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Microservices and DevOps

DevOps and Container Technology

Scientific Process

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Scientific Process

The only difference between screwing around and science is writing it down!

- Andy Savage / MythBusters

- **Apply Science in your work!**
  - *(Most likely, you will need what you've written down at the final individual exam)*

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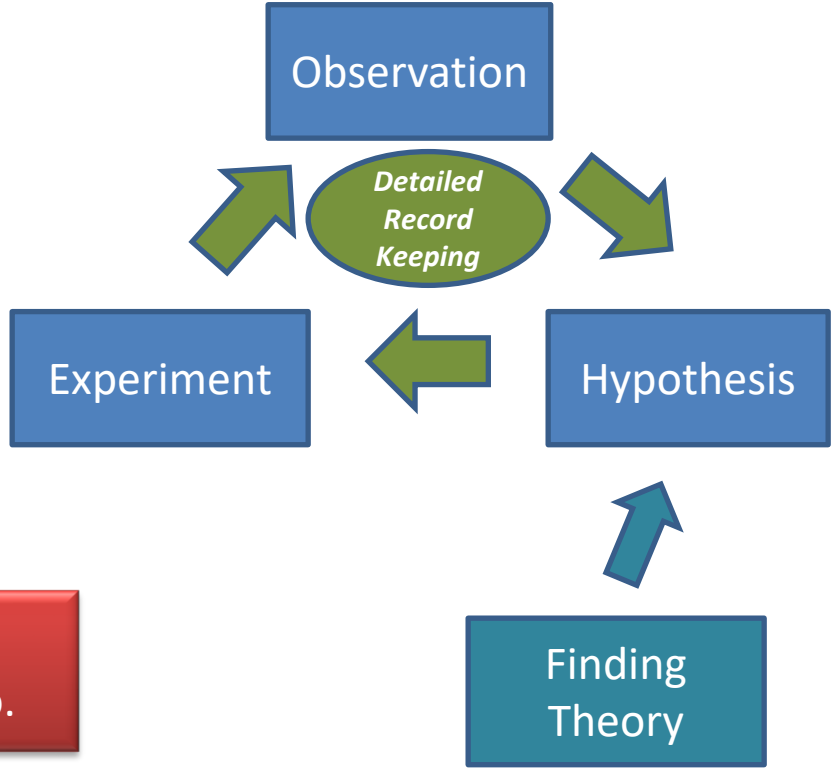
Scientific Process

- Observation
  - How does system behave?
- Hypothesis
  - Improve/correct by doing X
- Experiment
  - Execute
- Conclusion
  - Hypothesis is



TRUE: Refine Hypo.

FALSE: Alt. Hypo.

- *Detailed Record Keeping!*
  - To avoid getting lost! To track progress! To **be reproducible!**

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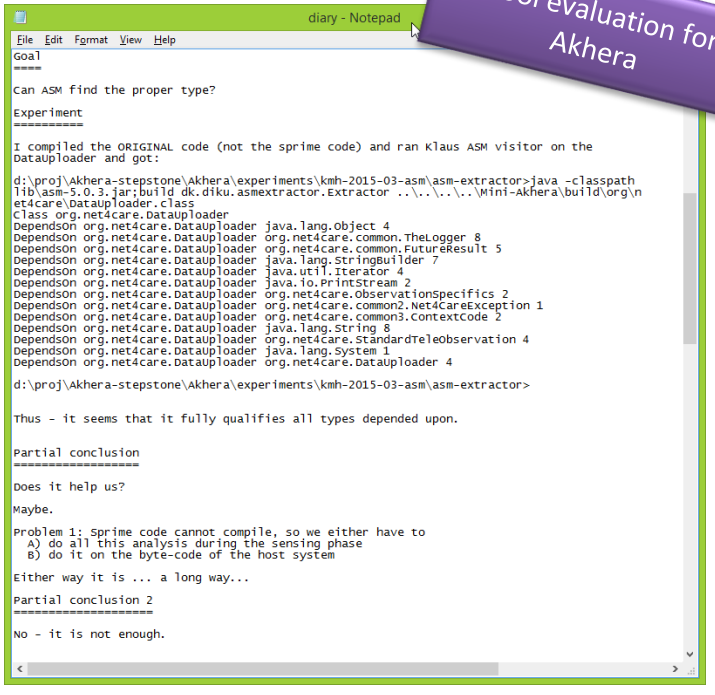
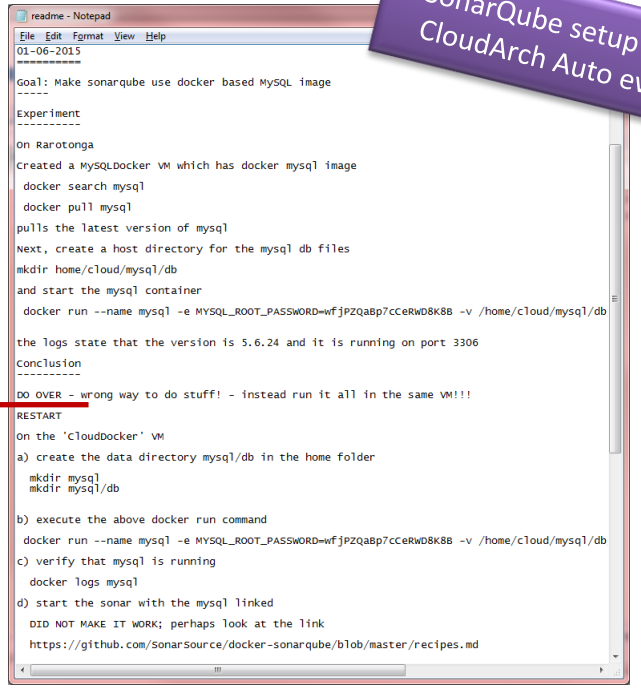
Example: Experiments

- Keep the *diary/logbook/journal* at hand! Make **notes!**
  - **Goal, hypothesis, experiment, conclude [loop]**

Tool evaluation for Akhera

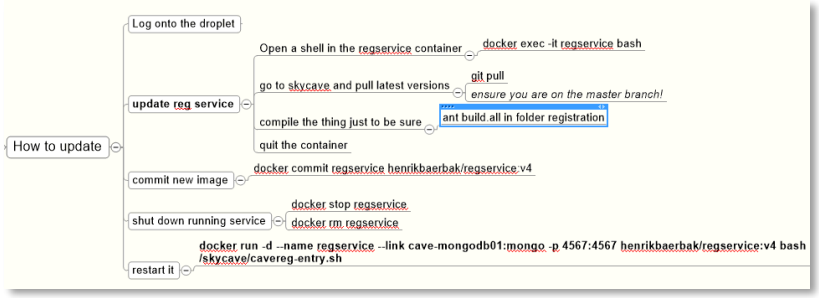


SonarQube setup for CloudArch Auto eval

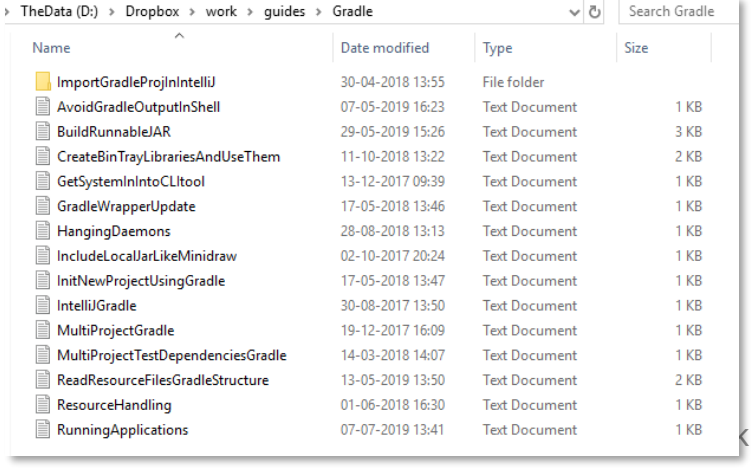


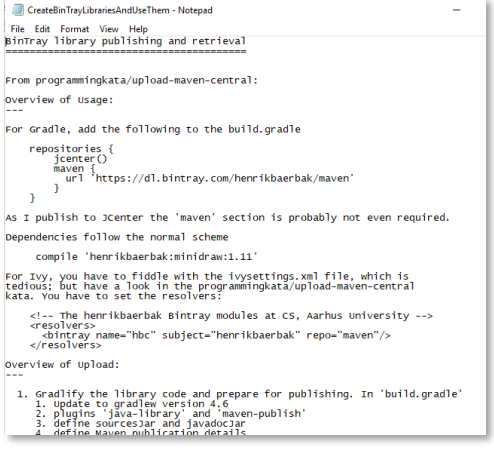
Example: Guides (Conclusions)

- *Update the Cave Subscription service (2016 version)*



- *All that Gradle stuff…*





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A note

- Detailed record keeping saves your sanity!
  - Christmas vacation: MQ update lead to total reinstall
    - Guides helped me reestablish full working environment
  - Extending Mongo DB disks
    - Involves repeating 10-15 steps in three differently configured machines
    - *And a wrong step may crash 6 TB data ☹*

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Test-Driven-Development

- Is basically a natural science process

> But there is more. When we embrace hypothesis-driven development, we can learn how technology works together, or not, and what our customers need and want. We also complement the test-driven development (TDD) principle. TDD encourages us to write the test first (hypothesis), then confirm our features are correct (experiment), and succeed or fail the test (evaluate). ***It is all about quality and delighting our users**, as outlined in principles 1, 3, and 7* of the Agile Manifesto:
>
> - Our highest priority is to satisfy the customers through early and continuous delivery of value.
> - Deliver software often, from a couple of weeks to a couple of months, with a preference to the shorter timescale.
> - Working software is the primary measure of progress.

Reed, 2019