



Your R application on a Cloud Computing Cluster

Your Calculation Cloud

- Access to computer clusters in the cloud
 - Up to 1000 cores, high memory machines, GPUs
- Pre-installed software
 - R, Perl, Python, Freemat, Gromacs, CGA-Tools,
...
- Ready to use within minutes



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Dashboard

The screenshot shows a web browser window with the URL <https://my.cloudnumbers.com/dashboard>. The page features the cloudnumbers.com logo and a 'BETA' label. Navigation links include 'Dashboard', 'My Account', 'Articles & Support', 'cloudnumbers.com', and 'Logout'. A 'How to get started' link is also present.

On the left, there is a vertical sidebar with 'Help' and 'Upgrade' buttons. The main content area is divided into two sections: 'Workspaces' and 'Sessions'.

Workspaces (1 of 1 used)

ID	Name	Size	Actions
290	Sample Workspace	6.76 KB	

Buttons: [Create Workspace](#)

Remaining included cost: **\$0.89999986**

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Sessions

ID	Name	Workspace	Start	Application Type	State	Actions
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Buttons: [Start old Session](#), [Start Session](#)

Please note: all terminated sessions will be removed from this grid after 24 hours.

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RStudio is a trademark of RStudio, Inc.

Start Session – 1. Workspace

Start Session x

1. Workspace | 2. Applications | 3. R Packages | 4. Instance Type | 5. Confirm

Select Workspace

Select a workspace you want to use within your session. The files of the selected workspace will be available on the session instances.

Output and result data can be stored in the workspace and will also be available after the shutdown of your cluster.

test

Select Databases

Select the datasets that you want to make available on your cluster. Detailed information about datasets can be found in our [Knowledge Base](#).

If you are missing a Database contact us support@cloudnumbers.com.

- Complete Genomics
- UniProtKB
 - UniProtKB
- ICGC Genomes
- PubMed Central

Previous Next

Start Session – 2. Applications

Start Session x

1. Workspace 2. Applications 3. R Packages 4. Instance Type 5. Confirm

Applications

Choose the applications you want to use on your cluster.

Start Session – 3. R Packages

Start Session


1. Workspace 2. Applications **3. R Packages** 4. Instance Type 5. Confirm


Customize R



Customize the installation of R on your cluster by specifying the packages that should be installed. Almost all packages that are available in the CRAN and BioConductor repository can be selected.

Required system packages that are needed for your packages will automatically be installed, e.g. if selecting the package `rgl`, the required OpenGL libraries will be set up for you.

If you are missing a package, please contact us: support@cloudnumbers.com!

 **Select CRAN Packages:**

 **Select BioConductor Packages:**

 snow x  affy x

Start Session – 4. Instance Type

Start Session ×

1. Workspace 2. Applications 3. R Packages **4. Instance Type** 5. Confirm

Choose an Instance Type

Choose the hardware you want to compute on.

Instance Type: Extra High Memory
Threads: 8 (26 GHz)
RAM: 68 GB

Cluster Size:

Price: \$7.60/h

The maximum cluster size is 128.

Start Session – 5. Confirm

Start Session x

1. Workspace | 2. Applications | 3. R Packages | 4. Instance Type | 5. Confirm

Confirm

Please confirm your selected options. If you want to start the instances as specified below, click the Finish button.

Workspace: test

Databases:

Application: R

Additional R Packages: snow, affy

Instance Type: Extra High Memory (8 Threads, 68 GB RAM)

Cluster Size: 4


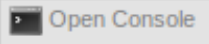




Additionally you can name this session:

Starting process

Sessions

Start old Session

Start Session

ID	Name	Workspace	Start	Application Type	State	Actions
s-641cf		Sample Workspace	2011-07-21 14:16:28	R	STARTING 	 Open Console    

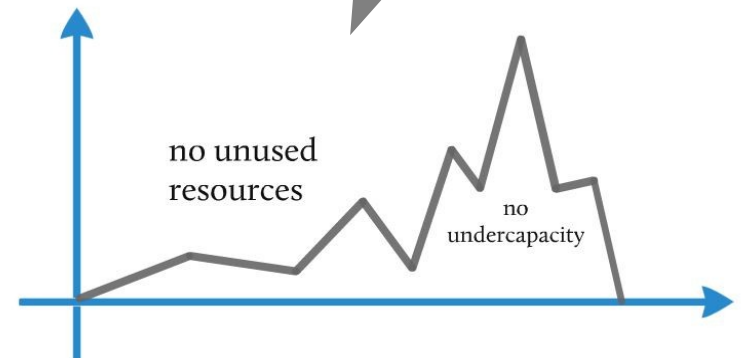
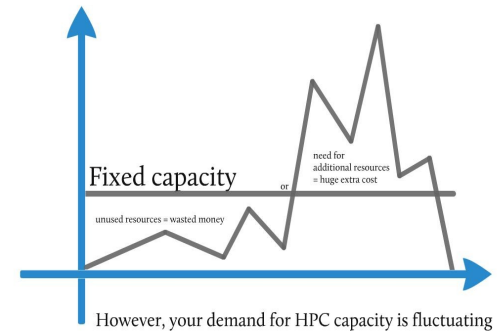
Please note: all terminated sessions will be removed from this grid after 24 hours.

Your Advantages

→ Scalability

→ No maintenance costs

→ Pay on-demand



You pay only for what you need.

Your Advantages

→ Security



→ Access to public databases
(without download costs)



→ Share your data



R on a Cloud Computing Cluster



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Stop Session

Session Info

Session State: **RUNNING**

Start Date: 2011-08-04 GMT+02:00 09:58

Application: RStudio™

Price: **FREE**

Show Details Install Packages

File Explorer

- test1
 - benchmark.R
 - performanceTest.R

Console

```
R version 2.12.1 (2010-12-16)
Copyright (C) 2010 The R Foundation for Statistical Computing
ISBN 3-900051-07-0
Platform: x86_64-pc-linux-gnu (64-bit)

R is free software and comes with ABSOLUTELY NO WARRANTY.
You are welcome to redistribute it under certain conditions.
Type 'license()' or 'licence()' for distribution details.

Natural language support but running in an English locale

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

Loading required package: utils
BioC_mirror = http://bioconductor.org
Change using chooseBioCmirror().
> library(snow)
```

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Use your favorite R GUI: RStudio



The screenshot displays the RStudio interface with the following components:

- Source Editor:** Contains R code for generating a 3D surface plot. The code includes library loading, variable assignment, function definition, and plotting commands.
- Console:** Shows the execution output, including package loading messages and the execution of the R script code.
- Workspace:** Lists the objects created in the environment, including matrices (z, zfacet) and character vectors (col, color, colorlut, facetcol).
- Plots Panel:** Displays a 3D surface plot with axes labeled x, y, and z. The surface is colored using a gradient from blue to yellow.

```
1 library(rgl)
2 x <- seq(-10, 10, length= 300)
3 y <- x
4 f <- function(x,y) { r <- (x^2+y^2)^(1/2); 10 * sin(r)/r }
5 z <- outer(x, y, f)
6 zlim <- range(y)
7 zlen <- zlim[2] - zlim[1] + 1
8 colorlut <- heat.colors(zlen,alpha=0) # height color lookup table
9 col <- colorlut[ z-zlim[1]+1 ] # assign colors to heights for each point
10 open3d()
11 rgl.surface(x, y, z, color=col, alpha=1, back="lines")
12 nrz <- nrow(z)
13 ncz <- ncol(z)
14 # Create a function interpolating colors in the range of specified colors
15 jet.colors <- colorRampPalette( c("blue", "green", "yellow") ,bias=2)
16 # Generate the desired number of colors from this palette
17 nbcol <- 100
18 color <- jet.colors(nbcol)
19 # Compute the z-value at the facet centres
20 zfacet <- z[-1, -1] + z[-1, -ncz] + z[-nrz, -1] + z[-nrz, -ncz]
21 # Recode facet z-values into color indices
22 facetcol <- cut(zfacet, nbcol)
```



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