Package ‘BiocInstaller’
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Title Install/Update Bioconductor, CRAN, and github Packages
Description This package is used to install and update Bioconductor, CRAN, and (some) github packages.
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<table>
<thead>
<tr>
<th>biocinstallRepos</th>
<th>Display current Bioconductor and CRAN repositories.</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>biocLite</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>biocUpdatePackages</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>BiocUpgrade</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>biocValid</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>biocVersion</td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>Package Groups</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>useDevel</td>
<td></td>
<td>9</td>
</tr>
</tbody>
</table>

Index

| biocinstallRepos                  | Display current Bioconductor and CRAN repositories. | 12 |

Description
Displays the URLs of the repositories used by biocLite to install Bioconductor and CRAN packages.

Usage
biocinstallRepos(siteRepos=character(), version=biocVersion())
Arguments

`siteRepos` (Optional) character(1) representing an additional repository (e.g., a URL to an organization's internally maintained repository) in which to look for packages to install. This repository will be prepended to the default repositories returned by the function.

`version` (Optional) character(1) or package_version indicating the Bioconductor version (e.g., “3.1”) for which repositories are required.

Value

Named character() of repositories.

See Also

`biocLite` Installs/updates Bioconductor/CRAN packages.
`install.packages` installs the packages themselves.
`chooseBioCmirror` lets you choose from a list of all public Bioconductor mirror URLs.
`chooseCRANmirror` lets you choose from a list of all public CRAN mirror URLs.

Examples

```r
biocinstallRepos()
```

## Choose mirrors
## Not run:
`chooseCRANmirror()`
`chooseBioCmirror()`

## End(Not run)

---

**biocLite**

*Install or update Bioconductor and CRAN packages*

Description

`biocLite` installs or updates Bioconductor and CRAN packages in a Bioconductor release. Upgrading to a new Bioconductor release requires additional steps; see [https://bioconductor.org/install](https://bioconductor.org/install).

Usage

```r
biocLite(pkgs=c("Biobase", "IRanges", "AnnotationDbi"),
  suppressUpdates=FALSE,
  suppressAutoUpdate=FALSE,
  siteRepos=character(),
  ask=TRUE, ...)
```
Arguments

pkgs character() of package names to install or update. A missing value and suppressUpdates=FALSE updates installed packages, perhaps also installing Biobase, IRanges, and AnnotationDbi if they are not already installed. Package names containing a '/' are treated as github repositories and installed using the install_github() function of the devtools package.

suppressUpdates logical(1) or character(). When FALSE, biocLite asks the user whether old packages should be update. When TRUE, the user is not prompted to update old packages. When character() a vector specifying which packages to NOT update.

suppressAutoUpdate logical(1) indicating whether the BiocInstaller package updates itself.

siteRepos character() representing an additional repository in which to look for packages to install. This repository will be prepended to the default repositories (which you can see with biocinstallRepos).

ask logical(1) indicating whether to prompt user before installed packages are updated, or the character string 'graphics', which brings up a widget for choosing which packages to update. If TRUE, user can choose whether to update all outdated packages without further prompting, to pick and choose packages to update, or to cancel updating (in a non-interactive session, no packages will be updated). Otherwise, the value is passed to update.packages.

... Additional arguments.

When installing CRAN or Bioconductor packages, typical arguments include: lib.loc, passed to old.packages and used to determine the library location of installed packages to be updated; and lib, passed to install.packages to determine the library location where pkgs are to be installed.

When installing github packages, ... is passed to the devtools package functions install.github and install. A typical use is to build vignettes, via dependencies=TRUE, build_vignettes=TRUE.

Details

Installation of Bioconductor and CRAN packages use R’s standard functions for library management – install.packages(), available.packages(), update.packages(). Installation of github packages uses the install_github() function from the devtools package. For this reason it usually makes sense, when complicated installation options are needed, to invoke biocLite() separately for Bioconductor / CRAN packages and for github packages.

Value

biocLite() returns the pkgs argument, invisibly.

See Also

biocinstallRepos returns the Bioconductor and CRAN repositories used by biocLite.
install.packages installs the packages themselves.
update.packages updates all installed packages.
chooseBioCmirror lets you choose from a list of all public Bioconductor mirror URLs.
chooseCRANmirror lets you choose from a list of all public CRAN mirror URLs.
monograph_group, RBioinf_group and biocases_group return package names associated with Bioconductor publications.

all_group returns the names of all Bioconductor software packages.

Examples

## Not run:
## Change default Bioconductor and CRAN mirrors
chooseBioCmirror()
chooseCRANmirror()

## If you don't have the BiocInstaller package installed, you can
## quickly install and load it as follows:
source("https://bioconductor.org/biocLite.R") # 'http' if 'https' unavailable

## The most recent version of the BiocInstaller package is now loaded.
## No need to load it with library().

# installs default packages (if not already installed) and updates
# previously installed packages
bioclite()

## Now install a CRAN package:
bioclite("survival")

## install a Bioconductor package, but don't update all installed
## packages as well:
bioclite("GenomicRanges", suppressUpdates=TRUE)

## Install default packages, but do not update any package whose name
## starts with "org." or "BSgenome."
bioclite(suppressUpdates=c("^org\.", "^BSgenome\."))

## install a package from source:
bioclite("IRanges", type="source")

## install all Bioconductor software packages
bioclite(all_group())

## End(Not run)
## Show the Bioconductor and CRAN repositories that will be used to
## install/update packages.
biocinstallRepos()

bioclitePackages Update previously installed Bioconductor or CRAN packages and
their dependencies.
Description

Update previously installed Bioconductor and CRAN packages and their dependencies. Use `biocLite` to install new packages or to update all out-of-date packages. Upgrading to a new Bioconductor release requires additional steps; see `https://bioconductor.org/install`.

Usage

```r
biocUpdatePackages(pkgs, dependencies = NA, repos=biocinstallRepos(), ...)
```

Arguments

- `pkgs` character() of package names to install or update.
- `dependencies` character() describing out-of-date dependencies that are also updated. Defaults to c("Depends", "Imports", "LinkingTo") but can be a subset of c("Depends", "Imports", "LinkingTo", "Suggests", "Enhances").
- `repos` character() of named repositories in which to look for package updates, in the style of `biocinstallRepos()`.
- `...` Additional arguments, passed to `update.packages`. For example, `ask=FALSE` to avoid prompts to update individual packages.

Value

`'NULL'`, invisibly.

Author(s)

Martin Morgan mtmorgan@fhcrc.org

See Also

`biocLite`

Examples

```r
## Not run:
biocUpdatePackages("GenomicRanges", ask=FALSE)
## End(Not run)
```

---

**BiocUpgrade**

Upgrade Bioconductor to the latest version available for this version of R

Description

Downloads the latest version of the BioconInstaller package, and upgrades all currently installed packages to the latest repositories for this version of R.

To upgrade, use:

```r
## 'http' if 'https' unavailable
source("https://bioconductor.org/biocLite.R")
biocLite("BiocUpgrade")
```
biocValid

**See Also**

- **biocLite** Installs/updates Bioconductor/CRAN packages.
- **chooseBioCmirror** lets you choose from a list of all public Bioconductor mirror URLs.
- **chooseCRANmirror** lets you choose from a list of all public CRAN mirror URLs.
- **biocinstallRepos** returns the Bioconductor and CRAN repositories used by **biocLite**.
- **install.packages** installs the packages themselves.

**Examples**

```r
## Not run:
source("https://bioconductor.org/biocLite.R")
biocLite("BiocUpgrade")
## End(Not run)
```

---

**biocValid** Validate installed package versions against **biocLite** versions.

**Description**

Check that installed packages are consistent (neither out-of-date nor too new) with the version of R and Bioconductor in use, using **biocLite** for validation.

**Usage**

```r
biocValid(pkgs = installed.packages(lib.loc, priority = priority),
  lib.loc = NULL, priority = "NA", type = getOption("pkgType"),
  filters = NULL, silent = FALSE, ..., fix=FALSE)
```

**Arguments**

- **pkgs** A character list of package names for checking, or a matrix as returned by **installed.packages**.
- **lib.loc** The library location(s) of packages to be validated; see **installed.packages**.
- **priority** check validity of all, “base”, or “recommended” packages; see **installed.packages**.
- **type** The type of available package (e.g., binary, source) to check validity against; see **available.packages**.
- **filters** Filter available packages to check validity against; see **available.packages**.
- **silent** Report how packages are invalid (silent=FALSE, default) and abort execution, or return a logical(1) (silent=TRUE) indicating the overall validity of installed packages.
- **...** Additional arguments, passed to **biocLite** when fix=TRUE.
- **fix** When TRUE, invoke biocLite to reinstall (update or downgrade, as appropriate) invalid packages.

---
**Details**

This function compares the version of installed packages to the version of packages associated with the version of R and Bioconductor appropriate for the BiocInstaller package currently in use.

Packages are reported as ‘out-of-date’ if a more recent version is available at the repositories specified by `biocinstallRepos()`. Usually, `biocLite()` is sufficient to update packages to their most recent version.

Packages are reported as ‘too new’ if the installed version is more recent than the most recent available in the `biocinstallRepos()` repositories. It is possible to down-grade by re-installing a too new package “PkgA” with `biocLite("PkgA")`. It is important for the user to understand how their installation became too new, and to avoid this in the future.

**Value**

`logical(1)` indicating overall validity of installed packages.

**Author(s)**

Martin Morgan mtmorgan@fhcrc.org

**See Also**

`biocLite` to update installed packages.

**Examples**

```r
try(biocValid())
```

---

**biocVersion**

**Bioconductor version**

---

**Description**

This function reports the Bioconductor version in use, as determined by the BiocInstaller package.

**Usage**

`biocVersion()`

**Value**

`package_version` representing the Bioconductor version in use.

**See Also**

`biocLite` Installs/updates Bioconductor/CRAN packages.

`BiocUpgrade` Upgrading to new versions.

**Examples**

```r
biocVersion()
```
Description

Returns character vectors of packages associated with Bioconductor publications, which can then be passed to `biocLite()`

Usage

```r
monograph_group()
RBioinf_group()
biocases_group()
all_group()
```

Value

character() of package names.

See Also

- `biocLite` Installs/updates Bioconductor/CRAN packages.
- `biocinstallRepos` returns the Bioconductor and CRAN repositories used by `biocLite`.
- `install.packages` installs the packages themselves.
- `chooseBioCmirror` lets you choose from a list of all public Bioconductor mirror URLs.
- `chooseCRANmirror` lets you choose from a list of all public CRAN mirror URLs.

Examples

```r
## Get the names of packages used in the book
## "Bioconductor Case Studies":
biocases_group()

## Get the names of packages used in the book
## "R Programming for Bioinformatics":
RBioinf_group()

## Get the names of packages used in the monograph
## "Bioinformatics and Computational Biology Solutions
## Using R and Bioconductor":
monograph_group()

## Get the names of all Bioconductor software packages
all_group()
```
useDevel

Get the ‘devel’ version of the BiocInstaller package.

Description

Downloads the ‘devel’ version of the BiocInstaller package so that all subsequent invocations of biocLite and biocinstallRepos use the devel repositories.

Displays the URLs of the repositories used by biocLite to install Bioconductor and CRAN packages.

Should only be used with a release (or patched) version of R, freshly installed.

Usage

isDevel()
useDevel(devel=TRUE)

Arguments

devel Whether to look in the devel (TRUE) or release (FALSE) repositories in subsequent invocations of biocLite and biocinstallRepos.

Details

Bioconductor has a ‘release’ branch and a ‘devel’ branch. The branch in use depends on the version of R and the version of the BiocInstaller.

useDevel() installs the correct version of the BiocInstaller package for use of the devel version of Bioconductor, provided it is supported by the version of R in use.

isDevel() returns TRUE when the version of BiocInstaller in use corresponds to the ‘devel’ version of Bioconductor.

In more detail, the version number of the BiocInstaller package determines whether to download packages from the release or devel repositories of Bioconductor. In keeping with Bioconductor versioning conventions, if the middle number (y in x.y.z) is even, the package is part of a release version; if odd, it’s part of a devel version.

By default, when BiocInstaller is first installed and when the version of R supports the current release version of Bioconductor, BiocInstaller will use the release repository.

To change the version of BiocInstaller to support the ‘devel’ branch of Bioconductor, run useDevel(). With argument TRUE (the default), it will download the devel version of BiocInstaller and subsequently all packages downloaded with biocLite will be from the devel repository. You should run useDevel only once.

It is possible to use release and devel versions of Bioconductor with the same installation of R. To do this, use the R_LIBS_USER environment variable. First, create two separate directories for your BioC release and devel packages. Suggested directory names are as follows:

Linux:
~/R/x86_64-unknown-linux-gnu-library/3.2-bioc-release
~/R/x86_64-unknown-linux-gnu-library/3.2-bioc-devel

Mac OS:
~/Library/R/3.2-bioc-release/library
Invoke "R for bioc-devel" or "R for bioc-release" from the command line as follows:

**Linux:**

```bash
R_LIBS_USER=~/.R/lib/R/x86_64-unknown-linux-gnu-library/3.2-bioc-release R
R_LIBS_USER=~/.R/lib/R/x86_64-unknown-linux-gnu-library/3.2-bioc-devel R
```

**Mac OS X:**

```bash
R_LIBS_USER=~/.Library/R/3.2-bioc-release/library R
R_LIBS_USER=~/.Library/R/3.2-bioc-devel/library R
```

**Windows:**

```bash
cmd /C "set R_LIBS_USER=C:\Users\YOUR_USER_NAME\Documents\R\win-library\3.2-bioc-release && R"
```

(Change YOUR_USER_NAME to your user name)

If you launch R in this way and then invoke `.libPaths`, you'll see that the first item is your special release or devel directory. Packages will be installed to that directory and that is the first place that `library` will look for them. `biocLite`, `install.packages`, `update.packages` and friends all respect this setting.

On Linux and Mac OS X, you can create a bash alias to save typing. Add the following to your `~/.bash_profile`:

**Linux**

```bash
alias Rdevel='R_LIBS_USER=~/.R/lib/R/x86_64-unknown-linux-gnu-library/3.2-bioc-devel R'
alias Rrelease='R_LIBS_USER=~/.R/lib/R/x86_64-unknown-linux-gnu-library/3.2-bioc-release R'
```

**Mac OS X**

```bash
alias Rdevel='R_LIBS_USER=~/.Library/R/3.2-bioc-devel/library R'
alias Rrelease='R_LIBS_USER=~/.Library/R/3.2-bioc-release/library R'
```

You can then invoke these from the command line as

```bash
Rdevel
...and...
Rrelease
```

**On Windows**, you can create two shortcuts, one for devel and one for release. Go to My Computer and navigate to a directory that is in your PATH. Then right-click and choose New->Shortcut. In the "type the location of the item" box, put:

```bash
cmd /C "set R_LIBS_USER=C:\Users\YOUR_USER_NAME\Documents\R\win-library\3.2-bioc-devel && & R"
```

...for release and

```bash
cmd /C "set R_LIBS_USER=C:\Users\YOUR_USER_NAME\Documents\R\win-library\3.0-bioc-devel && & R"
```
...for devel.
(again, it’s assumed R.exe is in your PATH)
Click "Next".
In the "Type a name for this shortcut" box, type
Rdevel
or
Rrelease
You can invoke these from the command line as
Rdevel.lnk
...and...
Rrelease.lnk
(You must type in the .lnk extension.)
Because $R_LIBS_USER$ is an environment variable, its value should be inherited by any subprocesses
started by R, so they should do the right thing as well.

**Value**

useDevel(): Invisible NULL.
isDevel(): logical(1) TRUE or FALSE.

**See Also**

`biocinstallRepos` returns the Bioconductor and CRAN repositories used by `biocLite`.
`biocLite` Installs/updates Bioconductor/CRAN packages.
`install.packages` installs the packages themselves.
chooseBioCmirror lets you choose from a list of all public Bioconductor mirror URLs.
chooseCRANmirror lets you choose from a list of all public CRAN mirror URLs.

**Examples**

isDevel()

## Not run: useDevel()
Index

*Topic environment
  biocinstallRepos, 1
  biocLite, 2
  biocUpdatePackages, 4
  BiocUpgrade, 5
  biocValid, 6
  biocVersion, 7
  Package Groups, 8
  useDevel, 9
  .libPaths, 10
  all_group, 4
  all_group (Package Groups), 8
  available.packages, 6
  biocases_group, 4
  biocases_group (Package Groups), 8
  biocinstallRepos, 1, 3, 6, 8, 9, 11
  biocLite, 1, 2, 5–11
  biocUpdatePackages, 4
  BiocUpgrade, 5, 7
  biocValid, 6
  biocVersion, 7
  chooseBioCmirror, 2, 3, 6, 8, 11
  chooseCRANmirror, 2, 3, 6, 8, 11
  install, 3
  install.packages, 2, 3, 6, 8, 10, 11
  install_github, 3
  installed.packages, 6
  isDevel (useDevel), 9
  library, 10
  monograph_group, 4
  monograph_group (Package Groups), 8
  old.packages, 3
  Package Groups, 8
  RBioinf_group, 4
  RBioinf_group (Package Groups), 8
  update.packages, 3, 5, 10
  useDevel, 9, 9