Replacing handwritten signatures with open electronic signature software

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Introduction

Handwritten signatures are often unpractical for electronic communication due to the need of physical presence or printing and sending of documents. They are also often less secure due to the ability to forge them or to change the document content and date after it was signed.

With the recent changes in the legal status, we can see growing momentum in their use from the government. Therefore, there is an opportunity to use it and expand their usage to other situations.

Objectives

1. Explore the principles and legal status of electronic signatures.
2. Review existing software and propose and develop open-source, cross-platform, and user-friendly platform for electronic document signing.
3. Provide information and way to create signatures compliant with eIDAS Regulation (Regulation No 910⁄2014).

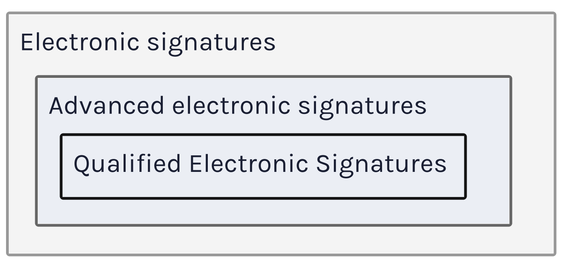

Figure 1: Relation between general, advanced, and qualified electronic signatures.

Results

A simple platform, visible in Figure 2, that is open-source and open for people living in different countries, speaking different languages, and easily extensible by programmers of different levels.

With a review of existing software focusing on several traits, we were able to compare it to our newly developed software platform in Table 1.

Supporting website can be used to download executable, find help or learn more about electronic signatures.

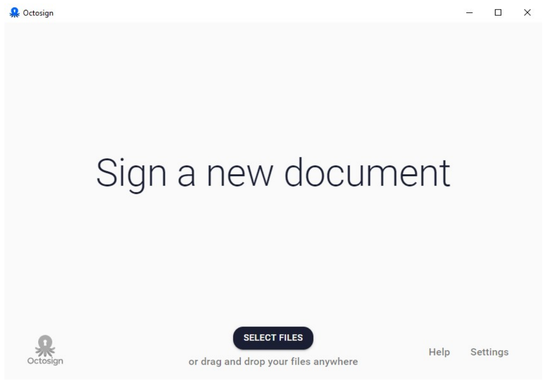

Figure 2: Screenshot of our software Octosign.

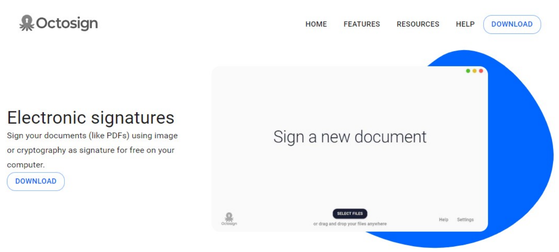

Figure 3: Home page of the www.octosign.com.

Our solution is fully modular, see Figure 4, which means it supports different ways to sign a document. For example, by using image - drawn or picked - or by using a Qualified Electronic Signature compliant with the law and with an effect of the attested handwritten signature.

Others can also quickly develop a new signing backend - simple CLI application communicating via STDIO - following the provided specification and communication protocol.

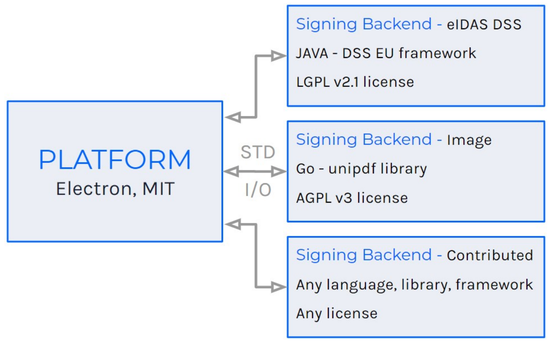

Figure 4: Modular approach of our application.

	licensing	cross-platform	localization	file support	easy setup	flexibility	built-in verification	extensibility
JSignPdf	✓✓	✓				✓✓		✓
zep.disig.sk	✓	✓✓	✓✓	✓	✓✓		✓✓	
Acrobat DC	✓	✓	✓✓		✓	✓✓	✓✓	
D.PDF Signer			✓		✓✓	✓		
Our - Octosign	✓✓	✓✓	✓✓	✓✓	✓		✓✓	✓✓

Table 1: Comparison of existing software and our software.

Conclusions

We verified that all legal and technical preconditions are met for electronic signatures and should, therefore, be a viable alternative to handwritten signatures.

We did a review of the existing software and found a gap in the software for signing using the qualified electronic signatures. Therefore, we proposed a simple open-source software platform that aims to be straightforward for the end-user and is extensible together with the supporting website.

References

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