UG2.7.2: Remote Visualisation

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- Totalview with RCM

Remote visualization service

Remote Visualization has become a fundamental requirement for users who need to:

- **visualize** the data produced on our HPC systems (scientific visualization);
- **analyze** and **inspect** data directly on the systems;
- **debug** and **profile** parallel codes running onto HPC clusters.

All the aforementioned categories can take advantage of launching the applications on the **server side**. For instance, analyzing a large amount of data in situ avoids the transfer of GBs or TBs of data.

Debugging and profiling tools have to be interfaced to the compute nodes which execute the parallel code; they can benefit from tools enabling a graphic connection to the compute nodes. Scientific visualization can exploit the hardware (GPUs, memory and CPUs) available on the server side, enabling the user to **remotely access** their data and **display** them in an efficient way on their local client.

In order to use this service you need to have a valid username and budget on the cluster where it is available.

Remote visualization resources

The remote visualization service is usable on different Cineca’s clusters and on each one different resources and access ways are available.

<table>
<thead>
<tr>
<th>RESOURCES</th>
<th>RESOURCES ACCESS</th>
<th>RESOURCES LIMITS</th>
<th>ACTIVITY TYPE</th>
<th>FREE USE</th>
</tr>
</thead>
<tbody>
<tr>
<td>GALILEO</td>
<td>Intel Xeon E5-2697 v4</td>
<td>cpu: 1, gpu: 1, mem: 3gb, walltime: 10 min of cpu time</td>
<td>light graphics using gpu</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>(Broadwell) + Nvidia k80 GPUs</td>
<td>SSH (no scheduler)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MARCONI</td>
<td>Intel Xeon 8160 CPU (Skylake)</td>
<td>SLURM scheduler</td>
<td>gll_usr_prod: cpus: up to 36, mem: up to 115gb, walltime: qos dependent - gll_qos_dbg 2h (higher priority) - noQOS 24h</td>
<td>strong graphics and simulation activity</td>
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<tr>
<td>gll_usr_gpuprod: cpus: 36, gpus: 2, mem: 115gb, walltime: qos dependent - gll_qos_dbg 2h (higher priority) - noQOS 24h</td>
<td>strong graphics and simulation activity using gpus</td>
<td>No (charged to your account depending on time and requested cpus)</td>
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<td></td>
</tr>
</tbody>
</table>

**Remote Connection Manager (RCM)**

The remote visualization service at Cineca is provided through Remote Connection Manager (RCM) application. Using this tool you can graphically inspect your data without moving them to your local work station.

It can be used by any user with valid credentials to access CINECA clusters. If you are interested in using it see this web page.