

Prerequisites

Dependencies

Download and install the following locally:

- [Docker](#)
- [Visual Studio Code](#)
- Visual Studio 2022 latest version

You will also need to install:

- [REST Client for VS Code](#)
- [Database Client for VSCode](#)
- [Powershell](#) (for Windows users)

You will also need to install the following:

► .NET

- [dotnet 9.0](#)
- [C# Extension for Visual Studio Code](#)
- [.NET Global Tool](#)

Dapr Installation

1. Follow [these steps](#) to install the Dapr CLI.
2. [Initialize Dapr](#):

```
dapr init
```

3. Verify if local Dapr containers are running:

```
docker ps
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
3219b33e6aa6	daprio/dapr:1.14.0	"/scheduler"	16 minutes ago	Restarting (1) 14 seconds ago	0.0.0.0:50005->50005/tcp, 0.0.0.0:5880->8880/tcp, 0.0.0.0:5990->9990/tcp	dapr_scheduler
fedd431b88d4	daprio/dapr:1.14.0	"/placement"	16 minutes ago	Up 16 minutes	9410/tcp, 0.0.0.0:9411->9411/tcp	dapr_placement
c696a52389c8	openzipkin/zipkin	"start-zipkin"	16 minutes ago	Up 16 minutes (healthy)		dapr_zipkin
98a96f3dccc98	redis:6	"docker-entrypoint.s..."	16 minutes ago	Up 16 minutes	0.0.0.0:6379->6379/tcp	dapr_redis

Upgrade .net version

Before beginning to code, upgrade to the latest .net version.

1. Install .NET Global Tool by running the following in a new terminal window:

```
dotnet tool install -g upgrade-assistant
```

2. In your newly cloned `dapr-workshop-csharp` repository, navigate to the `start-here` folder.
3. Upgrade to the latest .net version by running the following in a new terminal window ([Upgrade a project from the CLI](#)) - upgrade all projects:

Redis Insight on Docker

If you use Redis Insight from docker ([Link](#)):

```
docker run -d --name redisinsight -p 5540:5540 redis/redisinsight:latest
```

When adding the Redis database, set the host to: host.docker.internal

Considerations

Prevent port collisions

During the workshop you will run the services in the solution on your local machine. To prevent port-collisions, all services listen on a different HTTP port. When running the services with Dapr, you need additional ports for HTTP and gRPC communication with the sidecars. If you follow the Dapr CLI instructions, the services will use the following ports for their Dapr sidecars to prevent port collisions:

Service	Application port	Dapr sidecar HTTP port
pizza-order	8001	3501
pizza-storefront	8002	3502
pizza-kitchen	8003	3503
pizza-delivery	8004	3504
pizza-workflow	8005	3505

If you're on Windows with Hyper-V enabled, you might run into an issue that you're not able to use one (or more) of these ports. This could have something to do with aggressive port reservations by Hyper-V. You can check whether or not this is the case by executing this command:

```
netsh int ipv4 show excludedportrange protocol=tcp
```

If you see one (or more) of the ports shown as reserved in the output, fix it by executing the following commands in an administrative terminal:

```
dism.exe /Online /Disable-Feature:Microsoft-Hyper-V
netsh int ipv4 add excludedportrange protocol=tcp startport=8001 numberofports=5
netsh int ipv4 add excludedportrange protocol=tcp startport=3501 numberofports=5
dism.exe /Online /Enable-Feature:Microsoft-Hyper-V /All
```

Running self-hosted on MacOS with VPN/Firewalls enabled

Some antivirus software blocks mDNS (we've actually encountered this with Sophos). mDNS is used for name-resolution by Dapr when running locally in self-hosted mode. Blocking mDNS will cause issues with service invocation. If you encounter any errors when invoking services using service invocation, use HashiCorp Consul as an alternative name resolution service.

Run the following command line to initialize Consul:

```
docker run -d -p 8500:8500 -p 8600:8600/udp --name dtc-consul consul:1.15 agent -dev -client '0.0.0.0'
```

Then, when you finish all challenges, run:

```
docker rm dtc-consul -f
```

You can verify whether Consul is used for name-resolution by searching for the occurrence of the following line in the Dapr sidecar logging:

```
i Starting Dapr with id pizza-kitchen. HTTP Port: 3503.
...
INFO[0000] Initialized name resolution to consul ...
...
```

Getting started

Initialize your environment in your language

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.NET

In your terminal, run:

```
git clone https://github.com/diagrid-labs/dapr-workshop-csharp.git
cd dapr-worksop-csharp
```

You are now ready to begin the first challenge!