



DOCUMENT SUMMARY

2200 TASK FORCE - TECHNICAL SUPPORT

TITLE: GPD Table Editor User's Guide
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ABSTRACT

This document describes the usage of the 2200 Generalized Printer Driver Table Editor. The functionality of the GPD is covered in the 2200 BASIC-2 Operating System Release 2.6 Software Bulletin.

NOTICE

This utility is for Wang corporate use only.
It is not supported as a released product and
is not to be distributed outside of the company.

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1.0 Overview

The 2200 Generalized Printer Driver (GPD) is a table driven module that customizes print output for an attached printer. This allows most Wang and non-Wang printers to be used with a 2200 system as either terminal or system printers. The tables used by the GPD are created/modified using the editor described herein.

There are two GPD tables for each printer: the Character Translation Table (CTT) and the Escape Sequence Translation Table (ESTT). The CTT contains strings used to translate characters and control codes into the format that a given printer supports. The ESTT contains strings used to translate escape sequences into a similar format.

The two tables are contained in a single 2200 data file. This file is assigned to one or more printers at system configuration by @GENPART. The file is read, modified and written by the table editor.

The table editor is named @TBLEDIT and is provided as a stand-alone utility. When the user exits the editor, control is passed to the highest level menu of @MENU (assumed to be the System Utilities menu).

2.0 Function Selection

The display formats used within the editor closely follow the Wang PC screen conventions. When @TBLEDIT is executed, the user is presented with the display in figure 1. To select an option, the user presses SPACE to move the pseudo-blank down and BACKSPACE to move it up through the menu. When the desired option is highlighted, the user presses RUN/EXEC to proceed. Each of the options in the menu is described in the following sections. Pressing CANCEL/EDIT at this point will exit the utility.

```
-----
||: 0.....1.....2.....3.....4.....5.....6.....7..... ||:
-----
0:                               GENERALIZED PRINTER DRIVER TRANSLATION TABLE EDITOR                               0:
1:                               (c) Copr. Wang Laboratories, Inc. 1986                                       1:
2:                               Release 01.00.00                                                                    2:
3:                               -                                                                                   3:
4:  Select an item and press RUN/EXEC:                                                                              4:
5:                                                                                                                 5:
6:                                                                                                                 6:
7:                                                                                                                 7:
8:                               # Prefill Translation Tables                                                       8:
9:                               # Edit Translation Tables                                                            9:
0:                               # Write Translation Tables to Disk                                                0:
1:                                                                                                                 1:
2:                                                                                                                 2:
3:                                                                                                                 3:
4:                                                                                                                 4:
5:                                                                                                                 5:
6:                                                                                                                 6:
7:                                                                                                                 7:
8:                                                                                                                 8:
9:                                                                                                                 9:
0:                                                                                                                 0:
1:                                                                                                                 1:
2:                                                                                                                 2:
3:                                                                                                                 3:
-----
||: 0.....1.....2.....3.....4.....5.....6.....7..... ||:
-----
                                RUN/EXEC      - Proceed
                                CANCEL/EDIT   - Previous Menu
```

(Figure 1)

4.0 Edit Translation Tables

Because there are two tables for each printer, the editing process is divided into two parts. When the user selects this option, the screen displays the first 16 entries in the CTT (figure 3). Some of the control code entries in the CTT are reserved by the GPD and may not be edited by the user (see Appendix A). The remaining entries allow the user to enter a hexadecimal character sequence (up to 16 bytes) to be sent to the printer when the corresponding character is processed by the GPD. Pressing RETURN advances the cursor to the next field on the display. Conversely, pressing FN/TAB moves the cursor to the previous field. The user may press SF'5/NEXT or SF'6/PREV to scroll through the CTT in groups of 16 entries or may press SF'15/GOTO to specify an entry to edit. If the user presses CANCEL/EDIT, the menu in figure 1 will be displayed again.

```

||| 0.....1.....2.....3.....4.....5.....6.....7..... |||
-----
0|                                     |0|
1|          GENERALIZED PRINTER DRIVER TRANSLATION TABLE EDITOR          |1|
2|          Character Translation Table                                     |2|
3|                                                                           |3|
4|  Make modifications and press RUN/EXEC or CANCEL/EDIT:                |4|
5|                                                                           |5|
6|                                                                           |6|
7|  00 - (Reserved) _____ 08 - _____ 07|
8|  01 - (Reserved) _____ 09 - (Reserved) _____ 8|
9|  02 - (Reserved) _____ 0A - _____ 9|
0|  03 - (Reserved) _____ 0B - (Reserved) _____ 0|
1|  04 - (Reserved) _____ 0C - _____ 1|
2|  05 - (Reserved) _____ 0D - _____ 2|
3|  06 - (Reserved) _____ 0E - (Reserved) _____ 3|
4|  07 - _____ 0F - (Reserved) _____ 4|
5|                                                                           |5|
6|                                                                           |6|
7|  NOTE: A blank field indicates that RETURN - Next Field 7|
8|        character is not supported. FN/TAB - Previous Field 8|
9|                                                                           9|
0|                                                                           0|
1|                                                                           1|
2|                                                                           2|
3|                                                                           3|
-----
||| 0.....1.....2.....3.....4.....5.....6.....7..... |||

```

(Figure 3)

When CTT editing is done, the user presses RUN/EXEC to proceed to the first screen of the ESTT (figure 4). This table has been broken down into groups of logically related entries. Again, the user may enter a hexadecimal character sequence (up to 16 bytes) to be sent to the printer when the corresponding escape sequence is processed by the GPD. Pressing RETURN advances the cursor to the next field on the display. Conversely, pressing FN/TAB moves the cursor to the previous field. The user may press SF'5/NEXT or SF'6/PREV to scroll through the ESTT groups. If RUN/EXEC is pressed, the first 16 entries of the CTT are displayed again (figure 3). If the user presses CANCEL/EDIT, the menu in figure 1 will be displayed again.

```

0: 0.....1.....2.....3.....4.....5.....6.....7.....
1:
2:
3:
4: Make modifications and press RUN/EXEC or CANCEL/EDIT:
5:
6:     Enable Superscript Mode . . _____
7:     Disable Superscript Mode . . _____
8:
9:     Enable Subscript Mode . . . _____
0:     Disable Subscript Mode . . . _____
1:
2:     Enable Enhanced Mode . . . _____
3:     Disable Enhanced Mode . . . _____
4:
5:     Enable Proportional Spacing _____
6:     Disable Proportional Spacing _____
7:
8: NOTE: A blank field indicates that          RETURN - Next Field
9:       escape sequence is not supported.      FN/TAB - Previous Field
0:                                               SF'5/NEXT - Next Screen
1:                                               SF'6/PREV - Previous Screen
2:                                               RUN/EXEC - Character Table
3:                                               CANCEL/EDIT - End of Edit

```

(Figure 4)

4.1 Notes regarding some ESTT entries:

The values X'88' and X'87' have special meaning to the GPD when they are used in an ESTT string. Some strings may contain a byte that can't be defined until it is sent to the printer. X'88' and X'87' are used to mark the position of this "modifiable" byte. When the GPD determines the value to be sent to the printer, the X'88' is replaced by this new value (X'87' is replaced by the new value minus 1, this allows the GPD to support printers that begin counting at 0 instead of 1).

The screen in figure 5 contains a field labeled "Select Pitch String" and 5 fields under the heading "Pitch Selection Codes" (5, 10, 12, 15 and 16.5 pitch). When the "Set Pitch" escape sequence is processed by the GPD, the "Select Pitch String" is sent to the printer. The position within the "Select Pitch String" which contains a X'88' will be replaced with the "Pitch Selection Code" corresponding to the desired pitch.

For example, assume the following:

```

Select Pitch String = X'121B88'
  5 Pitch = X'10'
 10 Pitch = X'50'
 12 Pitch = X'4D'
 15 Pitch = X'0F'
16.5 Pitch = X'0F'
  
```

When the GPD receives a "Set Pitch to 12 cpi" command, the sequence X'121B4D' will be sent to the printer. Likewise, the GPD command "Set Pitch to 5 cpi" will cause the sequence X'121B10' to be sent to the printer.

```

-----
||| 0.....1.....2.....3.....4.....5.....6.....7..... |||
-----
0:          GENERALIZED PRINTER DRIVER TRANSLATION TABLE EDITOR          0:
1:          Escape Sequence Translation Table                               1:
2:                                                                                   2:
3:                                                                                   3:
4:  Make modifications and press RUN/EXEC or CANCEL/EDIT:                    4:
5:                                                                                   5:
6:                                                                                   6:
7:                                                                                   7:
8:          Select Pitch String _____                                     8:
9:                                                                                   9:
0:          Pitch Selection Codes:      5 Pitch  _____                 0:
1:                                         10 Pitch _____                 1:
2:                                         12 Pitch _____                 2:
3:                                         15 Pitch _____                 3:
4:                                         16.5 Pitch _____                4:
5:                                                                                   5:
6:                                                                                   6:
7:                                                                                   7:
8:  NOTE: A blank field indicates that      RETURN      - Next Field          8:
9:       escape sequence is not supported.  FN/TAB      - Previous Field        9:
0:                                                                                   0:
1:                                         SF'5/NEXT     - Next Screen           1:
2:                                         SF'6/PREV     - Previous Screen        2:
3:                                         RUN/EXEC      - Character Table       3:
                                         CANCEL/EDIT   - End of Edit
-----
||| 0.....1.....2.....3.....4.....5.....6.....7..... |||
-----
  
```

(Figure 5)

The first two fields on the screen in figure 6 are related to each other. The "Number of Printer Increments per Inch" value is used to calculate the value sent to the printer in the "Set Line Feed Spacing" string.

For example, the Wang PM010 matrix printer supports an escape sequence which sets the line feed spacing in increments of 1/216". The sequence is X'1B33nn', where the spacing is set to nn/216". To create a GPD table for this printer, the "Number of Printer Increments per Inch" would be set to 216 and the "Set Line Feed Spacing" string would be X'1B3388'.

```

-----
0: 0.....1.....2.....3.....4.....5.....6.....7..... 0:
-----
0: GENERALIZED PRINTER DRIVER TRANSLATION TABLE EDITOR 0:
1: Escape Sequence Translation Table 1:
2: 2:
3: 3:
4: Make modifications and press RUN/EXEC or CANCEL/EDIT: 4:
5: 5:
6: 6:
7: Number of Printer Increments per Inch . . . . . 000 7:
8: 8:
9: Set Line Feed Spacing . . _____ 9:
0: 0:
1: Set Form Length in Lines _____ 1:
2: 2:
3: Set Left Margin . . . . . _____ 3:
4: 4:
5: 5:
6: 6:
7: 7:
8: NOTE: A blank field indicates that RETURN - Next Field 8:
9: escape sequence is not supported. FN/TAB - Previous Field 9:
0: SF'5/NEXT - Next Screen 0:
1: SF'6/PREV - Previous Screen 1:
2: RUN/EXEC - Character Table 2:
3: CANCEL/EDIT - End of Edit 3:
-----
0: 0.....1.....2.....3.....4.....5.....6.....7..... 0:
-----

```

(Figure 6)

The next field in figure 6 is "Set Form Length in Lines". This is another sequence supported by the Wang PM010 matrix printer. The printer expects the sequence X'1B43nn' where nn = the number of lines per page. To support this function, the "Set Form Length in Lines" string would be X'1B4388'. The GPD will take the number of lines per page requested by the user and put it in place of the X'88'.

The last field on this screen is "Set Left Margin". This is the field where X'87' appears to be most useful. Some printers refer to the leftmost print position as column 1 while other printers consider it to be column 0.

APPENDIX A

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2200 Generalized Printer Driver
Standard Control Characters

<u>Hex value</u>	<u>Action</u>
00 - 01	Null (Reserved)
02	Initiate escape code sequence (Reserved)
03 - 06	Null (Reserved)
07	Bell
08	Non-destructive backspace
09	Horizontal tab (Reserved)
0A	Line feed
0B	Vertical tab (Reserved)
0C	Form feed
0D	Carriage return
0E	Enable enhanced mode (Reserved - defined in ESTT)
0F	Disable enhanced mode (Reserved - defined in ESTT)
7F	Clear buffer (Reserved - defined in ESTT)
81-8F	Null (Reserved)
FA	Reverse line feed (Reserved - defined in ESTT)

2200 Generalized Printer Driver
Groups of Standard Escape Sequences Defined by User

Enable superscript mode
Disable superscript mode
Enable subscript mode
Disable subscript mode
Enable enhanced mode (corresponds to CTT entry X'0E')
Disable enhanced mode (corresponds to CTT entry X'0F')
Enable proportional spacing
Disable proportional spacing

Set pitch to 5 cpi
Set pitch to 10 cpi
Set pitch to 12 cpi
Set pitch to 15 cpi
Set pitch to 16.5 cpi

Select font #0
Select font #1
Select font #2
Select paper tray #1
Select paper tray #2

Set line feed spacing
Set form length in lines
Set left margin

Execute built-in diagnostics
Clear platten
Clear buffer (corresponds to CTT entry X'7F')
Deselect printer
1/4 Line feed
1/2 Line feed
3/4 Line feed
Reverse line feed (corresponds to CTT entry X'FA')

NOTE: The GPD supports many functions which are not listed above. Those functions are generated using combinations of other functions. This allows some printers to support functions which are not in their command set. (For example, most printers support "Set form length in lines" but fewer support "Set form length in inches". The GPD will calculate the number of lines in a page of N inches and use the "Set form length in lines" sequence to obtain a page length of N inches.)

1

2

3