Binding Properties for Attested TLS

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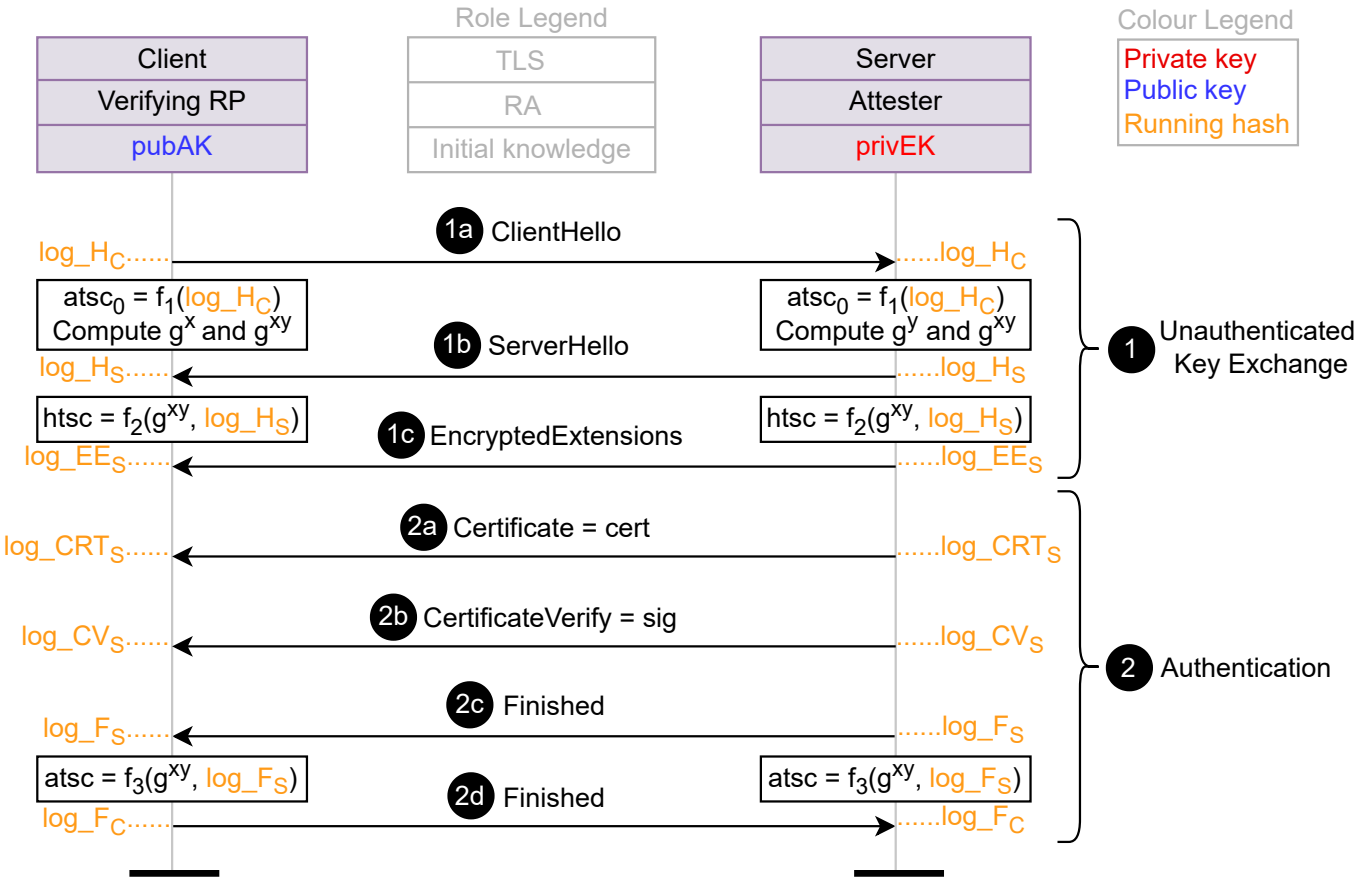
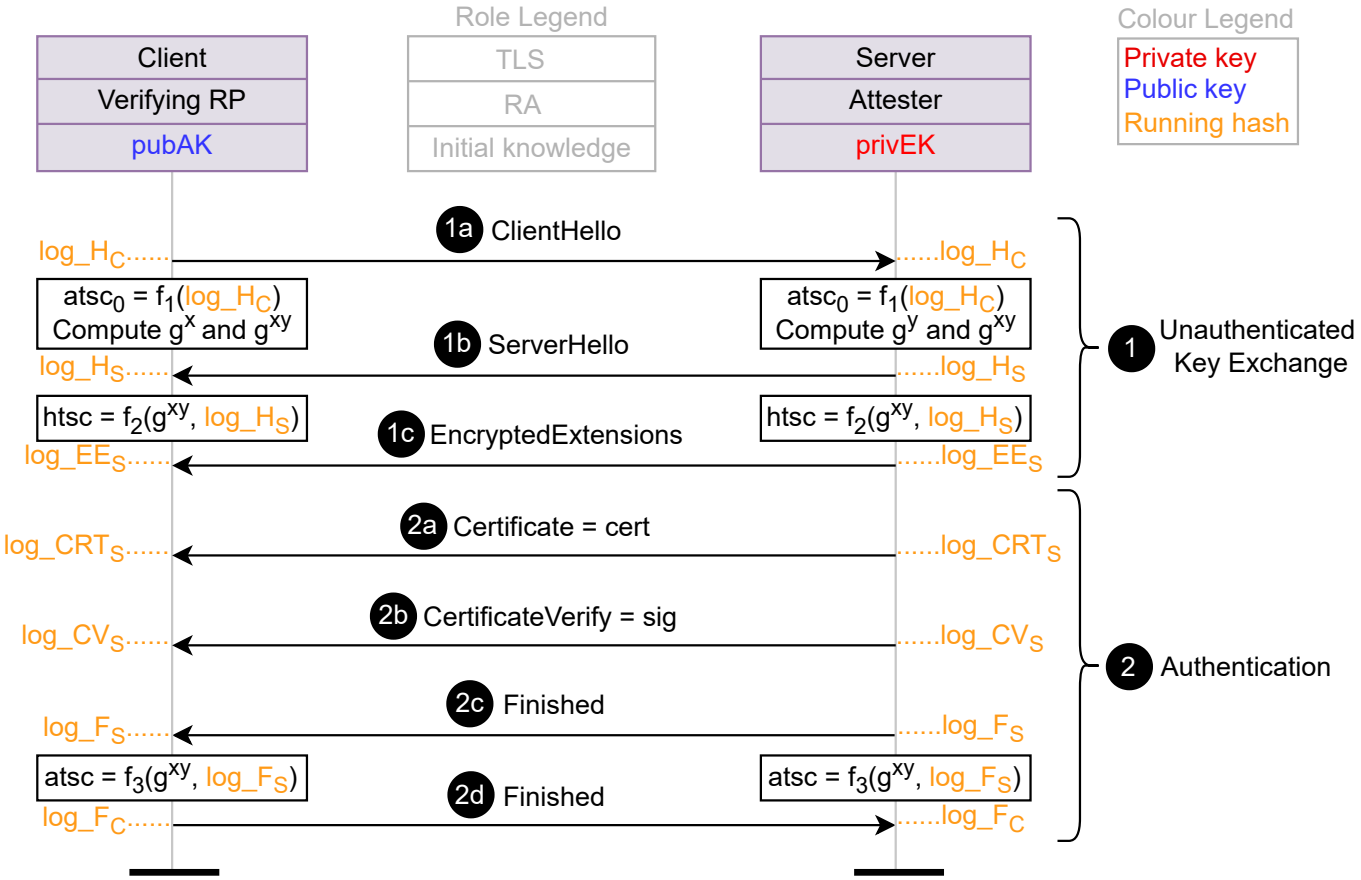
Strong Binding vs. Relay of Evidence (Abstracted)



- g^{xy}: Shared Diffie-Hellman key; f_1, f_2, f_3: Key derivation functions
- Discussion: Correlating Evidence to `htsc` vs. `atsc`
  - Running hash $\Longrightarrow$ `atsc` transitively includes all contributions in `htsc`
  - `atsc` provides stronger binding and avoids relay attacks.

Strong Binding vs. Relay of Evidence (Abstracted)



- `htsc`: used for encryption of clientFinished message (2d).
  - Irrelevant for security goals
- `atsc`: used for encryption of application data (client's secret, e.g., decryption key)
  - Relevant for security goals

Links to Resources

- Paper on identity crisis
  - https://www.researchgate.net/publication/398839141_Identity_Crisis_in_Confidential_Computing_Formal_Analysis_of_Attested_TLS
- Wiki page
  - https://github.com/EuroProofNet/ProgramVerification/wiki/AttestedTLS
- Formal proof of insecurity of pre- and intra-handshake attestation
  - https://github.com/CCC-Attestation/formal-spec-id-crisis
- Post-handshake attestation draft
  - https://datatracker.ietf.org/doc/draft-fossati-seat-expat/
- Attestation in Arm CCA and Intel TDX
  - https://github.com/CCC-Attestation/formal-spec-TEE
- Security considerations of remote attestation
  - https://datatracker.ietf.org/doc/draft-sardar-rats-sec-cons/
- IETF SEAT WG
  - https://datatracker.ietf.org/wg/seat/about/
- Technical Concepts
  - https://www.researchgate.net/publication/396199290_Perspicuity_of_Attestation_Mechanisms_in_Confidential_Computing_Technical_Concepts
- Validation of TLS 1.3 Key Schedule
  - https://www.researchgate.net/publication/396245726_Perspicuity_of_Attestation_Mechanisms_in_Confidential_Computing_Validation_of_TLS_13_Key_Schedule
- General Approach
  - https://www.researchgate.net/publication/396593308_Perspicuity_of_Attestation_Mechanisms_in_Confidential_Computing_General_Approach
- Weekly meetings
  - https://github.com/tls-attestation#meetings

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