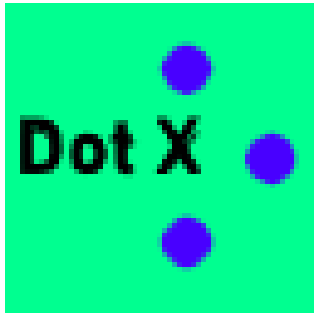


DotPad X Windows Version 0.12



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1. Welcome

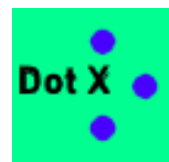
Welcome to your new software for the DotPad320 and DotPad320X.

In many countries, including Germany, Microsoft Windows is the leading operating system. Therefore, we are developing software that makes using the DotPad (320/X) easier on Windows PCs or laptops, even without a screen reader. You can download this software from the website.

2. Installing DotPad X Win

First, download the installation package "Setup-DotPadX-Win.exe" from the product page "https://dotpad.vision/produkte/dotpad/dotpad_x_windows/". Running this file will copy the software to the program directory and create shortcuts in the Start menu and on the desktop. The files temporarily created during installation are automatically removed when the installation is complete.

You can now start the program via the Start menu or the desktop.



3. Starting the application

Click the DotPad X icon on your desktop:

Alternatively, select "DotPadX Win" from the Start menu and press Enter. The program does not require any special permissions or path information.



4. First steps

Depending on your settings, the program may take a few seconds to start. A simple startup graphic will inform you about the startup process. Once this graphic disappears, you can begin working with the program.

First, in the "Settings" menu, select your preferred language under the "Language" submenu. Then, go to the "Device" menu and select the serial port to which you connected the DotPad under the "Port" submenu. The software will then attempt to establish a

connection between the PC and the DotPad. Of course, the DotPad must be switched on for this to work, even though the interfaces are displayed even when the DotPad is switched off.



Attention: This version of the program does not yet support Bluetooth LE connections!

5. Connect DotPad

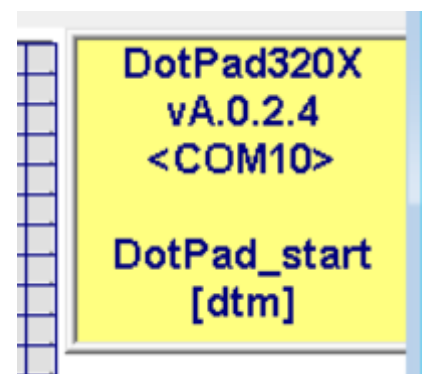
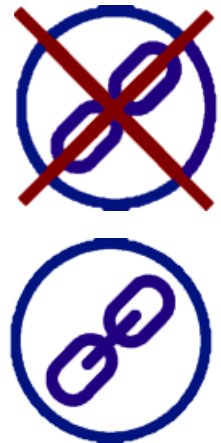
Connect the DotPad to your PC using a USB-A to USB-C cable. You should receive a message from your PC about newly connected hardware. In Windows Device Manager -, you will find two new ports (COM & LPT). Note the first number of these (e.g., COM10). In the DotPadX Win program, select -"Port" from the "Device" menu and choose the DotPad's COM port. A connection will now be established. The icon, which is currently a crossed-out link symbol, will change to a link symbol.

If the connection fails, the crossed-out symbol will remain. You can also click this symbol with your mouse to start or disconnect the connection process.

If the connection is successfully established, a simple graphic is displayed on the DotPad. This disappears the first time a custom graphic is displayed.

Simultaneously, the product name, version, and interface are displayed in the information area on the right. You can also access this information in the "Device" menu under "Information" (*hotkey: Alt+I*).

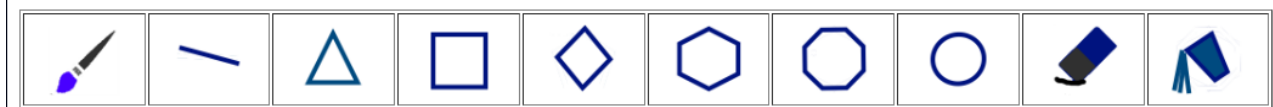
You can enable automatic connection after program startup in the "Device" menu. Then the DotPad will connect automatically every time the program starts, as long as the COM port doesn't change.



6. Drawing

You have 10 tools available for drawing. These can

be modified using the symbols Left (Shift + Up Arrow) or Right (Shift + Down Arrow).





The following elements are available:

- Paint brush
- line
- triangle
- square
- rhombus
- hexagon

- octagon
- Circle
- eraser
- filler

It should be noted that due to the DotPad's low resolution, the shapes are not perfect. However, they can be easily felt on the DotPad itself.

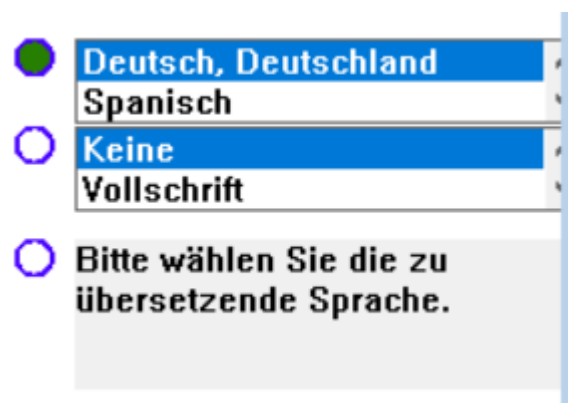
If you have made a mistake, you can undo the last changes using the icon  , the keyboard shortcut *Ctrl+Z* , or via the "Edit" – "Undo" menu. The individual layers are displayed in different colors. To apply the drawing, select "Apply" from the "Edit" menu, press *Ctrl+Enter* , or use the icon. 

You can invert the current drawing via the "Edit" menu or using the keyboard shortcut *Ctrl+I* .

7. Braille (Blind Writing)

7.1. Select Braille language and level

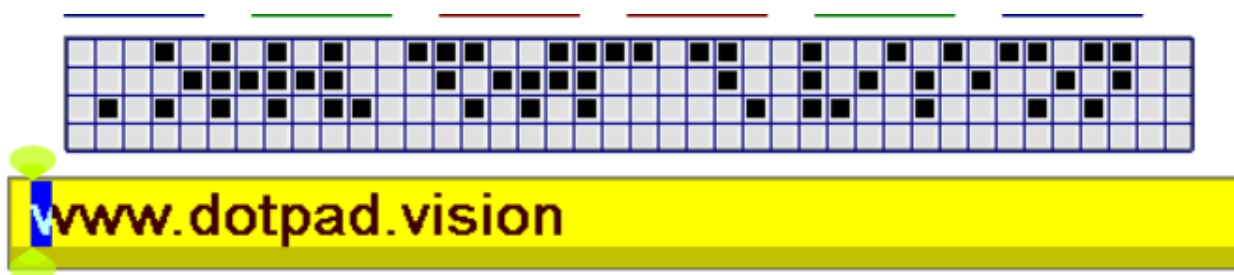
To select the desired Braille language and level of translation, use the two list boxes to the right of the text fields. Use the Tab -key to move between the fields and then the arrow keys to make your selection. You can also use the mouse to make your selection. Please note that loading the tables may take a moment to complete the selection process.



Attention! When you are in the program menu, the selection buttons are replaced by an **M** to indicate that no selection is possible in this case.

7.2. Text input

As soon as you enter text into the input field, it is automatically converted to Braille and displayed in the 20-character range of the DotPad and the screen display. The conversion is performed according to the language and grade selection. If you change these, the text will also be displayed differently.



7.3. Transfer the text to the graphics area

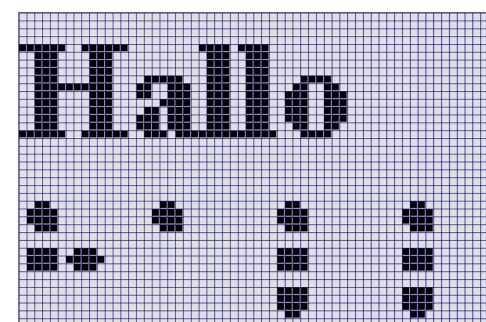
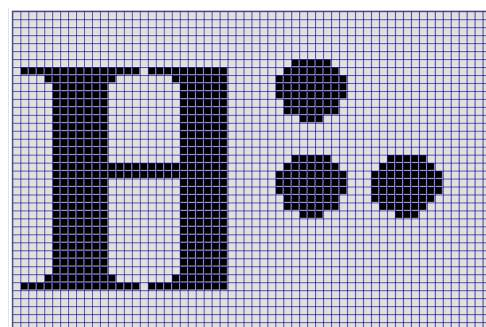
To drag the displayed text into the graphics area, simply left-click in the Braille text box. You can then drag the entire area into the graphics space and secure it by clicking the left mouse button again. Pressing *Esc* or right-clicking will cancel the action.

7.4. Displaying letters and text in large format

To display letters very large in both print and Braille, select the lower selection button and then use *Ctrl + left/right arrow keys* to navigate through the text. Only one letter at a time will be displayed in both text and Braille. You can select the corresponding font in the "Settings" menu under "Braille Font" or "Text Font."

The Braille fonts are installed by the program, while the text fonts are system fonts from Windows.

Pressing *Alt + left/right arrow* displays multiple letters, albeit smaller. The same applies to the fonts used as to the display of individual letters. In the Braille display, you'll notice that the shapes aren't perfect circles; this is due to the mapping of the TrueType fonts to the low resolution. However, the shapes are easily discernible by touch.



8. Camera

DotPad X Win supports the connection of cameras, mostly webcams, to the DotPad via the so-called "Still Capture API". The captured image is displayed in a small or large preview window, and a configurable portion of it is sent to the DotPad after prior processing. Numerous settings are available for this process.

You have to experiment a bit to find the best possible display.

8.1. Setting up the camera

In the "Camera" menu, you can select one of the connected cameras from the "Device" submenu. If no camera is detected by the system, this menu will be inaccessible. If multiple cameras are connected, you will find them in the "Device" menu.

Next, select a suitable resolution from the "Resolution" submenu. Do not select a resolution that is too high, as it cannot be evaluated.

You can now activate the camera via the camera icon or the "On/Off" menu item. The program window will then expand to the right and a preview image will appear. Below this are several sliders for adjusting the camera properties. Properties that are not available will be grayed out.



8.2. The trigger / threshold

The individual color pixels of the camera (red, green, blue) are converted into grayscale values $g = \sqrt{(R^2 + G^2 + B^2)}$ to ultimately obtain a black and white value for display. This trigger or threshold can be set manually using a slider, or you can have it calculated dynamically. With the dynamic threshold, an average value is calculated across the sampled range. You can try both options and decide which value is better suited to your application.

8.3. The display area

When the program starts, the display area is the same as the DotPad resolution of 60x40 pixels. A semi-transparent area represents the display area. You can resize this area using the mouse wheel, a context menu (right-click), or the keyboard shortcut "Ctrl+Numpad+" or "Ctrl+Numpad-". Move the mouse over the camera image or the program window itself. To freeze the image, you can use the context menu or the "Numpad" key. This also allows you to use the mouse to access other menu functions.

9. Explore the screen

A similar workflow to using the camera is possible with "Explore Screen". To activate this function, press the key combination "Ctrl+Shift+Numpad-". The program window will disappear and the rest of the screen will reappear. Now you can drag the mouse across the screen and explore it on the DotPad.

10. Program menu

10.1. File

The File menu has the following entries:

<u>O</u> pen	F3
<u>N</u> ew	Alt+N
<u>S</u> ave	F2
Save <u>u</u> sing <u>A</u> lt +	F2

<u>E</u> nd Alt +	F4

Currently, 3 formats are supported for loading and saving.

- .DTM
The standard DotPad format
- .BMP
bitmap file, in black and white encoding, has a size of 60 x 44 pixels. It can be saved and loaded. Other encodings and formats will be included in a future program version.
- .XML
We are still working on this format; in particular, a designated description area is still missing for adding a description to a graphic.

If you edit a file but don't save it, you will be asked at several points in the program whether you want to save the data. One of these points is closing the program.

10.2 . Edit

The Edit menu has the following entries:

Delete all	Alt+D
Undo	Ctrl+Z
Apply	Ctrl+Enter
Invert	Ctrl+I

Explore screen	Ctrl+Shift -

Some of these entries do not have buttons; they are rarely needed and can also be accessed via hotkey.

10.3. Device

Under Device, meaning the DotPad, you will find the following entries:

Connect
Port >
Information Alt+I
Connect automatically

These menu items were already described under point 5.

10.4. Settings

The following settings are possible:

Language >
Sound
Braille Font >
Text Font >

Under "Language" you can select the program language. Currently, German and English are available. Localization for other languages is easily possible and is described in a separate section. The "Sound" button turns the playback of sounds within the program on or off. For large display of text and Braille, see section 7.4, select the appropriate fonts here.

10.5. Camera

Most of these menu items were already explained in point 8:

On off
Device >
resolution

small / large window Shift *

To turn the camera on or off, use either the menu item or the camera icon.
Explanations about the camera can be found in menu item 8.



10.6. Help

Help	F1

Via	Alt+A
Info	Alt+I

www.DotPad.Vision	Alt+W
Check for updates	Alt+U

Pressing F1 will bring up this help. The other menu items are self-explanatory.

11. Keyboard shortcuts

NUM+Shift+Ctrl	Screen rounding on/off
ESC+Shift	End program
F1	Go to help
F2	save file
F2+Alt	Save as
F3	Open file
O+Alt	Open file
N+Alt	New file
I+Alt	Show information window
A+Alt	about this program
W+Alt	Visit the dotpad.vision website
ESC	Cancel
input	Confirm
Z+Ctrl	Undo
Enter+Ctrl	Take over
Left+Ctrl	Letters in large Braille
Right+Ctrl ...	Letters in large Braille
Left+Alt	Word in large Braille
Right+Alt	Word in large Braille
High	Braille language / grade selection
Down	Braille language / grade selection
I+Ctrl	Invert
tab	Switch between Braille language, grade, and display
Tab+Shift	Switch between Braille language, grade, and display
Num+	Increase threshold
Number-	Reduce threshold
Num+Ctrl	Increase display area
Num Lock+Ctrl	Reduce display area
Num Lock+Shift	still free
Num Lock + Shift	still free
Num++Alt	still free
Num Lock and Alt	still free
Number*	Freeze camera image
Number/	Manual threshold /
Enter+Shift	Open popup menu
D+Ctrl	Delete graphic area
+Shift	
Up+Shift	Switch drawing tool
Down+Shift	Switch drawing tool

12. Localization

To perform localization into another language, the following steps are required:

1. Locate the file “DotPadX.ini” in the \res directory and open it with a text editor, e.g. Edit, Wordpad...
2. In this file, locate the [*Language*] section, which is currently located from line 142 and looks like this:

```
[Language]
```

```
01=de
```

```
02=en
```

3. Create another entry, e.g. 03=cz

```
[Language]
```

```
01=de
```

```
02=en
```

```
03=cz
```

4. Save this file and close it.
5. Open one of the files DotPadX_de.ini (German) or DotPadX_en.ini (English) in the editor and save it under the name DotPadX_cz.ini.
6. Now you can edit and translate this file line by line.
In longer strings, “\n” means a line break and “\t” means a tab. A string, such as a name, is inserted into the sequence “%s” and a digit into “%d”.
7. Save the new .ini file and start the program. You should now find your new language in the settings menu under Language.

13. Acknowledgements

This project uses the following third-party software modules:

- Still Capture Library < <http://noeld.com> > © 2006-2013, Noël Danjou. All rights reserved.
- liblouis Braille Translation and Back-Translation Library, ©2018 SBS Swiss Library for the Blind, Visually Impaired and Print Disabled, see < <http://www.gnu.org/licenses/> >.