. Our test was set up this way.

   a. Monarch Rascal Model 9490

      Firmware V2.2
      9600,N,8,1
      RS232 TRL: 0d/oa

Note: This setting can be confirmed by holding the feed button down while powering up the printer. This will cause this printer to print a configuration label.

b. Symbol 3800 46 Key terminal

c. Symbol Printer cable P/N 11658706

d. Connect Thin client V 5.01o

e. We used this print stream:

```
{F,1,C,R | }
{
F,1,A,R,E,200,400,"REN1" |
T,1,4,V,154,50,0,3,1,1,B,L,0,0,0 |
B,2,1,V,135,150,4,6,40,8,L,0 |
T,3,1,V,104,170,0,4,1,1,B,L,0,0,0 |
T,4,10,V,85,100,0,4,1,1,B,L,0,0,0 |
T,5,11,V,55,100,0,4,1,1,B,L,0,0,0 |
T,6,10,V,30,100,0,4,1,1,B,L,0,0,0 |
T,7,15,V,5,100,0,4,1,1,B,L,0,0,0 |
}
{
B,1,N,1 |
1,"PART" |
2,"1" |
3,"1" |
4,"LOCATION: " |
5,"QUANTITY: 3" |
6,"PRINTED BY" |
7,"DATA INTEGRATOR" |
}
```

f. Printer type was pddumb. Which has these settings:

9600 baud, 8 data bits, No parity, 1 stop bit, No flow control.
Does not attempt to wake up printer.
Does not wait for device to go ready.

With these test conditions, we were able to print successfully both with an INIT object and emulation printing.

Comtec Models MP 5022 and MP 5044 Printer Setup

Introduction

The Comtec Models MP5022 and MP5044 printers are DOS-like printers, having within the printer an autoexec.bat and config.sys file.

They are supplied with a utility disk that allows you to setup and test the printer.

When the printers are sent from the factory, they have a DEMO autoexec.bat file installed that causes it to print DEMO labels on power-up.

While the DEMO labels are printing, it is not possible to communicate with the printer.

Note: Affected packages include any products that support Terminal Printer use.

Resolution

The following procedure documents the method of setting up a Comtec printer for the Connect/RF product family and erasing the DEMO program.

1. Install Comtec Printer Utilities on a DOS PC.
2. Power Down Comtec printer.
3. Hold and depress FEED key.
4. Depress and Release Power ON key.

Note: The printer will print a setup label and interrupt the DEMO autoexec.bat.

5. Run menu from Comtec Utility directory.
6. Select appropriate port and baud rate.
7. Select “Read Printer Status” from menu. (This insures that there is communication.)
8. Select “Print Test Label” form menu.
9. Type “delauto”. (This deletes the DEMO autoexec.bat file.)
10. Select “Set Printer Parameters” from menu.
11. Set printer for:
    19,200 KB
    DTR Power off Disabled
    XON/XOFF Enabled
12. Cable the printer to the terminal.
13. Use Printer ini function to test printer.

Note: You can use *.lbl files from the Comtec Utility disk.

This is the output from the “Read Printer Status” from a properly configured printer.

Comtec MP Series Printer Utilities Ver 3.40
(c) 1994 Comtec Information Systems, Inc.

-- Printer Status--

Baudrate is: 19200
Inactivity time-out is: 180 Seconds
Low-battery Shutdown level is: 155
User-Label-Count is xxx (Does not include form feeds)
DTR power off: Disabled
XON/XOFF: Enabled

(Hit ENTER Key to Continue)

Note: Support manual sections involved are 3.0 and 19.1.

Zebra Model PA400 Printer Support

Introduction

Having been tested with PowerNet, the Zebra Model PA400 printer was found to work with our standard offering and with no required modifications.

This testing was done with a Symbol 3910 Vehicle mount terminal and Model PA400 Zebra printer with Config number: PA400-010-11100.

Resolution

The following steps must be performed:

Printer Setup

The printer needs to be set up for these communication parameters:

9600 8,N,1 XON/XOFF

To check this, do the following:

1. With printer Off, hold down the paper feed button.
2. While holding down the feed button, power On the printer. A printer configuration label will be printed.
3. If a label is not printed, perform the following steps: With power On, press and hold the feed button until the error LED flashes three times. Release the button. The baud rate for the printer will be reset to 9600 baud, 8 bits per character, no parity, and 1 stop bit using software flow control (XON/XOFF).

PowerNet Setup

1. Set up PowerNet server handler or TN setup for "pddumb" printer type.
2. Connect printer to RF terminal with null modem cable.

Note: The Zebra cable shipped with the printer is not a null modem and requires an adapter. You may wish to research if there is a cable available from Zebra to connect directly to the RF terminal without adapters. In the case of the Symbol 3910, it is an RJ45 to DB-25 Male - Null Modem cable.

3. Add a sample label to the Printer INIT field. This will cause a file with label data to be sent to the printer when it is first logged on. This is a good method to check cabling and setup. Once this is done, remove this from the setup and print with the normal PowerNet method.

It is recommended that some field trials be done to firm up the support for this printer.

AS400 Cobol Program for Printing to an RF Terminal Printer

Introduction

The following documents an AS400 Display file program for printing to an RF terminal printer from within the application.

Resolution

To eliminate the translation problem, perform the following steps.

1) Set the flag byte and flag byte row/column to 0 and add the following on Page 3 of the 5250tn handler.

```
[TN5250      ]      5250 Handler Setup - ADVANCED    Page 3

            Printer
             Start [/START          ]
              End [/END            ]
Start Convert [!B             ]
 End Convert [!E              ]
```

2) Change the application screen as follows.

```
 Item Scan For License Plate Label

  /START!B5E!EXA!B0D!E
!B5E!ELH30,30!B5E!EFS!B0D!E
!B5E!EFO20,10!B5E!EAE!B5E!EFD[ZEBRA]!B5E!EFS!B0D!E
!B5E!EFO20,60!B5E!EB3!B5E!EFDAAA001!B5E!EFS!B0D!E
!B5E!EFO20,180!B5E!EAE!B5E!ESN000000000111,1,Y!B5E!EFS!B0D!E
!B5E!EPQ10!B5E!EFS!B0D!E
!B5E!EXZ!B0D!E/END
```

Above, there are three changes made to the print data stream:

1) The flag byte was eliminated.
2) In place of the flag byte, the print data stream is encapsulated by the printer start flag, /START, and ended with the printer end flag, /END.
3) To address translation issues between EBCDIC and ASCII and to facilitate passing non-printable characters such as a carriage return (0Dh), a two digit ASCII HEX value of the character(S) wanting to be sent to the printer are encapsulated by the Start/End Covert flags.

For example, to pass a ^, place !B5E!E, where 5Eh is the ^ character. This eliminates translation problems because standard characters, 0-9 and A-Z, are used to represent ALL characters. The same is done for the carriage return at the end of each line.

Sample Program

```
Columns . . . :    1  80                        Edit
QGPL/QCBLSRC
SEU==> _____________________________________________________________________
MONARCH
FMT CB .....-
A+++B++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++Pgm-id++
*************** Beginning of data*************************************************************************
0001.00       PROCESS  OPTIONS.
000000
0002.00       IDENTIFICATION DIVISION.
000000
0003.00       PROGRAM-ID. PRINTIT.
990302
0004.00        AUTHOR. CONNECT.
990302
0005.00       INSTALLATION. CONNECT.
990302
0006.00       DATE-WRITTEN. MARCH 2, 1999.
990302
0007.00       DATE-COMPILED.
000000
0008.00       ENVIRONMENT DIVISION.
000000
0009.00       CONFIGURATION SECTION.
000000
0010.00       SOURCE-COMPUTER. IBM-S38.
000000
0011.00       OBJECT-COMPUTER. IBM-S38.
000000
0012.00       SPECIAL-NAMES. CONSOLE IS CRT.
990302
0013.00       INPUT-OUTPUT SECTION.
000000
0014.00       FILE-CONTROL.
000000
0015.00       DATA DIVISION.
000000
0016.00       FILE SECTION.
000000
0017.00        WORKING-STORAGE SECTION.
000000
0018.00        01  SPACE-LINE PIC X(80) VALUE SPACES.
990302
0019.00        01  PRINT-LINE.
990302
0020.00        05  START-IT PIC X(9) VALUE "$/PRINT/$".
990302
0021.00        05  PRINT-FORMAT-1 PIC X(29)
990302
0022.00        VALUE "{F,025,A,R,E,400,200,""WEYCO""|".
990302
0023.00        05  PRINT-FORMAT-2 PIC X(29)
```

```
990302
0024.00          VALUE "T,01,00024,V,050,050,01,0002,".
990302
0025.00          05  PRINT-FORMAT-3 PIC X(15)
990302
0026.00          VALUE "1,1,B,L,0,0,0|}".
990302
0027.00          05  PRINT-DATA PIC X(27)
990302
0028.00          VALUE "{B,025,N,1|1,""WEYCO TEST""|}".
990302
0029.00          05  END-IT PIC X(4) VALUE "/END".
990302
0030.00          01  IN-LINE PIC X VALUE "9".
990302
0031.00          PROCEDURE DIVISION.
990302
0032.00          MONARCH-PRINTER.
990303
0033.00          DISPLAY SPACE UPON CRT LINE 1 COL 2 WITH BLANK SCREEN.
990302
0034.00          DISPLAY PRINT-LINE UPON CRT LINE 1 COL 2 MODE IS BLOCK.
990302
0035.00          ACCEPT IN-LINE FROM CRT LINE 4 COL 2.
990302
0036.00          STOP RUN.
000000
****************** End of data*****************************************************************************
```

Printing from an AS400 Display File

Introduction

This section provides examples of printing from an AS400 display file.

Resolution

To verify the extended commands work, access Connect AS400 over the WEB. Reference Tech Note T1149. After logging in, you will be asked which test to run. Select number 96. It is used to verify printing and extended commands.

An alternative is to compile on the customer's AS400 according the examples below.

Example using the Start sequence of "$/PRINT/$" and End sequence of "/END".

```
0035.40     A       R MONARCH
0035.60     A         F37                5A  B  1  2CHECK(ER)
0035.70     A                                 2  2'Monarch Printer Test    '
0035.80     A                                 3  2'$/PRINT/${F,025,A,R,E,400,200,"WEY-
0035.90     A                                    CO"¦T,01,00024,V,050,050,01,0002,1,-
0036.00     A                                    1,B,L,0,0,0¦}{B,025,N,1¦1,"WEYCO TE-
0036.10     A                                    ST"¦}/END
0036.20     A                                 -
0036.30     A                                 -
0036.40     A                                 -
0036.50     A                                 '
```

Example using Flag byte at 2,1 with an "*"

```
0063.10     A       R FLAGBYTE
0063.30     A         FB7                5A  B  1  2CHECK(ER)
0063.40     A                                 2  2'Monarch Printer Test    '
0063.50     A                                 3  2'*{F,025,A,R,E,400,200,"WEYCO"¦T,01-
0063.60     A                                    ,00024,V,050,050,01,0002,1,1,B,L,0,-
0063.70     A                                    0,0¦}{B,025,N,1¦1,"WEYCO TEST"¦}*
0063.80     A                                 -
0063.90     A                                 -
0064.00     A                                 -
0064.10     A                                 -
0064.20     A                                 '
0064.30     A                                 1  8'FLAGBYTE'
```

Example using the Start sequence of "$/PRINT/$" and End sequence of "/END" with ASCII HEX translation for the print data Start Sequence "$/HEXS/" and End sequence "/HEXD".

```
0064.40     A       R CONVERT
0064.60     A         C37                 5A  B  1  2CHECK(ER)
0064.70     A                                 2  2'Convert Printer Test    '
0064.80     A                                 3  2'$/PRINT/$$/HEXS/5072696E746520436F-
0064.90     A                                    6E76657274/HEXD/END
0065.00     A                                    -
0065.10     A                                    -
0065.20     A                                    -
0065.30     A                                    -
0065.40     A                                    -
0065.50     A                                    '
```

Other Issues

Change the handler to specify the delimiters used in the application. It is possible to use combinations of Flag byte and HEX encoding or Start/Stop and Hex encoding.

The application must display the specific printer syntax data in the presentation space and provide an input field for the response. Make sure to set the clear key to “enter”.

Testing a Printer in an IX Telnet VT100/VT220 Environment

Introduction

The following documents how to test a printer in an IX Telnet environment.

Resolution

In order to print from an IX environment to a serially attached printer, you must use escape sequences that are standard for the emulation.

Download the file “sampprt.tar” from http://www.connectrf.com/Documents/sampprt.tar. This file contains escape sequences for starting the printer, a referenced sample print commands file (You will need to create a file for your specific printer called print.txt), the escape stop sequence, and a shell file called “printit”, which when made executable on your system will send the print data to the printer. This file is a zipped tar archive that should be unzipped and un-tarred on the host system. If this is done under windows, it will add carriage return to each line causing the test file to fail.

On a Linux system, the commands to do this are:

tar xvf sampprt
chmod 755 printit

Create the file print.txt and run ./printit from the RF device with the printer attached.

Disabling the Scanner with AS400 Display File Program

Introduction

The following details an AS400 Display file program that disables the scanner from within the application.

Resolution

To verify the extended commands work, you may access Connect's AS400 over the WEB. Refer to Tech Note T1149. After logging in, you will be asked which test to run. Select number 96. It is used to verify printing and extended commands.

Or, you may compile the following display file on the customer's AS400. Create a CLP program to write and read these screens. You do not have to place this information in these specific columns, but you must maintain the same delimiters across the host application. (/cmd,/cmde)

```
0038.30     A       R ASCIICMD
0038.50     A         F37         5A  B  1  2CHECK(ER)
0038.60     A                       2  2'ASCII Command Seq 1     '
0038.70     A                       3  2'/cmd!1;3z/cmde        '
0038.80     A                       4  2'KEY'
0038.90     A                       4  6'ONLY'
0039.00     A                       5  2'No'
0039.10     A                       5  5'Scanner'
0039.20     A       R ASCIICMD2
0039.40     A         F37         5A  B  1  2CHECK(ER)
0039.50     A                       2  2'ASCII Command Seq 2     '
0039.60     A                       3  2'/cmd!1;0z/cmde          '
0039.70     A                       4  2'SCAN'
0039.80     A                       4  7'OR'
0039.90     A                       4 10'KEY'
0040.00     A       R SINGLEFLD
```

You must set up the Host list entry or Twin Client under the Misc tab. You must set the Extended command Start to "/cmd" and End to "/cmde".

Refer to the PowerNet manuals for information on configuring the terminals for the extend commands option.

Symbol 68xx Terminal Unable to Print After Repair

Introduction

The following describes a potential problem with printer support with Symbol 68xx terminals.

Problem Description

When attempting to print, you may get one or more of the following symptoms:

1. Printing is "garbled".
2. No print output.
3. The terminal falsely complains that the "printer is not ready".

This will usually happen after a unit is returned from repair.

What we've found is that there have been some hardware changes to the optical port.

On most terminals, you'll see 4 separate "Light Tubes". They are silver in color, about a 1/4 inch tall and have a lens at the top. These seem to work fine with all PIMS and cradles.

There is another version of this optical port that does not work as well. It seems to affect the PIM more than the cradle. We suspect it's because the PIM is not as forgiving.

You can determine which version you have by visual inspection. You may see one of these 3 variants:

1. No Light tube or Lens and small sensors connected at the CPU level.
2. Same setup as 1 but a black foam insert that "isolates" the 4 sensors.
3. An adhesive "film" over the outer plastic lens that has an alternate light dark pattern.

We suspect what happens is that when the transmitter is on, it "blinds" the receiver. We think this happens because there is no optical isolation or focus between the send and receive sides of the port.

Resolution

Discuss options with your service provider. We have found no effective work-around and in most cases will require that the CPU be swapped with one having the older "Light Pipe" style sensors.

About This Document

This document is based on the following Technical Documents in our Notes Database that have been made obsolete: A1089, T1009, T1097, T1104, T1140, T1147, T1156, and T1170.

Please let us know about any errors in this document at: http://207.241.78.223/isoxpert/calltrak.nsf/WebTracking?OpenForm.