

Thought for a few seconds

Here's a **chronological list** of all the major challenges we encountered in the MT project—from the very first steps through to your EKS cluster creation—along with how we resolved each. You can use this as a talking-point guide in interviews to show your end-to-end troubleshooting experience.

1. Project Initialization & Environment Setup

1. Empty Repo & Folder Structure

- *Problem:* Repo was created (MT) without the correct frontend / backend scaffolding.
- *Solution:* Established the React and Node.js folder layout (src/components , src/pages , services/api.js , etc.) and committed the initial codebase.

2. MongoDB Atlas Connection

- *Problem:* Connection failures due to non-SRV connection string and mistaken password.
- *Solution:* Switched to the standard connection URI format, verified credentials in Atlas, and updated .env accordingly.

3. Backend Missing Endpoints

- *Problem:* After redeploying to Render, authentication and trade-CRUD endpoints were 404 or erroring.
- *Solution:* Restored the Express routes, confirmed JWT middleware order, and redeployed the backend to Render.

2. Frontend Integration & Styling

4. API Base URL & JWT Handling

- *Problem:* Frontend Axios baseURL pointed to the old Render URL; login/register flows were broken.
- *Solution:* Updated src/services/api.js with the new Render URL, added request interceptors to include the JWT, and tested end-to-end.

5. Navigation & Trade Form Placement

- *Problem:* The Dashboard and Gallery routes weren't wired into the React Router properly. Trade form rendered off-screen.
- *Solution:* Fixed <Routes> definitions, moved <TradeForm> into the Dashboard component, and confirmed navigation links.

6. Premium Styling Requirements

- *Problem:* Glass-effect panels, invisible eye-icon on password fields, and inconsistent background images.
 - *Solution:* Removed semi-transparent overlays, swapped in visible SVG icons, applied full-screen background CSS, and tested across breakpoints.
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3. DevOps & CI/CD Foundations

7. Render Auto-Deploy vs. CI/CD Definition

- *Problem:* Confusion whether “Render auto-deploy on GitHub push” qualified as CI/CD.
- *Solution:* Clarified that Render’s GitHub integration covers basic CD, but we’ll bring in Jenkins/GitHub Actions for full CI (lint/test/build) in future.

8. Dockerization

- *Problem:* Dockerfiles for frontend/backend didn’t build or network correctly.
 - *Solution:* Added proper `WORKDIR`, `CMD`, port exposures, and a Docker network bridge for local testing; validated images with `docker run`.
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4. Kubernetes & AWS EKS Onboarding

9. AWS CLI Not Installed/Configured

- *Problem:* `aws` command not found; then “Unable to locate credentials.”
- *Solution:* Installed AWS CLI via the MSI installer, ran `aws configure` with new IAM keys, and verified with `aws sts get-caller-identity`.

10. eksctl Not on PATH

- *Problem:* `eksctl` command not recognized.
- *Solution:* Installed via Chocolatey (`choco install eksctl -y`), reopened PowerShell, and confirmed `eksctl` version.

11. kubectl Not Installed

- *Problem:* `kubectl` missing.
 - *Solution:* Installed via Chocolatey (`choco install kubernetes-cli -y`), confirmed client version, and prepared to update kubeconfig.
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5. IAM Permissions & Cluster Creation

12. DescribeClusterVersions Denied

- *Problem:* `eks:DescribeClusterVersions` denied when running `eksctl create cluster`.
- *Solution:* Added a custom inline policy granting `eks:DescribeClusterVersions`, `eks:ListClusters`, and related actions.

13. CreateCluster Denied

- *Problem:* `eks:CreateCluster` denied despite `AmazonEKSClusterPolicy`, `AmazonEKSServicePolicy`, etc.
- *Solution:* Created an inline policy `AllowEKSClusterManagement` allowing `eks:CreateCluster` and other EKS actions not covered by the managed policies.

14. Addon Describe Denied

- *Problem:* `eks:DescribeAddon` errors mid-creation as EKS tried to install core addons.
- *Solution:* Extended the inline policy to include `eks:DescribeAddon`, `eks:ListAddons`, `eks:DescribeAddonVersions`.

15. CloudFormation Stack "Already Exists"

- *Problem:* Retrying cluster creation failed with `AlreadyExistsException`.
- *Solution:* Deleted the half-built stack in CloudFormation (`eksctl delete cluster`), waited for `DELETE_COMPLETE`, then retried creation.

16. CloudFormation Timeout/Failures

- *Problem:* VPC/NAT Gateway creation sometimes timed out or rolled back.
- *Solution:* Monitored CloudFormation Events for errors, ensured service quotas were sufficient, and allowed 20-30 mins for stack completion.

6. Cost Management

17. Avoiding Idle Costs

- *Problem:* EKS clusters incur ~\$0.10/hr plus node costs even when idle.
- *Solution:* Adopted a policy of deleting the cluster (`eksctl delete cluster`) when not actively using it, to eliminate charges.

Interview Tip: Walk through these challenges as a story of incremental learning—how each hiccup taught you deeper AWS, Docker, and DevOps concepts, and how you systematically resolved permissions, tooling, and infrastructure issues from zero to a working EKS deployment.