Development of WebLogic 12c Management Tools

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Some info about me

- Spanish.
- M.Sc. student at University Carlos III of Madrid.
- Research and teaching assistant.
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Introduction

**What is WebLogic?**

- WebLogic is a **server software application** that runs on a middle tier.
- WebLogic server is based on Java EE 7 and Java SE8.
- It supports the deployment of many types of distributed applications.

[1]
System Administration (I)

CREATE AND PACKAGE AN APPLICATION

DEVELOPERS

APPLICATION
System Administration (I)

DEVELOPERS

APPLICATION

DEPLOY THE APPLICATION ON THE WEBLOGIC INFRASTRUCTURE

IT-DB WEBLOGIC INFRASTRUCTURE
System Administration (I)

DEVELOPERS

APPLICATION

IT-DB WEBLOGIC INFRASTRUCTURE

USERS CONSUME THE APPLICATION

USERS

System Administration (I)
System Administration (II)

- CERN WebLogic infrastructure (operated by the IT-DB group) is built of 250 applications!!

- It is used to deploy a wide range of critical applications in administration and engineering sectors.

- Example: EDH application from AIS group.

The question we wanted to address is: how can the developers manage to deploy their applications?
The tool

CERN WebLogic CLI Tool

- Based WebLogic RESTful management services.
- Written in Python.
- 163 source code files.
- 14,700 lines of code!
Problems of CERN WebLogic CLI Tool and Goal

Problems:

- It works for WebLogic version 12.1.3, but the current one is 12.2.1.
  - WebLogic 12.1.3. REST API was not complete (the newest one is).
  - 12.2.1. API also offers additional functionalities.
- Lack of technical documentation of the CERN WebLogic CLI Tool.

My goal:

- Upgrading the CERN WebLogic CLI Tool to version 12.2.1: adding all the new functionalities and updating the previous ones.
My Work

1. Reading WebLogic documentation.
2. Understanding how the CERN WebLogic CLI Tool worked.
3. Creating REST scripts for every single operation.
4. Contacting the Oracle support.
5. Integrating new functionalities to the tool.
6. Documenting, testing, and going back to 5.
My Work

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```bash
#!/bin/bash
#
# Create servers 1 and 2
#
# curl -v
#   --user ${USERNAME}:${PASSWORD} \\
#   -H X-Requested-By:MyClient \\
#   -H Accept:application/json \\
#   -H Content-Type:application/json \\
#   -d "{
#     name: 'devSAU'
#     machine: ['mach'
#       cluster: ['clus'
#         listenAddress: 'wls-de'
#         listenPortEnabled: true,
#         listenPort: 30006,
#       ]
#     }
#   \\
```
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4. **Contacting the Oracle support.**

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Results (I)

Two GitLab repos:

- CERN WebLogic CLI Tool.
- REST scripts.

Lots of tests...

- Functional testing.
- Module testing.

Documentation:

- Technical documentation.
- User documentation.
The upgraded CERN WebLogic CLI Tool is almost ready to be used!!

- All the administration functionalities are now available.
- The previous functionalities have also been updated to version 12.2.1.
- New RPM package.
- The tool will be in production soon.
Conclusions and Future Work

Conclusions:

- I had no previous work experience in this field.
  - Thus, the project has been challenging.
- However, I am really happy with the final result.
  - I have learnt a lot.
  - The application will be used by CERN developers!

Future work:

- I have almost three more weeks to improve the tool.
- I still have to finish the documentation.
- I am currently working on making things easier for people who want to add new functionalities in the future.
References

[5] https://support.oracle.com/
[8] https://gitlab.com/
Thank you!

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