

# GIGASPACE XAP 12.2 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, administering, monitoring and troubleshooting the GigaSpaces XAP platform.

<b>AUDIENCE</b>	System Administrators   Operations   Support   DevOps   Developers
<b>KNOWLEDGE REQUIREMENTS</b>	System administration
<b>LENGTH</b>	3 Days
<b>BONUS</b>	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

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

### Supported Operating Systems

- Windows 7, 8, 10 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 or above (Install in a directory with a short path, without spaces)
- Zip software

### Classroom HW requirements

- 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

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## AGENDA DAY 1

### Lesson 1

#### Course Introduction

🕒 30 minutes

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

### Lesson 2

#### XAP Overview

🕒 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 Components

🕒 75 minutes

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

### Lesson 4

#### Application Level Components

🕒 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

🕒 75 minutes

- Web Management Console (Web UI)
- Management Center (GS-UI)
- Command Line Interface (gs CLI)
- Jconsole
- Jvisualvm
- Lab

### Lesson 6

#### Metrics

🕒 75 minutes

- Metrics Architecture
- Metrics Basic Configuration
- Grafana Dashboards
- Lab (Optional)

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## AGENDA DAY 2

### Lesson 7

#### Application Deployment (BillBuddy)

🕒 45 minutes

- BillBuddy application presentation
- Data Model Basics
- Lab

### Lesson 8

#### Grid Service runtime environment

🕒 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

🕒 100 minutes

- SLA configuration options
- Avoiding big jars deployment
- Rolling Server Patching
- Hot Deployment
- Primary Election Process
- Off Heap RAM
- Lab

### Lesson 10

#### Administration API and Alerts

🕒 30 minutes

- Administration and Monitoring API
- Alert API
- Lab

### Lesson 11

#### Logging and Monitoring

🕒 90 minutes

- Logging
- Collecting Dump
- Monitoring Statistics
- Lab

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## AGENDA DAY 3

### Lesson 12

#### Networking

🕒 30 minutes

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

### Lesson 13

#### Persistency – Mirror service

🕒 75 minutes

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

### Lesson 14

#### Maintenance Tasks

🕒 45 minutes

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

### Lesson 15

#### Security

🕒 60 minutes

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

### Lesson 16

#### Troubleshooting Guidelines

🕒 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

🕒 15 minutes

- Summary
- Wrap Up