

# MAGIC<sup>®</sup> XPI INTEGRATION PLATFORM

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INTEGRATION MADE EASY

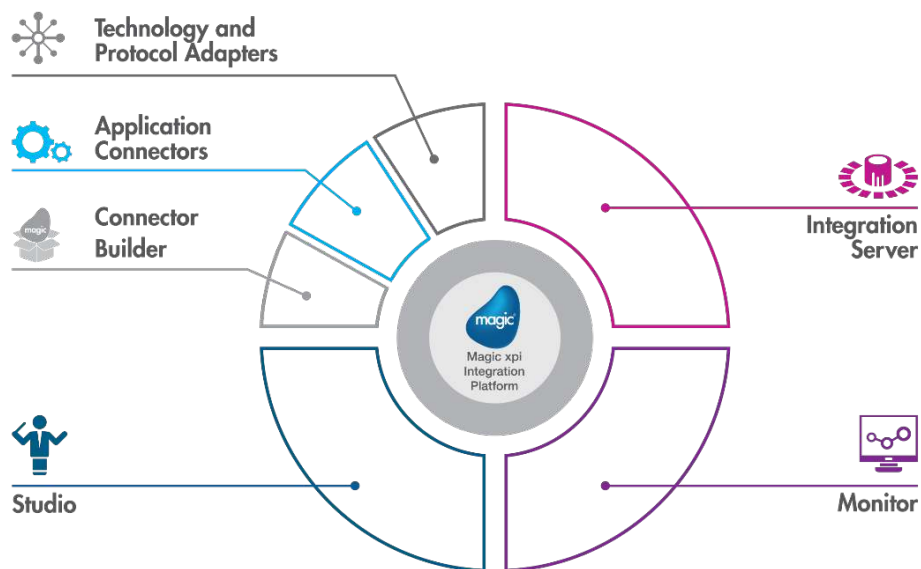


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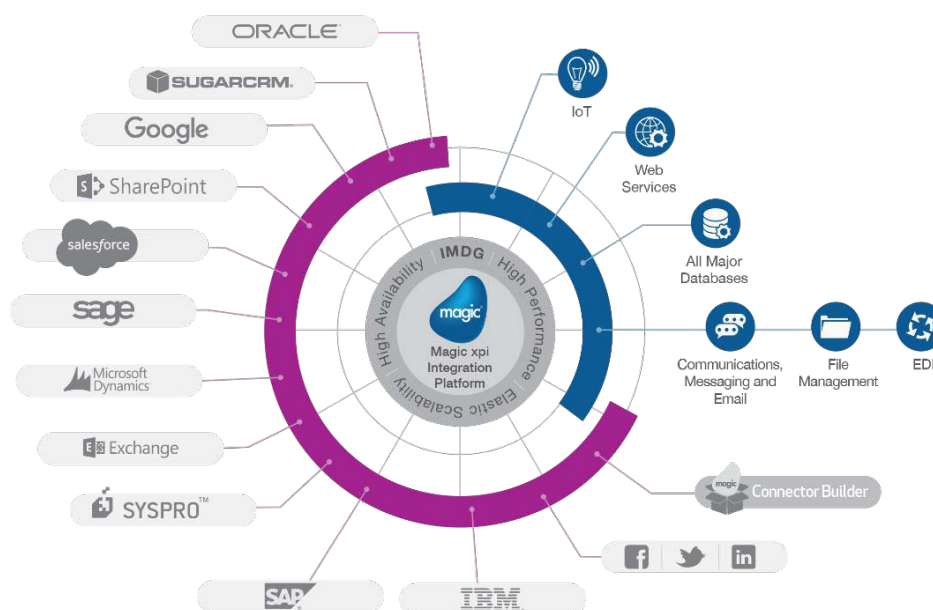
# Introduction

Magic xpi is Magic's code-free integration platform that lets you streamline business processes quickly and easily, integrating them across diverse applications, platforms, and databases. Magic xpi enables you to integrate your business information, logic, and data into cross-organizational, cross-platform business processes. Smooth running business processes reduce operational costs and increase revenue, and reduce business risks.



Magic xpi simplifies the design and integration process by separating business logic from integration technology. You can make changes to prototype business models without affecting actual business or technology layers. With user-friendly, code-free tools like wizards, drag-and-drop, and tables, Magic xpi lets you create seamless connections with enterprise applications deployed on any hardware, operating system, or database technology.

Magic xpi is flexible, scalable, and future-proof, resulting in an architecture that will let your organization adapt quickly to changing technologies and business conditions while lowering your IT costs.



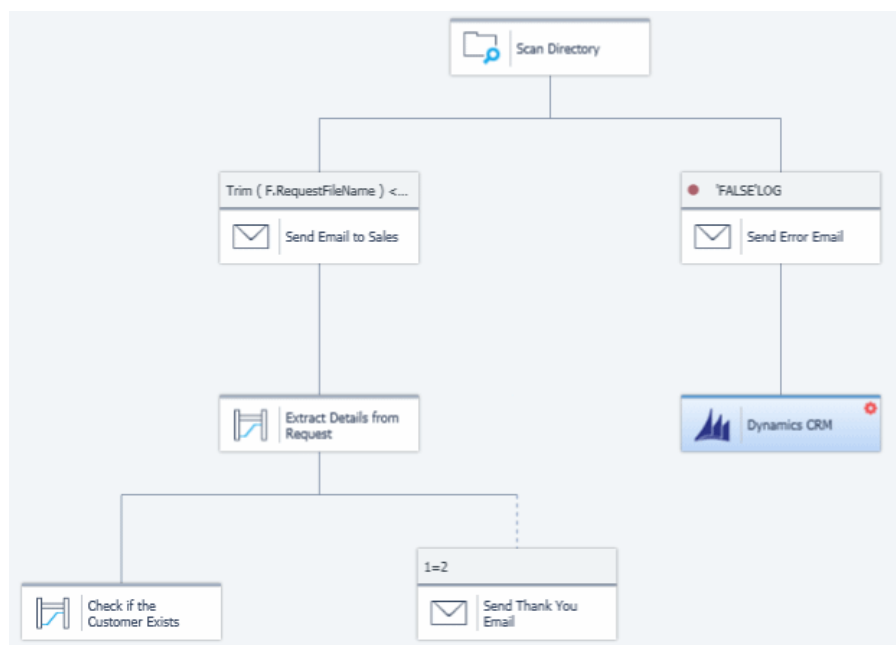
## Magic xpi Studio

The Magic xpi Studio is a business process development environment and IDE. The Magic xpi Studio comprises two main tools: The *Flow Editor* and the *Data Mapper*. With these two editors, you can orchestrate business processes, define data transformations and control message flow. In addition, Magic xpi provides development and modeling aids that assist the business process developer in designing and implementing their solution.

### Flow Editor

Using the Magic xpi Flow Editor, business process developers define the business processes that exist between enterprise applications. Flows are the basic unit of work in Magic xpi and define all internal and external data manipulations as well as B2B communications and transactions. The relationship between business applications can be the exchange of messages, data or business logic around these messages and data. A flow comprises a series of inter-connected components, which can be connectors, adapters, converters and business logic components that together provide the business process functionality. Flows not only define the relationship between components, but also include the logic that determines how the Magic xpi Server will execute the flow during runtime.

An example of a simple flow could be taking a message originating from an application, extracting the data from it, transforming it to an XML format and passing it using a different messaging middleware to a second application. Magic xpi provides workflow functionality that enables developers to route parts of a flow to other flows, even across multiple servers, and then back to the original flow.

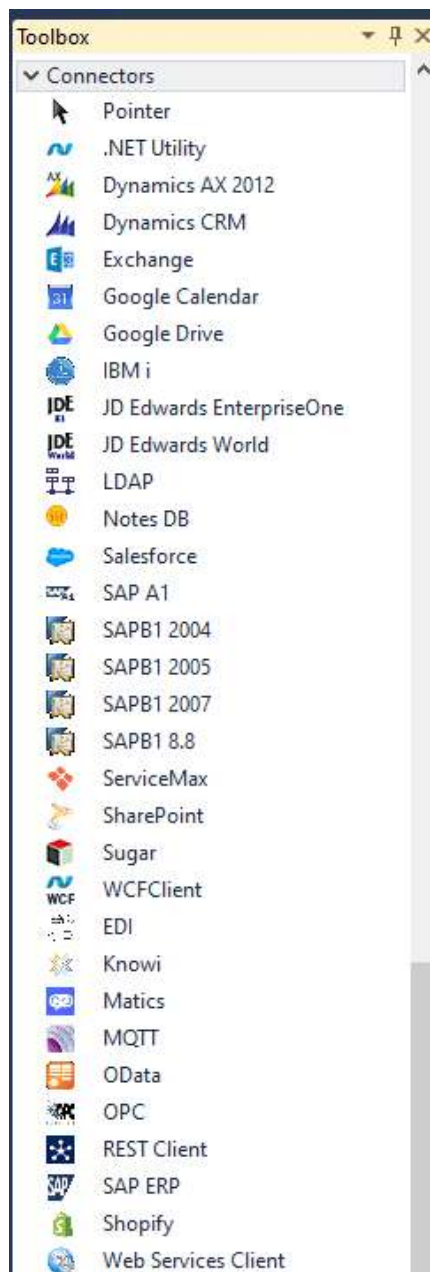


Through its visual flow definition, Magic xpi enables the following capabilities:

- Definition of business rules and conditional logic, functions, expressions, branches and control flow operations
- Flows can be triggered by events from any application
- Flows can be scheduled to run in intervals, based on a calendar, on startup or continuously
- Flows are transactional and provide integrated recovery and error handling mechanisms
- Flow logic can be split into multiple, parallel running processes
- Flows are managed and monitored in runtime by a system administrator using integrated monitoring and logging tools

## Flow Editor Components

Magic xpi provides a rich set of built-in components to connect to any data source, enterprise application or framework. The business process developer uses these components in the Flow Editor along with the Data Mapper (see below) to integrate multiple applications and data sources in complex business processes.



## Manufacturing

Magic xpi Analytics Data Hub	A Datahub Service Platform connector that provides access to on-cloud Data Sources for Analytics and Real-time update or Business KPI's.
Real Time Operational Intelligence	Integration to a platform service for the manufacturing domain that provides real-time data and insight, dramatically improving manufacturing productivity.
OPC	An industry standard OPC-UA based connector, enables integration between Enterprise application and Manufacturing unit reading real-time data and events, enabling automatic Business decision making.

## Enterprise Application Connectors

Magic xpi offers many certified and native connectors to leading enterprise systems and protocol adaptors for reliable integration, including:

Microsoft Dynamics CRM	Enables easy connection to a Microsoft Dynamics® CRM application.
Microsoft Dynamics 365	Enables easy connection to a Microsoft Dynamics® 365.
Microsoft Dynamics AX	Enables easy connection to a Microsoft Dynamics® AX ERP application.
JD Edwards EnterpriseOne	Provides connectivity to JD Edwards EnterpriseOne.
JD Edwards World	Provides connectivity to JD Edwards World.
OData	Enables the sending and receiving of OData formatted calls.
Salesforce	Provides connectivity to Salesforce.
SAP A/1	For use with the SAP A1 system.
SAP Business One	For use with the SAP Business One applications.
SAP ERP	A unique connector for use with the SAP ERP system.
SAP S/4HANA	Provides SAP certified connectivity with SAP S/4HANA.
ServiceMax	Provides connectivity to ServiceMax.
SharePoint	Provides connectivity to Microsoft SharePoint.
IBM i	A connector for the IBM i environment, which has the ability to run commands and read from spool files.
Sugar	An adapter for the Sugar CRM system.
HL7	Converts an HL7 textual message to an XML structured message & vice versa. It also facilitates sending and receiving HL7 messages over TCP.
Shopify	Enables easy connection to Shopify eCommerce platform.
WooCommerce	Enables easy connection to WooCommerce eCommerce platform.

## Office Suites

Microsoft 365	Provides connectivity to the Microsoft 365 environment.
MS Exchange	Enables a Magic xpi project to interact with the Microsoft® Exchange Server <b>Mail, Contacts, Calendar, and Task.</b>
Google Calendar	Provides connectivity between Magic xpi and Google Calendar™ for handling events, meetings and alerts.
Google Drive	Provides connectivity between Magic xpi and Google Drives™ for handling and manipulating documents and their content.
Microsoft Excel	Enables working with Microsoft Excel documents.
Microsoft Word	Enables working with Microsoft Word documents.
Notes DB	Provides connectivity to IBM Lotus Notes databases.
Domino	Accesses calendar entries, email messages, contacts, and document libraries on a Domino server.

## Database Integration

DBTrigger	Based on JDBC this trigger component allows the user to bind xpi Business Logic to your existing Application Data Events.
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## Technology Frameworks

.NET	Enables extending Magic xpi by writing custom .NET code.
Java	The Magic xpi Connector Builder and Java connector enables extending Magic xpi by writing custom Java code.
WCF Client	Allows Magic xpi to consume Web services using the Microsoft Windows Communication Foundation (WCF) technology.



## Messaging, Communication and SOA

EDI	EDI Service Platform connector that provides a Modern and robust B2B data Exchange platform.
Email	Sends and receives email messages using standard communication protocols.
FTP	Rich file management utilities, including opening an FTP connection to a selected server, changing directories, and transferring files.
HTTP	Sends and receives HTTP requests.
JMS	Sends and receives messages to the Java Message Service.
LDAP	Connects to an LDAP server for storing and accessing attribute-based data in a hierarchical data structure.
MQTT	An "Internet of Things" connectivity protocol.
MSMQ	Sends and receives messages to the Microsoft Message Queue.
TCP Listener	Enables Magic xpi to listen continuously for requests made by a TCP client on a TCP port.
Web Services	Accesses and creates Web Services.
WebSphere MQ	Sends and receives messages to the WebSphere MQ.

## File Handling

Directory Scanner	Checks local area networks (LAN), and/or FTP directories, to see when new files are created.
File Archive	Archives (compresses) or extracts one or more files of the same type.
File Management	Performs various file operations, such as Copy, Rename, Delete, Read, Write, Append, and Create.
File Splitter	Splits a file into several smaller files, and regroups split files.
XML Handling	For direct handling and manipulation of XML documents.
XSLT	Facilitates the transformation of XML documents.

## Connector Builder

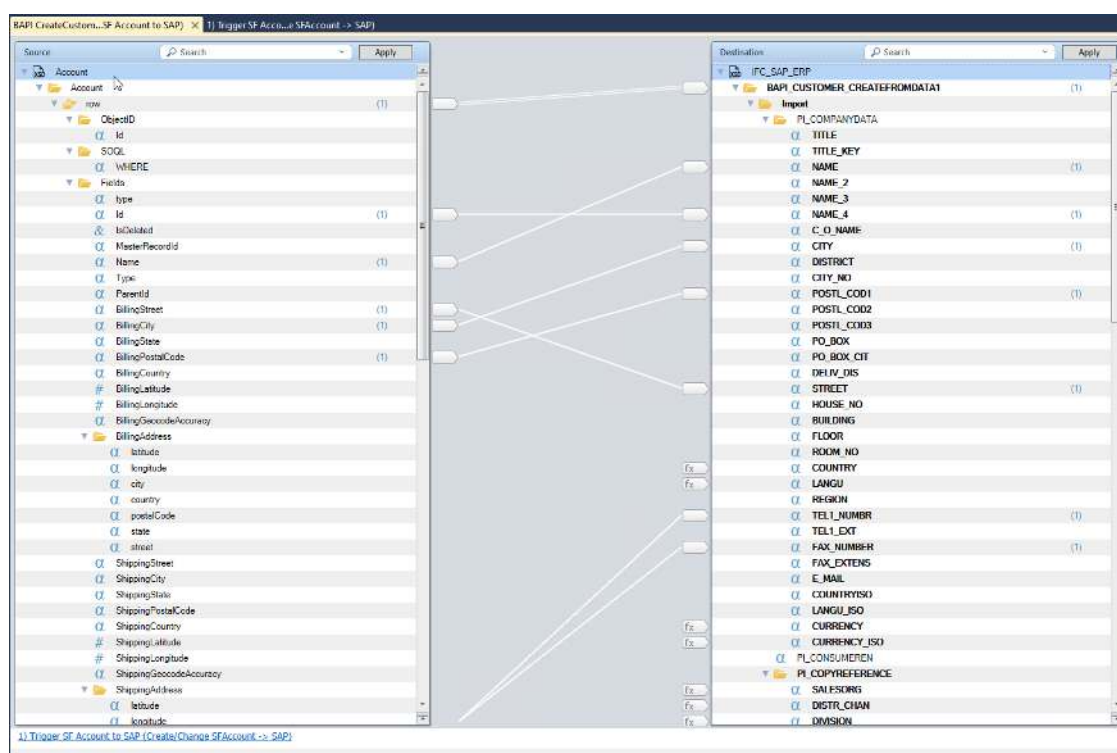
The Magic xpi Connector Builder lets 3GL programmers build, distribute and license professional grade connectors with all of the capabilities used by the Magic xpi built-in connectors.

## Data Mapper

Magic xpi's Data Mapper enables business process developers to map and transform sets of hierarchical data structures in heterogeneous formats between data sources in a simple, visual way. The Data Mapper shows visually and graphically the representation of the relationship between source data elements and destination data elements. The result of the visual mapping is the definition of the actual extraction, transformation and loading of the data from the data source to the data destination. This creates a way of manipulating the data without having to write any line of code.

The Data Mapper provides the following capabilities:

- Map and transform from any data source to any destination, whether an XML, JSON or flat file, a database, a message, another flow or component, internal variables (in-process or in-memory), etc.
- Transform data automatically from any format to another, using built-in or custom functions or calculated values.
- Map multiple sources and multiple targets in a single view.
- Map hierarchical (compound) data sources (complex XML elements, master-detail) in a single view.
- Handle large XML sources using a streaming XML parser, in addition to the DOM parser used for smaller XML files.
- Perform conditional mapping using expressions and functions.
- Automatically map similar sources and destinations with multiple matching algorithms to choose.



## Integrated Tools and Facilities

In addition to the Flow Editor and Data Mapper, Magic xpi offers many supporting facilities to enable end-to-end project design, development and validation in a single IDE. These facilities include:

- Debugger – Runtime debugger for project flows
- Checker – Consistency validation for project flows
- Source control integration
- Project-centric settings – Assign and define external resources, services and settings used by integration projects (connections, permissions, locations, ports, etc.)

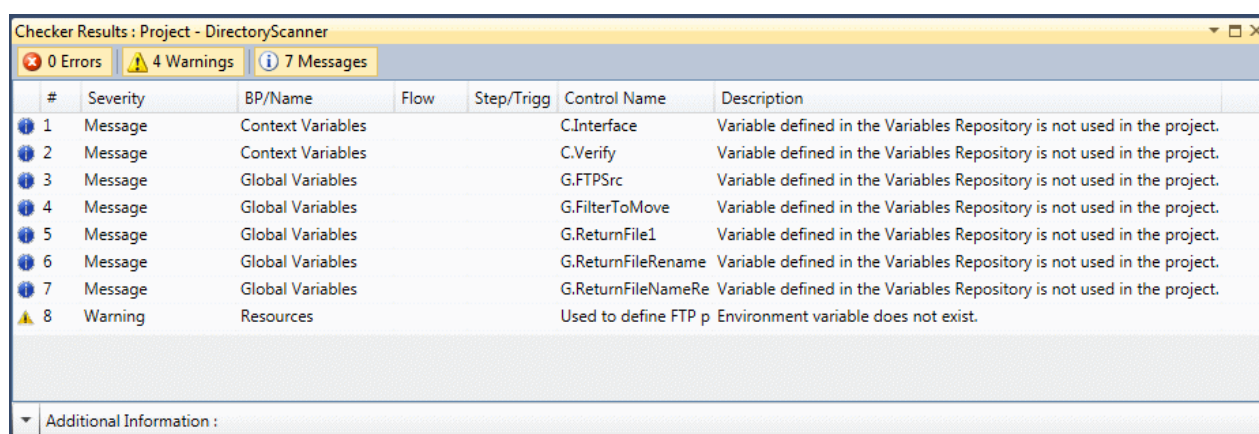
### Debugger

The Magic xpi Debugger lets you test your integration project during the development stage. With the Debugger, you can control and view execution sequences, flow variables, and Magic xpi services. The Debugger provides the following capabilities:

- Debug single flows or complete projects
- Disable and enable flow execution
- Pause debugging for specific components or flows
- Define breakpoints on components
- A context tree gives you a complete view of flow execution, including parallel processes and branches

### Checker

The Checker lets you check your Magic xpi projects for errors. The Checker shows a report of any errors or problems found in your integration project. You can use this information proactively to solve potential problems, and therefore ensure the smooth running of your project at deployment. The Checker runs automatically before you begin the project deployment process and before you run the Debugger.



#	Severity	BP/Name	Flow	Step/Trigg	Control Name	Description
1	Message	Context Variables			C.Interface	Variable defined in the Variables Repository is not used in the project.
2	Message	Context Variables			C.Verify	Variable defined in the Variables Repository is not used in the project.
3	Message	Global Variables			G.FTPSrc	Variable defined in the Variables Repository is not used in the project.
4	Message	Global Variables			G.FilterToMove	Variable defined in the Variables Repository is not used in the project.
5	Message	Global Variables			G.ReturnFile1	Variable defined in the Variables Repository is not used in the project.
6	Message	Global Variables			G.ReturnFileName	Variable defined in the Variables Repository is not used in the project.
7	Message	Global Variables			G.ReturnFileNameRe	Variable defined in the Variables Repository is not used in the project.
8	Warning	Resources				Used to define FTP p Environment variable does not exist.

Additional Information :

The Checker checks your project on the following levels:

- **Project** – At this level, the Checker will check the entire project. Here, the Checker reports problems for all business processes, flows, repositories, components and servers.
- **Business Process** – At this level, the Checker will check the structure of the selected business process. Here, the Checker reports problems for all flows, repositories, components and servers in the selected business process.
- **Flow** – At this level, the Checker will check the structure of the selected flow. Here, the Checker reports problems for all components in the selected flow.
- **Step or Trigger** – The Checker will check the selected component's configuration and any expressions that have been assigned to it.
- **Form Validation** – At this level, the Checker will check for missing fields in the forms, services and repositories.

## Source Control Integration

Magic xpi provides connectivity to most third-party Version Control products that use the SCC (Source Code Control) API V1.01, such as the Microsoft TFS and Visual SourceSafe (VSS) products.

This provides the following functionality:

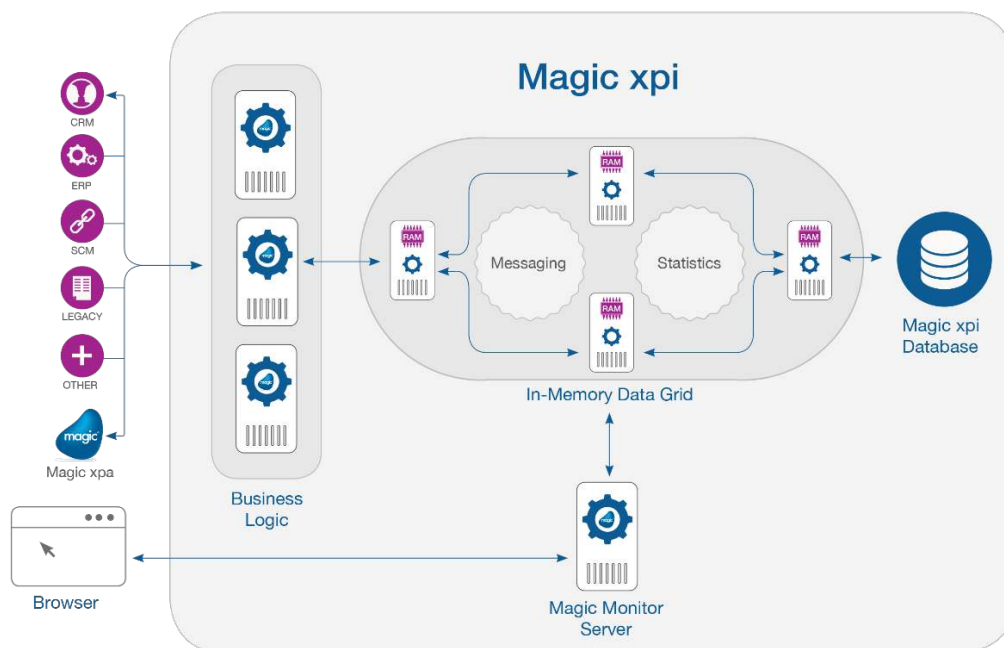
- **Team development** – You can develop your project in a multi-developer environment. Each developer works on a private copy of the project's source files and is responsible for synchronizing their copy with the central version.
- **Save versions** – You can save versions of your project and access any version later. This is helpful when you want to work in a multi-developer environment. You can also use the Version Control feature with a single developer to keep track and have access to the project's versions.
- **Protect your files** – To edit a file, you first need to check-out the file. This protects the source files from being accidentally overwritten by another user.
- **Track changes** – You can compare various versions that you have saved.
- **Trace users** – You can easily see who has edited a version.

## Project-Centric Settings

The **Settings** dialog box defines the external systems that Magic xpi needs to access during project execution. This provides a way of managing a project's resources and services from a separate location outside of the actual project. You can also reuse predefined environment settings in different projects, enabling you to switch execution environments quickly and easily. For example, when you activate a component's method or XML interface, you need to specify environment properties such as server, user and port. The Resources section enables the component's settings to refer to a defined resource and inherit its properties. These resource settings can be used with components, databases, Web Services, XML schemas or any other user-defined resources.

# Magic xpi Server

The Magic xpi Server is a scalable, high performance enterprise server for deploying, running, managing and maintaining integration projects. The Magic xpi Server provides runtime containers and enterprise services that run integration processes, as defined in the integration project.



The Magic xpi Server is based on In-Memory Data Grid technology as the underlying messaging and context infrastructure, and on Magic xpi runtime processes (workers) to execute integration flows. The Magic xpi Server provides the following capabilities:

- Shared-nothing grid deployment architecture based on In-Memory Data Grid technologies
- Built-in clustering capabilities in active-active configuration across unlimited nodes
- Scalable to any number of working nodes with automatic load balancing
- High performance, native runtime workers for running integration processes
- Guaranteed message delivery
- Automatic error and failure recovery mechanisms with load re-balancing
- Extensive administrative, logging and reporting capabilities
- Open to third-party extensions and add-ons in .NET and Java

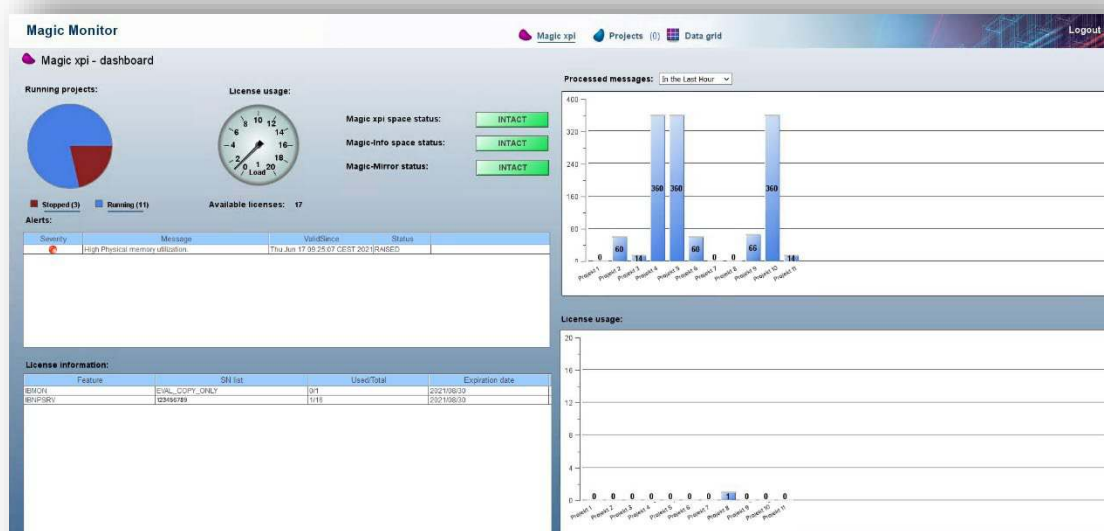
## Integration Services

The Magic xpi Server provides the functionality needed to achieve true business process management. Magic xpi supports the following:

- **Invocation** – Synchronous and Asynchronous protocols
- **Routing** – Deterministic, rule-based and policy-based routing
- **Mediation Adapters** – Protocol transformation and service mapping
- **Messaging** – Message processing, transformation and enhancement
- **Process Choreography** – Implementation of complex business processes
- **Service Orchestration** – Coordination of multiple implementation services exposed as a single aggregate service
- **Transactional** – Full process transaction management
- **Error Handling and Recovery** – Flexible handling of errors, exceptions and failures

## Magic xpi Monitor

The Magic Monitor lets you manage and monitor the Magic infrastructure, and to get accurate information about your projects, from a single intuitive and easy-to-use dashboard. You can view the information for the whole project or you can select different levels within the project, and you can use filters to display information from specific times. The information displayed is updated regularly. The status of each project is taken from the Space.



The Monitor is web-based and provides, in addition to the real-time data graphs, charts and alerts that give additional insights about the project's runtime behavior. For example, an engine that is running on an alternate license, or that the Space's status has been compromised.

The information provided by the Magic Monitor lets you examine the project and see where you need to make any modifications to improve performance. For example, you can identify issues caused by heavy data loads or by a possible shortage of licenses.

You can configure the Monitor for Notification Email to the Project Admin thereby enabling proactive/preventive maintenance of system-critical parameters such as high CPU, low memory, license peaks, and other system instabilities. In addition, you can make adjustments to the servers without having to go back to the Magic xpi Studio to reconfigure your project

## Magic xpi Integration Platform

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## About Magic Software Enterprises

Magic Software Enterprises ([NASDAQ: MGIC](#)) empowers customers and partners around the globe with smarter technology that provides a multi-channel user experience of enterprise logic and data.

We draw on 30 years of experience, millions of installations worldwide, and strategic alliances with global IT leaders, including IBM, Microsoft, Oracle, Salesforce.com, and SAP, to enable our customers to seamlessly adopt new technologies and maximize business opportunities.

For more information about our company, technology, products, and services, visit [www.magicsoftware.com](http://www.magicsoftware.com)

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