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# Understand Instant JSON: Streamlining PDF updates



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Instant JSON stores PDF changes like annotations and bookmarks in a separate JSON file. This means that a PDF document will only need to be transferred once and all changes will be added as an overlay to the existing PDF. This approach significantly reduces the bandwidth, since you only need to transfer the JSON instead of the complete PDF.

Conceptually, Instant JSON defines a list of `skippedPdfObjectIds`. These point to the PDF's internal object IDs for annotations. Whenever an object ID is marked as *skipped*, it'll no longer be loaded from the original PDF. Instead, it could be defined inside the `annotations` array with the same `pdfObjectId`. If this is the case, the PDF viewer will display the new annotation, which signals an update to the original one. If an object ID is marked as *skipped* but the `annotations` array doesn't contain an annotation with the same `pdfObjectId`, it'll be interpreted as a *deleted* annotation. An annotation inside the `annotations` array without the `pdfObjectId` property is interpreted as a newly created annotation.

All annotations in the `annotations` array have a unique `id` field. For updated annotations that were in the original PDF, this field will be the stringified `pdfObjectId`. Newly created annotations will get a newly generated ULID.



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An “empty” Instant JSON contains neither `skippedPdf0bjectIds` nor `annotations` , which means the original PDF is untouched. All annotations in the initial PDF are still shown.

The table below illustrates how Instant JSON manages annotation updates, deletions, and creations in a PDF using a list of skipped object IDs and an annotations array.

SCENARIO	SKIPPEDPDFOBJECTIDS	ANNOTATIONS ARRAY	INTERPRETATION BY PDF VIEWER
Annotation to be updated	Contains object ID	Contains an object with the same <code>pdf0bjectId</code>	Display the new annotation from the array
Annotation to be deleted	Contains object ID	Does not contain an object with the same <code>pdf0bjectId</code>	Treat the annotation as deleted
New annotation to be created	Does not contain ID	Contains an object without the <code>pdf0bjectId</code> property	Display the newly created annotation
Original annotation to be loaded without changes	Does not contain ID	May or may not contain related objects	Load and display the original annotation

Instant JSON also defines a list of `skippedPdfBookmarkIds` that follow the same principals of `skippedPdf0bjectIds` , but instead they contain a list of bookmarks that no longer need to be loaded from the original document.

## Was this helpful?

☒ YES

☐ NO

