

# Agapita

## Biodiversity Area Server

URJC Biodiversity and Conservation Area server.  
Description and presentation.



## Index

Aims.....	3
Development.....	3
Conclusions.....	4

---

## Aims

To offer a high performance computing server to the Universidad Rey Juan Carlos Biodiversity and Conservation Area researchers.

## Development

Agapita is the Universidad Rey Juan Carlos Biodiversity and Conservation Area server. It is a high performance computing implementation service for a sector that demands executions of different nature.

In this area there are 3 (notified) types of executions that can be identified:

- Long term and low resources demand.
- Short term and some resource use.
- Executions over big-size matrixes.

The most used language (7 over 10 data analysis researches) is R.

For Agapitas first phase, we only have access to a limited number of resources. Knowing this, we will present a solution through the first execution type: long term and low resources demand.

The proposed solution consists on creating a tool that would allow for different executions of R, with their respective data, to be executed in a parallel way. The tool would also manage a queue of users, and notify the state of the executions to the researches.

This tool is called **netRparallel**, which will manage a queue web and will have its own service to look out the state of the executions (and also the state of the queue).

The web panel will also be used for Agapitas whole Project.

The netRparallel program uses a **docker** to parallelize the executions. The purpose of using containers is resource optimization and isolate executions from each other.

This container will have a an “r-base” image as origin, which would be deleted once the execution has finished.

Each execution will have 3840MB of RAM and one 3,6GHz core.

In the future, applications will be added regarding the researches requirements and the available space.

## Conclusions

Agapitas idea revolves around centralizing computer resources with the aim of achieving a more efficient resources management that better answers the demands of this area.

We pretend to implement, at all times, our own efficient and innovative system which better reflects the quality of the Biodiversity and Conservation Area.