PC BRAILLE (TM)
User's Guide

Primary manual
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Braille Symbols

        In the braille edition of this manual, the text occurs in
English braille Grade 2. The use of other braille codes is avoided
for lack of reader familiarity.
        The braille reader should carefully examine the following list
of symbols. (For example, the braille symbol for dash is the same
as the contraction for "com" and is often confused with it!)
        Braille symbols, even for the same print character, vary from
braille code to braille code. In English braille, some print
characters have multiple braille representations; some print
characters have none at all! When no braille symbol is available,
either the Nemeth Math Code or the Computer Braille Code, Grade 0,
notation is used. The following table gives the braille symbols
used by bt in English braille grades 1 and 2.

! ... exclamation point
" ... double quote mark
... number sign
$ ... dollar sign
% ... percent sign
& ... ampersand
' ... single quote; apostrophe; acute accent
(... left parenthesis
) ... right parenthesis
* ... asterisk; star
+ ... plus sign
, ... comma
- ... hyphen; minus sign: program option indicator
. ... period; dot
/ ... slash; division sign: program option indicator
0 ... digit zero
1 ... digit one
2 ... digit two
3 ... digit three
4 ... digit four
5 ... digit five
6 ... digit six
7 ... digit seven
8 ... digit eight
9 ... digit nine
: ... colon
; ... semicolon
< ... less than sign
= ... equal sign
> ... greater than sign: DOS prompt; destination indicator
? ... question mark
@ ... at sign
[... left bracket
\ ... backslash: name of root directory; directory separator
] ... right bracket
^ ... caret; circumflex
_ ... underscore
` ... grave accent
{ ... left brace
| ... vertical bar: DOS pipe symbol
} ... right brace
~ ... tilde

If you should have any questions or comments about braille symbols, this program, or this manual, please feel free to contact:

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Welcome! Here is your copy of PC BRAILLE, the ingenious
braille translator and text formatter from ARTS Computer Products,
Inc. (The PC BRAILLE disk is located in a pocket at the front of
the print version of this manual.) With PC BRAILLE as your
partner, you can generate documents in English Braille, Grades 1
and 2, or in the newly adopted Computer Braille, Grade 0. Even if
you are unfamiliar with the braille code, PC BRAILLE will allow you
to produce excellent braille documents with ease.

PC BRAILLE embodies a design that meets a great variety of
needs. A novice, blind or sighted, can learn braille by studying
the tables employed by PC BRAILLE. A sighted spouse, colleague or
friend can prepare notes, memos and so forth without any knowledge
of braille.

A blind computer user may braille self-generated text files,
on-screen menus, on-disk documentation received from others, and
files down-loaded from Bulletin Board Systems.

PC BRAILLE supports both hard-copy and refreshable braille
devices. In fact, all braille devices are supported! PC BRAILLE
permits both braille and print production from the same text file!
(This facility lets a student prepare a braille copy for personal
use and a print copy for hand in.)

A sighted transcriber has access to all of PC BRAILLE's
tables. These tables are in a form familiar to transcribers and
may be customized for particular needs or circumstances. A sighted
transcriber may use a graphics monitor or daisy-wheel printer to
obtain a visual display of brailled text--a convenient means for
proof reading.

PC BRAILLE runs under PC DOS, MS DOS and the UNIX operating
system. If you are a newcomer to the world of personal computers
and are interested in learning about DOS, Recording for the Blind
offers the following texts on audio cassette: The DOS User's
Guide, shelf number BT870; The Guide to Operations, shelf numbers
BN506 and BT553; and The Guide to BASIC Programming, shelf number
BP230. To borrow any or all of these titles, contact:
Recording for the Blind, Inc.
20 Roszel Road
Princeton, NJ 08540
Telephone: (800)-221-4792

If you are interested in borrowing other texts, contact RFB's
subject librarian at: (609)-542-0606.

If you prefer, have help installing PC BRAILLE and then use
a help program to learn about DOS.

PC BRAILLE FILES

PC BRAILLE consists of: a braille translator, which is also
a braille formatter, called bt; a collection of data files; and a
collection of documentation and reference files. bt is the
text-to-braille converter and formatter! The data files govern
contraction and other matters. The documentation and reference
files contain the User's Guide and the bt reference card.

Here is a list of the files on your PC BRAILLE disk. Note
that the contents of files are distinguished by file suffixes
(called "extensions" in DOS jargon).

autoexec.bat ... a batch file used by DOS during start up
brl.bat ... a sample braille batch file

hard.bat ... a batch file for hard-drive users
contab.dat ... the contraction table data
dots.dat ... the braille dot pattern data
except.dat ... the exceptions data
macro.dat ... the defined-format macro data
maptab.dat ... the mapping table (symbol) data
printr.dat ... the braille device data
symbol.doc ... a complete list of braille symbols
braille.doc ... the user documentation (this manual; most recent
      release)
lptx.doc ... the lptx shareware screen capture facility
      documentation
lptx.com ... the lptx screen capture shareware program
bt.exe ... the braille translator and formatter (executable
      program)
command.ref ... the bt command-line option reference card (most
      recent release)

      This manual has been designed to explain the installation and
basic use of PC BRAILLE. Please note that this is not a technical
reference manual. This User's Guide contains simple,
easy-to-follow instructions as well as examples. However, the
companion manual, the Transcriber's Guide, is a complete reference
work for PC BRAILLE. It provides a detailed description of PC
BRAILLE and its features.

                    GETTING STARTED QUICKLY

Installation
      Installing PC BRAILLE is quite easy. There is one procedure
for a floppy-drive system and another for a hard-drive system.

      If you have two floppy drives, do the following:
1. Put a DOS disk in drive A: and a blank disk in drive B:.
2. Turn on your computer.
3. When the A> prompt appears, type the command

diskcopy a: b:

and press the ENTER key.
4. When prompted, replace your DOS disk in drive A: with your PC
      BRAILLE disk and press the ENTER key once again.

      The result is a working copy of your PC BRAILLE disk in drive
B:. Put the original PC BRAILLE disk away in a safe place. Only
use your working disk on a daily basis!

      If you have a hard drive, do the following:
1. Turn on your computer.
2. When the C> prompt appears, put your PC BRAILLE disk in drive
      A:.
3. Type

a:

and press the ENTER key.
4. Next, type

hard

and press the ENTER key once again.

      HARD is a batch file on your PC BRAILLE disk that
automatically creates a directory called ARTS on your C: drive and
then copies the PC BRAILLE files into that directory. Once this
information is copied onto your C: drive, and you have updated your
AUTOEXEC.BAT file, you may use PC BRAILLE from any directory!
      Note: Your PC BRAILLE disk contains a special AUTOEXEC.BAT
file for hard-drive users. If you already have an AUTOEXEC.BAT
file on your C: drive, add the contents of this file to your
AUTOEXEC.BAT file. If you do not already possess an AUTOEXEC.BAT
file on your hard drive, you may use the one on your PC BRAILLE
disk. To accomplish this, type the command

copy autoexec.bat c:\

and press the ENTER key.

Keyboard Translation
      You may type text on your keyboard and produce braille on your
braille device. Here is how to do it:

      If you have two floppy drives, do the following:
1. Put a DOS disk in drive A:.
2. Turn on your computer.
3. When the A> prompt appears, replace your DOS disk in drive A:
      with your PC BRAILLE daily disk.
4. Make sure that your braille device is turned on.
5 Type one of the commands (using a "minus" sign)

bt -pbrailler >com1
bt -pbrailler >lpt1
bt -pduran >com1
bt -pduran >lpt1

and press the ENTER key.

      If you have a hard drive, do the following:
1. Turn on your computer.
2. Make sure that your braille device is turned on.
3. At the C> prompt, type one of the commands (using a "minus"
      sign)

bt -pbrailler >com1
bt -pbrailler >lpt1
bt -pduran >com1
bt -pduran >lpt1

and press the ENTER key.

      Although most braille devices will be attached to com1, some
may use lpt1. Use the command that applies to your braille device.
      These commands tell bt to translate the text typed on your
keyboard and then send the translated text to your braille device
(brailler or duran).
      The prompt

bt>

appears on your computer display when bt is ready to accept typing

from your keyboard. At this point, you are free to begin typing
lines of text. (Each line must end with the ENTER key.) When you
are finished typing the last line of text (followed by the ENTER
key), press the F6 key and then the ENTER key once again. This
two-key sequence ends the typing session.

FILE TRANSLATION

       You can translate a file and then send the translated text to
your braille device (brailler or duran). You need to know the
file's name and extension (if it has an extension). Here is how
to do it:

       If you have floppy drives, do the following:
1. Put a DOS disk in drive A:.
2. Turn on your computer.
3. When the A> prompt appears, replace your DOS disk in drive A:
       with your PC BRAILLE daily disk.
4. Put your data disk (the disk containing the file to be
       translated) in drive B:.
5. Make sure that your braille device is turned on.
6. Type one of the commands (using a "minus" sign)

```
bt -pbrailler b:filename.ext >com1
bt -pbrailler b:filename.ext >lpt1
bt -pduran b:filename.ext >com1
bt -pduran b:filename.ext >lpt1
```

and press the ENTER key.

       Fill in the name and extension of the file which you wish to
translate where you find the phrase FILENAME.EXT.

       If you have a hard drive, do the following:
1. Turn on your computer.
2. Make sure that your braille device is turned on.
3. At the C> prompt, type one of the commands (using a "minus"
       sign)

```
bt -pbrailler filename.ext >com1
bt -pbrailler filename.ext >lpt1
bt -pduran filename.ext >com1
bt -pduran filename.ext >lpt1
```

and press the ENTER key.

       Fill in the name and extension of the file which you wish to
translate where you find the phrase FILENAME.EXT. These commands
assume that the file is located in the default drive and directory!
If the file is located elsewhere, you need to include its path!
       These commands tell bt to translate the named file and then
send the translated text to your braille device (brailler or
duran). When PC BRAILLE is finished, you are automatically
returned to the DOS > prompt.

Concrete Example
       If you typed one of the commands (using a "minus" sign)

```
bt -pbrailler braille.doc >com1
bt -pbrailler braille.doc >lpt1
```

```
bt -pduran braille.doc >com1
bt -pduran braille.doc >lpt1
```

and press the ENTER key, bt would translate the file braille.doc,
which contains this manual, into braille and then send the
translated text to your braille device (brailler or duran).
     These commands assume that the file braille.doc is located
in the default drive and directory! If the file braille.doc is
located elsewhere, you need to include its path!

MORE ABOUT FILE TRANSLATION

     Using PC BRAILLE involves three basic steps:
1. creating a file
2. converting the file to a text file, if necessary
3. brailling the text file

Types of Files
     You can translate three types of files:
1. a text file created using a "text editor" such as EDLIN, found
     on your DOS disk, or PE, part of the WordPerfect Library;
2. a document file created using a "word processor" such as PC
     WRITE, a SHAREWARE program, or WordPerfect, the leading word
     processor;
3. or a print file created by printing a text file or a document
     file to disk.

     Text files have no format and contain only print characters.
Document files have no format and contain print characters as well
as other characters specific to the word processor used to create
the file. And, print files have a print format and only contain
print characters.
     Text files are ready for brailling. Document files need to
be converted to text files before brailling. And, print files need
to be converted to braille format before brailling. Without
document-file and print-file conversion, inadequate braille
translation and format occur!
     The files with extensions DOC and REF on your PC BRAILLE disk
are all text files! This means that you can immediately braille
them! The file with extension EXE on your PC BRAILLE disk is
neither a text file, a document file, nor a print file. You cannot
braille it!

Converting a Document File
     Once you have created a document file via your word processor
and saved it to disk, you can convert it to a text file. You
should consult your word processor's manual for the appropriate
file conversion procedure. (The procedure may be called ASCII
conversion or DOCUMENT conversion.) When converting your document
file, your word processor will ask you to choose a name for the
converted file. We suggest that you give the converted file the
same name that you gave your document file, but with the extension
"txt". The "txt" extension lets you discriminate between the
original file and the converted (text) version.

Translating a Document File
     Now that you have created a document file, saved it to disk,
and converted it to a text file, you are ready to use PC BRAILLE.
Make sure that your braille device is turned on. Now, at the DOS
> prompt, type one of the commands (using a "minus" sign)

```
bt -pbrailler filename.txt >com1
bt -pbrailler filename.txt >lpt1
bt -pduran filename.txt >com1
bt -pduran filename.txt >lpt1
```

and press the ENTER key.
     Fill in the name of your text file where you find the phrase
FILENAME. These commands assume that the text file is located in
the default drive and directory! If the text file is located
elsewhere, you need to include its path!
     These commands tell bt to translate your text file into
braille and then send the translated text to your braille device
(brailler or duran). Your converted document will be translated
into Grade 2 braille, the default setting.

Concrete Example
     Let's say that you have just finished typing a letter to your
colleague Joe, who, by the way, happens to be blind. You want to
give a braille copy of the letter to Joe so that he can read it
himself. First, you need to save your letter as a file on disk.
In order for you to do this, you need to give your letter a name.
You decide to name your letter LET.JOE. Once your letter is saved
as a document file, you must then create a text version of your
letter and give it a name as well. You name the text version of
your letter to Joe LETJOE.TXT. Now that you've made the necessary
preparations, it's time to use PC BRAILLE. Exit your word
processor so that you are at the DOS > prompt. Make sure that your
braille device is turned on. Now type one of the commands (using
a "minus" sign)

```
bt -pbrailler letjoe.txt >com1
bt -pbrailler letjoe.txt >lpt1
bt -pduran letjoe.txt >com1
bt -pduran letjoe.txt >lpt1
```

and press the ENTER key.
     It will take a few moments for bt to translate the text file
version of your letter into braille. (How long the translation
process takes depends on the size of the text file.) Within a few
moments, your braille device will begin to emboss.
     In this example, bt will translate the converted letter into
Grade 2 braille, the default setting.

Can't Convert a Document File
     In many cases, you will be unable to convert a document file
to a text file. This will occur when a document file has been
created using a word processor other than your own. In such cases,
you can still attempt to braille your document file! As usual,
type one of the commands (using a "minus" sign)

```
bt -pbrailler filename.ext >com1
bt -pbrailler filename.ext >lpt1
bt -pduran filename.ext >com1
bt -pduran filename.ext >lpt1
```

and press the ENTER key.
     Fill in the name and extension of the file which you wish to
translate where you find the phrase FILENAME.EXT. Here
FILENAME.EXT refers to the document file and not to the converted
```

(text) file.

bt will do its best to translate the document file appropriately. This translation will not be perfect; it is likely that errors will occur caused by word-processor specific characters and features.

## Converting a WordPerfect File

You may receive a file on disk that has WordPerfect format, or you may down load a file from a Bulletin Board System that has WordPerfect format. A file with WordPerfect format brailles very poorly. It contains multiple blank lines (instead of single blank lines), paragraphs of 5 or 8 spaces (instead of 2 spaces), and so forth.

You wish that you could "sift" out the extraneous white space. The sifting process should: remove extraneous print features; produce correct braille format; preserve desired print format; and condense the braille production.

WP SIFT is a file converter that preprocesses WordPerfect files for PC BRAILLE; it converts WordPerfect files ready for printing to text files ready for braille production. The sifted WordPerfect files have correct braille format upon translation while preserving the original print format as much as desired.

The WordPerfect file to text file conversion is passive! You only need to issue the "wpsift" command. Then, WP SIFT automatically does the rest.

Most aspects of the print format are replaced with bt format commands. You may edit these format commands; hence you may conveniently reformat the sifted file before braille production.

WP SIFT is a companion program to PC BRAILLE. If you desire more information about WP SIFT, contact us.

## Converting a Print File

You may receive a file on disk that has print format, or you may down load a file from a Bulletin Board System that has print format. A file with print format brailles very poorly. It contains multiple blank lines (instead of single blank lines), paragraphs of 5 or 8 spaces (instead of 2 spaces), and so forth.

You wish that you could "sift" out the extraneous white space. The sifting process should: remove extraneous print features; produce correct braille format; preserve desired print format; and condense the braille production.

PC SIFT is a print file converter that preprocesses files for PC BRAILLE; it converts print files ready for printing to text files ready for braille production. The sifted print files have correct braille format upon translation while preserving the original print format as much as desired.

The print file to text file conversion is passive! You only need to issue the "pcsift" command. Then, PC SIFT automatically does the rest.

Most aspects of the print format are replaced with bt format commands. You may edit these format commands; hence, you may conveniently reformat the sifted file before braille production.

PC SIFT is a companion program to PC BRAILLE. If you desire more information about PC SIFT, contact us.

## Converting a Lotus Spreadsheet

PC SIFT can serve as a Lotus 1-2-3 spreadsheet converter that

preprocesses spreadsheets for PC BRAILLE;  it can convert
spreadsheets  ready for printing to text files ready for braille
production.  The sifted spreadsheets have the correct data upon
translation while eliminating the intrinsic graphics.
      Use the following steps to convert a Lotus 1-2-3 spreadsheet:
1. Load the desired spreadsheet.
2. Type /p (slash p);  Lotus presents two options for printing.
      Press f for file rather than p for printer.
3. Choose a filename;  Lotus adds the suffix "prn" to denote the
      print version.
4. Type r and the range of cells to print.
5. Suppress page formatting by selecting o for options, o for
      other, and u for unformatted;  that is, type o, o, and then
      u.
6. If the spreadsheet is wide, type m and then r 240 to increase
      the margins and range of cells.
7. The spreadsheet is ready.  Type q, g, and q again.  Now, the
      print file is ready for sifting.

There are three distinct braille codes in use that PC BRAILLE
supports.  Each is described briefly in this chapter.
## GRADE 1 BRAILLE

Braille is a system of tactile reading used by the blind.  It
employs characters formed by various combinations of six raised
dots arranged within what is called a braille cell.  A braille cell
consists of two vertical columns of three dots each.  A simple
braille character is composed of one or more of these dots.  For
the sake of convenience, the dots which make up a braille cell are
numbered.  Starting at the top of the left-hand column and working
downward, the dots are numbered 1, 2, and 3. Moving to the top of
the right-hand column and working downward, the dots are numbered
4, 5, and 6.
Grade 1 braille has one purpose: corresponding braille
characters to print characters.  Each letter of the alphabet has
its own unique dot configuration.  Capital letters have the same
configurations as their lower-case counterparts, but a special
braille sign called the capitalization descriptor precedes a letter
to indicate upper case.  The ten digits have the same dot
configurations as the first ten lower-case letters of the alphabet
(a through j), but are preceded by a number descriptor which sets
them apart.  Punctuation marks have their own unique configurations
which separate them from other characters.  Grade 1 braille is most
often used by young children and others who have had little
experience with braille.  Most children's books (up to about the
fourth grade level) are written in Grade 1 braille.
If you want to braille keyboard typing in Grade 1, type one
of the commands (using a "minus" sign)

```
bt -1 -pbrailler >com1
bt -1 -pbrailler >lpt1
bt -1 -pduran >com1
bt -1 -pduran >lpt1
```

and press the ENTER key.
If you want to braille a file in Grade 1, type one of the
commands (using a "minus" sign)

```
bt -1 -pbrailler filename.ext >com1
bt -1 -pbrailler filename.ext >lpt1
bt -1 -pduran filename.ext >com1
bt -1 -pduran filename.ext >lpt1
```

and press the ENTER key.
Fill in the name and extension of the file which you wish to
translate where you find the phrase FILENAME.EXT.
Notice that a -1 is present in these commands. The added -1
option tells bt to translate your file into Grade 1 and then send
the translated text to your braille device (brailler or duran).

GRADE 2 BRAILLE

You can compare Grade 2 braille to the shorthand that
stenographers use when taking notes. It is, in essence, a braille
shorthand. Grade 2 braille contains numerous contractions of

various sorts to express ideas in less space than would be taken up by Grade 1 braille. The former also reads faster than the latter and is used in braille books and magazines. If you are interacting with an individual who is an experienced braille reader, it is quite likely that he or she is comfortable reading Grade 2 braille. As mentioned earlier, Grade 2 braille is the default setting for PC BRAILLE.

If you want to braille keyboard typing in Grade 2, type one of the commands (using a "minus" sign)

```
bt -2 -pbrailler >com1
bt -2 -pbrailler >lpt1
bt -2 -pduran >com1
bt -2 -pduran >lpt1
```

and press the ENTER key.

If you want to braille a file in Grade 2, type one of the commands (using a "minus" sign)

```
bt -2 -pbrailler filename.ext >com1
bt -2 -pbrailler filename.ext >lpt1
bt -2 -pduran filename.ext >com1
bt -2 -pduran filename.ext >lpt1
```

and press the ENTER key.

Fill in the name and extension of the file which you wish to translate where you find the phrase FILENAME.EXT.

Notice that a -2 is present in these commands. The added -2 option tells bt to translate your file into Grade 2 and then send the translated text to your braille device (brailler or duran).

You may, at your discretion, omit the -2 option as part of these commands to remind yourself that Grade 2 braille is the default setting.

GRADE 0 BRAILLE

Grade 0 braille, otherwise known as Computer Braille, was adopted for use with computers and computer-related materials. Like Grade 1 braille, Grade 0 braille has a letter-for-letter correspondence. In addition, Computer Braille has special braille characters which correspond to the special print characters occurring in computer literature (e.g., computer magazines and programming manuals).

If you want to braille keyboard typing in Grade 0, type one of the commands (using a "minus" sign)

```
bt -0 -pbrailler >com1
bt -0 -pbrailler >lpt1
bt -0 -pduran >com1
bt -0 -pduran >lpt1
```

and press the ENTER key.

If you want to braille a file in Grade 0, type one of the commands (using a "minus" sign)

```
bt -0 -pbrailler filename.ext >com1
bt -0 -pbrailler filename.ext >lpt1
bt -0 -pduran filename.ext >com1
bt -0 -pduran filename.ext >lpt1
```

and press the ENTER key.

     Fill in the name and extension of the file which you wish to translate where you find the phrase FILENAME.EXT.

     Notice that a -0 is present in these commands. The added -0 option tells bt to translate your file into Grade 0 and then send the translated text to your braille device (brailler or duran).

     As mentioned in CHAPTER 2, braille is a system of tactile
reading used by the blind. Braille is usually thought of as raised
dots on heavy paper, but there are individuals (e.g. sighted
braille transcribers) who read braille by looking at it rather than
by feeling it. To accommodate sighted transcribers and computer
users, PC BRAILLE supports several types of braille devices in
addition to the standard brailler. These devices are discussed in
this chapter.

Braille Device Names
     The bt option

bt -pdevicename

tells bt to use the specified device for embossing, displaying,
or printing braille.
     The available device names are: brailler, cga, diablo, and
duran. Note that they are in lower-case letters! If you type any
of these names with one or more upper-case letters, bt will declare
them as "unknown in PRINTR.DAT"!

Braille Device Types
     PC BRAILLE allows the DOS user to choose among three device
types for brailling:

(1) brailler
(2) cga
(3) duran

(1) brailler
     A braille embosser is a device designed to produce embossed
dots under computer control. Embossers operate via a character
table used by all U.S. braille device manufacturers. When the
computer sends a print character to the embosser, the print
character is interpreted by the device, and the corresponding dot
pattern is embossed.
     Refreshable displays represent braille by using raised
tactiles. Since they operate like hard-copy braillers, these
refreshable displays are included within the brailler type.
(brailler is the name of the device as well as the name of a device
type.)

(2) cga
     A sighted transcriber proofreads braille by looking at it.
If your computer has either a cga (Color Graphics Adapter) display
or an ega (Enhanced Graphics Adapter) display, an entire braille
page may be viewed as dots on your computer display.
     The bt command (with a "minus" sign)

bt -pcga filename.ext

tells bt to translate the named file and then send the translated
text as dot patterns to your braille device (cga or ega). (cga is
the name of the device as well as the name of a device type.)
     Pages are shown one at a time. A page will remain on the
computer display until you request the next page by pressing the

ENTER key.
     If you use the bt command

bt -pcga

without specifying a file name, text typed on the keyboard is
translated and shown on the computer display. This, however, does
not work well. Text typed to the computer display and dots sent
to the display intermingle, yielding a confusing image.

3a. diablo
     A daisy-wheel printer, like the venerable diablo 630, can make
dots via the period key. Hence, such a printer can "print"
braille characters. A sighted user can read braille by looking at
the printed dot patterns.
     The bt commands (using a "minus" sign)

bt -pdiablo >com1
bt -pdiablo >lpt1

tell bt to translate the text typed on your keyboard and then send
the dot patterns to your braille device (printer).
     The bt commands (using a "minus" sign)

bt -pdiablo filename.ext >com1
bt -pdiablo filename.ext >lpt1

tell bt to translate the named file and then send the translated
text as dot patterns to your braille device (printer). (diablo is
the name of the printer but not the name of a braille device type;
the device type is duran.)

3b. duran
     With minimal modification, a diablo like daisy-wheel printer
can produce embossed dots as well as printed dots. Since the
embossed dots appear on the underside of the paper, bt reverses
the dot patterns before sending them to the printer.
     The bt commands (using a "minus" sign)

bt -pduran >com1
bt -pduran >lpt1

tell bt to translate the text typed on your keyboard into Grade 2
braille and then send the translated text as reversed dot patterns
to your braille device (printer).
     The bt commands (using a "minus" sign)

bt -pduran filename.ext >com1
bt -pduran filename.ext >lpt1

tell bt to translate the named file into Grade 2 braille and then
send the translated text as reversed dot patterns to your braille
device (printer). (duran is the name of the printer as well as
the name of a device type.)

                    Braille Device Features
     A braille device requires a name and a description. Its name
lets you refer to it. The available names are: brailler, cga,
diablo, and duran. A device's description determines its physical
and functional features. A description contains a braille type and

a list of features. The available braille types are: brailler, cga, and duran. The available features are presented next.
     Some features determine braille page size and layout. Other features determine braille device operation.

Page Settings
     A device produces a page which is a certain number of columns wide and a certain number of rows long. Tabs are set at equal intervals across the page. The features

width=number
length=number
tabs=number

set the page width to the given number of columns, the page length to the given number of rows, and tabs at the given number of spaces. Consult your device's manual for appropriate settings. (Be sure that these settings agree with any required hardware settings.)

Device Control
     Before starting to braille, your device may expect a BEGIN message. Before ceasing to braille, your device may expect an END message. The features

begin=string
end=string

send beginning and ending character strings to your device. A character may be represented in octal, decimal, or hexadecimal. Look in PRINTR.DAT for examples of BEGIN and END strings and consult the Transcriber's guide for details.
     You may need to tell your device to move to the top of the next page. The feature

page=string

sends the character string to your braille device upon completion of a braille page. Using the PAGE feature prevents brailling across page creases.

Paper Stock
     If single sheets of paper must be put into your device one by one, brailling must stop after every sheet. The feature

stop=string

stops your device after each page and presents the message STRING on your computer display.

                         Device Conventions

     You are required to specify a braille device and a destination for the translated text when you use bt. If you use the same device and destination all the time, this requirement is tiresome.

The Default Device
     If you wish to do so, you can employ a standard device name eliminating the need to type a device name when you use bt.
     Upon start up, bt scans PRINTR.DAT for the device name

braille. If the name braille is present, the device it names is
used as the default braille device.
     bt presents the message

braille: printer unknown in printr.dat

when no device name is specified upon start up and the name braille
is not found in PRINTR.DAT.
     bt also presents the message

braille: printer unknown in printr.dat

when you type

bt -p devicename

by mistake.
     To make brailler, cga, diablo, or duran your default braille
device, rename it as braille in PRINTR.DAT using a text editor or
a word processor in text (ASCII) mode.

The Default Destination
     If you wish to do so, you can employ a standard destination
eliminating the need to type a destination when you use bt.
     The feature

outfile=destination

saves you the trouble of typing the translated text's destination.
You can add this feature to your device's description. (Usually,
the destination is com1 or lpt1.)

The Defaults Via Batch Files
     You may create a batch file containing the bt command with a
default device name and destination. The command line in a DOS
batch file

bt -pdevicename %1 >destination

where you substitute brailler, cga, diablo, or duran for the
DEVICENAME and where you substitute com1 or lpt1 for DESTINATION
lets you type the desired bt command. Any filename that you type
will be automatically substituted for the %1 occurring in your
batch-file line. (Consult your DOS manual for instructions on
creating batch files; or call your dealer or us for assistance.)
     The batch-file brl.bat on your PC BRAILLE disk contains the
appropriate command for using the device duran through the printer
port lpt1. (Modify this batch-file to meet your specific
requirements.) For example, if you type the batch command

brl braille.doc

and press the ENTER key, bt would translate the file braille.doc,
which contains this manual, into Grade 2 braille and then send the
translated text to your braille device DURAN through lpt1.

User-Defined Devices
     PRINTR.DAT contains the predefined devices: brailler, cga,
diablo, duran, and ascii. Skim their definitions and then read
the following explanations.

In PRINTR.DAT, indented lines are comments to aid you. The
words which appear at the left margin--ascii, brailler, cga,
diablo, duran, and so forth--are device names. Following these
device names are their class types, if any. The class types are
followed by lists of features. The & (ampersand) continues a
device's definition onto extra lines.

Observe that the device name ascii does not contain brailler,
cga, or duran as a braille device type. This is because ascii is
not a braille device, but rather a genuine print device! If you
type the command

bt -a filename.ext >destination

and press the ENTER key, you will print the named file.

The feature

format=macro.dat

specifies the file MACRO.DAT as the file governing braille and
print format. Its contents are fully described in the
Transcriber's Guide.

You may change the default WIDTH, LENGTH, and TABS settings
to meet your requirements. But, leave the other values alone!
Obtain assistance or consult the Transcriber's Guide before making
other alterations.

CHAPTER 4
Automatic Formatting

This chapter describes PC BRAILLE's automatic formatting features. As the name suggests, these features are employed by PC BRAILLE without user involvement.

Page Layout

Page width, length, and tab intervals determine overall page layout or format. These three basic features are set in the PRINTR.DAT file (consult CHAPTER 3). WIDTH sets the number of columns on a page, LENGTH sets the number of lines on a page, and TABS gives the number of spaces between tab stops. In addition to WIDTH, LENGTH, and TABS, one other condition, BREAK, determines basic page format. A Break occurs when a line stops before being filled out and a new line is begun. The two-key combination ENTER TAB causes a break by beginning a new paragraph. The two-key combination ENTER SPACE causes a break by beginning a new indented line. The two-key combination ENTER ENTER causes a break by skipping a blank line. These automatic formatting features (WIDTH, LENGTH, TABS, and BREAK) yield basic text format.

User-Defined Format

The true power of PC BRAILLE is harnessed via user format. You, or a file converter, prescribe a text format by interspersing bt format requests throughout the text. WP SIFT and PC SIFT do this for you, respectively, for WordPerfect and print files.

There are two advantages to including format requests within a text: (1) the text may be reformatted by altering the user format without retyping any of the actual text and (2) (most important) the text may be both printed and brailled without any additional work.

Basic user formatting, predefined formats, and advanced topics are all discussed in the Transcriber's Guide available from us. For further information or to place an order, please contact:
ARTS Computer Products, Inc.
145 Tremont St.
Suite 407
Boston MA 02111
Phone: (617)-482-8248

CLOSING COMMENTS

Although PC BRAILLE is capable of many more sophisticated functions than were discussed in this brief manual, it is hoped that the PC BRAILLE User's Guide provides the necessary instructions to allow the novice to effectively use its powerful translation features. If you are interested in learning how to customize PC BRAILLE for specific uses or utilize PC BRAILLE's own formatting features, the Transcriber's Guide contains detailed information and is available from us.

We would appreciate any comments which you might have concerning PC BRAILLE or the User's Guide. Positive feedback as well as constructive criticism is always welcome.

NOTES

Versions of PC BRAILLE are available for other operating systems (UNIX, XENIX, IBM RTPC); others will be added upon sufficient demand.

Turn your braille device on before giving the bt command! If you don't, text may be lost and/or incorrect operation may result. For the duran device, dots are brailled with incorrect spacing and placement because the BEGIN string is lost.

If you use com1, you need to set several communication parameters. They are set via the DOS MODE command. These settings must agree with the ones expected by your brailler! However, if you use lpt1, you have no settings to worry about.

If you need to stop bt, use CONTROL C or CONTROL SCROLL LOCK; bt will interrupt translation and will return you to the DOS > prompt. Turn your braille device off and then back on before continuing! (This will empty the device's buffer; hence ceasing braille production as well as avoiding brailling left-over material at a later time.)

If you use the editor in the WordPerfect Library for file creation, no file conversion is necessary! (The WordPerfect Library is available from us with on-disk manuals.)

If you are using the WordPerfect word processor, for best results, you must use WP SIFT to convert document files for you, or you can convert them using WordPerfect as follows:
1. Bring the file into WordPerfect using the SHIFT F10 key.
2. Press CONTROL F5.
3. Select option 1 and save the text file under a new file name
      with extension txt.
4. Exit WordPerfect, by pressing F7 and select n (no) for saving
      the file and then select y (yes) to exit. If you select y to
      save the file, the non-converted file overwrites your newly
      created text version!

If you own PC SIFT, you can print the WordPerfect document to disk and then sift it. (The WordPerfect word processor is available from us with on-disk manuals.)

bt Global Command
                          Reference Card

                         bt Command SYNTAX

     The bt program is started when you are at the DOS prompt. The
bt command has the general form:

bt -options files >destination
or
bt /options files >destination

     You may specify zero or more options, zero or more text files,
and none or a specific destination. Observe that all options
precede all text files which in turn precede the destination. Also
note that every option begins with a dash (or a slash), and the
destination begins with a greater than sign. Two successive
options or text files are separated by white space (a space or a
tab).

DEFAULTS
     If no options are given, English braille Grade 2 conventions
apply. If no text files are given, text typed at the keyboard is
transcribed. If two or more text files are given, they are
transcribed sequentially and as if they were a single document.
If no destination is specified, the destination becomes your
display.

OPTIONS
     Every bt command option affects the entire text to be
transcribed whether it comes from the keyboard or from text files.
That is, every bt command option has a global affect upon
transcription. bt command options control the three basic
transcription steps: translation, format, and production.

Grade Control
bt -2 ... Grade 2 (English Braille)
bt -1 ... Grade 1 (English Braille)
bt -0 ... Grade 0 (Computer Braille)
bt -a ... ASCII (no translation at all)

Descriptor Control
bt -dxstring ... Use string as the descriptor for translations of
     type x. Choices for type x are d (double or multiple capital
     letters), l (lower-case letters), n (numbers), p
     (punctuation), s (single capital letters possibly followed
     by lower case letters), c (Grade 0 single shift), i (Grade
     0 shift lock in), o (Grade 0 shift lock out), and t (multiple
     capital letter shift terminate).
bt -exc ... Control exportation of descriptors for translations of
     type x. Choices for type x are the same as described above
     in the -d option. If any non-null character follows the type
     character, exportation is performed (the default), otherwise
     exportation for that type is suppressed.
bt -txstring Use string as the list of transition characters for
     translations of type x. Choices for type x are described
     above under the -d option.

     The concept of descriptor and its exportation and transition

concerns Grade 1 braille and Computer braille.

Data Table Control
bt -bfilename ... alternate braille-code table
bt -cfilename ... alternate contraction table
bt -ffilename ... alternate format table
bt -gfilename ... alternate global symbol table
bt -xfilename ... alternate exception table

A table is a text file having a specific form. Different
table types have distinct layouts. Detailed table descriptions
are presented in the appropriate sections.

Format Control
bt only transcribes text files; that is, files just containing
lines composed of white space and print characters. You must
convert all files to text files before transcription. Most word
processors let you save files as text (ASCII) files but eliminate
most of the original document format in the process. However, PC
SIFT and WP SIFT from ARTS let you convert print files and
WordPerfect files, respectively, while preserving most of the
original document format.
A text file or keyboard typing consists of consecutive text
lines. The text lines are processed in succession by bt to produce
consecutive transcribed lines.
You may produce the transcription in paragraph form or in list
form. The three bt options

bt -fill or -fi ... fill out the transcription in paragraph form
bt -fillN or -fiN ... fill out the transcription in list (poetry)
      form with runovers indented N columns
bt -fold or -fo ... fill out the transcription in list form but use
      maximum line length; maximum line length is accomplished by
      breaking words, if necessary, at the end of lines and by not
      indenting runovers

provide overall transcription layout.

Production Control
bt -istring ... Input lines that begin with any character found in
      string are sent to the output unaltered. If string is not
      given, the default of "." is used. This option allows
      document processing commands recognized by programs such as
      NROFF/TROFF and RUNOFF to pass through the translator
      unaltered.
bt -pdevicename ... Use the output devicename defined in the
      PRINTR.DAT file. If no -pdevicename option is specified, then
      either the default devicename braille is used (for braille
      production), or when the -a option is also specified, the
      default devicename ascii is used (for nontranslated
      production). The -pdevicename option lets you use various
      braillers, printers, and displays.
bt -r%N ... reset the page number with N as the value on the first
      page of the transcription. This option facilitates numbering
      successive braille volumes. Use N as the first required page
      number in the next braille volume.
bt -sstring ... Stop output after every page and output string (the
      default is a BELL). Resume output upon receiving a carriage
      return (ENTER) from the keyboard. This option facilitates
      printing onto single sheets of paper or previewing braille

output on your display.

DESTINATION Control
      bt can send a transcription to a communications port (COM1,
COM2, etc.), to a printer port (LPT1, LPT2, etc.), or to a file.
If no destination is specified, output appears on your display.

bt >destination .. destination specification
bt -ofilename ... alternate output destination specification (used
      on systems not supporting redirection of output)

Useful Commands
bt -2 -ds -dd ... translate without single and double
      capitalization in English braille; useful when the text is all
      upper case
bt -0 -dc -di -do ... translate without single, shift-in, and
      shift-out capitalization in Computer braille; useful when the
      text is all upper case
bt -gtexmap.dat ... translate with text book symbols
bt -snextpage ... stop output, announce the next page, and wait for
      a response, the ENTER key
bt filename >nul ... translate and send output nowhere; useful for
      catching illegal format commands

LOCAL TRANSCRIPTION
      The true power of bt is its ability to affect translation and
format of specific portions of text. You may place translation and
format commands directly into the text file! The plentiful "text"
commands are discussed at length in Parts 4 and 5.

AUTO TRANSCRIPTION
      PC BRAILLE has two principal goals: very flexible and correct
transcription; effortless transcription! Flexibility is assured by
providing sufficient translation and format commands. However,
these commands are numerous, and some are complex.
      Effortless transcription is achieved via a preprocessor--
namely PC SIFT or WP SIFT. These two programs convert a print file
and a WordPerfect file, respectively, into a text file containing
the appropriate transcription commands. After preprocessing the
file, you have a text file containing bt transcription commands.
Then, you may, if desirable or necessary, include additional
transcription commands.

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state.
     ARTS does not warrant that the functions contained in the

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     Should you have any questions concerning this Agreement, you may contact us at:
                    ARTS Computer Products, Inc.
                         145 Tremont St.
                            Suite 407
                         Boston MA 02111
                     Phone: (617)-482-8248

     You acknowledge that you have read this Agreement, understand it, and agree to be bound by its terms and conditions. You further agree that it is the complete and exclusive statement of the agreement between us which supersedes any proposal or prior agreement, oral or written, and any other communications between us relating to the subject matter of this Agreement.

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