MicroStream Advanced (MSA)

ID MSA   **Price** -1.— €(excl. tax)   **Duration** 1 day

Course Overview

In this course, we will deep-dive into developing ultra-fast in-memory database apps and microservices with MicroStream. The MicroStream Advanced training is based on the MicroStream Fundamental training.

MicroStream is the very first Java persistence (engine) that enables you to persist any Java object-graph or single subgraphs into any data storage natively. This means any object graph can be persisted as it is in RAM. The MicroStream approach is fundamentally different from the traditional RDBMS/NoSQL DB-server programming model:

- only 1 data model - just POJOs,
- no more dealing with DB-specific data models (tables, column-store, JSON, key-value, DB-specific graphs/objects) - which are actually incompatible with object-graphs we use in Java
- no more expensive mappings at all,
- no DB-specific query language, no more classic selects, just using getter.

Object-graphs in RAM is used as an incredibly fast pure Java in-memory database which is a kind of multi-model data structure because ANY Java type can be used such as collections. Queries: By using Java Streams API, object graphs can be searched in microsecond query time - up to 1000x faster than comparable traditional database query-time and even up to 100x faster than reading data directly from a local cache. An additional caching framework such as EHCache is not needed anymore. The end result is an ultra-fast pure Java in-memory database app or microservice having its own superfast persistence. MicroStream itself is a tiny Java API that can be included in any Java project easily via Maven. It runs on the server, on

the desktop, within containers, on GraalVM native images as well as on Android. MicroStream is also part of the popular microservice framework Helidon - https://helidon.io/ - powered by Oracle.

After this course, you will be able to use MicroStream in business-critical projects productively.

This course also prepares you for the MicroStream Professional certification exam.

Who should attend

Developers and software architects who want to develop high-performance database apps and microservices with Java or any JVM-language as well as apps running on Android devices. Also trainers and consultants.

- Java developers
- Developers using any JVM-language
- Android developers
- Software architects
- Java trainers
- Technical consultants and sales engineers

Prerequisites

- Proficiency in using a Java IDE such as Eclipse, IntelliJ, or Netbeans
- Fundamental knowledge in Java
- Proficiency in object-oriented programming
- Experience with Maven
- Experience with Git
- MicroStream Fundamentals training

Course Objectives

By the end of the course, you should be able to meet the following objectives:

- Design a Java object model suited for high-speed in-memory
- Include and configure MicroStream
- Create a MicroStream database instance and storage
- CRUD operations (create, retrieve, update, delete) on the object-graph
- Store objects and subgraphs persistently
- Load objects and subgraphs into RAM by using lazy-loading
- Search object-graphs in microsecond query time by using Java Streams API
- Use different storage strategies, e.g. RDBMS, NoSQL DBs, plain-files
- Use the MicroStream Workbench for browsing through your storage data
- Deploy MicroStream apps

- Transactions and rollbacks - best practice
- Object-graph operations and concurrency handling
- MicroStrea Layered Entities - introduction
- Queries with GraphQL - introduction
- Migration best practice
    - Migrate a relational database to MicroStream
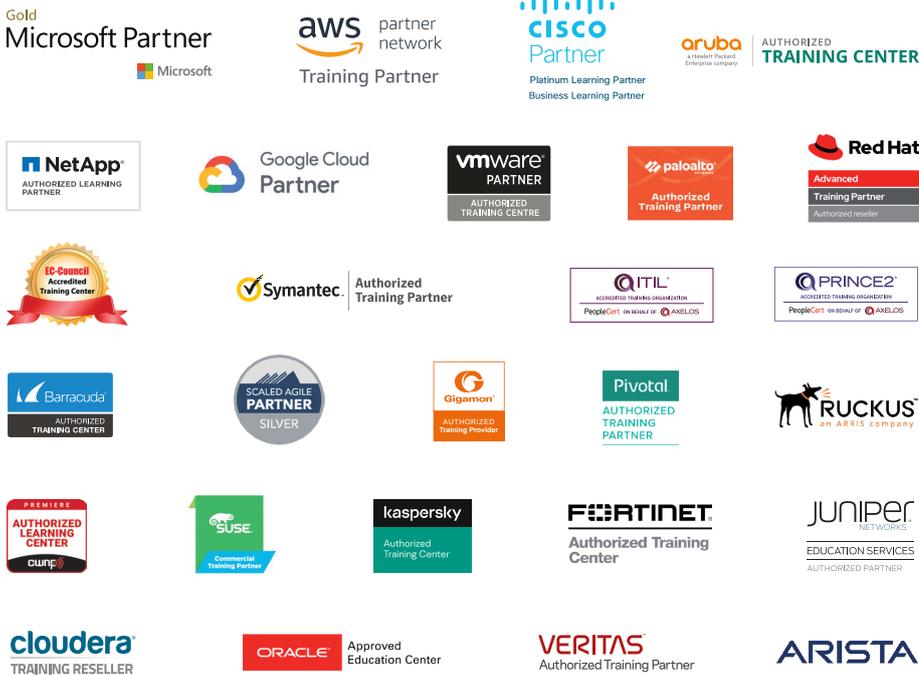   - Migrate JPA classes to MicroStream
- Hands-on exercises

Course Content

- Summary of the MicroStream Fundamentals training
- MicroStream internal
    - MicroStream's internal file structure
    - MicroStream with different storage targets (RDBMS/NoSQL databases/plain files)
        - Use a RDBMS (example with MySQL)
        - Use a cloud object store (example with AWS S3)
    - MicroStream configuration - advanced
        - Storage targets, base directory
        - Parallel I/O ops by using channels
- Store data
    - Use storer objects
    - Custom storing behavior
- Customization
    - Use custom type handler
    - Custom class loader
- Handling of class changes - Use MicroStream legacy-type-mapping
    - Summary: Automated mapping: add / rename / move / remove properties
    - Handling changed types
        - Custom legacy-type-mapping
        - Data migration
        - Custom type migration
- Use MicroStream's storage garbage collection - deep-dive

About Fast Lane

The worldwide Fast Lane Group specializes in high-end technology and business training and consulting. Fast Lane offers complete, authorized training solutions for leading technology vendors. In addition Fast Lane also develops own training programs around the latest technology trends. Fast Lane's vendor-independent consulting services solve a wide range of issues from conducting preliminary analyses and assessments, to designing future-focused IT solutions.

Fast Lane Services

✓ High End Technology Training
✓ Business & Soft Skill Training
✓ Consulting Services
✓ Managed Training Services
✓ Digital Learning Solutions
✓ Content Development
✓ Remote Labs
✓ Talent Programs
✓ Event Management Services

Training Methods

✓ Classroom Training
✓ Instructor-Led Online Training
✓ FLEX Classroom – Classroom & Online Hybrid
✓ Onsite & Customized Training
✓ E-Learning
✓ Blended & Hybrid Learning
✓ Mobile Learning

Technologies & Solutions

✓ Digital Transformation
✓ Artificial Intelligence
✓ Cloud
✓ Networking
✓ Cyber Security
✓ Wireless & Mobility
✓ Modern Workplace
✓ Data Center

Worldwide Presence
with high-end training centers in 60 countries around the globe

Multiple Awards
from vendors such as AWS, Microsoft, Cisco, Google, NetApp, VMware

Experienced SMEs
with over 19.000 combined certifications