

PdfRenderer

[Kotlin](/reference/kotlin/android/graphics/pdf/PdfRenderer) (/reference/kotlin/android/graphics/pdf/PdfRenderer) | **Java**

```
public final class PdfRenderer
extends Object (/reference/java/lang/Object) implements AutoCloseable
(/reference/java/lang/AutoCloseable)
```

[java.lang.Object](/reference/java/lang/Object) (/reference/java/lang/Object)
↳ android.graphics.pdf.PdfRenderer

This class enables rendering a PDF document and selecting, searching, fast scrolling, annotations, etc. from Android V. This class is thread safe and can be called by multiple threads however only one thread will be executed at a time as the access is synchronized by internal locking.

If you want to render a PDF, you create a renderer and for every page you want to render, you open the page, render it, and close the page. After you are done with rendering, you close the renderer. After the renderer is closed it should not be used anymore. Note that the pages are rendered one by one, i.e. you can have only a single page opened at any given time.

A typical use of the APIs to render a PDF looks like this:

```
// create a new renderer
PdfRenderer renderer = new PdfRenderer(getSeekableFileDescriptor());

// let us just render all pages
final int pageCount = renderer.getPageCount();
for (int i = 0; i < pageCount; i++) {
    Page page = renderer.openPage(i);

    // say we render for showing on the screen
    page.render(mBitmap, null, null, Page.RENDER_MODE_FOR_DISPLAY);
}
```

```
// do stuff with the bitmap

// close the page
page.close();
}

// close the renderer
renderer.close();
```

Print preview and print output

If you are using this class to rasterize a PDF for printing or show a print preview, it is recommended that you respect the following contract in order to provide a consistent user experience when seeing a preview and printing, i.e. the user sees a preview that is the same as the printout.

- Respect the property whether the document would like to be scaled for printing as per `shouldScaleForPrinting()` ([/reference/android/graphics/pdf/PdfRenderer#shouldScaleForPrinting\(\)](#)).
- When scaling a document for printing the aspect ratio should be preserved.
- Do not inset the content with any margins from the `PrintAttributes` ([/reference/android/print/PrintAttributes](#)) as the application is responsible to render it such that the margins are respected.
- If document page size is greater than the printed media size the content should be anchored to the upper left corner of the page for left-to-right locales and top right corner for right-to-left locales.

See also:

`close()` ([/reference/android/graphics/pdf/PdfRenderer#close\(\)](#))

Summary

Nested classes

class	<u>PdfRenderer.Page</u> (/reference/android/graphics/pdf/PdfRenderer.Page) This class represents a PDF document page for rendering.
Constants	
int	<u>DOCUMENT_LINEARIZED_TYPE_LINEARIZED</u> (/reference/android/graphics/pdf/PdfRenderer#DOCUMENT_LINEARIZED) Represents a linearized PDF document.
int	<u>DOCUMENT_LINEARIZED_TYPE_NON_LINEARIZED</u> (/reference/android/graphics/pdf/PdfRenderer#DOCUMENT_LINEARIZED) Represents a non-linearized PDF document.
int	<u>PDF_FORM_TYPE_AcroForm</u> (/reference/android/graphics/pdf/PdfRenderer#PDF_FORM_TYPE_AcroForm) Represents a PDF with form fields specified using the AcroForm specification.
int	<u>PDF_FORM_TYPE_NONE</u> (/reference/android/graphics/pdf/PdfRenderer#PDF_FORM_TYPE_NONE) Represents a PDF without form fields.
int	<u>PDF_FORM_TYPE_XFA_FOREGROUND</u> (/reference/android/graphics/pdf/PdfRenderer#PDF_FORM_TYPE_XFA_FOREGROUND) Represents a PDF with form fields specified using the XFA subset of the XFA specification.
int	<u>PDF_FORM_TYPE_XFA_FULL</u> (/reference/android/graphics/pdf/PdfRenderer#PDF_FORM_TYPE_XFA_FULL) Represents a PDF with form fields specified using the entire XFA specification.
Public constructors	

PdfRenderer (/reference/android/graphics/pdf/PdfRenderer#PdfRenderer(android.os.ParcelFileDescriptor) (**ParcelFileDescriptor** (/reference/android/os/ParcelFileDescriptor) **fileDescriptor**)

Creates a new instance.

PdfRenderer

(/reference/android/graphics/pdf/PdfRenderer#PdfRenderer(android.os.ParcelFileDescriptor,%20android.os.ParcelFileDescriptor) (**ParcelFileDescriptor** (/reference/android/os/ParcelFileDescriptor) **fileDescriptor**, **LoadParams** (/reference/android/graphics/pdf/LoadParams) **params**)

Creates a new instance of PdfRenderer class.

Public methods

void	<u>close</u> (/reference/android/graphics/pdf/PdfRenderer#close) Closes this renderer.
int	<u>getDocumentLinearizationType</u> (/reference/android/graphics/pdf/PdfRenderer#getDocumentLinearizationType) Gets the type of the PDF document.
int	<u>getPageCount</u> (/reference/android/graphics/pdf/PdfRenderer#getPageCount) Gets the number of pages in the document.
int	<u>getPdfFormType</u> (/reference/android/graphics/pdf/PdfRenderer#getPdfFormType) Returns the form type of the loaded PDF
<u>PdfRenderer.Page</u> (/reference/android/graphics/pdf/PdfRenderer.Page)	<u>openPage</u> (/reference/android/graphics/pdf/PdfRenderer#openPage) Opens a page for rendering.
boolean	<u>shouldScaleForPrinting</u> (/reference/android/graphics/pdf/PdfRenderer#shouldScaleForPrinting) Gets whether the document prefers to be scaled for printing.
void	<u>write</u> (/reference/android/graphics/pdf/PdfRenderer#write) Writes the rendered page to the output stream.

([ParcelFileDescriptor](#) (/reference/android/os/boolean removePasswordProtection)

Saves the current state of the loaded PDF document.
[ParcelFileDescriptor](#) (/reference/android/os/

Protected methods

void[finalize](#) (/reference/android/graphics/pdf/PdfRenderer#finalize()) ()

Called by the garbage collector on an object when garbage collection determines that there are no more references to the object.

Inherited methods

▼ From class [java.lang.Object](#) (/reference/java/lang/Object)

[Object](#) (/reference/java/lang/Object)

[clone](#) (/reference/java/lang/Object#clone()) ()

Creates and returns a copy of this object.

boolean

[equals](#)

(/reference/java/lang/Object#equals(java.lang.Object ([Object](#) (/reference/java/lang/Object) obj))

Indicates whether some other object is "equal to" this one.

void

[finalize](#) (/reference/java/lang/Object#finalize()) ()

Called by the garbage collector on an object when garbage collection determines that there are no more references to the object.

final **[Class](#)** (/reference/java/lang/Class)<?>

[getClass](#) (/reference/java/lang/Object#getClass()) ()

Returns the runtime class of this **Object**.

int

hashCode (/reference/java/lang/Object#hashCode())
()

Returns a hash code value for the object.

final void

notify (/reference/java/lang/Object#notify()) ()

Wakes up a single thread that is waiting on this object monitor.

final void

notifyAll (/reference/java/lang/Object#notifyAll())
()

Wakes up all threads that are waiting on this object's monitor.

String (/reference/java/lang/String)

toString (/reference/java/lang/Object#toString()) ()

Returns a string representation of the object.

final void

wait (/reference/java/lang/Object#wait(long,%20int))
(long timeoutMillis, int nanos)

Causes the current thread to wait until it is awakened, typically by being *notified* or *interrupted*, or until a certain amount of real time has elapsed.

final void

wait (/reference/java/lang/Object#wait(long))(long
timeoutMillis)

Causes the current thread to wait until it is awakened, typically by being *notified* or *interrupted*, or until a certain amount of real time has elapsed.

final void

wait (/reference/java/lang/Object#wait()) ()

Causes the current thread to wait until it is awakened, typically by being *notified* or *interrupted*.

▼ From interface **java.lang.AutoCloseable** (/reference/java/lang/AutoCloseable)

abstract void

close (/reference/java/lang/AutoCloseable#close()) ()

Closes this resource, relinquishing any underlying resources.

Constants

DOCUMENT_LINEARIZED_TYPE_LINEARIZED Added in API level 35 (/guide/topics/manifest/uses-sdk-element#ApiLevels)

```
public static final int DOCUMENT_LINEARIZED_TYPE_LINEARIZED
```

Represents a linearized PDF document.

Constant Value: 1 (0x00000001)

DOCUMENT_LINEARIZED_TYPE_NON_LINEARIZED Added in API level 35 (/guide/topics/manifest/uses-sdk-element#ApiLevels)

```
public static final int DOCUMENT_LINEARIZED_TYPE_NON_LINEARIZED
```

Represents a non-linearized PDF document.

Constant Value: 0 (0x00000000)

PDF_FORM_TYPE_ACRO_FORM Added in API level 35 (/guide/topics/manifest/uses-sdk-element#ApiLevels)

```
public static final int PDF_FORM_TYPE_ACRO_FORM
```

Represents a PDF with form fields specified using the AcroForm spec

Constant Value: 1 (0x00000001)

PDF_FORM_TYPE_NONE Added in API level 35 (/guide/topics/manifest/uses-sdk-element#ApiLevels)

```
public static final int PDF_FORM_TYPE_NONE
```

Represents a PDF without form fields

Constant Value: 0 (0x00000000)

PDF_FORM_TYPE_XFA_FOREGROUND

Added in [API level 35](#) (</guide/topics/manifest/uses-sdk-element#ApiLevels>)

```
public static final int PDF_FORM_TYPE_XFA_FOREGROUND
```

Represents a PDF with form fields specified using the XFAF subset of the XFA spec

Constant Value: 3 (0x00000003)

PDF_FORM_TYPE_XFA_FULL

Added in [API level 35](#) (</guide/topics/manifest/uses-sdk-element#ApiLevels>)

```
public static final int PDF_FORM_TYPE_XFA_FULL
```

Represents a PDF with form fields specified using the entire XFA spec

Constant Value: 2 (0x00000002)

Public constructors

PdfRenderer

Added in [API level 21](#) (</guide/topics/manifest/uses-sdk-element#ApiLevels>)


```
public PdfRenderer (ParcelFileDescriptor (/reference/android/os/ParcelFileDescriptor) fileDescriptor)
```

Creates a new instance.

Note: The provided file descriptor must be **seekable**, i.e. its data being randomly accessed, e.g. pointing to a file.

Note: This class takes ownership of the passed in file descriptor and is responsible for closing it when the renderer is closed.

If the file is from an untrusted source it is recommended to run the renderer in a separate, isolated process with minimal permissions to limit the impact of security exploits. **Note:** The constructor should be instantiated on the `ERROR(/android.annotation.WorkerThread)` as it can be long-running while loading the document.

Parameters

fileDescriptor	ParcelFileDescriptor : Seekable file descriptor to read from. This value cannot be <code>null</code> .
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Throws

<u>IOException</u> (/reference/java/io/IOException)	If an error occurs while reading the file.
<u>SecurityException</u> (/reference/java/lang/SecurityException)	If the file requires a password or the security scheme is not supported.
<u>IllegalArgumentException</u> (/reference/java/lang/IllegalArgumentException)	If the <u>ParcelFileDescriptor</u> (/reference/android/os/ParcelFileDescriptor) is not seekable.
<u>NullPointerException</u> (/reference/java/lang/NullPointerException)	If the file descriptor is null.

PdfRenderer

Added in [API level 35](#) (/guide/topics/manifest/uses-sdk-element#ApiLevels)

```
public PdfRenderer (ParcelFileDescriptor (/reference/android/os/ParcelFileDescriptor) fileDescriptor, LoadParams (/reference/android/graphics/pdf/LoadParams) params)
```

Creates a new instance of PdfRenderer class.

Note: The provided file descriptor must be **seekable**, i.e. its data being randomly accessed, e.g. pointing to a file. If the password passed in [LoadParams](#) (/reference/android/graphics/pdf/LoadParams) is incorrect, the [PdfRenderer](#) (/reference/android/graphics/pdf/PdfRenderer) will throw a [SecurityException](#) (/reference/java/lang/SecurityException).

Note: This class takes ownership of the passed in file descriptor and is responsible for closing it when the renderer is closed.

If the file is from an untrusted source it is recommended to run the renderer in a separate, isolated process with minimal permissions to limit the impact of security exploits. **Note:** The constructor should be instantiated on the [ERROR\(/android.annotation.WorkerThread\) \(/\)](#) as it can be long-running while loading the document.

Parameters

fileDescriptor	ParcelFileDescriptor : Seekable file descriptor to read from. This value cannot be null .
params	LoadParams : Instance of LoadParams (/reference/android/graphics/pdf/LoadParams) specifying params for loading PDF document. This value cannot be null .

Throws

<u>IOException</u> (/reference/java/io/IOException)	If an error occurs while reading the file.
<u>SecurityException</u> (/reference/java/lang/SecurityException)	If the file requires a password or the security scheme is not supported by the renderer.
<u>IllegalArgumentException</u> (/reference/java/lang/IllegalArgumentException)	If the <u>ParcelFileDescriptor</u> (/reference/android/os/ParcelFileDescriptor) is not seekable.
<u>NullPointerException</u> (/reference/java/lang/NullPointerException)	If the file descriptor or load params is null.

Public methods

close Added in [API level 21](/guide/topics/manifest/uses-sdk-element#ApiLevels) (</guide/topics/manifest/uses-sdk-element#ApiLevels>)

```
public void close ()
```

Closes this renderer. You should not use this instance after this method is called.

Throws

<u>IllegalStateException</u> (/reference/java/lang/IllegalStateException)	If <u>close()</u> (/reference/android/graphics/pdf/PdfRenderer#close()) is called before invoking this or if any page is opened and not closed
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See also:

PdfRenderer.Page.close() ([/reference/android/graphics/pdf/PdfRenderer.Page#close\(\)](/reference/android/graphics/pdf/PdfRenderer.Page#close()))

getDocumentLinearizationType Added in [API level 35](/guide/topics/manifest/uses-sdk-element#ApiLevels) (/guide/topics/manifest/uses-sdk-element#ApiLevels)

```
public int getDocumentLinearizationType ()
```

Gets the type of the PDF document.

Returns

int	The PDF document type. Value is DOCUMENT_LINEARIZED_TYPE_NC (/reference/android/graphics/pdf/PdfRenderer#DOCUMENT_LINEAR), or DOCUMENT_LINEARIZED_TYPE_LINEARIZED (/reference/android/graphics/pdf/PdfRenderer#DOCUMENT_LINEAR)
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Throws

IllegalStateException (/reference/java/lang/IllegalStateException)	If close() (/reference/android/graphics/pdf/PdfRenderer#close()) is called before invoking this.
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getPageCount Added in [API level 21](/guide/topics/manifest/uses-sdk-element#ApiLevels) (/guide/topics/manifest/uses-sdk-element#ApiLevels)

```
public int getPageCount ()
```

Gets the number of pages in the document.

Returns

int	The page count. Value is 0 or greater
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Throws

<u>IllegalStateException</u> (/reference/java/lang/IllegalStateException)	If <u>close()</u> (/reference/android/graphics/pdf/PdfRenderer#close()) is called before invoking this.
-------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------

getPdfFormType Added in [API level 35](/guide/topics/manifest/uses-sdk-element#ApiLevels) (/guide/topics/manifest/uses-sdk-element#ApiLevels)

```
public int getPdfFormType ()
```

Returns the form type of the loaded PDF

Returns

int	Value is <u>PDF_FORM_TYPE_NONE</u> (/reference/android/graphics/pdf/PdfRenderer#PDF_FORM_TYPE_NC <u>PDF_FORM_TYPE_ACRO_FORM</u> (/reference/android/graphics/pdf/PdfRenderer#PDF_FORM_TYPE_AC <u>PDF_FORM_TYPE_XFA_FULL</u> (/reference/android/graphics/pdf/PdfRenderer#PDF_FORM_TYPE_XF <u>PDF_FORM_TYPE_XFA_FOREGROUND</u> (/reference/android/graphics/pdf/PdfRenderer#PDF_FORM_TYPE_XF
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Throws

<u>IllegalStateException</u> (/reference/java/lang/IllegalStateException)	if the renderer is closed
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<u>IllegalArgumentException</u> (/reference/java/lang/IllegalArgumentException)	if an unexpected PDF form type is returned
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openPage Added in [API level 21](/guide/topics/manifest/uses-sdk-element#ApiLevels) (/guide/topics/manifest/uses-sdk-element#ApiLevels)

```
public PdfRenderer.Page (/reference/android/graphics/pdf/PdfRenderer.Page) openPage (int
```

Opens a page for rendering.

Parameters

index	int: The page index to open, starting from index 0. Value is 0 or greater
--------------	----------------------------------------------------------------------------------

Returns

<u>PdfRenderer.Page</u> (/reference/android/graphics/pdf/PdfRenderer.Page)	A page that can be rendered. This value cannot be null .
--------------------------------------------------------------------------------------	-----------------------------------------------------------------

Throws

<u>IllegalStateException</u> (/reference/java/lang/IllegalStateException)	If close() . (/reference/android/graphics/pdf/PdfRenderer#close() is called before invoking this.
-------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------

<u>IllegalArgumentException</u> (/reference/java/lang/IllegalArgumentException)	If the page number is less than 0 or greater than or equal to the total page count.
-------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------

See also:

[PdfRenderer.Page.close\(\)](/reference/android/graphics/pdf/PdfRenderer.Page#close()) (/reference/android/graphics/pdf/PdfRenderer.Page#close())

shouldScaleForPrinting Added in [API level 21](/guide/topics/manifest/uses-sdk-element#ApiLevels) (/guide/topics/manifest/uses-sdk-element#ApiLevels)

```
public boolean shouldScaleForPrinting ()
```

Gets whether the document prefers to be scaled for printing. You should take this info account if the document is rendered for printing and the target media size differs from the page size.

Returns

boolean	If to scale the document.
---------	---------------------------

Throws

<u>IllegalStateException</u> (/reference/java/lang/IllegalStateException)	If <u>close()</u> (/reference/android/graphics/pdf/PdfRenderer#close()) is called before invoking this.
-------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------

write Added in [API level 35](/guide/topics/manifest/uses-sdk-element#ApiLevels) (/guide/topics/manifest/uses-sdk-element#ApiLevels)

```
public void write (ParcelFileDescriptor (/reference/android/os/ParcelFileDescriptor) dest  
                  boolean removePasswordProtection)
```

Saves the current state of the loaded PDF document to the given writable [ParcelFileDescriptor](#) (/reference/android/os/ParcelFileDescriptor). If the document is password-protected then setting [removePasswordProtection](#) removes the protection before saving. The PDF document should already be decrypted with the correct password before writing. Useful for printing or sharing. **Note:** This method closes the provided file descriptor.

Parameters

destination	ParcelFileDescriptor: The writable ParcelFileDescriptor (/reference/android/os/ParcelFileDescriptor) This value cannot be null .
removePasswordProtection	boolean: If true, removes password protection from the PDF before saving.

Throws

IOException (/reference/java/io/IOException)	If there's a write error, or if 'removePasswordSecurity' is true but the document remains encrypted.
IllegalStateException (/reference/java/lang/IllegalStateException)	If close() (/reference/android/graphics/pdf/PdfRenderer#close()) is called before invoking this.

Protected methods

finalize Added in [API level 21](#) (/guide/topics/manifest/uses-sdk-element#ApiLevels)

```
protected void finalize ()
```


Called by the garbage collector on an object when garbage collection determines that there are no more references to the object. A subclass overrides the `finalize` method to dispose of system resources or to perform other cleanup.

The general contract of `finalize` is that it is invoked if and when the Java virtual machine has determined that there is no longer any means by which this object can be accessed by any thread that has not yet died, except as a result of an action taken by the finalization of some other object or class which is ready to be finalized. The `finalize` method may take any action, including making this object available again to other threads; the usual purpose of `finalize`, however, is to perform cleanup actions before the object is irrevocably discarded. For example, the finalize method for an object that represents an input/output connection might perform explicit I/O transactions to break the connection before the object is permanently discarded.

The `finalize` method of class `Object` performs no special action; it simply returns normally. Subclasses of `Object` may override this definition.

The Java programming language does not guarantee which thread will invoke the `finalize` method for any given object. It is guaranteed, however, that the thread that invokes finalize will not be holding any user-visible synchronization locks when finalize is invoked. If an uncaught exception is thrown by the finalize method, the exception is ignored and finalization of that object terminates.

After the `finalize` method has been invoked for an object, no further action is taken until the Java virtual machine has again determined that there is no longer any means by which this object can be accessed by any thread that has not yet died, including possible actions by other objects or classes which are ready to be finalized, at which point the object may be discarded.

The `finalize` method is never invoked more than once by a Java virtual machine for any given object.

Any exception thrown by the `finalize` method causes the finalization of this object to be halted, but is otherwise ignored.

Throws	
<u>Throwable</u> (/reference/java/lang/Throwable)	

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