

AWS Gyakorlat Docker

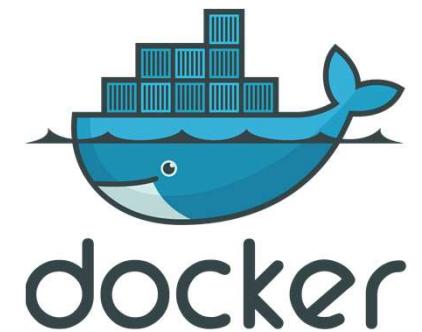
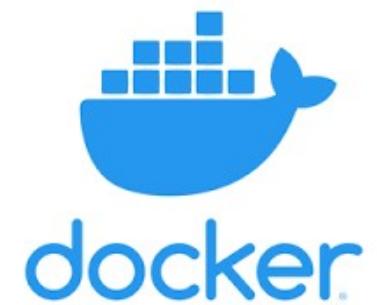
Felde Imre

ECS – Elastic Container Service

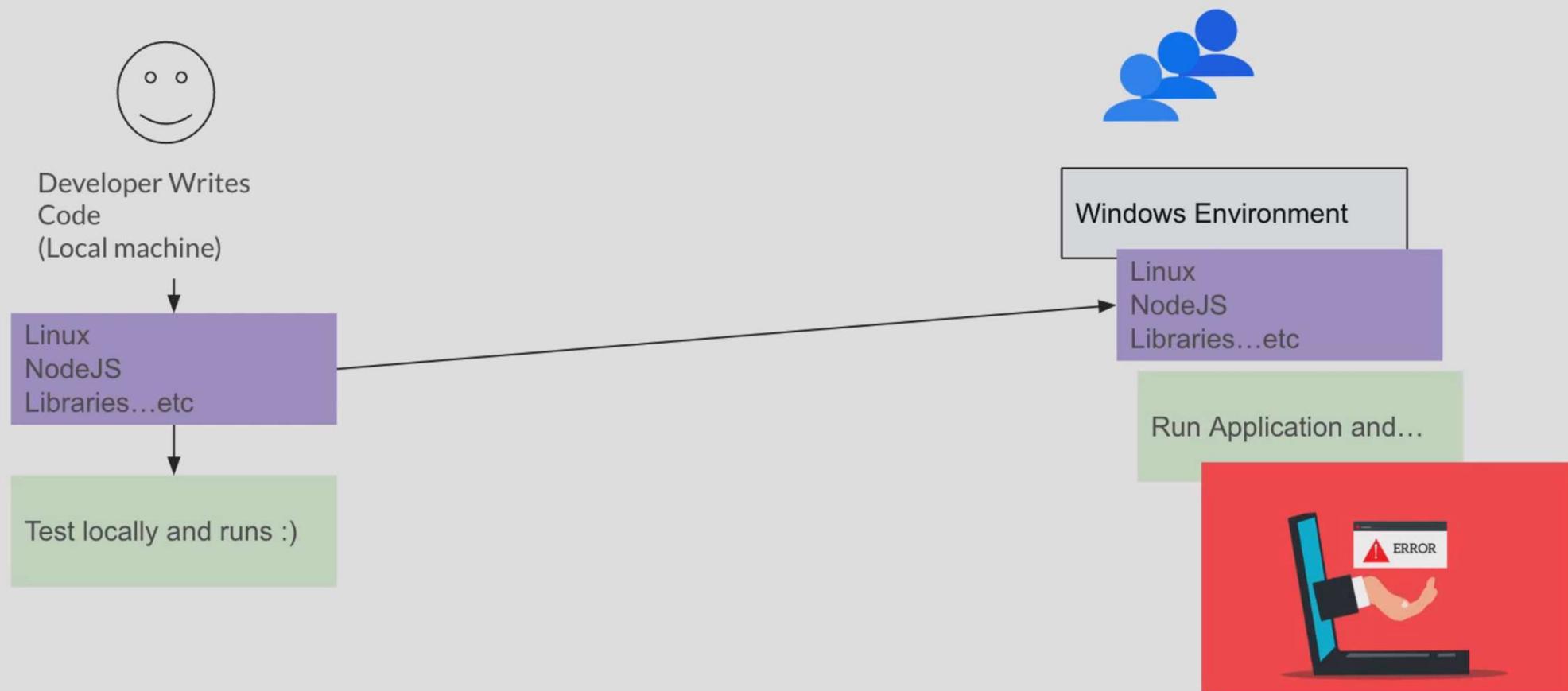
- **Amazon Elastic Container Service**
 - Egy skálázható és gyors konténerkezelő szolgáltatás
 - Orchestrálja (összehangolja) a klaszter konténereit – egyszerűen futtathatod, leállíthatod és kezelheted a konténereket
- **De miért is olyan fontos/érdekes mindez?**

Mi a Docker?

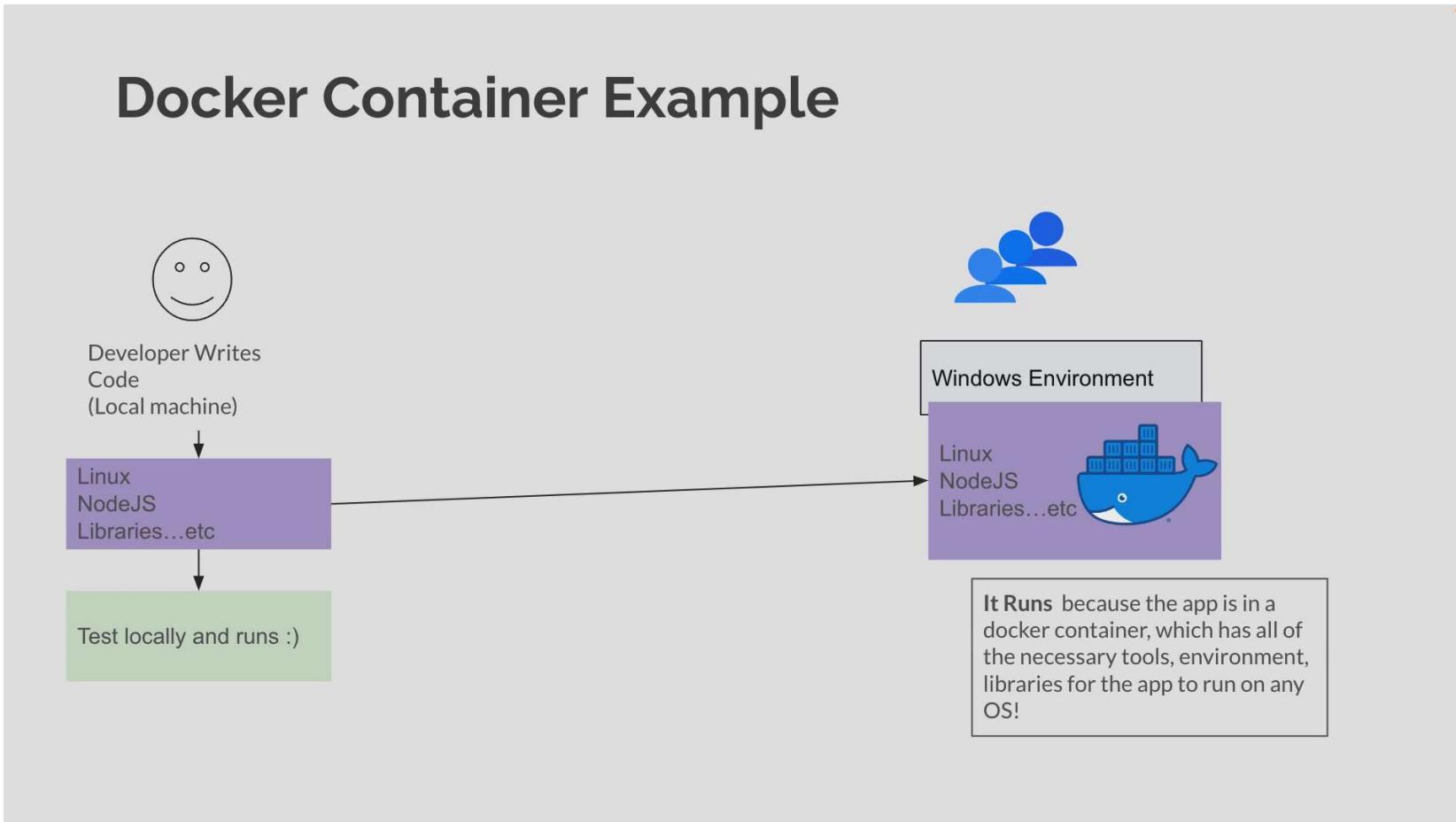
- A Docker egy szoftverfejlesztési platform, amelyet alkalmazások telepítésére használnak.
- Az alkalmazások **konténerekbe** vannak csomagolva, amelyeket bármilyen operációs rendszeren lehet futtatni.
- **Az alkalmazások mindenhol ugyanúgy futnak – függetlenül attól, hol futtatók őket.**
 - Bármilyen gépen
 - Nincsenek kompatibilitási problémák
 - Előre kiszámítható működés
 - Kevesebb munka
 - Könnyebb karbantartani és telepíteni
 - Bármilyen nyelvvel, operációs rendszerrel vagy technológiával működik
 - A konténerek nagyon gyorsan skálázhatók fel és le (másodpercek alatt)



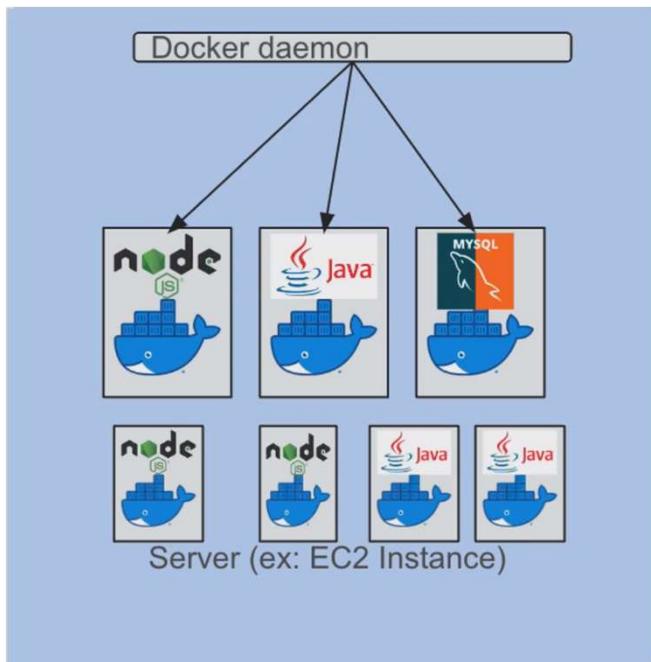
Mi a Docker?



Docker Container példa



Docker egy OS-n fut

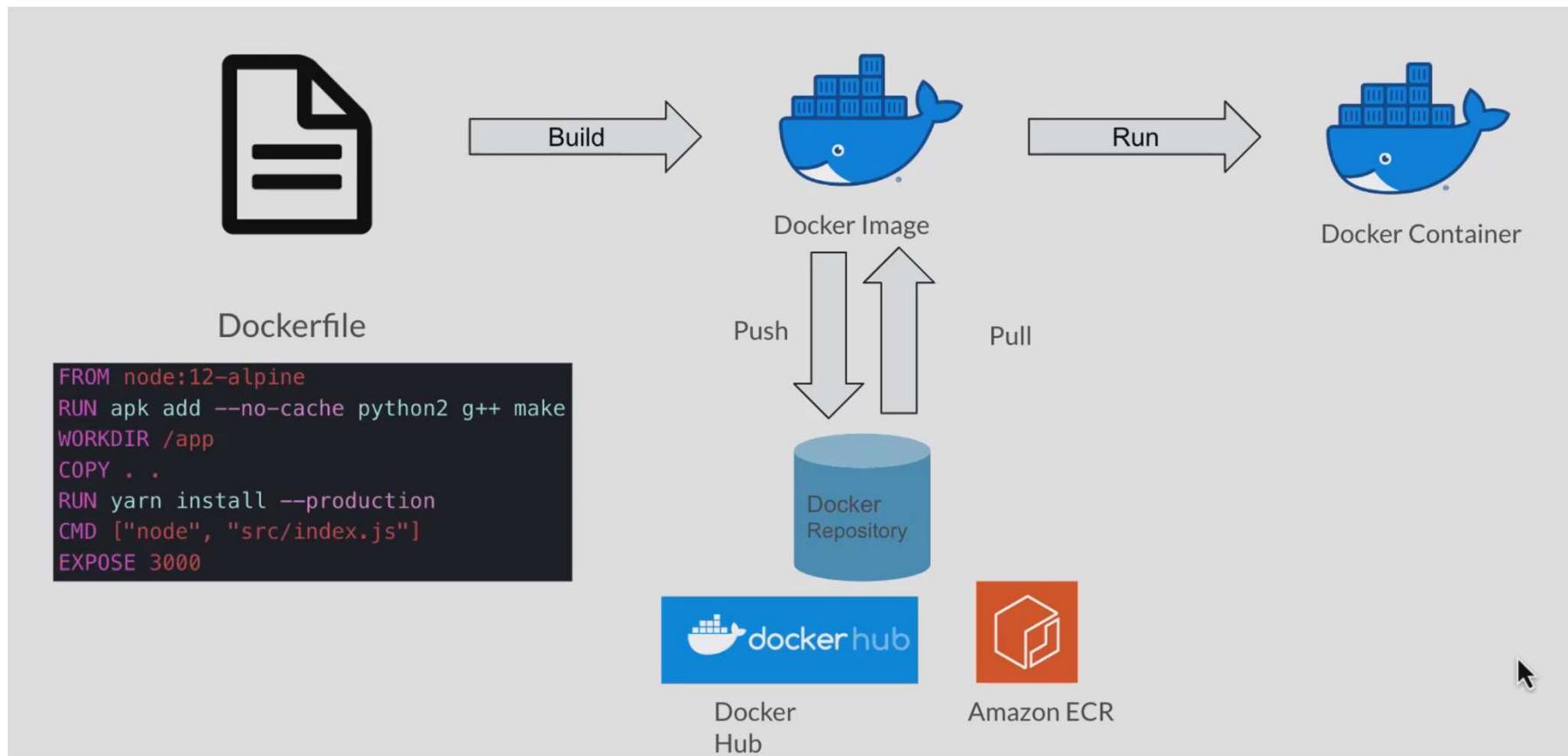


Docker daemon – kezeli, építi és futtatja a Docker konténereket (a Docker ügynökkal együtt).

Docker image – Hol tárolódik?

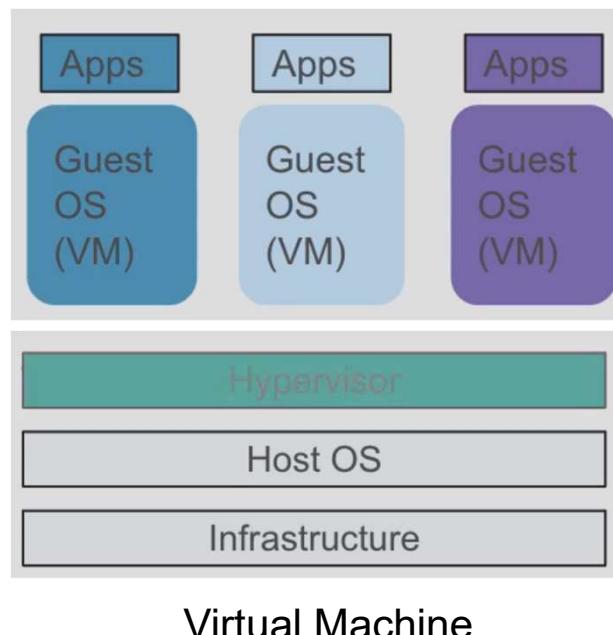
- **Docker tárolók (Repositories)**
- **Nyilvános:** Docker Hub <https://hub.docker.com/> és mások
- Itt alap image-eket (képfájlokat) találhatsz sokféle technológiához vagy operációs rendszerhez, például:
 - **Ubuntu**
 - **MySQL**
 - **NodeJS, Java...**
- **Privát:** Amazon ECR (Elastic Container Registry)

Docker alapok

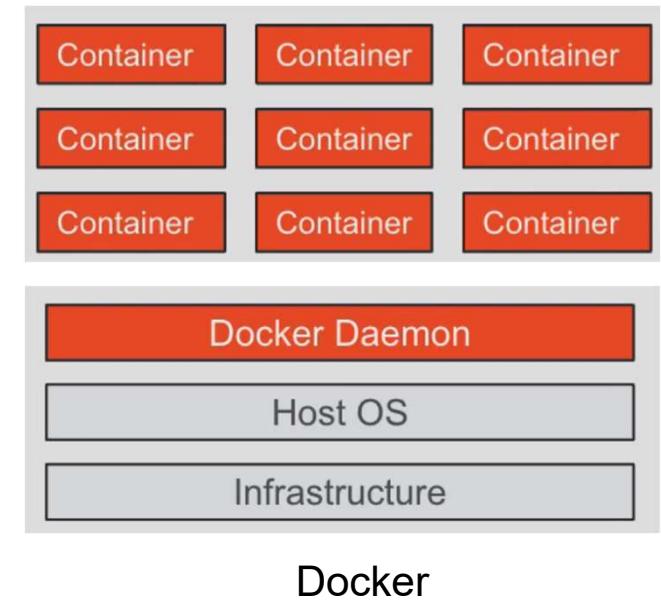


Docker vs VM

- A Docker „félig-meddig” virtualizációs technológia, de nem teljesen az – konténertechnológia.
- Az erőforrások megosztva vannak a gazdagéppel (host) → így sok konténer futhat egyetlen szerveren.

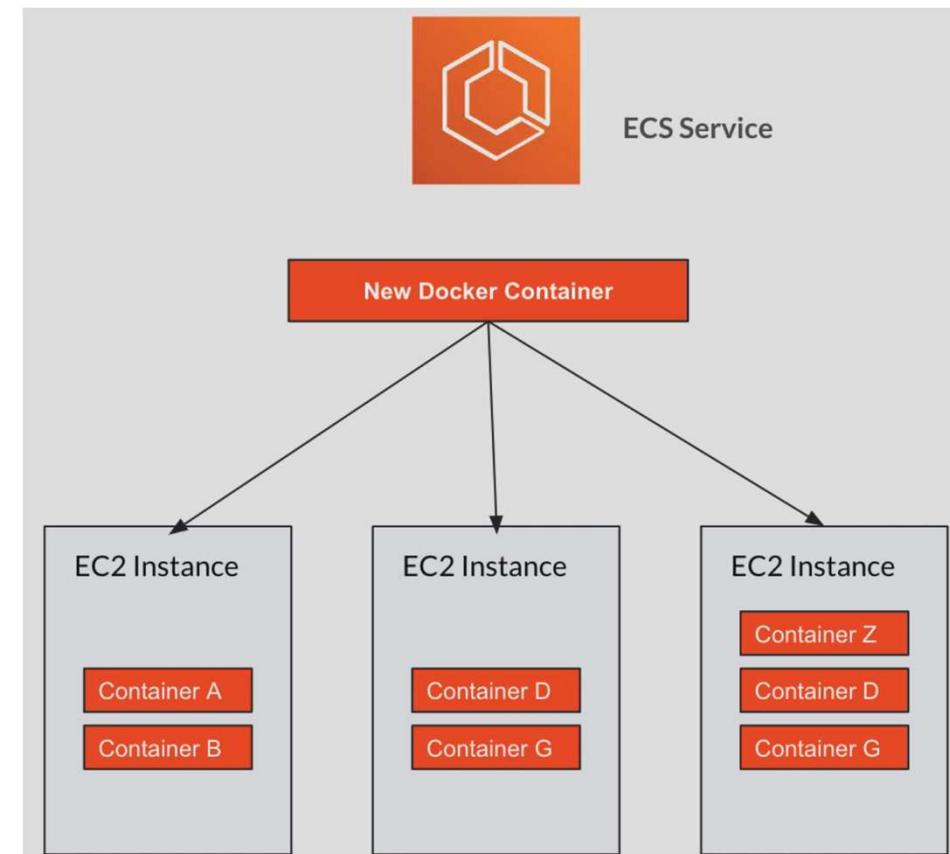


- A **Docker daemon** könnysűlyű (nem igényel sok erőforrást).
- **Kevesebb az elkülönítés a konténerek között** – meg tudják osztani az erőforrásokat, és **kommunikálni tudnak egymással**.



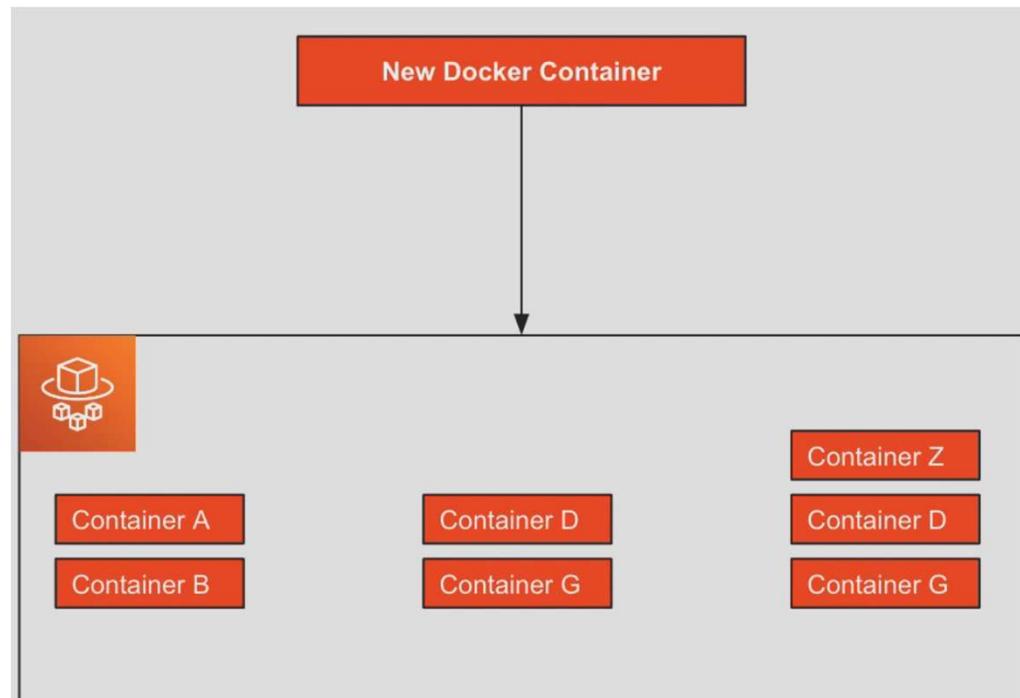
ECS - Elastic Container Service

- **ECS – Elastic Container Service**
- Docker konténerek indítása az AWS-en
- Neked kell biztosítanod és karbantartanod az infrastruktúrát (azaz az EC2 példányokat)
- Az AWS gondoskodik a konténerek indításáról és leállításáról
- Össze tudod kapcsolni az Application Load Balancerrel (Alkalmazás-terheléselosztóval)



Mi az a FARGATE?

- **Docker konténerek futtatása az AWS-en**
- **Nem kell** a felhasználónak biztosítani és karbantartani az infrastruktúrát (**nincsenek EC2 példányok**)
- **Serverless (szerver nélküli) megoldás**
- Az **AWS automatikusan futtatja a konténereket**, az általad megadott CPU- és memóriaigény alapján



Mi az a Fragate?

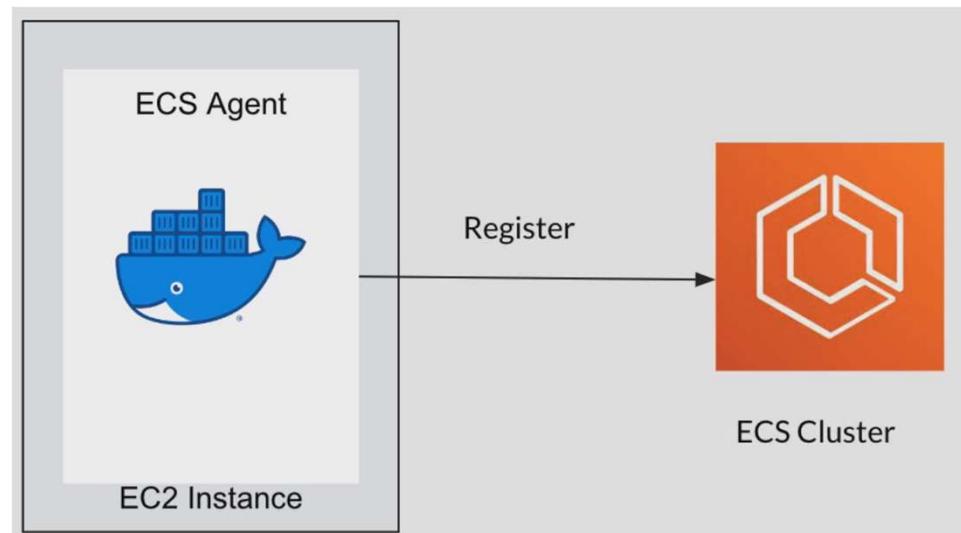
- Fargate egy serverless (szerver nélküli) konténer-futtatási szolgáltatás.
- Ez azt jelenti, hogy nem kell saját szervereket (EC2 példányokat) indítanod, beállítanod vagy karbantartanod.
- Az AWS automatikusan gondoskodik az infrastruktúráról – te csak megmondod, mennyi CPU-t és memóriát szeretnél, és milyen Docker konténert futtatsz.

Egyszerűen:

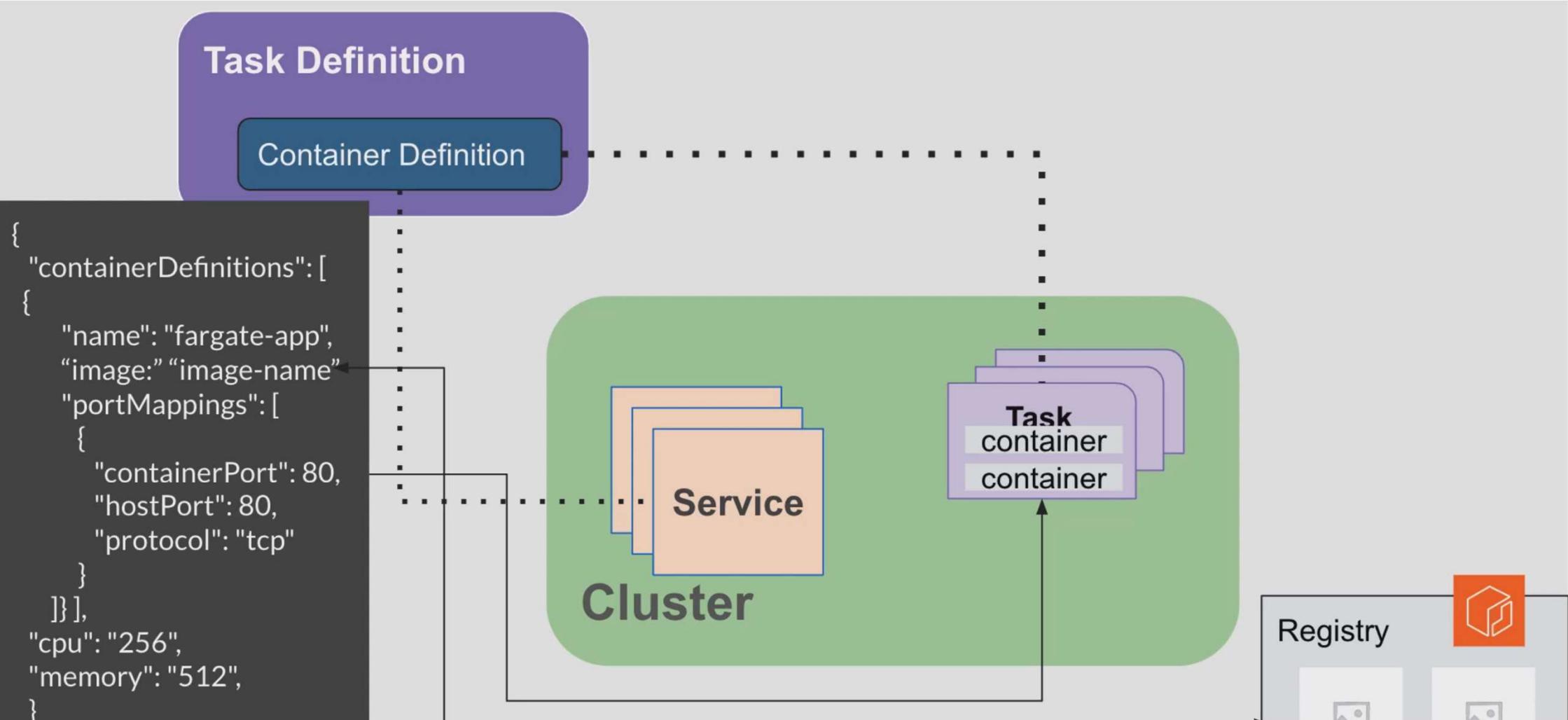
- **Csak a konténert és az erőforrásigényt kell megadni**
- **Az AWS elindítja, futtatja és leállítja a konténert, amikor kell.**
- **Nem kell szervereket kezelni (serverless).**
- **Kisebb adminisztráció, gyorsabb skálázás és kevesebb hiba.**

ECS Cluster

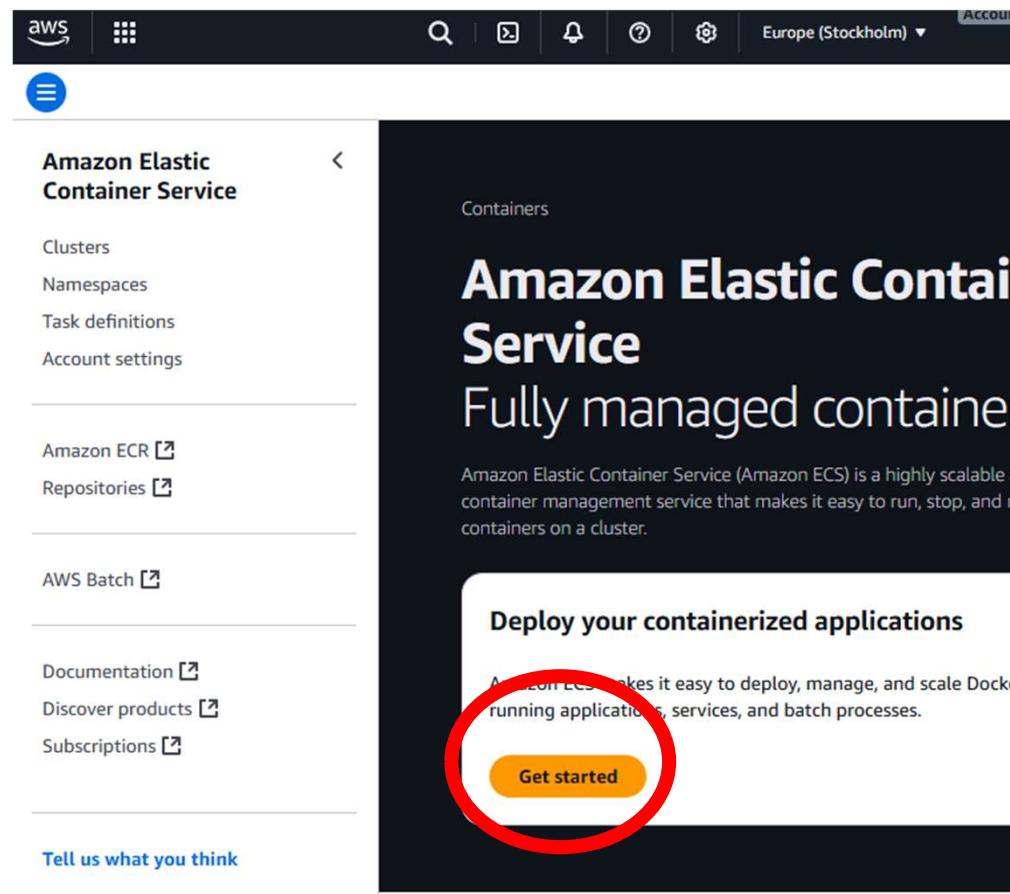
- Az **ECS klaszterek** az **EC2 példányok logikai csoportosításai**.
- Az **EC2 példányok** futtatják az **ECS Agentet** (ami egy Docker konténer).
- Az **ECS Agent** regisztrálja a példányt az **ECS klaszterhez**.
- Az **EC2 példányok** egy **speciális AMI-t** (Amazon Machine Image) futtatnak, amit **kifejezetten az ECS-hez** készítettek



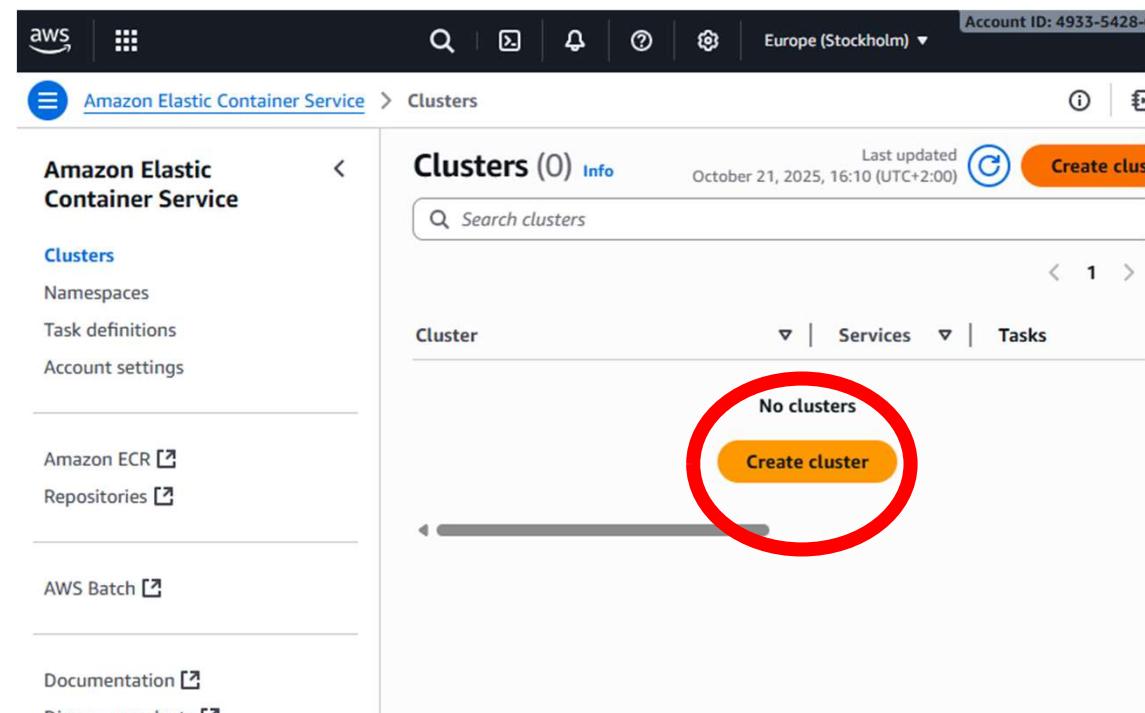
Amazon ECS



ECS



The screenshot shows the Amazon Elastic Container Service (ECS) main page. The top navigation bar includes the AWS logo, search, notifications, and account information for Europe (Stockholm). On the left, a sidebar lists navigation links: Clusters, Namespaces, Task definitions, Account settings, Amazon ECR, and AWS Batch. Below the sidebar is a large central area with the title "Amazon Elastic Container Service" and the subtitle "Fully managed container service". It describes ECS as a highly scalable container management service. A section titled "Deploy your containerized applications" explains that ECS makes it easy to deploy, manage, and scale Docker running applications, services, and batch processes. A prominent yellow "Get started" button is highlighted with a red circle.



The screenshot shows the "Clusters" page within the ECS service. The top navigation bar includes the AWS logo, search, notifications, and account information for Europe (Stockholm). The sidebar on the left is identical to the main page. The main content area shows a summary: "Clusters (0)" with an "Info" link, last updated on October 21, 2025, at 16:10 (UTC+2:00). A "Create cluster" button is located on the right side of the summary row. Below this, there are sections for "Cluster", "Services", and "Tasks". A red circle highlights the "Create cluster" button.

ECS

Screenshot of the AWS Amazon Elastic Container Service (ECS) Create cluster configuration page.

The page shows the following details:

- Cluster name:** trusty-crocodile-dho8vf
- Service Connect defaults - optional:** (Empty)
- Infrastructure - optional:** (Serverless)
 - AWS Fargate (serverless): Pay as you go. Use if you have tiny, batch, or burst workloads or for zero maintenance overhead. The cluster has Fargate and Fargate Spot capacity providers by default.
 - Amazon EC2 instances: Manual configurations. Use for large workloads with consistent resource demands.
 - External instances using ECS Anywhere can be registered after cluster creation is complete.
- Monitoring - optional:** Configure observability, encryption, and logging options to maintain compliance and operational visibility of your container environment.
- Encryption - optional:** Choose the KMS keys used by tasks running in this cluster to encrypt your storage.
- Tags - optional:** Tags help you to identify and organize your clusters.

At the bottom right, there are two buttons: **Cancel** and **Create**. The **Create** button is highlighted with a red circle.

Screenshot of the AWS Amazon Elastic Container Service (ECS) Clusters page, showing the newly created cluster.

The page displays the following information:

- Clusters (1) Info:** Last updated October 21, 2025, 16:14 (UTC+2:00).
- Search clusters:** A search bar with placeholder text.
- Cluster:** helpful-horse-j20251111155222
- Services:** 0
- Tasks:** No tasks running

A green success message at the top right states: **Cluster helpful-horse-j20251111155222 has been created successfully.** A **View cluster** button is also present in this message area. The cluster name **helpful-horse-j20251111155222** is circled in red.

ECS

The screenshot shows the AWS ECS console. On the left, a sidebar menu includes 'Clusters' (selected), 'Task definitions' (circled in red), and 'Task definitions' under 'Amazon Elastic Container Service'. The main content area displays a success message: 'Cluster helpful-horse-j2025111155222 has been created successfully.' Below this is an 'Introducing event history' section with a 'View cluster configuration' button. The cluster details for 'helpful-horse-j2025111155222' are shown, including its ARN (arn:aws:ecs:eu-north-1:493354280892:cluster/helpful-horse-j2025111155222), status (Active), CloudWatch monitoring (Default), and registered container (-). The services and tasks sections are also present.

The screenshot shows the 'Create new task definition' page. It features a success message: 'Cluster helpful-horse-j2025111155222 has been created successfully.' Below this is a 'Create new task definition' section with a 'Task definition configuration' sub-section. Under 'Task definition family', the value 'Task_def_family_name_td_2025' is entered. The 'Infrastructure requirements' section is expanded, showing the 'Launch type' dropdown set to 'AWS Fargate' (selected) and 'Amazon EC2 instances' (unchecked). Other sidebar options include 'Clusters', 'Namespaces', 'Task definitions' (selected), and 'Account settings'.

ECS

The screenshot shows the AWS Elastic Container Service (ECS) console. The top navigation bar includes the AWS logo, search, notifications, and a dropdown for 'Europe (Stockholm)'. The main title is 'Create new task definition' under 'Amazon Elastic Container Service'. On the left, a sidebar lists 'Clusters', 'Namespaces', 'Task definitions' (which is selected), and 'Account settings'. Below that are links for 'Amazon ECR' and 'Repositories'. Further down are links for 'AWS Batch', 'Documentation', 'Discover products', and 'Subscriptions'. At the bottom of the sidebar is a link to 'Tell us what you think'. The right side of the screen displays the 'Container - 1' configuration. It shows a 'Container details' section with a 'Name' field containing 'Task_def_2025' and an 'Essential container' dropdown set to 'Yes'. An 'Image URI' field also contains 'Task_def_2025'. A 'Browse ECR images' button is available. A 'Private registry' section with an 'Info' link is present at the bottom.

Amazon Elastic Container Service

Clusters

Namespaces

Task definitions

Account settings

Amazon ECR

Repositories

AWS Batch

Documentation

Discover products

Subscriptions

Tell us what you think

Container - 1

Container details

Name: Task_def_2025

Up to 255 letters (uppercase and lowercase), numbers, hyphens, and underscores are allowed.

Essential container

Yes

Image URI

Task_def_2025

Browse ECR images

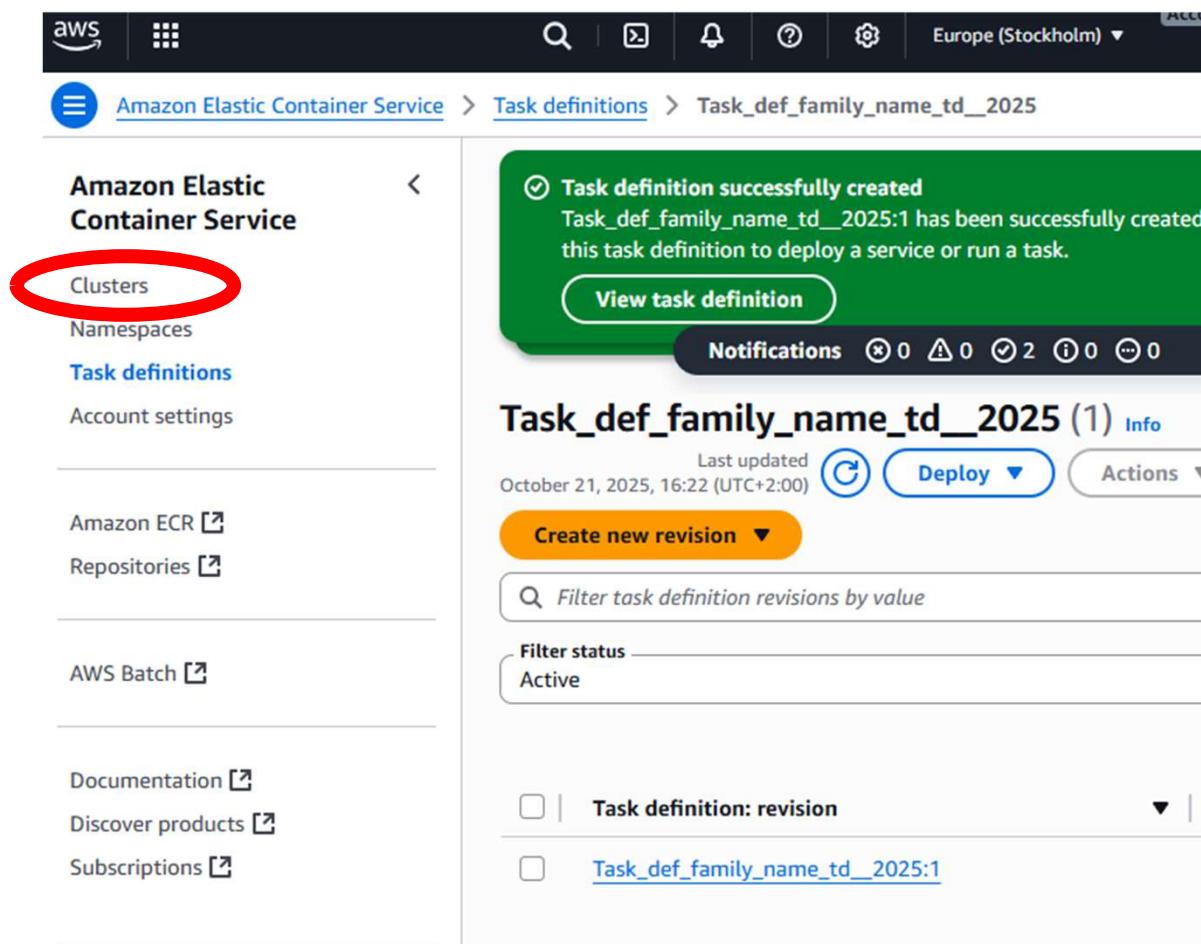
Up to 255 letters (uppercase and lowercase), numbers, hyphens, underscores, colons, periods, forward slashes, and number signs are allowed.

Private registry | Info

Store credentials in Secrets Manager, and then use the credentials to reference images in private registries.

Private registry authentication

ECS – Run a task



The screenshot shows the AWS Elastic Container Service (ECS) Task Definitions page. A green success message box is displayed, stating: "Task definition successfully created. Task_def_family_name_td_2025:1 has been successfully created. This task definition to deploy a service or run a task." Below the message are "View task definition", "Notifications", and a "Deploy" button. The left sidebar includes links for Clusters (circled in red), Namespaces, Task definitions, Account settings, Amazon ECR, Repositories, AWS Batch, Documentation, Discover products, and Subscriptions.

The screenshot also shows the Cluster overview page for a specific cluster. The cluster ARN is listed as arn:aws:ecs:eu-north-1:493354280892:cluster/helpful-horse-j2025111155222. The status is Active. The Services tab is selected, showing one pending task under the Draining section. The Tasks tab is circled in red. Other tabs include Services, Infrastructure, Metrics, and Schedule.

ECS - Run a task

The screenshot shows the AWS Elastic Container Service (ECS) Cluster overview page. The left sidebar includes links for Clusters, Namespaces, Task definitions, Account settings, Amazon ECR, Repositories, AWS Batch, Documentation, Discover products, and Subscriptions. The main content area displays cluster details like ARN, CloudWatch monitoring, and services (Draining, Active). Below this, the 'Tasks' tab is selected, showing a summary of tasks (0) and a prominent orange 'Run new task' button. This button is circled in red. The page also features filtering options for tasks by property or value, desired status, and launch type.

Amazon Elastic Container Service

Clusters

Namespaces

Task definitions

Account settings

Amazon ECR

Repositories

AWS Batch

Documentation

Discover products

Subscriptions

Tell us what you think

Cluster overview

ARN
arn:aws:ecs:eu-north-1:49335428
0892:cluster/helpful-horse-j20251111155222
155222

Status
Active

CloudWatch monitoring
Default

Registered container instances
-

Services

Draining

Pending

Active

Running

Tasks

Tasks (0)

Last updated
October 21, 2025, 16:24 (CET+2:00)

Manage tags

Stop

Run new task

Filter tasks by property or value

Filter desired status
Any desired status

Filter launch type
Any launch type