Magic xpi 4.7
Release Notes

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New Features, Feature Enhancements and Behavior Changes

OData Provider

The OData Provider is now available as a service in Magic xpi. The OData service also provides an Entity Helper for the user to define the OData Service structure.

Encoding Parameter

The Encoding parameter is now added to the HTTP component. With this, it is now possible to control the encoding of the request body for the POST and REST methods of the HTTP step.

The Encoding parameter is also added to the File Management component. With this, it is now possible to control the encoding of the file written using the Append BLOB To File, Create File, and Write File methods.

Undo and Redo Commands

Magic xpi now enables you to undo one or more operations in the Flow Editor and redo the undone changes.

Required Licensing

The Required Licensing menu is now available under the Help menu of the Magic xpi Studio. It shows the license features required for the project which is open.

Flow Editor Enhancement

The following features are now available in the studio:
- Copying and pasting multiple steps
- Inserting a step between a parent of a branch and the branch
- The Project path link (BP and Flow) in a Data Mapper which allows to navigate back to the Flow Editor pointing to the corresponding Data Mapper step

Magic xpa Runtime Support

The Connector Builder utility now supports Magic xpa as a runtime technology. This option is available for the step as well as the trigger in the Flow Editor.

Installation Upgrade

It is now possible to upgrade the existing installation of Magic xpi 4.5 and higher to the Magic xpi 4.7 version.

Solution Explorer Icon Indication

The Solution Explorer now displays new icons to indicate the state of the flow.

Monitor Enhancements

For the Activity Log table in Magic Monitor, a **Step** column was added.

For the Filtered Activity Log table, **Step**, **FSID**, **Root FSID** and **Flow Request ID** columns were added along with an **Attached Blob** button.

SAPB1 – SLD Server Support

Magic xpi now offers SAPB1 support for SLD Server. A new property added to the resource allows the user to select between the License Server and the SLD Server.

SharePoint ADFS Support

The SharePoint Online connector now supports Active Directory Federation Services (ADFS).

Dynamics 365 Support

Magic xpi was tested and is now compatible to work with Dynamics 365.

Salesforce Connector Upgrade

Magic xpi now works with Salesforce API 39.

WebSphere MQ Resource

The WebSphere MQ Resource now supports the User ID and Password based authentication.

InventoryTransferRequest

The InventoryTransferRequest object is now available as a part of the Magic xpi Objects support.

SAPB1 9.3 support

Magic xpi now supports SAP B1 9.3 with the MSSQL 2016 database.

Non-supported Feature

The SNMP component is no longer supported in Magic xpi.

Known Issues

- If a project is referring to files outside the project folder using the relative path, then after migration the references are not restored in the newly created projects. To restore the references, open and save all Data Mappers that use the external references. To find such Data Mappers, run Checker on the project.
- When sending an HTTP request with Body (POST/PUT), the content type and encoding header should be specified and should match the body content. For example, in case we send a POST request with UTF-8 encoded JSON body, we should specify the following header:
  Content-type: application/json; charset=utf-8
- Since Magic xpi 4.7, if the default value of a variable is used, then the spaces will be trimmed from the variable value.
- Since Magic xpi 4.7, at runtime, the default value of a variable will be trimmed as per the length defined for it.

Fixed Customer Issues

QCR #	Description
132015	WS Deployment failed when the Web Service Server resource used environment variables for the server URL, user and password.
132080	The "Object class violation" error was thrown when using the "@" character in the LDAP connection string for assigning a user to a group.
136870	The FTP component's Local Change Directory method affected other steps from other flows if a Multi Put method with no files to transfer was also used in the same step.
137655	When trying to change a DB Name in the Data Mapper from lower case to upper case, the following error appears: "The schema name must be unique".
137796	The script name "mysql_create_db.sql" used for creating tables for the internal Magic xpi MySQL database was misleading since it contained 'db' in the name and it is now named "mysql_create_tables.sql".
138559	Trying to validate a SharePoint resource with ADFS turned on, resulted in an error.
139741	In the Magic Monitor, the Delete Activity Log function did not clear the log.
140766	The Delete operation for the HTTP REST Method did not work when the HTTP body was empty.
140889	Logical names used for the DB2/400 library names were translated in the SQL statement.
141431	The 'Save Copy As' option in the Studio did not give an error regarding the maximum length of the project name.
141685	In the HTTP requester, the arguments of the Date type threw errors when the date was entered with a delimiter other than a slash.
141696	In the HTTP REST method configuration, the 'URL Dynamic Addition' field parameter was not long enough.
141958	The Magic xpi Studio crashed on Windows 2012 R2 Server after some period of active usage.
142412	When multiple libraries were defined with the same DB resource, the INSERT statement always added entries into a single library.
142782	When creating a new resource in the Magic xpi Studio, an error was thrown on Windows Server 2012.

QCR #	Description
142785	When using a Call Flow schema as a destination in the Data Mapper a runtime error was thrown, if the called flow name was identical to some other flow name in another Business Process.
142813	The project failed to start, giving the "SAP B1 component does not exist in the project. Magic xpi Server will shutdown." error when the license file had the IBSBO feature with the B1 flag set to Y.
142980	In the clustered mode, the HTTP trigger returned an empty response when a request was received by the web requester for the first server, whereas the request was handled by the second server.
143104	An SQL query containing the INSTR clause was malformed at runtime and produced incorrect results.
143162	The Gigaspaces services stopped working after Windows 10 Operating System was updated to the Release 15063.138
143163	In a SharePoint component, the schema names containing blank spaces caused runtime errors.
143184	In the Data Mapper, an XML destination's output variable contained incorrect names for replicated nodes.
143212	The File Splitter component produced incorrect results when the length of the path to the destination folder exceeded 100 characters.
143266	SSJ service failed when the length of the project name exceeded 27 characters.
143311	The configuration dialog for the .NET Utility connector did not populate the list of flow variables with their values.
143327	For a Salesforce resource, OAuth2 authentication failed when the Salesforce server was accessed through a proxy server with its own user authentication.
143357	The Studio crashed when a step referring to flow variables was copied from one flow and pasted into another flow.
143572	After migrating a project from Magic xpi 4.5, the user could not define a resource for a user component.
143579	The CallPublic function with a non-character return value caused errors at runtime.
143591	After migrating a project from Magic xpi 4.1 to 4.6 with a configured .NET component, the .NET configuration screen would not open.
143592	The name of the variable was not saved in the .NET component configuration screen.

QCR #	Description
143641	The Email trigger for an IMAP mail server did not put the attachment from the incoming mail into the variable defined in the Arguments XML Location.
143657	After migrating a project from Magic xpi 4.0, expressions with custom functions failed to work.
143669	In the Expression Editor, the BlobRemoveBom function was missing from the functions list
143682	The Salesforce connector's Bulk Create operation transferred the data with an incorrect encoding.
143706	When a copy of a project was created with the "Save copy as" option, the new name, and the path were not updated in the start.xml.
143724	The WCF Client resource threw an error "Compiled proxy not found" while loading a specific Web service.
143729	Magic XPI Studio hanged while attempting to remove an XML from the Data Mapper source.
143732	In a Data Mapper, the STRFormat function with arguments referencing source nodes caused the Studio to crash when building the project.
143748	The Update and Create operations for a SugarCRM Trigger failed when used with a multi-select custom field.
143871	When selecting the All option as the owner, the table list showed garbage (symbols) for table names.
144077	The Magic xpi Studio crashed on using the ODBC driver for a Cache database.
144097	Since SAP B1 9.2 PL 05 version, Magic xpi could not establish a connection due to changes to the API for the Company object, and the license server was defined using the SLDServer property instead of the LicenseServer property.
144158	After migrating a project from Magic xpi 4.1, the calculated values were lost when using an XML schema as a destination without defining the source in the Data Mapper.
144189	Replicated nodes of XML schema and their mappings were lost after migration.
144273	In the Java Class Connector, when a method returned a string of over 15000 characters, the flow crashed at runtime even though the maximum length of the string variable was 100000 characters.
144353	The WCF connector threw an error at runtime for a given service.
144372	For a specific project, the Text Search feature caused the Studio to hang.

QCR #	Description
144420	Appending the data from the subsequent Salesforce connector requests gave an incorrect result.
144431	For Call Flow and Variable default values, the variable was not truncated based on its length definition.
144573	When configuring multiple parameters in the Web service, the buttons at the bottom of the configuration dialog disappeared.
144574	Some sections of the MAGIC.ini configuration file were deleted when editing a resource.
144663	A specific XML schema in a Data Mapper caused the Studio to hang on opening the step for editing.
144683	In a destination Database schema, changing the INSERT statement to UPDATE and vice versa caused the mapping to be lost.
144721	The Logging function threw a runtime error due to an incorrect number of arguments.
144749	In a replicated Destination node, when the Mapper was not opened in a separate tab, the Checker returned an error for a valid expression causing the build to fail.
144750	The record level's destination mapped node calculations were missing after migrating the projects from Magic xpi 4.1 to 4.5a or 4.6.
144751	In a replicated Destination node, a condition expression could not be set on the first node, whereas it could be set on the replicated one.
144850	The Unload method for the trigger in the Connector Builder threw an exception and failed to work.
145025	For an HTTP POST method using a Java Web requester, the return HTTP Body data was cut.
145090	In the REST method called by the HTTP component, the header was truncated at runtime when the Header Set contained a comma.
145148	The Bulk Upsert operation in the Salesforce connector threw an error when multiple projects ran in parallel.
145259	For an MSSQL database, the project failed to run and displayed an "Out of Memory" error, in a special scenario when the record length exceeded 32K.
145290	In the Connector Builder, for a component with a Method interface set as default for the step, the result variable was not updated at runtime.

QCR #	Description
145310	In the Data Mapper's Source and Destination panes, AnyOf, AllOf, and OneOf clauses for an array item node were not displayed for JSON schemas.
145416	The Include Delimiter property in the Bulk Upsert destination flat file of the Salesforce connector was set to No and could not be changed after migrating a project.
145469	Appending an XML context variable successively in a called flow caused incorrect results.
145482	The Sugar CRM Resource failed to Validate/Connect, if the REST Endpoint URL had mixed upper and lower case letters in it.
145594	Some Data Mapper schemas were incorrectly migrated from IBOLT 3.2a projects.
145904	In a Data Mapper, on creating a Flat File > Positional with empty "From" property, a garbage character was added to the Flow Variable value, after migrating a project from Magic xpi 4.1 to 4.6.
146036	The SAP R3 Trigger failed to restore its operation when the network was disconnected for a longer period of time.
146040	For AS/400 System, 10 characters long library names were shown truncated in the list of libraries for the DB2/400 resource.
146041	DB2/400 Library name was truncated to 8 characters.
146093	A specific WSDL could not be loaded into a WCF client or Dynamic AX resource and threw the "Compiled proxy not found" error.
146100	In a Data Mapper's Database schema, the SQL query failed to execute for DB2/400 when the concatenation operator was used in the query.
146119	In the Connector Builder, the resources defined for a user component could not be accessed in the Environment Editor.
146158	SAP R/3 connector threw an error at runtime when the input XML was empty.
146161	When configuring a SAPB1 8.8 step, the server returned an error for a valid resource if the logical name used was longer than 30 characters.
146202	An error was thrown in the Data Mapper while loading a specific schema.
146245	With XSD Sub Type defined as XML Position Forwarding on the source side, the Data Mapper failed to use the INSERT statement for a destination database.
146262	In the Method interface of the HTTP step, the default length of the string in the Header Set parameter was insufficient.

QCR #	Description
146277	The Replicate All Data method of the Salesforce connector threw a runtime error due to an incorrect definition of SObjectType and Field columns in the FieldPermissions table.
146230	The HTTP response did not contain the status code when HttpFramework = D was set in the MAGIC.ini file.
146291	In the documentation for the Salesforce component's XML interface, the *setRefbyExternalId* function was not excluded from bulk operations.
146296	After migration, the Data Mapper threw an error, "Some of the schema's data does not exist or might be invalid", for a specific scenario.
146332	When the Salesforce step returned an error at runtime, the resulting XML was incorrect.
146333	When migrating the project, some of the variables did not pass to the called flow.
146342	The Select schema file input line, in the Data Mapper, for the selection of a file had an insufficient height for long paths.
146380	For a date field in the Data Mapper, the custom format was not saved.
146381	When a scheduled flow was enabled using the Enable Flow utility, the scheduler was called twice.
146494	Changing the default paths for the Resources.xml and Services.xml in the Project Properties caused the entries to duplicate and the build to fail.
146569	The Studio crashed when a Data Mapper's source referred to an invalid JSON schema.
146641	The Update operation in the Dynamics CRM component returned an incorrect result XML BLOB with the duplicated nodes.
146693	In the FTP and Directory Scanner connectors, SFTP HMACs such as hmac-sha2-512 and hmac-sha2-256 were not supported.
146747	The WCF Client connector returned a runtime error for a valid request to a specific Web service.
146852	When trying to validate the SAPB1 resource with MS SQL Server 2016 as a database, the resource didn't validate.
146759	The Data Mapper's SQL wizard resulted in an "Invalid SQL Statement" error if a table name contained the SQL reserved word SET.
146816	A Magic xpi project stopped processing with a warning in the log "Server Status is ON HOLD" causing high memory consumption and CPU getting maxed when Magic Monitor was left open on both the App Servers.
146868	The performance of a WCFClient component was degraded.

QCR #	Description
146978	The project failed to start when the Resources.xml file was in a read-only mode.
147003	The Magic xpi Debugger did not recognize a breakpoint and therefore, did not suspend the flow in a specific project.
147319	In the Exchange connector, the query operation returned an empty result when a folder name contained blank spaces.
147456	In the WCF Client configuration page, the Service URL containing %20 instead of a blank space caused an error at the time of loading the service.

Past Release Notes

Magic xpi 4.6: New Features, Feature Enhancements and Behavior Changes

OData Connector

The OData connector enables you to consume OData V4 services. The OData connector offers the following:

- Use of the OData service metadata to automatically generate structures for Magic xpi.
- Support of all CRUD operations including patch.
- A query builder to build complex queries while still allowing you to manually enter and modify queries.
- The ability to add any HTTP headers to the requests.

ServiceMax Connector

The ServiceMax connector provides you with connectivity to the ServiceMax field service application.

Import/Export

Magic xpi now has Import/Export functionality, providing a convenient way to easily save or load project objects.
You can also import resources and services that you previously created and saved in other projects.

Dynamics CRM Enhancements

The Dynamics CRM connector now supports the **Upsert** operation. The connector also has a new method interface that supports Querying by FetchXML.
Since 4.6, by default, both the on-premise and on-demand implementations are .NET-based. This means that any new functionality, such as the Upsert operation, which was added since 4.6, will only work during Runtime on Windows operating systems.
Before 4.6, the on-premise implementation was .NET-based and the on-demand implementation was Java-based. If you want the previous behavior, where the online implementation was Java-based, change the value of the new **DCRMOnlineSDK** flag to **N**.

SAP R/3 Connector Enhancement

The SAP R/3 connector now uses JCO 3.0.15.

SAPB1 HANA support

Magic xpi now supports SAP B1 based on the SAP HANA database.

SAPB1 Services Support

Magic xpi now supports selected the SAP Business One **Messages** service.

HTTP Framework Setting

The **Magic.ini** file's **[MAGIC_ENV]** section now contains the HTTP Framework global environment setting, which specifies the underlying HTTP library to be used for the HTTP component. This change was done to support TLS1.2 for the HTTP functionality

Connector Builder Enhancement

The Connector Builder now has an **Endpoint** trigger invocation type, which runs outside of the Magic xpi engine.

Project Documentation

Magic xpi can now generate detailed printable reports of your projects.

IBM WebSphere® MQ 8.0 Support

Magic xpi was tested and is compatible to work with the IBM WebSphere® 8.0 client/server.

Microsoft® Windows Server 2016 Support

Magic xpi was tested and is compatible to work with Microsoft® Windows Server 2016.

Known Issues

- In an upgraded Magic xpi 4.5 or 4.5a project, you cannot modify an existing SAPB1 resource to use a SAP HANA database. You need to create a new SAPB1 resource instead.
- To use the native Microsoft® ODBC Driver for SQL Server® with the Magic xpi Studio, you need to replace the information in the **data_types.xml** file with the information from the **data_types_MSSQLODBC.xml** file. Both of these files are located at: **<Magic xpi installation>\Studio**.

Magic xpi 4.5a: New Features, Feature Enhancements and Behavior Changes

Salesforce Licensing Prerequisites

To be able to use a Magic xpi license for Salesforce, you have to install the Magic xpi monitoring app that is on the Salesforce AppExchange. For information about how to do this, see the **How Do I Install the Magic xpi Salesforce App?** topic in the *Magic xpi Help*.

Salesforce Monitoring Utility

You can monitor your Magic xpi environments, view running projects, receive alerts, and get chatter notification about various events using the Magic xpi Force.com monitoring utility. For information about how to do this, see the **How Can I Monitor My Project Using Salesforce?** topic in the *Magic xpi Help*.

Java 8.0 Support

Magic xpi was tested and is compatible to work with JRE 8.0.
Note: JRE 8.0 is not supported for Systinet-based Web services (both consumer and provider). For the Windows operating system, to use a Web service consumer, you can use the WCF client.

SAP S/4 HANA Support

Magic xpi was tested and is compatible to work with the SAP S/4 HANA platform.

Field Type Behavior Change

Magic xpi does not have a default picture to handle **xs:union** field types. If your schema contains an **xs:union** field type, you need to add this type to the **Default Data Format** repository.
During migration, if you had an **xs:union** field type and it was mapped, after the migration process you will get a Checker error letting you know that you need to define your **xs:union** field type.

Known Issues

- Before migrating a project to Magic xpi 4.5a, make sure that all XSD files used by the Data Mapper are available in their declared location.
- The percent sign (%) cannot be used in a database resource password.

Magic xpi 4.5 General Information

Introducing Magic xpi 4.5

We are delighted to provide you with the new major release of Magic Software's Magic xpi Integration Platform. The new features and enhancements are designed to improve your user experience with the new look-and-feel as well as provide additional functionality for your integration projects.
Magic xpi 4.5 is based on Magic xpa 3.1.

Migrating from Magic xpi 4.1 to Magic xpi 4.5

The Migration wizard automatically opens when you open an existing .ibs file.

Note: If the object names in your projects are in the language of your locale (such as flow names or variable names in German), the locale of the machine must match the locale used in the project when doing the migration. In addition, the **magic.ini** file's **[MAGIC_ENV]ExternalCodePage** flag must also match the used locale.

Steps Required After Migration

- uniPaaS steps and Component SDK steps that were created in uniPaaS need to be migrated manually to Magic xpa.
- Web Service servers need to be deployed manually after migration.
- External files need to be copied to the new project's location according to the old project's hierarchy.
- The migration process does not change any .ini files or its values. To use new values, after migration, delete or rename the old **ifs.ini** file and build the project. A new **ifs.ini** file will be created with new values.
- If you had logical names defined in your **Magic.ini** file (not in the **ifs.ini** file), when migrating a project add the logical names (environment variables) to the **Magic.ini** or **ifs.ini** file. If the environment variables are project specific, you can add them to the project's **ifs.ini** file. For non-project specific environment variables, copy them to the **Magic.ini** file. Note that Magic xpi 4.5 is project centric, meaning that the Studio loads the environment variables from the **ifs.ini** file.
- If the Invoke Flow utility uses an expression containing hard-code IDs, it might not point to the correct ID after the migration process, since these IDs may change during the migration. It is recommended to use the dedicated functions, such as **GetFlowID** and **GetBPID**, which calculate the ID at runtime based on the flow or business process name.

- If the **SpecialExpReturnNull** flag is not already present in the migrated project's **ifs.ini** file, you should add it to that file's **[MAGIC_SPECIALS]** section and set it to **Y** to maintain backward compatibility with projects created in earlier versions of Magic xpi or iBOLT. This flag maintains backward compatibility when comparing a variable that has a Null value to an empty value.
- If your migrated project has any user-defined components, the folder containing them must be copied from its old location to the new location. Any changes to the **Resource_types.xml** and **Service_types.xml** files that are connected to user-defined components must be done manually.
- JD Edwards World resource definitions should be updated with a library if such definitions do not exist.
- The JD Edwards Enterprise One configuration has been simplified and now uses a dedicated class loader. It is no longer required to list all of the jar files in the **Magic.ini** classpath. If you are using the new class loader, make sure to exclude the **j2ee1_3.jar** from the **jar** folder. Refer to the **Configuring the JD Edwards Enterprise One Connector** topic in the *Magic xpi Help* for specific instructions.
- Due to major changes in the Salesforce metadata API, you will have to reconfigure the Metadata CRUD method's **Update** and **Delete** operations.

Licensing

To use Magic xpi 4.5, you need to obtain version 4.x licenses. To obtain Magic xpi licenses, please contact your local Magic Software representative.

Prerequisite Changes

.NET Framework

The Studio module of Magic xpi is based on the .NET Framework. The following .NET Framework requirements apply:

- To develop an application using the Magic xpi Studio, you must have .NET Framework V4.0 (or above) installed on your machine.
- For Runtime, the Magic xpi In-Memory Data Grid requester requires .NET Framework V4.0 (or above).

Studio Installation

The Magic xpi Studio is based on Microsoft Visual Studio, which cannot be started from a network folder. Therefore, it is not possible to start the Magic xpi Studio from a network folder.

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Internal Database Changes

Writing and reading from the internal database is done using JDBC and not by using the Magic xpa gateways. Magic xpi provides the JDBC driver (JAR file) for MSSQL databases. To work with any of the other databases:

1. Copy your JDBC drivers to the following folder: **<Magic xpi 4.5>\Runtime\java\DatabaseDrivers**.

2. Configure the database settings in the **Runtime\config\datasource.xml** file to match your DBMS. Make sure that the **driverClassName** defined in the **datasource.xml** is compatible with the JDBC driver.

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OUTPERFORM THE FUTURE™

New Features, Feature Enhancements and Behavior Changes

New and Improved Studio

The new Visual Studio-based Studio offers an intuitive and user-friendly experience. The new Studio offers a variety of enhancements, including:

- Docking capabilities.
- A MiniMap to enable you to navigate quickly within long or wide flows.
- A Toolbox pane that replaces the **Components** pane. All the Magic xpi components and utilities appear in this pane, grouped together under specific categories.
- A Solution Explorer that replaces the **Navigation** pane.
- A dedicated **Properties** pane that displays the properties of whichever part of the project that you are parked on.
- A **Settings** dialog box that includes the Resource Repository, Service Repository, and **IFS Settings** dialog box from Magic xpi 4.1. This also includes the **Magic.ini** file settings. This can also be accessed as a stand-alone editor, allowing you to configure your project without opening the Magic xpi Studio.
- A combined search functionality. The **Find Name** and **Text Search** of Magic xpi 4.1 were combined into the **Find Text** dialog box.
- The copy and paste mechanism has been enhanced, including the support of multiple pasting of steps and branches.
- Non-English characters can be used in the names of business processes, flows, and steps, as well as in descriptions. The names of projects, resources, services and variables can only be written in English characters or the language of your machine.

Behavior Changes

- In Magic xpi 4.1, since the **Magic.ini** file took precedence in the Studio and the **ifs.ini** file took precedence in Runtime, you had to maintain your environment variables in both files. Now, in Magic xpi 4.5, the **ifs.ini** file always takes precedence over the **Magic.ini** file, both in the Studio and in Runtime.
- The keyboard combination for opening an existing project is now **Ctrl+SHIFT+O** instead of **Ctrl+O**. The keyboard combination for creating a new project is now **Ctrl+SHIFT+N** instead of **Ctrl+N**.
- Inserting a flow or business process is now done using the **Project > Add** menu.
- The default project location is now under your **My Documents** directory, in the **Magic** folder.
- Setting how the Studio opens is done using the **At Startup** drop-down list. This is accessed by going to the **Tools** menu, clicking **Options**, and selecting **Startup** in the **Environment** section. This is similar to the **Startup As** property that was available in Magic xpi 4.1's **Customize** dialog box.

- The disabling, enabling, and deactivating of individual flows is now done through that flow's **Properties** pane.
- Flow IDs in Magic xpi 4.5 are unique to a specific project, whereas in Magic xpi 4.1 flow IDs were unique to a business process.
- The IFC Model is now available as an option in the **XML Properties**. It is available for components with a static XML interface.
- The **Clear Mode** property has been moved to the **Project Properties** window, and can now be used to clear ODS information only.
- Defining a flat file structure is done using the **Lines** property.
- The following functions were added to the Expression Editor:
  - ClientCertificateAdd
  - ClientCertificateDiscard
  - RqHTTPHeader
  - UTCDate
  - UTCmTime
  - UTCTime

Magic Monitor

- The Magic Monitor now offers all of the monitor capabilities for Magic xpi, including the new support for the Activity Log, ODS, and BAM.
- In addition, Activity Log messages can now be filtered when working offline.
- You can click the new **Messages History Export** button to generate and download a zip file containing a CSV file that holds all the messages related to the selected project.
- The Magic Monitor lets you force the immediate invocation of a Scheduler on a specific flow, without changing the next trigger invocation time, once the project is running again. You do this by selecting **Invoke** from the Scheduler's context menu.
- The Magic Monitor allows new drill-down capabilities based on the FSID, Root FSID and Flow Request ID.

Behavior Changes

- In the Monitor, during runtime, the server deletes all ODS records belonging to a completed FSID. In Magic xpi 4.1, these records appeared even when they were no longer active.
- BLOB variables in Save Message steps can now be saved to the file system instead of the database. The **FILELOCATION** column in the **ifs_actlog** table stores the value from the **[MAGIC_IBOLT]ActivityBlobFileLocation** flag concatenated with the file name when the project loads. The BLOB will be shown in the Magic Monitor whether it is saved in the BLOB variable or in the file system. If the BLOB is saved in the file system, the Magic Monitor will search the BLOB according to the **FILELOCATION** column. When clearing the Activity Log from the Magic Monitor, these BLOBs will be deleted whether they are saved to the database or on the disk.

Enhanced Connector Builder

The SDK from previous versions has been enhanced. The new Connector Builder lets 3GL programmers build, distribute and sell professional looking connectors. The Connector Builder offers:

- The ability to combine steps and triggers in a single connector
- Out-of-the-box support for the Magic xpi Studio utilities
- Customizable UI configuration for both steps and triggers
- Data Mapper support for a dynamic step
- Java and .NET runtime technology
- Runtime isolation via a class loader
- Licensing
- Encryption

For an in-depth explanation of how to use the Connector Builder, see the *Magic xpi Connector Builder* PDF in the Magic xpi installation.

Data Mapper Enhancements

JSON Support

The Data Mapper can now work with JSON schemas.

Default Database Schemas

- You can now determine which database schema will be loaded by default from the cache (offline) and which will attempt to connect to the database in order to refresh its structure (online).
- You can refresh multiple database schemas by clicking the button on the toolbar or by clicking the **Edit** menu and selecting **Refresh Database Schemas**.

WCF Client Connector

The WCF Client connector generates C# code to access .dll files and schemas for later use during runtime. This new connector provides easy and secure access and consumption to a large library of services based on this worldwide standard.

Dynamics AX 2012 Connector

The Dynamics AX 2012 connector is now offered as a built-in connector in Magic xpi 4.5.

MQTT Connector

The MQTT connector lets you work with MQ Telemetry Transport (MQTT), a lightweight network protocol used for publish-subscribe messaging between devices.

Dynamics CRM Connector Enhancement

The Dynamics CRM supports additional authentication types. It is now a .NET connector for on-premise Dynamics CRM servers and not a Java connector as in previous versions. For online servers, it is still a Java connector.
Note: When you set the Dynamics CRM resource's **Secured Connection** property to **Yes** and the **Deployment Type** to **On Premise**, set the **DCRMAD** flag in the **Magic.ini** file's **[MAGIC_IBOLT]** section to **Y**.

SAP R/3 Connector Enhancement

The SAP R/3 connector enables communication over Secure Network Connections (SNC).

JD Edwards Enterprise One Jar Files

Magic xpi is now using a dedicated class loader for loading all of the JD Edwards Enterprise One jar files. It is no longer necessary to specify these jar files in the classpath (either the machine classpath or the **Magic.ini** classpath) and no longer necessary to copy them to the Magic xpi folder. The JDE connector now has a dedicated folder for all of its jar files.

Java Class Connector Jar Files

When using the Java Class connector, the Studio no longer loads the **Magic.ini** file's **classpath**. Instead, you need to list the jar files in the machine's **classpath** or copy the jar files to the **runtime\java\lib** folder.

Additional External Services

- A Flow Enablement service. Now the flow enablement can be defined as an external service and can be modified and affect a project without the need to rebuild the project.
- A Scheduler service. Now the scheduler can be defined as an external service and can be modified and affect a project without the need to rebuild the project.

SFTP Support

Magic xpi 4.5 offers support for the SFTP protocol in addition to the FTP protocol.

Salesforce TLS 1.2 Support

Magic xpi now supports the TLS 1.2 encryption protocol for the Salesforce connector.

Windows® 10 Support

Magic xpi was tested and is compatible to work with Windows® 10.

An Additional Space and Processing Unit

In addition to the existing MAGIC_SPACE, Magic xpi now includes

- A MAGIC_INFO space that holds the Activity Log as well as statistics for the monitor and ODS data.
- An MGMirror processing unit, which is responsible for managing the write operation of the Activity Log and ODS data to the database.

Magic xpa User-Defined Functions

You can now use Magic xpa user-defined functions in Magic xpi.

Debugger Enhancements

The Breakpoints and Suspends pane is now accessible during development.

Behavior Changes

- Reconnecting the Debugger in the Studio: In Magic xpi 4.5, the Studio will try to reconnect when there are connectivity problems between the Debugger and the runtime project, according to a number of rules, such as several retries and timeouts. In Magic xpi 4.1, for these types of problems, the Studio terminated the debugging session.
- Starting the Debugger is done by pressing **F5** instead of **SHIFT+F7**.
- When a project is running in Debug mode and the Studio is terminated, after the Studio stops publishing that it is alive, the running project will terminate internally. This prevents projects in debug mode running without having a studio controlling them. In addition, when attaching to a running project and moving it into Debug mode, if the Studio stops publishing that it is alive, the project will move back to production mode.

Error Retry Enhancement

If the Magic xpi Server does not succeed in executing a step before reaching the retry limit, the last error received is now automatically held in the **C.sys.ErrorCode** context variable. This gives you the ability to check, in the next step's condition, if an error has occurred. You can clear the error from the variable by using the **ifs.ini** file's new **StepRetryClearError** flag. Setting the **StepRetryClearError** flag to **Y** will give you the same behavior as Magic xpi 4.1 In addition, you can control the delay between retries with the ifs.ini file's new **StepRetryDelayTnSec** flag.

Version Control Usage

Magic xpi supports version control for versioning. If there is a change to the project tree you need to get the entire project using the Version Control provider's Explorer.

Terminology Changes

The following terms were changed:

- Services to utilities: This is referring to the Services that were in the Components pane in Magic xpi 4.1.
- The uniPaaS component has been renamed to the Magic xpa component.
- The System i connector has been renamed to the IBM i connector.
- The SugarCRM connector has been renamed to the Sugar connector.
- The **Always use the new Picture** node property was renamed to **Always Use Custom Picture**.
- The **Exception Handling Flow** property in database destinations was renamed to **Error Handling Flow**.
- The project's executable extension was changed from **.ibs** to **.mgxpiproj**.
- Compound Level Computation is now called Multi Update.
- Cross Reference has been renamed to Find Reference.

Removed Functionality

The following features are no longer supported in Magic xpi:

- Rights Repository
- Security Groups Repository
- Users Repository
- Project Packager
- COM component: In migrated projects, during runtime, the COM triggers will be removed.
- EJB component: In migrated projects, during runtime, the EJB steps will be treated as NOP steps and triggers will be removed.
- Domino component as a trigger: In migrated projects, during runtime, the Domino triggers will be removed.
- W4 component: In migrated projects, during runtime, the W4 steps will be treated as NOP steps and triggers will be removed.

- ItemField component: In migrated projects, during runtime, ItemField components will be removed.
- Legacy monitor including the **ifm.ini** file
- Text Area tool
- The Find Reference feature is not available for resources and services. To find where a resource or service is used, use the **Find Text** option on the current project.
- WS bridge
- SharedValGet and SharedValSet functions
- Magic xpi 4.5 is no longer compatible with the Windows® 2003 operating system. This is because, by default, Microsoft does not support .NET Framework 4.5.2 (required by Magic xpi 4.5) with the Windows® 2003 operating system.
- The **Project Rename** option has been removed. To rename a project, you can use the **Save Copy As** option instead.
- Object names cannot contain any of the following characters: [space] ~ ` ! @ # , % ^ & * - = + ( ) { } [ ] | " ? / \ < > ; or more than one dot (.).

Currently Not Supported Features

The following features are currently not supported in Magic xpi:

- Import/Export
- Printing a project
- The **Customize** dialog box
- UDDI Server
- JSON schema elements that contain the word: **not**
- Topology and Business Process editors

Known Issues

The following are known issues in the current version of Magic xpi:

- When using the Java Class connector, the Studio no longer loads the **Magic.ini** file's **classpath**. Instead, you need to list the jar files in the machine's **classpath** or copy the jar files to th **runtime\java\lib** folder.
- Currently, Magic xpi supports source control for versioning. When there is a change to the project tree you need to get the entire project using the Source Control provider's Explorer.
- Setting the flow to suspended does not automatically check out the flow.
- The **Open with Editor** context menu option is not supported for mapper files.
- Environment variables are not currently supported for the Notes DB resource's **Host Name** property.
- The stand-alone editor can only edit resources and services if the **resources.xml** and **services.xml** files are located in the project's folder.
- For Numeric pictures, the **Picture** property in the Node Properties (for Data Mappers) can only contain numbers, decimal points and the letter N for negatives, such as N12.4.
- The Validation component's **Empty Field** method returns a False value when the **Input Value** parameter contains a string with spaces.

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