| | [**Overview**](http://docs.google.com/overview-summary.html) | [**Package**](http://docs.google.com/package-summary.html) | **Class** | [**Use**](http://docs.google.com/class-use/KeyFactorySpi.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/KeyFactory.html)   [**NEXT CLASS**](http://docs.google.com/java/security/KeyManagementException.html) | [**FRAMES**](http://docs.google.com/index.html?java/security/KeyFactorySpi.html)    [**NO FRAMES**](http://docs.google.com/KeyFactorySpi.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 KeyFactorySpi

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

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

This class defines the *Service Provider Interface* (**SPI**) for the KeyFactory class. All the abstract methods in this class must be implemented by each cryptographic service provider who wishes to supply the implementation of a key factory for a particular algorithm.

Key factories are used to convert *keys* (opaque cryptographic keys of type Key) into *key specifications* (transparent representations of the underlying key material), and vice versa.

Key factories are bi-directional. That is, they allow you to build an opaque key object from a given key specification (key material), or to retrieve the underlying key material of a key object in a suitable format.

Multiple compatible key specifications may exist for the same key. For example, a DSA public key may be specified using DSAPublicKeySpec or X509EncodedKeySpec. A key factory can be used to translate between compatible key specifications.

A provider should document all the key specifications supported by its key factory.

**Since:** 1.2 **See Also:**[KeyFactory](http://docs.google.com/java/security/KeyFactory.html), [Key](http://docs.google.com/java/security/Key.html), [PublicKey](http://docs.google.com/java/security/PublicKey.html), [PrivateKey](http://docs.google.com/java/security/PrivateKey.html), [KeySpec](http://docs.google.com/java/security/spec/KeySpec.html), [DSAPublicKeySpec](http://docs.google.com/java/security/spec/DSAPublicKeySpec.html), [X509EncodedKeySpec](http://docs.google.com/java/security/spec/X509EncodedKeySpec.html)

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

| **Method Summary** | |
| --- | --- |
| protected abstract  [PrivateKey](http://docs.google.com/java/security/PrivateKey.html) | [**engineGeneratePrivate**](http://docs.google.com/java/security/KeyFactorySpi.html#engineGeneratePrivate(java.security.spec.KeySpec))([KeySpec](http://docs.google.com/java/security/spec/KeySpec.html) keySpec)            Generates a private key object from the provided key specification (key material). |
| protected abstract  [PublicKey](http://docs.google.com/java/security/PublicKey.html) | [**engineGeneratePublic**](http://docs.google.com/java/security/KeyFactorySpi.html#engineGeneratePublic(java.security.spec.KeySpec))([KeySpec](http://docs.google.com/java/security/spec/KeySpec.html) keySpec)            Generates a public key object from the provided key specification (key material). |
| protected abstract   | <T extends [KeySpec](http://docs.google.com/java/security/spec/KeySpec.html)>  T | | --- | | [**engineGetKeySpec**](http://docs.google.com/java/security/KeyFactorySpi.html#engineGetKeySpec(java.security.Key,%20java.lang.Class))([Key](http://docs.google.com/java/security/Key.html) key, [Class](http://docs.google.com/java/lang/Class.html)<T> keySpec)            Returns a specification (key material) of the given key object. |
| protected abstract  [Key](http://docs.google.com/java/security/Key.html) | [**engineTranslateKey**](http://docs.google.com/java/security/KeyFactorySpi.html#engineTranslateKey(java.security.Key))([Key](http://docs.google.com/java/security/Key.html) key)            Translates a key object, whose provider may be unknown or potentially untrusted, into a corresponding key object of this key factory. |

| **Methods inherited from class java.lang.**[**Object**](http://docs.google.com/java/lang/Object.html) |
| --- |
| [clone](http://docs.google.com/java/lang/Object.html#clone()), [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** |
| --- |

### KeyFactorySpi

public **KeyFactorySpi**()

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

### engineGeneratePublic

protected abstract [PublicKey](http://docs.google.com/java/security/PublicKey.html) **engineGeneratePublic**([KeySpec](http://docs.google.com/java/security/spec/KeySpec.html) keySpec)  
 throws [InvalidKeySpecException](http://docs.google.com/java/security/spec/InvalidKeySpecException.html)

Generates a public key object from the provided key specification (key material).

**Parameters:**keySpec - the specification (key material) of the public key. **Returns:**the public key. **Throws:** [InvalidKeySpecException](http://docs.google.com/java/security/spec/InvalidKeySpecException.html) - if the given key specification is inappropriate for this key factory to produce a public key.

### engineGeneratePrivate

protected abstract [PrivateKey](http://docs.google.com/java/security/PrivateKey.html) **engineGeneratePrivate**([KeySpec](http://docs.google.com/java/security/spec/KeySpec.html) keySpec)  
 throws [InvalidKeySpecException](http://docs.google.com/java/security/spec/InvalidKeySpecException.html)

Generates a private key object from the provided key specification (key material).

**Parameters:**keySpec - the specification (key material) of the private key. **Returns:**the private key. **Throws:** [InvalidKeySpecException](http://docs.google.com/java/security/spec/InvalidKeySpecException.html) - if the given key specification is inappropriate for this key factory to produce a private key.

### engineGetKeySpec

protected abstract <T extends [KeySpec](http://docs.google.com/java/security/spec/KeySpec.html)> T **engineGetKeySpec**([Key](http://docs.google.com/java/security/Key.html) key,  
 [Class](http://docs.google.com/java/lang/Class.html)<T> keySpec)  
 throws [InvalidKeySpecException](http://docs.google.com/java/security/spec/InvalidKeySpecException.html)

Returns a specification (key material) of the given key object. keySpec identifies the specification class in which the key material should be returned. It could, for example, be DSAPublicKeySpec.class, to indicate that the key material should be returned in an instance of the DSAPublicKeySpec class.

**Parameters:**key - the key.keySpec - the specification class in which the key material should be returned. **Returns:**the underlying key specification (key material) in an instance of the requested specification class. **Throws:** [InvalidKeySpecException](http://docs.google.com/java/security/spec/InvalidKeySpecException.html) - if the requested key specification is inappropriate for the given key, or the given key cannot be dealt with (e.g., the given key has an unrecognized format).

### engineTranslateKey

protected abstract [Key](http://docs.google.com/java/security/Key.html) **engineTranslateKey**([Key](http://docs.google.com/java/security/Key.html) key)  
 throws [InvalidKeyException](http://docs.google.com/java/security/InvalidKeyException.html)

Translates a key object, whose provider may be unknown or potentially untrusted, into a corresponding key object of this key factory.

**Parameters:**key - the key whose provider is unknown or untrusted. **Returns:**the translated key. **Throws:** [InvalidKeyException](http://docs.google.com/java/security/InvalidKeyException.html) - if the given key cannot be processed by this key factory.

| | [**Overview**](http://docs.google.com/overview-summary.html) | [**Package**](http://docs.google.com/package-summary.html) | **Class** | [**Use**](http://docs.google.com/class-use/KeyFactorySpi.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/KeyFactory.html)   [**NEXT CLASS**](http://docs.google.com/java/security/KeyManagementException.html) | [**FRAMES**](http://docs.google.com/index.html?java/security/KeyFactorySpi.html)    [**NO FRAMES**](http://docs.google.com/KeyFactorySpi.html)     [**All Classes**](http://docs.google.com/allclasses-noframe.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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