

Course Syllabus: **Lifting Off into Space-Based Architecture with Magic xpi 4.x**

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1 About the Course

Magic xpi 4.x provides an enhanced and robust architecture.

The messaging layer has been replaced by the award winning XAP middleware from GigaSpaces, which uses a distributed, **self healing** and **scalable** architecture.

These benefits directly enhance Magic xpi 4.x projects.

Existing projects upgraded to this version can be easily scaled to multiple processes, and even to multiple machines, just by changing external configurations.

Magic xpi 4.x introduces an **Advanced Monitoring Console**, which displays the project's real time data.

The "Lifting Off into Space-Based Architecture with Magic xpi 4.x" course is a 1-day seminar intended to show experienced Magic xpi 3.x/iBOLT 3.x integrators how to take advantage of the enhanced Magic xpi 4.x capabilities that are available with Space-based architecture.

2 Course Objectives and Goals

By the end of the course, the student will:

- Acquire the skills and knowledge required to take full advantage of Magic xpi's Space-based architecture.
- Understand the key fundamentals of general Space-based architecture.
- Become familiar with the terms and architecture associated with the Space-based infrastructure that Magic xpi is built on.
- Study the Magic xpi 4.x startup mechanism and licensing.
- Learn the necessary skills and the relevant considerations to successfully deploy Magic xpi 4.x.
- Have a thorough knowledge of useful guidelines for troubleshooting potential project execution issues.

3 General Course Details

Course ID:	UCLOSBMI4
Level:	Professional
Available Formats:	Classroom instructor-led training (ILT) Private on-site training Classroom course open to the general public Self-paced learning with a Mentoring Service
Target Audience:	Experienced Magic xpi 3.x/iBOLT 3.x integrators
Duration:	A total of 6.5 learning hours over a period of 1 day*

** Magic University may change the course's content/duration with no prior notification.*

The stated course duration refers to class room instructor-led training, and does not include IT-related setup time (PC, etc).

If required, additional time will be allocated for this.

4 Lessons

The course consists of the following lessons:

4.1 *Space-Based Architecture*

Magic xpi 4.x is built on Space-based architecture which enhances the robustness and the recovery capabilities of the product.

Thus, it is important to have a basic understanding of the Space platform's components. In this lesson, you will:

- Become aware of the problems in the IT world related to scalability and robustness.
- Understand the concept of the **In-Memory Data Grid** that enables extremely high data availability, high performance and flexibility.
- Become familiar with Space-based architecture - a faster way to access data and provide a fail-safe system.

4.2 *Magic xpi Architecture with GigaSpaces*

GigaSpaces is the middleware selected to implement Magic xpi's functionality on the In-Memory Data Grid. This middleware is the underlying messaging and context persistency layer of Magic xpi.

By the end of this lesson, you will:

- Be familiar with the terminology used in Space-based architecture.
- Be fully conversant with the Magic xpi Space-based architecture.
- Understand the importance of creating a self-healing environment by building a clustered architecture, thereby minimizing the downtime of your application.

4.3 *Project Execution*

In Magic xpi 4.x, the way that the project loads has been enhanced.

By the end of this lesson, you will:

- Understand the enhanced startup mechanism.
- Be able to configure the project's execution.
- Learn how to configure several servers for one project.
- Understand how polling triggers behave.
- Be familiar with the new the license behavior, as well as the floating license and the reserved license.
- Be aware of the "keep alive" and recovery mechanism for Magic xpi engines, workers and work processes.
- Learn about the Monitor and the Advanced Monitoring Console, and how to load new instances of the server from the Monitor for load balancing purposes.

4.4 Deployment

Like in any project, the deployment stage should be planned.

You can follow the initial installation settings that Magic xpi provides, or you can control specific settings.

By the end of this lesson, you will:

- Learn about the concepts and the settings that you can control during the deployment.
- Be familiar with the text files that are responsible for the way that GigaSpaces loads.

You will know how to:

- Allocate memory to each component.
- Define where each loaded component is actually situated in the Lookup Service (LUS).
- Define which machine will deploy the Magic Space.
- Define Space clustering (backups and partitions).
- Deploy the Magic Space manually.
- Deploy a project on a machine that is different from the development machine.

4.5 Troubleshooting

Troubleshooting is part of the life cycle of any project.

During this lesson, you will:

- Gain knowledge regarding the GigaSpaces User Interface and how to monitor the grid.
- Review the project execution process.
- Acquire the skills to investigate the possible source of likely troubleshooting scenarios.
- Learn how to fetch the process ID (PID) of each component to assist you in finding the relevant logs that you may need.

5 Technical Material

Technical courseware will be provided, containing all the information required for completing the course. These materials will include exercises to further develop and enhance the students' knowledge.

All of this is on the course CD, which also includes Magic xpi.

6 Magic University Course Prerequisites

This course is designed for a student that meets one of the following criteria:

Magic xpi 4.x/Magic xpi 3.x/iBOLT 3.x Learning Path

The student meets one of the following requirements:

- Successfully completed the "Getting Started with Magic iBOLT 3.x" course.
- Proven experience in successful development of a Magic xpi 4.x/Magic xpi 3.x/iBOLT 3.x project.

iBOLT 2.5 Learning Path

The student has successfully completed the "Migration from iBOLT 2.5 to Magic xpi 3.x" course.

7 Setting Up Your PC for this Course

Magic xpi License	A new Magic xpi 4.x license is required. Please obtain a Magic xpi evaluation license with the following features from your local Magic Software Enterprises representative: Server – IBNPSRV, Studio – IBNPSTD, Monitor – IBMON. Please ensure that it contains the MAGIC 2.000 version and the VERSION=4.0 flag as part of the Vendor String. Please note that licenses from previous versions are not compatible with version 4.x.
Computer Requirements	
Computer minimum requirements	Windows XP Pro and later. The course was tested on Windows 7. Pentium processor 1.8GHz and upwards. 4Gb RAM or greater. At least 1 Gb of free space.
Display properties and font settings	Screen resolution of at least 1024x768 pixels. Small fonts.
Software Requirements	
Database	MS SQL Server Access to MS SQL version 2000 and above.
For Windows® 2000/XP/2000 Pro/XP Pro users	Administrator access level is required.
PDF	The digital version of the course is in PDF format. You will need the PDF reader to view its contents.

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