

Annotations Streaming with viewone pro

As part of the performance enhancements development work for ViewONE Pro and the Document Streaming Server Module, the Daeja team looked at another area where streaming can have a substantial impact on network traffic and viewing times: Annotations retrieval. New releases of ViewONE Pro's Annotations Module now benefit from the streaming capabilities described below.

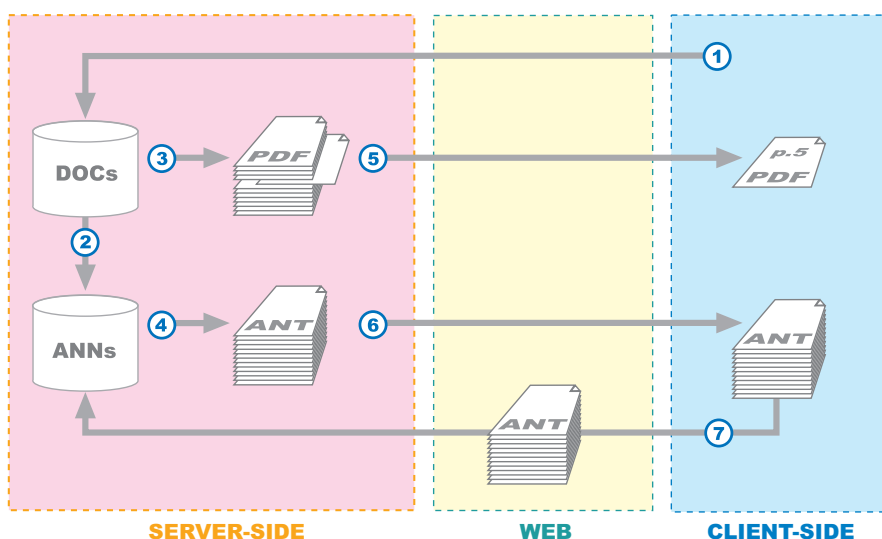
ViewONE Pro's annotations system was produced specifically for use across the web. The annotations files generated (our '.ant' files) are small: INI format text files, and unlike many viewers, when users save annotations onto a document it is only this small '.ant' file which is returned to the server, not the original document. Keeping network traffic to a minimum is important, especially for true web-based users.

For maximum performance, Daeja recommends that individual annotations be parsed on the server and stored in a searchable database alongside your repository. While more flexible from a storage and search perspective, at document viewing time, all these individual annotations files previously needed to be recompiled into a single flat file for transfer to the viewer, even if the user only wants to view page 1 of the document.

In most instances, where typical multi-page documents may have 50 annotations in total, the annotations file might only add an unnoticeable few kilobytes to the document download. However, with larger multi-page annotated documents, where there maybe dozens of annotations per page, the resultant annotations file might add many seconds to the download.

When considering all aspects of file optimization, such a large annotations file download is inconvenient, especially if the user adds annotations or edits existing annotations. In this case the whole file would then need to be re-saved back to the server. Splitting the multi-page document on the fly on the server (using ViewONE Pro's Document Streaming Server Module) can deliver spectacular performance gains, but is only one half of the story - splitting the annotations file is also important. Such streaming is now offered as standard within ViewONE Pro's Annotations Module.

Non-optimized Annotations Retrieval & Storage (using the Document Streaming Server Module)

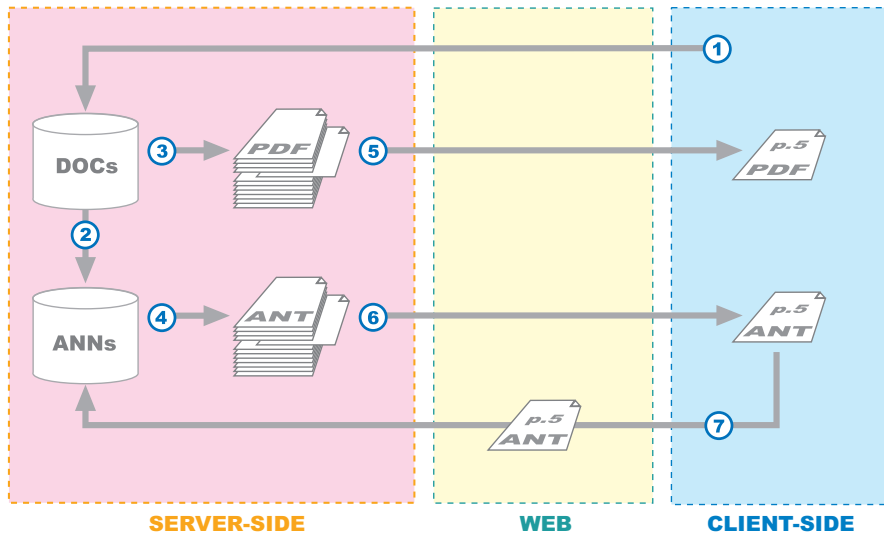


- ① Click to view page 1 of the document. Request is sent to the document repository
- ② Annotations requested from Annotations database
- ③ Retrieved document is passed to the ViewONE Pro Document Streaming Server Module
- ④ The individual annotations are recompiled into a flat file for download
- ⑤ The single page PDF file is downloaded to the client
- ⑥ The entire annotations file is passed to the client
- ⑦ If amendments are made to the annotations file by the user, the entire annotations file must be resaved back to the server

When the user clicks to view a document, the annotations are retrieved from their storage location, in the above example, a database table. Without Annotations Streaming, all the annotations associated with that document are recompiled into a flat file (the INI file) for transfer to the viewer. For document security (in case there are redactions which need to be applied), the viewer needs to wait for the whole of the annotations file to be downloaded prior to rendering the single, streamed page (page 5 in our example). Once downloaded, if the annotations for page 5 are amended (or if new annotations are applied to the page), the entire annotations file needs to be written back to the server.

While the annotations file is only a fraction of the size of the full multi-page PDF, the download and upload times involved in retrieving and resaving the annotations file, even if only one page is required would make optimization necessary.

Optimized Annotations Retrieval & Storage (using the Document Streaming Server Module)



- ① Click to view page 1 of the document. Request is sent to the document repository
- ② Annotations requested from Annotations database
- ③ Retrieved document is passed to the ViewONE Pro Document Streaming Server Module
- ④ Only the annotations for the page being requested are retrieved
- ⑤ The single page PDF file is downloaded to the client
- ⑥ The single page of annotations is passed to the client
- ⑦ If amendments are made to the annotations, only the single-page annotations file is re-saved

In this example, rather than recompiling all the annotations into a single flat file for transfer to the client, only the annotations relating to page 5 of the document are retrieved and passed to the client. If the user clicks to view another page of the document, only the annotations that relate to that page are downloaded to the client. If the user then edits or adds annotations to the page they are viewing, only the annotations page file for that page needs to be passed back to the server, significantly reducing the network traffic and improving performance.

For additional performance gains, once downloaded, annotations remain in the ViewONE Pro cache for faster document browsing.

Pre-fetching

ViewONE Pro includes the capability to 'pre-fetch' pages, based on a server-side configuration setting, which allows additional pages, and now annotations, to be cached in the background while the user is viewing any particular page. The default setting for pre-fetching is to cache the pages immediately after the page being downloaded. For example if the user selects page 5, and pre-fetching is set to 3, as the user is viewing page 5, pages 6, 7 and 8 will be downloaded in the background. Using the same example, if the user then clicks to view page 4, instead of page 6, ViewONE Pro recognizes the change in direction and begins to download three pages in advance of the page being viewed (pages 3, 2 and 1).

Details on pre-fetching can be found in the ViewONE Pro Manual.

For more information about ViewONE and ViewONE Pro, please contact sales@daeja.com

The Annotations Module to be used in conjunction with ViewONE Pro



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