

# GigaSpaces XAP 10.1.1 Administration Training

## ADMINISTRATION, MONITORING AND TROUBLESHOOTING GIGASPACE XAP DISTRIBUTED SYSTEMS

Learn about GigaSpaces XAP internal protocols, its configuration, monitoring tools, APIs, and how to manage and troubleshoot production systems

This training introduces the core concepts of GigaSpaces XAP and best practices for installing, administrating, monitoring and troubleshooting the GigaSpaces XAP platform.

### AUDIENCE

System Administrators  
Operations  
Support  
DevOps  
Developers

### KNOWLEDGE REQUIREMENTS

System administration

### LENGTH

3 Days

### BONUS

Hands-on lab sessions

### SYLLABUS

#### Day 1

Course Introduction  
XAP Overview  
Service Grid Runtime Components  
Application Level Components  
Administration and Monitoring Tools  
Metrics

#### Day 2

Application Deployment  
Service Grid Internals  
SLA and Deployment Considerations  
Administration API and Alerts  
Logging and Monitoring

#### Day 3

Networking  
Persistency – Mirror Service  
Maintenance Tasks  
Security  
Troubleshooting Guidelines  
Summary

## 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 10 GB of free disk space
- **Wireless Internet connection** (recommended)

### Supported Operating Systems

- **Windows 7, 8 64 bit only** (recommended: Linux Ubuntu VM on win machine for configuring XAP metrics)
- **Linux**
- **Mac Os**

### Additional Software Requirements

- **PDF Reader**
- **Java JDK 7u55** (Install in a directory with a short path, without spaces)
- **Zip software**

### Class HW required

- **Projector 1024\*768 minimum resolution**
- **White Board**
- **Erasable Markers**
- **Desktops or Laptops** (see HW Requirements)
- **12-24 ports Switch**
- **Internet connectivity**
- **Electricity outlets for all computers/monitors and other equipment.**
- **At least 3 electricity outlets next to instructor location.**

## AGENDA – DAY 1

### Lesson 1: Course Introduction

Duration: 30 minutes

- Course Introduction
- Courseware walkthrough
- Documentation – docs.gigaspace.com
- Lab

### Lesson 2: XAP Overview

Duration: 90 minutes

- Why XAP?
- XAP Terminology Comparison to Common Platforms and Servers
- XAP Runtime Environment
- XAP Application Components
- Configuring your Environment
- GigaSpaces Management Center
- XAP Web Dashboard
- Lab

### Lesson 3: Service Grid Runtime Components

Duration: 75 minutes

- XAP Runtime Environment
- XAP Installation Folders
- Configuring the Runtime Environment
- Lab

### Lesson 4: Application Level Components

Duration: 75 minutes

- XAP Application Components
- Space Topologies
- Processing Unit vs. Processing Unit Instance vs. Space Instance
- Processing Units and Space Proxy
- Scaling Your Space
- GigaSpaces Application Lifecycle
- SSD support
- Lab

### Lesson 5: Admin & Monitoring Tools

Duration: 75 minutes

- Web Management Console (Web UI)
- Management Center (GS-UI)
- Command Line Interface (gs CLI)
- jconsole
- jvisualvm
- Lab

### Lesson 6: Metrics

Duration: 75 minutes

- Metrics Architecture
- Metrics Basic Configuration
- Grafana Dashboards
- Configuring additional metrics
- Lab

## AGENDA – DAY 2

### Lesson 7: Application Deployment (BillBuddy)

Duration: 45 minutes

- BillBuddy application presentation
- Data Model Basics
- Lab

### Lesson 8: Grid Service runtime environment

Duration: 100 minutes

- Grid Component Interaction
- Processing Unit Deployment
- How High Availability Works
- Primary Backup Communication
- Space Proxy Failover Process
- Lab

### Lesson 9: SLA and Deployment Considerations

Duration: 100 minutes

- SLA configuration options
- Avoiding big jars deployment
- Rolling Server Patching
- Hot Deployment
- Split Brain
- Off Heap RAM
- Lab

### Lesson 10: Administration API and Alerts

Duration: 30 minutes

- Administration and Monitoring API
- Alert API
- Lab

### Lesson 11: Logging and Monitoring

Duration: 90 minutes

- Logging
- Collecting Dump
- Monitoring Statistics
- Lab

## AGENDA – DAY 3

### Lesson 12: Networking

Duration: 30 minutes

- Multicast and Unicast discovery
- Multiple network interface cards
- LRMI communications protocol
- Configuring used ports
- Firewall considerations

### Lesson 13: Persistency – Mirror service

Duration: 75 minutes

- Persistency Basics
- Mirror Service Configuration
- Monitoring
- HSQLDB
- Lab

### Lesson 14: Maintenance Tasks

Duration: 45 minutes

- Architecture Recap
- Quiesce Mode
- Safe Shutdown
- Rolling Server Patching
- Hot Deployment
- Lab

### Lesson 15: Security

Duration: 60 minutes

- Security Overview
- Security Authorities
- Securing the Service Grid
- Securing a Space
- Security Manager
- Secured Transport Layer
- Lab

### Lesson 16: Troubleshooting Guidelines

Duration: 45 minutes

- Moving to Production Checklist
- Troubleshooting Tools
- General Troubleshooting Tips
- Troubleshooting Common Issues Topics
- Troubleshooting Common Issues Drill Down
- Support Contact Info

### Lesson 17: Summary

Duration: 15 minutes

- Summary
- Wrap Up