Posidonia: A Tool for HPC and Remote Scientific Simulations

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Universidad Carlos III de Madrid
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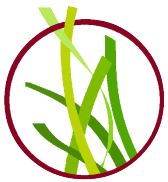
17 May 2016



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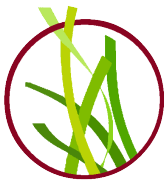

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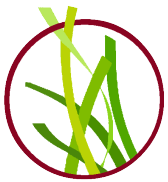
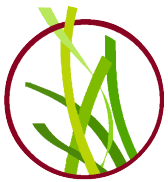
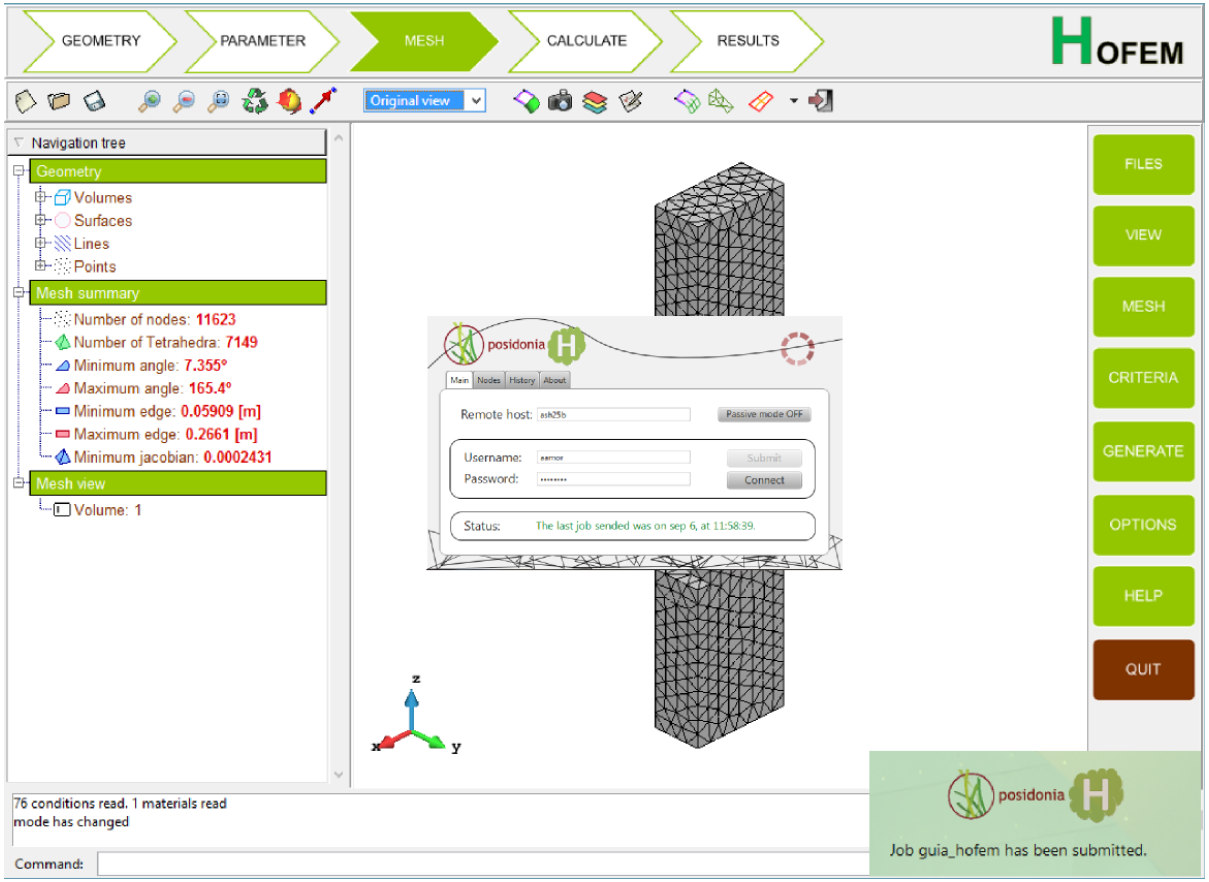


Introduction (i)

- Demand of more and more computational resouces for complex problems.
- Need to access to specialized HPC systems.
- Big barrier to entry for most users.
  - File transfers.
  - Batch system.
- Different programs: Matlab, electromagnetic simulators...
- HPCaaS.



Introduction (& ii)



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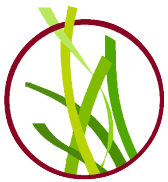
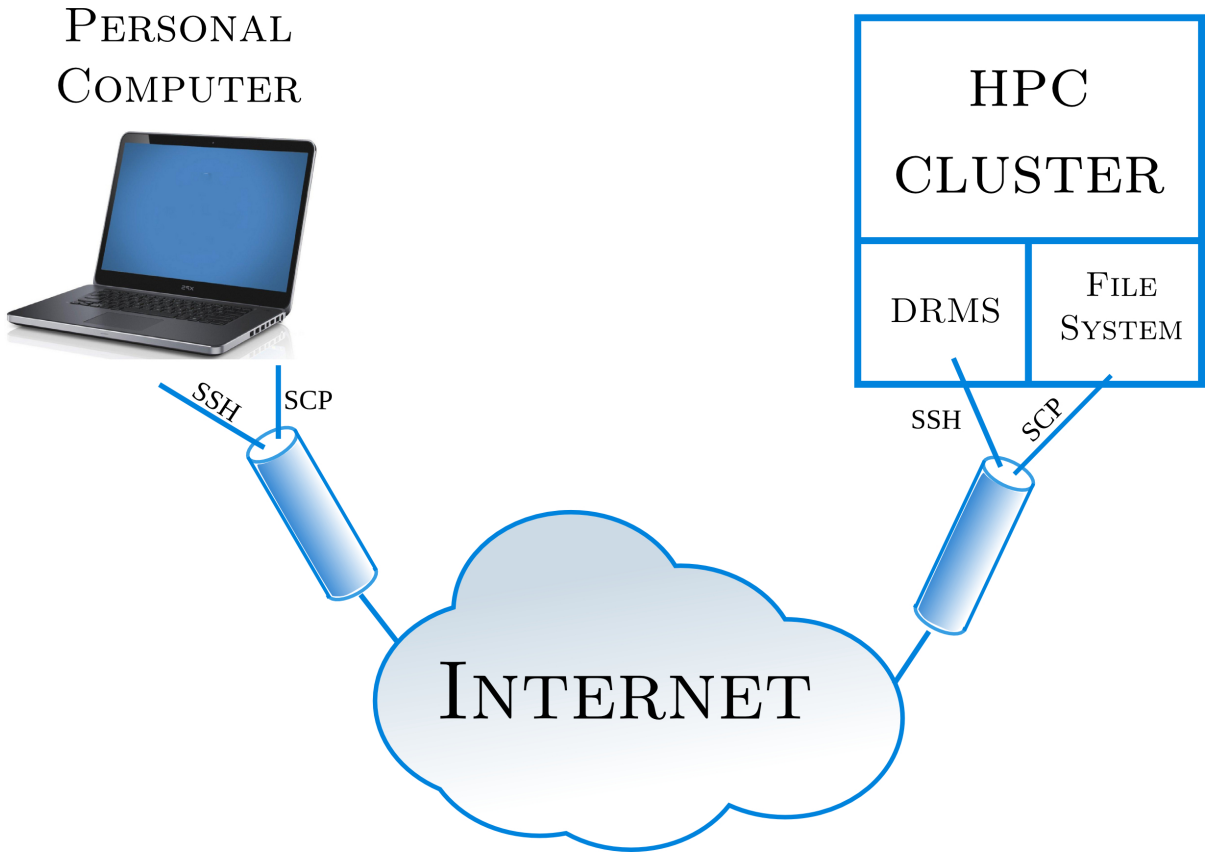
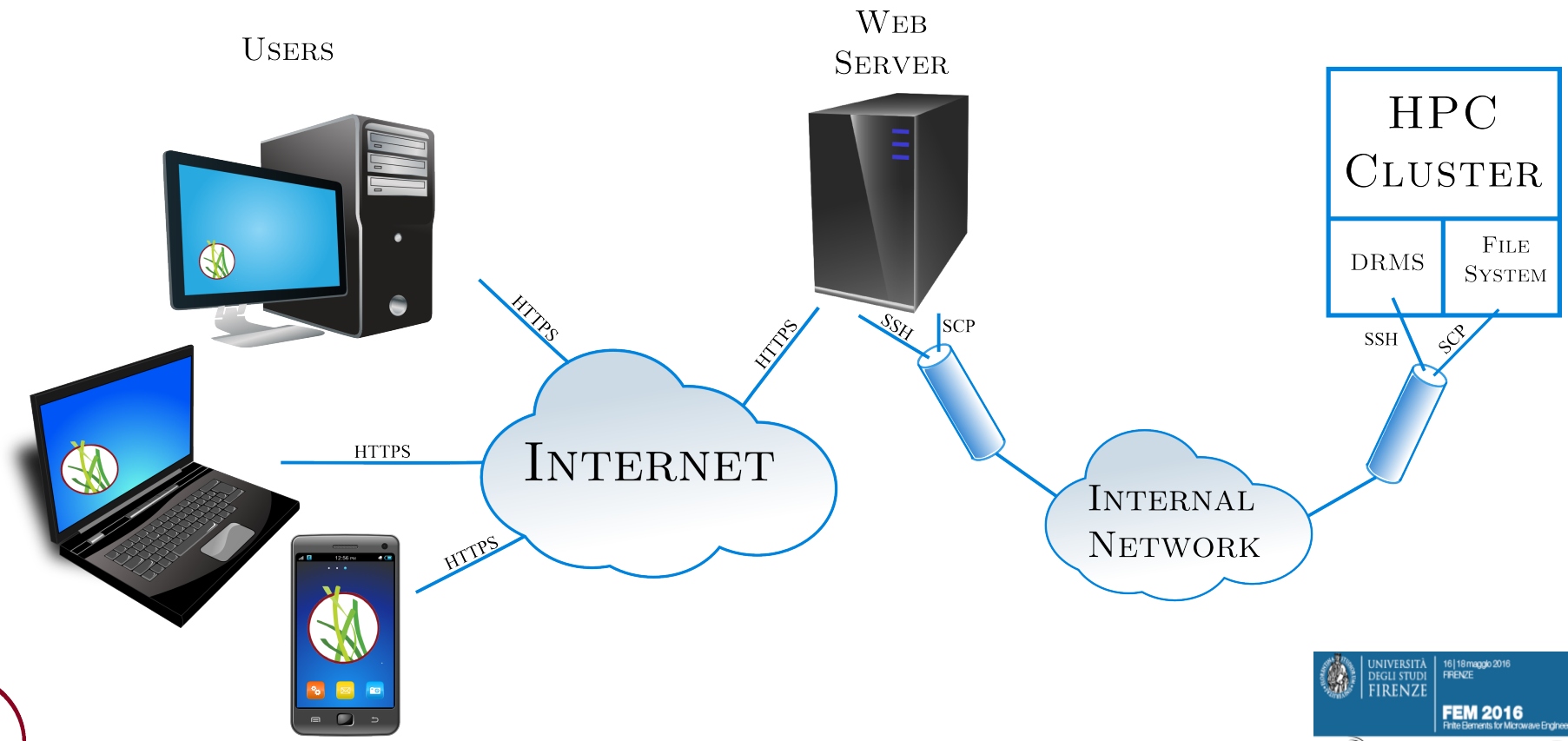


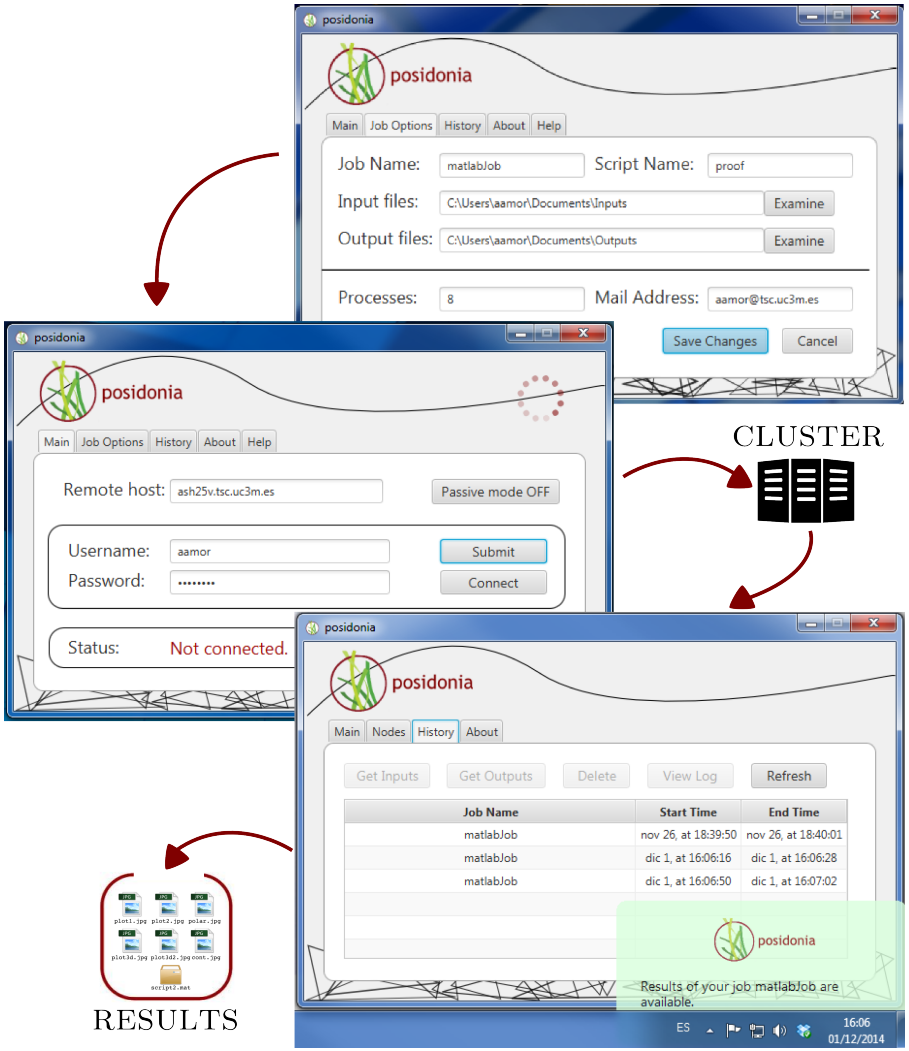
Scenario (i)


Personal Computer
HPC Cluster
DRMS
File System
SSH
SCP
SSH
SCP
Internet

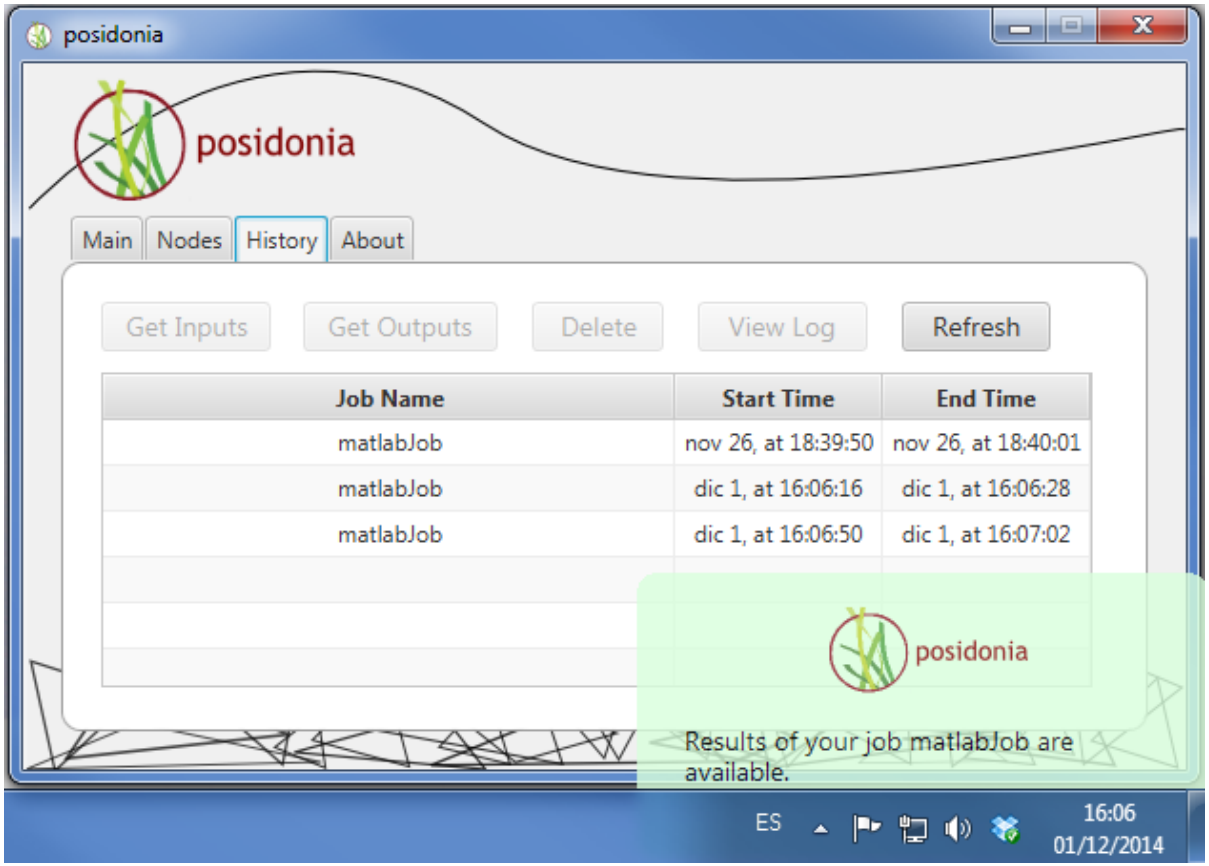
Scenario (& ii)


Users
Web Server
HPC Cluster
DRMS
File System
HTTPS
HTTPS
HTTPS
HTTPS
SSH
SCP
SSH
SCP
Internet
Internal Network

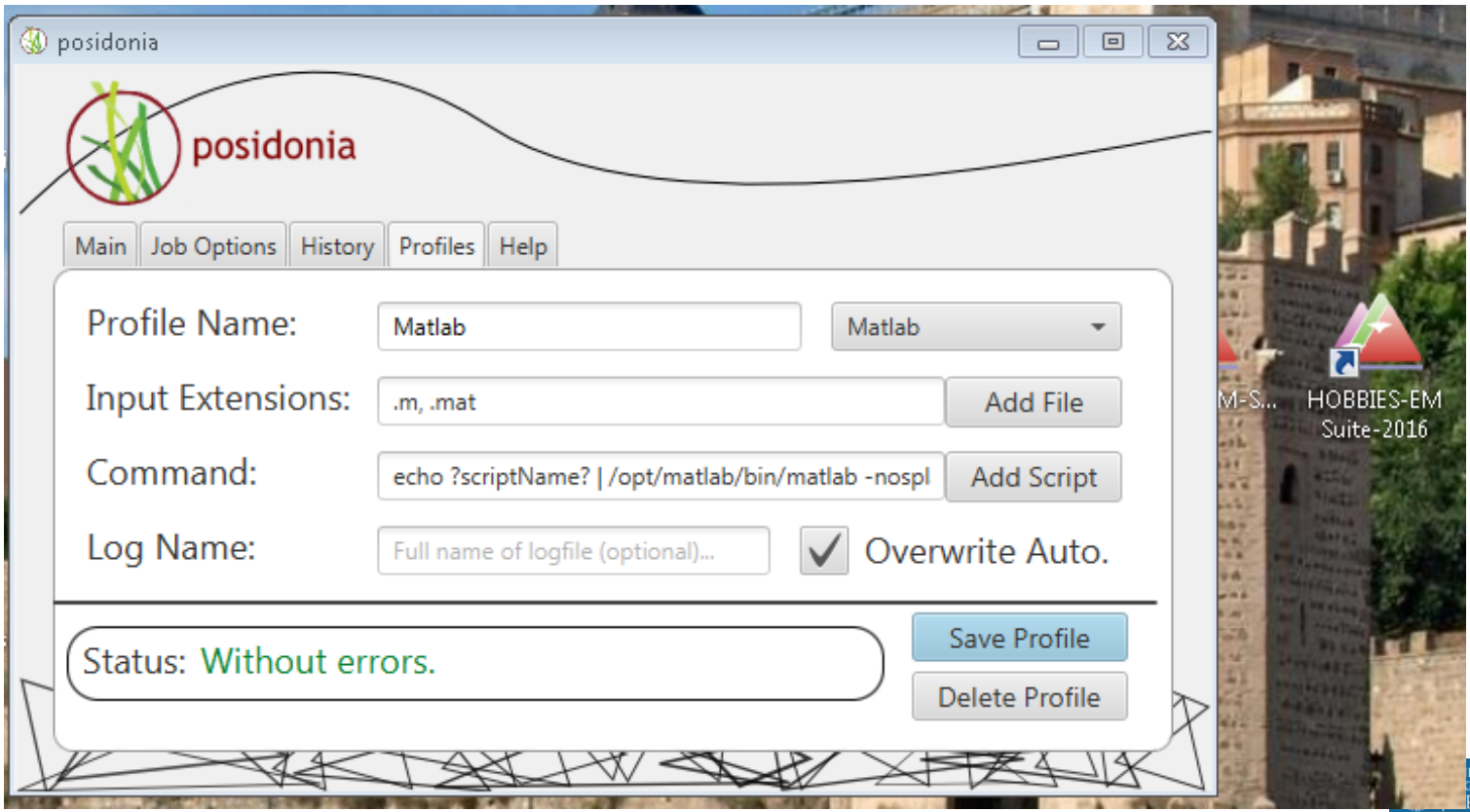
Job Submission



Repository and notifications



Profiles


posidonia
posidonia
Main
Job Options
History
Profiles
Help
Profile Name:
Matlab
Matlab
Input Extensions:
.m, .mat
Add File
Command:
echo ?scriptName? | /opt/matlab/bin/matlab -nospl
Add Script
Log Name:
Full name of logfile (optional)...
Overwrite Auto.
Status: Without errors.
Save Profile
Delete Profile
HOBBIES-EM
Suite-2016

Design features (i)

- *User friendliness*.
- Efficiency.
- Generality.
- Security.
- Mobility.

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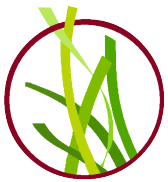
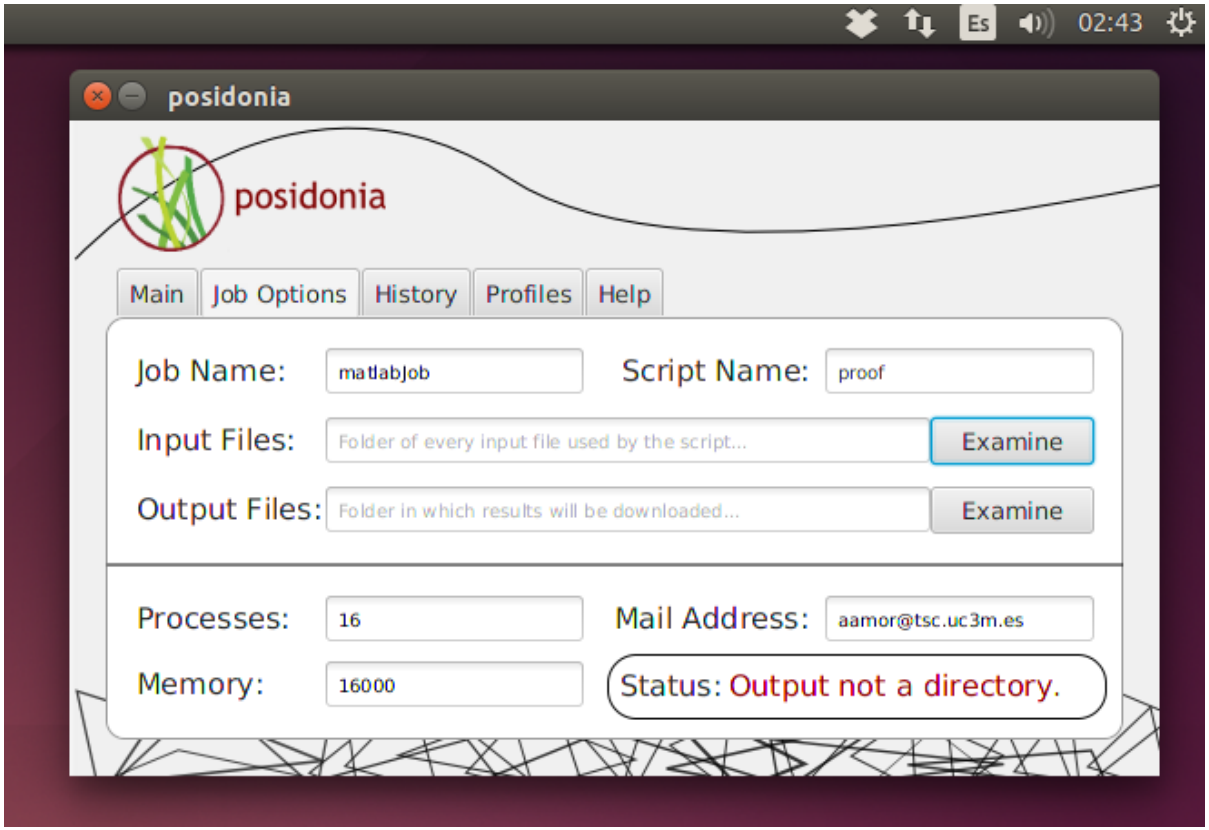
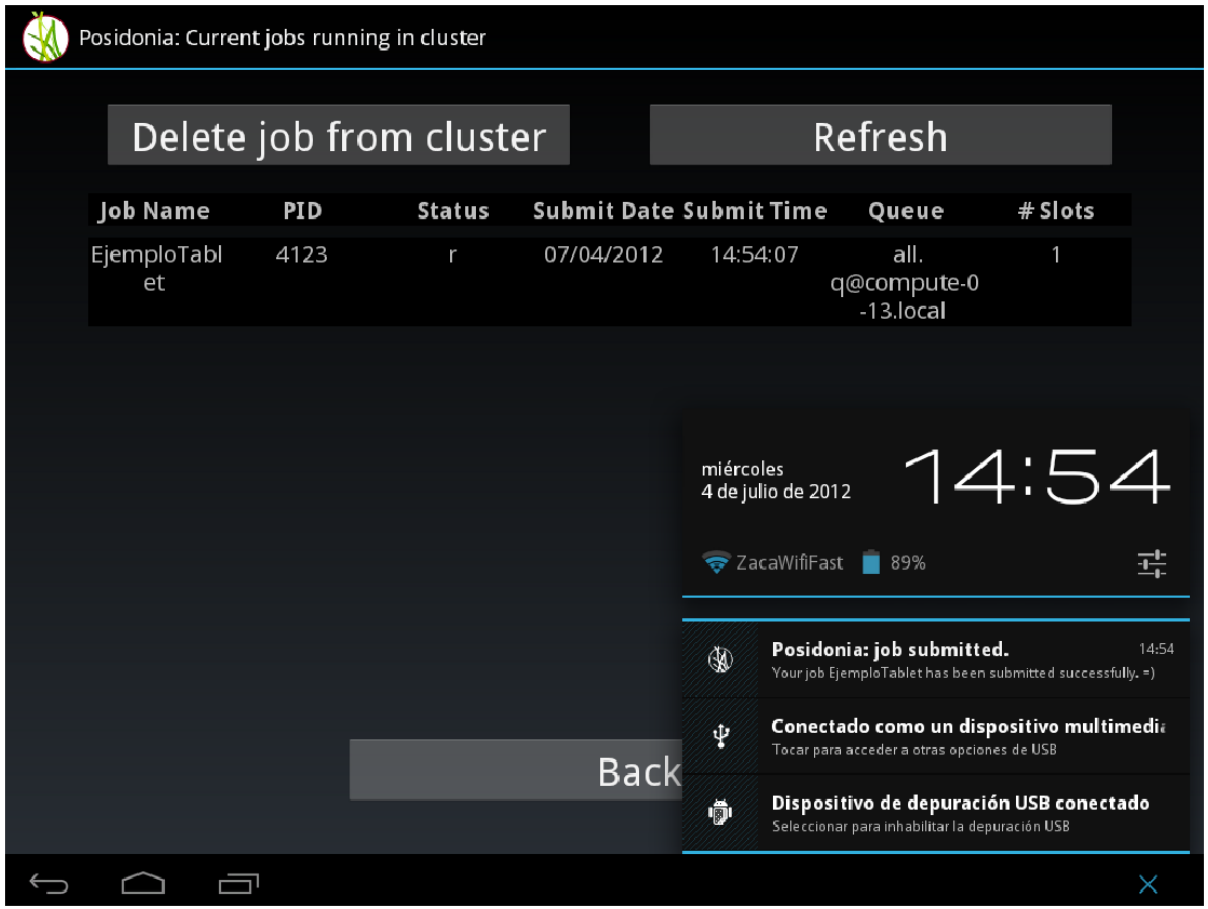


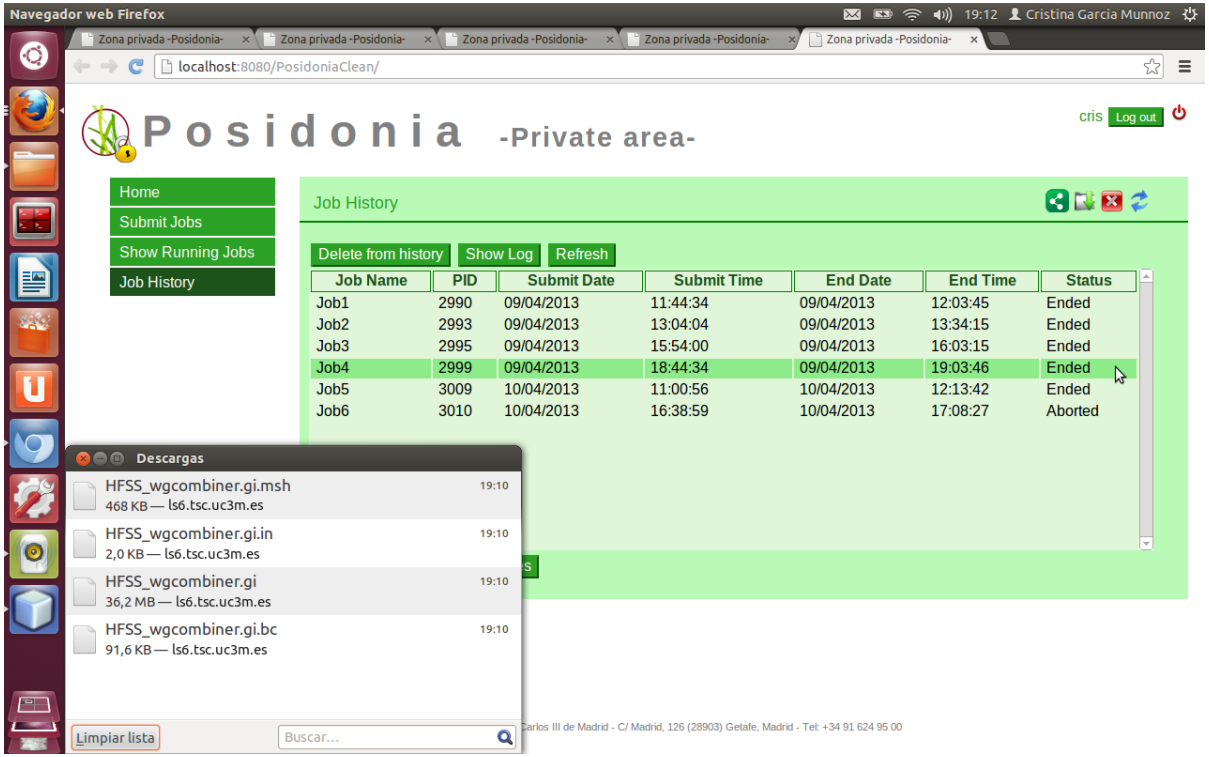
Multiplatform



Android

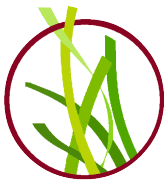

Posidonia: Current jobs running in cluster
Delete job from cluster
Refresh
Job Name
PID
Status
Submit Date
Submit Time
Queue
Slots
EjemploTablet
4123
r
07/04/2012
14:54:07
all.q@compute-0-13.local
1
miércoles
4 de julio de 2012
14:54
ZacaWifiFast
89%
Posidonia: job submitted.
14:54
Your job EjemploTablet has been submitted successfully. =)
Conectado como un dispositivo multimedia
Tocar para acceder a otras opciones de USB
Dispositivo de depuración USB conectado
Seleccionar para inhabilitar la depuración USB
Back

Web


Navegador web Firefox
19:12 Cristina Garcia Munnoz
Zona privada -Posidonia-
localhost:8080/PosidoniaClean/
Posidonia -Private area-
cris Log out
Home
Submit Jobs
Show Running Jobs
Job History
Job History
Delete from history
Show Log
Refresh
Job Name | PID | Submit Date | Submit Time | End Date | End Time | Status
Job1 | 2990 | 09/04/2013 | 11:44:34 | 09/04/2013 | 12:03:45 | Ended
Job2 | 2993 | 09/04/2013 | 13:04:04 | 09/04/2013 | 13:34:15 | Ended
Job3 | 2995 | 09/04/2013 | 15:54:00 | 09/04/2013 | 16:03:15 | Ended
Job4 | 2999 | 09/04/2013 | 18:44:34 | 09/04/2013 | 19:03:46 | Ended
Job5 | 3009 | 10/04/2013 | 11:00:56 | 10/04/2013 | 12:13:42 | Ended
Job6 | 3010 | 10/04/2013 | 16:38:59 | 10/04/2013 | 17:08:27 | Aborted
Descargas
HFSS_wgcombiner.gi.msh 468 KB — ls6.tsc.uc3m.es 19:10
HFSS_wgcombiner.gi.in 2,0 KB — ls6.tsc.uc3m.es 19:10
HFSS_wgcombiner.gi 36,2 MB — ls6.tsc.uc3m.es 19:10
HFSS_wgcombiner.gi.bc 91,6 KB — ls6.tsc.uc3m.es 19:10
Limpiar lista
Buscar...
Carlos III de Madrid - C/ Madrid, 126 (28903) Getafe, Madrid - Tel: +34 91 624 95 00

Integration

- Full integration: HOFEM.
- Generic interface: profiles.



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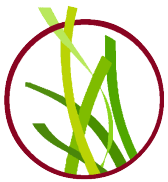
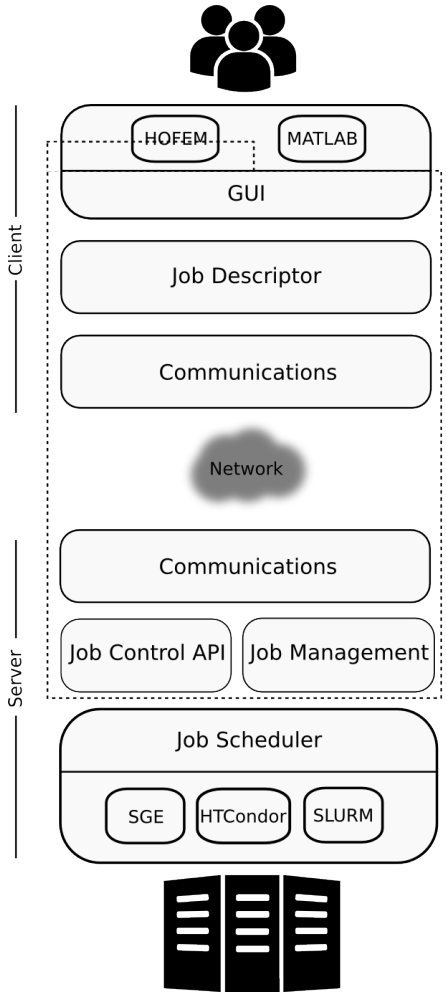
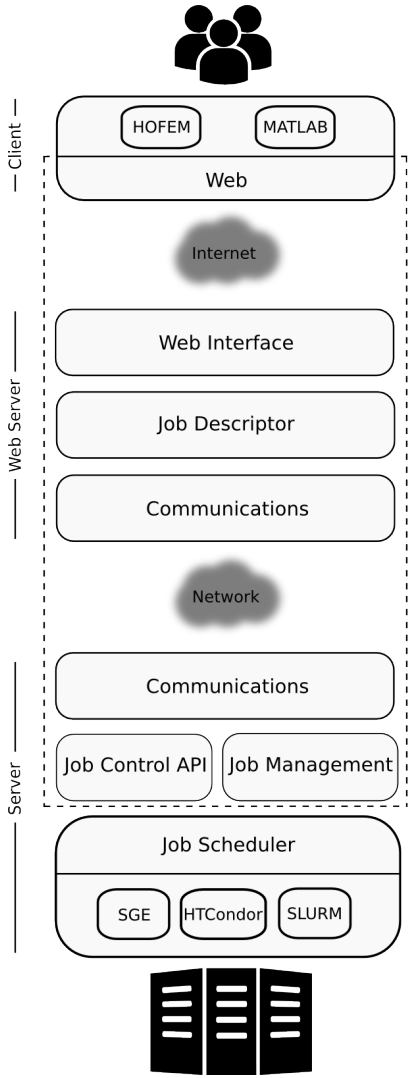


Design in layers





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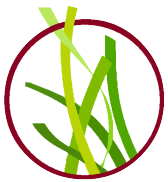
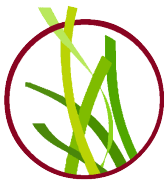


Conclusions

- Software tool available for different programs.
- Efficient and automatic.
- Repository.
- Productivity.
- Free download at `www.tsc.uc3m.es/posidonia` or `grema.webs.tsc.uc3m.es/research/computational-electromagnetics/posidonia`.



AP Magazine

- Dec 2015

EM PROGRAMMER'S NOTEBOOK

David B. Davidson

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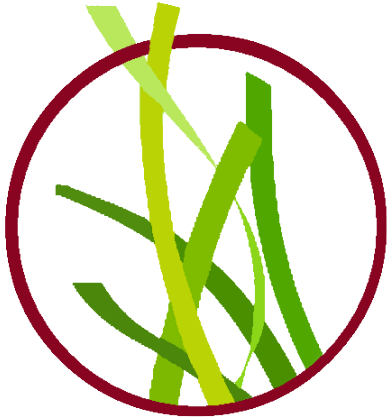
This article presents a software tool named Posidonia. Posidonia removes the barrier to entry for the novice user of high-performance

EDITOR'S NOTE

HPC plays a key role as an enabling technology in contemporary electromagnetic simulation practice, but as anyone who deals with such systems is well aware, HPC

Questions?

Posidonia



www.tsc.uc3m.es/posidonia

Contact: aamor@tsc.uc3m.es
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