

# Package ‘cleangeo’

May 8, 2026

**Version** 0.3-1

**Date** 2023-09-01

**Title** Cleaning Geometries from Spatial Objects

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**Depends** R (>= 2.15)

**Imports** methods, sp, sf

**Suggests** testthat, knitr, markdown, pbapply

**Description** Provides a set of utility tools to inspect spatial objects, facilitate handling and reporting of topology errors and geometry validity issue with sp objects. Finally, it provides a geometry cleaner that will fix all geometry problems, and eliminate (at least reduce) the likelihood of having issues when doing spatial data processing.

**License** GPL (>= 2)

**URL** <https://github.com/eblondel/cleangeo>

**VignetteBuilder** knitr

**BugReports** <https://github.com/eblondel/cleangeo/issues>

**RoxygenNote** 7.2.3

**NeedsCompilation** no

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**Repository** CRAN

**Date/Publication** 2023-09-01 09:10:19 UTC

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cleangeo	<i>Clean Geometries from Spatial Objects</i>
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### Description

cleangeo provides a set of utility tools to inspect spatial objects, facilitate handling and reporting of topology errors and geometry validity issues. Finally, it provides a geometry cleaner that will fix all geometry problems, and eliminate (at least reduce) the likelihood of having issues when doing spatial data processing.

### Author(s)

Emmanuel Blondel <emmanuel.blondel1@gmail.com>

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clgeo_Clean	<i>clgeo_Clean</i>
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### Description

Function to clean a spatial data collection

### Usage

```
clgeo_Clean(sp, errors.only = NULL, strategy = "SF", verbose = FALSE)
```

### Arguments

sp	object extending the <a href="#">Spatial-class</a> as defined in <b>sp</b>
errors.only	an object of class vector giving the types of errors for which the output should be bounded. Default value is NULL ( <i>i.e.</i> the output will include features for which both errors and errors were raised.).
strategy	advanced strategy to clean geometries. Default is "SF", alternate values are "POLYGONATION", "BUFFER" (old methods).
verbose	Indicates whether the clean logs have to be printed. Default value is FALSE.

### Value

an object extending the [Spatial-class](#) as defined in **sp**, with cleaned geometries.

**Note**

About cleaning strategy: The polygonation method is a tentative alternate method to triangulation to clean geometries and to the classical often used 'buffer' approach. In the polygonation method, triangulation is skipped and a re-polygonation intuitive algorithm is applied to rebuild the source invalid geometry into one or more valid polygonal geometries. With the progress done on validating geometries, especially with **sf**, the default method in cleangeo has now been switched to the use of `sf::st_make_valid`

**Author(s)**

Emmanuel Blondel <emmanuel.blondel1@gmail.com>

**Examples**

```
require(sf)
file <- system.file("extdata", "example.shp", package = "cleangeo")
sf <- sf::st_read(file)
sp <- as(sf, "Spatial")

sp.clean <- clgeo_Clean(sp)
report.clean <- clgeo_CollectionReport(sp.clean)
clgeo_SummaryReport(report.clean)
```

---

clgeo\_CleanByPolygonation.Polygon  
*clgeo\_CleanByPolygonation.Polygon*

---

**Description**

Function to clean a [Polygon-class](#) object by polygonation.

**Usage**

```
clgeo_CleanByPolygonation.Polygon(p, verbose = FALSE)
```

**Arguments**

**p** object of class [Polygon-class](#) as defined in **sp**  
**verbose** Indicates whether the clean logs have to be printed. Default value is FALSE.

**Value**

a list of objects of class [Polygon-class](#) as defined in **sp**, with cleaned geometries.

**Note**

The polygonation method is a tentative alternate method to triangulation to clean geometries. In this method, triangulation is skipped and a re-polygonation algorithm is applied.

**Author(s)**

Emmanuel Blondel <emmanuel.blondel1@gmail.com>

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`clgeo_CleanByPolygonation.Polygons`  
*clgeo\_CleanByPolygonation.Polygons*

---

**Description**

Function to clean a [Polygons](#) object by polygonation

**Usage**

```
clgeo_CleanByPolygonation.Polygons(p, verbose = FALSE)
```

**Arguments**

<code>p</code>	object of class <a href="#">Polygons-class</a> as defined in <code>sp</code>
<code>verbose</code>	Indicates whether the clean logs have to be printed. Default value is FALSE.

**Value**

an object of class [Polygons-class](#) as defined in `sp`, with cleaned geometries.

**Note**

The polygonation method is a tentative alternate method to triangulation to clean geometries. In this method, triangulation is skipped and a re-polygonation algorithm is applied.

**Author(s)**

Emmanuel Blondel <emmanuel.blondel1@gmail.com>

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clgeo\_CleanByPolygonation.SpatialPolygons  
*clgeo\_CleanByPolygonation.SpatialPolygons*

---

**Description**

Function to clean a [SpatialPolygons](#) object by polygonation

**Usage**

```
clgeo_CleanByPolygonation.SpatialPolygons(sp, verbose = FALSE)
```

**Arguments**

**sp** object extending the [Spatial-class](#) as defined in **sp**  
**verbose** Indicates whether the clean logs have to be printed. Default value is FALSE.

**Value**

an object extending the [Spatial-class](#) as defined in **sp**, with cleaned geometries.

**Note**

The polygonation method is a tentative alternate method to triangulation to clean geometries. In this method, triangulation is skipped and a re-polygonation algorithm is applied.

**Author(s)**

Emmanuel Blondel <emmanuel.blondel1@gmail.com>

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clgeo\_CollectionReport  
*clgeo\_CollectionReport*

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**Description**

Function to get a spatial data collection validation report. The function outputs a `data.frame` binding all geometry validity reports, each one produced by [clgeo\\_GeometryReport](#)

**Usage**

```
clgeo_CollectionReport(sp)
```

**Arguments**

**sp** object extending the [Spatial-class](#) as defined in **sp**

**Value**

an object of class `data.frame` with the following columns:

- *type* eventual **rgeos** issue
- *valid* geometry validity status (according to OGC specifications)
- *issue\_type* type of geometry issue
- *error\_msg* caught message when error raised about geometry
- *warning\_msg* caught message when warning raised about geometry

**Author(s)**

Emmanuel Blondel <emmanuel.blondel1@gmail.com>

**See Also**

[clgeo\\_GeometryReport](#)

**Examples**

```
require(sf)
file <- system.file("extdata", "example.shp", package = "cleangeo")
sf <- sf::st_read(file)
sp <- as(sf, "Spatial")

report <- clgeo_CollectionReport(sp)
```

---

`clgeo_GeometryReport` *clgeo\_GeometryReport*

---

**Description**

Function to get a geometry validation report: The report informs on the following:

- *type* eventual **rgeos** issue
- *valid* geometry validity status (according to OGC specifications)
- *issue\_type* type of geometry issue
- *msg* caught message when error raised about geometry

**Usage**

```
clgeo_GeometryReport(spgeom)
```

**Arguments**

`spgeom` object extending the [Spatial-class](#) as defined in **sp**

**Value**

an object of class `list` giving the following:

- *type* eventual **rgeos** issue
- *valid* geometry validity status (according to OGC specifications)
- *issue\_type* type of geometry issue
- *msg* caught message when warning raised about geometry

**Author(s)**

Emmanuel Blondel <emmanuel.blondel1@gmail.com>

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clgeo_IsValid	<i>clgeo_IsValid</i>
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**Description**

Wrapper method to try performing `rgeos::gIsValid` call and catch eventual warnings or errors (in particular GEOS exceptions).

**Usage**

```
clgeo_IsValid(sp, verbose = FALSE)
```

**Arguments**

`sp` object extending the [Spatial-class](#) as defined in `sp`  
`verbose` object of class "logical". Default value is FALSE.

**Value**

an object of class "logical". TRUE if valid, FALSE otherwise

**Author(s)**

Emmanuel Blondel <emmanuel.blondel1@gmail.com>

**Examples**

```
require(sf)
file <- system.file("extdata", "example.shp", package = "cleangeo")
sf <- sf::st_read(file)
sp <- as(sf, "Spatial")
clgeo_IsValid(sp)
```

---

clgeo\_SummaryReport    *clgeo\_SummaryReport*

---

### Description

Function to get summary of a spatial data collection report returned by [clgeo\\_CollectionReport](#)

### Usage

```
clgeo_SummaryReport(report)
```

### Arguments

report            a report object as returned by [clgeo\\_CollectionReport](#)

### Value

an object of class `table` giving the report summary. The summary gives the counting by value for each of the report columns:

- *type* eventual geometry issue
- *valid* geometry validity status (according to OGC specifications)
- *issue\_type* type of geometry issue
- *msg* caught message when error raised about geometry

### Author(s)

Emmanuel Blondel <emmanuel.blondel1@gmail.com>

### See Also

[clgeo\\_CollectionReport](#)

### Examples

```
require(sf)
file <- system.file("extdata", "example.shp", package = "cleangeo")
sf <- sf::st_read(file)
sp <- as(sf, "Spatial")

report <- clgeo_CollectionReport(sp)
clgeo_SummaryReport(report)
```

---

clgeo\_SuspiciousFeatures  
*clgeo\_SuspiciousFeatures*

---

### Description

Function to get the list of index of suspicious geometries within a spatial data collection, given a spatial data collection report returned by the function [clgeo\\_CollectionReport](#)

### Usage

```
clgeo_SuspiciousFeatures(report, errors.only = NULL)
```

### Arguments

report	a report object as returned by <a href="#">clgeo_CollectionReport</a> for which the output should be bounded. Default value is NULL ( <i>i.e.</i> the output will include features for which both errors and errors were raised.).
errors.only	an object of class vector giving the types of errors for which the output should be bounded. Default value is NULL ( <i>i.e.</i> the output will include features for which both errors and errors were raised.).

### Value

an object of class vector giving the numeric indexes of spatial objects tagged as suspicious (*i.e.* that are not valid according to OGC specifications)

### Author(s)

Emmanuel Blondel <emmanuel.blondel1@gmail.com>

### See Also

[clgeo\\_CollectionReport](#)

### Examples

```
require(sf)
file <- system.file("extdata", "example.shp", package = "cleangeo")
sf <- sf::st_read(file)
sp <- as(sf, "Spatial")

report <- clgeo_CollectionReport(sp)
nv <- clgeo_SuspiciousFeatures(report)
```

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