Identity and Age Verification

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W3C AC meeting 2026
Hangzhou, China
20-22 April 2026

Age Verification: Background

Many recent and upcoming regulations mandate age verification for accessing some online services / content

- Terminology is inconsistent – may be called “age assurance” (among other things)
- Requiring more than ticking checkbox: “I am over 18”
- Multiple potential sources for age signals [1]:
    - commercial and government **records** (e.g., bank record)
    - **government IDs** (includes digital IDs)
    - facial age estimation (e.g., photo, live video)
    - behavioral signals (e.g., analysis of user’s posts)

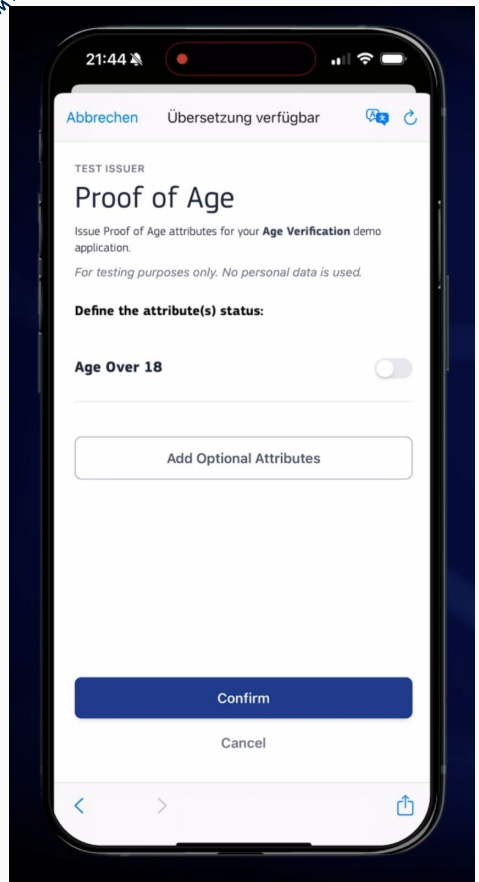
[1] Age Assurance Online: A Technical Assessment of Current Systems and Their Limitations (Rescorla et al, 2026)

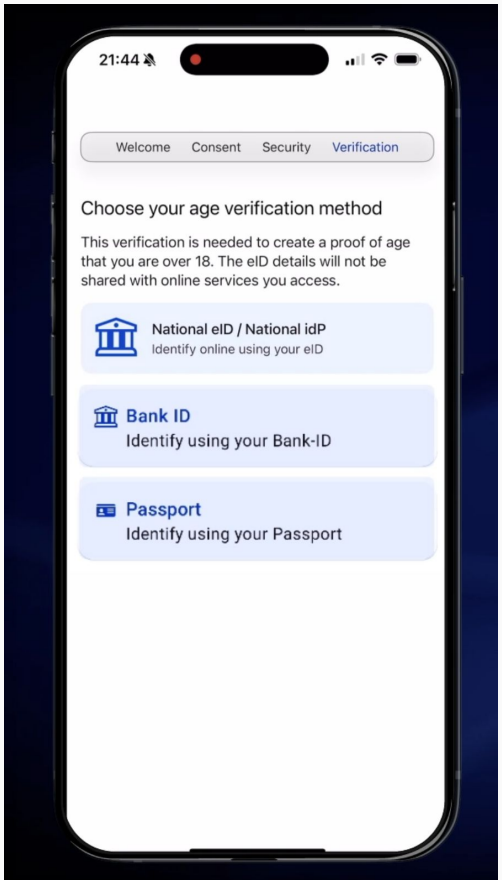
European Commission - Statement by the President with EVP Virkkunen on the digital age verification app
Brussels, 15 April 2026

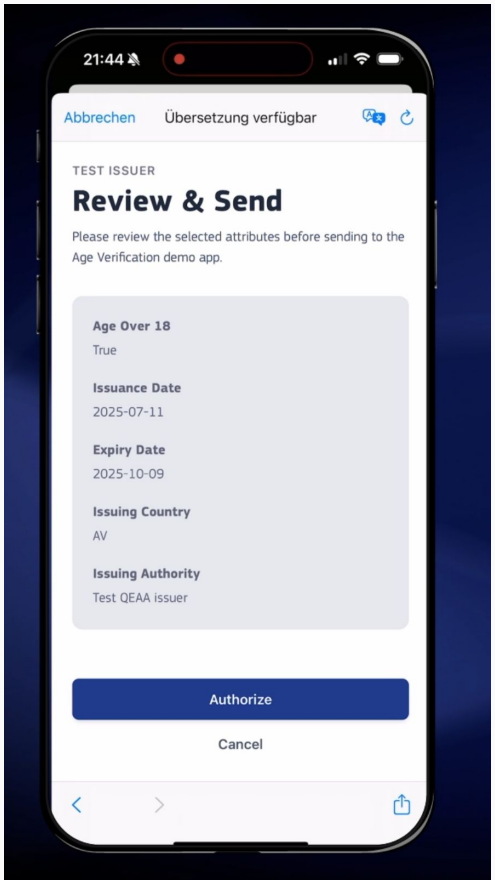
“One core topic is the question: how can we ensure that there is a Europe-wide technical solution for age verification? Today, I can announce that we have the answer. Our European age verification app is technically ready and soon available for citizens to use. This app will allow users to prove their age when accessing online platforms…And we see more of our Member States making great progress. France, Denmark, Greece, Italy, Spain, Cyprus and Ireland are front runners. **They are planning to integrate the app into their national wallets.**”

Overview of User Interaction

ageverification.dev







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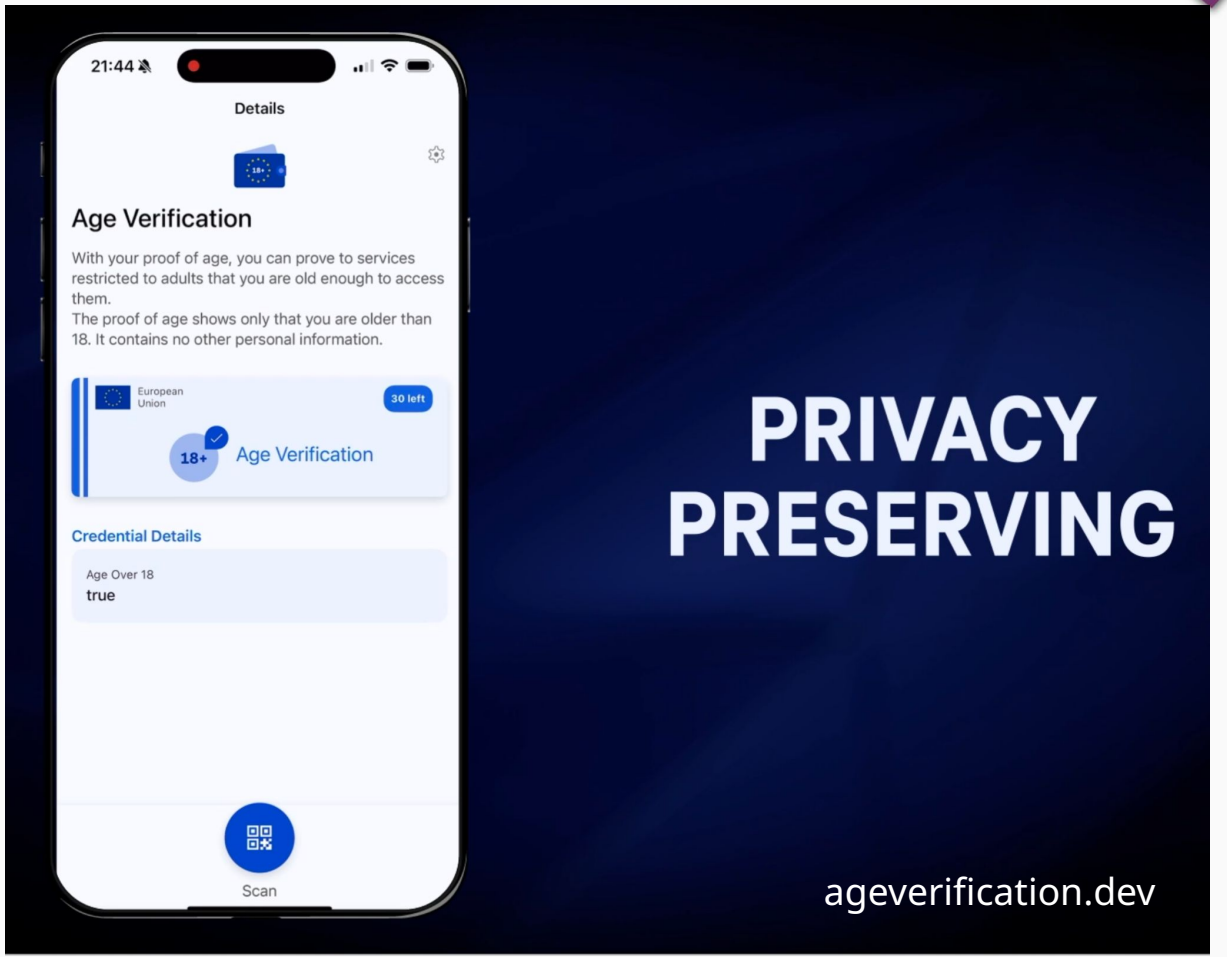
“First, it is user-friendly. You download the app. You set it up with your passport or ID card. You then prove your age when accessing online services. Second, it respects the highest privacy standards in the world. Users will prove their age without revealing any other personal information. Put simply, it is completely anonymous: users cannot be tracked. Third, the app works on any device – phone, tablet, computer, you name it. And, finally, it is fully open source – everyone can check the code.”


21:44
Details
Age Verification
With your proof of age, you can prove to services restricted to adults that you are old enough to access them.
The proof of age shows only that you are older than 18. It contains no other personal information.
European Union
30 left
18+
Age Verification
Credential Details
Age Over 18
true
Scan
PRIVACY PRESERVING
ageverification.dev

Privacy: Selective Disclosure

- Canonical example of selective disclosure involves age:
  - don’t need to reveal whole driver’s license, only whether old enough to buy beer
- Potentially, one of the strengths of the wallet: pro-privacy
- But: lot of work remains to be done, and details matter [2]
- Some approaches use *structured* selective disclosure
  - Reveal only a specific subset of data
  - Lot of operational complexity
  - Privacy risks remain (e.g., collusion)

[2] Designing Digital Wallets for Reality: Where Selective Disclosure and ZKPs Fit (Heather Flanagan, 2026)

Zero-Knowledge Proofs (ZKPs)

- ZKPs often proposed as a sort of “silver bullet”
- Minimal disclosure: “are you old enough for X” (yes/no)
- Again, a lot of promise but ZKP solutions may be premature
    - security researchers have demonstrated systemic issues [3]
    - formal security analysis is lacking

“Holder binding, pseudonym strategies, hardware support, and cryptographic agility all require careful design” [2]

[2] Designing Digital Wallets for Reality: Where Selective Disclosure and ZKPs Fit (Heather Flanagan, 2026)
[3] zklogin: when ZKP is not enough (Sofia Celi, 2026)

Open Source and Security

- it’s good to support inspection + analysis of app code
- note that this led to very quick feedback (within a day of announcement):

Summary

- Age verification solutions present a lot of challenges
- Digital wallets can (potentially) address *some* of them, but not *all*
    - Significant technical gaps remain
    - Example: the privacy story rests on availability and validity of ZKPs, which is far from assured
- Issues extend beyond technical aspects (e.g., governance)
- “Our European age verification app is technically ready”
    - more like “*technically*” ready?

Thank you!

Let’s continue discussing this timely and important topic…

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I found a wallet

I found a wallet

Inside were pictures of your small family

You were so young

Your hair dark brown

You had been born in 1953

Regina Spektor, “Wallet”

Far, 2009