Publishing .NET Applications

Framework-Dependent Deployment (FDD)
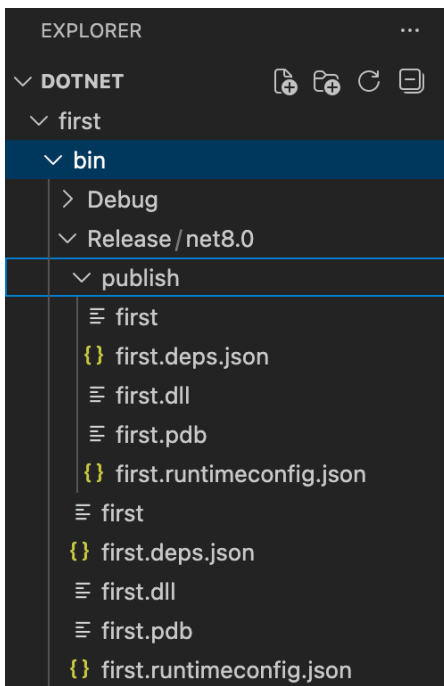
1. When to Use FDD

Use FDD when: - Target machine already has .NET installed - Internal/company servers - Docker images with .NET base image - You want smaller binaries

2. Command to Publish (Framework-Dependent)

```
hritiksingh@HRITIKs—MacBook—Air first % dotnet publish
  Determining projects to restore...
  All projects are up—to—date for restore.
  first —> /Users/hritiksingh/Downloads/DOTNET/first/bin/Release/net8.0/first.dll
  first —> /Users/hritiksingh/Downloads/DOTNET/first/bin/Release/net8.0/publish/
hritiksingh@HRITIKs—MacBook—Air first % dotnett
```

3. Output Location

After publishing, files are created at:

```
EXPLORER                        ...

∨ DOTNET
  ∨ first
    ∨ bin
      > Debug
      ∨ Release/net8.0
        ∨ publish
          ≡ first
          {} first.deps.json
          ≡ first.dll
          ≡ first.pdb
          {} first.runtimeconfig.json
        ≡ first
        {} first.deps.json
        ≡ first.dll
        ≡ first.pdb
        {} first.runtimeconfig.json
```

4. Verify Framework Dependency

Check runtime config:

```
hritiksingh@HRITIKs-MacBook-Air first % dotnet run
os : Darwin 25.1.0 Darwin Kernel Version 25.1.0: Mon Oct 20 19:32:47 PDT 2025; root:xnu-12377.41.6~2/RELEASE_ARM64_T8103
Architecture : Arm64
hritiksingh@HRITIKs-MacBook-Air first % █
```

This confirms **framework-dependent mode**.

Self-Contained Deployment (SCD)

1. When to Use SCD

Use SCD when: - Target machine has **no .NET installed** - Client systems - Desktop utilities - Exam / submission / offline delivery

2. Identify Target Runtime (RID)

Common Runtime Identifiers (RID):

OS	RID
macOS x64	osx-x64

3. Command to Publish (Self-Contained)

```
hritiksingh@HRITIKs-MacBook-Air first % dotnet publish -c Release -r win-x64 --self-contained true
  Determining projects to restore...
  Restored /Users/hritiksingh/Downloads/DOTNET/first/first.csproj (in 3.39 sec).
  first -> /Users/hritiksingh/Downloads/DOTNET/first/bin/Release/net8.0/win-x64/first.dll
  first -> /Users/hritiksingh/Downloads/DOTNET/first/bin/Release/net8.0/win-x64/publish/
hritiksingh@HRITIKs-MacBook-Air first % █
```

4. Output Location