

# Package ‘apache.sedona’

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**Type** Package

**Title** R Interface for Apache Sedona

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**Maintainer** Apache Sedona <private@sedona.apache.org>

**Description** R interface for 'Apache Sedona' based on 'sparklyr'  
(<<https://sedona.apache.org>>).

**License** Apache License 2.0

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approx_count	<i>Find the approximate total number of records within a Spatial RDD.</i>
--------------	---

---

### Description

Given a Sedona spatial RDD, find the (possibly approximated) number of total records within it.

### Usage

```
approx_count(x)
```

### Arguments

x	A Sedona spatial RDD.
---	-----------------------

### Value

Approximate number of records within the SpatialRDD.

**See Also**

Other Spatial RDD aggregation routine: [minimum\\_bounding\\_box\(\)](#)

**Examples**

```
library(sparklyr)
library(apache.sedona)

sc <- spark_connect(master = "spark://HOST:PORT")

if (!inherits(sc, "test_connection")) {
  input_location <- "/dev/null" # replace it with the path to your input file
  rdd <- sedona_read_shapefile_to_typed_rdd(
    sc,
    location = input_location, type = "polygon"
  )
  approx_cnt <- approx_count(rdd)
}
```

---

as.spark.dataframe      *Import data from a spatial RDD into a Spark Dataframe.*

---

**Description**

Import data from a spatial RDD (possibly with non-spatial attributes) into a Spark Dataframe.

**Usage**

```
as.spark.dataframe(x, non_spatial_cols = NULL, name = NULL)
```

**Arguments**

x	A spatial RDD.
non_spatial_cols	Column names for non-spatial attributes in the resulting Spark Dataframe.
name	Name to assign to the resulting Spark temporary view. If unspecified, then a random name will be assigned.

**Value**

A Spark Dataframe containing the imported spatial data.

**Examples**

```

library(sparklyr)
library(apache.sedona)

sc <- spark_connect(master = "spark://HOST:PORT")

if (!inherits(sc, "test_connection")) {
  input_location <- "/dev/null" # replace it with the path to your input file
  rdd <- sedona_read_dsv_to_typed_rdd(
    sc,
    location = input_location,
    delimiter = ",",
    type = "point",
    first_spatial_col_index = 1L,
    repartition = 5
  )
  sdf <- as.spark.dataframe(rdd, non_spatial_cols = c("attr1", "attr2"))
}

```

---

as_spark_dataframe	<i>Import data from a spatial RDD into a Spark Dataframe.</i>
--------------------	---

---

**Description**

Import data from a spatial RDD into a Spark Dataframe.

**Arguments**

x	A spatial RDD.
name	Name to assign to the resulting Spark temporary view. If unspecified, then a random name will be assigned.

---

crs_transform	<i>Perform a CRS transformation.</i>
---------------	--------------------------------------

---

**Description**

Transform data within a spatial RDD from one coordinate reference system to another.

**Usage**

```
crs_transform(x, src_epsg_crs_code, dst_epsg_crs_code, strict = FALSE)
```

**Arguments**

x	The spatial RDD to be processed.
src_epsg_crs_code	Coordinate reference system to transform from (e.g., "epsg:4326", "epsg:3857", etc).
dst_epsg_crs_code	Coordinate reference system to transform to. (e.g., "epsg:4326", "epsg:3857", etc).
strict	If FALSE (default), then ignore the "Bursa-Wolf Parameters Required" error.

**Value**

The transformed SpatialRDD.

**Examples**

```
library(sparklyr)
library(apache.sedona)

sc <- spark_connect(master = "spark://HOST:PORT")

if (!inherits(sc, "test_connection")) {
  input_location <- "/dev/null" # replace it with the path to your input file
  rdd <- sedona_read_geojson_to_typed_rdd(
    sc,
    location = input_location, type = "polygon"
  )
  crs_transform(
    rdd,
    src_epsg_crs_code = "epsg:4326", dst_epsg_crs_code = "epsg:3857"
  )
}
```

---

minimum\_bounding\_box *Find the minimal bounding box of a geometry.*

---

**Description**

Given a Sedona spatial RDD, find the axis-aligned minimal bounding box of the geometry represented by the RDD.

**Usage**

```
minimum_bounding_box(x)
```

**Arguments**

x	A Sedona spatial RDD.
---	-----------------------

**Value**

A minimum bounding box object.

**See Also**

Other Spatial RDD aggregation routine: [approx\\_count\(\)](#)

**Examples**

```
library(sparklyr)
library(apache.sedona)

sc <- spark_connect(master = "spark://HOST:PORT")

if (!inherits(sc, "test_connection")) {
  input_location <- "/dev/null" # replace it with the path to your input file
  rdd <- sedona_read_shapefile_to_typed_rdd(
    sc,
    location = input_location, type = "polygon"
  )
  boundary <- minimum_bounding_box(rdd)
}
```

---

new_bounding_box	<i>Construct a bounding box object.</i>
------------------	---

---

**Description**

Construct a axis-aligned rectangular bounding box object.

**Usage**

```
new_bounding_box(sc, min_x = -Inf, max_x = Inf, min_y = -Inf, max_y = Inf)
```

**Arguments**

sc	The Spark connection.
min_x	Minimum x-value of the bounding box, can be +/- Inf.
max_x	Maximum x-value of the bounding box, can be +/- Inf.
min_y	Minimum y-value of the bounding box, can be +/- Inf.
max_y	Maximum y-value of the bounding box, can be +/- Inf.

**Value**

A bounding box object.

## Examples

```
library(sparklyr)
library(apache.sedona)

sc <- spark_connect(master = "spark://HOST:PORT")
bb <- new_bounding_box(sc, -1, 1, -1, 1)
```

---

sdf\_register.spatial\_rdd

*Import data from a spatial RDD into a Spark Dataframe.*

---

## Description

Import data from a spatial RDD into a Spark Dataframe.

## Usage

```
## S3 method for class 'spatial_rdd'
sdf_register(x, name = NULL)
```

## Arguments

x	A spatial RDD.
name	Name to assign to the resulting Spark temporary view. If unspecified, then a random name will be assigned.

## Value

A Spark Dataframe containing the imported spatial data.

## Examples

```
library(sparklyr)
library(apache.sedona)

sc <- spark_connect(master = "spark://HOST:PORT")

if (!inherits(sc, "test_connection")) {
  input_location <- "/dev/null" # replace it with the path to your input file
  rdd <- sedona_read_geojson_to_typed_rdd(
    sc,
    location = input_location,
    type = "polygon"
  )
  sdf <- sdf_register(rdd)
}
```

---

sedona\_apply\_spatial\_partitioner

*Apply a spatial partitioner to a Sedona spatial RDD.*

---

## Description

Given a Sedona spatial RDD, partition its content using a spatial partitioner.

## Usage

```
sedona_apply_spatial_partitioner(
  rdd,
  partitioner = c("quadtree", "kdbtree"),
  max_levels = NULL
)
```

## Arguments

rdd	The spatial RDD to be partitioned.
partitioner	The name of a grid type to use (currently "quadtree" and "kdbtree" are supported) or an <code>org.apache.sedona.core.spatialPartitioning.SpatialPartitioner</code> JVM object. The latter option is only relevant for advanced use cases involving a custom spatial partitioner.
max_levels	Maximum number of levels in the partitioning tree data structure. If NULL (default), then use the current number of partitions within rdd as maximum number of levels. Specifying max_levels is unsupported for use cases involving a custom spatial partitioner because in these scenarios the partitioner object already has its own maximum number of levels set and there is no well-defined way to override this existing setting in the partitioning data structure.

## Value

A spatially partitioned SpatialRDD.

## Examples

```
library(sparklyr)
library(apache.sedona)

sc <- spark_connect(master = "spark://HOST:PORT")

if (!inherits(sc, "test_connection")) {
  input_location <- "/dev/null" # replace it with the path to your input file
  rdd <- sedona_read_dsv_to_typed_rdd(
    sc,
    location = input_location,
    delimiter = ",",
    type = "point",
  )
}
```

```

    first_spatial_col_index = 1L
  )
  sedona_apply_spatial_partitioner(rdd, partitioner = "kdbtree")
}

```

---

sedona\_build\_index      *Build an index on a Sedona spatial RDD.*

---

### Description

Given a Sedona spatial RDD, build the type of index specified on each of its partition(s).

### Usage

```

sedona_build_index(
  rdd,
  type = c("quadtree", "rtree"),
  index_spatial_partitions = TRUE
)

```

### Arguments

rdd	The spatial RDD to be indexed.
type	The type of index to build. Currently "quadtree" and "rtree" are supported.
index_spatial_partitions	If the RDD is already partitioned using a spatial partitioner, then index each spatial partition within the RDD instead of partitions within the raw RDD associated with the underlying spatial data source. Default: TRUE. Notice this option is irrelevant if the input RDD has not been partitioned using with a spatial partitioner yet.

### Value

A spatial index object.

### Examples

```

library(sparklyr)
library(apache.sedona)

sc <- spark_connect(master = "spark://HOST:PORT")

if (!inherits(sc, "test_connection")) {
  input_location <- "/dev/null" # replace it with the path to your input file
  rdd <- sedona_read_shapefile_to_typed_rdd(
    sc,
    location = input_location,

```

```

    type = "polygon"
  )
  sedona_build_index(rdd, type = "rtree")
}

```

---

sedona\_knn\_query      *Query the k nearest spatial objects.*

---

### Description

Given a spatial RDD, a query object  $x$ , and an integer  $k$ , find the  $k$  nearest spatial objects within the RDD from  $x$  (distance between  $x$  and another geometrical object will be measured by the minimum possible length of any line segment connecting those 2 objects).

### Usage

```

sedona_knn_query(
  rdd,
  x,
  k,
  index_type = c("quadtree", "rtree"),
  result_type = c("rdd", "sdf", "raw")
)

```

### Arguments

rdd	A Sedona spatial RDD.
x	The query object.
k	Number of nearest spatail objects to return.
index_type	Index to use to facilitate the KNN query. If NULL, then do not build any additional spatial index on top of $x$ . Supported index types are "quadtree" and "rtree".
result_type	Type of result to return. If "rdd" (default), then the $k$ nearest objects will be returned in a Sedona spatial RDD. If "sdf", then a Spark dataframe containing the $k$ nearest objects will be returned. If "raw", then a list of $k$ nearest objects will be returned. Each element within this list will be a JVM object of type <code>org.locationtech.jts.geom.Geometry</code> .

### Value

The KNN query result.

### See Also

Other Sedona spatial query: [sedona\\_range\\_query\(\)](#)

**Examples**

```

library(sparklyr)
library(apache.sedona)

sc <- spark_connect(master = "spark://HOST:PORT")

if (!inherits(sc, "test_connection")) {
  knn_query_pt_x <- -84.01
  knn_query_pt_y <- 34.01
  knn_query_pt_tbl <- DBI::dbGetQuery(
    sc,
    sprintf(
      "SELECT ST_GeomFromText(\"POINT(%f %f)\") AS `pt`",
      knn_query_pt_x,
      knn_query_pt_y
    )
  )
  knn_query_pt <- knn_query_pt_tbl$pt[[1]]
  input_location <- "/dev/null" # replace it with the path to your input file
  rdd <- sedona_read_geojson_to_typed_rdd(
    sc,
    location = input_location,
    type = "polygon"
  )
  knn_result_sdf <- sedona_knn_query(
    rdd,
    x = knn_query_pt, k = 3, index_type = "rtree", result_type = "sdf"
  )
}

```

---

sedona\_range\_query      *Execute a range query.*

---

**Description**

Given a spatial RDD and a query object *x*, find all spatial objects within the RDD that are covered by *x* or intersect *x*.

**Usage**

```

sedona_range_query(
  rdd,
  x,
  query_type = c("cover", "intersect"),
  index_type = c("quadtree", "rtree"),
  result_type = c("rdd", "sdf", "raw")
)

```

**Arguments**

rdd	A Sedona spatial RDD.
x	The query object.
query_type	Type of spatial relationship involved in the query. Currently "cover" and "intersect" are supported.
index_type	Index to use to facilitate the KNN query. If NULL, then do not build any additional spatial index on top of x. Supported index types are "quadtree" and "rtree".
result_type	Type of result to return. If "rdd" (default), then the k nearest objects will be returned in a Sedona spatial RDD. If "sdf", then a Spark dataframe containing the k nearest objects will be returned. If "raw", then a list of k nearest objects will be returned. Each element within this list will be a JVM object of type org.locationtech.jts.geom.Geometry.

**Value**

The range query result.

**See Also**

Other Sedona spatial query: [sedona\\_knn\\_query\(\)](#)

**Examples**

```
library(sparklyr)
library(apache.sedona)

sc <- spark_connect(master = "spark://HOST:PORT")

if (!inherits(sc, "test_connection")) {
  range_query_min_x <- -87
  range_query_max_x <- -50
  range_query_min_y <- 34
  range_query_max_y <- 54
  geom_factory <- invoke_new(
    sc,
    "org.locationtech.jts.geom.GeometryFactory"
  )
  range_query_polygon <- invoke_new(
    sc,
    "org.locationtech.jts.geom.Envelope",
    range_query_min_x,
    range_query_max_x,
    range_query_min_y,
    range_query_max_y
  ) %>%
  invoke(geom_factory, "toGeometry", .)
  input_location <- "/dev/null" # replace it with the path to your input file
  rdd <- sedona_read_geojson_to_typed_rdd(
    sc,
```

```

    location = input_location,
    type = "polygon"
  )
  range_query_result_sdf <- sedona_range_query(
    rdd,
    x = range_query_polygon,
    query_type = "intersect",
    index_type = "rtree",
    result_type = "sdf"
  )
}

```

---

sedona\_read\_dsv\_to\_typed\_rdd

*Create a typed SpatialRDD from a delimiter-separated values data source.*

---

### Description

Create a typed SpatialRDD (namely, a PointRDD, a PolygonRDD, or a LineStringRDD) from a data source containing delimiter-separated values. The data source can contain spatial attributes (e.g., longitude and latitude) and other attributes. Currently only inputs with spatial attributes occupying a contiguous range of columns (i.e., [first\_spatial\_col\_index, last\_spatial\_col\_index]) are supported.

### Usage

```

sedona_read_dsv_to_typed_rdd(
  sc,
  location,
  delimiter = c(",", "\t", "?", "'", "\"", "_", "-", "%", "~", "|", ";"),
  type = c("point", "polygon", "linestring"),
  first_spatial_col_index = 0L,
  last_spatial_col_index = NULL,
  has_non_spatial_attrs = TRUE,
  storage_level = "MEMORY_ONLY",
  repartition = 1L
)

```

### Arguments

sc	A spark_connection.
location	Location of the data source.
delimiter	Delimiter within each record. Must be one of ',', '\t', '?', '\'', '\"', '_', '-', '%', '~', ' ', ';',
type	Type of the SpatialRDD (must be one of "point", "polygon", or "linestring").

<code>first_spatial_col_index</code>	Zero-based index of the left-most column containing spatial attributes (default: 0).
<code>last_spatial_col_index</code>	Zero-based index of the right-most column containing spatial attributes (default: NULL). Note <code>last_spatial_col_index</code> does not need to be specified when creating a <code>PointRDD</code> because it will automatically have the implied value of <code>(first_spatial_col_index + 1)</code> . For all other types of RDDs, if <code>last_spatial_col_index</code> is unspecified, then it will assume the value of <code>-1</code> (i.e., the last of all input columns).
<code>has_non_spatial_attrs</code>	Whether the input contains non-spatial attributes.
<code>storage_level</code>	Storage level of the RDD (default: <code>MEMORY_ONLY</code> ).
<code>repartition</code>	The minimum number of partitions to have in the resulting RDD (default: 1).

**Value**

A typed `SpatialRDD`.

**See Also**

Other Sedona data interface functions: [sedona\\_read\\_geojson\\_to\\_typed\\_rdd\(\)](#), [sedona\\_read\\_geojson\(\)](#), [sedona\\_read\\_shapefile\\_to\\_typed\\_rdd\(\)](#), [sedona\\_read\\_shapefile\(\)](#), [sedona\\_read\\_wkb\(\)](#), [sedona\\_read\\_wkt\(\)](#), [sedona\\_save\\_spatial\\_rdd\(\)](#), [sedona\\_write\\_geojson\(\)](#), [sedona\\_write\\_wkb\(\)](#), [sedona\\_write\\_wkt\(\)](#)

**Examples**

```
library(sparklyr)
library(apache.sedona)

sc <- spark_connect(master = "spark://HOST:PORT")

if (!inherits(sc, "test_connection")) {
  input_location <- "/dev/null" # replace it with the path to your csv file
  rdd <- sedona_read_dsv_to_typed_rdd(
    sc,
    location = input_location,
    delimiter = ",",
    type = "point",
    first_spatial_col_index = 1L
  )
}
```

---

sedona\_read\_geojson     *Create a SpatialRDD from a GeoJSON data source.*

---

### Description

Create a generic SpatialRDD from a GeoJSON data source.

### Usage

```
sedona_read_geojson(  
  sc,  
  location,  
  allow_invalid_geometries = TRUE,  
  skip_syntactically_invalid_geometries = TRUE,  
  storage_level = "MEMORY_ONLY",  
  repartition = 1L  
)
```

### Arguments

sc	A spark_connection.
location	Location of the data source.
allow_invalid_geometries	Whether to allow topology-invalid geometries to exist in the resulting RDD.
skip_syntactically_invalid_geometries	Whether to allows Sedona to automatically skip syntax-invalid geometries, rather than throwing errorings.
storage_level	Storage level of the RDD (default: MEMORY_ONLY).
repartition	The minimum number of partitions to have in the resulting RDD (default: 1).

### Value

A SpatialRDD.

### See Also

Other Sedona data interface functions: [sedona\\_read\\_dsv\\_to\\_typed\\_rdd\(\)](#), [sedona\\_read\\_geojson\\_to\\_typed\\_rdd\(\)](#), [sedona\\_read\\_shapefile\\_to\\_typed\\_rdd\(\)](#), [sedona\\_read\\_shapefile\(\)](#), [sedona\\_read\\_wkb\(\)](#), [sedona\\_read\\_wkt\(\)](#), [sedona\\_save\\_spatial\\_rdd\(\)](#), [sedona\\_write\\_geojson\(\)](#), [sedona\\_write\\_wkb\(\)](#), [sedona\\_write\\_wkt\(\)](#)

## Examples

```
library(sparklyr)
library(apache.sedona)

sc <- spark_connect(master = "spark://HOST:PORT")

if (!inherits(sc, "test_connection")) {
  input_location <- "/dev/null" # replace it with the path to your input file
  rdd <- sedona_read_geojson(sc, location = input_location)
}
```

---

sedona\_read\_geojson\_to\_typed\_rdd

*Create a typed SpatialRDD from a GeoJSON data source.*

---

## Description

Create a typed SpatialRDD (namely, a PointRDD, a PolygonRDD, or a LineStringRDD) from a GeoJSON data source.

## Usage

```
sedona_read_geojson_to_typed_rdd(
  sc,
  location,
  type = c("point", "polygon", "linestring"),
  has_non_spatial_attrs = TRUE,
  storage_level = "MEMORY_ONLY",
  repartition = 1L
)
```

## Arguments

sc	A spark_connection.
location	Location of the data source.
type	Type of the SpatialRDD (must be one of "point", "polygon", or "linestring").
has_non_spatial_attrs	Whether the input contains non-spatial attributes.
storage_level	Storage level of the RDD (default: MEMORY_ONLY).
repartition	The minimum number of partitions to have in the resulting RDD (default: 1).

## Value

A typed SpatialRDD.

## See Also

Other Sedona data interface functions: [sedona\\_read\\_dsv\\_to\\_typed\\_rdd\(\)](#), [sedona\\_read\\_geojson\(\)](#), [sedona\\_read\\_shapefile\\_to\\_typed\\_rdd\(\)](#), [sedona\\_read\\_shapefile\(\)](#), [sedona\\_read\\_wkb\(\)](#), [sedona\\_read\\_wkt\(\)](#), [sedona\\_save\\_spatial\\_rdd\(\)](#), [sedona\\_write\\_geojson\(\)](#), [sedona\\_write\\_wkb\(\)](#), [sedona\\_write\\_wkt\(\)](#)

## Examples

```
library(sparklyr)
library(apache.sedona)

sc <- spark_connect(master = "spark://HOST:PORT")

if (!inherits(sc, "test_connection")) {
  input_location <- "/dev/null" # replace it with the path to your input file
  rdd <- sedona_read_geojson_to_typed_rdd(
    sc,
    location = input_location, type = "polygon"
  )
}
```

---

`sedona_read_shapefile` *Create a SpatialRDD from a shapefile data source.*

---

## Description

Create a generic SpatialRDD from a shapefile data source.

## Usage

```
sedona_read_shapefile(sc, location, storage_level = "MEMORY_ONLY")
```

## Arguments

<code>sc</code>	A <code>spark_connection</code> .
<code>location</code>	Location of the data source.
<code>storage_level</code>	Storage level of the RDD (default: <code>MEMORY_ONLY</code> ).

## Value

A SpatialRDD.

## See Also

Other Sedona data interface functions: [sedona\\_read\\_dsv\\_to\\_typed\\_rdd\(\)](#), [sedona\\_read\\_geojson\\_to\\_typed\\_rdd\(\)](#), [sedona\\_read\\_geojson\(\)](#), [sedona\\_read\\_shapefile\\_to\\_typed\\_rdd\(\)](#), [sedona\\_read\\_wkb\(\)](#), [sedona\\_read\\_wkt\(\)](#), [sedona\\_save\\_spatial\\_rdd\(\)](#), [sedona\\_write\\_geojson\(\)](#), [sedona\\_write\\_wkb\(\)](#), [sedona\\_write\\_wkt\(\)](#)

**Examples**

```
library(sparklyr)
library(apache.sedona)

sc <- spark_connect(master = "spark://HOST:PORT")

if (!inherits(sc, "test_connection")) {
  input_location <- "/dev/null" # replace it with the path to your input file
  rdd <- sedona_read_shapefile(sc, location = input_location)
}
```

---

```
sedona_read_shapefile_to_typed_rdd
```

*Create a typed SpatialRDD from a shapefile data source.*

---

**Description**

Create a typed SpatialRDD (namely, a PointRDD, a PolygonRDD, or a LineStringRDD) from a shapefile data source.

**Usage**

```
sedona_read_shapefile_to_typed_rdd(
  sc,
  location,
  type = c("point", "polygon", "linestring"),
  storage_level = "MEMORY_ONLY"
)
```

**Arguments**

sc	A spark_connection.
location	Location of the data source.
type	Type of the SpatialRDD (must be one of "point", "polygon", or "linestring").
storage_level	Storage level of the RDD (default: MEMORY_ONLY).

**Value**

A typed SpatialRDD.

**See Also**

Other Sedona data interface functions: [sedona\\_read\\_dsv\\_to\\_typed\\_rdd\(\)](#), [sedona\\_read\\_geojson\\_to\\_typed\\_rdd\(\)](#), [sedona\\_read\\_geojson\(\)](#), [sedona\\_read\\_shapefile\(\)](#), [sedona\\_read\\_wkb\(\)](#), [sedona\\_read\\_wkt\(\)](#), [sedona\\_save\\_spatial\\_rdd\(\)](#), [sedona\\_write\\_geojson\(\)](#), [sedona\\_write\\_wkb\(\)](#), [sedona\\_write\\_wkt\(\)](#)

**Examples**

```

library(sparklyr)
library(apache.sedona)

sc <- spark_connect(master = "spark://HOST:PORT")

if (!inherits(sc, "test_connection")) {
  input_location <- "/dev/null" # replace it with the path to your shapefile
  rdd <- sedona_read_shapefile_to_typed_rdd(
    sc,
    location = input_location, type = "polygon"
  )
}

```

---

sedona\_read\_wkb

*Create a SpatialRDD from a Well-Known Binary (WKB) data source.*


---

**Description**

Create a generic SpatialRDD from a hex-encoded Well-Known Binary (WKB) data source.

**Usage**

```

sedona_read_wkb(
  sc,
  location,
  wkb_col_idx = 0L,
  allow_invalid_geometries = TRUE,
  skip_syntactically_invalid_geometries = TRUE,
  storage_level = "MEMORY_ONLY",
  repartition = 1L
)

```

**Arguments**

sc	A spark_connection.
location	Location of the data source.
wkb_col_idx	Zero-based index of column containing hex-encoded WKB data (default: 0).
allow_invalid_geometries	Whether to allow topology-invalid geometries to exist in the resulting RDD.
skip_syntactically_invalid_geometries	Whether to allow Sedona to automatically skip syntax-invalid geometries, rather than throwing errorings.
storage_level	Storage level of the RDD (default: MEMORY_ONLY).
repartition	The minimum number of partitions to have in the resulting RDD (default: 1).

**Value**

A SpatialRDD.

**See Also**

Other Sedona data interface functions: [sedona\\_read\\_dsv\\_to\\_typed\\_rdd\(\)](#), [sedona\\_read\\_geojson\\_to\\_typed\\_rdd\(\)](#), [sedona\\_read\\_geojson\(\)](#), [sedona\\_read\\_shapefile\\_to\\_typed\\_rdd\(\)](#), [sedona\\_read\\_shapefile\(\)](#), [sedona\\_read\\_wkt\(\)](#), [sedona\\_save\\_spatial\\_rdd\(\)](#), [sedona\\_write\\_geojson\(\)](#), [sedona\\_write\\_wkb\(\)](#), [sedona\\_write\\_wkt\(\)](#)

**Examples**

```
library(sparklyr)
library(apache.sedona)

sc <- spark_connect(master = "spark://HOST:PORT")

if (!inherits(sc, "test_connection")) {
  input_location <- "/dev/null" # replace it with the path to your input file
  rdd <- sedona_read_wkt(
    sc,
    location = input_location, wkt_col_idx = 0L
  )
}
```

---

sedona\_read\_wkt

*Create a SpatialRDD from a Well-Known Text (WKT) data source.*

---

**Description**

Create a generic SpatialRDD from a Well-Known Text (WKT) data source.

**Usage**

```
sedona_read_wkt(
  sc,
  location,
  wkt_col_idx = 0L,
  allow_invalid_geometries = TRUE,
  skip_syntactically_invalid_geometries = TRUE,
  storage_level = "MEMORY_ONLY",
  repartition = 1L
)
```

**Arguments**

sc	A spark_connection.
location	Location of the data source.
wkt_col_idx	Zero-based index of column containing hex-encoded WKB data (default: 0).
allow_invalid_geometries	Whether to allow topology-invalid geometries to exist in the resulting RDD.
skip_syntactically_invalid_geometries	Whether to allows Sedona to automatically skip syntax-invalid geometries, rather than throwing errorings.
storage_level	Storage level of the RDD (default: MEMORY_ONLY).
repartition	The minimum number of partitions to have in the resulting RDD (default: 1).

**Value**

A SpatialRDD.

**See Also**

Other Sedona data interface functions: [sedona\\_read\\_dsv\\_to\\_typed\\_rdd\(\)](#), [sedona\\_read\\_geojson\\_to\\_typed\\_rdd\(\)](#), [sedona\\_read\\_geojson\(\)](#), [sedona\\_read\\_shapefile\\_to\\_typed\\_rdd\(\)](#), [sedona\\_read\\_shapefile\(\)](#), [sedona\\_read\\_wkb\(\)](#), [sedona\\_save\\_spatial\\_rdd\(\)](#), [sedona\\_write\\_geojson\(\)](#), [sedona\\_write\\_wkb\(\)](#), [sedona\\_write\\_wkt\(\)](#)

**Examples**

```
library(sparklyr)
library(apache.sedona)

sc <- spark_connect("spark://HOST:PORT")

if (!inherits(sc, "test_connection")) {
  input_location <- "/dev/null" # replace it with the path to your input file
  rdd <- sedona_read_wkt(
    sc,
    location = input_location,
    wkt_col_idx = 0L
  )
}
```

---

sedona\_render\_choropleth\_map

*Visualize a Sedona spatial RDD using a choropleth map.*

---

**Description**

Generate a choropleth map of a pair RDD assigning integral values to polygons.

**Usage**

```

sedona_render_choropleth_map(
  pair_rdd,
  resolution_x,
  resolution_y,
  output_location,
  output_format = c("png", "gif", "svg"),
  boundary = NULL,
  color_of_variation = c("red", "green", "blue"),
  base_color = c(0, 0, 0),
  shade = TRUE,
  reverse_coords = FALSE,
  overlay = NULL,
  browse = interactive()
)

```

**Arguments**

pair_rdd	A pair RDD with Sedona Polygon objects being keys and java.lang.Long being values.
resolution_x	Resolution on the x-axis.
resolution_y	Resolution on the y-axis.
output_location	Location of the output image. This should be the desired path of the image file excluding extension in its file name.
output_format	File format of the output image. Currently "png", "gif", and "svg" formats are supported (default: "png").
boundary	Only render data within the given rectangular boundary. The 'boundary' parameter can be set to either a numeric vector of c(min_x, max_y, min_y, max_y) values, or with a bounding box object e.g., new_bounding_box(sc, min_x, max_y, min_y, max_y), or NULL (the default). If 'boundary' is NULL, then the minimum bounding box of the input spatial RDD will be computed and used as boundary for rendering.
color_of_variation	Which color channel will vary depending on values of data points. Must be one of "red", "green", or "blue". Default: red.
base_color	Color of any data point with value 0. Must be a numeric vector of length 3 specifying values for red, green, and blue channels. Default: c(0, 0, 0).
shade	Whether data point with larger magnitude will be displayed with darker color. Default: TRUE.
reverse_coords	Whether to reverse spatial coordinates in the plot (default: FALSE).
overlay	A viz_op object containing a raster image to be displayed on top of the resulting image.
browse	Whether to open the rendered image in a browser (default: interactive()).

**Value**

No return value.

**See Also**

Other Sedona visualization routines: [sedona\\_render\\_heatmap\(\)](#), [sedona\\_render\\_scatter\\_plot\(\)](#)

**Examples**

```
library(sparklyr)
library(apache.sedona)

sc <- spark_connect(master = "spark://HOST:PORT")

if (!inherits(sc, "test_connection")) {
  pt_input_location <- "/dev/null" # replace it with the path to your input file
  pt_rdd <- sedona_read_dsv_to_typed_rdd(
    sc,
    location = pt_input_location,
    type = "point",
    first_spatial_col_index = 1
  )
  polygon_input_location <- "/dev/null" # replace it with the path to your input file
  polygon_rdd <- sedona_read_geojson_to_typed_rdd(
    sc,
    location = polygon_input_location,
    type = "polygon"
  )
  join_result_rdd <- sedona_spatial_join_count_by_key(
    pt_rdd,
    polygon_rdd,
    join_type = "intersect",
    partitioner = "quadtree"
  )
  sedona_render_choropleth_map(
    join_result_rdd,
    400,
    200,
    output_location = tempfile("choropleth-map-"),
    boundary = c(-86.8, -86.6, 33.4, 33.6),
    base_color = c(255, 255, 255)
  )
}
```

**Description**

Generate a heatmap of geometrical object(s) within a Sedona spatial RDD.

**Usage**

```
sedona_render_heatmap(
  rdd,
  resolution_x,
  resolution_y,
  output_location,
  output_format = c("png", "gif", "svg"),
  boundary = NULL,
  blur_radius = 10L,
  overlay = NULL,
  browse = interactive()
)
```

**Arguments**

rdd	A Sedona spatial RDD.
resolution_x	Resolution on the x-axis.
resolution_y	Resolution on the y-axis.
output_location	Location of the output image. This should be the desired path of the image file excluding extension in its file name.
output_format	File format of the output image. Currently "png", "gif", and "svg" formats are supported (default: "png").
boundary	Only render data within the given rectangular boundary. The 'boundary' parameter can be set to either a numeric vector of c(min_x, max_y, min_y, max_y) values, or with a bounding box object e.g., new_bounding_box(sc, min_x, max_y, min_y, max_y), or NULL (the default). If 'boundary' is NULL, then the minimum bounding box of the input spatial RDD will be computed and used as boundary for rendering.
blur_radius	Controls the radius of a Gaussian blur in the resulting heatmap.
overlay	A viz_op object containing a raster image to be displayed on top of the resulting image.
browse	Whether to open the rendered image in a browser (default: interactive()).

**Value**

No return value.

**See Also**

Other Sedona visualization routines: [sedona\\_render\\_choropleth\\_map\(\)](#), [sedona\\_render\\_scatter\\_plot\(\)](#)

**Examples**

```

library(sparklyr)
library(apache.sedona)

sc <- spark_connect(master = "spark://HOST:PORT")

if (!inherits(sc, "test_connection")) {
  input_location <- "/dev/null" # replace it with the path to your input file
  rdd <- sedona_read_dsv_to_typed_rdd(
    sc,
    location = input_location,
    type = "point"
  )

  sedona_render_heatmap(
    rdd,
    resolution_x = 800,
    resolution_y = 600,
    output_location = tempfile("points-"),
    output_format = "png",
    boundary = c(-91, -84, 30, 35),
    blur_radius = 10
  )
}

```

---

sedona\_render\_scatter\_plot

*Visualize a Sedona spatial RDD using a scatter plot.*

---

**Description**

Generate a scatter plot of geometrical object(s) within a Sedona spatial RDD.

**Usage**

```

sedona_render_scatter_plot(
  rdd,
  resolution_x,
  resolution_y,
  output_location,
  output_format = c("png", "gif", "svg"),
  boundary = NULL,
  color_of_variation = c("red", "green", "blue"),
  base_color = c(0, 0, 0),
  shade = TRUE,
  reverse_coords = FALSE,

```

```

    overlay = NULL,
    browse = interactive()
)

```

### Arguments

rdd	A Sedona spatial RDD.
resolution_x	Resolution on the x-axis.
resolution_y	Resolution on the y-axis.
output_location	Location of the output image. This should be the desired path of the image file excluding extension in its file name.
output_format	File format of the output image. Currently "png", "gif", and "svg" formats are supported (default: "png").
boundary	Only render data within the given rectangular boundary. The 'boundary' parameter can be set to either a numeric vector of c(min_x, max_x, min_y, max_y) values, or with a bounding box object e.g., new_bounding_box(sc, min_x, max_x, min_y, max_y), or NULL (the default). If 'boundary' is NULL, then the minimum bounding box of the input spatial RDD will be computed and used as boundary for rendering.
color_of_variation	Which color channel will vary depending on values of data points. Must be one of "red", "green", or "blue". Default: red.
base_color	Color of any data point with value 0. Must be a numeric vector of length 3 specifying values for red, green, and blue channels. Default: c(0, 0, 0).
shade	Whether data point with larger magnitude will be displayed with darker color. Default: TRUE.
reverse_coords	Whether to reverse spatial coordinates in the plot (default: FALSE).
overlay	A viz_op object containing a raster image to be displayed on top of the resulting image.
browse	Whether to open the rendered image in a browser (default: interactive()).

### Value

No return value.

### See Also

Other Sedona visualization routines: [sedona\\_render\\_choropleth\\_map\(\)](#), [sedona\\_render\\_heatmap\(\)](#)

### Examples

```

library(sparklyr)
library(apache.sedona)

sc <- spark_connect(master = "spark://HOST:PORT")

```

```

if (!inherits(sc, "test_connection")) {
  input_location <- "/dev/null" # replace it with the path to your input file
  rdd <- sedona_read_dsv_to_typed_rdd(
    sc,
    location = input_location,
    type = "point"
  )

  sedona_render_scatter_plot(
    rdd,
    resolution_x = 800,
    resolution_y = 600,
    output_location = tempfile("points-"),
    output_format = "png",
    boundary = c(-91, -84, 30, 35)
  )
}

```

---

```
sedona_save_spatial_rdd
```

*Save a Spark dataframe containing exactly 1 spatial column into a file.*

---

### Description

Export serialized data from a Spark dataframe containing exactly 1 spatial column into a file.

### Usage

```

sedona_save_spatial_rdd(
  x,
  spatial_col,
  output_location,
  output_format = c("wkb", "wkt", "geojson")
)

```

### Arguments

x	A Spark dataframe object in sparklyr or a dplyr expression representing a Spark SQL query.
spatial_col	The name of the spatial column.
output_location	Location of the output file.
output_format	Format of the output.

### Value

No return value.

**See Also**

Other Sedona data interface functions: [sedona\\_read\\_dsv\\_to\\_typed\\_rdd\(\)](#), [sedona\\_read\\_geojson\\_to\\_typed\\_rdd\(\)](#), [sedona\\_read\\_geojson\(\)](#), [sedona\\_read\\_shapefile\\_to\\_typed\\_rdd\(\)](#), [sedona\\_read\\_shapefile\(\)](#), [sedona\\_read\\_wkb\(\)](#), [sedona\\_read\\_wkt\(\)](#), [sedona\\_write\\_geojson\(\)](#), [sedona\\_write\\_wkb\(\)](#), [sedona\\_write\\_wkt\(\)](#)

**Examples**

```
library(sparklyr)
library(apache.sedona)

sc <- spark_connect(master = "spark://HOST:PORT")

if (!inherits(sc, "test_connection")) {
  tbl <- dplyr::tbl(
    sc,
    dplyr::sql("SELECT ST_GeomFromText('POINT(-71.064544 42.28787)') AS `pt`")
  )
  sedona_save_spatial_rdd(
    tbl %>% dplyr::mutate(id = 1),
    spatial_col = "pt",
    output_location = "/tmp/pts.wkb",
    output_format = "wkb"
  )
}
```

---

`sedona_spatial_join`     *Perform a spatial join operation on two Sedona spatial RDDs.*

---

**Description**

Given ‘`spatial_rdd`’ and ‘`query_window_rdd`’, return a pair RDD containing all pairs of geometrical elements (p, q) such that p is an element of ‘`spatial_rdd`’, q is an element of ‘`query_window_rdd`’, and (p, q) satisfies the spatial relation specified by ‘`join_type`’.

**Usage**

```
sedona_spatial_join(
  spatial_rdd,
  query_window_rdd,
  join_type = c("contain", "intersect"),
  partitioner = c("quadtree", "kdbtree"),
  index_type = c("quadtree", "rtree")
)
```

**Arguments**

spatial_rdd	Spatial RDD containing geometries to be queried.
query_window_rdd	Spatial RDD containing the query window(s).
join_type	Type of the join query (must be either "contain" or "intersect"). If 'join_type' is "contain", then a geometry from 'spatial_rdd' will match a geometry from the 'query_window_rdd' if and only if the former is fully contained in the latter. If 'join_type' is "intersect", then a geometry from 'spatial_rdd' will match a geometry from the 'query_window_rdd' if and only if the former intersects the latter.
partitioner	Spatial partitioning to apply to both 'spatial_rdd' and 'query_window_rdd' to facilitate the join query. Can be either a grid type (currently "quadtree" and "kdbtree" are supported) or a custom spatial partitioner object. If 'partitioner' is NULL, then assume the same spatial partitioner has been applied to both 'spatial_rdd' and 'query_window_rdd' already and skip the partitioning step.
index_type	Controls how 'spatial_rdd' and 'query_window_rdd' will be indexed (unless they are indexed already). If "NONE", then no index will be constructed and matching geometries will be identified in a doubly nested- loop iterating through all possible pairs of elements from 'spatial_rdd' and 'query_window_rdd', which will be inefficient for large data sets.

**Value**

A spatial RDD containing the join result.

**See Also**

Other Sedona spatial join operator: [sedona\\_spatial\\_join\\_count\\_by\\_key\(\)](#)

**Examples**

```
library(sparklyr)
library(apache.sedona)

sc <- spark_connect(master = "spark://HOST:PORT")

if (!inherits(sc, "test_connection")) {
  input_location <- "/dev/null" # replace it with the path to your input file
  rdd <- sedona_read_dsv_to_typed_rdd(
    sc,
    location = input_location,
    delimiter = ",",
    type = "point",
    first_spatial_col_index = 1L
  )
  query_rdd_input_location <- "/dev/null" # replace it with the path to your input file
  query_rdd <- sedona_read_shapefile_to_typed_rdd(
    sc,
    location = query_rdd_input_location,
```

```

    type = "polygon"
  )
  join_result_rdd <- sedona_spatial_join(
    rdd,
    query_rdd,
    join_type = "intersect",
    partitioner = "quadtree"
  )
}

```

---

sedona\_spatial\_join\_count\_by\_key

*Perform a spatial count-by-key operation based on two Sedona spatial RDDs.*

---

### Description

For each element *p* from 'spatial\_rdd', count the number of unique elements *q* from 'query\_window\_rdd' such that (*p*, *q*) satisfies the spatial relation specified by 'join\_type'.

### Usage

```

sedona_spatial_join_count_by_key(
  spatial_rdd,
  query_window_rdd,
  join_type = c("contain", "intersect"),
  partitioner = c("quadtree", "kdbtree"),
  index_type = c("quadtree", "rtree")
)

```

### Arguments

spatial_rdd	Spatial RDD containing geometries to be queried.
query_window_rdd	Spatial RDD containing the query window(s).
join_type	Type of the join query (must be either "contain" or "intersect"). If 'join_type' is "contain", then a geometry from 'spatial_rdd' will match a geometry from the 'query_window_rdd' if and only if the former is fully contained in the latter. If 'join_type' is "intersect", then a geometry from 'spatial_rdd' will match a geometry from the 'query_window_rdd' if and only if the former intersects the latter.
partitioner	Spatial partitioning to apply to both 'spatial_rdd' and 'query_window_rdd' to facilitate the join query. Can be either a grid type (currently "quadtree" and "kdbtree" are supported) or a custom spatial partitioner object. If 'partitioner' is NULL, then assume the same spatial partitioner has been applied to both 'spatial_rdd' and 'query_window_rdd' already and skip the partitioning step.

`index_type` Controls how ‘`spatial_rdd`’ and ‘`query_window_rdd`’ will be indexed (unless they are indexed already). If "NONE", then no index will be constructed and matching geometries will be identified in a doubly nested- loop iterating through all possible pairs of elements from ‘`spatial_rdd`’ and ‘`query_window_rdd`’, which will be inefficient for large data sets.

### Value

A spatial RDD containing the join-count-by-key results.

### See Also

Other Sedona spatial join operator: [sedona\\_spatial\\_join\(\)](#)

### Examples

```
library(sparklyr)
library(apache.sedona)

sc <- spark_connect(master = "spark://HOST:PORT")

if (!inherits(sc, "test_connection")) {
  input_location <- "/dev/null" # replace it with the path to your input file
  rdd <- sedona_read_dsv_to_typed_rdd(
    sc,
    location = input_location,
    delimiter = ",",
    type = "point",
    first_spatial_col_index = 1L
  )
  query_rdd_input_location <- "/dev/null" # replace it with the path to your input file
  query_rdd <- sedona_read_shapefile_to_typed_rdd(
    sc,
    location = query_rdd_input_location,
    type = "polygon"
  )
  join_result_rdd <- sedona_spatial_join_count_by_key(
    rdd,
    query_rdd,
    join_type = "intersect",
    partitioner = "quadtree"
  )
}
```

**Description**

Function extracting aggregate statistics from a Sedona spatial RDD.

**Arguments**

x                    A Sedona spatial RDD.

---

sedona\_spatial\_rdd\_data\_source

*Create a SpatialRDD from an external data source. Import spatial object from an external data source into a Sedona SpatialRDD.*

---

**Description**

Create a SpatialRDD from an external data source. Import spatial object from an external data source into a Sedona SpatialRDD.

**Arguments**

sc                    A spark\_connection.  
 location            Location of the data source.  
 type                Type of the SpatialRDD (must be one of "point", "polygon", or "linestring").  
 has\_non\_spatial\_attrs    Whether the input contains non-spatial attributes.  
 storage\_level      Storage level of the RDD (default: MEMORY\_ONLY).  
 repartition        The minimum number of partitions to have in the resulting RDD (default: 1).

---

sedona\_spatial\_rdd\_serialization\_routine

*Write SpatialRDD into a file.*

---

**Description**

Export serialized data from a Sedona SpatialRDD into an output file.

**Arguments**

x                    The SpatialRDD object.  
 output\_location    Location of the output file.

---

 sedona\_visualization\_routines

*Visualization routine for Sedona spatial RDD.*


---

### Description

Generate a visual representation of geometrical object(s) within a Sedona spatial RDD.

### Arguments

rdd	A Sedona spatial RDD.
resolution_x	Resolution on the x-axis.
resolution_y	Resolution on the y-axis.
output_location	Location of the output image. This should be the desired path of the image file excluding extension in its file name.
output_format	File format of the output image. Currently "png", "gif", and "svg" formats are supported (default: "png").
boundary	Only render data within the given rectangular boundary. The 'boundary' parameter can be set to either a numeric vector of c(min_x, max_y, min_y, max_y) values, or with a bounding box object e.g., new_bounding_box(sc, min_x, max_y, min_y, max_y), or NULL (the default). If 'boundary' is NULL, then the minimum bounding box of the input spatial RDD will be computed and used as boundary for rendering.
color_of_variation	Which color channel will vary depending on values of data points. Must be one of "red", "green", or "blue". Default: red.
base_color	Color of any data point with value 0. Must be a numeric vector of length 3 specifying values for red, green, and blue channels. Default: c(0, 0, 0).
shade	Whether data point with larger magnitude will be displayed with darker color. Default: TRUE.
overlay	A viz_op object containing a raster image to be displayed on top of the resulting image.
browse	Whether to open the rendered image in a browser (default: interactive()).

---

sedona\_write\_geojson *Write SpatialRDD into a GeoJSON file.*

---

## Description

Export serialized data from a Sedona SpatialRDD into a GeoJSON file.

## Usage

```
sedona_write_geojson(x, output_location)
```

## Arguments

x	The SpatialRDD object.
output_location	Location of the output file.

## Value

No return value.

## See Also

Other Sedona data interface functions: [sedona\\_read\\_dsv\\_to\\_typed\\_rdd\(\)](#), [sedona\\_read\\_geojson\\_to\\_typed\\_rdd\(\)](#), [sedona\\_read\\_geojson\(\)](#), [sedona\\_read\\_shapefile\\_to\\_typed\\_rdd\(\)](#), [sedona\\_read\\_shapefile\(\)](#), [sedona\\_read\\_wkb\(\)](#), [sedona\\_read\\_wkt\(\)](#), [sedona\\_save\\_spatial\\_rdd\(\)](#), [sedona\\_write\\_wkb\(\)](#), [sedona\\_write\\_wkt\(\)](#)

## Examples

```
library(sparklyr)
library(apache.sedona)

sc <- spark_connect(master = "spark://HOST:PORT")

if (!inherits(sc, "test_connection")) {
  input_location <- "/dev/null" # replace it with the path to your input file
  rdd <- sedona_read_geojson_to_typed_rdd(
    sc,
    location = input_location, type = "polygon"
  )
  sedona_write_geojson(rdd, "/tmp/example.json")
}
```

---

sedona_write_wkb	<i>Write SpatialRDD into a WKB file.</i>
------------------	--

---

### Description

Export serialized data from a Sedona SpatialRDD into a WKB file.

### Usage

```
sedona_write_wkb(x, output_location)
```

### Arguments

x	The SpatialRDD object.
output_location	Location of the output file.

### Value

No return value.

### See Also

Other Sedona data interface functions: [sedona\\_read\\_dsv\\_to\\_typed\\_rdd\(\)](#), [sedona\\_read\\_geojson\\_to\\_typed\\_rdd\(\)](#), [sedona\\_read\\_geojson\(\)](#), [sedona\\_read\\_shapefile\\_to\\_typed\\_rdd\(\)](#), [sedona\\_read\\_shapefile\(\)](#), [sedona\\_read\\_wkb\(\)](#), [sedona\\_read\\_wkt\(\)](#), [sedona\\_save\\_spatial\\_rdd\(\)](#), [sedona\\_write\\_geojson\(\)](#), [sedona\\_write\\_wkt\(\)](#)

### Examples

```
library(sparklyr)
library(apache.sedona)

sc <- spark_connect(master = "spark://HOST:PORT")

if (!inherits(sc, "test_connection")) {
  input_location <- "/dev/null" # replace it with the path to your input file
  rdd <- sedona_read_wkb(
    sc,
    location = input_location,
    wkb_col_idx = 0L
  )
  sedona_write_wkb(rdd, "/tmp/wkb_output.tsv")
}
```

---

sedona_write_wkt	<i>Write SpatialRDD into a WKT file.</i>
------------------	--

---

### Description

Export serialized data from a Sedona SpatialRDD into a WKT file.

### Usage

```
sedona_write_wkt(x, output_location)
```

### Arguments

x	The SpatialRDD object.
output_location	Location of the output file.

### Value

No return value.

### See Also

Other Sedona data interface functions: [sedona\\_read\\_dsv\\_to\\_typed\\_rdd\(\)](#), [sedona\\_read\\_geojson\\_to\\_typed\\_rdd\(\)](#), [sedona\\_read\\_geojson\(\)](#), [sedona\\_read\\_shapefile\\_to\\_typed\\_rdd\(\)](#), [sedona\\_read\\_shapefile\(\)](#), [sedona\\_read\\_wkb\(\)](#), [sedona\\_read\\_wkt\(\)](#), [sedona\\_save\\_spatial\\_rdd\(\)](#), [sedona\\_write\\_geojson\(\)](#), [sedona\\_write\\_wkb\(\)](#)

### Examples

```
library(sparklyr)
library(apache.sedona)

sc <- spark_connect("spark://HOST:PORT")

if (!inherits(sc, "test_connection")) {
  input_location <- "/dev/null" # replace it with the path to your input file
  rdd <- sedona_read_wkt(
    sc,
    location = input_location,
    wkt_col_idx = 0L
  )
  sedona_write_wkt(rdd, "/tmp/wkt_output.tsv")
}
```

---

spatial_join_op	<i>Spatial join operator</i>
-----------------	------------------------------

---

**Description**

R interface for a Sedona spatial join operator

**Arguments**

spatial_rdd	Spatial RDD containing geometries to be queried.
query_window_rdd	Spatial RDD containing the query window(s).
join_type	Type of the join query (must be either "contain" or "intersect"). If 'join_type' is "contain", then a geometry from 'spatial_rdd' will match a geometry from the 'query_window_rdd' if and only if the former is fully contained in the latter. If 'join_type' is "intersect", then a geometry from 'spatial_rdd' will match a geometry from the 'query_window_rdd' if and only if the former intersects the latter.
partitioner	Spatial partitioning to apply to both 'spatial_rdd' and 'query_window_rdd' to facilitate the join query. Can be either a grid type (currently "quadtree" and "kdbtree" are supported) or a custom spatial partitioner object. If 'partitioner' is NULL, then assume the same spatial partitioner has been applied to both 'spatial_rdd' and 'query_window_rdd' already and skip the partitioning step.
index_type	Controls how 'spatial_rdd' and 'query_window_rdd' will be indexed (unless they are indexed already). If "NONE", then no index will be constructed and matching geometries will be identified in a doubly nested- loop iterating through all possible pairs of elements from 'spatial_rdd' and 'query_window_rdd', which will be inefficient for large data sets.

---

spatial_query	<i>Execute a spatial query</i>
---------------	--------------------------------

---

**Description**

Given a spatial RDD, run a spatial query parameterized by a spatial object x.

**Arguments**

rdd	A Sedona spatial RDD.
x	The query object.
index_type	Index to use to facilitate the KNN query. If NULL, then do not build any additional spatial index on top of x. Supported index types are "quadtree" and "rtree".

`result_type` Type of result to return. If "rdd" (default), then the k nearest objects will be returned in a Sedona spatial RDD. If "sdf", then a Spark dataframe containing the k nearest objects will be returned. If "raw", then a list of k nearest objects will be returned. Each element within this list will be a JVM object of type `org.locationtech.jts.geom.Geometry`.

---

<code>to_spatial_rdd</code>	<i>Export a Spark SQL query with a spatial column into a Sedona spatial RDD.</i>
-----------------------------	--

---

### Description

Given a Spark dataframe object or a dplyr expression encapsulating a Spark SQL query, build a Sedona spatial RDD that will encapsulate the same query or data source. The input should contain exactly one spatial column and all other non-spatial columns will be treated as custom user-defined attributes in the resulting spatial RDD.

### Usage

```
to_spatial_rdd(x, spatial_col)
```

### Arguments

`x` A Spark dataframe object in sparklyr or a dplyr expression representing a Spark SQL query.

`spatial_col` The name of the spatial column.

### Value

A SpatialRDD encapsulating the query.

### Examples

```
library(sparklyr)
library(apache.sedona)

sc <- spark_connect(master = "spark://HOST:PORT")

if (!inherits(sc, "test_connection")) {
  tbl <- dplyr::tbl(
    sc,
    dplyr::sql("SELECT ST_GeomFromText('POINT(-71.064544 42.28787)') AS `pt`")
  )
  rdd <- to_spatial_rdd(tbl, "pt")
}
```

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