Tesseract OCR

Text from images

CONCEPTS

The call is tesseract <input> <outputbase> [options] [formats]. The output base gets its extension added; use stdout to print instead.

Image 300 dpi, clean, upright
↓ segment (--psm)
Layout blocks, lines, words
↓ recognize (--oem, -l)
Text words + confidence
↓ write (config names)
Output txt, pdf, hocr, tsv

Options such as -l and --psm go before the output format names. Image quality (about 300 dpi, high contrast, straight) matters more than any flag.

BASICS

tesseract *<img>* *<out>*
OCR an image into <out>.txt

tesseract *<img>* **stdout**
Print recognized text

tesseract stdin stdout
Read image from a pipe, print text

tesseract *<list.txt>* *<out>*
OCR images listed one per line

tesseract --version
Show version

LANGUAGES

tesseract --list-langs
List installed languages

tesseract *<img>* *<out>* **-l** *<lang>*
Recognize one language

tesseract *<img>* *<out>* **-l** *<lang>+<lang>*
Combine several languages

A language needs its <lang>.traineddata file in the tessdata folder. Distros ship extras as separate packages.

LAYOUT (--PSM)

tesseract *<img>* *<out>* **--psm 3**
Fully automatic layout (default)

LAYOUT (--PSM) (cont.)

tesseract *<img>* *<out>* **--psm 6**
One uniform block of text

tesseract *<img>* *<out>* **--psm 7**
One single text line

tesseract *<img>* *<out>* **--psm 11**
Sparse text, any order

Wrong results on a tiny crop or a form field? Try 7, 8 or 6 before anything else. Use 11 for scattered labels.

ENGINE & TUNING

tesseract *<img>* *<out>* **--oem 1**
Use the LSTM neural engine

tesseract *<img>* *<out>* **--dpi** *<n>*
Set input resolution

tesseract *<img>* *<out>* **-c** *<name>=<value>*
Set a parameter

-c tessedit_char_whitelist=0123456789
Digits only

OUTPUT FORMATS

tesseract *<img>* *<out>* **txt**
Plain text, <out>.txt (default)

tesseract *<img>* *<out>* **pdf**
Searchable PDF with text layer

tesseract *<img>* *<out>* **hocr**
hOCR HTML with word boxes

tesseract *<img>* *<out>* **tsv**
Tab-separated words, boxes, conf

tesseract *<img>* *<out>* **txt pdf hocr**
Write several formats at once

PREPARING IMAGES

magick *<in>* **-colorspace Gray** *<out>***.png**
Convert to grayscale

magick *<in>* **-resize 200%** *<out>***.png**
Enlarge small text

pdftoppm -r 300 -png *<in>***.pdf** *<prefix>*
Rasterize a PDF to pages