

# Professional Liability Risks of Filing in DOCX - for users of Microsoft Word

May 10, 2023  
10AM to 11:30AM Mountain Time  
Carl Oppedahl  
<https://blog.oppedahl.com>

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# Upcoming DOCX webinar

- Professional Liability Risks of Filing in DOCX - for users of non-Microsoft word processors
- Friday, May 12, 2023
- 10AM – 11:30AM Mountain Time

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How to register?

Go to

[https://blog.oppedahl.com/?page\\_id=9354](https://blog.oppedahl.com/?page_id=9354)

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# Upcoming ePCT webinars

Webinar 11. Thursday, May 11, 2023, 10AM Mountain Time.  
External signatures and PCT declarations.

Webinar 12. Thursday, May 18, 2023, 10AM Mountain Time.  
Sequence listings and ePCT.

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# Upcoming ePCT webinars

Webinar 13. Thursday, June 1, 2023, 10AM Mountain Time. Docketing of PCT applications and making use of ePCT notifications.

Using ePCT to e-file in ISAs and IPEAs, filing Demands.

Doing 92*bis* changes.

Publication front page preview, generating reports of outstanding Forms ISA/202, generating reports of applications with outstanding priority documents.

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# Upcoming ePCT webinars

These webinars are free of charge, thanks to sponsorship by the World Intellectual Property Organization

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# Upcoming ePCT webinars

How to register? Go to

[https://blog.oppedahl.com/?page\\_id=8978](https://blog.oppedahl.com/?page_id=8978).

How to learn of future webinars? Subscribe to my blog ( <https://blog.oppedahl.com/> ), or subscribe to the PCT listserv ( [https://oppedahl-lists.com/mailman/listinfo/pct\\_oppedahl-lists.com](https://oppedahl-lists.com/mailman/listinfo/pct_oppedahl-lists.com) ).

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# Today's schedule

- The webinar is scheduled to last 90 minutes. We recognize that some attendees have only very limited time to attend such a webinar. With this in mind, we will present an executive summary during the initial forty minutes, followed by a detailed discussion for the remaining fifty minutes. Those whose time is limited could consider joining the webinar for the first forty minutes and then disconnecting.

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# Quick summary

Two things are critically important when filing a patent application:

- First, the PTO should never change what the applicant uploaded; and
- Second, the PTO should acknowledge what the applicant uploaded (in a way that allows the applicant/patentee to prove what they filed)

Under the DOCX system:

- The PTO changes the application that the applicant uploaded; and
- The PTO does not acknowledge what the applicant uploaded.

So, if you file with DOCX you may be committing malpractice – and you have no way to avoid it. And you'll need tail insurance 26+ years out.

OR pay the \$400 (or \$200) and be safe.

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# Executive summary

- Starting June 30, you will have to pay a penalty of up to \$400 unless you e-file the way USPTO wants you to (DOCX)
- If you want to file safely (which means PDF) on or after June 30, you will have to pay the \$400 penalty

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# Executive summary

- Remember the post card? Back in the days of Express Mail filing, this was how you proved what you filed, if a question came up later.
- For some twenty years now, it has been the Ack Receipt. The Ack Receipt has a "Message Digest" which has memorialized the PDF file that you uploaded, helping you to prove what you filed, and protecting you from many risks.
- With DOCX, the USPTO has repurposed the Message Digest so that protects infringers and the USPTO itself, and not you, the applicant or practitioner.
- If you file in PDF, you get an audit trail. This protects you. If you later see that the USPTO did something wrong, you can fix it.
- With DOCX, the USPTO goes out of its way to destroy the audit trail, so you can't fix it.

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# Executive summary

- For some twenty years, applicants in the USPTO have filed patent applications in PDF. If you create your PDF in a normal and sensible way, the PDF file looks the same no matter who opens it and views it.
- DOCX format has the great drawback that it sometimes looks different depending on who opened it, what word processor (and what version of word processor) they use, and what operating system they use.

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# Executive summary

- Common sense tells you that for something as important as a patent application, more than anything else the applicant or practitioner wants and needs certainty. There needs to be no question at all what the applicant intended to be the patent application that got filed.
- As between PDF and DOCX, the only format that is safe is PDF.
- Common sense tells you that in a patent e-filing system, there absolutely must be some clear and unequivocal way to show and prove what exactly is the document file that the applicant or practitioner uploaded to the e-filing system.
- At the USPTO, for twenty years now, the Message Digest has been available as part of a clear record as to what exactly the ones and zeroes were in the PDF patent application that the filer uploaded.

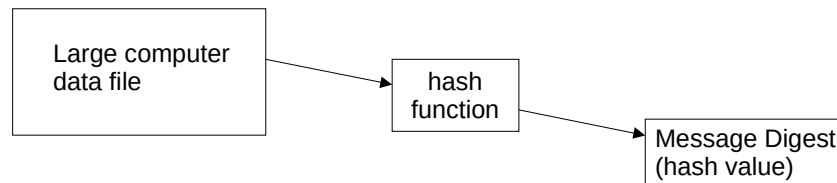
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# Executive summary

- For many years it has been like this. You upload a PDF patent application. The USPTO system computes a Message Digest from that PDF file. The USPTO uses what is called a SHA-512 hash function which yields a “hash value”.

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## What is a hash function?



The input file can be a data file of any size.

The box in the middle is the hash function.

The output is called a “hash value” or “Message Digest”.

A hash function compresses the contents of an input file into a character string called a hash value. There is no practical way to invert the hash value back to the original file.



If even a single character in the input file changes, the hash function will produce a different hash value.

If the input file has not changed, this provides an easy way to show that the file has not changed.

The hash function used by the USPTO is known as SHA-512 and produces a 128-character hash value.

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## USPTO uses the SHA-512 hash for the Message Digest

	UNITED STATES PATENT AND TRADEMARK OFFICE	P.O. Box 1450 Alexandria, VA 22313 - 1450 www.uspto.gov
<b>ELECTRONIC ACKNOWLEDGEMENT RECEIPT</b>		
APPLICATION # <b>18/167,000</b>	RECEIPT DATE / TIME <b>04/06/2023 10:39:09 AM ET</b>	ATTORNEY DOCKET # <b>2023-117-00000000</b>
<hr/>		
DOCUMENT	MESSAGE DIGEST(SHA-512)	
<hr/>		
 S EN translation.pdf	C7523DDB4A87DCD69349EA7DCC7AAE770D3D6DDCA9ACDE F269739D0C5F83CC22EDD84A22E47BC8840921E39E63A4229 084CD43FDE26B02D14C58F16E9BC57372	

A year from now, the filer would not succeed in trying to offer up some other PDF file that was supposedly the file uploaded on April 6, 2023, because the hash value (Message Digest) would not match.

A year from now, if anybody wonders if some proffered PDF file is indeed identical to the one that was uploaded on April 6, 2023, any interested party can compute the hash value and if it matches what you see here, from a practical point of view there is no question that it is indeed identical to the file that was uploaded.

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## Why use a hash function?

- The hash value (message digest) in the Ack Receipt makes it practically impossible for anybody to pull a fast one on anybody else.
- It makes it practically impossible for anybody to try to rewrite history about what exact PDF file was uploaded.
  - Nobody has to trust anybody else for this to work.
- If anything bad happened to the PDF file, it will inevitably be found out.
- For today's discussion, the main point is that the hash value (message digest) in the Ack Receipt **protects the patent practitioner** who filed that patent application.
  - If the practitioner says, "This is exactly what I filed" and if the hash values match, the practitioner is on a practical level immune from attack on this point. The USPTO cannot doubt it. An adversary in litigation cannot doubt it.

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## You're protected if you file a PDF patent application

- You author the patent application in the word processor of your choice
- You export it as PDF
- You send it to the inventors for review and signature of declarations
- You upload the PDF to EFS-Web or Patentcenter
- You click "submit"
- You get the Ack Receipt with the "Message Digest" (SHA-512 hash)
- The PDF file "controls" for all later USPTO workflow
- Everybody involved can be confident that they know what was in that PDF file
- If the issued patent were to fail to match the PDF (a square root that became a smiley face, a Greek letter mu ( $\mu$ ) that became a "u") you will have no difficulty obtaining a Certificate of Correction to fix it
- TYFNIL (ten years from now in litigation) nobody is going to get anywhere trying to make something up about what was in that PDF file
- You can preserve a copy of that PDF file locally and years from now you can prove it is the authentic file by computing a hash and comparing it to the hash in the Ack Receipt
- Everybody wins. Whole categories of motion practice and summary judgment practice are rendered unnecessary by this.
- Most importantly for today's discussion, ***the patent practitioner who filed the patent application wins.***
- For some two decades now, the Message Digest has protected the applicant and practitioner.
- (And before the Message Digest there was the postcard or paper receipt.)

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## You're NOT protected if you file a DOCX patent application

- You will never be able to prove exactly what DOCX file you uploaded
- The Ack Receipt does not list by name the DOCX file that you uploaded
- The Ack Receipt does not list the Message Digest for the DOCX file that you uploaded
- The USPTO does not preserve the DOCX file that you uploaded
- There is a Message Digest in the Ack Receipt that on a quick glance might be assumed to be the Message Digest of the DOCX file that you uploaded
- It is not! It is the Message Digest of ***a new and different*** DOCX file that is not the DOCX file that you uploaded
- As we will see, in USPTO's DOCX filing program the USPTO has repurposed the Message Digest to protect infringers and not the applicant (and patent owner). It no longer protects the applicant or practitioner.

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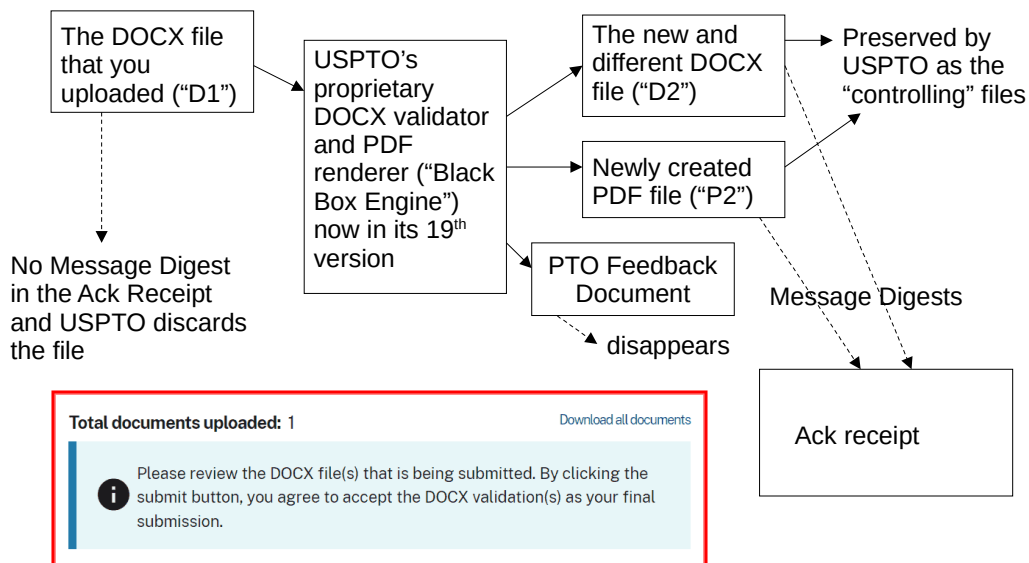
## One-year estoppel rule 86 FR 29571, June 2, 2021

The USPTO is in the process of transitioning to a system that supports submitting new patent applications in structured text, specifically DOCX format. Application documents submitted in DOCX format will facilitate the examination and publication processes. This notice provides information on structured text filing. ...

Applicants ***should not expect to have a request to correct the electronic record granted*** if the request is based on the source or evidentiary copy and it is filed more than one year after submission of the document.

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### What happens if you file a DOCX patent application



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## Where does P2 come from exactly?

- USPTO has never said where P2 comes from exactly.
- Maybe it comes from D2.
- Maybe it comes directly from the Black Box Engine.
- Because the P2 part of the system is only known to the USPTO, we cannot be certain that this part of the diagram correctly portrays what happens inside the USPTO system, but this diagram is our best understanding of how the PTO has said their system works internally.

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## PTO feedback document

- The PTO Feedback Document purports to explain what the Black Box Engine did to D1
- The PTO Feedback Document disappears after you click “submit”
- Maybe you saved a copy of the PTO Feedback Document, but if you didn't, it will be gone forever.

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# To protect yourself ...

- You need to compare D1 and D2, character by character, to see whether anything changed!
- You need to scrutinize the P2 PDF, character by character, for the same concerns ...
  - Did a square root become a smiley face?
  - Did a Greek letter mu ( $\mu$ ) become a “u”?
- Keep in mind that you were presented with D2 and P2 just a minute or two ago, for the very first time!
- Who is doing the scrutinizing? The practitioner? A paralegal?
- How much time is there between now and midnight Eastern Time?
- By the way, can you bill the client for this time spent doing this scrutinizing?
- If you click the “submit” button, then these two files D2 and P2, which you are just now seeing for the very first time, become your “controlling” files for all purposes.

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## What does it mean to click “submit”?

- If you click “submit”, you are agreeing to an adhesion contract
- It is like agreeing to clickwrap language
- You are agreeing that your originally uploaded DOCX file (“D1”) file will be discarded and that a new and different DOCX file (“D2”) created by the USPTO will be your patent application

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## What does it mean to click “submit”?

- Would you tolerate such clickwrap if you were filing a brief in court?
- The court tells you “Thank you for uploading your brief in this case. We have rewritten your brief. We will now discard your brief as uploaded. The rewritten brief will be your brief in this case. That’s okay with you, right?”

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## Comparing D1 and D2 ...

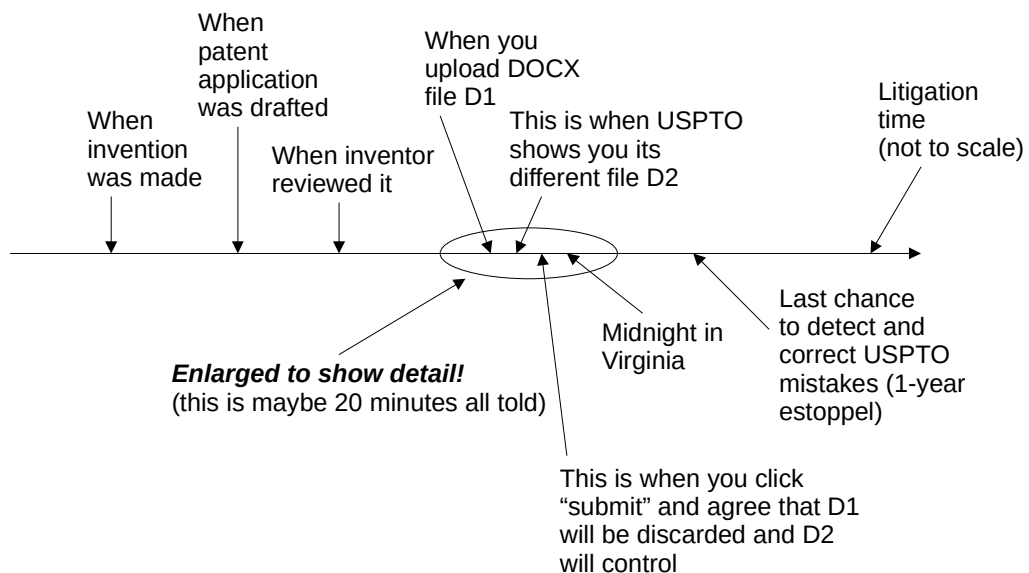
- To compare two DOCX files, like D1 (which is the document file that you uploaded to EFS-Web or Patentcenter) and D2 (which is the new and different document file that the USPTO proposes will become your “controlling” patent application document), how do you do it?
- I guess you open both of the DOCX files using your word processor, and compare how each of the files looks in your word processor?
- A first problem with this approach is that it sort of does not matter what **you** see when **you** open it. The USPTO has its own word processor that might render the two files differently.
- Recall that with DOCX, any two or three people who view a file with their own word processors might see different things on their screens.

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## But that's not enough. You need to do more comparisons ...

- It is extremely risky to not download and review yet another file, namely the PTO's Feedback Document, since that is where you might find problems arising from the "DOCX validation(s)".
- And even if the PTO says that no errors were found, it is extremely risky to not compare the PTO's Feedback Document with the applicant's own original document.
- Who is going to do this review and comparison? The practitioner? A paralegal?
- And how much time remains between now and midnight?
- By the way, can you bill the client for the time spent in this review and comparison?

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# Maybe you say ...

- Yes, we used to compare the DOCX patent application that we uploaded (D1 which will be discarded) with the new DOCX file (D2) became “controlling” when we clicked “submit” ...
  - But several times in a row, we did not detect any problems.
  - Several times in a row, we did not see any places where a  $\mu$  became a “u”.
  - Several times in a row, we did not see any places where a square root become a smiley face.
- Surely that means that now we can relax and just click “submit” going forward, with no need to do any character-by-character comparison, right? The USPTO’s own DOCX training webinars said that filing in DOCX is safe, and is somehow better than using PDF. Surely we can trust the USPTO on this, right?
- The answers are “no”. Let’s see why ...

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## Why you cannot cease cross-checks just because some recent past cross-checks did not identify problems

- You can’t predict when your Microsoft Office 365 will have a version change, tomorrow or next month ...
- You can’t predict when USPTO’s Black Box Engine will have a version change, tomorrow or next month ...
- If they get out of synch with each other, then the result tomorrow or next month might be square root becoming a smiley face or “ $\mu$ ” became a “u”
- And anyway, unlike a PDF file which looks the same no matter who opens it and views it, as a general matter it often happens that with a DOCX file, it looks different depending on who opens it and when they open it and which software they use
- For all of these reasons, you have to maintain continued and never-ceasing diligence for character-by-character comparisons, each time you do another DOCX filing

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# Example courtesy of the Schwegman firm

- SUBMITTED DOCX:

- [0128] [h,w]=size(lin);  
lout=zeros(size(lin));  
for i=1:h,  
for j=1:w,  
x=j;  
y=i;  
S=dZ/(f\*H);  
x1=x(:)-x0;  
y1=y(:)-y0;  
y2=y1./(1+y1\*S);  
x2=x1./(1+y1\*S);  
x2=x2+x0;  
y2=y2+y0;  
lout(i,j)=bilinearInterpolate(lin,x2,y2);  
end;  
end;

- USPTO DOCX:

- [0128] [h,w]=size(lin); lout=zeros(size(lin)); for i=1:h, for j=1:w,x=j; y=i; S=dZ/(f\*H); x1=x(:)-x0;  
y1=y(:)-y0; y2=y1./(1+y1\*S); x2=x1./(1+y1\*S); x2=x2+x0; y2=y2+y0;  
lout(i,j)=bilinearInterpolate(lin,x2,y2); end; end;

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Another example courtesy of the Schwegman firm:

**Hard to find errors when filing – no error or warning – fixed by PTO after we provided S/N**

$$M(x)[Z] \leq \exp(\epsilon \cdot d(x, x')) \cdot M(x')[Z].$$

$$M(\square)[Z] \leq \exp(\square \cdot \square(\square, \square')) \cdot M(\square')[Z].$$

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# The Black Box Engine

Blog of Director Vidal, December 19, 2022

## 2. Use the Auxiliary PDF (if necessary)

We've heard from some of you that you are concerned the validated DOCX version or the USPTO-generated PDF version may contain a discrepancy. Though we saw discrepancies in earlier versions of the tool, we considered your feedback and have updated the tool accordingly. It is now at a very advanced stage (version 18). We have not been seeing requests to rely on the auxiliary PDF discussed above. That said, if you have specific concerns, there are a few steps you can take.

USPTO's  
proprietary  
DOCX validator  
and PDF  
renderer ("Black  
Box Engine")  
now in its 19<sup>th</sup>  
version

USPTO does not maintain a public  
change log

The only way the patent community  
learned of the previous 17 version  
changes was long after the fact, on  
December 19, 2022

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# The Black Box Engine

Another version change from version 18 to  
version 19 on March 17, 2023

USPTO's  
proprietary  
DOCX validator  
and PDF  
renderer ("Black  
Box Engine")  
now in its 19<sup>th</sup>  
version

From: Seidel, Richard <Richard.Seidel@USPTO.GOV> [📧](#)  
To: David Boundy <DavidBoundyEsq@gmail.com> [📧](#) 3/7/2023, 12:15 PM  
Cc: Griffin, Steven <Steven.Griffin@USPTO.GOV> [📧](#), Foley, Tamara <Tamara.Foley@USPTO.GOV> [📧](#),  
Vidovich, Greg <Greg.Vidovich@USPTO.GOV> [📧](#) [MORE](#)  
Subject: RE: Stakeholder meeting DOCX- David Boundy

Hello again, Mr. Boundy.

We did investigate this issue previously when it was communicated to our Electronic Business Center (EBC) and you brought it to our attention in mid-February. Thank you again for providing this feedback. As a result of our investigation, we were able to replicate the issue and a fix has been scheduled to address this discrepancy on or about March 17<sup>th</sup>. We have closed the loop with this customer and have posted a temporary solution in our *known issues and work arounds* section of Patent Center.

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## The Black Box Engine is a nose of wax

- The behavior of the Black Box Engine has changed, and can change, without notice or explanation
- It might not change your  $\sqrt{\phantom{x}}$  to a ☺ today, but it might tomorrow
- It might not change your  $\mu$  to a u today, but it might tomorrow
- The continuation application you file today with yesterday's specification might be converted differently!
- We only know of version 18 because of an off-hand mention in the Director's Blog of December 19, 2022

USPTO's  
proprietary  
DOCX validator  
and PDF  
renderer ("Black  
Box Engine")  
now in at least  
its 19<sup>th</sup> version

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## Microsoft Office 365 Complicates the Black Box Engine

Microsoft Office 365 is cloud-based and neither you nor the USPTO has control when it is updated

If Microsoft Office 365 changes and the Black Box Engine has not kept up, more errors can occur

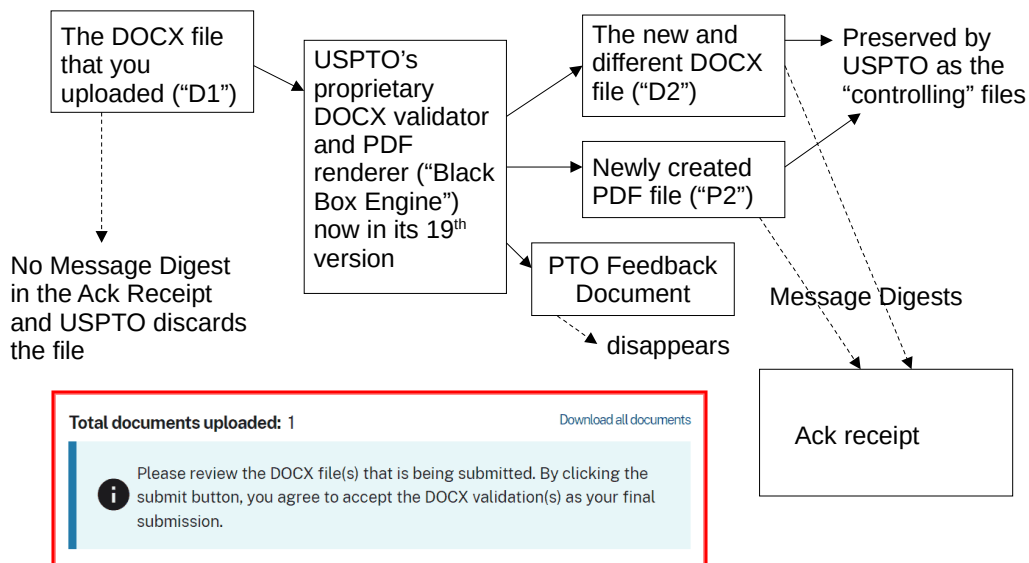
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# You Must Do Character-by-Character Comparisons

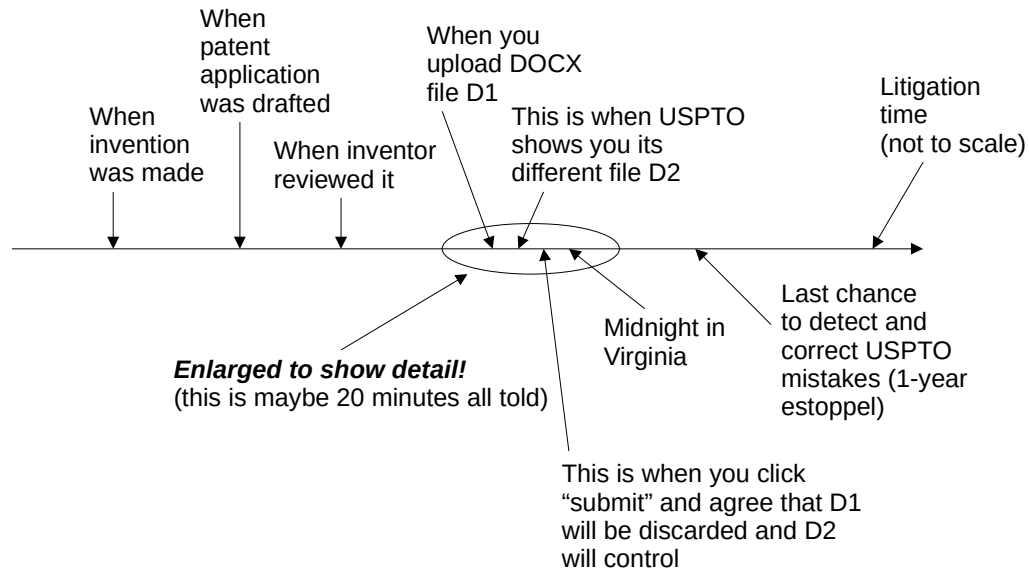
- To protect yourself, there is no choice but to scrutinize the D1 and D2 files character by character for differences
- To protect yourself, there is no choice but to scrutinize the P2 PDF file character by character
- To protect yourself, there is no choice but to study the PTO Feedback Document carefully
- Will you the practitioner do this or will you delegate this to a paralegal?
- Will you be able to bill this time to the client?

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## What happens if you file a DOCX patent application



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## DOCX filing puts you more at risk than PDF filing

### PDF filing:

- You can protect yourself tomorrow or next month or TYFNIL
- The Ack Receipt Message Digest allows you to prove the PDF file you preserved is the same PDF file that was uploaded to the PTO.
- You get an audit trail.

### DOCX filing:

- You cannot prove what DOCX file you actually uploaded.
- The PTO throws away the DOCX file you uploaded (D1) and only keeps their manipulated version (D2)
- There is no Ack Receipt Message Digest available to prove the DOCX file you preserved is the same DOCX file that you uploaded to the USPTO.
- The USPTO destroys the audit trail.
- There is an Ack Receipt Message Digest relating to DOCX. It does not match the file you uploaded (D1) so you cannot use it to prove what you filed. It does match the file D2 that became authoritative the instant that you clicked "submit", so it TYFNIL it permits the infringer to prove that you must have clicked "submit" and you agreed that your uploaded DOCX file D1 **was not controlling**.
- In other words TYFNIL if you try to point to what you say you uploaded, and you try to say that this is what should have issued in the patent, the Message Digest will serve to say that you agreed that what you uploaded was irrelevant to what should have issued in the patent. The Message Digest serves to say **that you agreed** that the patent should issue based on what was in that manipulated version D2.
- In the DOCX filing system, the Message Digest has been repurposed to protect the USPTO and to protect infringers, and no longer protects you, the applicant or practitioner.

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# Executive summary

- Uploading DOCX is risky, even if you used Microsoft Word for your authoring
- The Ack Receipt from such a filing has a “message digest” that is taken from a second, USPTO-generated second DOCX file, not from your uploaded DOCX file. It is impossible, from the Ack Receipt or from any other records preserved in Patentcenter or PAIR for a patent application, for you to prove what was in the actual DOCX file that you uploaded.

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## Final Rule June 2, 2021

- The Revised Final Rule says the “controlling” document will be D2
- But D2 can look different depending on which word processor one uses
- Which word processor will USPTO use to render D2? They haven’t said.
- Will you be using the exact same word processor (for your 20-minute review during e-filing) as the word processor that USPTO will use at some future time to issue your patent? You cannot control this or be sure about it.

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# Final Rule June 2, 2021

- The Revised Final Rule says that every would-be applicant-protective document will be discarded after one year (including but not limited to your D1, and P2, and your “auxiliary PDF”) ...
- How will things stand after one year has passed?
- Only the D2 document will remain in the file
- Again, D2 can look different depending on which word processor one uses
- Which word processor will USPTO use to render D2? They haven't said.
- When you reviewed the D2 file (during your 20-minute review during e-filing) did you use the same word processor that the USPTO will use at some future time to issue your patent? You cannot control this or be sure about it.

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## Conflicting USPTO instructions

The PTO's instructions are inconsistent:

- DURING the filing process, "applicants will be advised to review the DOCX files before submission ***rather than reviewing the USPTO-generated PDF version;***" [2021/06/02 Revised Final Rule, 86 FR 29571]
- ***shortly AFTER filing*** the application, "[a]pplicants are strongly encouraged to review their applications, ***including the USPTO-generated PDF,*** [...] to identify any errors or discrepancies in the record, [...]" [2022/04/28 Notice, 87 FR 25226]

Why does the PTO instruct that applicant NOT review the USPTO-generated PDF version during filing, but instead review that PDF "shortly after filing," when the hassle and cost of correcting any error is much greater?

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# Reviewing the filing types

- If you upload a non-BW drawings file (in PDF), it goes into SCORE, meaning it is preserved bit-for-bit. You get a Message Digest that proves this file is what you filed.
- If you upload a patent application file in PDF, USPTO does not preserve it bit-for-bit, but at least you get a Message Digest. If you preserve the PDF patent application file locally, you can use the Message Digest to prove this file is exactly what you uploaded.
- If you upload a patent application file in DOCX, USPTO discards it. The only Message Digest provided is for the USPTO-modified variant of that file. You do not get a Message Digest for the file that you uploaded. Even if you take the precaution of preserving your DOCX file locally, this will mean little or nothing in litigation, since you won't actually be able to prove that it is what you uploaded. But the Message Digest that is provided means a lot to your infringer adversary because they can point to it as evidence that you agreed that the USPTO-modified variant of that file is what controls.

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## Professional liability tip for DOCX filings

- Make sure your malpractice insurance stays in force for the term of the patent plus six years for statute of limitations, and for the duration of any PTA or PTE
- Or make sure that “tail coverage” is maintained for this duration

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# e-filing workflow ...

Paralegal starts the e-filing process, and saves the submission.

Paralegal collects D2 and P2 and the PTO's Feedback Document, and provides it all to the registered practitioner.

The registered practitioner carries out the character-by-character review.

If the practitioner concludes that there are no errors, the practitioner clicks "submit" or authorizes the paralegal to click submit.

# End of executive summary

# Polling questions

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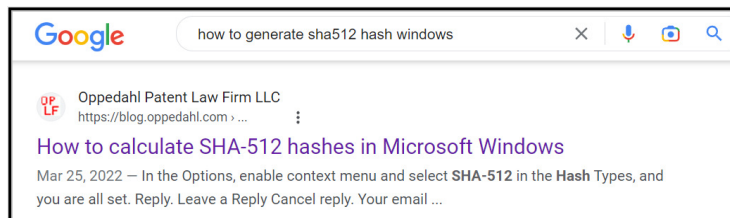
# Detailed discussion

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# How to calculate Message Digests

See my blog article *How to calculate SHA-512 hashes in Microsoft Windows* at <https://blog.oppedahl.com/?p=7753>

It's the second hit in a Google search ...



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## How USPTO described it in 2018

- Here are slides that the USPTO presented to the Patent Public Advisory Committee on September 6, 2018
- You can see at least three places where the USPTO said the patent application would be authored in Microsoft Word

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September 6, 2018



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September 6, 2018


## **Non-DOCX Filing Surcharge Fee**

Fee Code	Description	Historical Cost (2017)	Current Large Entity Fee	Proposed Large Entity Fee	Dollar Change	Percent Change
New	Non-DOCX Filing Surcharge	n/a	--	\$400	+ \$400	--

- This fee will be charged for utility non-provisional filings submitted in a format other than DOCX (Microsoft Word).
- Encouraging applicants to use DOCX will improve examination quality and lower processing costs.
- Applications filed using DOCX will be more accessible in future searches of publication materials.
- Users filing via DOCX will see increased efficiencies and accuracy.

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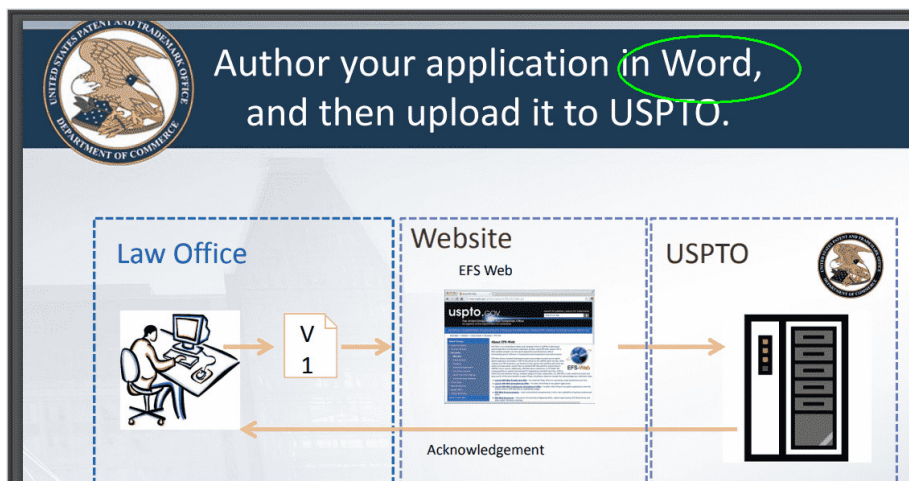
September 6, 2018



**MAIN IDEA**  
Author your application in MS Word, and then run it through the validator

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September 6, 2018




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# Not any more ...

- Sometime after 2018 the USPTO quietly stopped saying the authoring would be done in Microsoft Word
- Now the USPTO says:

**DOCX is:**

- A word processing file format based on open standards, including Extensible Markup Language (XML)
- Supported by many popular word processing applications, such as Microsoft Word 2007 or higher, Google Docs, Office Online, LibreOffice, and Pages for Mac



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## How does the Black Box Engine handle this shift in the supported word processors?

- USPTO has never said where its Black Box Engine came from or how it works inside
- Maybe the Black Box Engine back in 2018 was designed specifically to work well with some certain version of Microsoft Word
- Maybe since 2018 the USPTO has made modifications to the Black Box Engine to try to get it to work with the types of exported DOCX files that come from Google Docs and Libre Office and Pages for Mac
- The Black Box Engine is by now up to at least version 19
- The USPTO has never documented or even publicly logged the version changes in the Black Box Engine
- To the extent that there used to be some safe harbor in using Microsoft Word with the Black Box Engine, maybe that is gone now

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# More about hash functions

- Now let's talk a little more about hash functions ...

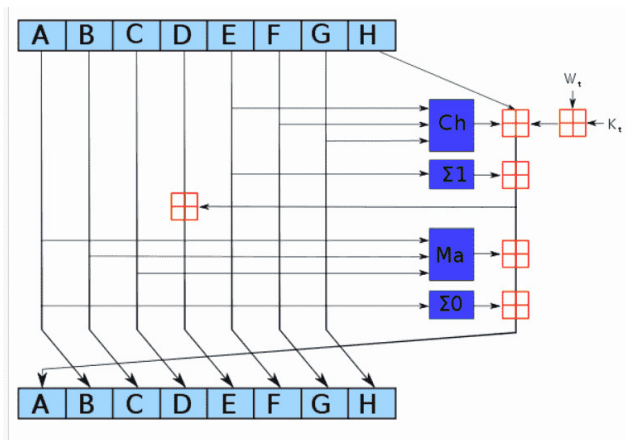
61

## Functions and inverse functions

Lots of math functions are easily inverted, meaning that just by looking at a function you can immediately say how you could undo it

- Suppose the function is "add 2 to each digit"
- You immediately know that the inverse function is "subtract 2 from each digit"
- Suppose the function is "multiply by 3 and add six"
- You immediately know that the inverse function is "subtract 6 and divide by 3"
- But smart mathematicians have come up with some functions for which it is not obvious like this what an inverse function would be
  - And smart mathematicians have come up with such functions for which, on a practical level, it is nearly impossible to work out an inverse function, even throwing enormous amounts of computing power at the task
  - One example of such a function is called the "SHA-512 hash function"

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One iteration in a SHA-2 family compression function. The blue components perform the following operations:

$$\text{Ch}(E, F, G) = (E \wedge F) \oplus (\neg E \wedge G)$$

$$\text{Ma}(A, B, C) = (A \wedge B) \oplus (A \wedge C) \oplus (B \wedge C)$$

$$\Sigma_0(A) = (A \ggg 2) \oplus (A \ggg 13) \oplus (A \ggg 22)$$

$$\Sigma_1(E) = (E \ggg 6) \oplus (E \ggg 11) \oplus (E \ggg 25)$$

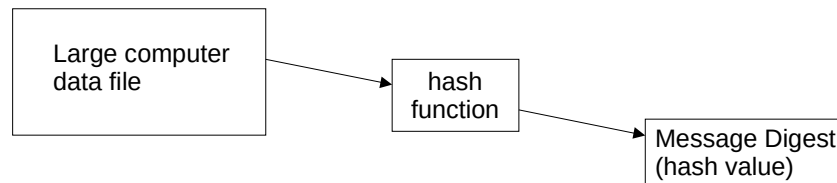
The bitwise rotation uses different constants for SHA-512. The given numbers are for SHA-256.

The red  $\boxplus$  is addition modulo  $2^{32}$  for SHA-256, or  $2^{64}$  for SHA-512.

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# What is a hash function?



The input file can be a data file of any size.

The box in the middle is the hash function.

The output is called a “hash value” or “Message Digest”.

A hash function compresses the contents of an input file into a character string called a hash value. There is no practical way to invert the hash value back to the original file.

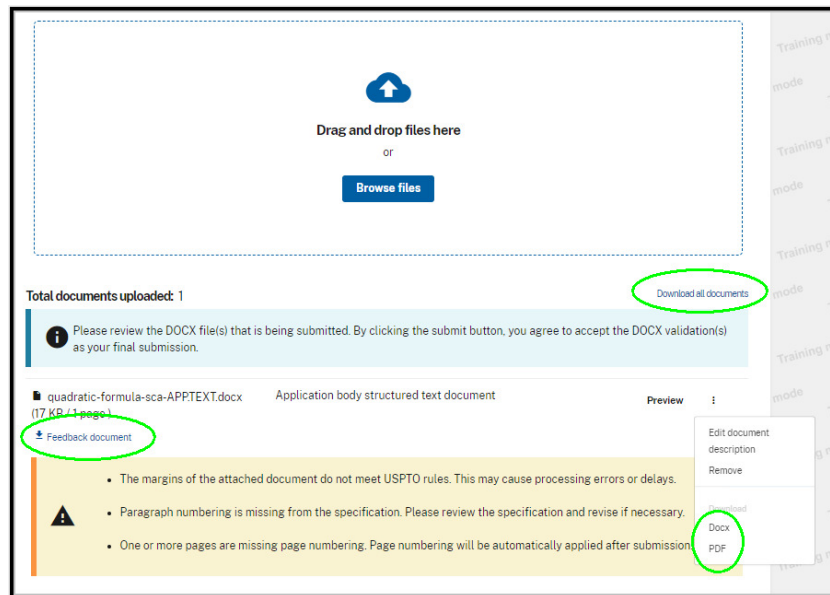
If even a single character in the input file changes, the hash function will produce a different hash value.

If the input file has not changed, this provides an easy way to show that the file has not changed.

The hash function used by the USPTO is known as SHA-512 and produces a 128-character hash value.

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# Things to download



## Does the “auxiliary PDF” remove the DOCX risks?

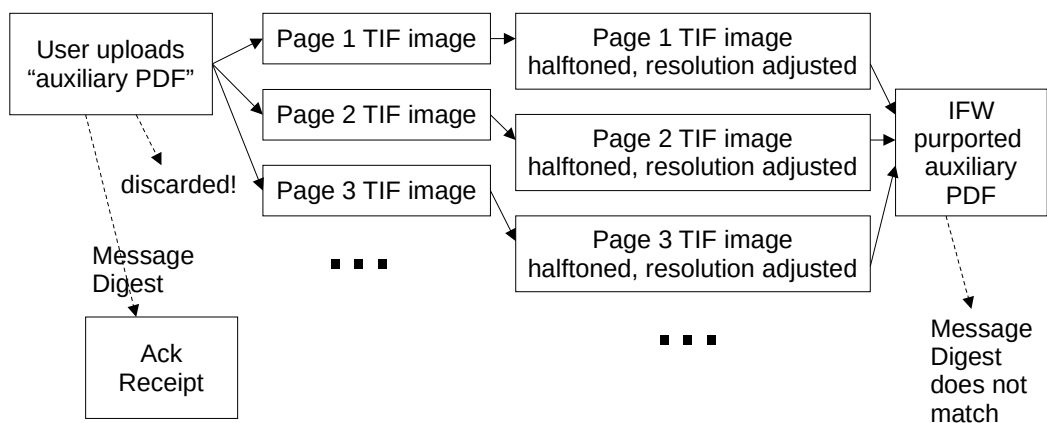
- Between now and June 30<sup>th</sup> you can include an optional “auxiliary PDF” in your e-filing submission
- You cannot do this in EFS-Web; it is only possible in Patentcenter
- On and after June 30<sup>th</sup> you will no longer be able to do this
- How does “auxiliary PDF” work in USPTO’s systems?

## How does “auxiliary PDF” work in USPTO’s systems?

- USPTO has never documented how “auxiliary PDF” works in USPTO’s systems
- Here are our best guesses as to how it works in USPTO’s systems ...

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## How does “auxiliary PDF” work in USPTO’s systems?



In one recent e-filing, the actual uploaded auxiliary PDF was 175K in size  
The purported auxiliary PDF in IFW was 500K in size  
They can't be the same file!

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What I actually uploaded –  
35KB in size

The purported “auxiliary  
PDF” from IFW – 8KB in size

“auxiliary PDF”

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

when  $ax^2 + bx + c = 0$

purported “auxiliary PDF”

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

when  $ax^2 + bx + c = 0$

Even the big letters are grainier!

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## The IFW ...

Mail room date	Doc code	Doc description	Pages		Quick download	
04/15/2023	SPEC	Specification	1	<a href="#">Preview</a>	<a href="#">PDF/ XML/ DOCX</a>	<input type="checkbox"/>
04/15/2023	N417	Electronic Filing System(EFS) Acknowledgment Receipt	2	<a href="#">Preview</a>	<a href="#">PDF</a>	<input type="checkbox"/>
04/15/2023	AUX.PDF	Auxiliary PDF of Application	1	<a href="#">Preview</a>	<a href="#">PDF</a>	<input type="checkbox"/>

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## You can't trust the USPTO's purported "auxiliary PDF"

- Message Digest from the Ack Receipt:  
A81FBE3A60D5DC4D269523A000ED8B3A99F35417FD366D2413FECF838  
3B855F875AD0A064759C3E3810E4EF80F11AB9006434256B5BD59F2A90F  
5EC2423A30CD
- Message Digest for the PDF file I actually uploaded:  
A81FBE3A60D5DC4D269523A000ED8B3A99F35417FD366D2413FECF838  
3B855F875AD0A064759C3E3810E4EF80F11AB9006434256B5BD59F2A90F  
5EC2423A30CD
- Message Digest for the purported "auxiliary PDF" from IFW:  
AA9D7566F7032AF0BB7610A5170128FEA6F77171C5588C0F94495B77458  
1A834FDF4A171A2BF08133BEB46E7203DD6475E9375D31309046AE3BBE  
D792D404FD0

And the file sizes are very different – 35KB uploaded, 8KB from IFW

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## Does "auxiliary PDF" protect you?

- It does not protect you
- The purported "auxiliary PDF" from IFW is not the same as the PDF that you actually uploaded to the USPTO (500K instead of 175K in one recent example, 8K instead of 35K in another recent example)
- The file you uploaded It has been broken up into individual page TIF images and halftoned and the resolution (dots per inch) has been resampled
- It is impossible to know what else the USPTO might have changed
- The purported "auxiliary PDF" downloaded from IFW is created "on the fly" and will have a different Message Digest every time you download it again
- None of those Message Digests from the IFW file (the purported "auxiliary PDF") will match the Message Digest in the Ack Receipt
- The purported "auxiliary PDF" file from IFW has little or no evidentiary value
- Practice tip – be extremely diligent about preserving locally the auxiliary PDF file that was actually uploaded (the same applies for PDF patent applications)
- And anyway it will not be possible to do "auxiliary PDF" on or after June 30, 2023

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# Metadata in D2

- Some CMS's insert custom metadata into all managed files
- Some users insert their own custom metadata into their files
- USPTO fails to scrub custom metadata from D1
- If you have any custom metadata in your D1 file, it will still be visible in the D2 file
- It will be important to scrub metadata from your D1 file

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## No “Legal Framework” for Patentcenter

- Yet another professional liability risk arises because USPTO has not published a “Legal Framework” for Patentcenter and DOCX filing. See the Legal Framework for EFS-Web dated October 23, 2019, which says at page 4:

The USPTO is developing a new electronic filing and viewing system, Patent Center, to modernize its filing and viewing systems. Once fully developed, Patent Center will replace EFS-Web and PAIR. Patent Center will utilize web-based interfaces to enable users to submit patent documents directly to the USPTO in Open XML format (DOCX) for the specification (including the claims and the abstract) of a new utility nonprovisional, provisional, or national stage under 35 U.S.C. 371 application. The submission of documents in PDF also will be supported. ***The submission of documents through Patent Center is not addressed by this Legal Framework, but instead will be addressed by a separate Legal Framework.***

(emphasis added.) Patentcenter launched in 2018, but even now in 2023 the USPTO has not published a Legal Framework for Patentcenter.

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## How to protect yourself while avoiding the \$400 penalty?

- Provisional application filed a day earlier?
- Preliminary amendment filed the same day?
- Maybe you were going to file a PCT at some point anyway, in which case merely enter the US national phase from the PCT

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## Provisional application filed a day earlier?

- As you get ready to file your DOCX patent application, plan ahead and file a PDF-based provisional a day earlier
- In the DOCX application, recite that the provisional is incorporated by reference for all purposes
- If you discover that the USPTO-modified version of your DOCX patent application changed a  $\sqrt{\phantom{x}}$  to a ☺, or changed a  $\mu$  to a u, make use of IBR to bring in the  $\sqrt{\phantom{x}}$  or the  $\mu$  and this won't be adding new matter
- This is very little help if you don't discover the USPTO mangling until TIFNIL

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## Preliminary amendment filed the same day?

In DOCX training webinars, the USPTO says that a preliminary amendment filed the same day, even in PDF, will not trigger the \$400 penalty

- File the DOCX application
- Later the same day, or in the same original submission, include a PDF preliminary amendment asking that the spec, claims, and abstract be deleted and replaced with “the attached (PDF) sheets”

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## Maybe you were going to file a PCT at some point anyway?

- File the PCT application. (No \$400 penalty for PDF.)
- Enter the US national phase from the PCT. (No \$400 penalty for PDF, and anyway you may not need to supply specification, claims, abstract or drawings because they come in automatically from the PCT application.)
- Further benefit – the case will enjoy the “unity of invention” restriction standard instead of making the “distinct invention” standard available to the Examiner.

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## Other possible approaches?

- How much professional time will you spend, doing the character-by-character comparisons of D1, D2, and P2?
- Can you bill the client for this time?
- What if you run out of time and don't finish the character-by-character comparison by midnight Virginia Time?
- How much extra time and money would you spend doing the previous-day provisional or the same-day PA?
- Maybe just pay the \$400 penalty and do the much safer PDF patent application filing ...
  - For small entities, maybe it will be \$160
  - For micro entities, maybe it will be \$80

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## How to join a filing community?

- Join the EFS-Web listserv
  - [https://oppedahl-lists.com/mailman/listinfo/efs-web\\_oppedahl-lists.com](https://oppedahl-lists.com/mailman/listinfo/efs-web_oppedahl-lists.com)
- Subscribe to my blog
  - <https://blog.oppedahl.com/>
  - It has a section on postings about “non-DOCX penalty”

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# Upcoming DOCX webinar

- Professional Liability Risks of Filing in DOCX - for users of non-Microsoft word processors
- Friday, May 12, 2023
- 10AM – 11:30AM Mountain Time

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## How to register?

Go to

[https://blog.oppedahl.com/?page\\_id=9354](https://blog.oppedahl.com/?page_id=9354)

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# Upcoming ePCT webinars

Webinar 11. Thursday, May 11, 2023, 10AM Mountain Time.  
External signatures and PCT declarations.

Webinar 12. Thursday, May 18, 2023, 10AM Mountain Time.  
Sequence listings and ePCT.

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# Upcoming ePCT webinars

Webinar 13. Thursday, June 1, 2023, 10AM Mountain Time. Docketing of PCT applications and making use of ePCT notifications.

Using ePCT to e-file in ISAs and IPEAs, filing Demands.

Doing 92*bis* changes.

Publication front page preview, generating reports of outstanding Forms ISA/202, generating reports of applications with outstanding priority documents.

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# Upcoming ePCT webinars

These webinars are free of charge, thanks to sponsorship by the World Intellectual Property Organization

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# Upcoming ePCT webinars

How to register? Go to

[https://blog.oppedahl.com/?page\\_id=8978](https://blog.oppedahl.com/?page_id=8978).

How to learn of future webinars? Subscribe to my blog ( <https://blog.oppedahl.com/> ), or subscribe to the PCT listserv ( [https://oppedahl-lists.com/mailman/listinfo/pct\\_oppedahl-lists.com](https://oppedahl-lists.com/mailman/listinfo/pct_oppedahl-lists.com) ).

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# Please complete the evaluation questionnaire

- Yes please complete it
- Pay it forward

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# Thank you

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