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**Information technology — Security  
techniques — Digital signature schemes  
giving message recovery —**

**Part 2:  
Integer factorization based mechanisms**

**AMENDMENT 1**

*Technologies de l'information — Techniques de sécurité — Schémas  
de signature numérique rétablissant le message —*

*Partie 2: Mécanismes basés sur une factorisation entière*

*AMENDEMENT 1*

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# Information technology — Security techniques — Digital signature schemes giving message recovery —

## Part 2: Integer factorization based mechanisms

### AMENDMENT 1

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## Annex E (normative)

### ASN.1 module

#### E.1 Formal definition

```

MessageRecoverySignatureMechanisms {
    iso(1) standard(0) signature-schemes(9796) part(2) asn1-module(1)
        message-recovery-signature-mechanisms(0) }
DEFINITIONS EXPLICIT TAGS ::= BEGIN

IMPORTS

    HashFunctions
        FROM DedicatedHashFunctions {
            iso(1) standard(0) hash-functions(10118) part(3)
                asn1-module(1) dedicated-hash-functions(0) };

SignatureWithMessageRecovery ::= SEQUENCE {
    algorithm ALGORITHM.&id({MessageRecovery}),
    parameters ALGORITHM.&Type({MessageRecovery})(algorithm) OPTIONAL
}

MessageRecovery ALGORITHM ::= {
    dswmr-mechanism1A |
    dswmr-mechanism2A |
    dswmr-mechanism3A |
    dswmr-mechanism1N |
    dswmr-mechanism2N |
    dswmr-mechanism3N |
    dswmr-mechanism1A-sha1 |
    dswmr-mechanism2A-sha1 |
    dswmr-mechanism3A-sha1 |
    dswmr-mechanism1N-sha1 |
    dswmr-mechanism2N-sha1 |
    dswmr-mechanism3N-sha1,

    ... -- Expect additional signature scheme objects --
}

dswmr-mechanism1A ALGORITHM ::= {
    OID mechanism1A PARMS HashFunctions
}

dswmr-mechanism2A ALGORITHM ::= {
    OID mechanism2A PARMS HashFunctions
}

dswmr-mechanism3A ALGORITHM ::= {
    OID mechanism3A PARMS HashFunctions
}

dswmr-mechanism1N ALGORITHM ::= {
    OID mechanism1N PARMS HashFunctions
}

```

```

}

dswmr-mechanism2N ALGORITHM ::= {
  OID mechanism2N PARMS HashFunctions
}

dswmr-mechanism3N ALGORITHM ::= {
  OID mechanism3N PARMS HashFunctions
}

dswmr-mechanism1A-sha1 ALGORITHM ::= { OID mechanism1A-sha1 }
dswmr-mechanism2A-sha1 ALGORITHM ::= { OID mechanism2A-sha1 }
dswmr-mechanism3A-sha1 ALGORITHM ::= { OID mechanism3A-sha1 }
dswmr-mechanism1N-sha1 ALGORITHM ::= { OID mechanism1N-sha1 }
dswmr-mechanism2N-sha1 ALGORITHM ::= { OID mechanism2N-sha1 }
dswmr-mechanism3N-sha1 ALGORITHM ::= { OID mechanism3N-sha1 }

-- Cryptographic algorithm identification --

ALGORITHM ::= CLASS {
  &id OBJECT IDENTIFIER UNIQUE,
  &Type OPTIONAL
}
  WITH SYNTAX { OID &id [PARMS &Type] }

-- Message recovery signature mechanisms --

OID ::= OBJECT IDENTIFIER -- Alias

signatureMechanismA OID ::= {
  iso(1) standard(0) signature-schemes(9796) part2(2) mechanism(0) alternate(0)
}

mechanism1A OID ::= { signatureMechanismA mechanism1(0) }
mechanism2A OID ::= { signatureMechanismA mechanism2(1) }
mechanism3A OID ::= { signatureMechanismA mechanism3(2) }

signatureMechanismN OID ::= {
  iso(1) standard(0) signature-schemes(9796) part2(2) mechanism(0) normal(1) }

mechanism1N OID ::= { signatureMechanismN mechanism1(0) }
mechanism2N OID ::= { signatureMechanismN mechanism2(1) }
mechanism3N OID ::= { signatureMechanismN mechanism3(2) }

-- Combined signature scheme and hash-function mechanisms --

mechanismA-Hash OID ::= {
  iso(1) standard(0) signature-schemes(9796) part2(2)
  mechanismHash(2) alternate(0) }

mechanism1A-sha1 OID ::= { mechanismA-Hash mechanism1-SHA1(0) }

```

```
mechanism2A-sha1 OID ::= { mechanismA-Hash mechanism2-SHA1(1) }  
mechanism3A-sha1 OID ::= { mechanismA-Hash mechanism3-SHA1(2) }  
mechanismN-Hash OID ::= {  
    iso(1) standard(0) signature-schemes(9796) part2(2)  
    mechanismHash(2) normal(1) }  
mechanism1N-sha1 OID ::= { mechanismN-Hash mechanism1-SHA1(0) }  
mechanism2N-sha1 OID ::= { mechanismN-Hash mechanism2-SHA1(1) }  
mechanism3N-sha1 OID ::= { mechanismN-Hash mechanism3-SHA1(2) }  
END -- MessageRecoverySignatureMechanisms --
```

## E.2 Use of subsequent object identifiers

Each of the signature schemes uses a hash-function, a sequence containing a hash algorithm identifier and any associated parameters. Therefore, the signature scheme object identifier may be followed by one of the dedicated hash-function algorithm identifiers specified in ISO/IEC 10118-3 and any associated parameters.

Using the ASN.1 XML value notation, a value of type `SignatureWithMessageRecovery` using normal signature processing mechanism 1 defined in this Standard and the SHA-1 hash-function defined in ISO/IEC 10118-3 would be represented as:

```
<SignatureWithMessageRecovery>  
  <algorithm> 1.0.9796.2.0.1.0 <algorithm>  
  <parameters>  
    <HashFunctions>  
      <algorithm> 1.3.14.3.2.26 <algorithm>  
      <parameters/>  
    <HashFunctions>  
  </parameters>  
</SignatureWithMessageRecovery>
```

A value of type `SignatureWithMessageRecovery` using the combined object identifier for normal signature processing mechanism 1 and the SHA-1 hash-function has the simpler form:

```
<SignatureWithMessageRecovery>  
  <algorithm> 1.0.9796.2.2.1.0 <algorithm>  
</SignatureWithMessageRecovery>
```