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

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.

Status of This Memo

This is an Internet Standards Track document.

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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 cofactor) ECDH [RFC6090][RFC5753] MAY be supported.

## 3. SignedData

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

## 4. Public Key Sizes

The easiest way to implement 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.

## 5. Security Considerations

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

## 6. Normative References

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997.

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