

# Package ‘tiledb’

October 7, 2021

**Type** Package

**Version** 0.9.7

**Title** Universal Storage Engine for Sparse and Dense Multidimensional Arrays

**Description** The universal storage engine 'TileDB' introduces a powerful on-disk format for multi-dimensional arrays. It supports dense and sparse arrays, dataframes and key-values stores, cloud storage ('S3', 'GCS', 'Azure'), chunked arrays, multiple compression, encryption and checksum filters, uses a fully multi-threaded implementation, supports parallel I/O, data versioning ('time travel'), metadata and groups. It is implemented as an embeddable cross-platform C++ library with APIs from several languages, and integrations.

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**URL** <https://github.com/TileDB-Inc/TileDB-R>

**BugReports** <https://github.com/TileDB-Inc/TileDB-R/issues>

**SystemRequirements** cmake (only when TileDB source build selected), git (only when TileDB source build selected); on x86\_64 platforms pre-built TileDB Embedded libraries are available at GitHub and are used if no TileDB installation is detected, and no other option to build or download was specified by the user.

**Imports** methods, Rcpp, nanotime

**LinkingTo** Rcpp

**Suggests** tinytest, rmarkdown, knitr, minidown, curl, bit64, Matrix, palmerpenguins, nycflights13, data.table, tibble

**VignetteBuilder** knitr

**RoxygenNote** 7.1.2

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**Repository** CRAN

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---

tiledb-package	<i>tiledb - Interface to the TileDB Storage Manager API</i>
----------------	---

---

### Description

The efficient multi-dimensional array management system 'TileDB' introduces a novel on-disk format that can effectively store reads. It features excellent compression, an efficient parallel I/O system which also scales well, and bindings to multiple languages.

---

allows_dups	<i>Returns logical value whether the array schema allows duplicate values or not. This is only valid for sparse arrays.</i>
-------------	---

---

### Description

Returns logical value whether the array schema allows duplicate values or not. This is only valid for sparse arrays.

### Usage

```
allows_dups(x)

## S4 method for signature 'tiledb_array_schema'
allows_dups(x)

tiledb_array_schema_get_allows_dups(x)
```

### Arguments

x tiledb\_array\_schema

### Value

the logical value



---

allows_dups<-	<i>Sets toggle whether the array schema allows duplicate values or not. This is only valid for sparse arrays.</i>
---------------	---

---

**Description**

Sets toggle whether the array schema allows duplicate values or not. This is only valid for sparse arrays.

**Usage**

```
allows_dups(x) <- value

## S4 replacement method for signature 'tiledb_array_schema'
allows_dups(x) <- value

tiledb_array_schema_set_allows_dups(x, value)
```

**Arguments**

x	tiledb_array_schema
value	logical value

**Value**

the tiledb\_array\_schema object

---

array Consolidate	<i>Consolidate fragments of a TileDB Array</i>
-------------------	--

---

**Description**

This function invokes a consolidation operation. Parameters affecting the operation can be set via an optional configuration object. Start and end timestamps can also be set directly.

**Usage**

```
array Consolidate(
  uri,
  cfg = NULL,
  start_time,
  end_time,
  ctx = tiledb_get_context()
)
```

**Arguments**

uri	A character value with the URI of a TileDB Array
cfg	An optional TileDB Configuration object
start_time	An optional timestamp value, if missing config default is used
end_time	An optional timestamp value, if missing config default is used
ctx	An option TileDB Context object

**Value**

NULL is returned invisibly

---

array_vacuum	<i>After consolidation, remove consolidated fragments of a TileDB Array</i>
--------------	---

---

**Description**

This function can remove fragments following a consolidation step. Note that vacuuming should *not* be run if one intends to use the TileDB *time-traveling* feature of opening arrays at particular timestamps.

**Usage**

```
array_vacuum(uri, cfg = NULL, start_time, end_time, ctx = tiledb_get_context())
```

**Arguments**

uri	A character value with the URI of a TileDB Array
cfg	An optional TileDB Configuration object
start_time	An optional timestamp value, if missing config default is used
end_time	An optional timestamp value, if missing config default is used
ctx	An option TileDB Context object

**Details**

Parameters affecting the operation can be set via an optional configuration object. Start and end timestamps can also be set directly.

**Value**

NULL is returned invisibly

---

```
as.data.frame.tiledb_config
```

*Convert a tiledb\_config object to a R data.frame*

---

**Description**

Convert a tiledb\_config object to a R data.frame

**Usage**

```
## S3 method for class 'tiledb_config'  
as.data.frame(x, ...)
```

**Arguments**

x	tiledb_config object
...	Extra parameter for method signature, currently unused.

**Value**

a data.frame with parameter, value columns

**Examples**

```
cfg <- tiledb_config()  
as.data.frame(cfg)
```

---

```
as.vector.tiledb_config
```

*Convert a tiledb\_config object to a R vector*

---

**Description**

Convert a tiledb\_config object to a R vector

**Usage**

```
## S3 method for class 'tiledb_config'  
as.vector(x, mode = "any")
```

**Arguments**

x	tiledb_config object
mode	Character value "any", currently unused

**Value**

a character vector of config parameter names, values

**Examples**

```
cfg <- tiledb_config()
as.vector(cfg)
```

---

<code>as_data_frame</code>	<i>Construct a data.frame from query results</i>
----------------------------	--

---

**Description**

Converts a tiledb object to a data.frame object

**Usage**

```
as_data_frame(dom, data, extended = FALSE)
```

**Arguments**

<code>dom</code>	tiledb_domain object
<code>data</code>	tiledb object to be converted
<code>extended</code>	optional logical variable selected wider display with coordinates, defaults to false

**Value**

data.frame object constructed from data

---

<code>attrs,tiledb_array,ANY-method</code>	<i>Retrieve attributes from tiledb_array object</i>
--	---

---

**Description**

By default, all attributes will be selected. But if a subset of attribute names is assigned to the internal slot `attrs`, then only those attributes will be queried. This methods accesses the slot.

**Usage**

```
## S4 method for signature 'tiledb_array,ANY'
attrs(object)
```

**Arguments**

object            A tiledb\_array object

**Value**

An empty character vector if no attributes have been selected or else a vector with attributes.

---

attrs, tiledb\_array\_schema, ANY-method

*Returns a list of all tiledb\_attr objects associated with the tiledb\_array\_schema*

---

**Description**

Returns a list of all tiledb\_attr objects associated with the tiledb\_array\_schema

**Usage**

```
## S4 method for signature 'tiledb_array_schema,ANY'
attrs(object, idx, ...)
```

**Arguments**

object            tiledb\_array\_schema  
 idx                index argument, currently unused.  
 ...                Extra parameter for method signature, currently unused.

**Value**

a list of tiledb\_attr objects

**Examples**

```
dom <- tiledb_domain(dims = c(tiledb_dim("d1", c(1L, 10L), type = "INT32")))
sch <- tiledb_array_schema(dom, attrs = c(tiledb_attr("a1", type = "INT32"),
                                         tiledb_attr("a2", type = "FLOAT64")))
attrs(sch)

lapply(attrs(sch), datatype)
```

---

```
attrs,tiledb_array_schema,character-method
      Returns a tiledb_attr object associated with the
      tiledb_array_schema with a given name.
```

---

### Description

Returns a tiledb\_attr object associated with the tiledb\_array\_schema with a given name.

### Usage

```
## S4 method for signature 'tiledb_array_schema,character'
attrs(object, idx, ...)
```

### Arguments

object	tiledb_array_schema
idx	attribute name string
...	Extra parameter for method signature, currently unused.

### Value

a tiledb\_attr object

### Examples

```
dom <- tiledb_domain(dims = c(tiledb_dim("d1", c(1L, 10L), type = "INT32")))
sch <- tiledb_array_schema(dom, attrs = c(tiledb_attr("a1", type = "INT32"),
                                          tiledb_attr("a2", type = "FLOAT64")))
attrs(sch, "a2")
```

---

```
attrs,tiledb_array_schema,numeric-method
      Returns a tiledb_attr object associated with the
      tiledb_array_schema with a given index
```

---

### Description

The attribute index is defined by the order the attributes were defined in the schema

### Usage

```
## S4 method for signature 'tiledb_array_schema,numeric'
attrs(object, idx, ...)
```

**Arguments**

object	tiledb_array_schema
idx	attribute index
...	Extra parameter for method signature, currently unused.

**Value**

a tiledb\_attr object

**Examples**

```
dom <- tiledb_domain(dims = c(tiledb_dim("d1", c(1L, 10L), type = "INT32")))
sch <- tiledb_array_schema(dom, attrs = c(tiledb_attr("a1", type = "INT32"),
                                         tiledb_attr("a2", type = "FLOAT64")))
attrs(sch, 2)
```

---

attrs, tiledb\_dense, ANY-method

*Retrieve attributes from tiledb\_dense object*

---

**Description**

By default, all attributes will be selected. But if a subset of attribute names is assigned to the internal slot `attrs`, then only those attributes will be queried. This methods accesses the slot.

**Usage**

```
## S4 method for signature 'tiledb_dense,ANY'
attrs(object)
```

**Arguments**

object	A tiledb_dense array object
--------	-----------------------------

**Value**

An empty character vector if no attributes have been selected or else a vector with attributes.

---

```
attrs, tiledb_sparse, ANY-method
      Retrieve attributes from tiledb_sparse object
```

---

**Description**

By default, all attributes will be selected. But if a subset of attribute names is assigned to the internal slot `attrs`, then only those attributes will be queried. This methods accesses the slot.

**Usage**

```
## S4 method for signature 'tiledb_sparse,ANY'
attrs(object)
```

**Arguments**

`object`            A `tiledb_sparse` array object

**Value**

An empty character vector if no attributes have been selected or else a vector with attributes.

---

```
attrs<-                    Selects attributes for the given TileDB array
```

---

**Description**

Selects attributes for the given TileDB array

**Usage**

```
attrs(x) <- value

## S4 replacement method for signature 'tiledb_dense'
attrs(x) <- value
```

**Arguments**

`x`                    A `tiledb_dense` array object  
`value`                A character vector with attributes

**Value**

The modified `tiledb_dense` array object



---

```
attrs<-, tiledb_array-method
```

*Selects attributes for the given TileDB array*

---

**Description**

Selects attributes for the given TileDB array

**Usage**

```
## S4 replacement method for signature 'tiledb_array'  
attrs(x) <- value
```

**Arguments**

x	A tiledb_array object
value	A character vector with attributes

**Value**

The modified tiledb\_array object

---

```
attrs<-, tiledb_sparse-method
```

*Selects attributes for the given TileDB array*

---

**Description**

Selects attributes for the given TileDB array

**Usage**

```
## S4 replacement method for signature 'tiledb_sparse'  
attrs(x) <- value
```

**Arguments**

x	A tiledb_sparse array object
value	A character vector with attributes

**Value**

The modified tiledb\_sparse array object

---

capacity	<i>Retrieve schema capacity (for sparse fragments)</i>
----------	--

---

**Description**

Returns the tiledb\_array schema tile capacity for sparse fragments.

**Usage**

```
capacity(object)

## S4 method for signature 'tiledb_array_schema'
capacity(object)

tiledb_array_schema_get_capacity(object)
```

**Arguments**

object            An array\_schema object

**Value**

The tile capacity value

---

capacity<-	<i>Sets the schema capacity (for sparse fragments)</i>
------------	--

---

**Description**

Sets the tiledb\_array schema tile capacity for sparse fragments.

**Usage**

```
capacity(x) <- value

## S4 replacement method for signature 'tiledb_array_schema'
capacity(x) <- value

tiledb_array_schema_set_capacity(x, value)
```

**Arguments**

x                    An array\_schema object  
value                An integer or numeric value for the new tile capacity

**Value**

The modified array\_schema object

---

cell\_order,tiledb\_array\_schema-method  
*Returns the cell layout string associated with the tiledb\_array\_schema*

---

**Description**

Returns the cell layout string associated with the tiledb\_array\_schema

**Usage**

```
## S4 method for signature 'tiledb_array_schema'  
cell_order(object)
```

**Arguments**

object            tiledb object

---

cell\_val\_num            *Return the number of scalar values per attribute cell*

---

**Description**

Return the number of scalar values per attribute cell

**Usage**

```
cell_val_num(object)  
  
## S4 method for signature 'tiledb_attr'  
cell_val_num(object)  
  
tiledb_attribute_get_cell_val_num(object)
```

**Arguments**

object            tiledb\_attr object

**Value**

integer number of cells

**Examples**

```
a1 <- tiledb_attr("a1", type = "FLOAT64", ncells = 1)
cell_val_num(a1)
```

---

cell_val_num<-	<i>Set the number of scalar values per attribute cell</i>
----------------	---

---

**Description**

Set the number of scalar values per attribute cell

**Usage**

```
cell_val_num(x) <- value

## S4 replacement method for signature 'tiledb_attr'
cell_val_num(x) <- value

tiledb_attribute_set_cell_val_num(x, value)
```

**Arguments**

x	A TileDB Attribute object
value	An integer value of number of cells

**Value**

The modified attribute is returned

---

check	<i>Check the schema for correctness</i>
-------	---

---

**Description**

Returns the tiledb\_array schema for correctness

**Usage**

```
check(object)

## S4 method for signature 'tiledb_array_schema'
check(object)

tiledb_array_schema_check(object)
```

**Arguments**

object            An array\_schema object

**Value**

The boolean value TRUE is returned for a correct schema; for an incorrect schema an error condition is triggered.

---

config,tiledb\_ctx-method

*Retrieve the tiledb\_config object from the tiledb\_ctx*

---

**Description**

Retrieve the tiledb\_config object from the tiledb\_ctx

**Usage**

```
## S4 method for signature 'tiledb_ctx'  
config(object = tiledb_get_context())
```

**Arguments**

object            tiledb\_ctx object

**Value**

tiledb\_config object associated with the tiledb\_ctx instance

**Examples**

```
ctx <- tiledb_ctx(c("sm.tile_cache_size" = "10"))  
cfg <- config(ctx)  
cfg["sm.tile_cache_size"]
```

---

datatype,tiledb\_attr-method  
*Return the tiledb\_attr datatype*

---

**Description**

Return the tiledb\_attr datatype

**Usage**

```
## S4 method for signature 'tiledb_attr'  
datatype(object)
```

**Arguments**

object            tiledb\_attr object

**Value**

tiledb datatype string

**Examples**

```
a1 <- tiledb_attr("a1", type = "INT32")  
datatype(a1)  
  
a2 <- tiledb_attr("a1", type = "FLOAT64")  
datatype(a2)
```

---

datatype,tiledb\_dim-method  
*Return the tiledb\_dim datatype*

---

**Description**

Return the tiledb\_dim datatype

**Usage**

```
## S4 method for signature 'tiledb_dim'  
datatype(object)
```

**Arguments**

object            tiledb\_dim object

**Value**

tiledb datatype string

**Examples**

```
d1 <- tiledb_dim("d1", domain = c(5L, 10L), tile = 2L, type = "INT32")
datatype(d1)
```

---

datatype, tiledb\_domain-method

*Returns the tiledb\_domain TileDB type string*

---

**Description**

Returns the tiledb\_domain TileDB type string

**Usage**

```
## S4 method for signature 'tiledb_domain'
datatype(object)
```

**Arguments**

object            tiledb\_domain

**Value**

tiledb\_domain type string

**Examples**

```
dom <- tiledb_domain(dims = c(tiledb_dim("d1", c(1L, 100L), type = "INT32")))
datatype(dom)
dom <- tiledb_domain(dims = c(tiledb_dim("d1", c(0.5, 100.0), type = "FLOAT64")))
datatype(dom)
```

---

```
datetimes_as_int64      Retrieve datetimes_as_int64 toggle
```

---

**Description**

A tiledb\_array object may contain date and datetime objects. While their internal representation is generally shielded from the user, it can be useful to access them as the ‘native’ format which is an integer64. This function retrieves the current value of the selection variable, which has a default of FALSE.

**Usage**

```
datetimes_as_int64(object)

## S4 method for signature 'tiledb_array'
datetimes_as_int64(object)
```

**Arguments**

object            A tiledb\_array object

**Value**

A logical value indicating whether datetimes\_as\_int64 is selected

---

```
datetimes_as_int64<-   Set datetimes_as_int64 toggle
```

---

**Description**

A tiledb\_array object may contain date and datetime objects. While their internal representation is generally shielded from the user, it can be useful to access them as the ‘native’ format which is an integer64. This function sets the current value of the selection variable, which has a default of FALSE.

**Usage**

```
datetimes_as_int64(x) <- value

## S4 replacement method for signature 'tiledb_array'
datetimes_as_int64(x) <- value
```

**Arguments**

x                    A tiledb\_array object  
value                A logical value with the selection



**Value**

The modified tiledb\_array array object

---

dim.tiledb\_array\_schema

*Retrieve the dimension (domain extent) of the domain*

---

**Description**

Only valid for integral (integer) domains

**Usage**

```
## S3 method for class 'tiledb_array_schema'
dim(x)
```

**Arguments**

x tiledb\_array\_schema

**Value**

a dimension vector

**Examples**

```
dom <- tiledb_domain(dims = c(tiledb_dim("d1", c(1L, 10L), type = "INT32")))
sch <- tiledb_array_schema(dom, attrs = c(tiledb_attr("a1", type = "INT32"),
                                          tiledb_attr("a2", type = "FLOAT64")))
dim(sch)
```

---

dim.tiledb\_dim

*Retrieves the dimension of the tiledb\_dim domain*

---

**Description**

Retrieves the dimension of the tiledb\_dim domain

**Usage**

```
## S3 method for class 'tiledb_dim'
dim(x)
```

**Arguments**

x tiledb\_dim object

**Value**

a vector of the tile\_dim domain type, of the dim domain dimension (extent)

**Examples**

```
d1 <- tiledb_dim("d1", c(1L, 10L), 5L)
dim(d1)
```

---

dim.tiledb\_domain      *Retrieve the dimension (domain extent) of the domain*

---

**Description**

Only valid for integral (integer) domains

**Usage**

```
## S3 method for class 'tiledb_domain'
dim(x)
```

**Arguments**

x tiledb\_domain

**Value**

dimension vector

**Examples**

```
dom <- tiledb_domain(dims = c(tiledb_dim("d1", c(1L, 100L), type = "INT32"),
                             tiledb_dim("d2", c(1L, 100L), type = "INT32")))
dim(dom)
```

---

dimensions,tiledb\_array\_schema-method

*Returns a list of tiledb\_dim objects associated with the tiledb\_array\_schema*

---

### Description

Returns a list of tiledb\_dim objects associated with the tiledb\_array\_schema

### Usage

```
## S4 method for signature 'tiledb_array_schema'  
dimensions(object)
```

### Arguments

object            tiledb\_array\_schema

### Value

a list of tiledb\_dim objects

### Examples

```
dom <- tiledb_domain(dims = c(tiledb_dim("d1", c(1L, 100L), type = "INT32"),  
                             tiledb_dim("d2", c(1L, 50L), type = "INT32")))  
sch <- tiledb_array_schema(dom, attrs = c(tiledb_attr("a1", type = "INT32")))  
dimensions(dom)  
  
lapply(dimensions(dom), name)
```

---

dimensions,tiledb\_domain-method

*Returns a list of the tiledb\_domain dimension objects*

---

### Description

Returns a list of the tiledb\_domain dimension objects

### Usage

```
## S4 method for signature 'tiledb_domain'  
dimensions(object)
```

**Arguments**

object tiledb\_domain

**Value**

a list of tiledb\_dim

**Examples**

```
dom <- tiledb_domain(dims = c(tiledb_dim("d1", c(1L, 100L), type = "INT32"),
                             tiledb_dim("d2", c(1L, 50L), type = "INT32")))
dimensions(dom)

lapply(dimensions(dom), name)
```

---

domain

*Generic Methods*

---

**Description**

Definition of generic methods

**Usage**

```
domain(object, ...)

dimensions(object, ...)

attrs(object, idx, ...)

cell_order(object, ...)

tile_order(object, ...)

filter_list(object, ...)

filter_list(x) <- value

is.sparse(object, ...)

tiledb_ndim(object, ...)

name(object)

datatype(object)
```

```

config(object, ...)
schema(object, ...)
tile(object)
is.integral(object)
nfilters(object)
tdb_filter(x, ...)
tdb_select(x, ...)
tdb_collect(x, ...)

```

### Arguments

object	A TileDB object
...	Variable argument
idx	An index argument
x	A TileDB Object
value	A value to be assigned

---

domain,tiledb\_array\_schema-method

*Returns the tiledb\_domain object associated with a given tiledb\_array\_schema*

---

### Description

Returns the tiledb\_domain object associated with a given tiledb\_array\_schema

### Usage

```

## S4 method for signature 'tiledb_array_schema'
domain(object)

```

### Arguments

object	tiledb_array_schema
--------	---------------------

**Examples**

```
dom <- tiledb_domain(dims = c(tiledb_dim("d1", c(1L, 10L), type = "INT32")))
sch <- tiledb_array_schema(dom, attrs = c(tiledb_attr("a1", type = "INT32")))
domain(sch)
```

---

domain, tiledb\_dim-method

*Return the tiledb\_dim domain*

---

**Description**

Return the tiledb\_dim domain

**Usage**

```
## S4 method for signature 'tiledb_dim'
domain(object)
```

**Arguments**

object            tiledb\_dim object

**Value**

a vector of (lb, ub) inclusive domain of the dimension

**Examples**

```
d1 <- tiledb_dim("d1", domain = c(5L, 10L))
domain(d1)
```

---

extended

*Retrieve data.frame extended returns columns toggle*

---

**Description**

A tiledb\_array object can be returned as data.frame. This methods returns the selection value for 'extended' format including row (and column, if present) indices.

**Usage**

```
extended(object)

## S4 method for signature 'tiledb_array'
extended(object)
```

**Arguments**

object            A tiledb\_array object

**Value**

A logical value indicating whether an extended return is selected

---

extended<-            *Set data.frame extended return columns toggle*

---

**Description**

A tiledb\_array object can be returned as data.frame. This methods set the selection value for 'extended' format including row (and column, if present) indices.

**Usage**

```
extended(x) <- value

## S4 replacement method for signature 'tiledb_array'
extended(x) <- value
```

**Arguments**

x                    A tiledb\_array object  
value                A logical value with the selection

**Value**

The modified tiledb\_array array object

---

filter\_list,tiledb\_array\_schema-method

*Returns the offsets and coordinate filter\_lists associated with the tiledb\_array\_schema*

---

### Description

Returns the offsets and coordinate filter\_lists associated with the tiledb\_array\_schema

### Usage

```
## S4 method for signature 'tiledb_array_schema'  
filter_list(object)
```

### Arguments

object            tiledb\_array\_schema

### Value

a list of tiledb\_filter\_list objects

---

filter\_list,tiledb\_attr-method

*Returns the TileDB Filter List object associated with the given TileDB Attribute*

---

### Description

Returns the TileDB Filter List object associated with the given TileDB Attribute

### Usage

```
## S4 method for signature 'tiledb_attr'  
filter_list(object)
```

### Arguments

object            TileDB Attribute

### Value

a tiledb\_filter\_list object



**Examples**

```
attr <- tiledb_attr(type = "INT32", filter_list=tiledb_filter_list(list(tiledb_filter("ZSTD"))))
filter_list(attr)
```

---

filter\_list,tiledb\_dim-method

*Returns the TileDB Filter List object associated with the given TileDB Dimension*

---

**Description**

Returns the TileDB Filter List object associated with the given TileDB Dimension

**Usage**

```
## S4 method for signature 'tiledb_dim'
filter_list(object)
```

**Arguments**

object            TileDB\_Dimension

**Value**

A TileDB\_filter\_list object

---

filter\_list<- ,tiledb\_attr-method

*Sets the TileDB Filter List for the TileDB Attribute object*

---

**Description**

Sets the TileDB Filter List for the TileDB Attribute object

**Usage**

```
## S4 replacement method for signature 'tiledb_attr'
filter_list(x) <- value
```

**Arguments**

x                    TileDB Attribute  
value                TileDB Filter List

**Value**

The modified TileDB Attribute object

---

```
filter_list<-, tiledb_dim-method
```

*Sets the TileDB Filter List for the TileDB Dimension object*

---

**Description**

Sets the TileDB Filter List for the TileDB Dimension object

**Usage**

```
## S4 replacement method for signature 'tiledb_dim'
filter_list(x) <- value
```

**Arguments**

x	TileDB Dimension
value	TileDB Filter List

**Value**

The modified TileDB Dimension object

---

```
fromDataFrame          Create a TileDB dense or sparse array from a given data.frame Object
```

---

**Description**

The supplied data.frame object is (currently) limited to integer, numeric, or character. In addition, three datetime columns are supported with the R representations of Date, POSIXct and nanotime.

**Usage**

```
fromDataFrame(
  obj,
  uri,
  col_index = NULL,
  sparse = TRUE,
  allows_dups = sparse,
  cell_order = "COL_MAJOR",
  tile_order = "COL_MAJOR",
  filter = "ZSTD",
```

```

    capacity = 10000L,
    tile_domain = NULL,
    tile_extent = NULL,
    debug = FALSE
  )

```

### Arguments

obj	A data.frame object.
uri	A character variable with an Array URI.
col_index	An optional column index, either numeric with a column index, or character with a column name, designating an index column; default is NULL implying an index column is added when the array is created
sparse	A logical switch to select sparse (the default) or dense
allows_dups	A logical switch to select if duplicate values are allowed or not, default is the same value as 'sparse'.
cell_order	A character variable with one of the TileDB cell order values, default is "COL_MAJOR".
tile_order	A character variable with one of the TileDB tile order values, default is "COL_MAJOR".
filter	A character variable vector, defaults to 'ZSTD', for one or more filters to be applied to each attribute;
capacity	A integer value with the schema capacity, default is 10000.
tile_domain	An integer vector or list or NULL. If an integer vector of size two it specifies the integer domain of the row dimension; if a list then a named element is used for the dimension of the same name; or if NULL the row dimension of the obj is used.
tile_extent	An integer value for the tile extent of the row dimensions; if NULL the row dimension of the obj is used. Note that the tile_extent cannot exceed the tile domain.
debug	Logical flag to select additional output

### Details

The created (dense or sparse) array will have as many attributes as there are columns in the data.frame. Each attribute will be a single column. For a sparse array, one or more columns have to be designated as dimensions.

At present, factor variable are converted to character.

### Value

Null, invisibly.

## Examples

```
## Not run:
uri <- tempfile()
## turn factor into character
irisdf <- within(iris, Species <- as.character(Species))
fromDataFrame(irisdf, uri)
arr <- tiledb_array(uri, as.data.frame=TRUE, sparse=FALSE)
newdf <- arr[]
all.equal(iris, newdf)

## End(Not run)
```

---

fromMatrix

*Create a TileDB array from an R matrix, or return an R matrix*

---

## Description

The functions `fromMatrix` and `toMatrix` help in storing (and retrieving) matrices using a TileDB backend. In particular they help for matrices with explicit rownames.

## Usage

```
fromMatrix(obj, uri, filter = "ZSTD", capacity = 10000L)
```

```
toMatrix(uri)
```

## Arguments

<code>obj</code>	A sparse matrix object.
<code>uri</code>	A character variable with an Array URI.
<code>filter</code>	A character variable vector, defaults to 'ZSTD', for one or more filters to be applied to each attribute;
<code>capacity</code>	A integer value with the schema capacity, default is 10000.

## Value

Null, invisibly.

---

fromSparseMatrix	<i>Create (or return) a TileDB sparse array</i>
------------------	---

---

**Description**

The functions `fromSparseMatrix` and `toSparseMatrix` help in storing (and retrieving) sparse matrices using a TileDB backend.

**Usage**

```
fromSparseMatrix(
  obj,
  uri,
  cell_order = "ROW_MAJOR",
  tile_order = "ROW_MAJOR",
  filter = "ZSTD",
  capacity = 10000L
)

toSparseMatrix(uri)
```

**Arguments**

<code>obj</code>	A sparse matrix object.
<code>uri</code>	A character variable with an Array URI.
<code>cell_order</code>	A character variable with one of the TileDB cell order values, default is "COL_MAJOR".
<code>tile_order</code>	A character variable with one of the TileDB tile order values, default is "COL_MAJOR".
<code>filter</code>	A character variable vector, defaults to 'ZSTD', for one or more filters to be applied to each attribute;
<code>capacity</code>	A integer value with the schema capacity, default is 10000.

**Value**

Null, invisibly.

**Examples**

```
## Not run:
if (requireNamespace("Matrix", quietly=TRUE)) {
  library(Matrix)
  set.seed(123) # just to fix it
  mat <- matrix(0, nrow=20, ncol=10)
  mat[sample(seq_len(200), 20)] <- seq(1, 20)
  spmat <- as(mat, "dgTMatrix") # sparse matrix in dgTMatrix format
  uri <- "sparse_matrix"
  fromSparseMatrix(spmat, uri) # now written
```

```

    chk <- toSparseMatrix(uri)    # and re-read
    print(chk)
    all.equal(spmat, chk)
  }

  ## End(Not run)

```

---

has_attribute	<i>Check a schema for a given attribute name</i>
---------------	--

---

### Description

Check a schema for a given attribute name

### Usage

```
has_attribute(schema, attr)
```

### Arguments

schema	A schema for a TileDB Array
attr	A character variable with an attribute name

### Value

A boolean value indicating if the attribute exists in the schema

---

is.anonymous	<i>Returns TRUE if the tiledb_dim is anonymous</i>
--------------	--

---

### Description

A TileDB attribute is anonymous if no name/label is defined

### Usage

```

is.anonymous(object)

## S3 method for class 'tiledb_attr'
is.anonymous(object)

```

### Arguments

object	tiledb_attr object
--------	--------------------

**Value**

TRUE or FALSE

**Examples**

```
a1 <- tiledb_attr("a1", type = "FLOAT64")
is.anonymous(a1)
```

```
a2 <- tiledb_attr("", type = "FLOAT64")
is.anonymous(a2)
```

---

`is.anonymous.tiledb_dim`

*Returns TRUE if the tiledb\_dim is anonymous*

---

**Description**

A TileDB dimension is anonymous if no name/label is defined

**Usage**

```
## S3 method for class 'tiledb_dim'
is.anonymous(object)
```

**Arguments**

object            tiledb\_dim object

**Value**

TRUE or FALSE

**Examples**

```
d1 <- tiledb_dim("d1", c(1L, 10L), 10L)
is.anonymous(d1)
```

```
d2 <- tiledb_dim("", c(1L, 10L), 10L)
is.anonymous(d2)
```

---

```
is.integral,tiledb_domain-method
```

*Returns TRUE is tiledb\_domain is an integral (integer) domain*

---

### Description

Returns TRUE is tiledb\_domain is an integral (integer) domain

### Usage

```
## S4 method for signature 'tiledb_domain'
is.integral(object)
```

### Arguments

object            tiledb\_domain

### Value

TRUE if the domain is an integral domain, else FALSE

### Examples

```
dom <- tiledb_domain(dims = c(tiledb_dim("d1", c(1L, 100L), type = "INT32")))
is.integral(dom)
dom <- tiledb_domain(dims = c(tiledb_dim("d1", c(0.5, 100.0), type = "FLOAT64")))
is.integral(dom)
```

---

```
is.sparse,tiledb_array_schema-method
```

*Returns TRUE if the tiledb\_array\_schema is sparse, else FALSE*

---

### Description

Returns TRUE if the tiledb\_array\_schema is sparse, else FALSE

### Usage

```
## S4 method for signature 'tiledb_array_schema'
is.sparse(object)
```

### Arguments

object            tiledb\_array\_schema



**Value**

TRUE if tiledb\_array\_schema is sparse

---

is.sparse,tiledb\_dense-method

*Returns true is if the array or array\_schema is sparse*

---

**Description**

Returns true is if the array or array\_schema is sparse

**Usage**

```
## S4 method for signature 'tiledb_dense'  
is.sparse(object)
```

**Arguments**

object            tiledb\_dense

**Value**

FALSE

---

is.sparse,tiledb\_sparse-method

*Check if object is sparse*

---

**Description**

Check if object is sparse

**Usage**

```
## S4 method for signature 'tiledb_sparse'  
is.sparse(object)
```

**Arguments**

object            TileDB object

**Value**

A logical value indicating whether the object is sparse

---

limitTileDBCores	<i>Limit TileDB core use to a given number of cores</i>
------------------	---

---

### Description

By default, TileDB will use all available cores on a given machine. In multi-user or multi-process settings, one may want to reduce the number of core. This function will take a given number, or default to smaller of the 'Ncpus' options value or the "OMP\_THREAD\_LIMIT" environment variable (or two as hard fallback).

### Usage

```
limitTileDBCores(ncores, verbose = FALSE)
```

### Arguments

ncores	Value of CPUs used, if missing the smaller of a fallback of two, the value of 'Ncpus' (if set) and the value of environment variable "OMP_THREAD_LIMIT" is used.
verbose	Optional logical toggle; if set, a short message is displayed informing the user about the value set.

### Details

As this function returns a config object, its intended use is as argument to the context creating functions: `ctx <- tiledb_ctx(limitTileDBCores())`. To check that the values are set (or at a later point, still set) the config object should be retrieved via the corresponding method and this ctx object: `cfg <- config(ctx)`.

### Value

The modified configuration object is returned invisibly.

---

max_chunk_size	<i>Returns the filter_list's max_chunk_size</i>
----------------	---

---

### Description

Returns the filter\_list's max\_chunk\_size

### Usage

```
max_chunk_size(object)

## S4 method for signature 'tiledb_filter_list'
max_chunk_size(object)

tiledb_filter_list_get_max_chunk_size(object)
```

**Arguments**

object            tiledb\_filter\_list

**Value**

integer max\_chunk\_size

**Examples**

```
flt <- tiledb_filter("ZSTD")
tiledb_filter_set_option(flt, "COMPRESSION_LEVEL", 5)
filter_list <- tiledb_filter_list(c(flt))
max_chunk_size(filter_list)
```

---

name,tiledb\_attr-method

*Return the tiledb\_attr name*

---

**Description**

Return the tiledb\_attr name

**Usage**

```
## S4 method for signature 'tiledb_attr'
name(object)
```

**Arguments**

object            tiledb\_attr object

**Value**

string name, empty string if the attribute is anonymous

**Examples**

```
a1 <- tiledb_attr("a1", type = "INT32")
name(a1)

a2 <- tiledb_attr(type = "INT32")
name(a2)
```

---

name,tiledb\_dim-method

*Return the tiledb\_dim name*

---

### Description

Return the tiledb\_dim name

### Usage

```
## S4 method for signature 'tiledb_dim'  
name(object)
```

### Arguments

object            tiledb\_dim object

### Value

string name, empty string if the dimension is anonymous

### Examples

```
d1 <- tiledb_dim("d1", c(1L, 10L))  
name(d1)  
  
d2 <- tiledb_dim("", c(1L, 10L))  
name(d2)
```

---

nfilters,tiledb\_filter\_list-method

*Returns the filter\_list's number of filters*

---

### Description

Returns the filter\_list's number of filters

### Usage

```
## S4 method for signature 'tiledb_filter_list'  
nfilters(object)
```

### Arguments

object            tiledb\_filter\_list

**Value**

integer number of filters

**Examples**

```
flt <- tiledb_filter("ZSTD")
tiledb_filter_set_option(flt, "COMPRESSION_LEVEL", 5)
filter_list <- tiledb_filter_list(c(flt))
nfilters(filter_list)
```

---

parse\_query\_condition *Create a 'tiledb\_query\_condition' object from an expression*

---

**Description**

The grammar for query conditions is at present constraint to six operators and three boolean types.

**Usage**

```
parse_query_condition(expr, ta = NULL, debug = FALSE, strict = TRUE)
```

**Arguments**

expr	An expression that is understood by the TileDB grammar for query conditions.
ta	An optional tiledb_array object that the query condition is applied to
debug	A boolean toogle to enable more verbose operations, defaults to 'FALSE'.
strict	A boolean toogle to, if set, errors if a non-existing attribute is selected or filtered on, defaults to 'TRUE'; if 'FALSE' a warning is shown by execution proceeds.

**Value**

A tiledb\_query\_condition object

---

```
print.tiledb_metadata Print a TileDB Array Metadata object
```

---

**Description**

Print a TileDB Array Metadata object

**Usage**

```
## S3 method for class 'tiledb_metadata'
print(x, width = NULL, ...)
```

**Arguments**

x	A TileDB array object
width	Optional display width, defaults to NULL
...	Optional method arguments, currently unused

**Value**

The array object, invisibly

---

```
query_condition Retrieve query_condition value for the array
```

---

**Description**

A tiledb\_array object can have a corresponding query condition object. This methods returns it.

**Usage**

```
query_condition(object)

## S4 method for signature 'tiledb_array'
query_condition(object)
```

**Arguments**

object	A tiledb_array object
--------	-----------------------

**Value**

A tiledb\_query\_condition object

---

```
query_condition<-      Set query_condition object for the array
```

---

**Description**

A tiledb\_array object can have an associated query condition object to set conditions on the read queries. This methods sets the 'query\_condition' object.

**Usage**

```
query_condition(x) <- value

## S4 replacement method for signature 'tiledb_array'
query_condition(x) <- value
```

**Arguments**

```
x          A tiledb_array object
value      A tiledb_query_conditon_object
```

**Value**

The modified tiledb\_array array object

---

```
query_layout          Retrieve query_layout values for the array
```

---

**Description**

A tiledb\_array object can have a corresponding query with a given layout given layout. This methods returns the selection value for 'query\_layout' as a character value.

**Usage**

```
query_layout(object)

## S4 method for signature 'tiledb_array'
query_layout(object)
```

**Arguments**

```
object      A tiledb_array object
```

**Value**

A character value describing the query layout

---

query_layout<-	<i>Set query_layout return values for the array</i>
----------------	---

---

### Description

A tiledb\_array object can have an associated query with a specific layout. This methods sets the selection value for 'query\_layout' from a character value.

### Usage

```
query_layout(x) <- value

## S4 replacement method for signature 'tiledb_array'
query_layout(x) <- value
```

### Arguments

x	A tiledb_array object
value	A character variable for the query layout. Permitted values are “ROW_MAJOR”, “COL_MAJOR”, “GLOBAL_ORDER”, or “UNORDERD”.

### Value

The modified tiledb\_array array object

---

query_statistics	<i>Retrieve query_statistics toggle</i>
------------------	---

---

### Description

A tiledb\_array object can, if requested, return query statistics as a JSON string in an attribute 'query\_statistics' attached to the return object. The default value of the logical switch is 'FALSE'. This method returns the current value.

### Usage

```
query_statistics(object, ...)
```

```
## S4 method for signature 'tiledb_array'
query_statistics(object)
```

### Arguments

object	A tiledb_array object
...	Currently unused



**Value**

A logical value indicating whether query statistics are returned.

---

```
query_statistics<-      Set query_statistics toggle
```

---

**Description**

A tiledb\_array object can, if requested, return query statistics as a JSON string in an attribute 'query\_statistics' attached to the return object. The default value of the logical switch is 'FALSE'. This method sets the value.

**Usage**

```
query_statistics(x) <- value

## S4 replacement method for signature 'tiledb_array'
query_statistics(x) <- value
```

**Arguments**

x	A tiledb_array object
value	A logical value with the selection

**Value**

The modified tiledb\_array array object

---

```
return.array          Retrieve array return toggle
```

---

**Description**

A tiledb\_array object can be returned as an array (or list of arrays), or, if select, as a data.frame or as a matrix. This methods returns the selection value for the array selection.

**Usage**

```
return.array(object, ...)
```

```
## S4 method for signature 'tiledb_array'
return.array(object)
```

**Arguments**

object	A tiledb_array object
...	Currently unused

**Value**

A logical value indicating whether array return is selected

---

return.array<-	<i>Set array return toggle</i>
----------------	--------------------------------

---

**Description**

A tiledb\_array object can be returned as an array (or list of arrays), or, if select, as a data.frame or a matrix. This methods sets the selection value for a array.

**Usage**

```
return.array(x) <- value

## S4 replacement method for signature 'tiledb_array'
return.array(x) <- value
```

**Arguments**

x	A tiledb_array object
value	A logical value with the selection

**Value**

The modified tiledb\_array array object

---

return.data.frame	<i>Retrieve data.frame return toggle</i>
-------------------	--

---

**Description**

A tiledb\_dense object can be returned as an array (or list of arrays), or, if select, as a data.frame. This methods returns the selection value.

**Usage**

```
return.data.frame(object, ...)
```

```
## S4 method for signature 'tiledb_dense'
return.data.frame(object)
```

**Arguments**

object            A tiledb\_dense array object  
...                Currently unused

**Value**

A logical value indicating whether data.frame return is selected

---

*return.data.frame,tiledb\_array-method*  
*Retrieve data.frame return toggle*

---

**Description**

A tiledb\_array object can be returned as an array (or list of arrays), or, if select, as a data.frame. This methods returns the selection value.

**Usage**

```
## S4 method for signature 'tiledb_array'  
return.data.frame(object)
```

**Arguments**

object            A tiledb\_array object

**Value**

A logical value indicating whether data.frame return is selected

---

*return.data.frame,tiledb\_sparse-method*  
*Retrieve data.frame return toggle*

---

**Description**

A tiledb\_sparse object can be returned as an array (or list of arrays), or, if select, as a data.frame. This methods returns the selection value.

**Usage**

```
## S4 method for signature 'tiledb_sparse'  
return.data.frame(object)
```

**Arguments**

object            A tiledb\_sparse array object

**Value**

A logical value indicating whether data.frame return is selected

---

*return.data.frame<-*    *Set data.frame return toggle*

---

**Description**

A tiledb\_dense object can be returned as an array (or list of arrays), or, if select, as a data.frame. This methods sets the selection value.

**Usage**

```
return.data.frame(x) <- value

## S4 replacement method for signature 'tiledb_dense'
return.data.frame(x) <- value
```

**Arguments**

x                    A tiledb\_dense array object  
value                A logical value with the selection

**Value**

The modified tiledb\_dense array object

---

*return.data.frame<-*,*tiledb\_array*-method  
*Set data.frame return toggle*

---

**Description**

A tiledb\_array object can be returned as an array (or list of arrays), or, if select, as a data.frame. This methods sets the selection value.

**Usage**

```
## S4 replacement method for signature 'tiledb_array'
return.data.frame(x) <- value
```

**Arguments**

x                    A tiledb\_array object  
 value                A logical value with the selection

**Value**

The modified tiledb\_array array object

---

return.data.frame<-, tiledb\_sparse-method  
*Set data.frame return toggle*

---

**Description**

A tiledb\_sparse object can be returned as an array (or list of arrays), or, if select, as a data.frame. This methods sets the selection value.

**Usage**

```
## S4 replacement method for signature 'tiledb_sparse'
return.data.frame(x) <- value
```

**Arguments**

x                    A tiledb\_sparse array object  
 value                A logical value with the selection

**Value**

The modified tiledb\_sparse array object

---

return.matrix            *Retrieve matrix return toggle*

---

**Description**

A tiledb\_array object can be returned as an array (or list of arrays), or, if select, as a data.frame or as a matrix. This methods returns the selection value for the matrix selection.

**Usage**

```
return.matrix(object, ...)
```

```
## S4 method for signature 'tiledb_array'
return.matrix(object)
```

**Arguments**

object            A tiledb\_array object  
 ...              Currently unused

**Value**

A logical value indicating whether matrix return is selected

---

return.matrix<-            *Set matrix return toggle*

---

**Description**

A tiledb\_array object can be returned as an array (or list of arrays), or, if select, as a data.frame or a matrix. This methods sets the selection value for a matrix.

**Usage**

```
return.matrix(x) <- value

## S4 replacement method for signature 'tiledb_array'
return.matrix(x) <- value
```

**Arguments**

x                A tiledb\_array object  
 value            A logical value with the selection

**Value**

The modified tiledb\_array array object

---

return\_as                *Retrieve return\_as conversion preference*

---

**Description**

A tiledb\_array object can be returned as a 'list' (default), 'array', 'matrix', 'data.frame', 'data.table' or 'tibble'. This method permits to select a preference for the returned object. The default value of 'asis' means that no conversion is performed.

**Usage**

```
return_as(object, ...)

## S4 method for signature 'tiledb_array'
return_as(object)
```

**Arguments**

object	A tiledb_array object
...	Currently unused

**Value**

A character value indicating the preferred conversion where the value is one of 'asis' (the default), 'array', 'matrix', 'data.frame', 'data.table', or 'tibble'.

---

return_as<-	<i>Retrieve return_as conversion preference</i>
-------------	---

---

**Description**

A tiledb\_array object can be returned as a 'list' (default), 'array', 'matrix', 'data.frame', 'data.table' or 'tibble'. This method This methods permits to set a preference of returning a list, array, matrix, data.frame, a data.table, or a tibble. The default value of "asis" means that no conversion is performed and a list is returned.

**Usage**

```
return_as(x) <- value

## S4 replacement method for signature 'tiledb_array'
return_as(x) <- value
```

**Arguments**

x	A tiledb_array object
value	A character value with the selection

**Value**

The modified tiledb\_array array object

---

r_to_tiledb_type	<i>Look up TileDB type corresponding to the type of an R object</i>
------------------	---

---

**Description**

Look up TileDB type corresponding to the type of an R object

**Usage**

```
r_to_tiledb_type(x)
```

**Arguments**

x                    an R array or list

**Value**

single character, e.g. INT32

---

save_return_as_preference	<i>Store object conversion preference</i>
---------------------------	---

---

**Description**

Save (or load) 'return\_as' conversion preference in an optional config file

**Usage**

```
save_return_as_preference(
  value = c("asis", "array", "matrix", "data.frame", "data.table", "tibble")
)
```

```
load_return_as_preference()
```

```
get_return_as_preference()
```

```
set_return_as_preference(
  value = c("asis", "array", "matrix", "data.frame", "data.table", "tibble")
)
```

**Arguments**

value                A character variable with one of the six permitted values



**Details**

The tiledb\_array object can set a preference for conversion for each retrieved object. This preference can also be encoded in a configuration file as R (version 4.0.0 or later) allows a user- and package specific configuration files. These helper functions sets and retrieve the value, respectively, or retrieve the cached value from the package environment where is it set at package load.

Note that the value must be one of 'asis' (the default), 'array', 'matrix', 'data.frame', 'data.table' or 'tibble'. The latter two require the corresponding package to be installed.

**Value**

For the setter, TRUE is returned invisibly but the function is invoked for the side effect of storing the value. For either getter, the character value.

**Note**

This function requires R version 4.0.0 or later to utilise the per-user config directory accessor function. For older R versions, please set the attribute directly when creating the tiledb\_array object, or via the return\_as() method.

---

schema,character-method

*Return a schema from a URI character value*

---

**Description**

Return a schema from a URI character value

**Usage**

```
## S4 method for signature 'character'
schema(object, ...)
```

**Arguments**

object	A character variable with a URI
...	Extra parameters such as 'enckey', the encryption key

**Value**

The scheme for the object

---

schema,tiledb\_array-method

*Return a schema from a tiledb\_array object*

---

### Description

Return a schema from a tiledb\_array object

### Usage

```
## S4 method for signature 'tiledb_array'
schema(object, ...)
```

### Arguments

object	tiledb array object
...	Extra parameter for function signature, currently unused

### Value

The scheme for the object

---

schema,tiledb\_dense-method

*Returns the tiledb\_dense array tiledb\_schema object*

---

### Description

Returns the tiledb\_dense array tiledb\_schema object

### Usage

```
## S4 method for signature 'tiledb_dense'
schema(object, ...)
```

### Arguments

object	tiledb_dense array object
...	Extra parameter for method signature, currently unused.

### Value

tiledb\_schema

---

 schema, tiledb\_sparse-method

*Return a schema from a sparse array*


---

**Description**

Return a schema from a sparse array

**Usage**

```
## S4 method for signature 'tiledb_sparse'
schema(object, ...)
```

**Arguments**

object	sparse array object
...	Extra parameter for function signature, currently unused

**Value**

The scheme for the object

---

selected_ranges	<i>Retrieve selected_ranges values for the array</i>
-----------------	--

---

**Description**

A tiledb\_array object can have a range selection for each dimension attribute. This methods returns the selection value for 'selected\_ranges' and returns a list (with one element per dimension) of two-column matrices where each row describes one pair of minimum and maximum values. Alternatively, the list can be named with the names providing the match to the corresponding dimension.

**Usage**

```
selected_ranges(object)

## S4 method for signature 'tiledb_array'
selected_ranges(object)
```

**Arguments**

object	A tiledb_array object
--------	-----------------------

**Value**

A list which can contain a matrix for each dimension

---

```
selected_ranges<-      Set selected_ranges return values for the array
```

---

### Description

A tiledb\_array object can have a range selection for each dimension attribute. This methods sets the selection value for 'selected\_ranges' which is a list (with one element per dimension) of two-column matrices where each row describes one pair of minimum and maximum values. Alternatively, the list can be named with the names providing the match to the corresponding dimension.

### Usage

```
selected_ranges(x) <- value

## S4 replacement method for signature 'tiledb_array'
selected_ranges(x) <- value
```

### Arguments

x	A tiledb_array object
value	A list of two-column matrices where each list element 'i' corresponds to the dimension attribute 'i'. The matrices can contain rows where each row contains the minimum and maximum value of a range.

### Value

The modified tiledb\_array array object

---

```
set_max_chunk_size      Set the filter_list's max_chunk_size
```

---

### Description

Set the filter\_list's max\_chunk\_size

### Usage

```
set_max_chunk_size(object, value)

## S4 method for signature 'tiledb_filter_list,numeric'
set_max_chunk_size(object, value)

tiledb_filter_list_set_max_chunk_size(object, value)
```

**Arguments**

object	tiledb_filter_list
value	string

**Examples**

```
flt <- tiledb_filter("ZSTD")
tiledb_filter_set_option(flt, "COMPRESSION_LEVEL", 5)
filter_list <- tiledb_filter_list(c(flt))
set_max_chunk_size(filter_list, 10)
```

---

show,tiledb\_array-method

*Prints a tiledb\_array object*

---

**Description**

Prints a tiledb\_array object

**Usage**

```
## S4 method for signature 'tiledb_array'
show(object)
```

**Arguments**

object	A tiledb array object
--------	-----------------------

---

show,tiledb\_array\_schema-method

*Prints an array schema object*

---

**Description**

Prints an array schema object

**Usage**

```
## S4 method for signature 'tiledb_array_schema'
show(object)
```

**Arguments**

object	An array_schema object
--------	------------------------

show,tiledb\_attr-method

*Prints an attribute object*

---

### **Description**

Prints an attribute object

### **Usage**

```
## S4 method for signature 'tiledb_attr'  
show(object)
```

### **Arguments**

object            An attribute object

---

show,tiledb\_config-method

*Prints the config object to STDOUT*

---

### **Description**

Prints the config object to STDOUT

### **Usage**

```
## S4 method for signature 'tiledb_config'  
show(object)
```

### **Arguments**

object            tiledb\_config object

### **Examples**

```
cfg <- tiledb_config()  
show(cfg)
```

---

show,tiledb\_dense-method  
*Prints a tiledb\_dense array object*

---

### **Description**

Prints a tiledb\_dense array object

### **Usage**

```
## S4 method for signature 'tiledb_dense'  
show(object)
```

### **Arguments**

object            A tiledb\_dense array object

---

show,tiledb\_domain-method  
*Prints an domain object*

---

### **Description**

Prints an domain object

### **Usage**

```
## S4 method for signature 'tiledb_domain'  
show(object)
```

### **Arguments**

object            An domain object

---

show, tiledb\_sparse-method

*Prints a tiledb\_sparse array object*

---

### Description

Prints a tiledb\_sparse array object

### Usage

```
## S4 method for signature 'tiledb_sparse'
show(object)
```

### Arguments

object            A tiledb\_sparse array object

---

tdb\_collect, tiledb\_array-method

*Collect the query results to finalize piped expression*

---

### Description

Collect the query results to finalize piped expression

### Usage

```
## S4 method for signature 'tiledb_array'
tdb_collect(x, ...)
```

### Arguments

x                    A tiledb\_array object as first argument, permitting piping  
 ...                  Ignored

### Value

The object returning from a tiledb\_array query (the type of which can be set via the return preference mechanism, see the help for "[" accessor)



---



*Filter from array for query via logical conditions*


---

**Description**

Filter from array for query via logical conditions

**Usage**

```
## S4 method for signature 'tiledb_array'
tdb_filter(x, ..., strict = TRUE)
```

**Arguments**

x	A tiledb_array object as first argument, permitting piping
...	One or more expressions that are parsed as query_condition objects
strict	A boolean toggle to, if set, errors if a non-existing attribute is selected or filtered on, defaults to 'TRUE'; if 'FALSE' a warning is shown by execution proceeds.

**Value**

The tiledb\_array object, permitting piping

---

*Select attributes from array for query*


---

**Description**

Select attributes from array for query

**Usage**

```
## S4 method for signature 'tiledb_array'
tdb_select(x, ...)
```

**Arguments**

x	A tiledb_array object as first argument, permitting piping
...	One or more attributes of the query

**Value**

The tiledb\_array object, permitting piping

---

```
tile, tiledb_dim-method
```

*Return the tiledb\_dim tile extent*

---

**Description**

Return the tiledb\_dim tile extent

**Usage**

```
## S4 method for signature 'tiledb_dim'
tile(object)
```

**Arguments**

object            tiledb\_dim object

**Value**

a scalar tile extent

**Examples**

```
d1 <- tiledb_dim("d1", domain = c(5L, 10L), tile = 2L)
tile(d1)
```

---

```
tiledb_array            Constructs a tiledb_array object backed by a persisted tiledb array uri
```

---

**Description**

tiledb\_array returns a new object. This class is experimental.

**Usage**

```
tiledb_array(
  uri,
  query_type = c("READ", "WRITE"),
  is.sparse = NA,
  as.data.frame = FALSE,
  attrs = character(),
  extended = TRUE,
  selected_ranges = list(),
  query_layout = character(),
```

```

    datetimes_as_int64 = FALSE,
    encryption_key = character(),
    timestamp = as.POSIXct(double(), origin = "1970-01-01"),
    as.matrix = FALSE,
    as.array = FALSE,
    query_condition = new("tiledb_query_condition"),
    timestamp_start = as.POSIXct(double(), origin = "1970-01-01"),
    timestamp_end = as.POSIXct(double(), origin = "1970-01-01"),
    return_as = get_return_as_preference(),
    query_statistics = FALSE,
    sil = list(),
    ctx = tiledb_get_context()
)

```

### Arguments

uri	uri path to the tiledb dense array
query_type	optionally loads the array in "READ" or "WRITE" only modes.
is.sparse	optional logical switch, defaults to "NA" letting array determine it
as.data.frame	optional logical switch, defaults to "FALSE"
attrs	optional character vector to select attributes, default is empty implying all are selected
extended	optional logical switch selecting wide 'data.frame' format, defaults to "TRUE"
selected_ranges	optional A list with matrices where each matrix i describes the (min,max) pair of ranges for dimension i
query_layout	optional A value for the TileDB query layout, defaults to an empty character variable indicating no special layout is set
datetimes_as_int64	optional A logical value selecting date and datetime value representation as 'raw' integer64 and not as Date, POSIXct or nanotime objects.
encryption_key	optional A character value with an AES-256 encryption key in case the array was written with encryption.
timestamp	optional A POSIXct Datetime value determining where in time the array is to be opened. Deprecated, use 'timestamp_start' instead
as.matrix	optional logical switch, defaults to "FALSE"; currently limited to dense matrices; in the case of multiple attributes in query a list of matrices is returned
as.array	optional logical switch, defaults to "FALSE"; in the case of multiple attributes in query a list of arrays is returned
query_condition	optional tiledb_query_condition object, by default uninitialized without a condition; this functionality requires TileDB 2.3.0 or later
timestamp_start	optional A POSIXct Datetime value determining the inclusive time point at which the array is to be opened. No fragments written earlier will be considered.

timestamp_end	optional A POSIXct Datetime value determining the inclusive time point until which the array is to be opened. No fragments written earlier later be considered.
return_as	optional A character value with the desired tiledb_array conversion, permitted values are 'asis' (default, returning a list of columns), 'array', 'matrix', 'data.frame', 'data.table' or 'tibble'; the latter two require the respective packages installed. The existing as.* arguments take precedent over this.
query_statistics	optional A logical value, defaults to 'FALSE'; if 'TRUE' the query statistics are returned (as a JSON string) via the attribute 'query_statistics' of the return object.
sil	optional A list, by default empty to store schema information when query objects are parsed.
ctx	optional tiledb_ctx

**Value**

tiledb\_array object

---

tiledb\_array-class     *An S4 class for a TileDB Array*

---

**Description**

This class aims to eventually replace `tiledb_dense` and `tiledb_sparse` provided equivalent functionality based on refactored implementation utilising newer TileDB features.

**Slots**

ctx A TileDB context object  
uri A character description  
is.sparse A logical value  
as.data.frame A logical value  
attrs A character vector  
extended A logical value  
selected\_ranges An optional list with matrices where each matrix *i* describes the (min,max) pair of ranges for dimension *i*  
query\_layout An optional character value  
datetimes\_as\_int64 A logical value  
encryption\_key A character value  
timestamp A POSIXct datetime variable (deprecated, use timestamp\_start)  
as.matrix A logical value

as.array A logical value  
 query\_condition A Query Condition object  
 timestamp\_start A POSIXct datetime variable for the inclusive interval start  
 timestamp\_end A POSIXct datetime variable for the inclusive interval start  
 return\_as A character value with the desired tiledb\_array conversion, permitted values are 'asis' (default, returning a list of columns), 'array', 'matrix', 'data.frame', 'data.table' or 'tibble'; the latter two require the respective packages installed  
 query\_statistics A logical value, defaults to 'FALSE'; if 'TRUE' the query statistics are returned (as a JSON string) via the attribute 'query\_statistics' of the return object.  
 sil An optional and internal list object with schema information, used for parsing queries.  
 ptr External pointer to the underlying implementation

tiledb\_array\_close *Close a TileDB Array*

**Description**

Close a TileDB Array

**Usage**

tiledb\_array\_close(arr)

**Arguments**

arr A TileDB Array object as for example returned by tiledb\_array()

**Value**

The TileDB Array object but closed

tiledb\_array\_create *Creates a new TileDB array given an input schema.*

**Description**

Creates a new TileDB array given an input schema.

**Usage**

tiledb\_array\_create(uri, schema, encryption\_key)

**Arguments**

uri	URI specifying path to create the TileDB array object
schema	tiledb_array_schema object
encryption_key	optional A character value with an AES-256 encryption key in case the array should be encryption.

**Examples**

```
## Not run:
pth <- tempdir()
dom <- tiledb_domain(dims = c(tiledb_dim("d1", c(1L, 10L), type = "INT32")))
sch <- tiledb_array_schema(dom, attrs = c(tiledb_attr("a1", type = "INT32")))
tiledb_array_create(pth, sch)
tiledb_object_type(pth)

## End(Not run)
```

---

tiledb\_array\_get\_non\_empty\_domain\_from\_index

*Get the non-empty domain from a TileDB Array by index*

---

**Description**

This functions works for both fixed- and variable-sized dimensions and switches internally.

**Usage**

```
tiledb_array_get_non_empty_domain_from_index(arr, idx)
```

**Arguments**

arr	A TileDB Array
idx	An integer index between one the number of dimensions

**Value**

A two-element object is returned describing the domain of selected dimension; it will either be a numeric vector in case of a fixed-size fixed-sized dimensions, or a character vector for a variable-sized one.

---

`tiledb_array_get_non_empty_domain_from_name`*Get the non-empty domain from a TileDB Array by name*

---

**Description**

This functions works for both fixed- and variable-sized dimensions and switches internally.

**Usage**

```
tiledb_array_get_non_empty_domain_from_name(arr, name)
```

**Arguments**

<code>arr</code>	A TileDB Array
<code>name</code>	An character variable with a dimension name

**Value**

A two-element object is returned describing the domain of selected dimension; it will either be a numeric vector in case of a fixed-size fixed-sized dimensions, or a characer vector for a variable-sized one.

---

`tiledb_array_is_heterogeneous`*Check for Heterogeneous Domain*

---

**Description**

Check for Heterogeneous Domain

**Usage**

```
tiledb_array_is_heterogeneous(arr)
```

**Arguments**

<code>arr</code>	A TileDB Array object
------------------	-----------------------

**Value**

A boolean indicating if the array has heterogenous domains

---

tiledb\_array\_is\_homogeneous  
*Check for Homogeneous Domain*

---

**Description**

Check for Homogeneous Domain

**Usage**

```
tiledb_array_is_homogeneous(arr)
```

**Arguments**

arr                    A TileDB Array object

**Value**

A boolean indicating if the array has homogeneous domains

---

tiledb\_array\_open      *Open a TileDB Array*

---

**Description**

Open a TileDB Array

**Usage**

```
tiledb_array_open(arr, type = c("READ", "WRITE"))
```

**Arguments**

arr                    A TileDB Array object as for example returned by tiledb\_array()  
type                   A character value that must be either 'READ' or 'WRITE'

**Value**

The TileDB Array object but opened for reading or writing



---

tiledb\_array\_open\_at *Open a TileDB Array at Timestamp*

---

### Description

Open a TileDB Array at Timestamp

### Usage

```
tiledb_array_open_at(arr, type = c("READ", "WRITE"), timestamp)
```

### Arguments

arr	A TileDB Array object as for example returned by tiledb_array()
type	A character value that must be either 'READ' or 'WRITE'
timestamp	A Datetime object that will be converted to millisecond granularity

### Value

The TileDB Array object but opened for reading or writing

---

tiledb\_array\_schema *Constructs a tiledb\_array\_schema object*

---

### Description

Constructs a tiledb\_array\_schema object

### Usage

```
tiledb_array_schema(
  domain,
  attrs,
  cell_order = "COL_MAJOR",
  tile_order = "COL_MAJOR",
  sparse = FALSE,
  coords_filter_list = NULL,
  offsets_filter_list = NULL,
  capacity = 10000L,
  allows_dups = FALSE,
  ctx = tiledb_get_context()
)
```

**Arguments**

domain	tiledb_domain object
attrs	a list of one or more tiledb_attr objects
cell_order	(default "COL_MAJOR")
tile_order	(default "COL_MAJOR")
sparse	(default FALSE)
coords_filter_list	(optional)
offsets_filter_list	(optional)
capacity	(optional)
allows_dups	(optional, requires 'spars' to be TRUE)
ctx	tiledb_ctx object (optional)

**Examples**

```

schema <- tiledb_array_schema(
  dom = tiledb_domain(
    dims = c(tiledb_dim("rows", c(1L, 4L), 4L, "INT32"),
             tiledb_dim("cols", c(1L, 4L), 4L, "INT32")),
    attrs = c(tiledb_attr("a", type = "INT32")),
    cell_order = "COL_MAJOR",
    tile_order = "COL_MAJOR",
    sparse = FALSE)
  schema

```

---

tiledb\_array\_schema-class

*An S4 class for the TileDB array schema*

---

**Description**

An S4 class for the TileDB array schema

**Slots**

ptr An external pointer to the underlying implementation

`tiledb_array_schema_evolution`

*Creates a 'tiledb\_array\_schema\_evolution' object*

**Description**

Creates a 'tiledb\_array\_schema\_evolution' object

**Usage**

`tiledb_array_schema_evolution(ctx = tiledb_get_context())`

**Arguments**

`ctx` (optional) A TileDB Ctx object; if not supplied the default context object is retrieved

**Value**

A 'array\_schema\_evolution' object

`tiledb_array_schema_evolution-class`

*An S4 class for a TileDB ArraySchemaEvolution object*

**Description**

An S4 class for a TileDB ArraySchemaEvolution object

**Slots**

`ptr` An external pointer to the underlying implementation

---

tiledb\_array\_schema\_evolution\_add\_attribute

*Add an Attribute to a TileDB Array Schema Evolution object*

---

**Description**

Add an Attribute to a TileDB Array Schema Evolution object

**Usage**

tiledb\_array\_schema\_evolution\_add\_attribute(object, attr)

**Arguments**

object	A TileDB 'array_schema_evolution' object
attr	A TileDB attribute

**Value**

The modified 'array\_schema\_evolution' object, invisibly

---

tiledb\_array\_schema\_evolution\_array\_evolve

*Evolve an Array Schema*

---

**Description**

Evolve an Array Schema

**Usage**

tiledb\_array\_schema\_evolution\_array\_evolve(object, uri)

**Arguments**

object	A TileDB 'array_schema_evolution' object
uri	A character variable with an URI

**Value**

The modified 'array\_schema\_evolution' object, invisibly

tiledb\_array\_schema\_evolution\_drop\_attribute

*Drop an attribute given by name from a TileDB Array Schema Evolution object*

**Description**

Drop an attribute given by name from a TileDB Array Schema Evolution object

**Usage**

tiledb\_array\_schema\_evolution\_drop\_attribute(object, attrname)

**Arguments**

object	A TileDB 'array_schema_evolution' object
attrname	A character variable with an attribute name

**Value**

The modified 'array\_schema\_evolution' object, invisibly

tiledb\_array\_schema\_set\_coords\_filter\_list

*Set a Filter List for Coordinate of a TileDB Schema*

**Description**

Set a Filter List for Coordinate of a TileDB Schema

**Usage**

tiledb\_array\_schema\_set\_coords\_filter\_list(sch, fl)

**Arguments**

sch	A TileDB Array Schema object
fl	A TileDB Filter List object

**Value**

The modified Array Schema object

---

tiledb\_array\_schema\_set\_offsets\_filter\_list

*Set a Filter List for Variable-Sized Offsets of a TileDB Schema*

---

### **Description**

Set a Filter List for Variable-Sized Offsets of a TileDB Schema

### **Usage**

tiledb\_array\_schema\_set\_offsets\_filter\_list(sch, fl)

### **Arguments**

sch	A TileDB Array Schema object
fl	A TileDB Filter List object

### **Value**

The modified Array Schema object

---

tiledb\_arrow\_array\_ptr

*Allocate (or Release) Arrow Array and Schema Pointers*

---

### **Description**

These functions allocate (and free) appropriate pointer objects for, respectively, Arrow array and schema objects.

### **Usage**

tiledb\_arrow\_array\_ptr()

tiledb\_arrow\_schema\_ptr()

tiledb\_arrow\_array\_del(ptr)

tiledb\_arrow\_schema\_del(ptr)

### **Arguments**

ptr	A pointer object previously allocated with these functions
-----	--

### **Value**

The allocating functions return the requested pointer

---

tiledb_attr	<i>Constructs a tiledb_attr object</i>
-------------	--

---

### Description

Constructs a tiledb\_attr object

### Usage

```
tiledb_attr(
  name,
  type,
  filter_list = tiledb_filter_list(),
  ncells = 1,
  nullable = FALSE,
  ctx = tiledb_get_context()
)
```

### Arguments

name	The dimension name / label string; if missing default "" is used.
type	The tiledb_attr TileDB datatype string; if missing the user is alerted that this is a <i>required</i> parameter.
filter_list	(default filter_list("NONE")) The tiledb_attr filter_list
ncells	(default 1) The number of cells, use NA to signal variable length
nullable	(default FALSE) A logical switch whether the attribute can have missing values
ctx	tiledb_ctx object (optional)

### Value

tiledb\_dim object

### Examples

```
flt <- tiledb_filter_list(list(tiledb_filter("GZIP")))
attr <- tiledb_attr(name = "a1", type = "INT32",
  filter_list = flt)
attr
```

---

tiledb\_attr-class      *An S4 class for a TileDB attribute*

---

**Description**

An S4 class for a TileDB attribute

**Slots**

ptr External pointer to the underlying implementation

---

tiledb\_attribute\_get\_cell\_size  
*Get the TileDB Attribute cell size*

---

**Description**

Get the TileDB Attribute cell size

**Usage**

tiledb\_attribute\_get\_cell\_size(attr)

**Arguments**

attr                  A TileDB Attribute object

**Value**

A numeric value with the cell size

---

tiledb\_attribute\_get\_fill\_value  
*Get the fill value for a TileDB Attribute*

---

**Description**

Get the fill value for a TileDB Attribute

**Usage**

tiledb\_attribute\_get\_fill\_value(attr)



**Arguments**

attr                    A TileDB Attribute object

**Value**

The fill value for the attribute

---

*tiledb\_attribute\_get\_nullable*  
*Get the TileDB Attribute Nullable flag value*

---

**Description**

Get the TileDB Attribute Nullable flag value

**Usage**

`tiledb_attribute_get_nullable(attr)`

**Arguments**

attr                    A TileDB Attribute object

**Value**

A boolean value with the 'Nullable' status

---

*tiledb\_attribute\_is\_variable\_sized*  
*Check whether TileDB Attribute is variable-sized*

---

**Description**

Check whether TileDB Attribute is variable-sized

**Usage**

`tiledb_attribute_is_variable_sized(attr)`

**Arguments**

attr                    A TileDB Attribute object

**Value**

A boolean value indicating variable-size or not

tiledb\_attribute\_set\_fill\_value

*Set the fill value for a TileDB Attribute*

---

**Description**

Set the fill value for a TileDB Attribute

**Usage**

```
tiledb_attribute_set_fill_value(attr, value)
```

**Arguments**

attr	A TileDB Attribute object
value	A fill value

**Value**

NULL is returned invisibly

---

tiledb\_attribute\_set\_nullable

*Set the TileDB Attribute Nullable flags*

---

**Description**

Set the TileDB Attribute Nullable flags

**Usage**

```
tiledb_attribute_set_nullable(attr, flag)
```

**Arguments**

attr	A TileDB Attribute object
flag	A boolean flag to turn 'Nullable' on or off

**Value**

Nothing is returned

---

tiledb_config	<i>Creates a tiledb_config object</i>
---------------	---------------------------------------

---

**Description**

Note that for actually setting persistent values, the (altered) config object needs to be used to create (or update) the tiledb\_ctx object. Similarly, to check whether values are set, one should use the config method of the tiledb\_ctx object. Examples for this are `ctx <- tiledb_ctx(limitTileDBCores())` to use updated configuration values to create a context object, and `cfg <- config(ctx)` to retrieve it.

**Usage**

```
tiledb_config(config = NA_character_)
```

**Arguments**

config (optional) character vector of config parameter names, values

**Value**

tiledb\_config object

**Examples**

```
cfg <- tiledb_config()
cfg["sm.tile_cache_size"]

# set tile cache size to custom value
cfg <- tiledb_config(c("sm.tile_cache_size" = "100"))
cfg["sm.tile_cache_size"]
```

---

tiledb_config-class	<i>An S4 class for a TileDB configuration</i>
---------------------	---

---

**Description**

An S4 class for a TileDB configuration

**Slots**

ptr An external pointer to the underlying implementation

---

tiledb\_config\_load      *Load a saved tiledb\_config file from disk*

---

**Description**

Load a saved tiledb\_config file from disk

**Usage**

```
tiledb_config_load(path)
```

**Arguments**

path                    path to the config file

**Examples**

```
tmp <- tempfile()
cfg <- tiledb_config(c("sm.tile_cache_size" = "10"))
pth <- tiledb_config_save(cfg, tmp)
cfg <- tiledb_config_load(pth)
cfg["sm.tile_cache_size"]
```

---

tiledb\_config\_save      *Save a tiledb\_config object to a local text file*

---

**Description**

Save a tiledb\_config object to a local text file

**Usage**

```
tiledb_config_save(config, path)
```

**Arguments**

config                  The tiledb\_config object  
path                    The path to config file to be created

**Value**

path to created config file

**Examples**

```
tmp <- tempfile()
cfg <- tiledb_config(c("sm.tile_cache_size" = "10"))
pth <- tiledb_config_save(cfg, tmp)

cat(readLines(pth), sep = "\n")
```

---

tiledb\_config\_unset     *Unset a TileDB Config parameter to its default value*

---

**Description**

Unset a TileDB Config parameter to its default value

**Usage**

```
tiledb_config_unset(config, param)
```

**Arguments**

config	A TileDB Config object
param	A character variable with the parameter name

**Value**

The modified TileDB Config object

---

tiledb\_ctx             *Creates a tiledb\_ctx object*

---

**Description**

Creates a tiledb\_ctx object

**Usage**

```
tiledb_ctx(config = NULL, cached = TRUE)
```

**Arguments**

config	(optional) character vector of config parameter names, values
cached	(optional) logical switch to force new creation

**Value**

tiledb\_ctx object

**Examples**

```
# default configuration
ctx <- tiledb_ctx()

# optionally set config parameters
ctx <- tiledb_ctx(c("sm.tile_cache_size" = "100"))
```

---

tiledb_ctx-class	<i>An S4 class for a TileDB context</i>
------------------	---

---

**Description**

An S4 class for a TileDB context

**Slots**

ptr An external pointer to the underlying implementation

---

tiledb_ctx_set_default_tags	<i>Sets default context tags</i>
-----------------------------	----------------------------------

---

**Description**

Sets default context tags

**Usage**

```
tiledb_ctx_set_default_tags(object)
```

**Arguments**

object tiledb\_ctx object

---

tiledb\_ctx\_set\_tag      *Sets a string:string "tag" on the Ctx*

---

**Description**

Sets a string:string "tag" on the Ctx

**Usage**

```
tiledb_ctx_set_tag(object, key, value)
```

**Arguments**

object	tiledb_ctx object
key	string
value	string

**Examples**

```
ctx <- tiledb_ctx(c("sm.tile_cache_size" = "10"))  
cfg <- tiledb_ctx_set_tag(ctx, "tag", "value")
```

---

tiledb\_ctx\_stats      *Return context statistics as a JSON string*

---

**Description**

Return context statistics as a JSON string

**Usage**

```
tiledb_ctx_stats(object = tiledb_get_context())
```

**Arguments**

object	A tiledb_ctx object
--------	---------------------

**Value**

A JSON-formatted string with context statistics

---

`tiledb_delete_metadata`*Delete a TileDB Array Metadata object given by key*

---

**Description**

Delete a TileDB Array Metadata object given by key

**Usage**

```
tiledb_delete_metadata(arr, key)
```

**Arguments**

<code>arr</code>	A TileDB Array object
<code>key</code>	A character value describing a metadata key

**Value**

A boolean indicating success

---

`tiledb_dense`*Constructs a tiledb\_dense object backed by a persisted tiledb array uri*

---

**Description**

Constructs a tiledb\_dense object backed by a persisted tiledb array uri

**Usage**

```
tiledb_dense(  
  uri,  
  query_type = c("READ", "WRITE"),  
  as.data.frame = FALSE,  
  attrs = character(),  
  extended = FALSE,  
  ctx = tiledb_get_context()  
)
```



**Arguments**

- uri uri path to the tiledb dense array
- query\_type optionally loads the array in "READ" or "WRITE" only modes.
- as.data.frame optional logical switch, defaults to "FALSE"
- attrs optional character vector to select attributes, default is empty implying all are selected
- extended optional logical switch selecting wide 'data.frame' format, defaults to "FALSE"
- ctx tiledb\_ctx (optional)

**Value**

tiledb\_dense array object

**Planned Deprecation**

We plan to deprecate the tiledb\_dense array type in a future release. While exact timelines have not been finalised, it is advised to the tiledb\_array for both *dense* and *sparse* arrays going forward.

---

tiledb\_dense-class      *An S4 class for a TileDB dense array*

---

**Description**

An S4 class for a TileDB dense array

**Slots**

- ctx A TileDB context object
- uri A character desription
- as.data.frame A logical value
- attrs A character vector
- extended A logical value
- ptr External pointer to the underlying implementation

**Planned Deprecation**

We plan to deprecate the tiledb\_dense array type in a future release. While exact timelines have not been finalised, it is advised to the tiledb\_array for both *dense* and *sparse* arrays going forward.

---

tiledb_dim	<i>Constructs a tiledb_dim object</i>
------------	---------------------------------------

---

**Description**

Constructs a tiledb\_dim object

**Usage**

```
tiledb_dim(name, domain, tile, type, ctx = tiledb_get_context())
```

**Arguments**

name	The dimension name / label string. This argument is required.
domain	The dimension (inclusive) domain. The dimension's domain is defined by a (lower bound, upper bound) vector, and is usually either of type integer or double (i.e. numeric). For type, ASCII NULL is expected.
tile	The tile dimension tile extent. For type, ASCII NULL is expected.
type	The dimension TileDB datatype string
ctx	tiledb_ctx object (optional)

**Value**

tiledb\_dim object

**Examples**

```
tiledb_dim(name = "d1", domain = c(1L, 10L), tile = 5L, type = "INT32")
```

---

tiledb_dim-class	<i>An S4 class for a TileDB dimension object</i>
------------------	--

---

**Description**

An S4 class for a TileDB dimension object

**Slots**

ptr An external pointer to the underlying implementation

---

tiledb_domain	<i>Constructs a tiledb_domain object</i>
---------------	--

---

**Description**

All tiledb\_dim must be of the same TileDB type.

**Usage**

```
tiledb_domain(dims, ctx = tiledb_get_context())
```

**Arguments**

dims	list() of tiledb_dim objects
ctx	tiledb_ctx (optional)

**Value**

tiledb\_domain

**Examples**

```
dom <- tiledb_domain(dims = c(tiledb_dim("d1", c(1L, 100L), type = "INT32"),
                             tiledb_dim("d2", c(1L, 50L), type = "INT32")))
```

---

tiledb_domain-class	<i>An S4 class for a TileDB domain</i>
---------------------	--

---

**Description**

An S4 class for a TileDB domain

**Slots**

ptr External pointer to the underlying implementation

---

`tiledb_domain_get_dimension_from_index`*Returns a Dimension indicated by index for the given TileDB Domain*

---

**Description**

Returns a Dimension indicated by index for the given TileDB Domain

**Usage**

```
tiledb_domain_get_dimension_from_index(domain, idx)
```

**Arguments**

<code>domain</code>	TileDB Domain object
<code>idx</code>	Integer index of the selected dimension

**Value**

TileDB Dimension object

---

`tiledb_domain_get_dimension_from_name`*Returns a Dimension indicated by name for the given TileDB Domain*

---

**Description**

Returns a Dimension indicated by name for the given TileDB Domain

**Usage**

```
tiledb_domain_get_dimension_from_name(domain, name)
```

**Arguments**

<code>domain</code>	TileDB Domain object
<code>name</code>	A character variable with a dimension name

**Value**

TileDB Dimension object

---

tiledb\_domain\_has\_dimension  
*Check a domain for a given dimension name*

---

**Description**

Check a domain for a given dimension name

**Usage**

```
tiledb_domain_has_dimension(domain, name)
```

**Arguments**

domain	A domain of a TileDB Array schema
name	A character variable with a dimension name

**Value**

A boolean value indicating if the dimension exists in the domain

---

tiledb\_filter            *Constructs a tiledb\_filter object*

---

**Description**

Available filters:

- "NONE"
- "GZIP"
- "ZSTD"
- "LZ4"
- "RLE"
- "BZIP2"
- "DOUBLE\_DELTA"
- "BIT\_WIDTH\_REDUCTION"
- "BITSHUFFLE"
- "BYTESHUFFLE"
- "POSITIVE\_DELTA"

**Usage**

```
tiledb_filter(name = "NONE", ctx = tiledb_get_context())
```

**Arguments**

name	(default "NONE") TileDB filter name string
ctx	tiledb_ctx object (optional)

**Details**

Valid compression options vary depending on the filter used, consult the TileDB docs for more information.

**Value**

tiledb\_filter object

**Examples**

```
tiledb_filter("ZSTD")
```

---

tiledb\_filter-class    *An S4 class for a TileDB filter*

---

**Description**

An S4 class for a TileDB filter

**Slots**

ptr External pointer to the underlying implementation

---

tiledb\_filter\_get\_option  
*Returns the filter's option*

---

**Description**

Returns the filter's option

**Usage**

```
tiledb_filter_get_option(object, option)
```

**Arguments**

object	tiledb_filter
option	string

**Value**

Integer value

**Examples**

```
c <- tiledb_filter("ZSTD")
tiledb_filter_set_option(c,"COMPRESSION_LEVEL", 5)
tiledb_filter_get_option(c, "COMPRESSION_LEVEL")
```

---

tiledb\_filter\_list      *Constructs a tiledb\_filter\_list object*

---

**Description**

Constructs a tiledb\_filter\_list object

**Usage**

```
tiledb_filter_list(filters = c(), ctx = tiledb_get_context())
```

**Arguments**

filters            an optional list of one or more tiledb\_filter\_list objects  
ctx                tiledb\_ctx object (optional)

**Value**

tiledb\_filter\_list object

**Examples**

```
flt <- tiledb_filter("ZSTD")
tiledb_filter_set_option(flt, "COMPRESSION_LEVEL", 5)
filter_list <- tiledb_filter_list(c(flt))
filter_list
```

---

tiledb\_filter\_list-class

*An S4 class for a TileDB filter list*

---

### Description

An S4 class for a TileDB filter list

### Slots

ptr An external pointer to the underlying implementation

---

tiledb\_filter\_set\_option

*Set the filter's option*

---

### Description

Set the filter's option

### Usage

```
tiledb_filter_set_option(object, option, value)
```

### Arguments

object	tiledb_filter
option	string
value	int

### Examples

```
c <- tiledb_filter("ZSTD")
tiledb_filter_set_option(c, "COMPRESSION_LEVEL", 5)
tiledb_filter_get_option(c, "COMPRESSION_LEVEL")
```



---

tiledb\_filter\_type     *Returns the type of the filter used*

---

**Description**

Returns the type of the filter used

**Usage**

```
tiledb_filter_type(object)
```

**Arguments**

object            tiledb\_filter

**Value**

TileDB filter type string

**Examples**

```
c <- tiledb_filter("ZSTD")
tiledb_filter_type(c)
```

---

tiledb\_fragment\_info     *Constructs a tiledb\_fragment\_info object*

---

**Description**

Constructs a tiledb\_fragment\_info object

**Usage**

```
tiledb_fragment_info(uri, ctx = tiledb_get_context())
```

**Arguments**

uri                an character variable with the URI of the array for which fragment info is request  
ctx                tiledb\_ctx object (optional)

**Value**

tiledb\_fragment\_info object

---

tiledb\_fragment\_info-class

*An S4 class for a TileDB fragment info object*

---

### **Description**

An S4 class for a TileDB fragment info object

### **Slots**

ptr An external pointer to the underlying implementation

---

tiledb\_fragment\_info\_dense

*Return if a fragment info index is dense*

---

### **Description**

Return if a fragment info index is dense

### **Usage**

tiledb\_fragment\_info\_dense(object, fid)

### **Arguments**

object            A TileDB fragment info object

fid                A fragment object index

### **Value**

A logical value indicating if the fragment is dense

---

`tiledb_fragment_info_dump`*Dump the fragment info to console*

---

**Description**

Dump the fragment info to console

**Usage**

```
tiledb_fragment_info_dump(object)
```

**Arguments**

object            A TileDB fragment info object

**Value**

Nothing is returned, as a side effect the fragment info is displayed

---

`tiledb_fragment_info_get_cell_num`*Return a fragment info number of cells for a given fragment index*

---

**Description**

Return a fragment info number of cells for a given fragment index

**Usage**

```
tiledb_fragment_info_get_cell_num(object, fid)
```

**Arguments**

object            A TileDB fragment info object

fid                A fragment object index

**Value**

A numeric value with the number of cells

---

tiledb\_fragment\_info\_get\_non\_empty\_domain\_index

*Return a fragment info non-empty domain from index*

---

### Description

TODO: Rework with type information

### Usage

tiledb\_fragment\_info\_get\_non\_empty\_domain\_index(object, fid, did, typestr)

### Arguments

object	A TileDB fragment info object
fid	A fragment object index
did	A domain index
typestr	An optional character variable describing the data type which will be accessed from the schema if missinh

### Value

A TileDB Domain object

---

tiledb\_fragment\_info\_get\_non\_empty\_domain\_name

*Return a fragment info non-empty domain from name*

---

### Description

TODO: Rework with type information

### Usage

tiledb\_fragment\_info\_get\_non\_empty\_domain\_name(object, fid, dim\_name, typestr)

### Arguments

object	A TileDB fragment info object
fid	A fragment object index
dim_name	A character variable with the dimension name
typestr	An optional character variable describing the data type which will be accessed from the schema if missinh

**Value**

A TileDB Domain object

tiledb\_fragment\_info\_get\_non\_empty\_domain\_var\_index

*Return a fragment info non-empty domain variable from index*

**Description**

Return a fragment info non-empty domain variable from index

**Usage**

tiledb\_fragment\_info\_get\_non\_empty\_domain\_var\_index(object, fid, did)

**Arguments**

object	A TileDB fragment info object
fid	A fragment object index
did	A domain index

**Value**

A character vector with two elements

tiledb\_fragment\_info\_get\_non\_empty\_domain\_var\_name

*Return a fragment info non-empty domain variable from name*

**Description**

Return a fragment info non-empty domain variable from name

**Usage**

tiledb\_fragment\_info\_get\_non\_empty\_domain\_var\_name(object, fid, dim\_name)

**Arguments**

object	A TileDB fragment info object
fid	A fragment object index
dim_name	A character variable with the dimension name

**Value**

A character vector with two elements

---

`tiledb_fragment_info_get_num`*Return a fragment info number of fragments*

---

**Description**

Return a fragment info number of fragments

**Usage**

```
tiledb_fragment_info_get_num(object)
```

**Arguments**

object            A TileDB fragment info object

**Value**

A numeric variable with the number of fragments

---

`tiledb_fragment_info_get_size`*Return a fragment info fragment size for a given fragment index*

---

**Description**

Return a fragment info fragment size for a given fragment index

**Usage**

```
tiledb_fragment_info_get_size(object, fid)
```

**Arguments**

object            A TileDB fragment info object

fid                A fragment object index

**Value**

A numeric variable with the number of fragments

tiledb\_fragment\_info\_get\_timestamp\_range

*Return a fragment info timestamp range for a given fragment index*

**Description**

Return a fragment info timestamp range for a given fragment index

**Usage**

tiledb\_fragment\_info\_get\_timestamp\_range(object, fid)

**Arguments**

object	A TileDB fragment info object
fid	A fragment object index

**Value**

A Datetime vector with two elements for the range

tiledb\_fragment\_info\_get\_to\_vacuum\_num

*Return the number of fragment info elements to be vacuumed*

**Description**

Return the number of fragment info elements to be vacuumed

**Usage**

tiledb\_fragment\_info\_get\_to\_vacuum\_num(object)

**Arguments**

object	A TileDB fragment info object
--------	-------------------------------

**Value**

A numeric value with the number of to be vacuumed fragments

---

`tiledb_fragment_info_get_to_vacuum_uri`*Return fragment info URI of the to be vacuumed index*

---

**Description**

Return fragment info URI of the to be vacuumed index

**Usage**

```
tiledb_fragment_info_get_to_vacuum_uri(object, fid)
```

**Arguments**

object	A TileDB fragment info object
fid	A fragment object index

**Value**

A character variable with the URI of the be vacuumed index

---

`tiledb_fragment_info_get_unconsolidated_metadata_num`*Return fragment info number of unconsolidated metadata*

---

**Description**

Return fragment info number of unconsolidated metadata

**Usage**

```
tiledb_fragment_info_get_unconsolidated_metadata_num(object)
```

**Arguments**

object	A TileDB fragment info object
--------	-------------------------------

**Value**

A numeric value with the number of unconsolidated metadata



---

`tiledb_fragment_info_get_version`*Return a fragment info version for a given fragment index*

---

**Description**

Return a fragment info version for a given fragment index

**Usage**

```
tiledb_fragment_info_get_version(object, fid)
```

**Arguments**

<code>object</code>	A TileDB fragment info object
<code>fid</code>	A fragment object index

**Value**

A integer value value with the version

---

`tiledb_fragment_info_has_consolidated_metadata`*Return if a fragment info index has consolidated metadata*

---

**Description**

Return if a fragment info index has consolidated metadata

**Usage**

```
tiledb_fragment_info_has_consolidated_metadata(object, fid)
```

**Arguments**

<code>object</code>	A TileDB fragment info object
<code>fid</code>	A fragment object index

**Value**

A logical value indicating consolidated metadata

---

tiledb\_fragment\_info\_sparse

*Return if a fragment info index is sparse*

---

**Description**

Return if a fragment info index is sparse

**Usage**

tiledb\_fragment\_info\_sparse(object, fid)

**Arguments**

object	A TileDB fragment info object
fid	A fragment object index

**Value**

A logical value indicating if the fragment is sparse

---

tiledb\_fragment\_info\_uri

*Return a fragment info URI given its index*

---

**Description**

Return a fragment info URI given its index

**Usage**

tiledb\_fragment\_info\_uri(object, fid)

**Arguments**

object	A TileDB fragment info object
fid	A fragment object index

**Value**

A character variable with URI

---

`tiledb_get_all_metadata`*Return a TileDB Array Metadata object given by key*

---

**Description**

Return a TileDB Array Metadata object given by key

**Usage**

```
tiledb_get_all_metadata(arr)
```

**Arguments**

`arr`                    A TileDB Array object, or a character URI describing one

**Value**

A object stored in the Metadata under the given key

---

`tiledb_get_context`*Retrieve a TileDB context object from the package cache*

---

**Description**

Retrieve a TileDB context object from the package cache

**Usage**

```
tiledb_get_context()
```

**Value**

A TileDB context object

---

tiledb\_get\_metadata     *Return a TileDB Array Metadata object given by key*

---

**Description**

Return a TileDB Array Metadata object given by key

**Usage**

```
tiledb_get_metadata(arr, key)
```

**Arguments**

arr	A TileDB Array object, or a character URI describing one
key	A character value describing a metadata key

**Value**

A object stored in the Metadata under the given key, or 'NULL' if none found.

---

tiledb\_get\_query\_status  
*Retrieve the cached status of the last finalized query*

---

**Description**

This function accesses the status of the last query without requiring the query object.

**Usage**

```
tiledb_get_query_status()
```

**Value**

The status of the last query

---

tiledb_get_vfs	<i>Retrieve a TileDB VFS object from the package environment and cache</i>
----------------	--

---

**Description**

Retrieve a TileDB VFS object from the package environment and cache

**Usage**

```
tiledb_get_vfs()
```

**Value**

A TileDB VFS object

---

tiledb_group_create	<i>Creates a TileDB group object at given uri path</i>
---------------------	--

---

**Description**

Creates a TileDB group object at given uri path

**Usage**

```
tiledb_group_create(uri, ctx = tiledb_get_context())
```

**Arguments**

uri	path which to create group
ctx	tiledb_ctx object (optional)

**Value**

uri of created group

**Examples**

```
## Not run:  
pth <- tempdir()  
tiledb_group_create(pth)  
tiledb_object_type(pth)  
  
## End(Not run)
```

---

tiledb\_has\_metadata    *Test if TileDB Array has Metadata*

---

**Description**

Test if TileDB Array has Metadata

**Usage**

```
tiledb_has_metadata(arr, key)
```

**Arguments**

arr	A TileDB Array object
key	A character value describing a metadata key

**Value**

A logical value indicating if the given key exists in the metadata of the given array

---

tiledb\_is\_supported\_fs  
*Query if a TileDB backend is supported*

---

**Description**

The scheme corresponds to the URI scheme for TileDB resources.

**Usage**

```
tiledb_is_supported_fs(scheme, object = tiledb_get_context())
```

**Arguments**

scheme	URI string scheme ("file", "hdfs", "s3")
object	tiledb_ctx object

**Details**

Ex:

- {file}:///path/to/file
- {hdfs}:///path/to/file
- {s3}://hostname:port/path/to/file

**Value**

TRUE if tiledb backend is supported, FALSE otherwise

**Examples**

```
tiledb_is_supported_fs("file")
tiledb_is_supported_fs("s3")
```

---

tiledb\_ndim,tiledb\_array\_schema-method

*Return the number of dimensions associated with the tiledb\_array\_schema*

---

**Description**

Return the number of dimensions associated with the tiledb\_array\_schema

**Usage**

```
## S4 method for signature 'tiledb_array_schema'
tiledb_ndim(object)
```

**Arguments**

object            tiledb\_array\_schema

**Value**

integer number of dimensions

**Examples**

```
dom <- tiledb_domain(dims = c(tiledb_dim("d1", c(1L, 10L), type = "INT32")))
sch <- tiledb_array_schema(dom, attrs = c(tiledb_attr("a1", type = "INT32"),
                                          tiledb_attr("a2", type = "FLOAT64")))
tiledb_ndim(sch)
```

---

tiledb\_ndim,tiledb\_dim-method

*Returns the number of dimensions for a tiledb domain object*

---

### Description

Returns the number of dimensions for a tiledb domain object

### Usage

```
## S4 method for signature 'tiledb_dim'  
tiledb_ndim(object)
```

### Arguments

object            tiledb\_ndim object

### Value

1L

### Examples

```
d1 <- tiledb_dim("d1", c(1L, 10L), 10L)  
tiledb_ndim(d1)
```

---

tiledb\_ndim,tiledb\_domain-method

*Returns the number of dimensions of the tiledb\_domain*

---

### Description

Returns the number of dimensions of the tiledb\_domain

### Usage

```
## S4 method for signature 'tiledb_domain'  
tiledb_ndim(object)
```

### Arguments

object            tiledb\_domain



**Value**

integer number of dimensions

**Examples**

```
dom <- tiledb_domain(dims = c(tiledb_dim("d1", c(0.5, 100.0), type = "FLOAT64")))
tiledb_ndim(dom)
dom <- tiledb_domain(dims = c(tiledb_dim("d1", c(0.5, 100.0), type = "FLOAT64"),
                             tiledb_dim("d2", c(0.5, 100.0), type = "FLOAT64")))
tiledb_ndim(dom)
```

---

tiledb\_num\_metadata     *Return count of TileDB Array Metadata objects*

---

**Description**

Return count of TileDB Array Metadata objects

**Usage**

```
tiledb_num_metadata(arr)
```

**Arguments**

arr                    A TileDB Array object, or a character URI describing one

**Value**

A integer variable with the number of Metadata objects

---

tiledb\_object\_ls        *List TileDB resources at a given root URI path*

---

**Description**

List TileDB resources at a given root URI path

**Usage**

```
tiledb_object_ls(uri, filter = NULL, ctx = tiledb_get_context())
```

**Arguments**

uri	uri path to walk
filter	optional filtering argument, default is "NULL", currently unused
ctx	tiledb_ctx object (optional)

**Value**

a dataframe with object type, object uri string columns

---

tiledb_object_mv	<i>Move a TileDB resource to new uri path</i>
------------------	---

---

**Description**

Raises an error if either uri is invalid, or the old uri resource is not a tiledb object

**Usage**

```
tiledb_object_mv(old_uri, new_uri, ctx = tiledb_get_context())
```

**Arguments**

old_uri	old uri of existing tiledb resource
new_uri	new uri to move tiledb resource
ctx	tiledb_ctx object (optional)

**Value**

new uri of moved tiledb resource

---

tiledb_object_rm	<i>Removes a TileDB resource</i>
------------------	----------------------------------

---

**Description**

Raises an error if the uri is invalid, or the uri resource is not a tiledb object

**Usage**

```
tiledb_object_rm(uri, ctx = tiledb_get_context())
```

**Arguments**

uri	path which to create group
ctx	tiledb_ctx object (optional)

**Value**

uri of removed TileDB resource

tiledb\_object\_type      *Return the TileDB object type string of a TileDB resource*

**Description**

Object types:

- "ARRAY", dense or sparse TileDB array
- "GROUP", TileDB group
- "INVALID", not a TileDB resource

**Usage**

```
tiledb_object_type(uri, ctx = tiledb_get_context())
```

**Arguments**

uri                    path to TileDB resource  
 ctx                   tiledb\_ctx object (optional)

**Value**

TileDB object type string

tiledb\_object\_walk      *Recursively discover TileDB resources at a given root URI path*

**Description**

Recursively discover TileDB resources at a given root URI path

**Usage**

```
tiledb_object_walk(uri, order = "PREORDER", ctx = tiledb_get_context())
```

**Arguments**

uri                    root uri path to walk  
 order                (default "PREORDER") specify "POSTORDER" for "POSTORDER" traversal  
 ctx                   tiledb\_ctx object (optional)

**Value**

a dataframe with object type, object uri string columns

---

`tiledb_put_metadata`     *Store an object in TileDB Array Metadata under given key*

---

### Description

Store an object in TileDB Array Metadata under given key

### Usage

```
tiledb_put_metadata(arr, key, val)
```

### Arguments

<code>arr</code>	A TileDB Array object, or a character URI describing one
<code>key</code>	A character value describing a metadata key
<code>val</code>	An object to be stored

### Value

A boolean value indicating success

---

`tiledb_query`     *Creates a 'tiledb\_query' object*

---

### Description

Creates a 'tiledb\_query' object

### Usage

```
tiledb_query(array, type = c("READ", "WRITE"), ctx = tiledb_get_context())
```

### Arguments

<code>array</code>	A TileDB Array object
<code>type</code>	A character value that must be one of 'READ' or 'WRITE'
<code>ctx</code>	(optional) A TileDB Ctx object

### Value

'tiledb\_query' object

---

tiledb\_query-class     *An S4 class for a TileDB Query object*

---

**Description**

An S4 class for a TileDB Query object

**Slots**

ptr An external pointer to the underlying implementation

---

tiledb\_query\_add\_range  
*Set a range for a given query*

---

**Description**

Set a range for a given query

**Usage**

tiledb\_query\_add\_range(query, schema, attr, lowval, highval, stride = NULL)

**Arguments**

query	A TileDB Query object
schema	A TileDB Schema object
attr	An character variable with a dimension name for which the range is set
lowval	The lower value of the range to be set
highval	The higher value of the range to be set
stride	An optional stride value for the range to be set

**Value**

The query object, invisibly

---

tiledb\_query\_add\_range\_with\_type

*Set a range for a given query, also supplying type*

---

### Description

Set a range for a given query, also supplying type

### Usage

```
tiledb_query_add_range_with_type(
    query,
    idx,
    datatype,
    lowval,
    highval,
    stride = NULL
)
```

### Arguments

query	A TileDB Query object
idx	An integer index, zero based, of the dimensions
datatype	A character value containing the data type
lowval	The lower value of the range to be set
highval	The highre value of the range to be set
stride	An optional stride value for the range to be set

### Value

The query object, invisibly

---

tiledb\_query\_alloc\_buffer\_ptr\_char

*Allocate a Query buffer for reading a character attribute*

---

### Description

Allocate a Query buffer for reading a character attribute

### Usage

```
tiledb_query_alloc_buffer_ptr_char(sizeoffsets, sizedata)
```

**Arguments**

- sizeoffsets     An optional value of the size of the offsets vector
- sizedata        An optional value of the size of the data string

**Value**

An external pointer to the allocated buffer object

tiledb\_query\_alloc\_buffer\_ptr\_char\_subarray

*Allocate a Query buffer for reading a character attribute using a subarray*

**Description**

Note that this uses an API part that may be deprecated in the future.

**Usage**

```
tiledb_query_alloc_buffer_ptr_char_subarray(
    array,
    attr,
    subarray = NULL,
    sizeoffsets = 0,
    sizedata = 0
)
```

**Arguments**

- array            A TileDB Array object
- attr            A character value containing the attribute
- subarray        A vector of length four describing the subarray required for dense arrays
- sizeoffsets     An optional value of the size of the offsets vector
- sizedata        An optional value of the size of the data string

**Value**

An external pointer to the allocated buffer object

tiledb\_query\_buffer\_alloc\_ptr

*Allocate a Query buffer for a given type*

---

### **Description**

This function allocates a query buffer for the given data type.

### **Usage**

```
tiledb_query_buffer_alloc_ptr(query, datatype, ncells)
```

### **Arguments**

query	A TileDB Query object
datatype	A character value containing the data type
ncells	A number of elements (not bytes)

### **Value**

An external pointer to the allocated buffer object

---

tiledb\_query\_condition

*Creates a 'tiledb\_query\_condition' object*

---

### **Description**

Creates a 'tiledb\_query\_condition' object

### **Usage**

```
tiledb_query_condition(ctx = tiledb_get_context())
```

### **Arguments**

ctx	(optional) A TileDB Ctx object; if not supplied the default context object is retrieved
-----	---

### **Value**

A 'tiledb\_query\_condition' object



---

`tiledb_query_condition-class`*An S4 class for a TileDB QueryCondition object*

---

**Description**

An S4 class for a TileDB QueryCondition object

**Slots**

`ptr` An external pointer to the underlying implementation

`init` A logical variable tracking if the query condition object has been initialized

---

`tiledb_query_condition_combine`*Combine two 'tiledb\_query\_condition' objects*

---

**Description**

Combines two query condition object using a relational operator. Note that at present only 'AND' is supported.

**Usage**

```
tiledb_query_condition_combine(lhs, rhs, op)
```

**Arguments**

`lhs` A 'tiledb\_query\_condition' object on the left-hand side of the relation

`rhs` A 'tiledb\_query\_condition' object on the left-hand side of the relation

`op` A character value with then relation, this must be one of 'AND', 'OR' or 'NOT'.

**Value**

The combined 'tiledb\_query\_condition' object

---

tiledb\_query\_condition\_init

*Initialize a 'tiledb\_query\_condition' object*


---

### Description

Initializes (and possibly allocates) a query condition object using a triplet of attribute name, comparison value, and operator. Six types of conditions are supported, they all take a single scalar comparison argument and attribute to compare against. At present only integer or numeric attribute comparisons are implemented.

### Usage

```
tiledb_query_condition_init(
    attr,
    value,
    dtype,
    op,
    qc = tiledb_query_condition()
)
```

### Arguments

attr	A character value with the scheme attribute name
value	A scalar value that the attribute is compared against
dtype	A character value with the TileDB data type of the attribute column, for example 'FLOAT64' or 'INT32'
op	A character value with the comparison operation, this must be one of 'LT', 'LE', 'GT', 'GE', 'EQ', 'NE'.
qc	(optional) A 'tiledb_query_condition' object to be initialized by this call, if none is given a new one is allocated.

### Value

The initialized 'tiledb\_query\_condition' object

---

tiledb\_query\_create\_buffer\_ptr

*Allocate and populate a Query buffer for a given object of a given data type.*


---

### Description

This function allocates a query buffer for the given data object of the given type and assigns the object content to the buffer.

**Usage**

tiledb\_query\_create\_buffer\_ptr(query, datatype, object)

**Arguments**

query	A TileDB Query object
datatype	A character value containing the data type
object	A vector object of the given type

**Value**

An external pointer to the allocated buffer object

---

tiledb\_query\_create\_buffer\_ptr\_char  
*Allocate and populate a Query buffer for writing the given char vector*

---

**Description**

Allocate and populate a Query buffer for writing the given char vector

**Usage**

tiledb\_query\_create\_buffer\_ptr\_char(query, varvec)

**Arguments**

query	A TileDB Query object
varvec	A vector of strings

**Value**

An external pointer to the allocated buffer object

---

tiledb\_query\_export\_buffer

*Export Query Buffer to Pair of Arrow IO Pointers*


---

### Description

This function exports the named buffer from a 'READ' query to two Arrow C pointers.

### Usage

```
tiledb_query_export_buffer(query, name, ctx = tiledb_get_context())
```

### Arguments

query	A TileDB Query object
name	A character variable identifying the buffer
ctx	tiledb_ctx object (optional)

### Value

A two-element numeric vector where the two elements are pointers to the Arrow array and schema

---

tiledb\_query\_finalize *Finalize TileDB Query*


---

### Description

Finalize TileDB Query

### Usage

```
tiledb_query_finalize(query)
```

### Arguments

query	A TileDB Query object
-------	-----------------------

### Value

A character value, either 'READ' or 'WRITE'

---

`tiledb_query_get_buffer_char`*Retrieve content from a Query character buffer*

---

**Description**

This function uses a query buffer for a character attribute or dimension and returns its content.

**Usage**

```
tiledb_query_get_buffer_char(bufptr, sizeoffsets = 0, sizestring = 0)
```

**Arguments**

<code>bufptr</code>	An external pointer with a query buffer
<code>sizeoffsets</code>	An optional argument for the length of the internal offsets vector
<code>sizestring</code>	An optional argument for the length of the internal string

**Value**

An R object as resulting from the query

---

`tiledb_query_get_buffer_ptr`*Retrieve content from a Query buffer*

---

**Description**

This function uses a query buffer and returns its content.

**Usage**

```
tiledb_query_get_buffer_ptr(bufptr)
```

**Arguments**

<code>bufptr</code>	An external pointer with a query buffer
---------------------	---

**Value**

An R object as resulting from the query

---

tiledb\_query\_get\_est\_result\_size

*Retrieve the estimated result size for a query and attribute*

---

### Description

When reading from sparse arrays, one cannot know beforehand how big the result will be (unless one actually executes the query). This function offers a way to get the estimated result size for the given attribute. As TileDB does not actually execute the query, getting the estimated result is very fast.

### Usage

```
tiledb_query_get_est_result_size(query, name)
```

### Arguments

query	A TileDB Query object
name	A variable with an attribute name

### Value

An estimate of the query result size

---

tiledb\_query\_get\_est\_result\_size\_var

*Retrieve the estimated result size for a query and variable-sized attribute*

---

### Description

When reading variable-length attributes from either dense or sparse arrays, one cannot know beforehand how big the result will be (unless one actually executes the query). This function offers a way to get the estimated result size for the given attribute. As TileDB does not actually execute the query, getting the estimated result is very fast.

### Usage

```
tiledb_query_get_est_result_size_var(query, name)
```

### Arguments

query	A TileDB Query object
name	A variable with an attribute name

**Value**

An estimate of the query result size

---

tiledb\_query\_get\_fragment\_num  
*Retrieve the Number of Fragments for Query*

---

**Description**

This function is only applicable to ‘WRITE’ queries.

**Usage**

tiledb\_query\_get\_fragment\_num(query)

**Arguments**

query            A TileDB Query object

**Value**

An integer with the number of fragments for the given query

---

tiledb\_query\_get\_fragment\_timestamp\_range  
*Retrieve the timestamp range for a given Query Fragment*

---

**Description**

This function is only applicable to ‘WRITE’ queries. The time resolution in TileDB is milliseconds since the epoch so an R Datetime vector is returned.

**Usage**

tiledb\_query\_get\_fragment\_timestamp\_range(query, idx)

**Arguments**

query            A TileDB Query object  
 idx             An integer (or numeric) index ranging from zero to the number of fragments minus 1

**Value**

A two-element datetime vector with the start and end time of the fragment write.

---

`tiledb_query_get_fragment_uri`*Retrieve the URI for a given Query Fragment*

---

**Description**

This function is only applicable to 'WRITE' queries.

**Usage**

```
tiledb_query_get_fragment_uri(query, idx)
```

**Arguments**

<code>query</code>	A TileDB Query object
<code>idx</code>	An integer (or numeric) index ranging from zero to the number of fragments minus 1

**Value**

An character value with the fragment URI

---

`tiledb_query_get_layout`*Get TileDB Query layout*

---

**Description**

Get TileDB Query layout

**Usage**

```
tiledb_query_get_layout(query)
```

**Arguments**

<code>query</code>	A TileDB Query object
--------------------	-----------------------

**Value**

The TileDB Query layout as a string



tiledb\_query\_get\_range

*Retrieve the query range for a query dimension and range index*

**Description**

Retrieve the query range for a query dimension and range index

Retrieve the query range for a variable-sized query dimension and range index

**Usage**

tiledb\_query\_get\_range(query, dimidx, rngidx)

tiledb\_query\_get\_range(query, dimidx, rngidx)

**Arguments**

- query            A TileDB Query object
- dimidx          An integer index selecting the dimension
- rngidx          An integer index selection the given range for the dimension

**Value**

An integer vector with elements start, end and stride for the query range for the given dimension and range index

An string vector with elements start and end for the query range for the given dimension and range index

tiledb\_query\_get\_range\_num

*Retrieve the number of ranges for a query dimension*

**Description**

Retrieve the number of ranges for a query dimension

**Usage**

tiledb\_query\_get\_range\_num(query, idx)

**Arguments**

- query            A TileDB Query object
- idx              An integer index selecting the dimension

**Value**

An integer with the number of query range for the given dimensions

---

tiledb\_query\_import\_buffer

*Import to Query Buffer from Pair of Arrow IO Pointers*

---

**Description**

This function imports to the named buffer for a ‘WRITE’ query from two Arrow C pointers.

**Usage**

```
tiledb_query_import_buffer(  
  query,  
  name,  
  arrowpointers,  
  ctx = tiledb_get_context()  
)
```

**Arguments**

query	A TileDB Query object
name	A character variable identifying the buffer
arrowpointers	A two-element numeric vector with two pointers to an Arrow Array and Schema, respectively
ctx	tiledb_ctx object (optional)

**Value**

The update Query external pointer is returned

---

tiledb\_query\_result\_buffer\_elements

*Get TileDB Query result buffer element size*

---

**Description**

The underlying library functions returns a pair of values as a vector of length two. The first number is the number of element offsets for variable size attributes (and always zero for fixed-sized attributes and coordinates). The second is the number of elements in the data buffer. For variable-sized attributes the first number is the number of cells read (and hence the number of offsets), the second number is the number of elements in the data buffer.

**Usage**

```
tiledb_query_result_buffer_elements(query, attr)
```

**Arguments**

query	A TileDB Query object
attr	A character value containing the attribute

**Details**

As this function was first made available when only a scalar (corresponding to the second result) was returned, we still return that value.

**Value**

A integer with the number of elements in the results buffer for the given attribute

**See Also**

tiledb\_query\_result\_buffer\_elements\_vec

---

tiledb\_query\_result\_buffer\_elements\_vec

*Get TileDB Query result buffer element size pair as vector*

---

**Description**

The underlying library functions returns a pair of values as a vector of length two. The first number is the number of element offsets for variable size attributes (and always zero for fixed-sized attributes and coordinates). The second is the number of elements in the data buffer. For variable-sized attributes the first number is the number of cells read (and hence the number of offsets), the second number is the number of elements in the data buffer. In the case of a nullable attribute, a third element is returned with the size of the validity buffer.

**Usage**

```
tiledb_query_result_buffer_elements_vec(query, attr, nullable = FALSE)
```

**Arguments**

query	A TileDB Query object
attr	A character value containing the attribute
nullable	A logical variable that is 'TRUE' to signal that the attribute is nullable, and 'FALSE' otherwise

**Value**

A vector with the number of elements in the offsets buffer (and zero for fixed-size attribute or dimensions), the number elements in the results buffer for the given attribute, and (if nullable) a third element with the validity buffer size.

**See Also**

tiledb\_query\_result\_buffer\_elements

---

tiledb\_query\_set\_buffer

*Set TileDB Query buffer*

---

**Description**

This function allocates query buffers directly from R vectors in case the types match: integer, double, logical. For more general types see tiledb\_query\_buffer\_alloc\_ptr and tiledb\_query\_buffer\_assign\_ptr.

**Usage**

```
tiledb_query_set_buffer(query, attr, buffer)
```

**Arguments**

query	A TileDB Query object
attr	A character value containing the attribute
buffer	A vector providing the query buffer

**Value**

The modified query object, invisibly

---

tiledb\_query\_set\_buffer\_ptr

*Assigns to a Query buffer for a given attribute*

---

**Description**

This function assigns a given query buffer to a query.

**Usage**

```
tiledb_query_set_buffer_ptr(query, attr, bufptr)
```

**Arguments**

query	A TileDB Query object
attr	A character value containing the attribute
bufptr	An external pointer with a query buffer

**Value**

The modified query object, invisibly

tiledb\_query\_set\_buffer\_ptr\_char

*Assign a buffer to a Query attribute*

**Description**

Assign a buffer to a Query attribute

**Usage**

tiledb\_query\_set\_buffer\_ptr\_char(query, attr, bufptr)

**Arguments**

query	A TileDB Query object
attr	A character value containing the attribute
bufptr	An external pointer with a query buffer

**Value**

The modified query object, invisibly

tiledb\_query\_set\_condition

*Set a query combination object for a query*

**Description**

Set a query combination object for a query

**Usage**

tiledb\_query\_set\_condition(query, qc)

**Arguments**

query	A TileDB Query object
qc	A TileDB Query Combination object

**Value**

The modified query object, invisibly

---

tiledb\_query\_set\_layout  
*Set TileDB Query layout*

---

**Description**

Set TileDB Query layout

**Usage**

```
tiledb_query_set_layout(  
    query,  
    layout = c("COL_MAJOR", "ROW_MAJOR", "GLOBAL_ORDER", "UNORDERED")  
)
```

**Arguments**

query	A TileDB Query object
layout	A character variable with the layout; must be one of "COL_MAJOR", "ROW_MAJOR", "GLOBAL_ORDER", "UNORDERED")

**Value**

The modified query object, invisibly

---

tiledb\_query\_set\_subarray  
*Set subarray for TileDB Query object*

---

**Description**

Set subarray for TileDB Query object

**Usage**

```
tiledb_query_set_subarray(query, subarray, type)
```

**Arguments**

- query            A TileDB Query object
- subarray        A subarray vector object
- type            An optional type as a character, if missing type is inferred from the vector.

**Value**

The modified query object, invisibly

---

tiledb\_query\_stats     *Return query statistics as a JSON string*

---

**Description**

Return query statistics as a JSON string

**Usage**

tiledb\_query\_stats(query)

**Arguments**

- query            A TileDB Query object

**Value**

A JSON-formatted string with context statistics

---

tiledb\_query\_status    *Get TileDB Query status*

---

**Description**

Get TileDB Query status

**Usage**

tiledb\_query\_status(query)

**Arguments**

- query            A TileDB Query object

**Value**

A character value describing the query status

tiledb\_query\_submit     *Submit TileDB Query*

---

**Description**

Note that the query object may need to be finalized via tiledb\_query\_finalize.

**Usage**

```
tiledb_query_submit(query)
```

**Arguments**

query                    A TileDB Query object

**Value**

The modified query object, invisibly

---

tiledb\_query\_submit\_async  
*Submit TileDB Query asynchronously without a callback returning immediately*

---

**Description**

Note that the query object may need to be finalized via tiledb\_query\_finalize.

**Usage**

```
tiledb_query_submit_async(query)
```

**Arguments**

query                    A TileDB Query object

**Value**

The modified query object, invisibly



---

tiledb\_query\_type      *Return TileDB Query type*

---

**Description**

Return TileDB Query type

**Usage**

tiledb\_query\_type(query)

**Arguments**

query                  A TileDB Query object

**Value**

A character value, either 'READ' or 'WRITE'

---

tiledb\_schema\_get\_dim\_attr\_status  
*Get Dimension or Attribute Status*

---

**Description**

Note that this function is an unexported internal function.

**Usage**

tiledb\_schema\_get\_dim\_attr\_status(sch)

**Arguments**

sch                    A TileDB Schema object

**Value**

An integer vector where each element corresponds to a schema entry, and a value of one signals dimension and a value of two an attribute.

tiledb\_schema\_get\_names

*Get all Dimension and Attribute Names*

---

**Description**

Get all Dimension and Attribute Names

**Usage**

tiledb\_schema\_get\_names(sch)

**Arguments**

sch                    A TileDB Schema object

**Value**

A character vector of dimension and attribute names

---

tiledb\_schema\_get\_types

*Get all Dimension and Attribute Types*

---

**Description**

Get all Dimension and Attribute Types

**Usage**

tiledb\_schema\_get\_types(sch)

**Arguments**

sch                    A TileDB Schema object

**Value**

A character vector of dimension and attribute data types

---

tiledb\_set\_context      *Store a TileDB context object in the package cache*

---

**Description**

Store a TileDB context object in the package cache

**Usage**

```
tiledb_set_context(ctx)
```

**Arguments**

ctx                    A TileDB context object

**Value**

NULL, invisibly. The function is invoked for the side-effect of storing the VFS object.

---

tiledb\_set\_vfs            *Store a TileDB VFS object in the package environment*

---

**Description**

Store a TileDB VFS object in the package environment

**Usage**

```
tiledb_set_vfs(vfs)
```

**Arguments**

vfs                    A TileDB VFS object

**Value**

NULL, invisibly. The function is invoked for the side-effect of storing the VFS object.

---

tiledb_sparse	<i>Constructs a tiledb_sparse object backed by a persisted tiledb array uri</i>
---------------	---

---

### Description

tiledb\_sparse returns a list of coordinates and attributes vectors for reads

### Usage

```
tiledb_sparse(
  uri,
  query_type = c("READ", "WRITE"),
  as.data.frame = FALSE,
  attrs = character(),
  extended = TRUE,
  ctx = tiledb_get_context()
)
```

### Arguments

uri	uri path to the tiledb dense array
query_type	optionally loads the array in "READ" or "WRITE" only modes.
as.data.frame	optional logical switch, defaults to "FALSE"
attrs	optional character vector to select attributes, default is empty implying all are selected
extended	optional logical switch selecting wide 'data.frame' format, defaults to "TRUE"
ctx	tiledb_ctx (optional)

### Value

tiledb\_sparse array object

### Planned Deprecation

We plan to deprecate the tiledb\_sparse array type in a future release. While exact timelines have not been finalised, it is advised to the tiledb\_array for both *dense* and *sparse* arrays going forward.

---

tiledb\_sparse-class    *An S4 class for a TileDB sparse array*

---

**Description**

An S4 class for a TileDB sparse array

**Slots**

ctx A TileDB context object  
uri A character description  
as.data.frame A logical value  
attrs A character vector  
extended A logical value  
ptr External pointer to the underlying implementation

**Planned Deprecation**

We plan to deprecate the tiledb\_sparse array type in a future release. While exact timelines have not been finalised, it is advised to the tiledb\_array for both *dense* and *sparse* arrays going forward.

---

tiledb\_stats\_disable    *Disable internal TileDB statistics counters*

---

**Description**

This function ends the collection of internal statistics.

**Usage**

```
tiledb_stats_disable()
```

---

tiledb\_stats\_dump      *Dumps internal TileDB statistics to file*

---

**Description**

Dumps internal TileDB statistics to file

**Usage**

```
tiledb_stats_dump(path)
```

**Arguments**

path                      Character variable with path to stats file; if the empty string is passed then the result is displayed on stdout.

**Examples**

```
pth <- tempfile()
tiledb_stats_dump(pth)
cat(readLines(pth)[1:10], sep = "\n")
```

---

tiledb\_stats\_enable      *Enable internal TileDB statistics counters*

---

**Description**

This function starts the collection of internal statistics.

**Usage**

```
tiledb_stats_enable()
```

---

tiledb\_stats\_print      *Print internal TileDB statistics*

---

**Description**

This function is a convenience wrapper for tiledb\_stats\_dump.

**Usage**

```
tiledb_stats_print()
```

---

tiledb\_stats\_raw\_dump *Dumps internal TileDB statistics as JSON to file*

---

### Description

This function requires TileDB Embedded 2.0.3 or later.

### Usage

```
tiledb_stats_raw_dump(path)
```

### Arguments

path	Character variable with path to stats file; if the empty string is passed then the result is displayed on stdout.
------	---

### Examples

```
if (tiledb_version(TRUE) >= "2.0.3") {  
  pth <- tempfile()  
  tiledb_stats_raw_dump(pth)  
  cat(readLines(pth)[1:10], sep = "\n")  
}
```

---

tiledb\_stats\_raw\_get *Gets internal TileDB statistics as JSON string*

---

### Description

This function is a convenience wrapper for tiledb\_stats\_raw\_dump and returns the result as a JSON string. It required TileDB Embedded 2.0.3 or later.

### Usage

```
tiledb_stats_raw_get()
```

---

```
tiledb_stats_raw_print
```

*Print internal TileDB statistics as JSON*

---

### Description

This function is a convenience wrapper for `tiledb_stats_raw_dump`. It required TileDB Embedded 2.0.3 or later.

### Usage

```
tiledb_stats_raw_print()
```

---

```
tiledb_stats_reset
```

*Reset internal TileDB statistics counters*

---

### Description

This function resets the counters for internal statistics.

### Usage

```
tiledb_stats_reset()
```

---

```
tiledb_subarray
```

*Query a array using a subarray vector*

---

### Description

`tiledb_subarray` returns a results of query

### Usage

```
tiledb_subarray(A, subarray_vector, attrs = c())
```

### Arguments

A	tiledb_sparse or tiledb_dense
subarray_vector	
	subarray to query
attrs	list of attributes to query

### Value

list of attributes being returned with query results



---

tiledb_version	<i>The version of the libtiledb library</i>
----------------	---

---

**Description**

The version of the libtiledb library

**Usage**

```
tiledb_version(compact = FALSE)
```

**Arguments**

compact	Logical value indicating wheter a compact package_version object should be returned
---------	---

**Value**

An named int vector c(major, minor, patch), or if select, a package\_version object

**Examples**

```
tiledb_version()
tiledb_version(compact = TRUE)
```

---

tiledb_vfs	<i>Creates a tiledb_vfs object</i>
------------	------------------------------------

---

**Description**

Creates a tiledb\_vfs object

**Usage**

```
tiledb_vfs(config = NULL, ctx = tiledb_get_context())
```

**Arguments**

config	(optional) character vector of config parameter names, values
ctx	(optional) A TileDB Ctx object

**Value**

The tiledb\_vfs object

**Examples**

```
# default configuration
vfs <- tiledb_vfs()
```

---

tiledb_vfs-class	<i>An S4 class for a TileDB VFS object</i>
------------------	--

---

**Description**

An S4 class for a TileDB VFS object

**Slots**

ptr An external pointer to the underlying implementation

---

tiledb_vfs_close	<i>Close a TileDB VFS Filehandle</i>
------------------	--------------------------------------

---

**Description**

Close a TileDB VFS Filehandle

**Usage**

```
tiledb_vfs_close(fh, ctx = tiledb_get_context())
```

**Arguments**

fh	A TileDB VFS Filehandle external pointer as returned from tiledb_vfs_open
ctx	(optional) A TileDB Ctx object

**Value**

The result of the close operation is returned.

tiledb\_vfs\_create\_bucket

*Create a VFS Bucket*

**Description**

Create a VFS Bucket

**Usage**

```
tiledb_vfs_create_bucket(uri, vfs = tiledb_get_vfs())
```

**Arguments**

uri	Character variable with a URI describing a cloud bucket
vfs	A TileDB VFS object; default is to use a cached value.

**Value**

The uri value

tiledb\_vfs\_create\_dir *Create a VFS Directory*

**Description**

Create a VFS Directory

**Usage**

```
tiledb_vfs_create_dir(uri, vfs = tiledb_get_vfs())
```

**Arguments**

uri	Character variable with a URI describing a directory path
vfs	A TileDB VFS object; default is to use a cached value.

**Value**

The uri value of the created directory

---

tiledb\_vfs\_dir\_size    *Return VFS Directory Size*

---

**Description**

Return VFS Directory Size

**Usage**

```
tiledb_vfs_dir_size(uri, vfs = tiledb_get_vfs())
```

**Arguments**

uri                    Character variable with a URI describing a file path  
vfs                    A TileDB VFS object; default is to use a cached value.

**Value**

The size of the directory

---

tiledb\_vfs\_empty\_bucket  
*Empty a VFS Bucket*

---

**Description**

Empty a VFS Bucket

**Usage**

```
tiledb_vfs_empty_bucket(uri, vfs = tiledb_get_vfs())
```

**Arguments**

uri                    Character variable with a URI describing a cloud bucket  
vfs                    A TileDB VFS object; default is to use a cached value.

**Value**

The URI value that was emptied

---

tiledb\_vfs\_file\_size *Return VFS File Size*

---

**Description**

Return VFS File Size

**Usage**

```
tiledb_vfs_file_size(uri, vfs = tiledb_get_vfs())
```

**Arguments**

uri                   Character variable with a URI describing a file path  
vfs                    A TileDB VFS object; default is to use a cached value.

**Value**

The size of the file

---

tiledb\_vfs\_is\_bucket *Check for VFS Bucket*

---

**Description**

Check for VFS Bucket

**Usage**

```
tiledb_vfs_is_bucket(uri, vfs = tiledb_get_vfs())
```

**Arguments**

uri                   Character variable with a URI describing a cloud bucket  
vfs                    A TileDB VFS object; default is to use a cached value.

**Value**

A boolean value indicating if it is a valid bucket

**Examples**

```
## Not run:
cfg <- tiledb_config()
cfg["vfs.s3.region"] <- "us-west-1"
ctx <- tiledb_ctx(cfg)
vfs <- tiledb_vfs()
tiledb_vfs_is_bucket(vfs, "s3://tiledb-public-us-west-1/test-array-4x4")

## End(Not run)
```

---

tiledb\_vfs\_is\_dir      *Test for VFS Directory*

---

**Description**

Test for VFS Directory

**Usage**

```
tiledb_vfs_is_dir(uri, vfs = tiledb_get_vfs())
```

**Arguments**

**uri**                    Character variable with a URI describing a directory path  
**vfs**                    A TileDB VFS object; default is to use a cached value.

**Value**

A boolean value indicating if it is a directory

---

tiledb\_vfs\_is\_empty\_bucket  
*Check for empty VFS Bucket*

---

**Description**

Check for empty VFS Bucket

**Usage**

```
tiledb_vfs_is_empty_bucket(uri, vfs = tiledb_get_vfs())
```

**Arguments**

**uri**                    Character variable with a URI describing a cloud bucket  
**vfs**                    A TileDB VFS object; default is to use a cached value.

**Value**

A boolean value indicating if it is an empty bucket

**Examples**

```
## Not run:
cfg <- tiledb_config()
cfg["vfs.s3.region"] <- "us-west-1"
ctx <- tiledb_ctx(cfg)
vfs <- tiledb_vfs()
tiledb_vfs_is_empty_bucket(vfs, "s3://tiledb-public-us-west-1/test-array-4x4")

## End(Not run)
```

---

tiledb\_vfs\_is\_file      *Test for VFS File*

---

**Description**

Test for VFS File

**Usage**

```
tiledb_vfs_is_file(uri, vfs = tiledb_get_vfs())
```

**Arguments**

- uri                      Character variable with a URI describing a file path
- vfs                      A TileDB VFS object; default is to use a cached value.

**Value**

A boolean value indicating if it is a file

---

tiledb\_vfs\_ls              *Return VFS Directory Listing*

---

**Description**

Return VFS Directory Listing

**Usage**

```
tiledb_vfs_ls(uri, vfs = tiledb_get_vfs())
```

**Arguments**

uri	Character variable with a URI describing a file path
vfs	A TileDB VFS object; default is to use a cached value.

**Value**

The content of the directory, non-recursive

---

tiledb\_vfs\_move\_dir    *Move (or rename) a VFS Directory*

---

**Description**

Move (or rename) a VFS Directory

**Usage**

```
tiledb_vfs_move_dir(olduri, newuri, vfs = tiledb_get_vfs())
```

**Arguments**

olduri	Character variable with an existing URI describing a directory path
newuri	Character variable with a new desired URI directory path
vfs	A TileDB VFS object; default is to use a cached value.

**Value**

The newuri value of the moved directory

---

tiledb\_vfs\_move\_file    *Move (or rename) a VFS File*

---

**Description**

Move (or rename) a VFS File

**Usage**

```
tiledb_vfs_move_file(olduri, newuri, vfs = tiledb_get_vfs())
```

**Arguments**

olduri	Character variable with an existing URI describing a file path
newuri	Character variable with a new desired URI file path
vfs	A TileDB VFS object; default is to use a cached value.



**Value**

The newuri value of the moved file

---

tiledb_vfs_open	<i>Open a TileDB VFS Filehandle for reading or writing</i>
-----------------	--

---

**Description**

Open a TileDB VFS Filehandle for reading or writing

**Usage**

```
tiledb_vfs_open(
  binfile,
  mode = c("READ", "WRITE", "APPEND"),
  vfs = tiledb_get_vfs(),
  ctx = tiledb_get_context()
)
```

**Arguments**

binfile	A character variable describing the (binary) file to be opened
mode	A character variable with value 'READ', 'WRITE' or 'APPEND'
vfs	A TileDB VFS object; default is to use a cached value.
ctx	(optional) A TileDB Ctx object

**Value**

A TileDB VFS Filehandle object (as an external pointer)

---

tiledb_vfs_read	<i>Read from a TileDB VFS Filehandle</i>
-----------------	--

---

**Description**

This interface currently defaults to reading an integer vector. This is suitable for R objects as a raw vector used for (de)serialization can be mapped easily to an integer vector. It is also possible to memcopy to the contiguous memory of an integer vector should other (non-R) data be transferred.

**Usage**

```
tiledb_vfs_read(fh, offset, nbytes, ctx = tiledb_get_context())
```

**Arguments**

fh	A TileDB VFS Filehandle external pointer as returned from tiledb_vfs_open
offset	A scalar integer64 value with the byte offset from the beginning of the file with a of zero.
nbytes	A scalar integer64 value with the number of bytes to be read.
ctx	(optional) A TileDB Ctx object

**Value**

The binary file content is returned as an integer vector.

---

tiledb\_vfs\_remove\_bucket

*Remove a VFS Bucket*

---

**Description**

Remove a VFS Bucket

**Usage**

```
tiledb_vfs_remove_bucket(uri, vfs = tiledb_get_vfs())
```

**Arguments**

uri	Character variable with a URI describing a cloud bucket
vfs	A TileDB VFS object; default is to use a cached value.

**Value**

The uri value

---

tiledb\_vfs\_remove\_dir *Remove a VFS Directory*

---

**Description**

Remove a VFS Directory

**Usage**

```
tiledb_vfs_remove_dir(uri, vfs = tiledb_get_vfs())
```

**Arguments**

uri                    Character variable with a URI describing a directory path  
 vfs                    A TileDB VFS object; default is to use a cached value.

**Value**

The uri value of the removed directory

tiledb\_vfs\_remove\_file                    *Remove a VFS File*

**Description**

Remove a VFS File

**Usage**

tiledb\_vfs\_remove\_file(uri, vfs = tiledb\_get\_vfs())

**Arguments**

uri                    Character variable with a URI describing a file path  
 vfs                    A TileDB VFS object; default is to use a cached value.

**Value**

The uri value of the removed file

tiledb\_vfs\_sync                    *Sync a TileDB VFS Filehandle*

**Description**

Sync a TileDB VFS Filehandle

**Usage**

tiledb\_vfs\_sync(fh, ctx = tiledb\_get\_context())

**Arguments**

fh                    A TileDB VFS Filehandle external pointer as returned from tiledb\_vfs\_open  
 ctx                    (optional) A TileDB Ctx object

**Value**

The result of the sync operation is returned.

---

tiledb_vfs_touch	<i>Touch a VFS URI Resource</i>
------------------	---------------------------------

---

**Description**

Touch a VFS URI Resource

**Usage**

```
tiledb_vfs_touch(uri, vfs = tiledb_get_vfs())
```

**Arguments**

uri	Character variable with a URI describing a bucket, file or directory
vfs	A TileDB VFS object; default is to use a cached value.

**Value**

The uri value

---

tiledb_vfs_write	<i>Write to a TileDB VFS Filehandle</i>
------------------	---

---

**Description**

This interface currently defaults to using an integer vector. This is suitable for R objects as the raw vector result from serialization can be mapped easily to an integer vector. It is also possible to memcpy to the contiguous memory of an integer vector should other (non-R) data be transferred.

**Usage**

```
tiledb_vfs_write(fh, vec, ctx = tiledb_get_context())
```

**Arguments**

fh	A TileDB VFS Filehandle external pointer as returned from tiledb_vfs_open
vec	An integer vector of content to be written
ctx	(optional) A TileDB Ctx object

**Value**

The result of the write operation is returned.

---

```
tile_order,tiledb_array_schema-method
    Returns the tile layout string associated with the
    tiledb_array_schema
```

---

**Description**

Returns the tile layout string associated with the tiledb\_array\_schema

**Usage**

```
## S4 method for signature 'tiledb_array_schema'
tile_order(object)
```

**Arguments**

object            tiledb object

---

```
[,tiledb_array,ANY-method
    Returns a TileDB array, allowing for specific subset ranges.
```

---

**Description**

Heterogenous domains are supported, including timestamps and characters.

**Usage**

```
## S4 method for signature 'tiledb_array,ANY'
x[i, j, ..., drop = FALSE]
```

**Arguments**

x                    tiledb\_array object

i                    optional row index expression which can be a list in which case minimum and maximum of each list element determine a range; multiple list elements can be used to supply multiple ranges.

j                    optional column index expression which can be a list in which case minimum and maximum of each list element determine a range; multiple list elements can be used to supply multiple ranges.

...                  Extra parameters for method signature, currently unused.

drop                 Optional logical switch to drop dimensions, default FALSE, currently unused.

**Details**

This function may still change; the current implementation should be considered as an initial draft.

**Value**

The resulting elements in the selected format

---

```
[, tiledb_config, ANY-method
      Gets a config parameter value
```

---

**Description**

Gets a config parameter value

**Usage**

```
## S4 method for signature 'tiledb_config, ANY'
x[i, j, ..., drop = FALSE]
```

**Arguments**

x	tiledb_config object
i	parameter key string
j	parameter key string, currently unused.
...	Extra parameter for method signature, currently unused.
drop	Optional logical switch to drop dimensions, default FALSE, currently unused.

**Value**

a config string value if parameter exists, else NA

**Examples**

```
cfg <- tiledb_config()
cfg["sm.tile_cache_size"]
cfg["does_not_exist"]
```

---

```
[,tiledb_dense,ANY-method
    Gets a dense array value
```

---

**Description**

Gets a dense array value

**Usage**

```
## S4 method for signature 'tiledb_dense,ANY'
x[i, j, ..., drop = FALSE]
```

**Arguments**

x	dense array object
i	parameter key string
j	parameter key string, currently unused.
...	Extra parameter for method signature, currently unused.
drop	Optional logical switch to drop dimensions, default FALSE, currently unused.

**Value**

An element from a dense array

---

```
[,tiledb_filter_list,ANY-method
    Returns the filter at given index
```

---

**Description**

Returns the filter at given index

**Usage**

```
## S4 method for signature 'tiledb_filter_list,ANY'
x[i, j, ..., drop = FALSE]
```

**Arguments**

x	tiledb_config object
i	parameter key string
j	parameter key string, currently unused.
...	Extra parameter for method signature, currently unused.
drop	Optional logical switch to drop dimensions, default false.

**Value**

object tiledb\_filter

**Examples**

```
flt <- tiledb_filter("ZSTD")
tiledb_filter_set_option(flt, "COMPRESSION_LEVEL", 5)
filter_list <- tiledb_filter_list(c(flt))
filter_list[0]
```

---

[,tiledb\_sparse,ANY-method

*Gets a sparse array value*

---

**Description**

Gets a sparse array value

**Usage**

```
## S4 method for signature 'tiledb_sparse,ANY'
x[i, j, ..., drop = FALSE]
```

**Arguments**

x	sparse array object
i	parameter key string
j	parameter key string, currently unused.
...	Extra parameter for method signature, currently unused.
drop	Optional logical switch to drop dimensions, default FALSE, currently unused.

**Value**

An element from the sparse array



---

[<-, tiledb\_array, ANY, ANY, ANY-method

*Sets a tiledb array value or value range*


---

## Description

This function assigns a right-hand side object, typically a `data.frame` or something that can be coerced to a `data.frame`, to a tiledb array.

## Usage

```
## S4 replacement method for signature 'tiledb_array,ANY,ANY,ANY'
x[i, j, ...] <- value
```

## Arguments

<code>x</code>	sparse or dense TileDB array object
<code>i</code>	parameter row index
<code>j</code>	parameter column index
<code>...</code>	Extra parameter for method signature, currently unused.
<code>value</code>	The value being assigned

## Details

For sparse matrices, row and column indices can either be supplied as part of the left-hand side object, or as part of the `data.frame` provided appropriate column names.

This function may still change; the current implementation should be considered as an initial draft.

## Value

The modified object

## Examples

```
## Not run:
uri <- "quickstart_sparse"      ## as created by the other example
arr <- tiledb_array(uri)        ## open array
df <- arr[]                     ## read current content
## First approach: matching data.frame with appropriate row and column
newdf <- data.frame(rows=c(1,2,2), cols=c(1,3,4), a=df$a+100)
## Second approach: supply indices explicitly
arr[c(1,2), c(1,3)] <- c(42,43) ## two values
arr[2, 4] <- 88                 ## or just one

## End(Not run)
```

---

```
[<-, tiledb_config, ANY, ANY, ANY-method
      Sets a config parameter value
```

---

**Description**

Sets a config parameter value

**Usage**

```
## S4 replacement method for signature 'tiledb_config, ANY, ANY, ANY'
x[i, j] <- value
```

**Arguments**

x	tiledb_config object
i	parameter key string
j	parameter key string
value	value to set, will be converted into a string

**Value**

updated tiledb\_config object

**Examples**

```
cfg <- tiledb_config()
cfg["sm.tile_cache_size"]

# set tile cache size to custom value
cfg["sm.tile_cache_size"] <- 100
cfg["sm.tile_cache_size"]
```

---

```
[<-, tiledb_dense, ANY, ANY, ANY-method
      Sets a dense array value
```

---

**Description**

Sets a dense array value

**Usage**

```
## S4 replacement method for signature 'tiledb_dense, ANY, ANY, ANY'  
x[i, j, ...] <- value
```

**Arguments**

x	dense array object
i	parameter key string
j	parameter key string, currently unused.
...	Extra parameter for method signature, currently unused.
value	The value being assigned

**Value**

The modified object

---

[<-, tiledb\_sparse, ANY, ANY, ANY-method  
*Sets a sparse array value*

---

**Description**

Sets a sparse array value

**Usage**

```
## S4 replacement method for signature 'tiledb_sparse, ANY, ANY, ANY'  
x[i, j, ...] <- value
```

**Arguments**

x	sparse array object
i	parameter key string
j	parameter key string, currently unused.
...	Extra parameter for method signature, currently unused.
value	The value being assigned

**Value**

The modified object

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