

GigaSpaces XAP Development Training

Using Core Features of GigaSpaces XAP and XAP API

Enter the SBA world with GigaSpaces XAP and
its built-in development framework

C123-921

This training is designed to provide you with the knowledge required to build high throughput, low latency applications for scaling with GigaSpaces XAP.

You will not only learn how to code such applications, but you will also gain a better understanding of how GigaSpaces XAP is a unique enabler of highly transactional, high volume, low latency applications, as well as exactly what types of architecture GigaSpaces XAP is best suited for.

AUDIENCE

Developers
Project Managers
SI Architects

KNOWLEDGE REQUIREMENTS

Java working knowledge
Eclipse IDE knowledge is a plus

LENGTH

3 Days

BONUS

Plenty of hands-on lab sessions on modifying the BillBuddy applications

SYLLABUS

Foundations (Day 1)

Course Introduction
XAP Overview
Grid Service Component
BillBuddy Application
Connecting to a Space – My First XAP
Application
Processing Unit Creation
Space Classes and Data Model

XAP API (Day 2)

Java Spring Introduction
Space Access API
Advanced Space Access API
Aggregation API
Messaging - Event Containers
Transactions

XAP API Continued (Day 3)

Task Executors
Space based remoting
Mirroring Service
Additional API
Configuration & other considerations
Summary

HARDWARE AND SOFTWARE REQUIREMENTS

Computer Requirements

- RAM: minimum 4 GB of RAM required for exercises and platform to operate, 6 GB and up recommended.
- Disk Space: At least 6 GB of free disk space
- Wireless Internet connection (recommended)
- User with sufficient privileges for creating environment variables and execute processes
- Linux/Mac OS/Windows - Trainees should have a user with Administrator privileges (to edit system files for environment variables)
- Windows OS - Trainees should have write/Execute on root folder of HDD(C:)

Supported Operating Systems

- Windows 7, 8 (64 bit)
- Linux (64 bit)
- Mac OS X (64 bit)

Additional Software Requirements

- PDF Reader
- Zip software
- Web Browsers: Mozilla, Chrome. (MS Internet explorer is not supported)

classroom HW requirements

- Projector 1024*768 minimum resolution
- White Board
- Erasable Markers
- Desktops or Laptops (see HW Requirements)
- Internet connectivity for all participants
- Electricity outlets for all computers/monitors and other equipment.
- At least 3 electricity outlets next to instructor location.

DAY 1 – FOUNDATION

GOALS:

- Understand the paradigm and implications of Space Based Architecture (SBA), viewed in light of Tier Based Architecture (TBA)
- Understand XAP API
- Understand the product structure
- Run a fully functional BillBuddy application
- Develop your first XAP application

Lesson 1: course Introduction

Duration: 0.5 hour

- Introduction and background of the trainer, participants, labs and expectations
- Lab Session

Lesson 2: XAP Overview

Duration: 1 hours

- Why XAP?
- XAP Terminology Comparison to Common Platforms and Servers
- XAP Runtime Environment and XAP Application Components
- XAP Management Center (gs-ui)
- XAP Management Console (gs-webui)
- Lab Session

Lesson 3: Grid Service Components

Duration: 0.5 hour

- XAP Runtime Environment
- Configuring your Environment
- Lab Session

Lesson 4: Application Level Components

Duration: 1.5 hour

- XAP Application Components
- Space Topologies
- Processing Unit vs. Processing Unit Instance vs. Space Instance
- Lab Session

Lesson 5: BillBuddy Application

Duration: 1 hour

- BillBuddy application presentation
- Configuring Eclipse for XAP
- Lab Session

Lesson 6: Connecting to a Space – My First XAP Application

Duration: 1 hour

- Deploy an In-Memory-Data-Grid (Space)
- My First XAP Application
- Lab Session

Lesson 7: Processing Unit

Duration: 1 hour

- Create a Processing Unit with an embedded space (Stateful PU)
- Deploy Processing Unit using Integrated Processing Unit Container and deploy to the grid
- Lab Session

Lesson 8: Space Classes and Data Model

Duration: 1.5 hours

- POJOs - Space Classes
- Object Meta Data
- Data Model Considerations & Embedded vs. Non Embedded Relationships
- GigaSpace Interface - Basic Read and Write operations

- Lab Session

DAY 2 – XAP API

GOALS:

- Gain more practical understanding of Space Base Architecture
- Lots of hands-on experience
- Coding and configuration
- Experience complex space access
- Experience XAP messaging

Lesson 9: Java Spring Introduction

Duration: 1 hour

- Spring origin and rational and Bean lifecycle
- Spring Demo
- Spring Annotations
- XAP API and Spring
- Lab Session

Lesson 10: Space Access API

Duration: 1.5 hour

- Space Operations
- Read By Id, Template, SQLQuery
- Take and Clear Operations
- Write Operations
- Processing Unit – Stateless PU
- Lab Session

Lesson 11: Advance Space Access API

Duration: 1.5 hour

- Space Iterator
- Projection API
- Write Multiple
- Change API
- Geospatial Queries
- SQL Functions
- Lab Session

Lesson 12 : Aggregations

Duration: 1 hour

- Aggregations
- Aggregation Functions
- Lab Session

Lesson 13 : Messaging - Event Containers

Duration: 1.5 hours

- Messaging and Event Containers Basics
- Event Containers API
- Event Driven Architecture
- Lab Session

Lesson 14: Transactions

Duration: 1.5 hour

- Transaction Basics and Enabling Transactions
- Read Modifiers

- Pessimistic and Optimistic Locking
- Lab Session

DAY 3 – XAP API CONTINUES

GOALS:

- Gain a more complete understanding of XAP functionalities by adding business logic to your space
- More business logic
- A web front-end
- Persistency to disk

Lesson 15: Task Executors

Duration: 1.5 hour

- Task Executor basics and API
- Server Side Injection
- Distributed Task Executor API
- Lab Session

Lesson 16: Space Based Remoting

Duration: 1.5 hour

- Space Based Remoting basics and API
- Space Based Remoting Routing
- Lab Session

Lesson 17: Persistency – Mirror Service

Duration: 1.5 hour

- Persistency Basics
- Mirror Service Configuration
- Monitoring
- MySQL DB
- Lab Session

Lesson 18: Additional API

Duration: 1.5 hour

- Web Application
- Local Cache/View
- Application
- Administration and Monitoring API
- Alert API
- REST API
- Metrics
- Lab Session (Optional)

Lesson 19: Configuration

Duration: 1 hour

- Avoiding Big Jars deployment
- SLA
- Memory Management
- Maven
- XAP MemoryXtend
- Off Heap RAM
- Quiesce Mode

Lesson 20: Summary

Duration: 0.5 hour

- Summary
- Wrap Up