

# GigaSpaces XAP.NET 10.1.1 Administration Training

## ADMINISTRATION, MONITORING AND TROUBLESHOOTING GIGASPACES XAP.NET 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	Day 2	Day3
<p>Course Introduction XAP Overview Grid Service Runtime Components Application Level Components Administration and Monitoring tools Metrics</p>	<p>Application Deployment Grid Service Internals SLA and Deployment Considerations Logging and Monitoring Administration API and Alerts</p>	<p>Troubleshooting hands on Networking Persistence – Mirror Service Maintenance Tasks Security Troubleshooting Guidelines Summary</p>

## HARDWARE AND SOFTWARE REQUIREMENTS

### Computer Requirements

- RAM: minimum 4 GB of RAM required for exercises and platform to operate.
- Disk Space: At least 4 GB of free disk space
- Wireless Internet connection (recommended)
- Admin privileges are required to install XAP.NET

### Supported Operating Systems

- Windows 7 64 bit only / windows 8.1 64 bit only

### Additional Software Requirements

- PDF Reader
- .NET 4.0 or .NET 4.5
- Optional but highly recommended: Linux Ubuntu virtual machine on each trainee machine for running XAP Metrics.
- Administration rights in order to
  - Install .msi files (GigaSpaces XAP and MySQL)
  - Use USB keys (Disk on keys) and copy the courseware to c: drive
  - Configure system environment variables

### 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: Grid Service 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
- 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 Internals

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
- Lab

### Lesson 10: Logging and Monitoring

Duration: 45 minutes

- Logging
- Collecting Dump
- Monitoring Statistics

### Lesson 11: Administration API and Alerts

Duration: 30 minutes

- Administration and Monitoring API
- Alert API
- 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
- Initial load introduction
- Mirror Service Configuration
- Monitoring
- MySQL DB
- Lab

### Lesson 14: Maintenance Tasks

Duration: 45 minutes

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

### Lesson 15: Security

Duration: 75 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

- Troubleshooting Tools
- General Troubleshooting Tips
- Troubleshooting Common Issues Topics
- Troubleshooting Common Issues Drill Down (If Time Permits)
- Support Contact Info

### Lesson 17: Course Summary

Duration: 15 minutes

- Summary
- Wrap Up