# Package ‘ora’

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**Title** Convenient Tools for Working with Oracle Databases

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**Depends** DBI, ROracle

**SystemRequirements** Oracle client

**Description** Easy-to-use functions to explore Oracle databases and import data into R. User interface for the ROracle package.

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## R topics documented:

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`ora-package` *Convenient Tools for Working with Oracle Databases*

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### Description

Easy-to-use functions to explore Oracle databases and import data into R. User interface for the **ROracle** package.

## Details

*Explore database:*

| | |
|---|---|
| `tables` | list tables |
| `views` | list views |

*Examine table:*

| | |
|---|---|
| `desc` | describe table or view |

*Import data:*

| | |
|---|---|
| `sql` | import data |

## Author(s)

Arni Magnusson.

## References

The official Oracle manuals are available at http://www.oracle.com/technetwork/indexes/documentation/.

## See Also

The functions that do the actual work are described in the **DBI** and **ROracle** packages.

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# `desc` *Describe Oracle Table*

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## Description

Show the column names of an Oracle table (or view) and various column properties, not unlike the Oracle SQL*Plus `DESC` command. Also show the number of rows when the table was last analyzed.

## Usage

```
desc(table, tolower=TRUE, dots=FALSE, ...)
```

## Arguments

`table` Oracle table name, often in the ‘`owner.table`’ format.

`tolower` whether output table strings should be lowercased.

`dots` whether underscores in column names should be replaced with dots, converting ‘`col_name`’ to ‘`col.name`’.

`...` passed to `dbConnect`.

## Details

The ... argument can be used to set username, password, and/or dbname (see dbConnect). Abbreviations like user and 'pass' are allowed. The default database name is determined by the environment variable ORACLE_SID, which can be redefined within an R session using Sys.setenv(ORACLE_SID="foo").

## Value

A data frame with named rows and the following columns:

| | |
|---|---|
| name | Oracle column name. |
| Sclass | storage mode in R. |
| type | Oracle type. |
| len | Oracle length. |
| precision | Oracle precision. |
| scale | Oracle scale. |
| isVarLength | whether the variable has varying length in Oracle. |
| nullOK | whether the variable can be null. |

Furthermore, the data frame contains two attributes: rows (the number of rows when the table was last analyzed) and analyzed (when the table was last analyzed). These attributes are not available for all Oracle tables, but are more likely to be available when the main argument table has the full owner.table format.

## Note

See the Oracle manuals for details about type, length, precision, scale, and nulls.

## See Also

desc is to Oracle tables as ll (in package **gdata**) is to R data frames.

ora gives an overview of the package.

## Examples

```
## Not run:

desc("dual", tolower=FALSE)

desc("all_users")

## End(Not run)
```

## sql *Import Data from Oracle*

### Description

Run SQL query returning an R data frame.

### Usage

```
sql(query, tolower=TRUE, dots=TRUE, encoding="unknown", useBytes=TRUE,
    stringsAsFactors=FALSE, warn=-1, debug=FALSE, ...)
```

### Arguments

`query` string containing SQL query or the name of a file containing a query.

`tolower` whether column names should be lowercased.

`dots` whether underscores in column names should be replaced with dots, converting ‘`col_name`’ to ‘`col.name`’.

`encoding` passed to `readLines`.

`useBytes` passed to `gsub`.

`stringsAsFactors` whether to convert string columns to factors.

`warn` sets the handling of warning messages, e.g. when Oracle columns are of type ‘`LONG`’.

`debug` whether to return the finalized SQL query string, instead of submitting it to Oracle.

`...` passed to `dbConnect`.

### Details

The `query` is not required to end with a semicolon. In fact, semicolons are removed internally before submitting the query to Oracle.

The arguments `encoding` and `useBytes` enable the user to solve character encoding problems within the SQL query. If the query contains non-ASCII characters, `readLines` and `gsub` (called by `sql`) may convert the query to a different encoding than the Oracle database expects.

The arguments `stringsAsFactors` and `warn` correspond to `options` with the same names, but the session options are not used as default values. Therefore, it is necessary to pass `stringsAsFactors=TRUE` directly to `sql` in order to import string columns as `factor`. This option-overriding is designed to make results more predictable and facilitate collaboration between database users.

`debug=TRUE` is helpful for solving problems, and also to save complex queries (possibly to a file) for later use.

The `...` argument can be used to set `username`, `password`, and/or `dbname` (see `dbConnect`). Abbreviations like `user` and ‘`pass`’ are allowed. The default database name is determined by the environment variable `ORACLE_SID`, which can be redefined within an R session using `Sys.setenv(ORACLE_SID="foo")`.

## Value

Data frame containing the imported data, or a simple string if debug=TRUE.

## See Also

sql is to Oracle tables as read.table is to text files.

ora gives an overview of the package.

## Examples

```
## Not run:


## 1 Basic queries

# Pass query as a simple string
sql("SELECT username,created FROM all_users WHERE rownum<=10")

# Pass query as a multiline string
sql("SELECT extract(year from created) AS year,
            count(username) AS users
       FROM all_users
   GROUP BY extract(year from created)")

# Pass query as a file
write(c("SELECT username, created",
        "FROM all_users",
        "WHERE rownum <= 10;"), "query.sql")
sql("query.sql")


## 2 Review query string, before sending it to Oracle

sql(paste0("SELECT username,created FROM all_users WHERE rownum<=",5+5),
    debug=TRUE)


## End(Not run)
```

---

## tables *List Oracle Tables*

---

## Description

List all tables in the database belonging to a specific owner or table space.

## Usage

```
tables(owner="%", table="%", space="%", tolower=TRUE, ...)
```

## Arguments

`owner` owner name.

`table` table name.

`space` table space name.

`tolower` whether `owner`, `table`, and `space` output entries should be lowercased.

`...` passed to `dbConnect`.

## Details

The arguments `owner`, `table`, and `space` are passed as patterns that are matched by '`LIKE`', where `%` means any number of characters and `_` means exactly one character. Literal `%` and `_` are escaped using two backslashes: `"\\%"` and `"\\_"`.

In other words, the default value `"%"` matches all strings.

The `...` argument can be used to set `username`, `password`, and/or `dbname` (see `dbConnect`). Abbreviations like `user` and '`pass`' are allowed. The default database name is determined by the environment variable `ORACLE_SID`, which can be redefined within an R session using `Sys.setenv(ORACLE_SID="foo")`.

## Value

Data frame containing five columns:

`owner` owner name.

`table` table name.

`space` table space name.

`rows` number of rows when the table was last analyzed.

`analyzed` when the table was last analyzed.

## Note

The output is a subset of '`ALL_TABLES`' in Oracle, with simplified column names:

| | |
|---|---|
| '`OWNER`' | '`-> owner`' |
| '`TABLE_NAME`' | '`-> table`' |
| '`TABLESPACE_NAME`' | '`-> space`' |
| '`NUM_ROWS`' | '`-> rows`' |
| '`LAST_ANALYZED`' | '`-> analyzed`' |

## See Also

`tables` is to Oracle as `ll` (in package **gdata**) is to R environments.

`ora` gives an overview of the package.

## Examples

```
## Not run:
```

```
# Tables belonging to owner "sys":
tables("sys")

# Tables whose name contains "map", preceded by at least one character:
tables(,"%_map%")

# Tables whose name ends with "_map":
tables(,"%\\_map")


## End(Not run)
```

## views *List Oracle Views*

### Description

List all views in the database belonging to a specific owner.

### Usage

```
views(owner="%", view="%", tolower=TRUE, ...)
```

### Arguments

| | |
|---|---|
| `owner` | owner name. |
| `view` | view name. |
| `tolower` | whether `owner` and `view` output entries should be lowercased. |
| `...` | passed to `dbConnect`. |

### Details

The arguments `owner` and `view`, are passed as patterns that are matched by ‘`LIKE`’, where `%` means any number of characters and `_` means exactly one character. Literal `%` and `_` are escaped using two backslashes: `"\\%"` and `"\\_"`.

In other words, the default value `"%"` matches all strings.

The `...` argument can be used to set `username`, `password`, and/or `dbname` (see `dbConnect`). Abbrevations like `user` and ‘`pass`’ are allowed. The default database name is determined by the environment variable `ORACLE_SID`, which can be redefined within an R session using `Sys.setenv(ORACLE_SID="foo")`.

### Value

Data frame containing two columns:

| | |
|---|---|
| `owner` | owner name. |
| `view` | view name. |

## Note

The output is a subset of ‘`ALL_VIEWS`’ in Oracle, with simplified column names:

| | |
|---|---|
| ‘OWNER’ | ‘-> owner’ |
| ‘VIEW_NAME’ | ‘-> view’ |

### See Also

views is to Oracle as ll (in package **gdata**) is to R environments.

ora gives an overview of the package.

### Examples

```
## Not run:

# Views belonging to owner "sys":
views("sys")

# Views whose name contains "all", followed by at least one character:
views(,"%all_%")

# Views whose name begins with "all_":
views(,"all\\_%")


## End(Not run)
```

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