



# Managing instances of IBM Bluemix DBaaS services

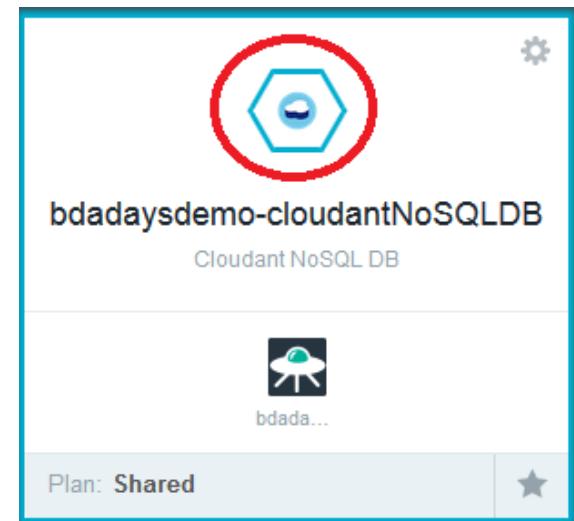


# After you complete this unit, you should understand:

- The tools that you can use to manage the following DBaaS services in IBM Bluemix:
  - Cloudant NoSQL DB
  - dashDB
  - SQL Database

# Cloudant NoSQL DB Dashboard

- Launched from the service icon's hexagon
- Uses the Cloudant API to provide the following capabilities:
  - Create and delete databases
  - Create, read, update, and delete data
  - Manage permissions and active tasks
  - Replicate or share databases



# Cloudant Dashboard

The screenshot shows the Cloudant Dashboard for the 'animaldb' database. The left sidebar contains navigation links for Databases, Replication, Active Tasks, Documentation, Support, and Account. The main area displays the 'animaldb' database interface with tabs for Docs, New, and Database. The 'All documents' tab is selected, showing a list of 11 rows. The first three rows are displayed as JSON documents:

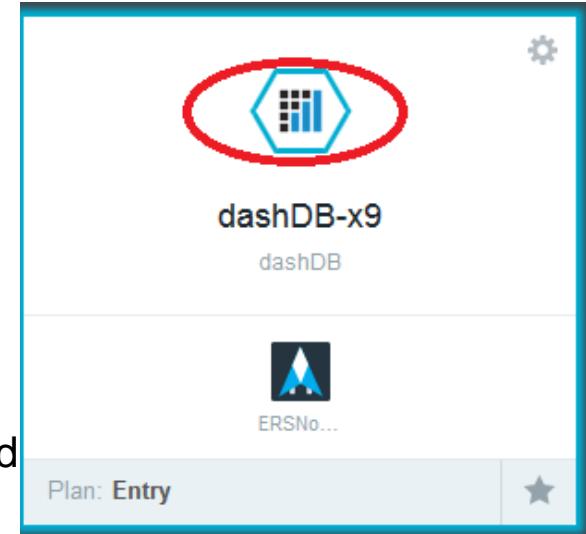
```
{ "_id": "_design/views101", "_rev": "1-a918dd4f11704143b535f0ab3af4bf75", "value": { "rev": "1-a918dd4f11704143b535f0ab3af4bf75" }, "key": "_design/views101" }
```

```
{ "_id": "aardvark", "_rev": "3-fe45a3e06244adbe7ba145e74e57aba5", "value": { "rev": "3-fe45a3e06244adbe7ba145e74e57aba5" }, "key": "aardvark" }
```

```
{ "_id": "badger", "_rev": "4-51aa94e4b0ef37271082033bba52b850", }
```

# dashDB Console

- Launched from the service icon's hexagon
- Provides the following capabilities:
  - Load
    - Load data into dashDB from your workstation, cloud storage, other databases, or from on-premises servers
  - Work with tables
    - Browse your dashDB data by drilling down into the tables, rows, and columns
  - Run SQL
    - Run SQL queries to locate or identify specific information in your data
  - Analytics with R
    - Run R Scripts to develop statistical models and plot their results based on dashDB data
    - Provides an integrated RStudio environment that you can use to develop R scripts and analyze your data



# dashDB Console

The screenshot shows the IBM dashDB™ console. At the top, there's a navigation bar with a menu icon, the title "IBM dashDB™", a progress bar at 0% (labeled "dashDB-v9"), and an email link "carew@us.ibm.com". On the left is a sidebar with links: Home, Tables, Load (with a dropdown arrow), Run SQL, Analytics (with a dropdown arrow), Monitor (with a dropdown arrow), Settings (with a dropdown arrow), Connect (with a dropdown arrow), and Help (with a dropdown arrow). The main content area has a blue header with the text "Welcome. Your database is ready." and a close button (an 'X' in a circle). Below it is a descriptive paragraph about the features of dashDB, followed by two buttons: "Load your data" and "Go to your tables". The background of the main area features a blurred image of a workspace with a laptop, a mouse, and papers. A large, bold "Work Faster" text is overlaid on the bottom right. At the very bottom, the text "IBM dashDB is the premiere cloud" is visible.

IBM dashDB™

0% dashDB-v9 carew@us.ibm.com

Home

Tables

Load >

Run SQL

Analytics >

Monitor >

Settings >

Connect >

Help >

Welcome. Your database is ready.

Welcome to IBM dashDB. You can load your data, run SQL queries against the data, and use tools to explore predictive analysis and in-database analytics. Sample data is already loaded. Start exploring the power of dashDB!

Load your data Go to your tables

Work Faster

IBM dashDB is the premiere cloud

# dashDB Console: Running R Scripts

Run R scripts to analyze, manipulate, and visualize your data

Create a new script, import a script, or use a sample script. [Learn more](#)

[+](#) [RStudio](#) [Import](#) 

**Sample Projects**

- [In-Application Analytics](#)
  - Customer Acquisition
  - Customer Churn
  - Customer Winback
  - Server Memory Usage
- [In-Database Analytics](#)
  - Server Memory Usage
  - Customer Segmentation (k-means)
  - Customer Churn (naive Bayes)
  - Market Basket Analysis
- [Data Visualization](#)
  - Education Level by Gender
  - Veteran Status by Gender
  - Class of Worker

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**My Projects** 

[Learn More](#)

## Script Name: Education Level by Gender

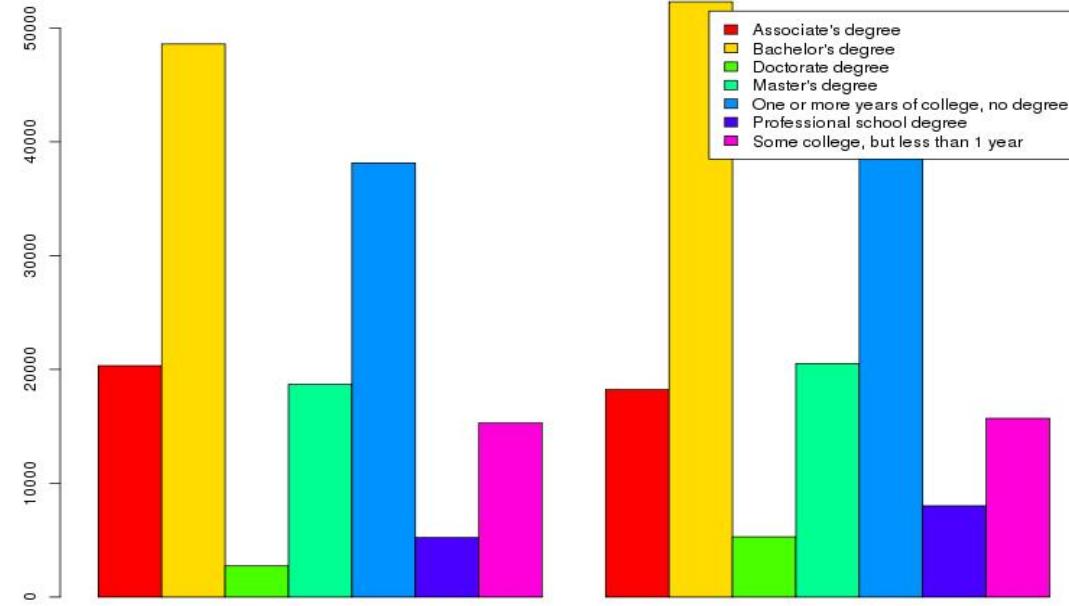
Description: This sample shows how to use R visualization to understand how the education level is distributed among males and females.

Click **Submit** to generate a plot. Errors, warnings, or messages are sent to the Console Output page.

[Script](#) [Console Output](#) [Plots](#)

[CSV](#) [PDF](#)

Histogram Of Education Level by Gender



# dashDB Console: Running RStudio

The screenshot shows the RStudio interface running within a browser window. The top bar includes the URL 'awh-yp-small03.services.dal.bluemix.net:8787', a search bar, and various tool icons. The top menu bar has options like File, Edit, Code, View, Plots, Session, Build, Debug, Tools, and Help. A session-specific header 'dash100623 | Sign Out' and 'Project: (None)' are visible.

The left pane contains the 'Console' tab with the following R session output:

```

Content type 'application/x-gzip' length 39037 bytes (38 Kb)
opened URL
=====
downloaded 38 Kb

trying URL 'http://cran.rstudio.com/src/contrib/waveslim_1.7.5.tar.gz'
Content type 'application/x-gzip' length 716496 bytes (699 Kb)
opened URL
=====
downloaded 699 Kb

trying URL 'http://cran.rstudio.com/src/contrib/nonlinearTseries_0.2.1.tar.gz'
Content type 'application/x-gzip' length 124872 bytes (121 Kb)
opened URL
=====
downloaded 121 Kb

trying URL 'http://cran.rstudio.com/src/contrib/RHRV_4.0.tar.gz'
Content type 'application/x-gzip' length 3138947 bytes (3.0 Mb)
opened URL
=====
downloaded 3.0 Mb

Loading required package: RODBC
Loading required package: ibmdbR
Loading required package: MASS
Loading required package: grDevices
Loading required package: graphics
Loading required package: stats
Loading required package: utils
* installing *source* package 'Matrix' ...
** package 'Matrix' successfully unpacked and MD5 sums checked
** libs
gcc -m64 -std=gnu99 -I/usr/include/R -DNDEBUG -DNTIMER -I./SuiteSparse_config -I/usr/local/include -fpic -O2 -g -pipe -Wall -Wp,-D_FORTIFY_SOURCE=2 -fexceptions -fstack-protector --param=ssp-buffer-size=4 -m64 -mtune=generic -c CHMfactor.c -o CHMfactor.o
gcc -m64 -std=gnu99 -I/usr/include/R -DNDEBUG -DNTIMER -I./SuiteSparse_config -I/usr/local/include -fpic -O2 -g -pipe -Wall -Wp,-D_FORTIFY_SOURCE=2 -fexceptions -fstack-protector --param=ssp-buffer-size=4 -m64 -mtune=generic -c Csparse.c -o Csparse.o
gcc -m64 -std=gnu99 -I/usr/include/R -DNDEBUG -DNTIMER -I./SuiteSparse_config -I/usr/local/include -fpic -O2 -g -pipe -Wall -Wp,-D FORTIFY_SOURCE=2 -fexceptions -fstack-protector --param=ssp-buffer-size=4 -m64 -mtune=generic -c SuiteSparseQR.c -o SuiteSparseQR.o

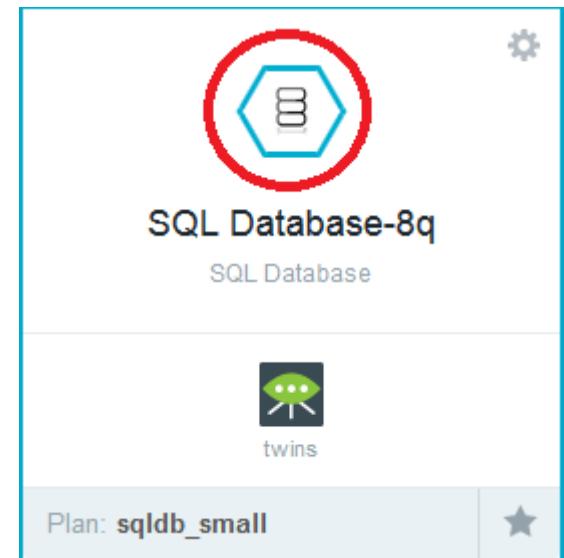
```

The right pane shows the 'Environment' tab with the message 'Environment is empty'. Below it is the 'Packages' tab, which lists installed packages:

Package	Description	Version
<a href="#">arules</a>	Mining Association Rules and Frequent Itemsets	1.1-6
<a href="#">arulesViz</a>	Visualizing Association Rules and Frequent Itemsets	1.0-0
<a href="#">bitops</a>	Bitwise Operations	1.0-6
<a href="#">caTools</a>	Tools: moving window statistics, GIF, Base64, ROC AUC, etc.	1.17.1
<a href="#">cluster</a>	Cluster Analysis Extended Rousseeuw et al.	2.0.1
<a href="#">colorspace</a>	Color Space Manipulation	1.2-4
<a href="#">compiler</a>	The R Compiler Package	3.2.0
<a href="#">datasets</a>	The R Datasets Package	3.2.0
<a href="#">dichromat</a>	Color Schemes for Dichromats	2.0-0
<a href="#">digest</a>	Create cryptographic hash digests of R objects	0.6.4
<a href="#">gclus</a>	Clustering Graphics	1.3.1
<a href="#">gdata</a>	Various R Programming Tools for Data Manipulation	2.16.1
<a href="#">grid</a>	An implementation of the Grammar of Graphics	1.0.0
<a href="#">googleVis</a>	R Interface to Google Charts	0.5.8
<a href="#">gplots</a>	Various R Programming Tools for Plotting Data	2.17.0
<a href="#">graphics</a>	The R Graphics Package	3.2.0

# SQL Database Console

- Launched from the service icon's hexagon
- Provides the following capabilities:
  - Manage
    - Work with database objects
      - View existing database objects, modify and create new database objects, and run queries
    - Load Data
      - Load data from external sources
    - Backup Data
      - Back up databases
    - Restore Data
      - Restore databases
  - Monitor
    - Connections
      - View all connections to the database
    - Data Privacy
      - View data privacy reports generated by Guardium that show objects that contain sensitive data or activity that occurs on sensitive data
    - SQL Statements
      - View previously executed SQL statements
    - Database Storage
      - View the list of table spaces and their status



# SQL Database Console: Landing page

IBM SQL Database

carew@us.ibm.com ? IBM

Getting Started Manage ▾ Monitor ▾ Set Up ▾

Getting Started

## Welcome to the SQL Database Console

Explore the administration tasks that the console offers by clicking on the topics below.

**Manage**

-  **Work with Database Objects**  
View and drill down into existing database schema objects and modify and create new database objects and data using Run DDL.
-  **Load Data**  
Load the data from your data source into a database table for the cloud.
-  **Backup Data**  
Back up the data for the cloud database to store it in a different location.
-  **Restore Data**  
Restore the data to the cloud database from a different location.

**Monitor**

-  **Connections**  
View the applications that are connected to a database.
-  **Data Privacy**  
View data privacy reports generated by Guardium that show objects which contain sensitive data or activity which occurs on sensitive data.
-  **SQL Statements**  
View SQL statements for a database.
-  **Database Storage**  
View the list of table spaces and their status in a database.

# Summary

- In this unit, you learned about the tools available to manage the following DBaaS services in IBM Bluemix:
  - Cloudant NoSQL Database service
    - Web-based dashboard built on of Cloudant API
  - dashDB service
    - Web-based console that manages data import, database management, and analytics by using R
  - SQL database service
    - Web-based console enables database management and monitoring capabilities