



cara build angular 19

Berikut adalah panduan lengkap untuk build Angular 19 project CompdAPIIdap:

1. Perintah Build Dasar

Build Development

```
# Build standard untuk development
ng build

# Build dengan watch mode (auto rebuild saat ada perubahan)
ng build --watch

# Build dengan specific environment
ng build --configuration development
```

Build Production

```
# Build production (optimized)
ng build --configuration production

# Build production dengan base href untuk IIS subfolder
ng build --configuration production --base-href /CompnoteUI/

# Build production untuk root website
ng build --configuration production --base-href /
```

2. Konfigurasi Build di angular.json

```
{
  "projects": {
    "CompnoteUI": {
      "architect": {
        "build": {
          "builder": "@angular-devkit/build-angular:browser",
          "options": {
            "outputPath": "dist/compnote-ui",
            "index": "src/index.html",
            "main": "src/main.ts",
            "polyfills": [
              "zone.js"
            ],

```

```
"tsConfig": "tsconfig.app.json",
"inlineStyleLanguage": "scss",
"assets": [
  "src/favicon.ico",
  "src/assets",
  "src/web.config"
],
"styles": [
  "node_modules/bootstrap/dist/css/bootstrap.min.css",
  "src/styles.scss"
],
"scripts": [
  "node_modules/bootstrap/dist/js/bootstrap.bundle.min.js"
]
},
"configurations": {
  "production": {
    "budgets": [
      {
        "type": "initial",
        "maximumWarning": "2MB",
        "maximumError": "5MB"
      },
      {
        "type": "anyComponentStyle",
        "maximumWarning": "6KB",
        "maximumError": "10KB"
      }
    ],
    "outputHashing": "all",
    "sourceMap": false,
    "namedChunks": false,
    "aot": true,
    "extractLicenses": true,
    "vendorChunk": false,
    "buildOptimizer": true,
    "optimization": true
  },
  "development": {
    "buildOptimizer": false,
    "optimization": false,
    "vendorChunk": true,
    "extractLicenses": false,
    "sourceMap": true,
    "namedChunks": true
  }
},
"defaultConfiguration": "production"
}
}
```

3. Environment Configuration

src/environments/environment.ts

```
export const environment = {
  production: false,
  apiUrl: 'https://localhost:7134/api',
  baseUrl: '/',
  appName: 'CompdtAPI Development',
  version: '1.0.0-dev'
};
```

src/environments/environment.prod.ts

```
export const environment = {
  production: true,
  apiUrl: 'https://your-production-server.com/api',
  baseUrl: '/CompnoteUI/',
  appName: 'CompdtAPI',
  version: '1.0.0'
};
```

4. Package.json Build Scripts

```
{
  "name": "compnote-ui",
  "version": "1.0.0",
  "scripts": {
    "ng": "ng",
    "start": "ng serve",
    "start:prod": "ng serve --configuration production",

    "build": "ng build",
    "build:dev": "ng build --configuration development",
    "build:prod": "ng build --configuration production",
    "build:iis": "ng build --configuration production --base-href /CompnoteUI/",
    "build:iis-root": "ng build --configuration production --base-href /",

    "watch": "ng build --watch --configuration development",
    "test": "ng test",
    "test:ci": "ng test --watch=false --browsers=ChromeHeadless",
    "lint": "ng lint",
    "e2e": "ng e2e",

    "analyze": "ng build --configuration production --stats-json && npx webpack-bundle-analyzer",
    "clean": "rimraf dist",
    "prebuild": "npm run clean"
  },
  "dependencies": {
    "@angular/animations": "^19.0.0",
    "@angular/common": "^19.0.0",
```

```

    "@angular/compiler": "^19.0.0",
    "@angular/core": "^19.0.0",
    "@angular/forms": "^19.0.0",
    "@angular/platform-browser": "^19.0.0",
    "@angular/platform-browser-dynamic": "^19.0.0",
    "@angular/router": "^19.0.0",
    "bootstrap": "^5.3.3",
    "rxjs": "~7.8.0",
    "tslib": "^2.3.0",
    "zone.js": "~0.15.0"
  },
  "devDependencies": {
    "@angular-devkit/build-angular": "^19.0.0",
    "@angular/cli": "^19.0.0",
    "@angular/compiler-cli": "^19.0.0",
    "@types/node": "^18.7.0",
    "rimraf": "^3.0.2",
    "typescript": "~5.6.0",
    "webpack-bundle-analyzer": "^4.9.0"
  }
}

```

5. TypeScript Configuration

tsconfig.json

```

{
  "compileOnSave": false,
  "compilerOptions": {
    "outDir": "./dist/out-tsc",
    "forceConsistentCasingInFileNames": true,
    "strict": true,
    "noImplicitOverride": true,
    "noPropertyAccessFromIndexSignature": true,
    "noImplicitReturns": true,
    "noFallthroughCasesInSwitch": true,
    "skipLibCheck": true,
    "isolatedModules": true,
    "esModuleInterop": true,
    "sourceMap": true,
    "declaration": false,
    "experimentalDecorators": true,
    "moduleResolution": "bundler",
    "importHelpers": true,
    "target": "ES2022",
    "module": "ES2022",
    "useDefineForClassFields": false,
    "lib": [
      "ES2022",
      "dom"
    ]
  },
  "angularCompilerOptions": {
    "enableI18nLegacyMessageIdFormat": false,
  }
}

```

```
    "strictInjectionParameters": true,  
    "strictInputAccessModifiers": true,  
    "strictTemplates": true  
  }  
}
```

tsconfig.app.json

```
{  
  "extends": "../tsconfig.json",  
  "compilerOptions": {  
    "outDir": "../out-tsc/app",  
    "types": []  
  },  
  "files": [  
    "src/main.ts"  
  ],  
  "include": [  
    "src/**/*.d.ts"  
  ]  
}
```

6. Build Commands Detail

Development Build

```
# Basic development build  
ng build --configuration development  
  
# Development dengan file watching  
ng build --configuration development --watch  
  
# Development dengan verbose output  
ng build --configuration development --verbose
```

Production Build Optimized

```
# Standard production build  
ng build --configuration production  
  
# Production dengan analysis  
ng build --configuration production --stats-json  
  
# Production dengan specific output path  
ng build --configuration production --output-path dist/prod  
  
# Production dengan source maps (untuk debugging production)  
ng build --configuration production --source-map  
  
# Production dengan specific base href
```

```
ng build --configuration production --base-href /CompnoteUI/

# Production dengan deploy URL (untuk CDN)
ng build --configuration production --deploy-url https://cdn.example.com/compnote/
```

7. Build Optimization Options

Advanced Build Options

```
# Maksimal optimasi untuk production
ng build --configuration production \
  --optimization \
  --aot \
  --build-optimizer \
  --vendor-chunk=false \
  --extract-licenses \
  --named-chunks=false \
  --output-hashing=all

# Build untuk analysis bundle size
ng build --configuration production --stats-json
npx webpack-bundle-analyzer dist/compnote-ui/stats.json

# Build dengan progress indicator
ng build --configuration production --progress

# Build dengan specific memory limit
node --max_old_space_size=8192 node_modules/.bin/ng build --configuration production
```

8. Pre-build Checklist Script

prebuild.js

```
const fs = require('fs');
const path = require('path');

console.log('🔍 Pre-build checks...');

// Check environment files
const envFiles = [
  'src/environments/environment.ts',
  'src/environments/environment.prod.ts'
];

envFiles.forEach(file => {
  if (fs.existsSync(file)) {
    console.log(`✅ Found: ${file}`);
  } else {
    console.error(`❌ Missing: ${file}`);
    process.exit(1);
  }
})
```

```

});

// Check essential assets
const assetFiles = [
  'src/favicon.ico',
  'src/web.config',
  'src/assets'
];

assetFiles.forEach(file => {
  if (fs.existsSync(file)) {
    console.log(`✔ Found: ${file}`);
  } else {
    console.warn(`⚠ Missing optional: ${file}`);
  }
});

// Check package.json
const packageJson = JSON.parse(fs.readFileSync('package.json'));
const requiredDeps = ['@angular/core', '@angular/cli', 'bootstrap'];

requiredDeps.forEach(dep => {
  if (packageJson.dependencies[dep] || packageJson.devDependencies[dep]) {
    console.log(`✔ Dependency: ${dep}`);
  } else {
    console.error(`✖ Missing dependency: ${dep}`);
    process.exit(1);
  }
});

console.log(`✔ Pre-build checks passed!`);

```

9. Build untuk Different Environments

Staging Build

```

// angular.json - tambah staging configuration
"staging": {
  "budgets": [...],
  "fileReplacements": [
    {
      "replace": "src/environments/environment.ts",
      "with": "src/environments/environment.staging.ts"
    }
  ],
  "optimization": true,
  "outputHashing": "all",
  "sourceMap": false,
  "namedChunks": false,
  "aot": true,
  "extractLicenses": true,
  "vendorChunk": false,

```

```
"buildOptimizer": true
}
```

Build Commands

```
# Staging build
ng build --configuration staging

# Testing build
ng build --configuration testing

# Production build for specific server
ng build --configuration production --base-href /api/ui/
```

10. Automated Build Script

build.ps1 (PowerShell)

```
param(
    [string]$Environment = "production",
    [string]$BaseHref = "/CompnoteUI/",
    [switch]$Analyze = $false,
    [switch]$Clean = $false
)

Write-Host "▯ Starting Angular 19 Build Process..." -ForegroundColor Green

# Clean if requested
if ($Clean) {
    Write-Host "▯ Cleaning previous build..." -ForegroundColor Yellow
    Remove-Item -Path "dist" -Recurse -Force -ErrorAction SilentlyContinue
}

# Install dependencies if needed
if (!(Test-Path "node_modules")) {
    Write-Host "▯ Installing dependencies..." -ForegroundColor Yellow
    npm install
}

# Run pre-build checks
Write-Host "▯ Running pre-build checks..." -ForegroundColor Yellow
node prebuild.js

if ($LASTEXITCODE -ne 0) {
    Write-Host "✖ Pre-build checks failed!" -ForegroundColor Red
    exit 1
}

# Build application
Write-Host "▯ Building Angular application..." -ForegroundColor Yellow
$buildCmd = "ng build --configuration $Environment --base-href $BaseHref"
```



```

if ($Analyze) {
    $buildCmd += " --stats-json"
}

Write-Host "Executing: $buildCmd" -ForegroundColor Gray
Invoke-Expression $buildCmd

if ($LASTEXITCODE -ne 0) {
    Write-Host "✖ Build failed!" -ForegroundColor Red
    exit 1
}

# Analyze bundle if requested
if ($Analyze) {
    Write-Host "📊 Analyzing bundle size..." -ForegroundColor Yellow
    npx webpack-bundle-analyzer dist/compnote-ui/stats.json --mode static --report dist/t
}

Write-Host "✅ Build completed successfully!" -ForegroundColor Green
Write-Host "📁 Output: dist/compnote-ui/" -ForegroundColor Cyan

# Show build info
$buildSize = (Get-ChildItem -Path "dist/compnote-ui" -Recurse | Measure-Object -Property
Write-Host "📦 Total build size: $([math]::Round($buildSize, 2)) MB" -ForegroundColor Cyan

```

11. Quick Build Commands

```

# Development build cepat
npm run build:dev

# Production build untuk IIS
npm run build:iis

# Production build dengan analysis
npm run analyze

# Clean build
npm run clean && npm run build:prod

# Build dan serve production locally
npm run build:prod && npx http-server dist/compnote-ui -p 8080 -c-1

```

Dengan konfigurasi ini, build Angular 19 akan menghasilkan aplikasi yang optimal untuk deployment ke IIS server dengan semua assets dan konfigurasi yang diperlukan.

✱

1. work.tech_stack
2. work.web_development_stack
3. projects.angular_project

