PyMuPDF Documentation

- Introduction
  - Note on the Name *fitz*
  - License and Copyright
  - Covered Version
- Installation
  - Notes
  - Install from source without using an sdist
  - Enabling Integrated OCR Support
- Tutorial
  - Importing the Bindings
  - Opening a Document
  - Some Document Methods and Attributes
  - Accessing Meta Data
  - Working with Outlines
  - Working with Pages
    - Inspecting the Links, Annotations or Form Fields of a Page
    - Rendering a Page
    - Saving the Page Image in a File
    - Displaying the Image in GUIs
      - wxPython
      - Tkinter
      - PyQt4, PyQt5, PySide
    - Extracting Text and Images
    - Searching for Text
  - PDF Maintenance
    - Modifying, Creating, Re-arranging and Deleting Pages
    - Joining and Splitting PDF Documents
    - Embedding Data
    - Saving
  - Closing
  - Further Reading
- Recipes: Images
  - How to Make Images from Document Pages
  - How to Increase Image Resolution
  - How to Create Partial Pixmaps (Clips)
  - How to Zoom a Clip to a GUI Window
  - How to Create or Suppress Annotation Images
  - How to Extract Images: Non-PDF Documents
  - How to Extract Images: PDF Documents
  - How to Handle Image Masks
  - How to Make one PDF of all your Pictures (or Files)
  - How to Create Vector Images
  - How to Convert Images
  - How to Use Pixmaps: Glueing Images
  - How to Use Pixmaps: Making a Fractal
  - How to Interface with NumPy
  - How to Add Images to a PDF Page
- Recipes: Text
  - How to Extract all Document Text
  - How to Extract Text from within a Rectangle
  - How to Extract Text in Natural Reading Order
  - How to Extract Tables from Documents
  - How to Mark Extracted Text
  - How to Mark Searched Text
  - How to Mark Non-horizontal Text
  - How to Analyze Font Characteristics
  - How to Insert Text
    - How to Write Text Lines
    - How to Fill a Text Box
    - How to Use Non-Standard Encoding
- Recipes: Annotations
  - How to Add and Modify Annotations
  - How to Use FreeText
  - Using Buttons and JavaScript
  - How to Use Ink Annotations
- Recipes: Drawing and Graphics
  - Extracting Drawings
- Recipes: Multiprocessing
- Recipes: General
  - How to Open with a Wrong File Extension
  - How to Embed or Attach Files
  - How to Delete and Re-Arrange Pages

  - How to Join PDFs
  - How to Add Pages
  - How To Dynamically Clean Up Corrupt PDFs
  - How to Split Single Pages
  - How to Combine Single Pages
  - How to Convert Any Document to PDF
  - How to Deal with Messages Issued by MuPDF
  - How to Deal with PDF Encryption
- Recipes: Common Issues and their Solutions
  - Changing Annotations: Unexpected Behaviour
    - Problem
    - Cause
    - Solutions
  - Misplaced Item Insertions on PDF Pages
    - Problem
    - Cause
    - Solutions
  - Missing or Unreadable Extracted Text
    - Problem: no text is extracted
    - Cause
    - Solution
    - Problem: unreadable text
    - Cause
    - Solution
- Recipes: Low-Level Interfaces
  - How to Iterate through the `xref` Table
  - How to Handle Object Streams
  - How to Handle Page Contents
  - How to Access the PDF Catalog
  - How to Access the PDF File Trailer
  - How to Access XML Metadata
  - How to Extend PDF Metadata
  - How to Read and Update PDF Objects
- Recipes: Journalling
  - Example Session 1
  - Example Session 2
- Module *fitz*
  - Invocation

  - Cleaning and Copying
  - Extracting Fonts and Images
  - Joining PDF Documents
  - Low Level Information
  - Embedded Files Commands
    - Information
    - Extraction
    - Deletion
    - Insertion
    - Updates
    - Copying
  - Text Extraction
- Classes
  - Annot
    - `Annot`
      - `Annot.get_pixmap()`
      - `Annot.get_text()`
      - `Annot.get_textbox()`
      - `Annot.set_info()`
      - `Annot.set_line_ends()`
      - `Annot.set_oc()`
      - `Annot.get_oc()`
      - `Annot.set_irt_xref()`
      - `Annot.set_open()`
      - `Annot.set_popup()`
      - `Annot.set_opacity()`
      - `Annot.blendmode`
      - `Annot.set_blendmode()`
      - `Annot.set_name()`
      - `Annot.set_rect()`
      - `Annot.set_rotation()`
      - `Annot.set_border()`
      - `Annot.set_flags()`
      - `Annot.set_colors()`
      - `Annot.delete_responses()`
      - `Annot.update()`
      - `Annot.file_info()`
      - `Annot.get_file()`
      - `Annot.update_file()`
      - `Annot.get_sound()`

    - `Annot.opacity`
    - `Annot.parent`
    - `Annot.rotation`
    - `Annot.rect`
    - `Annot.next`
    - `Annot.type`
    - `Annot.info`
    - `Annot.flags`
    - `Annot.line_ends`
    - `Annot.vertices`
    - `Annot.colors`
    - `Annot.xref`
    - `Annot.irt_xref`
    - `Annot.popup_xref`
    - `Annot.has_popup`
    - `Annot.is_open`
    - `Annot.popup_rect`
    - `Annot.border`
  - Annotation Icons in MuPDF
  - Example
- Colorspace
  - `Colorspace`
    - `Colorspace.__init__()`
    - `Colorspace.name`
    - `Colorspace.n`
- DisplayList
  - `DisplayList`
    - `DisplayList.__init__()`
    - `DisplayList.run()`
    - `DisplayList.get_pixmap()`
    - `DisplayList.get_textpage()`
    - `DisplayList.rect`
- Document
  - `Document`
    - `Document.__init__()`
    - `Document.get_oc()`
    - `Document.set_oc()`
    - `Document.get_layers()`
    - `Document.add_layer()`
    - `Document.switch_layer()`
    - `Document.add_ocg()`
    - `Document.set_ocmd()`
    - `Document.get_ocmd()`
    - `Document.get_layer()`
    - `Document.set_layer()`
    - `Document.get_ocgs()`
    - `Document.layer_ui_configs()`
    - `Document.set_layer_ui_config()`
    - `Document.authenticate()`
    - `Document.get_page_numbers()`
    - `Document.get_page_labels()`
    - `Document.set_page_labels()`
    - `Document.make_bookmark()`
    - `Document.find_bookmark()`
    - `Document.chapter_page_count()`
    - `Document.next_location()`
    - `Document.prev_location()`
    - `Document.load_page()`
    - `Document.reload_page()`
    - `Document.page_cropbox()`
    - `Document.page_xref()`
    - `Document.pages()`
    - `Document.convert_to_pdf()`
    - `Document.get_toc()`
    - `Document.xref_get_keys()`
    - `Document.xref_get_key()`
    - `Document.xref_set_key()`
    - `Document.get_page_pixmap()`
    - `Document.get_page_xobjects()`
    - `Document.get_page_images()`
    - `Document.get_page_fonts()`
    - `Document.get_page_text()`
    - `Document.layout()`
    - `Document.select()`
    - `Document.set_metadata()`
    - `Document.get_xml_metadata()`
    - `Document.set_xml_metadata()`
    - `Document.set_toc()`
    - `Document.outline_xref()`
    - `Document.del_toc_item()`
    - `Document.set_toc_item()`
    - `Document.can_save_incrementally()`
    - `Document.scrub()`
    - `Document.save()`
    - `Document.ez_save()`
    - `Document.saveIncr()`
    - `Document.tobytes()`
    - `Document.search_page_for()`
    - `Document.insert_pdf()`
    - `Document.new_page()`
    - `Document.insert_page()`
    - `Document.delete_page()`
    - `Document.delete_pages()`
    - `Document.copy_page()`
    - `Document.fullcopy_page()`
    - `Document.move_page()`
    - `Document.need_appearances()`
    - `Document.get_sigflags()`
    - `Document.embfile_add()`
    - `Document.embfile_count()`
    - `Document.embfile_get()`
    - `Document.embfile_del()`
    - `Document.embfile_info()`
    - `Document.embfile_names()`
    - `Document.embfile_upd()`
    - `Document.close()`
    - `Document.xref_object()`
    - `Document.pdf_catalog()`
    - `Document.pdf_trailer()`
    - `Document.xref_stream()`
    - `Document.xref_stream_raw()`
    - `Document.update_object()`
    - `Document.update_stream()`
    - `Document.xref_copy()`
    - `Document.extract_image()`
    - `Document.extract_font()`
    - `Document.xref_xml_metadata()`
    - `Document.has_links()`
    - `Document.has_annots()`
    - `Document.subset_fonts()`
    - `Document.journal_enable()`
    - `Document.journal_start_op()`
    - `Document.journal_stop_op()`
    - `Document.journal_position()`
    - `Document.journal_op_name()`
    - `Document.journal_can_do()`
    - `Document.journal_undo()`
    - `Document.journal_redo()`
    - `Document.journal_save()`
    - `Document.journal_load()`
    - `Document.save_snapshot()`
    - `Document.outline`
    - `Document.is_closed`
    - `Document.is_dirty`
    - `Document.is_pdf`
    - `Document.is_form_pdf`
    - `Document.is_reflowable`
    - `Document.is_repaired`
    - `Document.needs_pass`
    - `Document.is_encrypted`
    - `Document.permissions`
    - `Document.metadata`
    - `Document.name`
    - `Document.page_count`
    - `Document.chapter_count`
    - `Document.last_location`
    - `Document.FormFonts`
  - **`set_metadata()`** Example
  - **`set_toc()`** Demonstration
  - **`insert_pdf()`** Examples
  - Other Examples
- Font
  - `Font`
    - `Font.has_glyph()`
    - `Font.valid_codepoints()`
    - `Font.glyph_advance()`
    - `Font.glyph_name_to_unicode()`
    - `Font.glyph_bbox()`
    - `Font.unicode_to_glyph_name()`

        - `Font.text_length()`
        - `Font.char_lengths()`
        - `Font.buffer`
        - `Font.flags`
        - `Font.name`
        - `Font.bbox`
        - `Font.glyph_count`
        - `Font.ascender`
        - `Font.descender`
        - `Font.is_writable`
- Identity
- IRect
    - `IRect`
        - `IRect.__init__()`
        - `IRect.__init__()`
        - `IRect.__init__()`
        - `IRect.__init__()`
        - `IRect.get_area()`
        - `IRect.intersect()`
        - `IRect.contains()`
        - `IRect.intersects()`
        - `IRect.torect()`
        - `IRect.morph()`
        - `IRect.norm()`
        - `IRect.normalize()`
        - `IRect.top_left`
        - `IRect.tl`
        - `IRect.top_right`
        - `IRect.tr`
        - `IRect.bottom_left`
        - `IRect.bl`
        - `IRect.bottom_right`
        - `IRect.br`
        - `IRect.rect`
        - `IRect.quad`
        - `IRect.width`
        - `IRect.height`
        - `IRect.x0`
        - `IRect.y0`
        - `IRect.x1`
        - `IRect.y1`
        - `IRect.is_infinite`
        - `IRect.is_empty`
- Link
    - `Link`
        - `Link.set_border()`
        - `Link.set_colors()`
        - `Link.set_flags()`
        - `Link.flags`
        - `Link.colors`
        - `Link.border`
        - `Link.rect`
        - `Link.isExternal`
        - `Link.uri`
        - `Link.xref`
        - `Link.next`
        - `Link.dest`
- linkDest
    - `linkDest`
        - `linkDest.dest`
        - `linkDest.fileSpec`
        - `linkDest.flags`
        - `linkDest.isMap`
        - `linkDest.isUri`
        - `linkDest.kind`
        - `linkDest.lt`
        - `linkDest.named`
        - `linkDest.newWindow`
        - `linkDest.page`
        - `linkDest.rb`
        - `linkDest.uri`
- Matrix
    - `Matrix`
        - `Matrix.__init__()`
        - `Matrix.__init__()`
        - `Matrix.__init__()`
        - `Matrix.__init__()`
        - `Matrix.__init__()`
        - `Matrix.__init__()`
        - `Matrix.__init__()`
        - `Matrix.norm()`
        - `Matrix.prerotate()`
        - `Matrix.prescale()`
        - `Matrix.preshear()`
        - `Matrix.pretranslate()`
        - `Matrix.concat()`
        - `Matrix.invert()`
        - `Matrix.a`
        - `Matrix.b`
        - `Matrix.c`
        - `Matrix.d`
        - `Matrix.e`
        - `Matrix.f`
        - `Matrix.is_rectilinear`
    - Examples
    - Shifting
    - Flipping
    - Shearing
    - Rotating
- Outline
    - `Outline`
        - `Outline.down`
        - `Outline.next`
        - `Outline.page`
        - `Outline.title`
        - `Outline.is_open`
        - `Outline.is_external`
        - `Outline.uri`
        - `Outline.dest`
- Page
    - Modifying Pages
        - `Page`
    - Description of *get_links()* Entries
    - Notes on Supporting Links
        - Reading (pertains to method *get_links()* and the *first_link* property chain)
        - Writing
    - Homologous Methods of Document and Page
- Pixmap
    - `Pixmap`
        - `Pixmap.__init__()`
        - `Pixmap.__init__()`
        - `Pixmap.__init__()`
        - `Pixmap.__init__()`
        - `Pixmap.__init__()`
        - `Pixmap.__init__()`
        - `Pixmap.__init__()`
        - `Pixmap.__init__()`
        - `Pixmap.__init__()`
        - `Pixmap.clear_with()`
        - `Pixmap.tint_with()`
        - `Pixmap.gamma_with()`
        - `Pixmap.shrink()`
        - `Pixmap.pixel()`
        - `Pixmap.set_pixel()`
        - `Pixmap.set_rect()`
        - `Pixmap.set_origin()`
        - `Pixmap.set_dpi()`
        - `Pixmap.set_alpha()`
        - `Pixmap.invert_irect()`
        - `Pixmap.copy()`
        - `Pixmap.save()`
        - `Pixmap.pdfocr_save()`
        - `Pixmap.pdfocr_tobytes()`
        - `Pixmap.tobytes()`
        - `Pixmap.pil_save()`
        - `Pixmap.pil_tobytes()`
        - `Pixmap.warp()`
        - `Pixmap.color_count()`
        - `Pixmap.color_topusage()`
        - `Pixmap.alpha`
        - `Pixmap.digest`
        - `Pixmap.colorspace`
        - `Pixmap.stride`
        - `Pixmap.is_monochrome`
        - `Pixmap.is_unicolor`

        - Pixmap.irect
        - Pixmap.samples
        - Pixmap.samples_mv
        - Pixmap.samples_ptr
        - Pixmap.size
        - Pixmap.width
        - Pixmap.w
        - Pixmap.height
        - Pixmap.h
        - Pixmap.x
        - Pixmap.y
        - Pixmap.n
        - Pixmap.xres
        - Pixmap.yres
        - Pixmap.interpolate
    - Supported Input Image Formats
    - Supported Output Image Formats
- Point
    - Point
        - Point.__init__()
        - Point.__init__()
        - Point.__init__()
        - Point.__init__()
        - Point.distance_to()
        - Point.norm()
        - Point.transform()
        - Point.unit
        - Point.abs_unit
        - Point.x
        - Point.y
- Quad
    - Quad
        - Quad.__init__()
        - Quad.__init__()
        - Quad.__init__()
        - Quad.__init__()
        - Quad.transform()
        - Quad.morph()
        - Quad.rect
        - Quad.ul
        - Quad.ur
        - Quad.ll
        - Quad.lr
        - Quad.is_convex
        - Quad.is_empty
        - Quad.is_rectangular
        - Quad.width
        - Quad.height
    - Remark
    - Algebra and Containment Checks
- Rect
    - Rect
        - Rect.__init__()
        - Rect.__init__()
        - Rect.__init__()
        - Rect.__init__()
        - Rect.__init__()
        - Rect.__init__()
        - Rect.__init__()
        - Rect.round()
        - Rect.transform()
        - Rect.intersect()
        - Rect.include_rect()
        - Rect.include_point()
        - Rect.get_area()
        - Rect.contains()
        - Rect.intersects()
        - Rect.torect()
        - Rect.morph()
        - Rect.norm()
        - Rect.normalize()
        - Rect.irect
        - Rect.top_left
        - Rect.tl
        - Rect.top_right
        - Rect.tr
        - Rect.bottom_left
        - Rect.bl
        - Rect.bottom_right
        - Rect.br
        - Rect.quad
        - Rect.width
        - Rect.height
        - Rect.x0
        - Rect.y0
        - Rect.x1
        - Rect.y1
        - Rect.is_infinite
        - Rect.is_empty
        - Rect.is_valid
- Shape
    - Shape
        - Shape.__init__()
        - Shape.draw_line()
        - Shape.draw_squiggle()
        - Shape.draw_zigzag()
        - Shape.draw_polyline()
        - Shape.draw_bezier()
        - Shape.draw_oval()
        - Shape.draw_circle()
        - Shape.draw_curve()
        - Shape.draw_sector()
        - Shape.draw_rect()
        - Shape.draw_quad()
        - Shape.finish()
        - Shape.insert_text()
        - Shape.insert_textbox()
        - Shape.commit()
        - Shape.doc
        - Shape.page
        - Shape.height
        - Shape.width
        - Shape.draw_cont
        - Shape.text_cont
        - Shape.rect
        - Shape.totalcont
        - Shape.lastPoint
    - Usage
    - Examples
    - Common Parameters
- TextPage
    - TextPage
        - TextPage.extractText()
        - TextPage.extractTEXT()
        - TextPage.extractBLOCKS()
        - TextPage.extractWORDS()
        - TextPage.extractHTML()
        - TextPage.extractDICT()
        - TextPage.extractJSON()
        - TextPage.extractXHTML()
        - TextPage.extractXML()
        - TextPage.extractRAWDICT()
        - TextPage.extractRAWJSON()
        - TextPage.search()
        - TextPage.rect
    - Structure of Dictionary Outputs
        - Page Dictionary
        - Block Dictionaries
        - Line Dictionary
        - Span Dictionary
        - Character Dictionary for extractRAWDICT()
- TextWriter
    - TextWriter
        - TextWriter.__init__()
        - TextWriter.append()
        - TextWriter.appendv()
        - TextWriter.fill_textbox()
        - TextWriter.write_text()
        - TextWriter.text_rect
        - TextWriter.last_point
        - TextWriter.opacity
        - TextWriter.color
        - TextWriter.rect
- Tools
    - Tools

      - Tools.gen_id()
      - Tools.set_annot_stem()
      - Tools.set_small_glyph_heights()
      - Tools.set_subset_fontnames()
      - Tools.unset_quad_corrections()
      - Tools.store_shrink()
      - Tools.show_aa_level()
      - Tools.set_aa_level()
      - Tools.reset_mupdf_warnings()
      - Tools.mupdf_display_errors()
      - Tools.mupdf_warnings()
      - Tools.fitz_config
      - Tools.store_maxsize
      - Tools.store_size
    - Example Session
  - Widget
    - Widget
      - Widget.button_states()
      - Widget.update()
      - Widget.reset()
      - Widget.next
      - Widget.border_color
      - Widget.border_style
      - Widget.border_width
      - Widget.border_dashes
      - Widget.choice_values
      - Widget.field_name
      - Widget.field_label
      - Widget.field_value
      - Widget.field_flags
      - Widget.field_type
      - Widget.field_type_string
      - Widget.fill_color
      - Widget.button_caption
      - Widget.is_signed
      - Widget.rect
      - Widget.text_color
      - Widget.text_font
      - Widget.text_fontsize
      - Widget.text_maxlen
      - Widget.text_type
      - Widget.xref
      - Widget.script
      - Widget.script_stroke
      - Widget.script_format
      - Widget.script_change
      - Widget.script_calc
    - Standard Fonts for Widgets
    - Supported Widget Types
- Operator Algebra for Geometry Objects
  - General Remarks
  - Unary Operations
  - Binary Operations
  - Some Examples
    - Manipulation with numbers
    - Manipulation with “like” Objects
- Low Level Functions and Classes
  - Functions
    - paper_size()
    - paper_rect()
    - sRGB_to_pdf()
    - sRGB_to_rgb()
    - glyph_name_to_unicode()
    - unicode_to_glyph_name()
    - adobe_glyph_names()
    - adobe_glyph_unicodes()
    - recover_quad()
    - make_table()
    - planish_line()
    - paper_sizes()
    - fitz_fontdescriptors
    - TESSDATA_PREFIX
    - pdfcolor
    - get_pdf_now()
    - get_text_length()
    - get_pdf_str()
    - image_profile()
    - ConversionHeader()
    - ConversionTrailer()

    - Document.del_xml_metadata()
    - Document.xml_metadata_xref()
    - Page.run()
    - Page.get_bboxlog()
    - Page.get_texttrace()
    - Page.wrap_contents()
    - Page.is_wrapped
    - Page.get_text_blocks()
    - Page.get_text_words()
    - Page.get_displaylist()
    - Page.get_contents()
    - Page.set_contents()
    - Page.clean_contents()
    - Page.read_contents()
    - Annot.clean_contents()
    - Document.get_char_widths()
    - Document.is_stream()
    - Document.get_new_xref()
    - Document.xref_length()
    - recover_quad()
    - recover_char_quad()
    - recover_span_quad()
    - recover_line_quad()
    - INFINITE_QUAD()
    - INFINITE_RECT()
    - INFINITE_IRECT()
    - EMPTY_QUAD()
    - EMPTY_RECT()
    - EMPTY_IRECT()
  - Device
    - Device
      - Device.__init__()
      - Device.__init__()
  - Working together: DisplayList and TextPage
    - Create a DisplayList
    - Generate Pixmap
    - Perform Text Search
    - Extract Text
    - Further Performance improvements
      - Pixmap
      - TextPage
- Glossary
  - matrix_like
  - rect_like
  - irect_like
  - point_like
  - quad_like
  - inheritable
  - MediaBox
  - CropBox
  - catalog
  - trailer
  - contents
  - resources
  - dictionary
  - page
  - pagetree
  - object
  - stream
  - unitvector
  - xref
  - resolution
  - OCPD
  - OCCD
  - OCG
  - OCMD
  - ligature
- Constants and Enumerations
  - Constants
    - Base14_Fonts
    - csRGB
    - csGRAY
    - csCMYK
    - CS_RGB
    - CS_GRAY
    - CS_CMYK
    - VersionBind
    - VersionFitz

        - `VersionDate`
        - `version`
    - Document Permissions
    - PDF encryption method codes
    - Font File Extensions
    - Text Alignment
        - `TEXT_ALIGN_LEFT`
        - `TEXT_ALIGN_CENTER`
        - `TEXT_ALIGN_RIGHT`
        - `TEXT_ALIGN_JUSTIFY`
    - Text Extraction Flags
        - `TEXT_PRESERVE_LIGATURES`
        - `TEXT_PRESERVE_WHITESPACE`
        - `TEXT_PRESERVE_IMAGES`
        - `TEXT_INHIBIT_SPACES`
        - `TEXT_DEHYPHENATE`
        - `TEXT_PRESERVE_SPANS`
        - `TEXT_MEDIABOX_CLIP`
        - `TEXTFLAGS_TEXT`
        - `TEXTFLAGS_WORDS`
        - `TEXTFLAGS_BLOCKS`
        - `TEXTFLAGS_DICT`
        - `TEXTFLAGS_RAWDICT`
        - `TEXTFLAGS_HTML`
        - `TEXTFLAGS_XHTML`
        - `TEXTFLAGS_XML`
        - `TEXTFLAGS_SEARCH`
    - Link Destination Kinds
        - `LINK_NONE`
        - `LINK_GOTO`
        - `LINK_URI`
        - `LINK_LAUNCH`
        - `LINK_NAMED`
        - `LINK_GOTOR`
    - Link Destination Flags
        - `LINK_FLAG_L_VALID`
        - `LINK_FLAG_T_VALID`
        - `LINK_FLAG_R_VALID`
        - `LINK_FLAG_B_VALID`
        - `LINK_FLAG_FIT_H`
        - `LINK_FLAG_FIT_V`
        - `LINK_FLAG_R_IS_ZOOM`
    - Annotation Related Constants
        - Annotation Types
        - Annotation Flag Bits
        - Annotation Line Ending Styles
    - Widget Constants
        - Widget Types (*field_type*)
        - Text Widget Subtypes (*text_format*)
        - Widget flags (*field_flags*)
    - PDF Standard Blend Modes
    - Stamp Annotation Icons
- Color Database
    - Function *getColor()*
    - Printing the Color Database
- Appendix 1: Details on Text Extraction
    - General structure of a TextPage
    - Plain Text
    - BLOCKS
    - WORDS
    - HTML
    - Controlling Quality of HTML Output
    - DICT (or JSON)
    - RAWDICT (or RAWJSON)
    - XML
    - XHTML
    - Text Extraction Flags Defaults
    - Performance
- Appendix 2: Considerations on Embedded Files
    - General
    - MuPDF Support
    - PyMuPDF Support
- Appendix 3: Assorted Technical Information
    - Image Transformation Matrix
    - PDF Base 14 Fonts
    - Adobe PDF References
    - Using Python Sequences as Arguments in PyMuPDF
    - Ensuring Consistency of Important Objects in PyMuPDF
    - Design of Method `Page.show_pdf_page()`
        - Purpose and Capabilities
        - Technical Implementation
    - Redirecting Error and Warning Messages
- Change Log
- Deprecated Names