CRYPTO FORUM RESEARCH GROUP
RESEARCH GROUP STATUS

IETF 126

Vienna

Session 1: Wednesday, July 22, 900-1100 CEST
Session 2: Thursday, July 24, 1130-1230 CEST

Chairs

Nick Sullivan (nicholas.sullivan+ietf@gmail.com)
Alexey Melnikov (alexey.melnikov@isode.com)
Stanislav Smyshlyaev (smyshsv@gmail.com)

ADMINISTRATIVE

- This session is being recorded
- Minute taker in HedgeDoc

PARTICIPANT'S GUIDE

https://www.ietf.org/how/meetings/technology/meetecho-guide-participant/

Request assistance and report issues via: https://www.ietf.org/how/meetings/issues/

Bluesheets are automatically generated based on IETF Datatracker information

Minutes: https://notes.ietf.org/notes-ietf-126-cfrg

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- See RFC 7154 (Code of Conduct) and RFC 7776 (Anti-Harassment Procedures), which also apply to IRTF

- Also see RFC 9775 (IRTF Code of Conduct)

AGENDA

https://datatracker.ietf.org/doc/agenda-126-cfrg/

Chairs: Alexey Melnikov, Stanislav Smyshlyaev and Nick Sullivan

Wednesday, July 22, 2026, 9:00-11:00 (UTC+2)
09:00 - Alexey Melnikov, "Chairs' update" (5 mins)
09:05 - Julien Devevey, "Silithium" (10+5 mins)
09:20 - Uri Blumenthal, Valery Smyslov, "PQuAKE" (15+5 mins)
09:40 - Christopher Wood, "Hybrid Post-Quantum PAKE" (10+5 mins)
09:55 - Abhi Shelat, "Longfellow ZK" (5+5 mins)
10:05 - Emil Lundberg, "The ARKG algorithm" (10+5 mins)
10:20 - Open Discussion: PQ KEMs (20 mins)
10:40 - AOB

Friday, July 24, 2025, 11:30-12:30 (UTC+2)
11:30 - Felix Günther, "Kemeleon Encodings" (5+5 mins)
11:40 - Greg Bernstein, Anja Lehman, "BBS, Blind BBS, BBS pseudonyms" (15+5 mins)
12:00 - Shai Levin, Anja Lehman, "Schnorr-Type Proofs for ECDSA Device Binding" (10+5 mins)
12:15 - Yumi Sakemi, "Pairing-Friendly Curves" (5 mins)
12:20 - AOB

CFRG RESEARCH GROUP

Online Agenda and Slides at:
https://datatracker.ietf.org/meeting/126/session/cfrg

Data tracker:
https://datatracker.ietf.org/rg/cfrg/documents

GOALS OF THE IRTF

- The Internet Research Task Force (IRTF) focuses on longer term research issues related to the Internet while the parallel organisation, the IETF, focuses on shorter term issues of engineering and standards making

- The IRTF conducts research; it is not a standards development organisation

- While the IRTF can publish informational or experimental documents in the RFC series, the primary output of research groups is expected to be understanding and research results that may be disseminated by publication in scholarly journals and conferences

- **NEW**: See “An IRTF Primer for IETF Participants” – RFC 7418

CRYPTO REVIEW PANEL

- Formed in September 2016
- Provides critical, objective, timely, and consistent review of cryptographic work
- May review documents from CFRG, the Security Area, and the Independent Stream
- Reviews are public and advisory
- Current term: April 2026 - May 2028

Uri Blumenthal	**Wang Guilin**
Scott Fluhrer	**Kris Kwiatkowski**
Stephen Farrell	**Enrique Larraia**
Markku-Juhani O. Saarinen	**Sherman Chow**
Russ Housley	**Julia Hesse**

https://wiki.ietf.org/group/cfrg/CryptoPanel

RG DOCUMENT STATUS

DOCUMENT STATUS (1/2)

- New RFC (since July)
  - None
- In RFC Editor's queue
  - draft-irtf-cfrg-aegis-aead-18: The AEGIS Family of Authenticated Encryption Algorithms
- In IESG review
  - draft-irtf-cfrg-rsa-guidance-09 (updated): Implementation Guidance for the PKCS #1 RSA Cryptography Specification
- In IRSG review
  - None
- Waiting for IRTF Chair
  - draft-irtf-cfrg-cpace-21 (**updated**): CPace, a balanced composable PAKE
- In RG Last Call
  - draft-irtf-cfrg-dnhpke-08 (**updated**): Deterministic Nonce-less Hybrid Public Key Encryption
  - draft-irtf-cfrg-aead-limits-11 (expired): Usage Limits on AEAD Algorithms
  - draft-irtf-cfrg-vdaf-20 (**updated**): Verifiable Distributed Aggregation Functions
  - draft-irtf-cfrg-concrete-hybrid-kems-04 (**updated**): Concrete Hybrid PQ/T Key Encapsulation Mechanisms
  - draft-irtf-cfrg-hybrid-kems-12 (**updated**): Hybrid PQ/T Key Encapsulation Mechanisms

DOCUMENT STATUS (2/2)

- In Crypto Panel review
  - None
- Newly Adopted CFRG drafts:
  - None
- Active CFRG drafts:
  - draft-irtf-cfrg-fiat-shamir-02 (unchanged): Fiat-Shamir Transformation
  - draft-irtf-cfrg-sigma-protocols-02 (unchanged): Interactive Sigma Proofs
  - draft-irtf-cfrg-cpace-15 (**updated**): CPace, a balanced composable PAKE
  - draft-irtf-cfrg-partially-blind-rsa-02 (**updated**): Partially Blind RSA Signatures
  - draft-irtf-cfrg-signature-key-blinding-09 (**updated**): Key Blinding for Signature Schemes
  - draft-irtf-cfrg-bbs-blind-signatures-03 (**updated**): Blind BBS Signatures
  - draft-irtf-cfrg-bbs-per-verifier-linkability-03 (**updated**): BBS per Verifier Linkability
  - draft-irtf-cfrg-bbs-signatures-10 (unchanged): The BBS Signature Scheme
  - draft-irtf-cfrg-bls-signature-07 (**updated**): BLS Signatures
  - draft-irtf-cfrg-cryptography-specification-03 (**updated**): Guidelines for Writing Cryptography Specifications
  - draft-irtf-cfrg-kemeleon-02 (**updated**): Kemeleon Encodings
- Expired adopted drafts:
  - draft-irtf-cfrg-partially-blind-rsa-02: Partially Blind RSA Signatures
  - draft-irtf-cfrg-det-sigs-with-noise-05: Hedged ECDSA and EdDSA Signatures

ERRATA UPDATE

for the last 3 months

Held for tooling update in errata system.

- RFC 8554, EID 8907
  - LMS public key XDR structure
  - Proposed: HOLD
- RFC 9858, EID 8896
  - Appendix A ASCII rendering of test messages
  - Proposed: HOLD
- RFC 9861, EID 8997
  - missing "M=" labels in KangarooTwelve/TurboSHAKE test-vector headings
  - Proposed: REJECT

AOB

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PQ KEM SECURITY CONSIDERATIONS
SHAPE OF THE WORK

Inputs received

ML-KEM, FrodoKEM, Classic McEliece, Streamlined NTRU Prime, NTRU, NTRU+, NTRU-family review checklist

Process

The chairs a discussion on list to help shape call for adoption of the topic

Questions for the RG

- One common KEM-use guidance document?
- Common integration guidance plus separate per-KEM analyses?
- Fit-for-purpose criteria and recommendations?

Goal today

Identify the scope and initial document structure for an adoption call.