

# GIGASPACE XAP 14.X ADMIN COURSE

## USING CORE FEATURES OF GIGASPACE XAP AND XAP API

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

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.

<b>AUDIENCE</b>	Developers   Project Managers   SI Architects
<b>KNOWLEDGE REQUIREMENTS</b>	Java working knowledge   IntelliJ IDE knowledge is a plus
<b>LENGTH</b>	3 Days
<b>BONUS</b>	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

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## HARDWARE AND SOFTWARE REQUIREMENTS

### Computer Requirements

- RAM: minimum 6 GB of RAM required for exercises and platform to operate, 8 GB and up recommended.
- Disk Space: At least 20 GB of free disk space
- Internet connection
- 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, 10 (64 bit)
- Linux (64 bit)
- Mac OS X (64 bit)

### 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

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## 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

🕒 0.5 hour

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

#### Lesson 2

##### XAP Overview

🕒 1 hour

- 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

##### Service Grid Runtime Components

🕒 0.5 hour

- XAP Runtime Environment
- Configuring your Environment
- Lab Session

#### Lesson 4

##### Application Level Components

🕒 1.5 hours

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

#### Lesson 5

##### BillBuddy Application

🕒 1 hour

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

#### Lesson 6

##### Connecting to a Space – My First XAP Application

🕒 1 hour

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

#### Lesson 7

##### Processing Unit

🕒 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

🕒 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

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## 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

🕒 1 hour

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

#### Lesson 10

##### Space Access API

🕒 1.5 hours

- 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

🕒 1.5 hours

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

#### Lesson 12

##### Aggregations

🕒 1 hour

- Aggregations
- Aggregation Functions
- Lab Session

#### Lesson 13

##### Messaging - Event Containers

🕒 1.5 hours

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

#### Lesson 14

##### Transactions

🕒 1.5 hours

- Transaction Basics and Enabling Transactions
- Read Modifiers
- Pessimistic and Optimistic Locking
- Lab Session

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## 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

🕒 1.5 hours

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

#### Lesson 16

##### Space Based Remoting

🕒 1.5 hours

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

#### Lesson 17

##### Persistency – Mirror Service

🕒 1.5 hours

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

#### Lesson 18

##### Additional API

🕒 1.5 hours

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

#### Lesson 19

##### Configuration

🕒 1.5 hours

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

#### Lesson 20

##### Summary

🕒 1.5 hours

- Summary
- Wrap Up