

**COGSI - Configuração e Gestão de Sistemas**  
Mestrado em Engenharia Informática, Ramo Sistemas Computacionais  
Lecture 10.1  
*P1.5 - Configuration Management*

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2018/2019

- **Start Date:** 29, April
- **End Date:** 19, May (no commits after this date!)
- **Development Repository:** Your individual repository
  - Create Issue(s) for your work
  - Expected several commits (at least 1 for each lab class!)
  - You should commit to the repository only files that you created or edited (e.g., do not commit the nagios directory!)
  - Documentation should be provided **only in the readme.md file related to the assignment!**
- **Presentation/Review:**
  - Lecture on May 20 (for Students with Lab Class on Mondays)
  - Lecture on May 23 (for Students with Lab Class on Thursdays)
- All students can/should attend both presentations/reviews
- **If you are selected for presentation** then you should **pull request** the final version of your work into the class shared repository (<https://bitbucket.org/mei-isep/cogsi-18-19-class-rep>) before the deadline.

- The topic of this sprint is **Configuration Management and Deployment** with **Ansible**.
- For this exercise it is **mandatory to use Ansible**.
- The system monitoring tool should be **Nagios**.
- If you use VMs you may use **Vagrant** to manage them.
  - **Note:** It is recommended to use VMs.

In this assignment we will simulate the provision of several hosts connected in an small local network:

- Deploy software to several hosts
  - Hosts should be simulated Virtual Machines (you may use Docker but it is not recommended)
- Configure hosts

### Network:

- All hosts should be connected in a small local network
- The hosts should also have access to the internet

You should use **Ansible** to:

- Provision a set (at least 2) of hosts with a software package you developed (for instance, the **todd** server application)
- Provision one of the hosts with **tomcat**
- Provision all the hosts (except Nagios) with remote monitoring agents (e.g., NRPE)
- Configure the NRPE agent in the hosts
- Configure, partially, some aspect of Nagios (Nagios should monitor all the elements of the network)
- Use the Nagios Ansible Module to configure one example of downtime for one of the hosts (See [https://docs.ansible.com/ansible/latest/modules/nagios\\_module.html](https://docs.ansible.com/ansible/latest/modules/nagios_module.html))

The host with **Nagios** should:

- Monitor all the hosts in the network except the host running Ansible (you may use a monitoring configuration similar to the previous assignments)

- As an alternative for this exercise you should use an alternative to Ansible (e.g., Chef, Puppet)
- The scenario should be similar but use an alternative configuration management solution.

You should produce a **technical report** documenting your assignment.

- The technical report **must be produced** in the **readme.md** file located in the repository folder related to P1.5 (e.g., 1133224-maria-ferreira/p1.5/)
- The report should include:
  - The Analysis of the Problem
  - The Design of your Solution
    - Present an overview of the tools (e.g., software used, major concepts, major processes, architecture of the tools)
    - Present an overview of the solution (e.g., the architecture and major configurations required)
  - The Steps required to Reproduce your Solution (it should include references/links to configuration files, scripts or code included in the same folder of the repository)
- You may also include:
  - Justification of Design Options
  - Analysis of the Alternative
  - The Steps required to Reproduce the Alternative

## P1.5: How to Submit to the Class Shared Repository

If you have been selected to make a presentation for this component you must share your work with the class using the shared repository.

- The shared repository is located in <https://bitbucket.org/mei-isep/cogsi-18-19-class-rep>.
- You should make a fork of this repository.
- You should then clone the forked repository into your local computer.
- Copy to this repository only the folder where you developed P1.5 (e.g., 1133224-maria-ferreira/p1.5/).
- Commit and push the changes to the forked repository.
- In Bitbucket do a pull request against the original shared class repository in <https://bitbucket.org/mei-isep/cogsi-18-19-class-rep>.
- The teacher will review your pull request and, once accepted, it will become available to all other students.