

PANDEMIC & SECURITY

WHITE PAPER



MOBILE PANDEMIC VACCINE CERTIFIER

Authored by:
Aaron L. Phillips
and
Alex Romanov

August 18, 2021

Since early 2020 there has been an accelerating need for confirmation of infected to non-infected persons in societies. The need for fast, accurate and reliable confirmation increased with the spread of the COVID-19 pandemic. The lack of quick and seamless confirmations of infected, non-infected and vaccinated individuals resulted in lock downs, closures, restrictions of access to public places, public gatherings, and restricted travel. This resulted in a unique paralysation of society and business freedoms as the pandemic spread and affected both young and old for more almost two years so far.

Vaccination continues to provide a sense of confidence and some security for the vaccinated, and accelerated the state of mounting fear for both the unvaccinated and vaccinated. At this time there is a greater demand for the right of freedom for the vaccinated, and this is resulting in the need for confirmation that both vaccine shots have been administered and confirmed on paper documents. The need for an effective, standardized mobile confirmation by way of mobile devices and apps as an available is rapidly beginning to appear in various locations such as businesses, government, hospitals, schools and public places. It is also displaying a need to be available in communities, states, provinces nationally and internationally.

The standards of confirmation differ but the demand for certification is universal. The resulting challenge is to create a vaccine certification solution that will be applicable to mobile devices and in some cases certification cards in order to provide unambiguous confirmation seamlessly and reliably in any fast-paced

environment, beginning with transit, malls, airports, schools and hospitals. The list of applicable uses is endless.

The additional challenge is to provide the clearly presented certification with or without the need for an internet connection. Both applications would have a societal value, and both applications would differ in cost.

The internet connected mobile vaccine certification solution, would require Public Key Infrastructure (see definition below) certification on mobile or card applications and would be effective in all regions and areas with reliable internet. The non-internet connectivity solution would have application anywhere utilizing PKI based certification via Bluetooth encrypted certification, validated by a Certificate Authority (definition below). This cost-effective solution has the potential for international standardization, particularly for travel by air as safety procedures in all airports are very standardized and regulated.

Definitions:

PKI (public key infrastructure) A public key infrastructure is a set of roles, policies, hardware, software, and procedures needed to create, manage, distribute, use, store and revoke digital certificates and manage public-key encryption.

Key PKI benefits

- minimize fraud by authenticating the identity of people via the Internet.
- provide privacy of messages by minimizing the risk that they can be read in transit, or by anyone, other than the intended recipient.

CA (certificate authority), also sometimes referred to as a certification authority, is a company or organization that acts to validate the identities of entities (such as websites, email addresses, companies, or individual persons) and bind them to cryptographic keys through the issuance of electronic documents known as digital certificates. A digital certificate provides:

- **Authentication**, by serving as a credential to validate the identity of the entity that it is issued to.
- **Encryption**, for secure communication over insecure networks such as the Internet.
- **Integrity** of documents **signed** with the certificate so that they cannot be altered by a third party in transit.



This CA authority would grant access to all mobile device certifications and/or plastic card certification containing the confirmation of vaccination status for travelling individuals. This extends to the general public wanting access to any public location that requires proof of vaccination ubiquitously, quickly and seamlessly.

Conclusion

In the midst of the COVID-19 pandemic, stipulations and requirements are constantly changing and evolving to better ensure and work in accordance with safety protocols, especially when traveling abroad. In regards to these safety protocols, many countries have implemented new stipulations involving international travel. These enforcements require proof that the individual in question has been tested and confirmed to be negative for the virus before they are able to travel internationally.

Although these protocols have not been assimilated into every country, we can ascertain that with the rapid spread and evolving variants of the virus that this protocol will become deemed necessary in order for international travel to be plausible at all. It is only a matter of time before the increase of cases and casualties convinces more countries to consider these policies as a valid approach to combat the pandemic. These policies will be accepted to prevent further outbreak within their own jurisdictions, which will inevitably cause them to enforce these same requirements for those desiring to travel to their domain.

Although this new policy is more than necessary during this dire time, the potential of falsification of negative COVID-19 test results has posed a detrimental risk of inaccuracy, especially given the current methods in place to ensure validity of these tests. The current standards in place that are deemed an acceptable way to provide this documentation are primarily through email, or as a printed document. Both of these avenues clearly have loopholes where falsification is concerned.

Emails can easily be typed out to persuade the viewer that it is valid documentation of a negative testing result, while lacking any certainty that this individual was even tested to begin with. Printed documents pose much the same risk with allowing anyone the capacity to simply type out the desired statement and feign any necessary credentials to make it appear to be accurate. Both of these routes allow individuals to give the impression of having negative results, while not providing actual medical clarification that they are legitimate.

Anyone savvy with technology and knowledgeable of the specific templates that these documents usually are written in would have the capacity to replicate such with ease, and the recipient would be none the wiser. The sheer amount that these documents are already being scrutinized as a whole, whether fully accurate or falsified, would reveal a vague discrepancy at best when those falsifications do take place, and easily go unnoticed by those designated to verify their accuracy. It is clear what ramifications that this potentially poses worldwide.

