



Distributed Systems

BSc (H) Software Systems Development – Year 4

BSc (H) Software Systems Practice – Year 4

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Overview

- “. . .to comprehend the architecture of a modern, distributed (cloud-based), service-oriented application and acquire the skills to develop and deploy same for a constrained set of requirements . . .” (Module Spec.)
- Key themes:
 - Infrastructure As Code (IaC)
 - Serverless
 - Scalability.
 - Microservices architecture
 - Event-driven architecture
- Language: TypeScript

Pre-requisites

- An AWS account (<https://aws.amazon.com/>)
- Installed locally:
 - AWS CLI (see <https://docs.aws.amazon.com/cli/latest/userguide/getting-started-install.html>)
 - NodeJS platform
 - VS Code editor
 - Git tool
- A GitHub account
- Knowledge of JavaScript



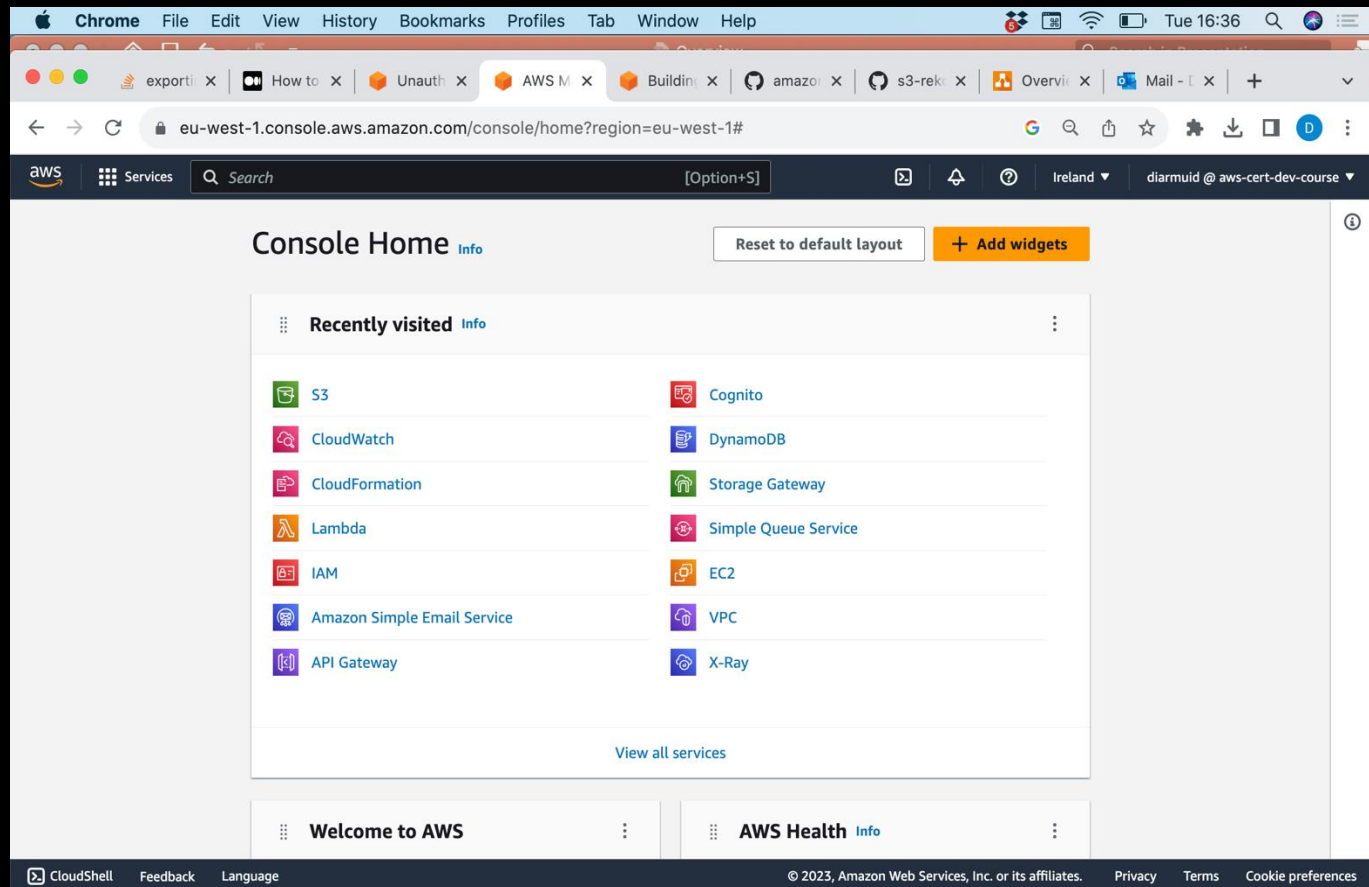
The image shows a screenshot of a Visual Studio Code terminal window. The terminal has tabs for PROBLEMS, OUTPUT, DEBUG CONSOLE, TERMINAL (which is active), and PORTS. The terminal shows two separate command sessions. The first session, timestamped at 08:14:08 AM, shows the command `aws --version` being executed, resulting in the output `aws-cli/2.22.30 Python/3.12.6 Darwin/23.6.0 exe/x86_64`. The second session, timestamped at 08:14:33 AM, shows the command `node --version` being executed, resulting in the output `v22.12.0`. The terminal background is dark, and the text is light-colored.

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
Apple ~/Dow/l/e/T/typescript-demos on master at 08:14:08 AM
> aws --version
aws-cli/2.22.30 Python/3.12.6 Darwin/23.6.0 exe/x86_64

Apple ~/Dow/l/e/T/typescript-demos on master at 08:14:33 AM
> node --version
v22.12.0
```

Pre-requisites

- The (AWS) Management Console



Student Information

- Contact hours:
 - Two lectures (Online) + Two lab hours.
- Assessment:
 - 100% Continuous Assessment. Breakdown (approx.):
 - Lab work hand-ups (10%)
 - Two assignments (50%)
 - Lab-based exam (Week 13 – 40%)
- Resources:
 - Website - <https://tutors.dev/course/distributed-systems-setu-waterford>
 - Moodle - <https://moodle.wit.ie/course/view.php?id=209056>
 - For assignment submissions only.
 - Self-enrolment – Use Enrolment key = ds25

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 **Distributed Systems**
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Module overview,



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The module's context, themes and structures.


Typescript Language.



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A crash course on the Typescript language from a Javascript...


CDK framework.



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Imperative infrastructure as code (IaC). Resource...


Serverless Architecture.



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The rationale for serverless and the main AWS services that...


Application Architecture.



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The evolution of architecture from monolith to...


Messaging.



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AWS services that enable decoupling of components - SQS, SNS.

Lecture Recordings.



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The complete set of lecture videos.

https://tutors.dev/topic/distrib-systems-ssd-2024-setu-deise/topic03