

Package: aws.kms (via r-universe)

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Title 'AWS Key Management Service' Client Package

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Description Client package for the 'AWS Key Management Service' <<https://aws.amazon.com/kms/>>, a cloud service for managing encryption keys.

License GPL (>= 2)

URL <https://github.com/cloudyr/aws.kms>

BugReports <https://github.com/cloudyr/aws.kms/issues>

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aws.kms-package

aws.kms

Description

AWS Key Management Service (KMS) Client.

Details

This is a client for the AWS Key Management Service (KMS), which can be used to create and manage encryption keys used by AWS services or to setup a secure HTTP-based encryption service using [encrypt](#) and [decrypt](#). KMS is also used natively by other AWS services.

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References

<https://docs.aws.amazon.com/kms/latest/developerguide/overview.html> <https://docs.aws.amazon.com/kms/latest/APIReference/Welcome.html>

See Also

[create_kms_key](#), [list_kms_keys](#), [generate_blob](#), [encrypt](#)

create_kms_alias*Create/Delete KMS Key Alias*

Description

Manage KMS key aliases.

Usage

```
create_kms_alias(key, alias, ...)
```

```
delete_kms_alias(alias, ...)
```

```
update_kms_alias(key, alias, ...)
```

```
list_kms_aliases(n, marker, ...)
```

Arguments

key	A character string specifying a key ID, Amazon Resource Name (ARN), alias name, or alias ARN. When using an alias name, prefix it with "alias/".
alias	A character string specifying an alias name.
...	Additional arguments passed to kmsHTTP .
n	For <code>list_kms_aliases</code> , an integer specifying a number of keys to return (for pagination).
marker	For <code>list_kms_aliases</code> , a pagination marker.

Details

`create_kms_alias` creates an alias for KMS key, which can be used in place of the `KeyId` or `ARN`. A given key can have multiple aliases. `delete_kms_alias` deletes an named alias. `update_kms_alias` reassigns an alias to a new key.

See Also

[create_kms_key](#), [delete_kms_key](#), [encrypt](#)

create_kms_key	<i>Create/Update/Retrieve/Delete Encryption Key</i>
----------------	---

Description

Create/update/retrieve/delete a KMS encryption key

Usage

```
create_kms_key(
  description = NULL,
  origin = c("AWS_KMS", "EXTERNAL"),
  usage = "ENCRYPT_DECRYPT",
  ...
)

update_kms_key(key, description, ...)

get_kms_key(key, ...)

delete_kms_key(key, delay = 7, ...)

undelete_kms_key(key, ...)
```

Arguments

description	Optionally, a character string describing the key. This can be updated later using <code>update_kms_key</code> . An alias for the key, which can be used in lieu of the <code>KeyId</code> in subsequent calls can be set with <code>create_kms_alias</code> .
origin	A character string specifying the origin. Default is “AWS_KMS”. If “EXTERNAL”, use <code>put_kms_material</code> to add a key created using other infrastructure. See https://docs.aws.amazon.com/kms/latest/developerguide/importing-keys.html for details.
usage	Ignored.
...	Additional arguments passed to <code>kmsHTTP</code> .
key	A character string specifying a key ID, Amazon Resource Name (ARN), alias name, or alias ARN. When using an alias name, prefix it with “alias/”.
delay	An integer specifying a number of delays to wait before deleting key. Minimum 7 and maximum 30.

Value

`create_kms_key` and `get_kms_key` return a list of class “aws_kms_key”. `delete_kms_key` and `undelete_kms_key` return a logical.

See Also

[list_kms_keys](#), [create_kms_alias](#), [disable_kms_key](#), [encrypt](#)

Examples

```
## Not run:
# create key
k <- create_kms_key(description = "example")

# get key
get_kms_key(k)

# delete in 30 days
delete_kms_key(k, delay = 30)

## End(Not run)
```

enable_kms_key

Enable/Disable Encryption Key

Description

Enable or disable a KMS encryption key

Usage

```
enable_kms_key(key, ...)
```

```
disable_kms_key(key, ...)
```

Arguments

`key` A character string specifying a key ID, Amazon Resource Name (ARN), alias name, or alias ARN. When using an alias name, prefix it with “alias/”.

`...` Additional arguments passed to [kmsHTTP](#).

See Also

[create_kms_key](#), [list_kms_keys](#)

Examples

```
## Not run:
# create key
k <- create_kms_key(description = "example")

# disable key
disable_kms_key(k)

# enable key
enable_kms_key(k)

# delete in 7 days
delete_kms_key(k)

## End(Not run)
```

enable_kms_rotation *Enable/Disable Key Rotation*

Description

Enable or disable a encryption key rotation

Usage

```
enable_kms_rotation(key, ...)
```

```
disable_kms_rotation(key, ...)
```

```
get_kms_rotation(key, ...)
```

Arguments

key A character string specifying a key ID, Amazon Resource Name (ARN), alias name, or alias ARN. When using an alias name, prefix it with “alias/”.

... Additional arguments passed to `kmsHTTP`.

See Also

[create_kms_key](#), [list_kms_keys](#)

Examples

```
## Not run:
# create key
k <- create_kms_key(description = "example")

# enable rotation
enable_kms_rotation(k)

# disable rotation
disable_kms_rotation(k)

# confirm rotation is disabled
get_kms_rotation(k)

# delete in 7 days
delete_kms_key(k)

## End(Not run)
```

encrypt

Perform encryption/decryption

Description

Encrypt plain text into ciphertext, or the reverse

Usage

```
encrypt(text, key, encode = TRUE, ...)
```

```
decrypt(text, key, encode = TRUE, ...)
```

```
reencrypt(text, key, encode = TRUE, ...)
```

Arguments

text	For encrypt, a character string specifying up to 4 kilobytes of data to be encrypted using the specified key. For decrypt, ciphertext of maximum 6144 bytes.
key	A character string specifying a key ID, Amazon Resource Name (ARN), alias name, or alias ARN. When using an alias name, prefix it with “alias/”.
encode	A logical specifying whether to base 64 encode text.
...	Additional arguments passed to kmsHTTP .

Details

encrypt encrypts source text using a KMS key. decrypt reverses this process using the same key. reencrypt reencrypts an (encrypted) ciphertext using a new key. The purpose of these functions, according to AWS, is to encrypt and decrypt data keys (of the source created with [generate_data_key](#)) rather than general purpose encryption given the relatively low upper limit on the size of text.

Value

encrypt returns a base64-encoded binary object as a character string.

See Also

[create_kms_key](#), [generate_data_key](#), [generate_blob](#)

Examples

```
## Not run:
# create a key
k <- create_kms_key()

# encrypt
tmp <- tempfile()
cat("example test", file = tmp)
(etxt <- encrypt(tmp, k))

# decrypt
(dttext <- decrypt(etext, k, encode = FALSE))
if (require("base64enc")) {
  rawToChar(base64enc::base64decode(dttext))
}

# cleanup
delete_kms_key(k)

## End(Not run)
```

generate_blob	<i>Generate Random Blob</i>
---------------	-----------------------------

Description

Generate a random byte string

Usage

```
generate_blob(bytes = 1, ...)
```

Arguments

bytes	An integer specifying a number of bytes between 1 and 1024.
...	Additional arguments passed to kmsHTTP .

Details

`create_kms_alias` creates an alias for KMS key, which can be used in place of the KeyId or ARN. A given key can have multiple aliases. `delete_kms_alias` deletes an named alias. `update_kms_alias` reassigns an alias to a new key.

Value

A base64-encoded character string.

See Also

[create_kms_key](#), [encrypt](#)

Examples

```
## Not run:  
b <- generate_blob()  
if (require("base64enc")) {  
  base64enc::base64decode(b)  
}  
  
## End(Not run)
```

generate_data_key	<i>Generate data keys</i>
-------------------	---------------------------

Description

Generate data keys for local encryption

Usage

```
generate_data_key(key, spec = c("AES_256", "AES_128"), plaintext = TRUE, ...)
```

Arguments

key	A character string specifying a key ID, Amazon Resource Name (ARN), alias name, or alias ARN. When using an alias name, prefix it with "alias/".
spec	A character string specifying the length of the data encryption key, either "AES_256" or "AES_128".
plaintext	A logical indicating whether to return the data key in plain text, as well as in encrypted form.
...	Additional arguments passed to kmsHTTP .

Details

This function generates and returns a "data key" for use in local encryption. The suggested workflow from AWS is to encrypt, do the following:

1. Use this operation (`generate_data_key`) to get a data encryption key.
2. Use the plaintext data encryption key (returned in the `Plaintext` field of the response) to encrypt data locally, then erase the plaintext data key from memory.
3. Store the encrypted data key (returned in the `CiphertextBlob` field of the response) alongside the locally encrypted data.

Then to decrypt locally:

1. Use [decrypt](#) to decrypt the encrypted data key into a plaintext copy of the data key.
2. Use the plaintext data key to decrypt data locally, then erase the plaintext data key from memory.

Value

`encrypt` returns a base64-encoded binary object as a character string.

References

https://docs.aws.amazon.com/kms/latest/APIReference/API_GenerateDataKey.html

See Also

[create_kms_key](#), [generate_blob](#)

Examples

```
## Not run:
# create a (CMK) key
k <- create_kms_key()

# generate a data key for local encryption
datakey <- generate_data_key(key = k)

## encrypt something locally using datakey$Plaintext
## then delete the plaintext key
datakey$Plaintext <- NULL

# decrypt the encrypted data key
datakey$Plaintext <- decrypt(datakey$CiphertextBlob, k, encode = FALSE)
## then use this to decrypt locally

# cleanup
delete_kms_key(k)

## End(Not run)
```

kmsHTTP

Execute AWS KMS API Request

Description

This is the workhorse function to execute calls to the KMS API.

Usage

```
kmsHTTP(
  action,
  query = list(),
  headers = list(),
  body = NULL,
  verbose = getOption("verbose", FALSE),
  region = Sys.getenv("AWS_DEFAULT_REGION", "us-east-1"),
  key = NULL,
  secret = NULL,
  session_token = NULL,
  ...
)
```

Arguments

action	A character string specifying the API action to take
query	An optional named list containing query string parameters and their character values.
headers	A list of headers to pass to the HTTP request.
body	A request body
verbose	A logical indicating whether to be verbose. Default is given by options("verbose").
region	A character string specifying an AWS region. See locate_credentials .
key	A character string specifying an AWS Access Key. See locate_credentials .
secret	A character string specifying an AWS Secret Key. See locate_credentials .
session_token	Optionally, a character string specifying an AWS temporary Session Token to use in signing a request. See locate_credentials .
...	Additional arguments passed to GET .

Details

This function constructs and signs a KMS API request and returns the results thereof, or relevant debugging information in the case of error.

Value

If successful, a named list. Otherwise, a data structure of class "aws-error" containing any error message(s) from AWS and information about the request attempt.

Author(s)

Thomas J. Leeper

list_kms_keys	<i>List Encryption Keys</i>
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Description

List encryption keys in KMS

Usage

```
list_kms_keys(n = 100, marker = NULL, ...)
```

Arguments

n	An integer specifying a number of keys to return (for pagination).
marker	A pagination marker.
...	Additional arguments passed to kmsHTTP .

Value

A data frame

See Also

[get_kms_key](#), [create_kms_key](#), [delete_kms_key](#)

Examples

```
## Not run:
  list_kms_keys()

## End(Not run)
```

put_kms_material	<i>Put/Delete KMS Key Material</i>
------------------	------------------------------------

Description

Manage key material for “external” keys.

Usage

```
put_kms_material(key, material, token, expires = TRUE, valid_to = NULL, ...)

delete_kms_material(key, ...)

get_material_parameters(
  key,
  algorithm = c("RSAES_PKCS1_V1_5", "RSAES_OAEP_SHA_1", "RSAES_OAEP_SHA_256"),
  spec = "RSA_2048",
  ...
)
```

Arguments

key	A character string specifying a key ID, Amazon Resource Name (ARN), alias name, or alias ARN. When using an alias name, prefix it with “alias/”.
material	A character string specifying the base64-encoded key material (encrypted according to parameters returned by <code>get_material_parameters</code>).
token	A character string returned in <code>get_material_parameters()</code> \$ImportToken.
expires	Optionally, a logical indicating whether the key material expires. If TRUE (the default), <code>valid_to</code> is required.
valid_to	Optionally (if <code>expires = TRUE</code>), a number specifying when the key material expires.
...	Additional arguments passed to kmsHTTP .

algorithm	A character string specifying an encryption algorithm used to encrypt the key material.
spec	Ignored.

Details

`put_kms_material` adds key material to an “external” KMS key, which can be created using `create_kms_key`. The import requires `delete_kms_material` deletes the imported material (but not the key itself).

References

<https://docs.aws.amazon.com/kms/latest/developerguide/importing-keys-encrypt-key-material.html>

See Also

[create_kms_key](#)

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