

# Advanced Go

## TRAINER

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## OVERVIEW

This workshop aims at equipping the participants with the necessary knowledge and skills required to build and manage applications in Go

## OBJECTIVES

At the end of this training course, the participants will be able to:

- Build GRPC applications in Go
- Write efficient unit tests
- Do performance engineering using micro-benchmarking and profiling
- Building and deploying Docker containers for Go applications

## SUGGESTED AUDIENCE

Software developers who want to build best-of-breed applications in Go

## DURATION

2 Days

## PARTICIPANT PREREQUISITES

- Should have foundational knowledge in Go
- Preferably attended the “Foundation Go” class

## INFRASTRUCTURE REQUIREMENTS

- Go Tools
- Chrome
- Sublime Text / Visual Studio Code / Any other editor
- Any GIT client
- Internet Connection (Mandatory)

## CASE STUDY

### Agenda

- GRPC
  - Protocol Buffers
  - Designing Contracts
  - Generating Proxy & Stub
  - Hosting GRPC Services
  - Communication Patterns in GRPC
    - o Request & Response

- o Client Streaming
  - o Server Streaming
  - o Bidirectional Streaming
- Go Generics
  - o Overview
  - o Creating Generic Types
  - o Type Constraints
  - o Type Parameters & Type Sets
  - o Type Inference
- Reflection Package
  - o Overview
  - o Reflection types
  - o Accessing struct tags
- Go binary size optimisation
  - o Build flags
- Performance Engineering
  - o Micro Benchmarking
  - o Go profiling tools
  - o Profiling CPU
  - o Profiling Memory
  - o Analyzing Profile Data using “pprof”
    - Garbage Collector
    - Memory Allocations
    - Goroutines
    - Execution Time
- Go and Docker
  - o Building Go Docker Image
  - o Running the Docker container
  - o Multi-stage docker builds for Go applications