

# Package ‘DSMolgenisArmadillo’

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**Type** Package

**Version** 1.4.1

**Title** 'DataSHIELD' Client for 'MOLGENIS Armadillo'

**Description** 'DataSHIELD' is an infrastructure and series of R packages that enables the remote and 'non-disclosive' analysis of sensitive research data. This package is the 'DataSHIELD' interface implementation to analyze data shared on a 'MOLGENIS Armadillo' server. 'MOLGENIS Armadillo' is a light-weight 'DataSHIELD' server using a file store and an 'RServe' server.

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**Depends** R (>= 3.6), DSI (>= 1.3.0), MolgenisAuth

**Imports** methods, httr, stringr, utils, base64enc, urltools

**Suggests** dsBaseClient (>= 6.0), knitr, mockery, testthat (>= 2.1.0), tibble, rmarkdown, metafor

**License** LGPL (>= 2.1)

**URL** <https://github.com/molgenis/molgenis-r-datashield/>,  
<https://molgenis.github.io/molgenis-r-datashield/>

**BugReports** <https://github.com/molgenis/molgenis-r-datashield/issues/>

**RoxygenNote** 7.1.2

**VignetteBuilder** knitr

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**Collate** 'ArmadilloDriver.R' 'ArmadilloConnection.R' 'ArmadilloOAuth.R'  
'ArmadilloResult.R' 'DSMolgenisArmadillo-package.R' 'utils.R'

**Additional\_repositories** <https://cran.obiba.org/>

**NeedsCompilation** no

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---

 armadillo

*Create an Armadillo DataSHIELD Service driver*


---

### Description

Convenience function for creating a [ArmadilloDriver] object.

### Usage

```
armadillo()
```

---

armadillo.get\_token    *Get ID Token*

---

**Description**

Get an ID token to log in on an Armadillo server

**Usage**

```
armadillo.get_token(server)
```

**Arguments**

server            the URL of the Armadillo server

**Value**

The ID token string

---

dsAggregate, ArmadilloConnection-method  
*Aggregate data*

---

**Description**

Aggregate some data from the DataSHIELD R session using a valid R expression. The aggregation expression must satisfy the data repository's DataSHIELD configuration.

**Usage**

```
## S4 method for signature 'ArmadilloConnection'  
dsAggregate(conn, expr, async = TRUE)
```

**Arguments**

conn            [ArmadilloConnection-class](#) object.  
expr            Expression to evaluate.  
async           Whether the result of the call should be retrieved asynchronously. When TRUE (default) the calls are parallelized over the connections, when the connection supports that feature, with an extra overhead of requests.

---

dsAssignExpr, ArmadilloConnection-method  
*Assign the result of an expression*

---

### Description

Assign a result of the execution of an expression in the DataSHIELD R session.

### Usage

```
## S4 method for signature 'ArmadilloConnection'
dsAssignExpr(conn, symbol, expr, async = TRUE)
```

### Arguments

conn	<a href="#">ArmadilloConnection-class</a> object.
symbol	Name of the R symbol.
expr	A R expression with allowed assign functions calls.
async	Whether the result of the call should be retrieved asynchronously. When TRUE (default) the calls are parallelized over the connections, when the connection supports that feature, with an extra overhead of requests.

### Value

A [ArmadilloResult-class](#) object.

---

dsAssignResource, ArmadilloConnection-method  
*Assign a resource*

---

### Description

Assign a resource in the DataSHIELD R session.

### Usage

```
## S4 method for signature 'ArmadilloConnection'
dsAssignResource(conn, symbol, resource, async = TRUE)
```

### Arguments

conn	An object that inherits from <a href="#">DSConnection-class</a> .
symbol	Name of the R symbol.
resource	Fully qualified name of a resource reference in the data repository.
async	Whether the result of the call should be retrieved asynchronously.

**Value**

A [ArmadilloResult-class](#) object.

---

dsAssignTable, ArmadilloConnection-method  
*Assign a table*

---

**Description**

Assign a R-data.frame in the DataSHIELD R session.

**Usage**

```
## S4 method for signature 'ArmadilloConnection'  
dsAssignTable(  
  conn,  
  symbol,  
  table,  
  variables = NULL,  
  missings = FALSE,  
  identifiers = NULL,  
  id.name = NULL,  
  async = TRUE  
)
```

**Arguments**

conn	<a href="#">ArmadilloConnection-class</a> object.
symbol	Name of the R symbol.
table	Fully qualified name of the table.
variables	The variables to load.
missings	Not supported
identifiers	Not supported
id.name	Not supported
async	When set, do not wait for the result.

**Value**

A [ArmadilloResult-class](#) object.

---

 dsConnect, ArmadilloDriver-method

*Connect to an Armadillo DataSHIELD service*


---

### Description

Connect to an Armadillo DataSHIELD service, with provided credentials.

### Usage

```
## S4 method for signature 'ArmadilloDriver'
dsConnect(
  drv,
  name,
  restore = NULL,
  username = "",
  password = "",
  token = "",
  url,
  profile = "default",
  opts = list(),
  ...
)
```

### Arguments

drv	<a href="#">ArmadilloDriver-class</a> class object.
name	Name of the connection, which must be unique among all the DataSHIELD connections.
restore	Workspace name to be restored in the newly created DataSHIELD R session.
username	The username to authenticate with.
password	The password to authenticate with.
token	The ID token to authenticate with.
url	URL of the server.
profile	the profile to select, default "default"
opts	Curl options as described by <code>httr</code> (call <code>httr::httr_options()</code> for details). Can be provided by "Armadillo.opts" option.
...	Unused, needed for compatibility with generic.

### Value

A [ArmadilloConnection-class](#) object.

---

dsDisconnect, ArmadilloConnection-method

*Disconnect from an Armadillo DataSHIELD Service*

---

### Description

Disconnect from an Armadillo DataSHIELD Service and release all R resources. If a workspace ID is provided, the DataSHIELD R session will be saved before being destroyed.

### Usage

```
## S4 method for signature 'ArmadilloConnection'  
dsDisconnect(conn, save = NULL)
```

### Arguments

conn            [ArmadilloConnection-class](#) class object  
save            Save the DataSHIELD R session with provided ID (must be a character string).

### See Also

[dsDisconnect](#)

---

dsFetch, ArmadilloResult-method

*Fetch the result*

---

### Description

Fetch the DataSHIELD operation result.

### Usage

```
## S4 method for signature 'ArmadilloResult'  
dsFetch(res)
```

### Arguments

res            [ArmadilloResult-class](#) object.

### Value

TRUE if table exists.

---

dsGetInfo, ArmadilloConnection-method  
*Get connection info*

---

**Description**

Get information about a connection.

**Usage**

```
## S4 method for signature 'ArmadilloConnection'  
dsGetInfo(dsObj, ...)
```

**Arguments**

dsObj            [ArmadilloConnection-class](#) class object  
...              Unused, needed for compatibility with generic.

**Value**

The connection information. This should report the version of the data repository application ('repo.version') and its name ('repo.name'), the database name ('dbname'), username, ('username'), host ('host'), port ('port'), etc. It MAY also include any other arguments related to the connection (e.g., thread id, socket or TCP connection type). It MUST NOT include the password.

---

dsGetInfo, ArmadilloDriver-method  
*Get driver info*

---

**Description**

Get information about a driver.

**Usage**

```
## S4 method for signature 'ArmadilloDriver'  
dsGetInfo(dsObj, ...)
```

**Arguments**

dsObj            [ArmadilloDriver-class](#) class object  
...              Unused, needed for compatibility with generic.

**Value**

The connection information. This returns the version of the package ('driver.version'). There is no underlying client library.



---

dsGetInfo, ArmadilloResult-method  
*Get result info*

---

### Description

Await completion and get the information about a command (if still available).

### Usage

```
## S4 method for signature 'ArmadilloResult'  
dsGetInfo(dsObj, ...)
```

### Arguments

dsObj            [ArmadilloResult-class](#) class object  
...              Unused, needed for compatibility with generic.

### Value

The result information. This should include the R expression being executed ('expression') and if the query is complete ('status' = "COMPLETED").

---

dsHasResource, ArmadilloConnection-method  
*Verify resource exists.*

---

### Description

Verify resource exists.

### Usage

```
## S4 method for signature 'ArmadilloConnection'  
dsHasResource(conn, resource)
```

### Arguments

conn            [ArmadilloConnection-class](#) class object.  
resource        The identifier of the resource

### Value

TRUE if resource exists.

---

dsHasTable, ArmadilloConnection-method

*Verify table exist and can be accessible for performing DataSHIELD operations.*

---

### Description

Verify table exist and can be accessible for performing DataSHIELD operations.

### Usage

```
## S4 method for signature 'ArmadilloConnection'
dsHasTable(conn, table)
```

### Arguments

conn            [ArmadilloConnection-class](#) class object.  
table           The identifier of the table

### Value

TRUE if table exists.

---

dsIsAsync, ArmadilloConnection-method

*Armadillo DataShield Service asynchronous support*

---

### Description

List of DataSHIELD operations on which Armadillo DataSHIELD Service supports asynchronicity.

### Usage

```
## S4 method for signature 'ArmadilloConnection'
dsIsAsync(conn)
```

### Arguments

conn            [ArmadilloConnection-class](#) class object

### Details

When a [DSResult-class](#) object is returned on aggregation or assignment operation, the raw result can be accessed asynchronously, allowing parallelization of DataSHIELD calls over multiple servers. The returned named list of logicals will specify if asynchronicity is supported for: aggregation operation ('aggregate'), table assignment operation ('assignTable'), resource assignment operation ('assignResource') and expression assignment operation ('assignExpr').

**Value**

The named list of logicals detailing the asynchronicity support.

---

dsIsCompleted, ArmadilloResult-method

*Get whether the operation is completed*

---

**Description**

Get whether the result from a previous assignment or aggregation operation was completed, either with a successful status or a failed one. This call must not wait for the completion, immediate response is expected. Once the result is identified as being completed, the raw result the operation can be got directly.

**Usage**

```
## S4 method for signature 'ArmadilloResult'
dsIsCompleted(res)
```

**Arguments**

res                    [ArmadilloResult-class](#) object.

**Value**

TRUE if operation is completed.

---

dsKeepAlive, ArmadilloConnection-method

*Keep a connection alive*

---

**Description**

As the DataSHIELD sessions are working in parallel, this function helps at keeping idle connections alive while others are working. Any communication failure must be silently processed.

**Usage**

```
## S4 method for signature 'ArmadilloConnection'
dsKeepAlive(conn)
```

**Arguments**

conn                    [ArmadilloConnection-class](#) class object

**Value**

NULL, invisibly

---

dsListMethods, ArmadilloConnection-method  
*List methods*

---

**Description**

List methods defined in the DataSHIELD configuration.

**Usage**

```
## S4 method for signature 'ArmadilloConnection'
dsListMethods(conn, type = "aggregate")
```

**Arguments**

conn            [ArmadilloConnection-class](#) class object  
type            Type of the method: "aggregate" (default) or "assign".

**Value**

A data.frame with columns: name, type ('aggregate' or 'assign'), class ('function' or 'script'), value, package, version.

---

dsListPackages, ArmadilloConnection-method  
*List packages*

---

**Description**

List packages with their versions defined in the DataSHIELD configuration.

**Usage**

```
## S4 method for signature 'ArmadilloConnection'
dsListPackages(conn)
```

**Arguments**

conn            [ArmadilloConnection-class](#) class object

**Value**

A data.frame with columns: name, version.

---

dsListResources, ArmadilloConnection-method  
*List Armadillo DataSHIELD Service resources*

---

**Description**

List Armadillo DataSHIELD Service resources that may be accessible for performing DataSHIELD operations.

**Usage**

```
## S4 method for signature 'ArmadilloConnection'  
dsListResources(conn)
```

**Arguments**

conn                    [ArmadilloConnection-class](#) class object

**Value**

The fully qualified names of the resources.

**See Also**

[dsListResources](#)

---

dsListSymbols, ArmadilloConnection-method  
*List R symbols*

---

**Description**

List symbols living in the DataSHIELD R session.

**Usage**

```
## S4 method for signature 'ArmadilloConnection'  
dsListSymbols(conn)
```

**Arguments**

conn                    [ArmadilloConnection-class](#) class object

**Value**

A character vector.

---

dsListTables,ArmadilloConnection-method

*List Armadillo DataSHIELD Service tables*

---

**Description**

List Armadillo DataSHIELD Service tables that may be accessible for performing DataSHIELD operations.

**Usage**

```
## S4 method for signature 'ArmadilloConnection'  
dsListTables(conn)
```

**Arguments**

conn                    [ArmadilloConnection-class](#) class object

**Value**

The fully qualified names of the tables.

**See Also**

[dsListTables](#)

---

dsListWorkspaces,ArmadilloConnection-method

*List workspaces*

---

**Description**

List workspaces saved in the data repository.

**Usage**

```
## S4 method for signature 'ArmadilloConnection'  
dsListWorkspaces(conn)
```

**Arguments**

conn                    [ArmadilloConnection-class](#) class object

**Value**

A data.frame with columns: name, lastAccessDate, size, user.

---

dsRmSymbol, ArmadilloConnection-method  
*Remove an R symbol*

---

### Description

Remove a symbol living in the DataSHIELD R session. After removal, the data identified by the symbol will not be accessible in the DataSHIELD R session on the server side.

### Usage

```
## S4 method for signature 'ArmadilloConnection'  
dsRmSymbol(conn, symbol)
```

### Arguments

conn	<a href="#">ArmadilloConnection-class</a> class object
symbol	Name of the R symbol.

---

dsRmWorkspace, ArmadilloConnection-method  
*Remove a workspace*

---

### Description

Remove a workspace on the data repository.

### Usage

```
## S4 method for signature 'ArmadilloConnection'  
dsRmWorkspace(conn, name)
```

### Arguments

conn	<a href="#">ArmadilloConnection-class</a> class object
name	Name of the workspace.

---

*dsSaveWorkspace, ArmadilloConnection-method*  
*Save workspace*

---

**Description**

Save workspace on the data repository.

**Usage**

```
## S4 method for signature 'ArmadilloConnection'  
dsSaveWorkspace(conn, name)
```

**Arguments**

conn	<a href="#">ArmadilloConnection-class</a> class object
name	Name of the workspace.



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