

Adding a Database to Docker Compose



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Overview



Pull and run SQL Server in a container

Add to Docker Compose for IdentityServer

Discuss data persistence

- Use container behavior to our advantage

Two approaches:

- Create a custom image
- Use base image with startup logic

Goal review: Did we succeed?



Demo



Docker Hub page for SQL Server

Pull and run image

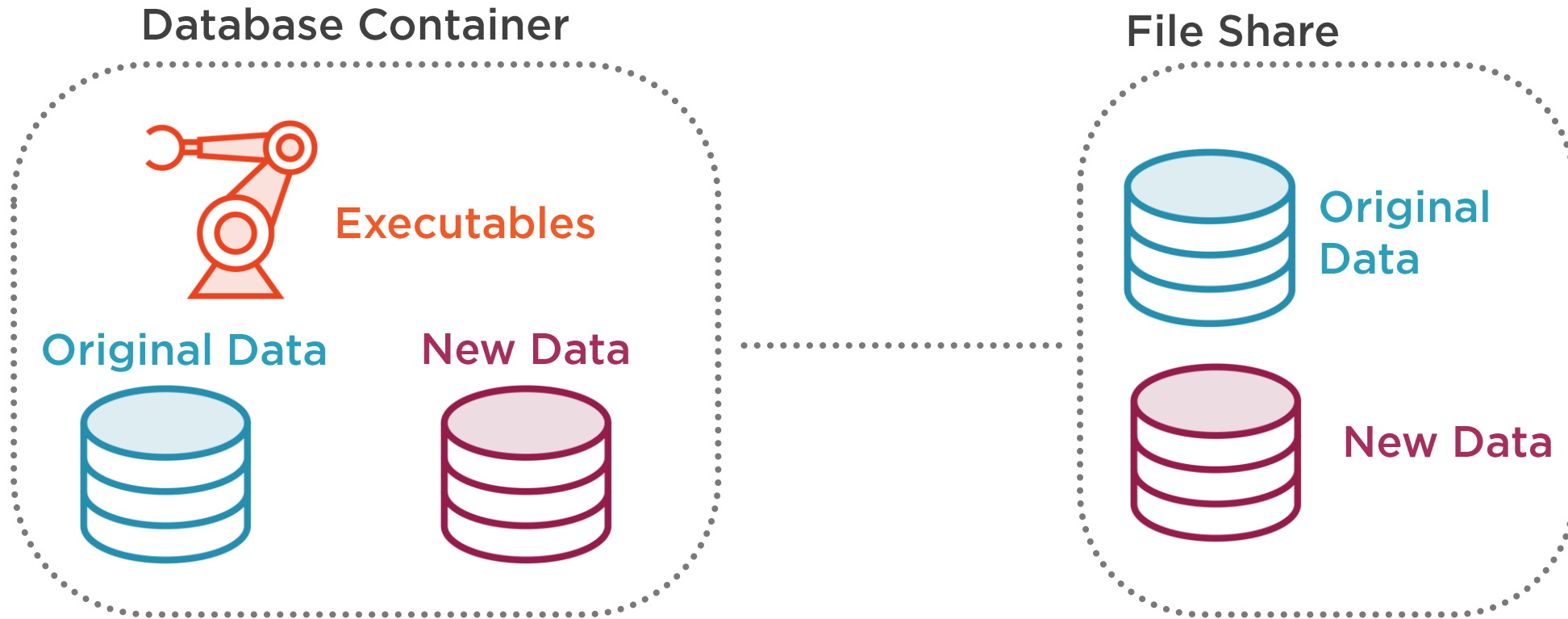
Connect via SSMS

Add to Docker Compose

- Verify IdentityServer project



Data Persistence in Containers



Cattle vs pets

Data lost when container is removed

HA clusters not possible

Store data outside the container!

“Volume” is defined on container



Database Options for Docker Compose

Custom Base Image

Add your schema and data to
base image

Commit and Push that container

Use pushed image in your
project

Standard Base Image

Create setup logic in one or
more scripts

Run those scripts at startup -
after SQL is fully running

Use base image with startup in
your project



```
## https://docs.microsoft.com/en-us/windows/wsl/wsl-config#wsl-2-settings
```

```
[wsl2]  
memory=4GB  
processors=2
```

WSL Configuration

Assign limits to WSL instances

Memory defaults to lesser of 8GB or half available RAM

C:\Users\<username>\.wslconfig



Demo



Apply schema, data, login changes

Commit running container

Update Docker Compose to use new image

- Connection strings
- Verify behavior

Push image to make it available



Demo



Create scripts to apply database setup logic

Find a way to wait for SQL Server

Use custom Dockerfile that can run SQL scripts when SQL is ready

Update Docker Compose file

- Verify application behavior



Developer Setup Revisited



Clone repo

Trust / Import PFX files

Two HOSTS file entries

Run Docker Compose project

Cleanup is easy!

Checkpoint



eShopOnContainers

- Microsoft reference architecture for microservices
- <https://github.com/dotnet-architecture/eShopOnContainers>

docker-compose.yml

- docker-compose.override.yml

Explore and check out the Dockerfiles



Summary



Docker compose is complete!

SQL Server poses some complications

- Create custom images
- Use base image with startup logic

Very handy development tools

What about deployment?



Up Next:

Getting Ready to Run in Kubernetes

