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Elliptic Curve Algorithms for Cryptographic Message Syntax (CMS)
Encrypted Key Package Content Type
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Abstract

This document describes the conventions for using several Elliptic Curve cryptographic algorithms with the Cryptographic Message Syntax (CMS) encrypted key package content type. Specifically, it includes conventions necessary to implement Elliptic Curve Diffie-Hellman (ECDH) with EnvelopedData and Elliptic Curve Digital Signature Algorithm (ECDSA) with SignedData. This document extends [RFC 6033](#).

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[1.](#) Introduction

This document describes the conventions for using Elliptic Curve cryptographic algorithms with the Cryptographic Message Syntax (CMS) encrypted key package content type [[RFC6032](#)]. Specifically, it includes conventions necessary to implement the following CMS content types: EnvelopedData [[RFC5652](#)] and SignedData [[RFC5652](#)]. This document amends [[RFC6033](#)]. Familiarity with [[RFC6033](#)] and [[RFC5753](#)] is assumed.

This document does not define any new algorithms; instead, it refers to previously defined algorithms.

[1.1](#) Terminology

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "NOT RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [[RFC2119](#)].

[2.](#) EnvelopedData

When key agreement is used, standard (as opposed to co-factor) ECDH [[RFC6090](#)] [[RFC5753](#)] MAY be supported.

[3.](#) SignedData

If an implementation encapsulates an EncryptedKeyPackage with a SignedData [[RFC5652](#)], then it MAY support the signature scheme ECDSA [[RFC6090](#)] [[RFC5753](#)].

[4.](#) Public Key Sizes

The easiest way to implement the SignedData and EnvelopedData is with public key certificates [[RFC5280](#)][RFC5480]. If an implementation supports ECDSA or ECDH, then it MUST support keys on the P-256 curve.

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[5.](#) Security Considerations

The security considerations from [[RFC5280](#)], [[RFC5480](#)], [[RFC5652](#)], [[RFC5753](#)], [[RFC6033](#)], and [[RFC6090](#)] apply.

[6.](#) IANA Considerations

None. Please remove this section prior to publication as an RFC.

[7.](#) References

[7.1.](#) Normative References

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[RFC6033] Turner, S., "Algorithms for Cryptographic Message Syntax (CMS) Encrypted Key Package Content Type", [RFC 6033](#), December 2010.

[RFC6090] McGrew, D., Igoe, E., and M. Salter, "Fundamental Elliptic Curve Cryptography Algorithms", [RFC 6090](#), February 2011.

[7.2.](#) Informative References

None.

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