

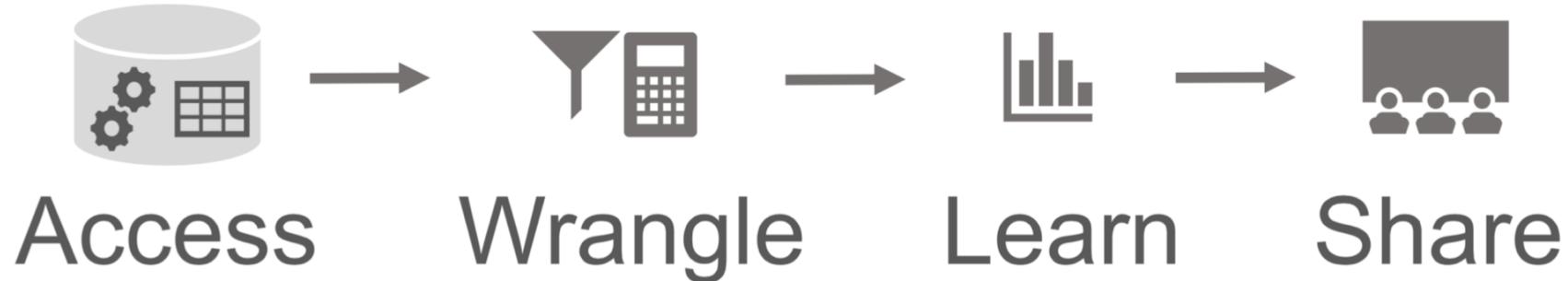
Databases with RStudio

with RStudio Professional Drivers



Using Databases with R

- You can use R with almost any data source



- But historically it's not always easy

Obstacles when using databases with R

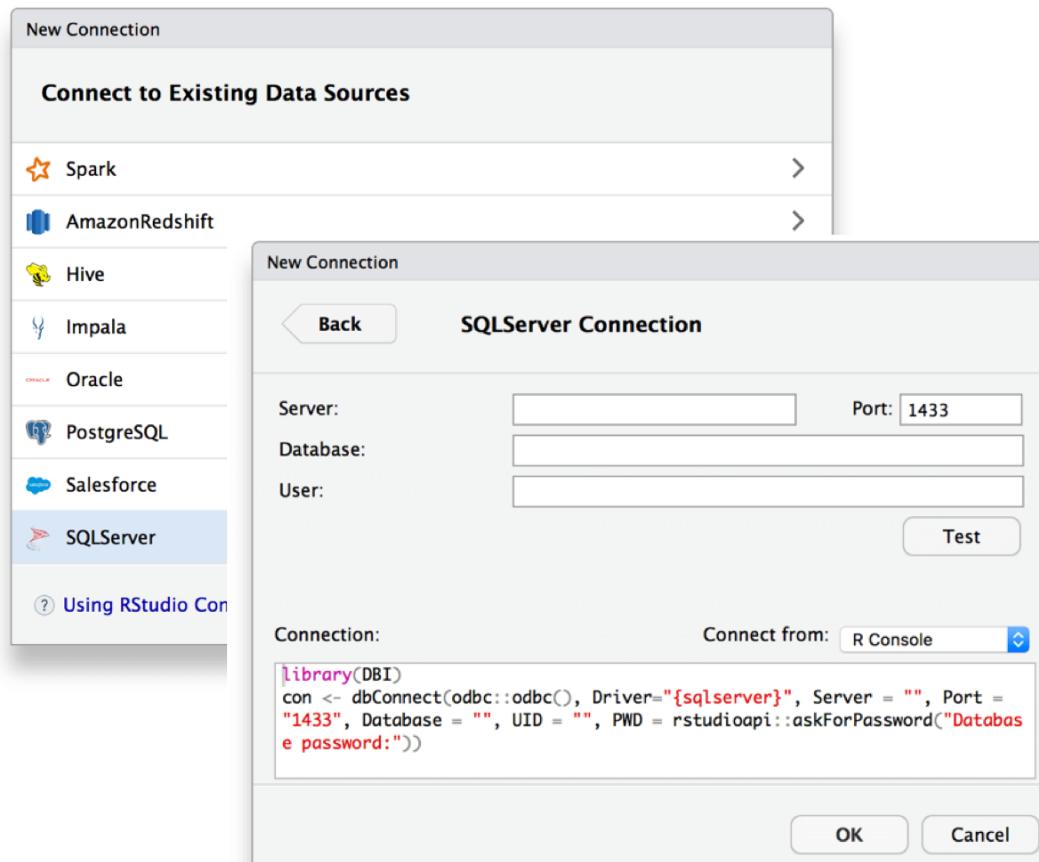
Obstacles	Examples
Hard to establish connections and access data	R users often use one tool for SQL and another tool for R
No consistent toolset or language	R users interchange SQL and R to talk to the exact same data
Setup and configuration is confusing	R users unable to access their databases
No centralized place to get information	R users get their information from package manuals

What's new from RStudio

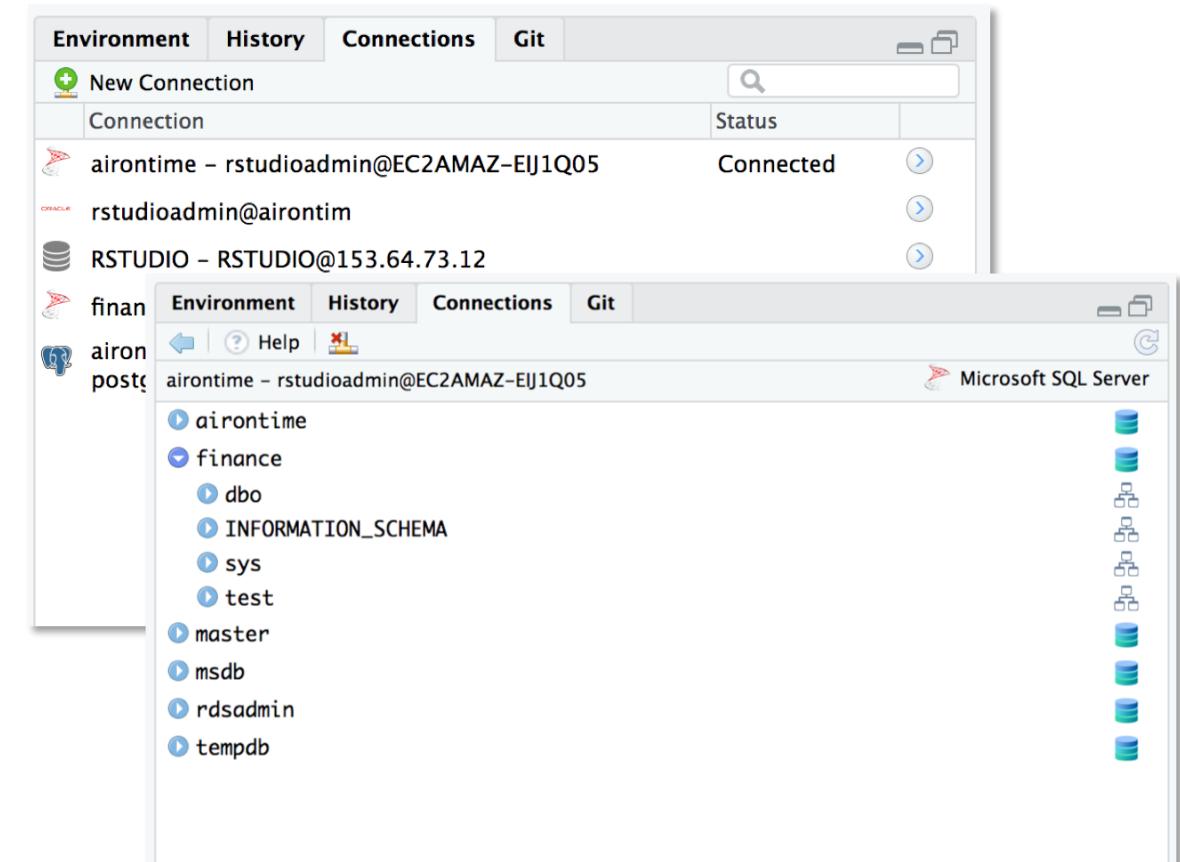


RStudio version 1.1 new features

Connection wizard

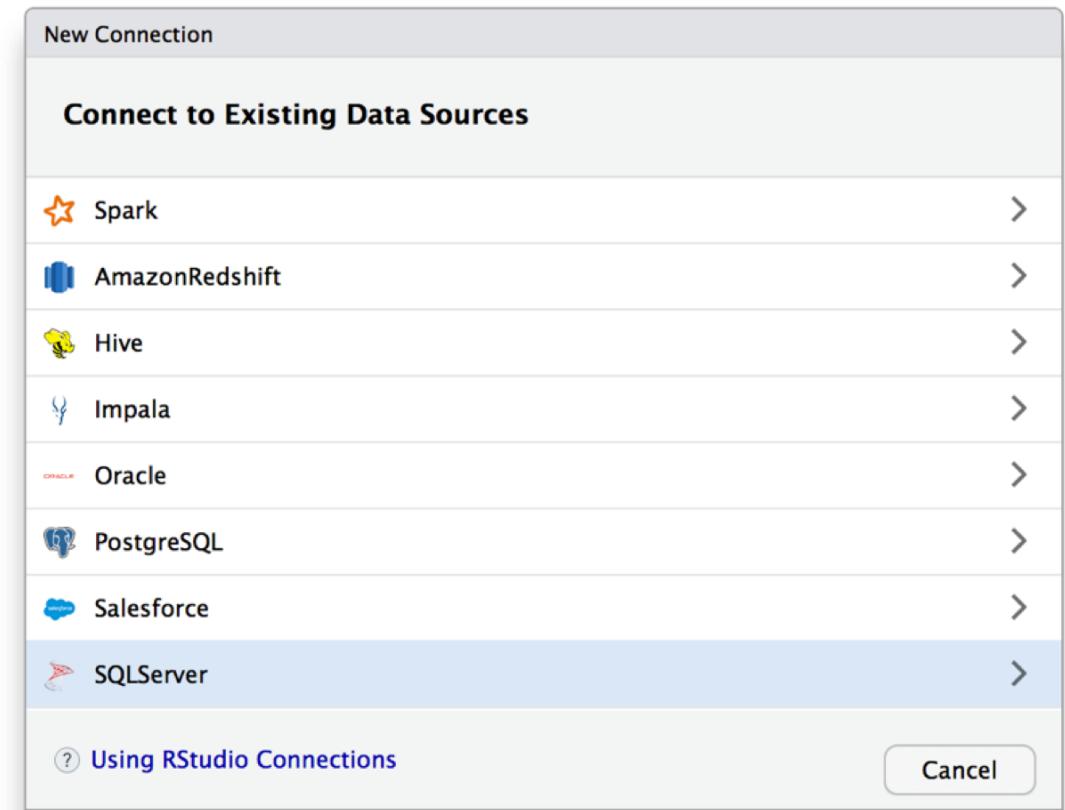


Connections tab



Connection methods

1. ODBC drivers
2. Data source names (DSN)
3. R Snippets
4. R Packages



Improved R Packages

- DBI
 - Standard database interface for R
 - Query your database with SQL
 - Do database operations
- dplyr
 - Query your database with R code
 - Generalized SQL backend
 - dbplyr [New!] translates dplyr syntax to SQL for specific databases

dplyr syntax

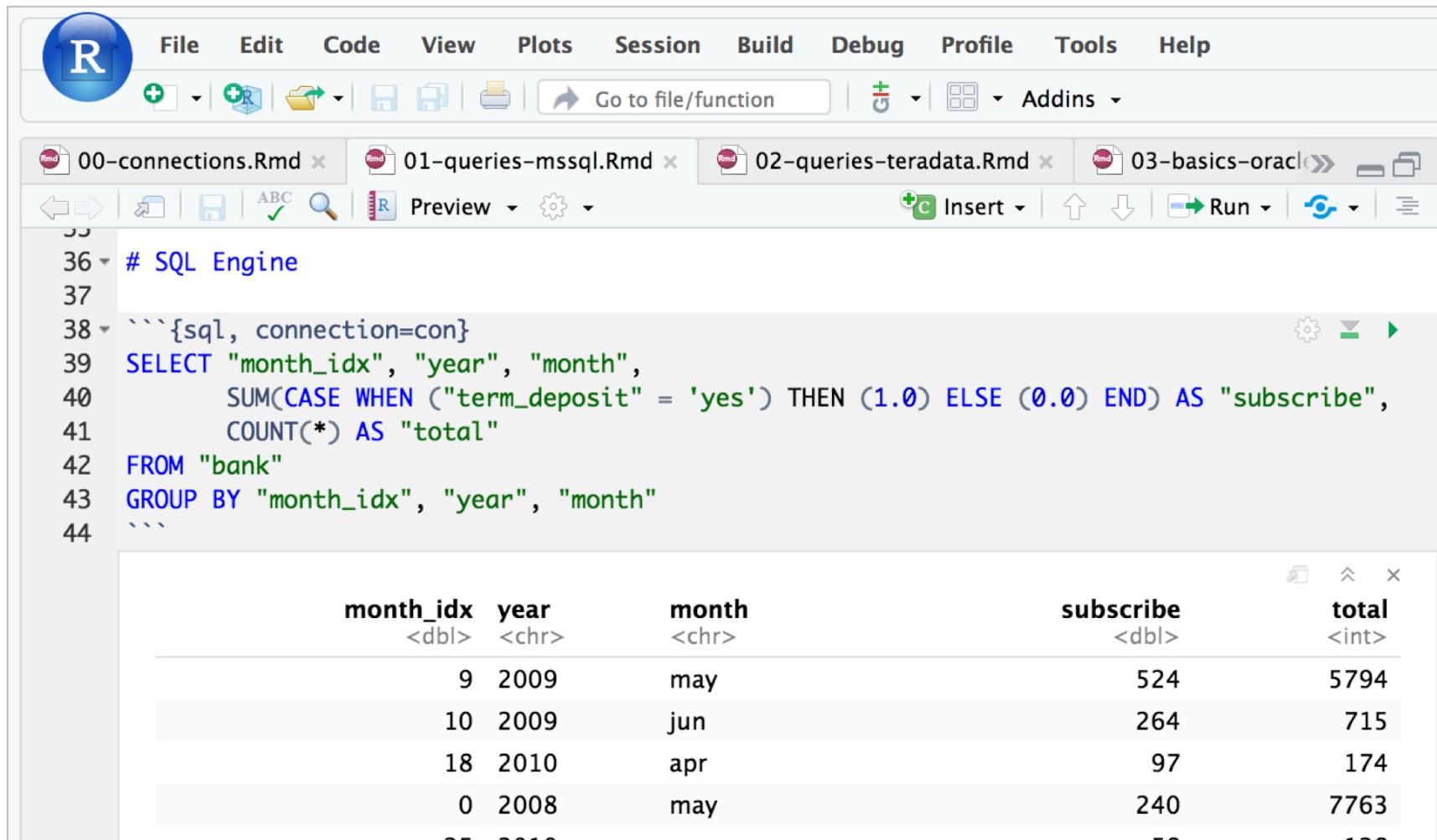
**Use dplyr
verbs**

```
flights %>%  
  group_by(name) %>%  
  tally()
```

**Write SQL
statements**

```
SELECT "name",  
       COUNT(*) AS "n"  
  FROM "vwFlights"  
 GROUP BY "name"
```

SQL Language Engine for: *R Markdown and R Notebooks*



The screenshot shows the RStudio interface with an R Markdown document open. The code editor displays the following SQL query:

```
35
36 # SQL Engine
37
38 ```{sql, connection=con}
39   SELECT "month_idx", "year", "month",
40         SUM(CASE WHEN ("term_deposit" = 'yes') THEN (1.0) ELSE (0.0) END) AS "subscribe",
41         COUNT(*) AS "total"
42   FROM "bank"
43   GROUP BY "month_idx", "year", "month"
44 ```



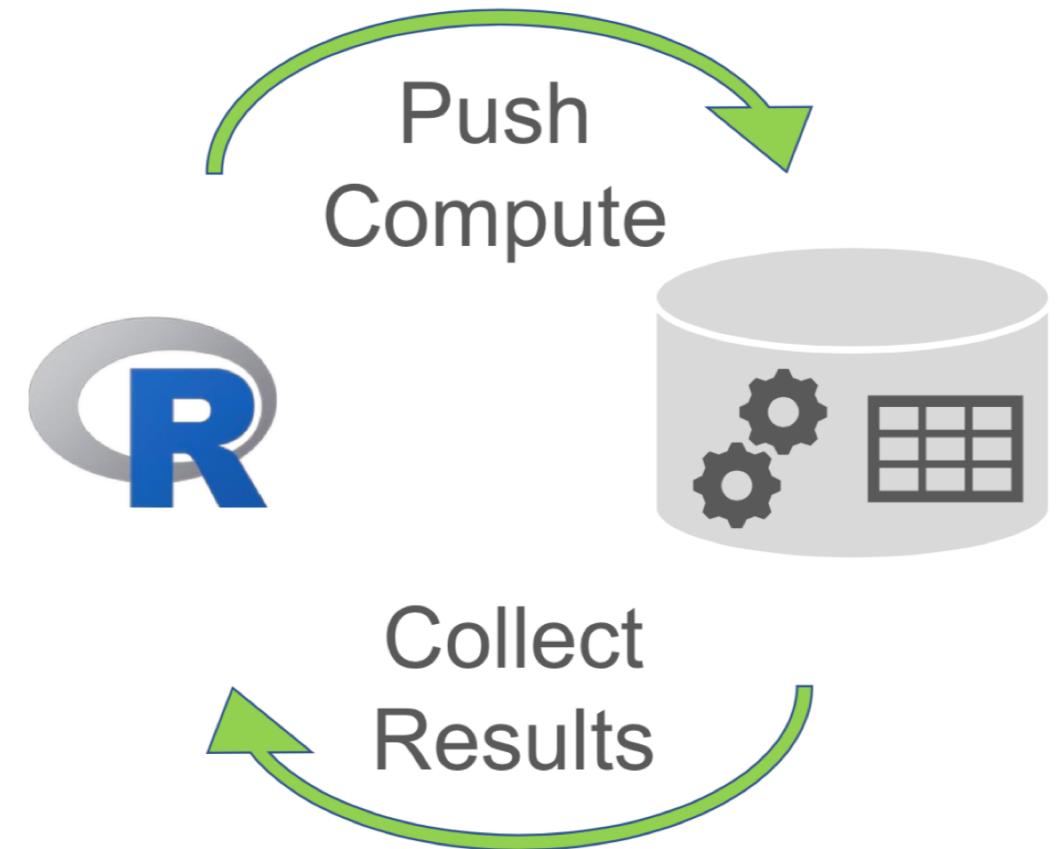
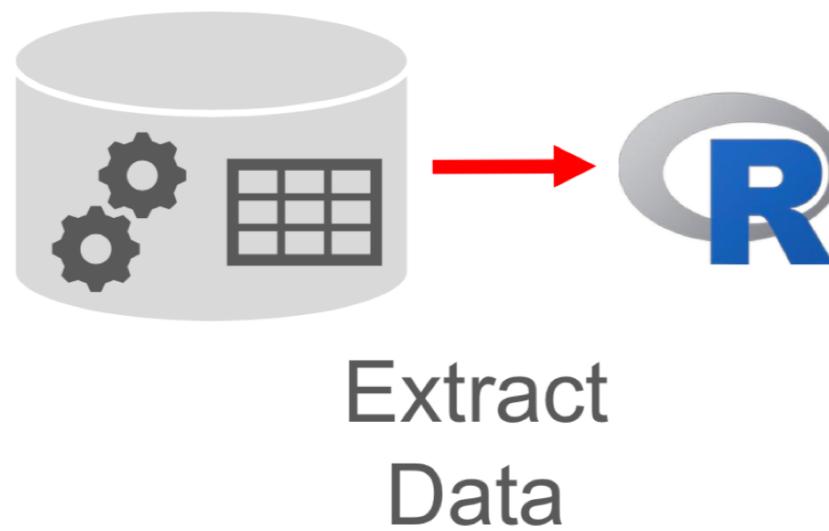
The resulting data frame is displayed below the code editor:



| month_idx | year | month | subscribe | total |
|-----------|------|-------|-----------|-------|
| 9         | 2009 | may   | 524       | 5794  |
| 10        | 2009 | jun   | 264       | 715   |
| 18        | 2010 | apr   | 97        | 174   |
| 0         | 2008 | may   | 240       | 7763  |
| 25        | 2010 | dec   | 52        | 120   |


```

Push computation to the database



New R package for connecting with ODBC

odbc [New!]

- Connects R to any data source via ODBC
- Bring your own driver or use RStudio Professional Drivers
- DBI compliant
- Actively developed
- Designed for performance

Database connection methods

odbc [New!]

- Connects R to any data source via ODBC
- Bring your own driver or use RStudio Professional Drivers
- DBI compliant
- Actively supported
- Designed for performance

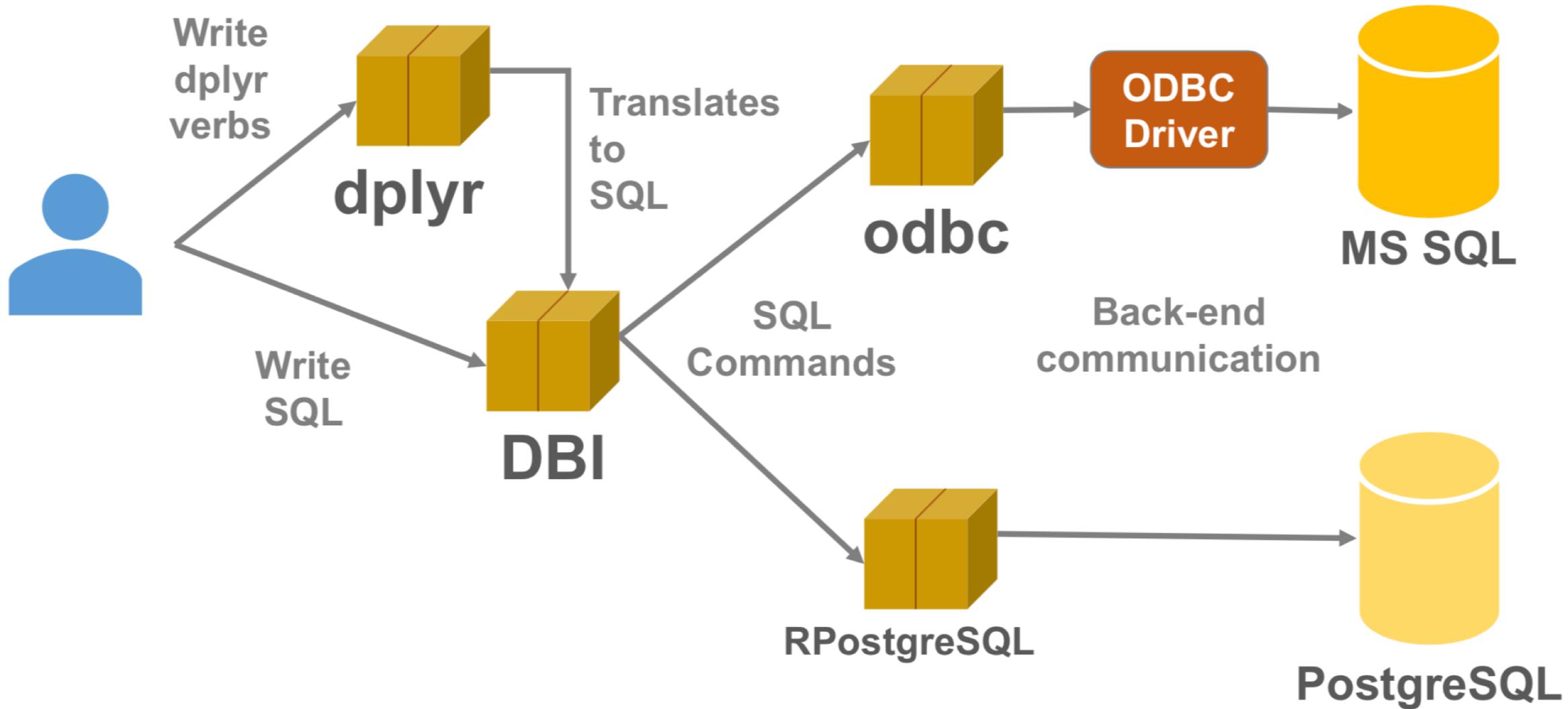
R Packages

- RSQLite
- rpostgres
- bigrquery
- [...]

RJDBC

- Connect to any data source via JDBC
- Requires JDBC driver
- Requires Java

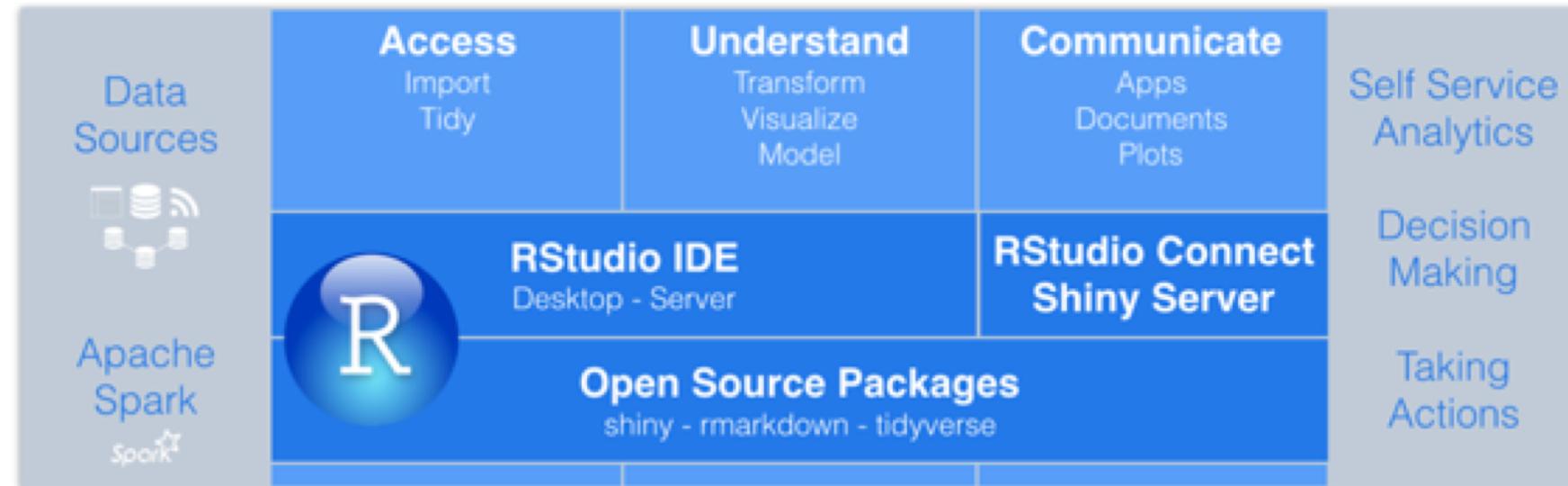
Establish a database connection with RStudio



RStudio Professional Drivers [new!]

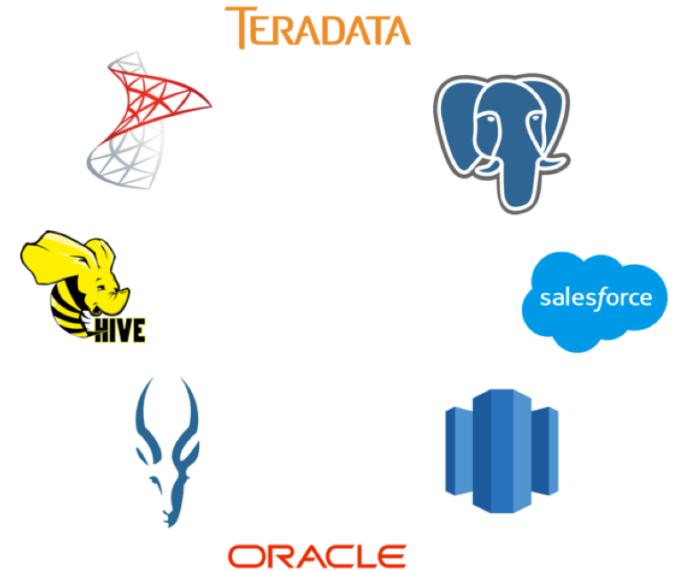
Access your data from R with RStudio professional products at no additional charge.

- RStudio Server Pro
- Shiny Server Pro
- RStudio Connect



RStudio Professional Drivers

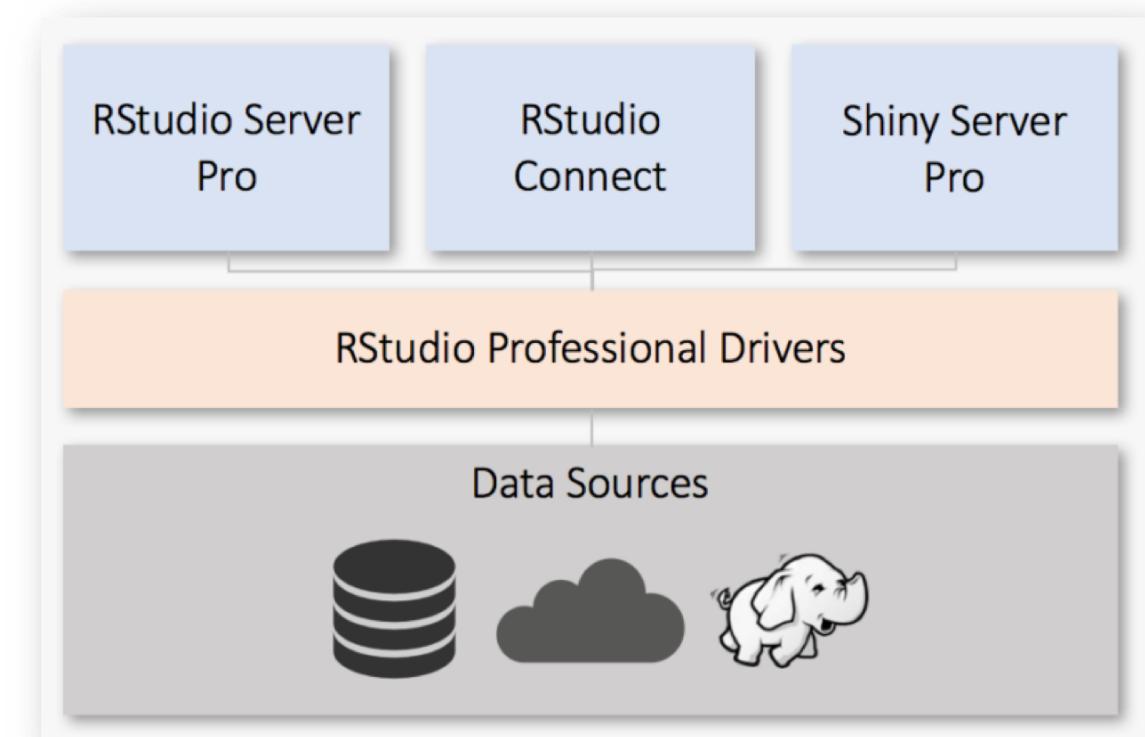
- Coverage
 - Connect to many popular databases
- Convenience
 - Easy to install and configure
- Consistent
 - Use with all RStudio pro products
- Professional
 - Supported for production level work



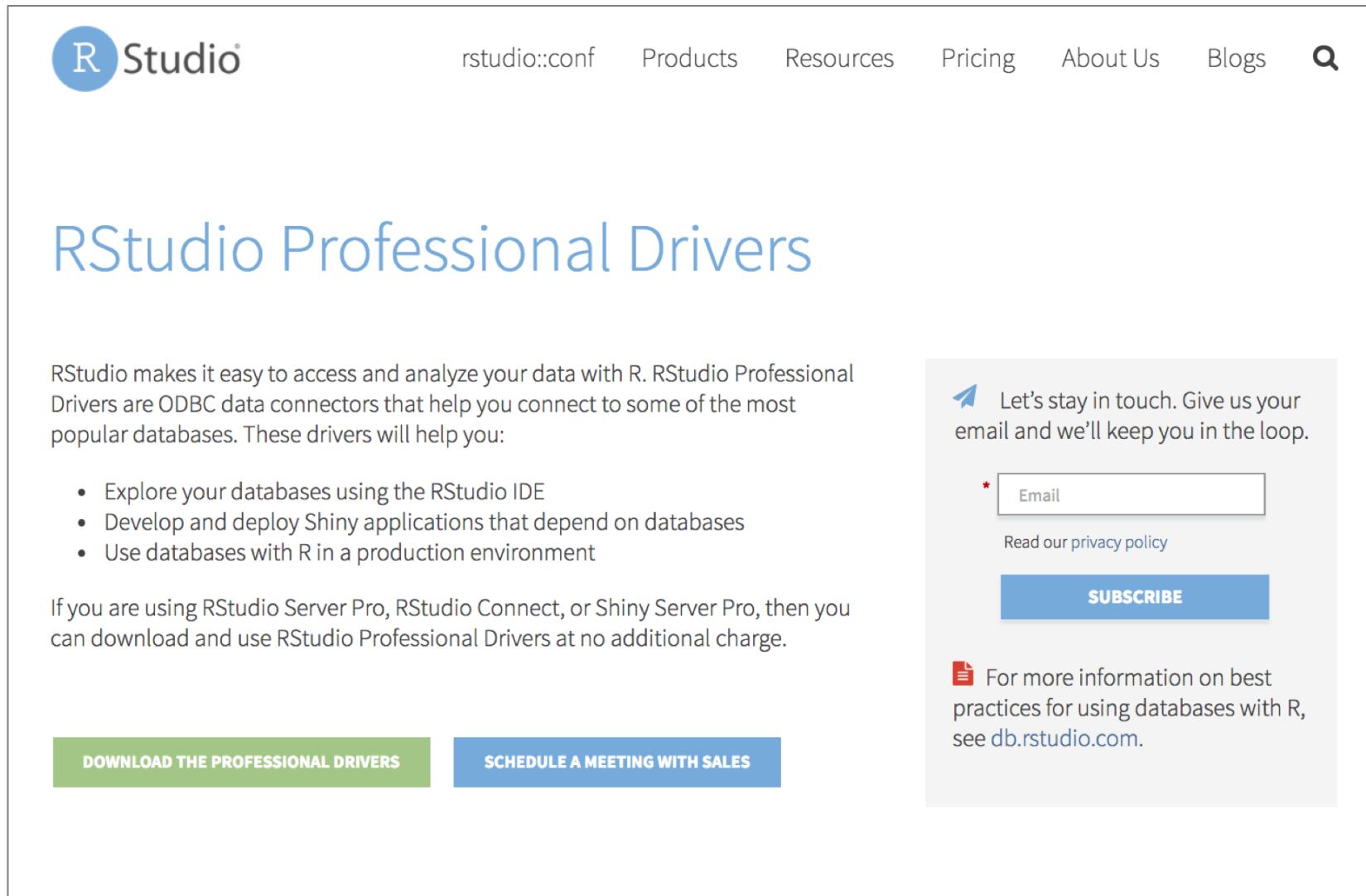
<i>Teradata</i>	<i>Oracle</i>
<i>PostgreSQL</i>	<i>Impala</i>
<i>Salesforce</i>	<i>Hive</i>
<i>Redshift</i>	<i>SQL Server</i>

RStudio Professional Drivers in Production

- Using R and databases in production
 - Shiny applications
 - R Markdown reports
- Benefits of pro drivers
 - Support for the entire workflow
 - Professional license
 - Consistent dev/test/prod environment



Download at: rstudio.com/products/drivers



The screenshot shows the RStudio website's navigation bar with links for rstudio::conf, Products, Resources, Pricing, About Us, and Blogs, along with a search icon. The main heading "RStudio Professional Drivers" is displayed in large blue text. Below it, a paragraph explains what the drivers are and how they can be used. A bulleted list follows, detailing their applications. A note for RStudio Server Pro users is present. At the bottom, two calls-to-action are visible: "DOWNLOAD THE PROFESSIONAL DRIVERS" and "SCHEDULE A MEETING WITH SALES". To the right, there's a sidebar with a newsletter sign-up form and a link to best practices documentation.

RStudio makes it easy to access and analyze your data with R. RStudio Professional Drivers are ODBC data connectors that help you connect to some of the most popular databases. These drivers will help you:

- Explore your databases using the RStudio IDE
- Develop and deploy Shiny applications that depend on databases
- Use databases with R in a production environment

If you are using RStudio Server Pro, RStudio Connect, or Shiny Server Pro, then you can download and use RStudio Professional Drivers at no additional charge.

[DOWNLOAD THE PROFESSIONAL DRIVERS](#) [SCHEDULE A MEETING WITH SALES](#)

 Let's stay in touch. Give us your email and we'll keep you in the loop.

* Email
[Read our privacy policy](#)

[SUBSCRIBE](#)

 For more information on best practices for using databases with R, see db.rstudio.com.

Learn more at db.rstudio.com

Databases using R from R Studio

dplyr DBI Best Practices Databases Advanced

Packages

- dplyr
- DBI
- odbc
- pool

RStudio

Connections Pane

Best Practices

- Setting up ODBC Drivers
- Run Queries Safely
- Securing Deployed Content
- Securing Credentials
- Making Scripts Portable
- Creating Visualizations

Databases using R

At RStudio, we are working to make it as easy as possible to work with databases in R. This work focuses on three key areas:

- **Developing best-in-class packages** These packages include: `dplyr`, `odbc`, `keyring`, `pool` and others.
- **Integrating with RStudio** Starting with version 1.1, RStudio helps you write the R code you need to connect to a database, remembers connections you've made, and allows you to explore the objects and data in your database.
- **Promoting best practices** This website is the main way we provide support in this area. RStudio is also working through other delivery channels, like upcoming webinars and in-person training at [rstudio::conf 2018](#)

Explore databases inside RStudio v1.1

The new RStudio **Connections Pane** makes it possible to easily connect to a variety of data sources, and explore the objects and data inside the connection.

R Admins at community.rstudio.com

R Studio Community

This category is for discussions about R in production, at scale, and in complex environments.

R Admins > all tags > Latest New (1) Unread (1) Top

Edit + New Topic

Topic	Users	Replies	Views	Activity
RStudio Connect scheduled reports with trigger •new rstudioconnect	M, L	2	37	7h
What are the main limits to R in a production environment?	S, N, A, T, P, L	23	1.9k	18h
Running RStudio Connect through a docker container docker, rstudioconnect	N, R, L	3	65	22h
How to get started with R for production?	F, A, R, L	6	228	7d
Understanding DBBIND from DBI postgres, postgresql, shiny, odbc, dbi	A, L	1	58	8d
R studio Pro integration with Active Directory activedirectory	N, A, L, R, D	5	137	9d
Internal CRAN-like system - best practices	A, L, N, K, T, R	16	637	9d
Texlive distribution on centOS for RStudio Server and Connect	L	0	42	11d
Is there any project for making base R faster	A, L, T, P, R	6	278	15d
RStudio Connect for sharing apps externally? rstudioconnect, shiny	A, L, R	2	133	18d