| | [**Overview**](http://docs.google.com/overview-summary.html) | [**Package**](http://docs.google.com/package-summary.html) | **Class** | [**Use**](http://docs.google.com/class-use/MessageDigestSpi.html) | [**Tree**](http://docs.google.com/package-tree.html) | [**Deprecated**](http://docs.google.com/deprecated-list.html) | [**Index**](http://docs.google.com/index-files/index-1.html) | [**Help**](http://docs.google.com/help-doc.html) | | --- | --- | --- | --- | --- | --- | --- | --- | | | ***Java™ Platform***  ***Standard Ed. 6*** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| [**PREV CLASS**](http://docs.google.com/java/security/MessageDigest.html)   [**NEXT CLASS**](http://docs.google.com/java/security/NoSuchAlgorithmException.html) | [**FRAMES**](http://docs.google.com/index.html?java/security/MessageDigestSpi.html)    [**NO FRAMES**](http://docs.google.com/MessageDigestSpi.html)     [**All Classes**](http://docs.google.com/allclasses-noframe.html) |
| SUMMARY: NESTED | FIELD | [CONSTR](#3znysh7) | [METHOD](#2et92p0) | DETAIL: FIELD | [CONSTR](#3dy6vkm) | [METHOD](#4d34og8) |

## **java.security**

Class MessageDigestSpi

[java.lang.Object](http://docs.google.com/java/lang/Object.html)  
 **java.security.MessageDigestSpi**

**Direct Known Subclasses:** [MessageDigest](http://docs.google.com/java/security/MessageDigest.html)

public abstract class **MessageDigestSpi**extends [Object](http://docs.google.com/java/lang/Object.html)

This class defines the *Service Provider Interface* (**SPI**) for the MessageDigest class, which provides the functionality of a message digest algorithm, such as MD5 or SHA. Message digests are secure one-way hash functions that take arbitrary-sized data and output a fixed-length hash value.

All the abstract methods in this class must be implemented by a cryptographic service provider who wishes to supply the implementation of a particular message digest algorithm.

Implementations are free to implement the Cloneable interface.

**See Also:**[MessageDigest](http://docs.google.com/java/security/MessageDigest.html)

| **Constructor Summary** | |
| --- | --- |
| [**MessageDigestSpi**](http://docs.google.com/java/security/MessageDigestSpi.html#MessageDigestSpi())() |

| **Method Summary** | |
| --- | --- |
| [Object](http://docs.google.com/java/lang/Object.html) | [**clone**](http://docs.google.com/java/security/MessageDigestSpi.html#clone())()            Returns a clone if the implementation is cloneable. |
| protected abstract  byte[] | [**engineDigest**](http://docs.google.com/java/security/MessageDigestSpi.html#engineDigest())()            Completes the hash computation by performing final operations such as padding. |
| protected  int | [**engineDigest**](http://docs.google.com/java/security/MessageDigestSpi.html#engineDigest(byte%5B%5D,%20int,%20int))(byte[] buf, int offset, int len)            Completes the hash computation by performing final operations such as padding. |
| protected  int | [**engineGetDigestLength**](http://docs.google.com/java/security/MessageDigestSpi.html#engineGetDigestLength())()            Returns the digest length in bytes. |
| protected abstract  void | [**engineReset**](http://docs.google.com/java/security/MessageDigestSpi.html#engineReset())()            Resets the digest for further use. |
| protected abstract  void | [**engineUpdate**](http://docs.google.com/java/security/MessageDigestSpi.html#engineUpdate(byte))(byte input)            Updates the digest using the specified byte. |
| protected abstract  void | [**engineUpdate**](http://docs.google.com/java/security/MessageDigestSpi.html#engineUpdate(byte%5B%5D,%20int,%20int))(byte[] input, int offset, int len)            Updates the digest using the specified array of bytes, starting at the specified offset. |
| protected  void | [**engineUpdate**](http://docs.google.com/java/security/MessageDigestSpi.html#engineUpdate(java.nio.ByteBuffer))([ByteBuffer](http://docs.google.com/java/nio/ByteBuffer.html) input)            Update the digest using the specified ByteBuffer. |

| **Methods inherited from class java.lang.**[**Object**](http://docs.google.com/java/lang/Object.html) |
| --- |
| [equals](http://docs.google.com/java/lang/Object.html#equals(java.lang.Object)), [finalize](http://docs.google.com/java/lang/Object.html#finalize()), [getClass](http://docs.google.com/java/lang/Object.html#getClass()), [hashCode](http://docs.google.com/java/lang/Object.html#hashCode()), [notify](http://docs.google.com/java/lang/Object.html#notify()), [notifyAll](http://docs.google.com/java/lang/Object.html#notifyAll()), [toString](http://docs.google.com/java/lang/Object.html#toString()), [wait](http://docs.google.com/java/lang/Object.html#wait()), [wait](http://docs.google.com/java/lang/Object.html#wait(long)), [wait](http://docs.google.com/java/lang/Object.html#wait(long,%20int)) |

| **Constructor Detail** |
| --- |

### MessageDigestSpi

public **MessageDigestSpi**()

| **Method Detail** |
| --- |

### engineGetDigestLength

protected int **engineGetDigestLength**()

Returns the digest length in bytes.

This concrete method has been added to this previously-defined abstract class. (For backwards compatibility, it cannot be abstract.)

The default behavior is to return 0.

This method may be overridden by a provider to return the digest length.

**Returns:**the digest length in bytes.**Since:** 1.2

### engineUpdate

protected abstract void **engineUpdate**(byte input)

Updates the digest using the specified byte.

**Parameters:**input - the byte to use for the update.

### engineUpdate

protected abstract void **engineUpdate**(byte[] input,  
 int offset,  
 int len)

Updates the digest using the specified array of bytes, starting at the specified offset.

**Parameters:**input - the array of bytes to use for the update.offset - the offset to start from in the array of bytes.len - the number of bytes to use, starting at offset.

### engineUpdate

protected void **engineUpdate**([ByteBuffer](http://docs.google.com/java/nio/ByteBuffer.html) input)

Update the digest using the specified ByteBuffer. The digest is updated using the input.remaining() bytes starting at input.position(). Upon return, the buffer's position will be equal to its limit; its limit will not have changed.

**Parameters:**input - the ByteBuffer**Since:** 1.5

### engineDigest

protected abstract byte[] **engineDigest**()

Completes the hash computation by performing final operations such as padding. Once engineDigest has been called, the engine should be reset (see [engineReset](http://docs.google.com/java/security/MessageDigestSpi.html#engineReset())). Resetting is the responsibility of the engine implementor.

**Returns:**the array of bytes for the resulting hash value.

### engineDigest

protected int **engineDigest**(byte[] buf,  
 int offset,  
 int len)  
 throws [DigestException](http://docs.google.com/java/security/DigestException.html)

Completes the hash computation by performing final operations such as padding. Once engineDigest has been called, the engine should be reset (see [engineReset](http://docs.google.com/java/security/MessageDigestSpi.html#engineReset())). Resetting is the responsibility of the engine implementor. This method should be abstract, but we leave it concrete for binary compatibility. Knowledgeable providers should override this method.

**Parameters:**buf - the output buffer in which to store the digestoffset - offset to start from in the output bufferlen - number of bytes within buf allotted for the digest. Both this default implementation and the SUN provider do not return partial digests. The presence of this parameter is solely for consistency in our API's. If the value of this parameter is less than the actual digest length, the method will throw a DigestException. This parameter is ignored if its value is greater than or equal to the actual digest length. **Returns:**the length of the digest stored in the output buffer. **Throws:** [DigestException](http://docs.google.com/java/security/DigestException.html) - if an error occurs.**Since:** 1.2

### engineReset

protected abstract void **engineReset**()

Resets the digest for further use.

### clone

public [Object](http://docs.google.com/java/lang/Object.html) **clone**()  
 throws [CloneNotSupportedException](http://docs.google.com/java/lang/CloneNotSupportedException.html)

Returns a clone if the implementation is cloneable.

**Overrides:**[clone](http://docs.google.com/java/lang/Object.html#clone()) in class [Object](http://docs.google.com/java/lang/Object.html) **Returns:**a clone if the implementation is cloneable. **Throws:** [CloneNotSupportedException](http://docs.google.com/java/lang/CloneNotSupportedException.html) - if this is called on an implementation that does not support Cloneable.**See Also:**[Cloneable](http://docs.google.com/java/lang/Cloneable.html)

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[Submit a bug or feature](http://bugs.sun.com/services/bugreport/index.jsp)

For further API reference and developer documentation, see [Java SE Developer Documentation](http://docs.google.com/webnotes/devdocs-vs-specs.html). That documentation contains more detailed, developer-targeted descriptions, with conceptual overviews, definitions of terms, workarounds, and working code examples.

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