# "Systems Administrator"

## *Centro Nacional de Análisis Genómico (CNAG-CRG)*

### The Institute

The Centro Nacional de Análisis Genómico (CNAG-CRG) is one of the largest Genome Sequencing Centers in Europe. CNAG-CRG researchers participate in major International Genomic Initiatives such as the International Cancer Genome Consortium (ICGC), the International Human Epigenome Consortium (IHEC), the International Rare Diseases Research Consortium (IRDiRC) and the European Infrastructure for life-science information (ELIXIR), as well as in several EU-funded projects.

It is integrated with the Centre for Genomic Regulation (CRG), an international biomedical research institute of excellence, based in Barcelona, Spain, with more than 400 scientists from 44 countries. The CRG is composed by an interdisciplinary, motivated and creative scientific team which is supported both by a flexible and efficient administration and by high-end and innovative technologies.

In April 2021, the Centre for Genomic Regulation (CRG) received the renewal of the 'HR Excellence in Research' logo from the European Commission. This is a recognition of the Institute's commitment to developing an HR Strategy for Researchers, designed to bring the practices and procedures in line with the principles of the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers (Charter and Code).

Please, check out our Recruitment Policy

### The role

CNAG-CRG is seeking an experienced Linux Systems Administrator to join the Scientific IT team. The main responsibilities of the candidate will be to manage and improve our computational resources based around a linux compute cluster using slurm, lustre storage and an infiniband interconnect. Proactive involvement in day-to-day operations and troubleshooting are a large part of the remit. The candidate will become involved in projects which offer the opportunity to learn new skills, as the computer resources supported by the team are developed.

Core accountabilities [in approximate order of importance to role purpose]:

- Develop effective relationships with, and a sound understanding of the needs of users to ensure that the IT infrastructure resource is effectively deployed to meet their scientific priorities
- To develop and maintain effective monitoring and alerting solutions to ensure the reliability and health of the systems.
- To investigate, analyse and solve issues with the systems as they arise, co-ordinating and collaborating with users and other team members to define, develop and implement effective solutions.
- Provide expert advice and guidance to the community within the Institute enabling other team members and users to work more independently and productively.
- Discover, study and understand new technologies to assess their potential for developing the infrastructure in support of both IT and scientific strategies at the institute.
- Define, design, source, develop or redevelop the most appropriate (scaleable, flexible) and cost effective hardware/software solutions to meet the needs of specific scientific user groups.

- Contributing to documentation of the systems and to documentation for procurement of IT equipment required under public tender rules.
- Project manage the development and introduction of specific solutions ensuring that user needs are fully identified and met within agreed timelines and that appropriate skills transference and training takes place
- Build and develop relationships and collaborations with external organisations and suppliers to exchange technical expertise and awareness of new developments.

## About the team

The SIT Team (Scientific IT) currently comprises of 3 engineers and the Head of SIT. The team manages around 10PB of scientific data and Linux clusters of around 5000 cores in total. SIT provides support to researchers on site, and works closely with the CNAG-CRG labs to address their computational needs and build custom solutions. Most of the data is stored in Isilon and Lustre and is backed up by a large Tape Library. As well as maintaining and managing the existing systems we carry out research and development of new systems and approaches in order to keep our infrastructure at the cutting edge and make efficient use of the budget available. The most important mission of the team is to ensure that the scientists have access to high quality and reliable storage and compute resources and that we provide expert professional support to allow them to use the resources to their maximal potential.

## Whom would we like to hire?

### Professional experience

#### Must Have

- You have experience in systems administration
- You have ability to design and implement appropriate IT and networking architectures.
- You have ability to effectively explain technical issues to non-technical users
- You have ability to provide a high-quality customer-focused IT consultancy service
- You have significant track record in scripting languages

#### Desirable but not required/ Nice to have

- You have experience in very large-scale IT systems management
- You have familiarity with Configuration Management Systems such as Puppet or Ansible
- You have experience of using source code control systems (e.g. git)
- You have experience in Software Development
- You have experience working in a DevOps or Infrastructure-As-Code environment
- You have degree-level understanding of bioinformatics/biology and computing
- You have a relational database administration experience
- You have knowledge of core computer science concepts (e.g. object oriented design, memory management, algorithm implementation) and practices (e.g. version control, agile development, extreme programming).
- You have experience of using HPC techniques from a user point-of-view, particularly for a scientific project
- You have proven experience with a batch submission system such as Slurm, Univa Grid Engine, Platform LSF etc.
- You have experience of cluster interconnect configuration including 10Gbe and Infiniband
- You have experience with virtualization technologies (e.g. VMWare, Citrix, KVM, ProxMox)
- You have experience with Cloud Technologies (AWS, GCP, Azure, OpenStack)
- You have experience with petabyte scale storage systems (e.g. Lustre, Isilon, GPFS, HDFS, iRODS, Ceph)
- You have experience with full-stack web infrastructure and deployment

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**CRG**
Centre
for Genomic
Regulation

- You have experience with security technologies and frameworks (e.g. Kerberos, Shibboleth, OAuth/OAuth2)
- You have experience in building and managing scientific software stacks and using tools such as environment modules and EasyBuild
- You have experience with tape library backup and software e.g. CommVault, Bacula

## Education and training

- You hold a degree in a quantitative field (e.g. Computer Science, Mathematics, Physics, Computational Biology, Bioinformatics)

## Languages

- You are proficient in English

## Technical skills

- You have intimate knowledge of Linux-based operating systems, libraries, and tools.
- You have basic familiarity with statistics

## Competences

- You have problem solving skills
- You have critical thinking skills
- You have an interest in scientific research and a strong intellectual curiosity

## The Offer – Working Conditions

- **Contract duration:** Permanent.
- **Estimated annual gross salary:** Salary is commensurate with qualifications and consistent with our pay scales.
- **Target start date:** As soon as possible.

We provide a highly stimulating environment with state-of-the-art infrastructures, and unique professional career development opportunities. To check out our training and development portfolio, please visit our website in the [training section](#).

We offer and **promote a diverse and inclusive environment** and welcomes applicants regardless of age, disability, gender, nationality, ethnicity, religion, sexual orientation or gender identity.

The **CRG is committed to reconcile a work and family life** of its employees and are offering extended vacation period and the possibility to benefit from flexible working hours.

## Application Procedure

All applications must include:

1. A motivation letter addressed to Emyr James.
2. A complete CV including contact details.
3. Contact details of two referees.

All applications must be addressed to Emyr James and be submitted online on the CRG Career site - [http://www.crg.eu/en/content/careers/job-opportunities](http://www.crg.eu/en/content/careers/job-opportunities)

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## Selection Process

- **Pre-selection**: The pre-selection process will be based on qualifications and expertise reflected on the candidates CVs. It will be merit-based.

- **Interview**: Preselected candidates will be interviewed by the Hiring Manager of the position and a selection panel if required.

- **Offer Letter**: Once the successful candidate is identified the Human Resources department will send a Job Offer, specifying the start day, salary, working conditions, among other important details.

**Suggestions:** The CRG believes in **ongoing improvement** and promotes a **culture of feedback**. This is one of the reasons we have in place, at your disposal as a candidate, a mechanism to gather your suggestions/complaints concerning your candidate experience in our recruitment processes. Your feedback really matters to us in our aim at creating a **positive candidate journey**. You can make a difference and help us improve by letting us know your suggestions through the following form.



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