# Package 'secret'

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secret-package

Share Sensitive Information in R Packages.

# **Description**

Allow sharing sensitive information, for example passwords, API keys, or other information in R packages, using public key cryptography.

#### **Details**

A vault is a directory, typically inside an R package, that stores a number of secrets. Each secret is shared among a group of users. Users are identified using their public keys.

The package implements the following operations:

- Vault:
  - Creating a vault folder: create\_vault()
  - Creating a package vault: create\_package\_vault()
- User management:
  - Adding a user: add\_user(), add\_github\_user().
  - Deleting a user: delete\_user().
  - Listing users: list\_users().
- Keys:
  - Reading local private key: local\_key()
- Secrets:
  - Adding a secret: add\_secret().
  - Retrieving a secret: get\_secret().
  - Updating a secret: update\_secret().
  - Deleting a secret: delete\_secret().
  - List secrets: list\_secrets().
  - Sharing a secret: share\_secret(). Query or set the set of users that have access to a secret.
  - Unsharing a secret: unshare\_secret()

#### Author(s)

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add\_github\_user 3

add	github	user

Add a user via their GitHub username.

# **Description**

On GitHub, a user can upload multiple keys. This function will download the first key by default, but you can change this

#### Usage

```
add_github_user(github_user, email = NULL, vault = NULL, i = 1)
```

#### **Arguments**

github\_user User name on GitHub.

email

Email address of the github user. If NULL, constructs an email as github-<<github\_user>>

vault

Vault location (starting point to find the vault). To create a vault, use create\_vault() or create\_package\_vault(). If this is NULL, then secret tries to find the vault automatically:

- If the secret.vault option is set to path, that is used as the starting point.
- Otherwise, if the R\_SECRET\_VAULT environment variable is set to a path, that is used as a starting point.
- Otherwise the current working directory is used as the starting point.

If the starting point is a vault, that is used. Otherwise, if the starting point is in a package tree, the inst/vault folder is used within the package. If no vault can be found, an error is thrown.

i

Integer, indicating which GitHub key to use (if more than one GitHub key exists).

#### See Also

```
add_travis_user()
```

Other user functions: add\_travis\_user, add\_user, delete\_user, list\_users

```
vault <- file.path(tempdir(), ".vault")
create_vault(vault)

add_github_user("hadley", vault = vault)
list_users(vault = vault)
delete_user("github-hadley", vault = vault)</pre>
```

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add\_secret

Add a new secret to the vault.

#### Description

By default, the newly added secret is not shared with other users. See the users argument if you want to change this. You can also use share\_secret() later, to specify the users that have access to the secret.

# Usage

```
add_secret(name, value, users, vault = NULL)
```

## **Arguments**

name	Name of the secret, a string that can contain alphanumeric characters, underscores, dashes and dots.
value	$Value\ of\ the\ secret,\ an\ arbitrary\ R\ object\ that\ will\ be\ serialized\ using\ \verb+base+::serialize().$
users	Email addresses of users that will have access to the secret. (See add_user())
vault	Vault location (starting point to find the vault). To create a vault, use create_vault() or create_package_vault(). If this is NULL, then secret tries to find the vault automatically:

- If the secret.vault option is set to path, that is used as the starting point.
- Otherwise, if the R\_SECRET\_VAULT environment variable is set to a path, that is used as a starting point.
- Otherwise the current working directory is used as the starting point.

If the starting point is a vault, that is used. Otherwise, if the starting point is in a package tree, the inst/vault folder is used within the package. If no vault can be found, an error is thrown.

#### See Also

```
Other secret functions: delete_secret, get_secret, list_owners, list_secrets, local_key, share_secret, unshare_secret, update_secret
```

```
# The `secret` package contains some user keys for demonstration purposes.
# In this example, Alice shares a secret with Bob using a vault.

keys <- function(x){
   file.path(system.file("user_keys", package = "secret"), x)
}
alice_public <- keys("alice.pub")
alice_private <- keys("alice.pem")</pre>
```

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```
bob_public <- keys("bob.pub")</pre>
bob_private <- keys("bob.pem")</pre>
carl_private <- keys("carl.pem")</pre>
# Create vault
vault <- file.path(tempdir(), ".vault")</pre>
if (dir.exists(vault)) unlink(vault) # ensure vault is empty
create_vault(vault)
# Add users with their public keys
add_user("alice", public_key = alice_public, vault = vault)
add_user("bob", public_key = bob_public, vault = vault)
list_users(vault = vault)
# Share a secret
secret <- list(username = "user123", password = "Secret123!")</pre>
add_secret("secret", value = secret, users = c("alice", "bob"),
           vault = vault)
list_secrets(vault = vault)
# Alice and Bob can decrypt the secret with their private keys
# Note that you would not normally have access to the private key
# of any of your collaborators!
get_secret("secret", key = alice_private, vault = vault)
get_secret("secret", key = bob_private, vault = vault)
# But Carl can't decrypt the secret
try(
  get_secret("secret", key = carl_private, vault = vault)
# Unshare the secret
unshare_secret("secret", users = "bob", vault = vault)
try(
  get_secret("secret", key = bob_private, vault = vault)
# Delete the secret
delete_secret("secret", vault = vault)
list_secrets(vault)
# Delete the users
delete_user("alice", vault = vault)
```

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```
delete_user("bob", vault = vault)
list_users(vault)
```

add\_travis\_user

Add a user via their Travis repo.

# Description

On Travis, every repo has a private/public key pair. This function adds a user and downloads the public key from Travis.

#### Usage

```
add_travis_user(travis_repo, email, vault = NULL)
```

#### Arguments

travis\_repo

Name of Travis repository, usually in a format <<username>>/</repo>>

email

Email address of the user. This is used to identify users.

vault

Vault location (starting point to find the vault). To create a vault, use create\_vault() or create\_package\_vault(). If this is NULL, then secret tries to find the vault automatically:

- If the secret.vault option is set to path, that is used as the starting point.
- Otherwise, if the R\_SECRET\_VAULT environment variable is set to a path, that is used as a starting point.
- Otherwise the current working directory is used as the starting point.

If the starting point is a vault, that is used. Otherwise, if the starting point is in a package tree, the inst/vault folder is used within the package. If no vault can be found, an error is thrown.

#### See Also

Other user functions: add\_github\_user, add\_user, delete\_user, list\_users

```
vault <- file.path(tempdir(), ".vault")
create_vault(vault)

add_travis_user("gaborcsardi/secret", vault = vault)
list_users(vault = vault)
delete_user("travis-gaborcsardi-secret", vault = vault)</pre>
```

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add\_user

Add a new user to the vault.

#### **Description**

By default the new user does not have access to any secrets. See add\_secret() or share\_secret() to give them access.

# Usage

```
add_user(email, public_key, vault = NULL)
```

#### **Arguments**

email

Email address of the user. This is used to identify users.

public\_key

Public key of the user. This is used to encrypt the secrets for the different users. It can be

- a string containing a PEM,
- a file name that points to a PEM file,
- a pubkey object created via the openss1 package.

vault

Vault location (starting point to find the vault). To create a vault, use create\_vault() or create\_package\_vault(). If this is NULL, then secret tries to find the vault automatically:

- If the secret.vault option is set to path, that is used as the starting point.
- Otherwise, if the R\_SECRET\_VAULT environment variable is set to a path, that is used as a starting point.
- Otherwise the current working directory is used as the starting point.

If the starting point is a vault, that is used. Otherwise, if the starting point is in a package tree, the inst/vault folder is used within the package. If no vault can be found, an error is thrown.

#### See Also

Other user functions: add\_github\_user, add\_travis\_user, delete\_user, list\_users

```
# The `secret` package contains some user keys for demonstration purposes.
# In this example, Alice shares a secret with Bob using a vault.

keys <- function(x){
   file.path(system.file("user_keys", package = "secret"), x)
}
alice_public <- keys("alice.pub")
alice_private <- keys("alice.pem")</pre>
```

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```
bob_public <- keys("bob.pub")</pre>
bob_private <- keys("bob.pem")</pre>
carl_private <- keys("carl.pem")</pre>
# Create vault
vault <- file.path(tempdir(), ".vault")</pre>
if (dir.exists(vault)) unlink(vault) # ensure vault is empty
create_vault(vault)
# Add users with their public keys
add_user("alice", public_key = alice_public, vault = vault)
add_user("bob", public_key = bob_public, vault = vault)
list_users(vault = vault)
# Share a secret
secret <- list(username = "user123", password = "Secret123!")</pre>
add_secret("secret", value = secret, users = c("alice", "bob"),
           vault = vault)
list_secrets(vault = vault)
# Alice and Bob can decrypt the secret with their private keys
# Note that you would not normally have access to the private key
# of any of your collaborators!
get_secret("secret", key = alice_private, vault = vault)
get_secret("secret", key = bob_private, vault = vault)
# But Carl can't decrypt the secret
try(
  get_secret("secret", key = carl_private, vault = vault)
# Unshare the secret
unshare_secret("secret", users = "bob", vault = vault)
try(
  get_secret("secret", key = bob_private, vault = vault)
# Delete the secret
delete_secret("secret", vault = vault)
list_secrets(vault)
# Delete the users
delete_user("alice", vault = vault)
```

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```
delete_user("bob", vault = vault)
list_users(vault)
```

#### **Description**

A vault is a folder that contains information about users and the secrets they share. You can create a vault as either a standalone folder, or as part of a package.

#### Usage

```
create_package_vault(path = ".")
create_vault(path)
```

#### **Arguments**

path

Path to the R package. A file or directory within the package is fine, too. If the vault directory already exists, a message is given, and the function does nothing.

#### **Details**

A vault is a folder with a specific structure, containing two directories: users and secrets.

In users, each file contains a public key in PEM format. The name of the file is the identifier of the key, an arbitrary name. We suggest that you use email addresses to identify public keys. See also add\_user().

In secrets, each secret is stored in its own directory. The directory of a secret contains

- 1. the secret, encrypted with its own AES key, and
- 2. the AES key, encrypted with the public keys of all users that have access to the secret, each in its own file.

To add a secret, see add\_secret()

#### Value

The directory of the vault, invisibly.

# Creating a package folder

When you create a vault in a package, this vault is stored in the inst/vault directory of the package during development. At package install time, this folder is copied to the vault folder.

#### See Also

```
add_user(), add_secret()
```

```
# The `secret` package contains some user keys for demonstration purposes.
# In this example, Alice shares a secret with Bob using a vault.
keys <- function(x){</pre>
  file.path(system.file("user_keys", package = "secret"), x)
alice_public <- keys("alice.pub")</pre>
alice_private <- keys("alice.pem")</pre>
bob_public <- keys("bob.pub")</pre>
bob_private <- keys("bob.pem")</pre>
carl_private <- keys("carl.pem")</pre>
# Create vault
vault <- file.path(tempdir(), ".vault")</pre>
if (dir.exists(vault)) unlink(vault) # ensure vault is empty
create_vault(vault)
# Add users with their public keys
add_user("alice", public_key = alice_public, vault = vault)
add_user("bob", public_key = bob_public, vault = vault)
list_users(vault = vault)
# Share a secret
secret <- list(username = "user123", password = "Secret123!")</pre>
add_secret("secret", value = secret, users = c("alice", "bob"),
           vault = vault)
list_secrets(vault = vault)
# Alice and Bob can decrypt the secret with their private keys
# Note that you would not normally have access to the private key
# of any of your collaborators!
get_secret("secret", key = alice_private, vault = vault)
get_secret("secret", key = bob_private, vault = vault)
# But Carl can't decrypt the secret
trv(
  get_secret("secret", key = carl_private, vault = vault)
# Unshare the secret
unshare_secret("secret", users = "bob", vault = vault)
  get_secret("secret", key = bob_private, vault = vault)
```

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```
# Delete the secret

delete_secret("secret", vault = vault)
list_secrets(vault)

# Delete the users

delete_user("alice", vault = vault)
delete_user("bob", vault = vault)
list_users(vault)
```

delete\_secret

Remove a secret from the vault.

# Description

)

Remove a secret from the vault.

#### Usage

```
delete_secret(name, vault = NULL)
```

# **Arguments**

name

Name of the secret to delete.

vault

Vault location (starting point to find the vault). To create a vault, use create\_vault() or create\_package\_vault(). If this is NULL, then secret tries to find the vault automatically:

- If the secret.vault option is set to path, that is used as the starting point.
- Otherwise, if the R\_SECRET\_VAULT environment variable is set to a path, that is used as a starting point.
- Otherwise the current working directory is used as the starting point.

If the starting point is a vault, that is used. Otherwise, if the starting point is in a package tree, the inst/vault folder is used within the package. If no vault can be found, an error is thrown.

#### See Also

Other secret functions: add\_secret, get\_secret, list\_owners, list\_secrets, local\_key, share\_secret, unshare\_secret, update\_secret

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delete\_user

Delete a user.

# **Description**

It also removes access of the user to all secrets, so if the user is re-added again, they will not have access to any secrets.

#### Usage

```
delete_user(email, vault = NULL)
```

# **Arguments**

email

Email address of the user.

vault

Vault location (starting point to find the vault). To create a vault, use create\_vault() or create\_package\_vault(). If this is NULL, then secret tries to find the vault automatically:

- If the secret.vault option is set to path, that is used as the starting point.
- Otherwise, if the R\_SECRET\_VAULT environment variable is set to a path, that is used as a starting point.
- Otherwise the current working directory is used as the starting point.

If the starting point is a vault, that is used. Otherwise, if the starting point is in a package tree, the inst/vault folder is used within the package. If no vault can be found, an error is thrown.

#### See Also

Other user functions: add\_github\_user, add\_travis\_user, add\_user, list\_users

get\_secret

Retrieve a secret from the vault.

# Description

Retrieve a secret from the vault.

#### Usage

```
get_secret(name, key = local_key(), vault = NULL)
```

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#### **Arguments**

name Name of the secret.

key The private RSA key to use. It defaults to the current user's default key.

Vault location (starting point to find the vault). To create a vault, use create\_vault() or create\_package\_vault(). If this is NULL, then secret tries to find the vault

automatically:

• If the secret.vault option is set to path, that is used as the starting point.

- Otherwise, if the R\_SECRET\_VAULT environment variable is set to a path, that is used as a starting point.
- Otherwise the current working directory is used as the starting point.

If the starting point is a vault, that is used. Otherwise, if the starting point is in a package tree, the inst/vault folder is used within the package. If no vault can be found, an error is thrown.

#### See Also

Other secret functions: add\_secret, delete\_secret, list\_owners, list\_secrets, local\_key, share\_secret, unshare\_secret, update\_secret

```
# The `secret` package contains some user keys for demonstration purposes.
# In this example, Alice shares a secret with Bob using a vault.
keys <- function(x){</pre>
 file.path(system.file("user_keys", package = "secret"), x)
}
alice_public <- keys("alice.pub")</pre>
alice_private <- keys("alice.pem")</pre>
bob_public <- keys("bob.pub")</pre>
bob_private <- keys("bob.pem")</pre>
carl_private <- keys("carl.pem")</pre>
# Create vault
vault <- file.path(tempdir(), ".vault")</pre>
if (dir.exists(vault)) unlink(vault) # ensure vault is empty
create_vault(vault)
# Add users with their public keys
add_user("alice", public_key = alice_public, vault = vault)
add_user("bob", public_key = bob_public, vault = vault)
list_users(vault = vault)
# Share a secret
secret <- list(username = "user123", password = "Secret123!")</pre>
```

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```
add_secret("secret", value = secret, users = c("alice", "bob"),
           vault = vault)
list_secrets(vault = vault)
# Alice and Bob can decrypt the secret with their private keys
# Note that you would not normally have access to the private key
# of any of your collaborators!
get_secret("secret", key = alice_private, vault = vault)
get_secret("secret", key = bob_private, vault = vault)
# But Carl can't decrypt the secret
try(
  get_secret("secret", key = carl_private, vault = vault)
# Unshare the secret
unshare_secret("secret", users = "bob", vault = vault)
  get_secret("secret", key = bob_private, vault = vault)
# Delete the secret
delete_secret("secret", vault = vault)
list_secrets(vault)
# Delete the users
delete_user("alice", vault = vault)
delete_user("bob", vault = vault)
list_users(vault)
```

list\_owners

List users that have access to a secret

# Description

List users that have access to a secret

# Usage

```
list_owners(name, vault = NULL)
```

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#### **Arguments**

name

Name of the secret, a string that can contain alphanumeric characters, underscores, dashes and dots.

vault

Vault location (starting point to find the vault). To create a vault, use create\_vault() or create\_package\_vault(). If this is NULL, then secret tries to find the vault automatically:

- If the secret.vault option is set to path, that is used as the starting point.
- Otherwise, if the R\_SECRET\_VAULT environment variable is set to a path, that is used as a starting point.
- Otherwise the current working directory is used as the starting point.

If the starting point is a vault, that is used. Otherwise, if the starting point is in a package tree, the inst/vault folder is used within the package. If no vault can be found, an error is thrown.

#### See Also

Other secret functions: add\_secret, delete\_secret, get\_secret, list\_secrets, local\_key, share\_secret, unshare\_secret, update\_secret

list\_secrets

List all secrets.

# Description

Returns a data frame with secrets and emails that these are shared with. The emails are in a list-column, each element of the email column is a character vector.

#### Usage

```
list_secrets(vault = NULL)
```

#### **Arguments**

vault

Vault location (starting point to find the vault). To create a vault, use create\_vault() or create\_package\_vault(). If this is NULL, then secret tries to find the vault automatically:

- If the secret.vault option is set to path, that is used as the starting point.
- Otherwise, if the R\_SECRET\_VAULT environment variable is set to a path, that is used as a starting point.
- Otherwise the current working directory is used as the starting point.

If the starting point is a vault, that is used. Otherwise, if the starting point is in a package tree, the inst/vault folder is used within the package. If no vault can be found, an error is thrown.

list\_users

# Value

data.frame

#### See Also

Other secret functions: add\_secret, delete\_secret, get\_secret, list\_owners, local\_key, share\_secret, unshare\_secret, update\_secret

list\_users

List users

# **Description**

List users

#### Usage

```
list_users(vault = NULL)
```

# Arguments

vault

Vault location (starting point to find the vault). To create a vault, use create\_vault() or create\_package\_vault(). If this is NULL, then secret tries to find the vault automatically:

- If the secret.vault option is set to path, that is used as the starting point.
- Otherwise, if the R\_SECRET\_VAULT environment variable is set to a path, that is used as a starting point.
- Otherwise the current working directory is used as the starting point.

If the starting point is a vault, that is used. Otherwise, if the starting point is in a package tree, the inst/vault folder is used within the package. If no vault can be found, an error is thrown.

#### See Also

Other user functions: add\_github\_user, add\_travis\_user, add\_user, delete\_user

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local\_key

Read local secret key.

#### **Description**

Reads a local secret key from disk. The location of this file can be specified in the USER\_KEY environment variable. If this environment variable does not exist, then attempts to read the key from:

- ~/.ssh/id\_rsa, and
- ~/.ssh/id\_rsa.pem.

# Usage

```
local_key()
```

#### **Details**

The location of the key is defined by:

```
Sys.getenv("USER_KEY")
```

To use a local in a different location, set an environment variable:

```
Sys.setenv(USER_KEY = "path/to/private/key")
```

#### See Also

Other secret functions: add\_secret, delete\_secret, get\_secret, list\_owners, list\_secrets, share\_secret, unshare\_secret, update\_secret

share\_secret

Share a secret among some users.

# Description

Use this function to extend the set of users that have access to a secret. The calling user must have access to the secret as well.

# Usage

```
share_secret(name, users, key = local_key(), vault = NULL)
```

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#### **Arguments**

name Name of the secret, a string that can contain alphanumeric characters, underscores, dashes and dots.

users addresses of users that will have access to the secret. (See add\_user()).

key Private key that has access to the secret. (I.e. its corresponding public key is among the vault users.)

vault Vault location (starting point to find the vault). To create a vault, use create\_vault() or create\_package\_vault(). If this is NULL, then secret tries to find the vault automatically:

- If the secret.vault option is set to path, that is used as the starting point.
- Otherwise, if the R\_SECRET\_VAULT environment variable is set to a path, that is used as a starting point.
- Otherwise the current working directory is used as the starting point.

If the starting point is a vault, that is used. Otherwise, if the starting point is in a package tree, the inst/vault folder is used within the package. If no vault can be found, an error is thrown.

#### See Also

unshare\_secret(), list\_owners() to list users that have access to a secret.

Other secret functions: add\_secret, delete\_secret, get\_secret, list\_owners, list\_secrets, local\_key, unshare\_secret, update\_secret

unshare\_secret

Unshare a secret among some users.

#### **Description**

Use this function to restrict the set of users that have access to a secret. Note that users may still have access to the secret, through version control history, or if they have a copy of the project. They will not have access to future values of the secret, though.

#### Usage

```
unshare_secret(name, users, vault = NULL)
```

#### **Arguments**

name	Name of the secret, a string that can contain alphanumeric characters, underscores, dashes and dots.
users	Email addresses of users that will have access to the secret. (See add_user())
vault	Vault location (starting point to find the vault). To create a vault, use create_vault() or create_package_vault(). If this is NULL, then secret tries to find the vault automatically:

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- If the secret.vault option is set to path, that is used as the starting point.
- Otherwise, if the R\_SECRET\_VAULT environment variable is set to a path, that is used as a starting point.
- Otherwise the current working directory is used as the starting point.

If the starting point is a vault, that is used. Otherwise, if the starting point is in a package tree, the inst/vault folder is used within the package. If no vault can be found, an error is thrown.

#### See Also

```
share_secret()
```

Other secret functions: add\_secret, delete\_secret, get\_secret, list\_owners, list\_secrets, local\_key, share\_secret, update\_secret

update\_secret

Update a secret in the vault.

#### **Description**

Update a secret in the vault.

#### Usage

```
update_secret(name, value, key = local_key(), vault = NULL)
```

# Arguments

name Name of the secret.

value Value of the secret, an arbitrary R object that will be serialized using base::serialize().

key The private RSA key to use. It defaults to the current user's default key.

Vault location (starting point to find the vault). To create a vault, use create\_vault() or create\_package\_vault(). If this is NULL, then secret tries to find the vault automatically:

- If the secret.vault option is set to path, that is used as the starting point.
- Otherwise, if the R\_SECRET\_VAULT environment variable is set to a path, that is used as a starting point.
- Otherwise the current working directory is used as the starting point.

If the starting point is a vault, that is used. Otherwise, if the starting point is in a package tree, the inst/vault folder is used within the package. If no vault can be found, an error is thrown.

#### See Also

Other secret functions: add\_secret, delete\_secret, get\_secret, list\_owners, list\_secrets, local\_key, share\_secret, unshare\_secret

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