Use of the Hash-based Digital Signatures in the Cryptographic Message Syntax (CMS)

draft-housley-cms-mts-hash-sig-10

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Hash-based Digital Signatures

- CFRG has been working on specifications for hash-based digital signatures since 2013
- draft-mcgrew-hash-sigs-11 has completed RG Last Call
  - Describes the Leighton and Micali adaptation (1995) of the original work done by Lamport, Diffie, Winternitz, and Merkle
  - Small private and public keys
  - Fast signature generation
  - Fast signature verification using a small amount of code
  - LARGE signatures
  - Moderately slow key generation
- Hash-based signatures remain secure even if the attacker has a large-scale quantum computer

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- Developed in parallel to draft-mcgrew-hash-sigs
- Conventions for using these hash-based digital signatures with the CMS
- RFC 4108 uses CMS to protect firmware packages

- Small verification code size is attractive in IoT environment

- Deploy a quantum resistant signature now
- Allows deployment of the next generation of cryptographic algorithms, even if current signature algorithms are broken or a large-scale quantum computer is invented in next decade or so

The Ask

- LAMPS WG adopt the Internet-Draft: draft-housley-cms-mts-hash-sig-10

- Review and comment on the Internet-Draft

- Tim will make all LAMPS WG consensus calls related to this document