

UG2.7.1: Remote Visualisation

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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.

	RESOURCES	RESOURC ES ACCESS	RESOURCES LIMITS	ACTIVITY TYPE	FREE USE
GALI LEO 100		SSH (no scheduler)	cpu: 1, mem: 3gb walltime: 10 min of cpu time	light graphics	Yes
		SLURM scheduler	g100_usr_prod: cpus: up to 48, mem: up to 3T, walltime: qos dependent - g100_qos_dbg 2h (higher priority) - noQOS 24h	strong graphics and simulation activity (no gpu)	No (charged to your account depending on time and requested cpus)

			g100_usr_interactive: cpus: 48, gpus: 2, mem: 366GB, walltime 24h	strong graphics and simulation activity using gpus	No (charged to your account depending on time and requested cpus)
MAR CONI	Intel Xeon 8160 CPUs (Skylake)	SLURM scheduler	skl_usr_dbg: cpu: 48 mem: 177gb walltime: 30 min	graphics and simulation testing activity (walltime of 2 h, shorter waiting time)	Yes
			skl_usr_prod cpu: 48 mem: 177gb walltime: 24 h	strong graphics and simulation activity	Yes
M100	IBM POWER9 AC922 CPUs Volta V100 GPUs	SSH (no scheduler)	cpu: 1 gpu: 1 mem: 7GB walltime: 10 min of cpu time	light graphics using gpu	Yes
		SLURM scheduler	m100_usr_prod CPUs: up to 32 (128 virtual cpus), GPUs: up to 4, MEM: up to 240GB, WALLTIME: qos dependent - m100_qos_dbg 2h (higher priority) - noQOS 24h	strong graphics and simulation activity	No (charged to your account depending on time and requested cpus/gpus /mem)

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](#).