Magic xpa 3.3a Release Notes

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New Features, Feature Enhancements and Behavior Changes

The following new features, feature enhancements, and behavior changes are added in Magic xpa 3.3a.

API for Custom Space Monitoring and Administration

Some of the monitor's views and administration commands can be queried/executed using a Java API (jar files).

Mobile Enhancements

The following mobile enhancements are added:

Support for Click**() Functions on iOS and Android

The functions ClickCX(), ClickCY(), ClickWX(), and ClickWY() are now supported on iOS and Android platforms for the following controls:

- Button
- Label
- Link
- Image
- Group
- Combo Box

Supporting DB SQL Where Clause for Local Database

Magic xpa now supports DB SQL Where clause for Local database.

iOS

- Magic xpa 3.3a is compatible to work with Xcode 9.0.
- Magic xpa 3.3a supports asset catalog for App Icons and Launch Images.

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New Property – 'Block UI' for Invoke OS Command Operation

A new property 'Block UI' is introduced in 'Invoke OS Cmd' operation to specify whether or not the command will block the GUI from responding.

Special Flags

The following new flags are introduced:

SpecialEraseLastControlInfoOnStartup

This flag is provided for backward compatibility with uniPaaS 1.9. When this flag is True, LastClicked() function's return value will be reset when task with depth 1 is reached.

Valid values: True, False

Default value: False

SpecialUseBGColorForDisabledEdit

This flag is used to specify if the background color should be used for rendering a disabled text control.

Valid values: Y, N

Default value: N

Additional Documentation

The following document is updated:

Magic xpa - Working with Git Repository_V1.5

This document contains the instructions on connecting Magic xpa to Git repository using PushOK. The document contains the following important points:

- Working with Git
- Branching with Git
- Merging with Magic Merge Tool
- Working with Sourcetree

You can find this document at:
ftp://ftp.magicsoftware.com/xpaproduct/Documents/Magic%20xpa%20-%20Working%20with%20Git%20Repository_V1.5.pdf

Fixed Issues

Defect	Description
147084	An error, 'ORA-01465 – invalid hex number', occurred and no record was found to be updated while binding DSQL via oracle gateway.
147381	If a condition was assigned to a Text Box control's 'Enabled' property, the Text Box color was found to be unchanged.
147466	Loading of an XSD with columns minOccurs=1 or minOccurs=0 was found to be not changing the DS definition properties 'minOccur' and 'Null allowed'.
148269	When using mgconstw.heb and on typing Hebrew and English text together, the cursor was found to be blinking at an incorrect position after the end of typing the English word.
148516	If a .Net object with null value was passed as a parameter to a user-defined function, the remaining parameter was found to be received incorrectly.
148558	In Hebrew version, the pull-down menu Options -> Settings were found to be displayed in Runtime.
148591	On Android devices, the Idle() function was found to be returning long inconsistent numbers when executed it from a non-interactive task.
148594	On Android devices, when 'Visible Layer List' property is updated, the Text control was found to be losing its focus.
148622	The number of records scrolled in one scroll action was found to be about half in xpa than in uniPaaS.
148741	In a particular case, while loading assemblies, the 'mgerror.log' file was found to have multiple entries of "Failed to Load Assembly" errors; whereas Composite Resource Repository showed no assembly load errors.
148818	In a particular case while closing a Batch task the Main Program was getting removed and the application was found to be crashing unexpectedly.
148840	An error, "Cannot set application role '%SQL_APPLICATION_ROLE%' because it does not exists or the password is incorrect.", occurred when Secret Names used in the DB information SQL_APPLICATION_ROLE and SQL_APPLICATION_ROLE_PASSWORD were not translated.
149102	When a new XSD file was loaded into Data Repository, one extra character was found to be appended to the Name attribute in DataSource.xml.
149120	The function LastClicked() was found to be holding a value from the previous program when a task with depth one was called. This problem was rectified using a special flag 'SpecialEraseLastControlInfoOnStartup'.
149229	On iOS devices, Click event on label controls was raised even though the enable property had a 'FALSE' expr attached to it.
149245	In some cases when 'SpecialFullText' flag was set to Yes, the contents of multi-line edit control were found to be missing in the print.
149425	An error, "Web Server was not found. Please re-install Magic xpa after installing a Web Server", occurred while installing Magic xpa3.3 on a machine where Apache Tomcat was installed and IIS server was not installed.

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Defect	Description
149552	On iOS mobile devices, the function 'DataViewToDataSource' was found to return False when there were no records in the source table.
149699	It was possible to park on the Check Box and modify its values even when the Check Box properties 'Modifiable' and 'Allow Parking' were set to False.
149951	The server was found to be crashing when a new window was opened from the Browser Client program's current window containing non-English data.
150606	After migration from UniPaaS 1.9p to XPA 3.3, the value of Combo Box, List Box, and Radio Button was found to be changed on changing the value of Check Box at run time.
150832	While using VersionControlId, virtual and real variables' ISNs were assigned incorrectly under a specific scenario.

Past Release Notes

New Features, Feature Enhancements and Behavior Changes

The following new features, feature enhancements, and behavior changes are added in Magic xpa 3.3.

Enhanced Java Integration

- Magic xpa now supports enhanced interactivity with Java code. It provides integration with Java functionality, which is as productive and easy to use as .NET integration.
- You can now define a new Field/Model of type Java, similar to .NET.

New Web Services Consumer Mechanism

This mechanism will allow the developers to consume Web Services by using Apache Axis2. The consumer side offering of Magic xpa will extend our current WCF based capabilities.

Magic xpa Studio and Visual Studio Enhancements

The following Magic xpa Studio and Visual Studio-related enhancements are added.

Height and Width Inheritance from a Control Model

You can now inherit the Height and Width properties from a model defined for a GUI control.

GUI Output Forms in the Form Designer

GUI Output forms are now available in the new Visual Studio®-based Form Designer, further modernizing the Magic IDE.

Enhanced Ancestor Form

You can now edit the ancestor form from the currently edited form.

Enhanced Help System

The help system has been enhanced, moving from CHM format to a new Responsive HTML format, providing search with partial keywords, ease of browsing the topics, and an improved look and feel.

Right-Align Keyboard Shortcut

The Ctrl+Shift+R keyboard shortcut is now used to align form controls to the right in the Form Designer.

Easy Object Navigation from Version Control

Pressing F5 or double-clicking on an object in the Checked-Out Objects list when using Version Control, will move control to the respective object. Pressing Alt+Enter will open the Object Details screen.

Enhanced Expression Editor

The round and square parenthesis pairs, and the apostrophes appear in color to increase readability of the expression in Expression Editor. This saves the developer from having to count parentheses while editing a complex expression.

UI Enhancements

The following UI enhancements are included in Magic xpa 3.3.

Enhanced Table View

You can now easily set a different color to each row of a table. This has been done by introducing a new option 'Row' to the 'Set Table BG Color' property of a table control.

Support of Alpha Masks

Magic xpa now supports Alpha Masks in Online and Rich Client tasks for Tab Control's Title color, and for the controls ImageButton, Edit, Label, GroupBox, Radio, Checkbox, Image, Table & Child form (Window Type = child).

Password Entry Support by Expression

You can now use an expression to evaluate the Edit control's password property. If the expression is evaluated to True, the password is masked, otherwise the user will see the password characters that are typed.

Browser Control

Magic xpa added a Browser control to GUI Display form and model, which supports all the magic browser functions and events as in RIA.

New Option for Form Start-up Position: Centered to Window

The new Startup Position option 'Centered To Window' opens a new form from a Subform, which appears centered to the window of the subform's parent window.

Precise Table Scrollbar Thumb in Interactive Tasks

A new table control property 'Scroll Bar Thumb' is added enabling users to display precise scroll bar thumb without the need to use the Preload view option.

General

The following are some general enhancements included in Magic xpa 3.3.

Systinet (SSJ) Support

Systinet (SSJ) is not provided within the product since Magic xpa 3.3. Magic now provides Apache Axis2 for Web Service consumption.

Java 8.0 Support

Magic xpa now supports Java 8.0.

CallProg() Function

You can now use the CallProg() function to call a program using the xx.01 value convention, where xx is the program located in the host application and 01 is the generation.

Recursive Components

It is now possible to call the Magic xpa components recursively. Please refer to the help for more details and restrictions.

Online Keyboard Buffering

You can extend keyboard buffering for Online tasks by using the [MAGIC_SPECIALS]SpecialKeyboardBuffering=E flag. This is in addition to the same functionality already available for Rich Client tasks.

Subform Controls – Lock Property

You can now lock the parent task's record while manipulating Subform's child records using the Subfrom control's 'Lock' property.

New Functions to Manipulate the Security File

Magic xpa provides four new functions for security file manipulation: GroupRightAdd(), GroupRightRemove(), GroupRemove(), and RightRemove().

Context Menu Event

You can now write a handler that traps the Context Menu event.

MQSeries - support of MQCSP_AUTH_USER_ID_AND_PWD

Magic xpa Supports MQCSP.AuthenticationType of type MQCSP_AUTH_USER_ID_AND_PWD in the messaging ECF while connecting to MQ.

Note – The two new component programs 'WMQ.Open Destination Auth' and 'WMQ.Open Dynamic Auth' are added having two new parameters UserID and Password.

ImageReload() Function

You can reload the form/control images using the ImageReload() function even if any external tool has changed them.

Note – This function is available in Online and Batch tasks.

Introduction of CXMDI() and CYMDI() Functions

The CXMDI() and CYMDI() functions have been added, reintroducing the functionality that was available in previous versions of Magic using the CLeftMDI() and CTopMDI() functions. The functions return the X and Y locations respectively of a specified control or the last parked control relative to the MDI.

Persistent Form State Version

A new Form property 'Persistent Form State Version' enables developer to indicate if changes are done to the form. The runtime engine thereby decides to use or ignore the previous Form State data.

Cache Files Encryption Using AES

The DES algorithm is now replaced by AES algorithm as a default.

OpenSSL Library Upgrade

Magic xpa now uses the newer version of OpenSSL library.

Mobile Enhancements

The following are some mobile enhancements that are added in Magic xpa 3.3.

On Android, iOS, and Windows 10 mobile devices, the progress indicator now displays a dialog with a title and a message along with a busy icon.

Android Specific Functionality

Update the project target SDK and compatibility libraries to 25: You need to upgrade Android SDK compatibility libraries to API 25 so that your custom applications developed for higher versions will work smoothly on your latest Android devices.

iOS Specific Functionality

Clearing of Cache in Low Storage Situations: On iOS devices in low storage situations, the system clears the Application Cache folder resulting in Magic xpa apps losing their data. This is now handled by storing the app data in Application Support folder which retains its contents even when the storage is low.

Windows 10 Specific Functionality

Here are some provisions Magic xpa brings for Windows 10 based mobile devices.

- Images on Tabs: You can now use images on windows 10 mobile devices on the Tab page in Tab control with BG color.
- URL Start-up: It is now possible to activate URI scheme name on windows 10 Mobile devices.

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Compatibility

- Magic xpa was tested and is compatible to work with Microsoft SQL Server 2017.
- Magic xpa was tested and is compatible to work with DB2 UDB 11.
- Magic xpa was tested and is compatible to work with Oracle12c release 2.

Special Flags

The following special flags are newly introduced or modified in Magic xpa 3.3.

SpecialSha2DigestLength

Magic xpa now uses an SHA2 set of hashing functions to provide strong hashing when it comes to RIA cache files synchronization. This flag allows you to select the key size from the options of 224, 256, 384, and 512 bits.

Valid values: 224, 256, 384, and 512.

Default value: 224

SpecialKeyboardBuffering

When this flag is set Y, keystrokes that cannot be processed immediately will be buffered and sent to the control when it is available. This is relevant for Rich Client and Online tasks when you are parked on a modifiable Edit control.

Valid values:

- N – No buffering
- B – Basic buffering inside an existing editable Label control (This was the behavior up until Magic xpa 2.5c and Magic xpa 3.1 when this setting was set to Y.)
- E – Extended buffering. This option forces the engine to accumulate all keystrokes into a buffer when the GUI thread is locked. It will resend these keystrokes when unlocked, thus allowing for a new form to be opened to receive these keystrokes. Keystrokes are characters, Tab, Shift+Tab, CTRL+x, and Alt+x. The following controls might not accept these keystrokes properly:
    - Push button
    - Combo box
    - Radio

- List box
- Subform
- Tab control

Until Magic xpa 2.5c and Magic xpa 3.1, the valid values were Y and N (default).

Default value: N

Since Version: Existing Since 1.9n and 2.4; Extended Buffering for online tasks added since version 3.3.

SpecialEditOwnerDrawBorder

When this flag is set to Y, an owner drawn border appears around an edit control when in focus. With this the bottom pixels of the value in the edit control are now visible fully which previously used to be displayed as clipped.

Valid values: Y / N

Default value: N

Additional Documentation

The following new documents are added:

1. **Readme.pdf** – This document contains the basic guidelines and instructions for accessing the Magic xpa Servers over the Space as Web Services, using Apache. You can find this document at GigaSpaces-xpa\samples\Web Service using Apache Axis2 under Tomcat\Readme.pdf.

2. **Connecting Magic xpa to Git Repository via PushOK.pdf** – This document contains the instructions on connecting Magic xpa to Git repository using PushOK. You can find this document at: ftp://ftp.magicsoftware.com/xpaproduct/Documents/Connecting%20Magic%20xpa%20to%20a%20Git%20Repository%20via%20PushOK.pdf

Fixed Issues

#	Description
137255	Opening and closing the Form Designer was found to cause the focus to move from the parked entry to another entry.
137906	Records were found to be displayed incorrectly in the Print preview.
138855	Opening the Form Designer of several programs and then the Expression Editor of several programs increased memory consumption of the Studio even after closing the project.
139008	When a program was called on a system event using an accelerator (Alt+ Alphanumeric Key), the cursor was found to disappear and typing was not allowed.
139103	Some characters were found to be lost during runtime while executing a macro to type speedily.
139764	When the Cache Strategy was set to None, the movement of scrollbar thumb was found to be incorrect when moved from the last record to the first record.
140159	A form whose 'Enter Animation' property was set from 'Right' didn't always open from the right.
140562	The GigaSpaces Monitor did not show the client ID of batch requests.
141172	An error occurred while adding records to a Table control that contained a Line control in a specific scenario.
141176	The function 'CurrPosition(0)' was found to fail in the expression ISNULL(CurrPosition(0)).
141397	The accelerators keystrokes (ALT+) on push buttons were found to be handled on the wrong task in Magic xpa. To solve this problem, a new special flag named 'SpecialAcceleratorTiming' is introduced. This flag allows the accelerators to execute on the correct task. It has valid values Y/N and its default value is N. When the flag is set to Y, the accelerators are first added to the events queue and then executed in GUI. Note: It is applicable only for online tasks.
141826	While executing Call By Name for same cabinet file as the calling application, the form state persistency didn't work.
141835	The 'Invalid number' error message belonging to a child task found to remain on the status bar even after closing the child task.
142203	The splash image defined in the Rich Client Deployment wizard's Windows Desktop Settings screen was not saved after restarting the wizard.
142215	The field range value did not behave correctly when a space was typed.
142739	A picture error occurred when pasting a valid number from clipboard while using the thousands separator as a dot and the decimal separator as a comma in combination with SpecialModifiedDecimalSeparator=Y.
142752	Pervasive Gateway didn't seem to reuse the existing cursor when range condition was defined on the main table in a task.

#	Description
143382	While using the cross reference search on an expression, the navigator didn't return to the repositories.
143685	An "ABNORMAL TERMINATION: Out of Memory. While trying to allocate" error occurred while pressing the Page Down button on a single record in a Table control.
144597	The Magic xpa 3.2a ENT1/ENT2 engine on Linux generates files in RIACache folder. In case of missing permissions or missing folder, a misleading error message was found to be displayed.
144770	Trying to retrieve a table definition found to fail while specifying a schema for that table.
144771	Delete a table using DBDEL() found to fail while specifying a schema for that table.
144773	Invoke .NET in an offline program didn't return a value if executed with a background server engine.
145242	The same ItemISN was found to be pointing to two different public names while merging two branches of host in host application.
145401	While using a Table and a Tab control on the same form of an Online program, parking on the second line of the Table stopped the working of Click event on the tab control.
145417	The focus was lost when either of the Parking expressions Flow('P') and Flow('R') was used in the Allow Parking property.
145436	In RC tasks if a form's Horizontal scroll bar and Table scroll bar existed, then scrolling the mouse found to be affecting the form's scrollbar first and then the table's scrollbar.
146127	When PROJECTS_STARTUP_XML is set to a path defined in quotation marks, it was not possible to Start Projects from the Magic Monitor.
146139	On iOS devices, the program found to crash when the user swiped from bottom to top quickly several times so that the displayed records disappear.
146187	On calling a parallel program, the colors modified by ColorSet() function were found to be setting back to the original configuration colors.
146298	After Migration, a Rectangle Control having Style = '2D' was converted to Label which is correct but the Border Style was set to No Border.
146318	HTTP status code didn't appear while using the .NET HTTP Framework or the Java HTTP framework.
146557	The function CndRange() wasn't applied on the virtual variable for local storage databases.
146575	Edit control on table header was found to be displayed with 'Default focus color' even though the focus was on different field.
146689	While using a system event (Alt + Number key), the focus was found to move to the Menu.
146690	The runtime engine was found to crash while clicking on Tab control in a subform under specific circumstances.

#	Description
146742	When multiple cookies were set via RqHTTPHeader() function, only the last cookie was found to be displayed for GS middleware.
146774	The combo box value was found to be unchanged on performing update variable and set item list by expression.
146803	The strings containing '§' character in the argument did not work with GS middleware, though worked fine with the Broker.
146817	The multi-display form was always displayed in the Primary display when the Persistent Form State was set to yes.
146818	The Combo box is found to initialize with a blank instead of an actual variable value when an expression is attached to Item list and Display list properties.
146850	On android mobile devices, the EditSet() function was not working.
146860	Magic XPA Studio failed to load Btrieve and Oracle gateway when the JVM_PATH was incorrect.
146863	The DataViewToDataSource() function erased field values that were not mentioned in the function's argument list.
146864	The DataViewToDataSource() function required exclusive access to Btrieve server tables in order to execute.
146973	The Combo Box was found to be populated with wrong text when the text contained parentheses, a colon, or a star.
147018	When a table column was empty, the column was updated with space as opposed to an empty string, which was used while inserting a new record.
147049	Subform column sort indicator was found to remain visible even if the view was modified in a Rich Client task.
147057	While using the 'Right'KBD literal in the Expression Editor the expression was written properly whereas on closing the Expression Editor the literal was found to become empty.
147153	If projects are started with MGPART and MGENT/MGRIA licenses, then all the projects were displayed under both license types in GS Monitor.
147179	On iOS devices, it was found that the soft-keyboard could not be closed when the user clicked anywhere on the form.
147264	Editget() function didn't return a value on a Push button.
147288	Range/Locate window didn't display 'Range to' value if opened from the property sheet of that variable even when a range value is attached to Range/Locate using an expression.
147374	The "System.ArgumentNullExpection" error was logged when a Tree control was used in an Online program under a specific scenario.
147473	On iOS devices, the DataViewToDataSource() function was found to fail with an error 'DataViewToDataSource - Failed to update destination data source' when the local data source had no records.
147476	The Checker was found to throw an error, "Invalid casting from value to .Net type" for DNset() function when a user-defined function was called to set the font.

#	Description
147487	In a RIA application, the tool images were not displayed if the server and client machines are different.
147508	ColorSet() and FontSet() functions didn't properly work for all controls when a subform was placed on form and its Z-Order was less than all the other controls' Z-Order.
147524	An error "Unhandled exception has occurred in your application" is displayed in a rich client program, while parking in a called program that resides in a subform, and recalling the same program through the calling program.
147591	A difference in behavior between UniPaas and xpa was observed while invoking the F6 user event
147623	In a clustered environment setup of Gigaspaces involving multiple machines and having space and Magic xpa servers on different machines, the Magic xpa projects were not getting started automatically. They had to be started only via the Magic xpa Monitor.
147666	A wrong error-handling behavior was observed when a group level was defined in a task. The same behavior was observed when the group level lines were existent and disabled.
147675	The attached WSDL with WCF component was found unable to load and giving the error 'Cannot Import wsdl', which occurred due to the same string specification for namespace and interface name.
147682	'Program not found (-131)' error was generated while running web merge form when DefApp and DefProg were set in MGREQ.INI file.
147711	Magic xpa was found to update a record even when it was locked.
147713	The task suffix was not executing while using a .NET control in a subform and having left the subform using a mouse click.
147751	A runtime error "Conversion Failed when converting date and/or time from character string." occurred while locating on a DATETIME column.
147922	An '[MgGui.dll] System.NullReferenceException' error occurred If the main program's pull-down property was attached with an expression to an invalid menu entry.
147925	A call to a program using Call By Expression failed under certain conditions.
147962	While using the ColorSet() function, the xpa runtime was found to crash sometimes.
148009	While using the DataViewToDataSource() function, if a virtual field was used in source list fields then incorrect data was copied to the local table alpha field.
148025	In a particular Direct SQL scenario having result database as MSSQL, the temp table was created with large size resulting into an error "DB error - The size (65534) given to the column 'TMPFLD2' exceeds the maximum allowed for any data type (8000)".

#	Description
148067	On Android device while using CTRLGOTO() function, if the control was moved to the field with property 'Open Edit Dialog=Yes' then the focus went on the control. However; the keyboard didn't open.
148110	On Android devices, when Edit Dialog Horizontal Alignment is set to RIGHT, the text was found to appear aligned to the left while editing.
148112	The environment variables like USERDOMAIN and COMPUTERNAME sent from a RIA Client are not retrieved by GetParam() function in the server when 'SpecialExcludeServerSideEnv=Y'.
148315	The Magic xpa 3.2 was found to crash with an exception error when a program is opened from the main menu.
148330	In RC tasks, the parent window didn't get focus immediately after clicking it from the task bar; it needed multiple clicks to get focus when the child window was in focus.
148633	The Magic xpa Runtime was found to crash when the handler was on the parent task and had a level(0) function in the enabled expression.

Magic 3.2e: New Features, Feature Enhancements and Behavior Changes

Center Screen in RIA Support

Support for 'Center Screen in RIA' is added which works similar to 'Center Screen in Online' functionality. The currently located record will be positioned in the center of the screen for Rich Client tasks in the below-mentioned scenarios:

1. Opening a task using a studio Locate, or using LocateAdd in the Task Prefix.

2. View refresh (mode =1) after locating on a record.

3. Locate in Query.

4. After switching between Create and Query/Modify modes.

Note: It is not supported at the initial task opening time, for offline programs, and for running on mobile devices.

iOS - Retention of Cache in Low Storage Situations

In Low Storage situations on iOS devices, the system clears the Application Cache folder resulting in Magic xpa apps losing its data. This is now handled by storing the app data in Application Support folder which retains its contents even in low storage situations.

Magic 3.2d: New Features, Feature Enhancements and Behavior Changes

SQL Enhancements

- A new database property named ONLINE_ARRAY_FETCHING was added to the MSSQL DBMS to allow you to disable the array fetching functionality in Online tasks.

Online Calling Batch – Behavior Change

- When a Batch with no screen calls an Online program with a destination set, there will be a search for this destination in the current task and also in ancestor tasks. This change was made to provide better backward compatibility with the old splitter child mechanism.

RIA Session Hijacking Prevention

- A new special setting named **SpecialRIAGenerateAndValidateSessionID** was added to provide enhanced security functionality and empower the session hijacking prevention.

Mobile Enhancements

- A new Accessibility Text property was added to the controls on the form providing you full control over the text that will be read when the device is defined to support users with visual impairments.

iOS 11 Support

- Magic xpa was tested and is compatible to work with the iOS 11 operating system.

Magic 3.2b: New Features, Feature Enhancements and Behavior Changes

Table Control Enhancements

- You can set the row highlight color of the Table control when the task runs in a subform and the task is not in focus. You do this using the **Inactive Row Highlight Color** table property.

- You can set whether an ellipsis will be shown in the column title if the title text is larger than the column's width using the new **Show Ellipsis** table property.

- You can now place Table controls on Tab controls in Online tasks.

Group Control Enhancements

- For Display forms, you can set the color of the Group control's border using the **Border Color** property and the new **Style** property.

Backward Compatibility Special Settings

- When a maximized form calls a non-maximized form, you can determine whether the called forms' size will be maximized or whether the caller forms' size will be restored. You do this using the **SpecialRestoreMaximizedForm** flag.

- You can set Edit controls to always be aligned to the left while editing using the new **SpecialEditLeftAlign** flag to **Y**.

- In Runtime, when a task is in Modify mode and the cursor moves to an Edit control, you can set that the BG color of the control be ignored (and instead a white color will be used). You do this by setting the new **SpecialIgnoreBGinModify** flag to **Y**.

Upgrade Enhancement

The Upgrade process can now set the Tab control color and Column control color according to the form color if their color was transparent.

DPI-Aware Runtime Engine

By default, the Runtime engine is now DPI-aware. To maintain the previous behavior, where the Runtime engine was not DPI-aware, for Online apps, change the **DPI-Aware**

environment setting to **No** and for RIA apps, change the execution properties'
DPIAware key in the published html file to **No**.

WCF Service Improvement

The .NET objects generated from a WCF service are now stored in a namespace. This makes it easier to understand which object belongs to which service.

Batch Task Enhancements

- Using the End User Functionality component, you can once again open the Range screen before a Batch task starts and apply this range on the Batch task data.

- When the engine is loaded with a Client license, the maximum number of Batch programs (which did not call an Online program) that can run simultaneously has been increased from two to ten.

Mobile Enhancements

- On Android devices, when a color is set for Combo Box controls, both the border and the item arrow are shown.

- On Android devices, when executing the ClientFileCopy function on a file placed in external storage, a request to approve the External permission will be shown to the user.

- On Android devices, to open a PDF file, it is no longer necessary to copy the file to a shared folder.

- On Android devices, the user will not need to select a cropping application when taking a picture using the ClientImageCapture function when the Allow Crop option is set to True.

- For iOS devices, pictures taken using the ClientImageCapture function will now be saved with all of their metadata (This is already supported in Android).

Studio – Argument Repository Height Increase

The height of the Argument repository was increased.

Microsoft® Windows Server 2016 Support

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

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LiveCharts Samples

Samples for working with LiveCharts were added – LV01-LV03 and RLV01-RLV03 in the Online and Rich Internet Samples.

Magic 3.2a: New Features, Feature Enhancements and Behavior Changes

Export Data to Excel

You can give your end users the ability to export data from a table into an Excel file. You can even give them the ability to generate a chart out of their data. You do this by sending the value of **1** or **2** as the parameter value to the **Print Data** internal event.

Enhanced Upgrade Manager

Images were added to the Upgrade Manager wizard's Configuration screens to better illustrate the changes that can be automatically made to your programs using the wizard.

Form Designer Enhancements

- When pasting a control on a Group control, it will be attached to the Group control.

- In RTL projects, if you change the value of a control's **Width** property, the control will be resized from the left, keeping the right side as-is.

Expression Editor Enhancements

- When in multiline mode, you can use the new Word Wrap icon to wrap every line that exceeds the line's displayed width to the next line. This makes it easier to use the editor when there are long expressions.

- You can prevent the list of suggested functions from opening automatically by using the **SpecialExpressionAutoComplete** flag.

- The Control list now also displays controls from parent tasks.

Backward Compatibility Special Settings

- The **SpecialRefreshControlProperties** flag was added to support refresh of the controls properties as was done in uniPaaS.

- The **SpecialFlatEditOnClassicTheme** flag was added to support 2D appearance on Edit controls when the **Use Windows XP** property is set to **No**.

View Refresh Improvements

If the RangeAdd, LocateAdd or SortAdd functions are used in the Task Prefix, the values defined in them will be used when the data is fetched. It is no longer necessary to use View Refresh in the Task Prefix after these functions, saving you development time.

Logo File Setting

The **Logo File** environment setting is once again available and lets you select and use a splash screen when opening an Online application.

HTTP Framework

The HTTPxxx functions now use a .NET library as the underlying HTTP library. This functionality together with the Java-based implementation added in V3.2 provides full support in TLS 1.2.

RIA Security Enhancements

- The **SpecialClientSecureMessages** supports the HTTPS protocol in addition to the HTTP protocol.

- The **SpecialExcludeServerSideEnv** has been extended and now does not send the following items to the client: environment settings (except the [MAGIC_ENV] and [MAGIC_LOGICAL_NAMES] sections, and any other user section created by the developer), internal global parameters and the Project directory. When using this flag, the ProjectDir function will return a blank value when executing on the client side.

- You can now use the Advanced Encryption (AES) algorithm to encrypt the cache files by setting the **SpecialRIAEncryptAES** flag to **Y**.

- Until V3.2a, cache requests and references contained the requester reference of the **InternetDispatcherPath** setting from the Magic.ini file. This was unnecessary and is, therefore, no longer attached to the cache files. Now the requester will be taken from the **execution.properties** file. To use the previous behavior, set the new **SpecialAddPathToRIACacheRequests** flag to **Y**.

Space Middleware Improvements

- You can select multiple statuses in the GigaSpaces Monitor's Requests log window.

- You can specify a default username and password for non-RIA Web requests in the GigaSpaces middleware using the **-Dcom.magicsoftware.xpa.DefaultUserNameAndPassword** system property.

New GigaSpaces Seminar

A new seminar showing you how to use Magic xpa's In-Memory Data Grid middleware is now available. You can download the **Lifting Off into Space-based Architecture with Magic xpa 3.x** PDF at: http://www.magicsoftware.com/resources#selfpace.

To take the course in a classroom setting, please contact your local branch.

Mobile Enhancements

- A dedicated function named **ClientImageCapture** was added to capture images from a camera or image gallery and saving it in a defined size while applying compression on the result. You no longer need to use native code to compress your image. However, you can still use the native code if it better suits your needs.

This function also provides the ability to the user to crop the image after it was taken.

- You can now define the GPS timeout for your mobile apps by using the enhanced **ClientOSEnvGet ('device_location|xxx|yyy')** function syntax.

- From Android 6 and above, if your app needs to access the GPS, a screen will appear asking for permission to access the device's location.

- You can secure an Android or iOS app's screens by making them not visible when switching between apps by setting the **SecureRecentApps** application execution property to **Y**

- Row placement for columns is now supported for mobile devices.

- Similar to Android devices, you can now override the DPI of iOS devices in the **custom_dpi.txt** file. This helps prevent issues with DPI when new devices are released.

- When selecting an image from the gallery on Android devices using the **ClientFileOpenDlg** function, the image will now be copied to a temporary file in the cache folder, instead of the original image path.

- You can now easily ask the user to approve specific permissions when running native code on Android devices.

- A sample for syncing data between the server and the client was added – RDS01 in the Rich Internet Samples.

- A new sample for using the Touch ID capabilities was added for Android devices.

- You can now easily use third party fonts in your Android and iOS apps.

- The Android Push Notification sample was updated and is now based on Google Firebase. If you are updating the Magic xpa 3.2 installation, you need to manually delete the following files:

  o From the RIAModules\Android\Source\app\src\main\java\com\magicsoftware \magicdev folder, delete: GCMBroadcastReceiver.java, GCMHelper.java and Push.java.

  o From the RIAModules\Android\Source\app\libs folder, delete: gcm.jar and google-play-services.jar.

  If you used push notifications in your application, you also need to make some changes in your application as defined in the **Sending and Receiving Push Notifications** topic in the *Magic xpa Help*.

Android 7 Support

Magic xpa was tested and is compatible to work with Android 7.

Platform Comparison Chart

A handy chart is now available detailing the Magic xpa features that have different behaviors for the various mobile devices. You can find the chart in the **Platform Comparison** topic in the *Magic xpa Help* and at the end of the **Developing Mobile Applications.pdf** file, which can be found in the **Support** folder.

Display Names

The descriptive name in the **Display Name** variable property is now used in the Print Data Wizard and can be used in the Report Generator.

DataViewVars and DataViewVarsIndex

The DataViewVars and DataViewVarsIndex functions have an additional option that lets you return table variables only.

Tab Control Accelerators

Accelerator keys for Tab controls are supported again, giving the end users a quick way to move between tabs.

Web Services as a Data Source

Several enhancements were made to the Web services as a data source functionality.

Note: As in the previous version, this feature is only available if you set the **SpecialWebServiceDataSource** flag to **Y**. In future versions there will be no backward compatibility regarding the schemas being used to describe the Web Service data source entries. We recommend consulting with MSE before using this feature in order to understand its scope and best usage.

Change to Source Files

Due to an internal change in some of the source files' structures, once you open the project in Magic xpa 3.2a, you can no longer open it in prior versions.

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Magic xpa 3.2: New Features, Feature Enhancements and Behavior Changes

Windows 10 Mobile Support

The Magic xpa RIA client is now capable of running on Windows 10 Mobile™ devices.

iOS 10 Support

Magic xpa was tested and is compatible to work with the iOS 10 operating system.

Java 7.0 Support

Magic xpa was tested and is compatible to work with Java 7.0.

Web Services as a Data Source

Web services are sometimes used as a means to access data in large organizations, instead of using database clients. Magic xpa 3.2 now provides a native development paradigm to support data access via a Web service. Once defining the data source as a Web Service data source, the developer can use the data source in native Magic programs. A new Web Service Data Source builder was added to allow the easy creation of Web services on the provider side.

Note: This feature is only available if you set the **SpecialWebServiceDataSource** flag to **Y**. In future versions there will be no backward compatibility regarding the schemas being used to describe the Web Service data source entries. We recommend consulting with MSE before using this feature in order to understand its scope and best usage.

Compare & Merge

A third party Compare & Merge tool, supporting Magic xpa's XML metadata format, is now available. This tool provides a graphic UI for identifying conflicts that may arise when merging between different project branches, and allows an easy method of choosing the source to be merged.

Please refer to the *Magic xpa Help* for information about how to define the Merge & Compare tool in your development environment. To obtain this tool and take full advantage of this functionality, please contact your local representative.

Prerequisite Changes

The minimum .NET version for C/S and RIA applications is 4.0 instead of 2.0. .NET framework 2.0 is no longer supplied with the installation.

Form and Control Property Enhancements

- Additional functionality has been added to the Edit control's **Hint** property:
  - The property is supported for Windows desktop (in addition to the existing mobile support).
  - The property supports the use of expressions.
  - You can define the foreground color of the hint's text.
  - When a translation file is defined, the Hint value is automatically translated.

- You can use pixels as a form's unit of measurement.

- You can define the color of a selected tab page.

- You can define the style of a check box's border.

- The Rich Edit appearance control's **Border** property has been replaced by the **Border Style** property.

Form Designer Enhancements

- When models are available for controls, you can right-click on a control in the Toolbox and select the required model from the context menu. The **Reset Toolbox** option has been moved to the Studio's **Options** menu.

- You can see checker and find-reference results in the Form Designer.

- The Task Variables pane has been renamed to the Variables pane. This pane now shows variables from ancestor tasks, and also includes search capability.

- Similar to the non-Visual Studio property sheet behavior, in the Form Designer's property sheet, pressing **Esc** saves any changes made.

- In the Form Designer, the values of the **X**, **Y**, **Width** and **Height** properties are displayed on the status bar.

- You can change the text of the Check Box, Group, Label, RTF and Column controls, by pressing **Enter**.

- The Edit control supports transparent colors.

- An **Inherit All** option is available in the Form Designer's **Model** property. This allows you to inherit all of the properties defined in the model.

Text-Based Forms in Visual Studio Format

Text-based forms are now edited in the Visual Studio-based Form Designer. In the text-based Form Designer:

- The **No Dividers** command for Text-based forms from previous versions is not supported.

- Dragging the splitter affects the height of the upper form only. The bottom form will only be moved and not resized.

- It is possible to collapse and expand a form using an icon in the divider area.

- The Undo/Redo is done on the last action performed on any of the forms (not just the current form).

Upgrade Process Enhancements

- You can run the Magic xpa upgrade process via the command line, outside of the Magic xpa Studio. This functionality allows you to write batch files to easily upgrade multiple projects multiple times.

- The Upgrade process can now:
  o Add title areas to Table controls that do not have a title area, so that the labels will be moved to the **Column Title** property.

  o Convert Edit controls with an expression on the column title into the Column Title expression.

  o Create OK user events to replace the non-supported OK internal event.

  o Create a context menu for RTF controls and assign it to the controls.

Additional Mobile Changes

- A new Android and iOS native code sample was added for audio recording and playback.

- For mobile devices, pictures from cameras are saved as .jpg files with all of their metadata. Until version 3.2, pictures on iOS devices were saved as .png files.

View by Key Functionality

- The View by Key functionality that was available in V1.9 using Ctrl+K, is once again supported via the End User Functionality component. For this purpose, the following was added to V3.2:

  o The **Index Change** event changes the index of the main data source in a task.

  o The **DataViewIndexNames** function returns the index names of the main data source defined on the task.

  o The **DataViewIndexSegmentNames** function returns the segment names of a data source's index.

Special Settings

- The **SpecialDisableMouseWheel** flag lets you define whether the mouse wheel will scroll through records in screen mode.

- The **SpecialXMLViewCreateOptional** flag lets you define whether optional compound elements with no simple elements under them will be created when inserting a node.

Replacing Repository Objects

You can replace any repository object with another object of the same type as was possible in previous versions.

Environment Setting Addition and Change

- The new **HTTP Framework** environment setting lets you define Java as the underlying HTTP library to use for the HTTPxxx functions. Using Java provides enhanced support in TLS 1.2.

- The **Century Start** environment setting's default value was changed from 1920 to 1930.

Application Properties Enhancement

In the **Application Properties** dialog box, you can zoom to select the external files.

Fetching a Single Record Limit

Link Query operations for Oracle, MSSQL and ODBC databases are now limited to fetching a single record, even if the cursor returns more than one record. You can

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maintain the previous behavior of not limiting the fetch to one record by setting the **LimitLinkToSingleFetch** keyword to **N** in the **Database Information** property.

Opening Projects from Major Versions

When opening a project, the last opened projects list is no longer shared between major versions of Magic xpa. This prevents unintentionally opening projects from a different major version, which might result in an unintentional upgrade.

Validation with Third Party Tools

You can add the **schemaLocation** attribute to newly generated XML files to enable validation tests using third party tools. This is done by using a new property added to the XML data sources.

Result Sets in Oracle

You can use result sets in Oracle stored procedures.

Space Middleware Improvements

- The underlying GigaSpaces infrastructure was updated to version 11.

- The support for posting XML files to a Magic xpa server was improved. You can now disable URL-decoding according to selected values of the HTTP header 'Content-Type' that is (optionally) sent within HTTP requests using the **-Dcom.magicsoftware.xpa.ExcludeUrlDecodingForContentTypes** system property.

- You can now increase the concurrency of the **HttpRequestsConvertor** and **HttpResponsesConvertor** event containers using the optional **MgxpaGSSpace.properties** file.

- Multiple RIA clients from the same machine consume one (RIA) license, similar to the behavior when using the broker.

- The reserving of licenses is managed per project and not per servers/workers. For this purpose, a number of changes were made:

  o In the Monitor, the **Reserved Workers** and **Floating Workers** columns were combined into one column displaying the total number of workers. In addition, the license reservation information is displayed in the **License Usage** pane.

- In the **projectsStartup.xml** file, the **WorkersCountReservedForThreadsBased** and **WorkersCountReservedForUsersBased** command line keywords were removed and the **ReservedThreadsLicenses** and **ReservedUsersLicenses** attributes were added.
  Note: For projects created in earlier versions of Magic xpa 3.x, the **WorkersCountReservedForXXX** keywords will be ignored.

- The **projectsStartup.xml** file was improved and repetitive values can be defined once in the new (optional) **CMDLineArgs** attribute in the **Projects** element.

- The log4j infrastructure was updated and is based on log4j V2.5.

- The host ID and PID were added to the log file names to provide easier identification of the log files in a clustered environment.

- The **BASIC** logging level can now be set for the Space middleware in the **log4j2.xml** file.

- The log file will not exceed 10MB.

- The **StopProjects.bat** file was renamed to **ShutdownProjects.bat**.

- In the **setenv.bat** file, a number of GigaSpaces environment variables, such as **LOOKUPLOCATORS**, were renamed.

- The **PollingIntervalMs** setting was removed from the Mgreq.ini file. (The setting was redundant because the Web requester waits for a response rather than polls.)

- The **Default Space** option was removed from the **MessagingServer** setting in the **Magic.ini** and the **projectsStartup.xml** files. Starting from version 3.2, when a Magic xpa server is started by a GS agent, it is automatically directed to the grid according to the **XAP_LOOKUP_LOCATORS** environment variable set in the **GigaSpaces-xpa\bin\setenv.bat** file of that GS agent.

- The GigaSpaces Monitor's **Restart Project Gracefully** option lets existing clients continue working, while new clients are immediately able to use the upgraded application. The **Shut Down Pausing Servers** option lets you pause and shut down a physical server, to be used before a server machine is shut down.

- The GigaSpaces Monitor's **Requests log** window contains **Client ID** and **User Name** columns. The **Status** column now has a drop-down list to enable you to filter requests according to their status.

- The GigaSpaces Monitor's **Contexts** window contains a **Status** column.
- The GigaSpaces Monitor's **Servers** window was enhanced to better show the projects and the servers that are defined for them.
- When starting projects using the GS-agent (from the **projectsStartup.xml** file), the project name is automatically used as the value of the **ApplicationPublicName** setting.

Outdated Utilities and Removed Files

- The Builder Data Converter, INI Conversion and v9 Migration UI utilities were removed.
- The **Scripts\RIA folder** was removed.

Magic xpa 3.1b

Magic xpa 3.1b included fixed customer issues.

Magic xpa 3.1a: New Features, Feature Enhancements and Behavior Changes

Controls on Multiple Columns Support

Controls placed on a table can be shown on multiple columns using the new **Multi Column Display** property. This property provides backward compatibility for uniPaaS 1.9 applications.

WCF – Message Contracts Support

The WCF consumption capabilities were enhanced and you can now generate message contracts for the WCF client.

Invoke UDP Operation – GUI Thread Execution

The Invoke UDP operation's new **UDP Type** property determines whether the UDP will run on the Runtime engine's GUI thread (main thread) or background thread.

Space Middleware – Manual Startup

When selecting to install the Space middleware as a service, the service's **Startup Type** is now set by default to **Manual**.

RIA Security – Server Side Settings

Using the new **SpecialExcludeServerSideEnv** special setting, you can control whether to send the following environment settings to the client: **StartApplication**, **Default Broker**, **EngineDir**, **WorkingDir** and **TempDir**.

Version Control Project ID

A new value named **VCProjectID** was added to the EDP. This setting is similar to the **Version Control ID** environment setting and if defined, a prefix is added to the current ISN number of objects in the source files. The purpose of this setting is to provide a distinguished ID for the representation of internal objects in the source files. This provides the proper infrastructure for third party apps, such as compare and merge tools. Note that the RM Converter utility does not support applications that use this setting.

The **VCProjectID** setting is designated to provide support for branches while the **Version Control ID** environment setting is designated to provide future support in multiple check outs of the same object in the same projects.

Note: The **Version Control ID** environment setting was limited to numbers between 0-31.

Upgrade Manager

A new message was added for controls with expressions on their X and Y properties when the X and Y values were changed during the upgrade process.

Microsoft® SQL Server 2016 Support

Magic xpa was tested and is compatible to work with Microsoft SQL Server 2016.

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Magic xpa 3.1: New Features, Feature Enhancements and Behavior Changes

Form Designer Improvements

- The performance of the Form Designer was enhanced.

- Frames forms now work with the new Form Designer. There is a new **Frames Layout** property where you define the frame layout of the form.

- You can view the ancestor form by selecting the form from the drop-down list in the toolbar.

- The Quick Expression Editor is now supported in the **Properties** pane.

- You can now create, modify and delete fonts and colors directly from the font and color picker by using the buttons at the bottom of the repository.

- You can now inherit and assign expressions to multiple controls.

- The Document Outline was enhanced with filtering capabilities.

- In the Model selection list only the applicable models are displayed instead of all of the models.

- The **Cancel (Ctrl+F2)** option was added to the **Edit** menu.

- You can select all of the controls on a table without the table itself by doing one of the following:

  o Press **Shift+Click** on the table.

  o Click on the table, then click on the action arrow on the top right side of the Table control and choose the **Select attached controls** option.

  o Click on the table, then click the **Select attached controls** link at the bottom of the property sheet.

- When parking on a field in the property pane, you can now move between properties using the keyboard.

- You can now expand a property and see the expression by pressing **Alt+Enter**.

- An expanded property will remain expanded when moving to another control.

- The **Go to Object** and **Return from Object** options are supported for subforms and frames.

Expression Editor Improvements

- The Wide mode now displays the client/server indicator.
- The **Validate** button was added.

End User Functionality Enhancement

The End User Functionality now includes the following enhancements:

- You can now do a range on partial text in your data using the new **Contains** field added to the range.
- Choice control values are now seen in the **Range** and **Locate** screens. For the purpose of this feature, new functions were added:
  - **VarControlID** – Returns the index of the control attached to the variable.
  - **ControlItemsList** – Returns the Items List property value defined in the control.
  - **ControlDisplayList** – Returns the Display List property value defined in the control.
- You can now zoom from a control in the Range/Locate screen and select values from a selection table defined on the original control. For the purpose of this feature:
  - The **ControlSelectProgram** function was added. The function returns the **Select Program** property value defined in the control.
  - The Call by Exp operation was enhanced and now supports calling a program that exists in a host application.
- A new **Display Name** variable property was added to let you enter a descriptive name for the variable. This name will be used as:
  - The label (next to the variable) when dropping a variable on the form or using the APG utility.
  - The default **Hint** property value (for mobile apps) when a variable is dropped on the form with the **Shift** key pressed.
  - The column Title value when dropping a variable on the table or using the APG utility.
  - The control name in the Range, Locate, and Sort screens.

  The new **VarDisplayName** function returns this value.

- You can now easily define complex ranges by using the **Advanced** tab in the **Range** screen. The **RangeExpAdd** function was added for this purpose. This function adds filtering criteria to the range, such as 'A>5 or A<2', so that the next time the view is refreshed, the new criteria will be used (in addition to the range defined in the task).

Runtime Form Designer

You can now make changes to the form during Runtime mode. The Runtime Form Designer provides the following functionality:

- Move controls on the screen by dragging and dropping and by using the keyboard. You can even move controls from one tab to another.

- Resize the controls.

- Hide (and restore) controls.

- Change some of the controls' properties, such as **Color** and **Font**. The changes can be saved per each user or in a central location.

The following elements are provided to use the Runtime Form Designer:

- **Open Form Designer** event – Opens the Runtime Form Designer. This event has an optional parameter, Admin mode, to define whether the end user can delete controls or see hidden controls.

- **Controls Persistency Path** environment setting – This setting governs the location of the files generated by the Runtime Form Designer.

- **ControlsPersistencyClear** function – Clears the persistency of the controls.

Table Controls

- You can now use the new **Fill Width** property to determine whether columns will be spread over the width of the entire table. This lets you automatically resize the other columns if a column gets hidden or visible or if a vertical scroll bar appears.

- You can now define the color for the table area without columns. When the **Set Table Color** property is set to **Column**, the value set in the **Color** property of the table will be used for the remaining area after the last column.

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- It is now possible to filter data during runtime using a filter indication on the column. This is done by using the **Allow filtering** column property. Once defined, a filtering screen from the End User Functionality component will be shown to the end user. The **Column Filter** event was also added for this feature.
- The **Title BG Color** property now has support for Windows in addition to Android and iOS.
- You can now place controls over the table title.
- You can now define the color of the column dividers and line dividers using the **Divider Color** property.

Tab Controls

- You can now define the color of the tab's title by using the new **Title Color** property.
- You can now define the color for the tab's title items when the mouse cursor hovers over them using the **Hot Track Color** property.
- You can now define the amount of space around each tab's caption using the **Title Padding** property.
- You can now define that each tab be evenly spread across the entire width of the Tab control using the new **Fixed in Line** option in the **Tabs Width** control property.
- Left and right tabs are now supported.

Combo Box Controls

The **2-D** style was added to the Combo Box control to provide the same appearance as in previous uniPaaS versions.

Group Controls

The new **Top Border Margin** property defines if the top border will be seen with a margin when the group has no text.

Radio Button Controls

The **Border Style** property was added with **2-D**, **3-D Sunken** and **No Border** options.

Edit Controls

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You can define the focus color of all the Edit controls using the new **Default Focus Color** environment setting.

MDI Form

It is now possible to show static controls on the MDI form. Unlike previous versions, there is no need for a separate form; you can place the controls directly on the MDI form defined in the Main Program.

Executing SQL Statements

You can now execute SQL statements directly in your task, without creating a dedicated task for it. Two new functions were added for executing an SQL statement:

- **SQLExecute** – This function executes an SQL statement on the server-side.
- **ClientSQLExecute** – This function executes an SQL statement on a local database.

Refreshing the Data of Choice Controls

The new **ControlItemsRefresh** function was added to refresh the Items list of a specific control. This function is useful when you have controls that get their Items List from a data source and the end user adds entries to the data. You can then use this function to see the new entries in the control.

Dynamically Change Fonts and Colors

It is now possible to dynamically change the value of the fonts and colors using the new **FontSet** and **ColorSet** functions.

WCF Consumer Components

Magic xpa now provides WCF consumption capabilities, including the loading and executing of WCF Web services. Access to the WCF services is provided using .NET integration via Magic's Composite Resource Repository (CRR).

Create Cabinet File without Using the Studio

You can now create a cabinet file (ECF) from the project sources without using the Studio. This is done by an additional option added to the **MgxpaSettings.exe** utility.

This functionality is often required if you create the cabinet files in a customer location where you do not have the Studio installed.

Local Databases – Encryption

The Local database now also supports encryption on the Windows desktop client.

Environment Settings

- The **Range/Locate Box Popup Seconds** and **Sort/Temp Box Popup Seconds** environment settings are now supported as in version 1.9.

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- The **Version Control ID** environment setting was added. This setting adds a prefix to the current ISN number of objects in the source files. The purpose of this setting is to provide a distinguished ID for the representation of internal objects in the source files. This provides the proper infrastructure for third party apps, such as compare and merge tools. Note that the RM Converter utility does not support applications that use this setting.

Menus

If there are a large number of menus that do not fit the menu bar, an additional arrow will be shown to let you display the additional menus.

Fonts

Non-TrueType fonts are now supported for forms in order to have the same form size as in previous versions.

Print Preview

- The focus on the print preview window remains even if there is logic in Magic that changes the focus to another control.
- You can now close the Print Preview window using the **Esc** key.

HTTPCall Function – Encoding

It is now possible to encode the entire URL string sent using the **HTTPCall** function by defining @ as the first character in the URL string.

Additional Functions

The following two functions were added for converting values from form units to a value in pixels and vice versa: **FormUnitsToPixels** and **PixelsToFormUnits**.

RIA Client Cache Files

The application execution file now has an optional setting, **ClientCachePath**, where you can set the location on the client where the cache files will be created.

Upgrade Manager Utility

The Upgrade Manager utility is provided to make the upgrade process easier. The utility will show you the changes done automatically to your applications and the steps that you need to do manually.

For each item, you will see detailed information about the required change and you can go directly to this object in the studio.

The Upgrade Manager utility is opened after the upgrade process ends and can then be re-opened from the **Tools** menu.

Upgrade Process Improvements

The following improvements were done to the upgrade process in order to minimize and reduce the manual work required:

- The upgrade wizard is opened when opening or importing applications.
- Creating new fonts and assigning them to controls to easily change non-TrueType fonts to other fonts.
- Creating new colors and assigning them to controls to replicate the uniPaaS 1.9 appearance.
- Labels are converted to column titles even if they start a few pixels before the column starts.
- Controls placed on a Table control's column or a Group control, but not attached to it or attached to another column or a Group control, are now attached to the proper control.
- Additional information was added to the upgrade log file.

Magic and SQL Server Default Mapping Change

The mapping between a large Numeric field and the database was by default **Binary**. Now the default is **CHAR**. If you have existing data in binary fields, you must specify **Binary** as the SQL Type for this specific field in order to keep the previous mapping.

Space Middleware

- The deployment of the space and the startup of Magic xpa servers in a cluster are now automatically handled by one GSA in the grid. In addition, the servers only start up if the space was successfully deployed by the current GSA.

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- You can now stop a specific instance of a project from the command line.

- You can use the **DefaultApplicationAndProgramNames** system property to define the default application and program names whenever the APPNAME or PRGNAME is missing in the URL.

- The **DefaultErrorFormatFileName** system property is used to define a customized error template into which error details are merged before being sent to the Web requester. You can also set this in the **Magic.ini** file's **[JVM_ARGS]** section for errors returned directly by Magic xpa servers.

- The **Install_GSA_service.bat** file and other files are installed in the **GigaSpaces-xpa\OS_service** folder allowing you to start the grid as a service.

- **Worker Request Polling Interval** environment setting – This setting controls the interval, in milliseconds, in which a server checks for unhandled requests in the Space.

- **Maximum Number of Contexts** environment setting – This setting specifies the maximum number of contexts that are handled by a single Magic xpa server.

- The Space middleware, like the broker, is now able to automatically load a new Magic xpa server when receiving a request and there are no available servers to serve that request.

- When Magic xpa servers are started from the grid (**projectsStartup.xml**), the **Server Address** property in the **Magic.ini** file is ignored and the **LOOKUPLOCATORS=** set in the **GigaSpaces-xpa\bin\setenv.bat** file is used instead.

- The Tomcat Web Requester can be used instead of, or in addition to, the ASP.NET Web requester.

- A new Space Monitor application log based on the log4net infrastructure is now available in the **MgGSMonitor.exe.config** configuration.

- A server entry in the Magic xpa GigaSpaces Monitor now has a new status: **Waiting for GS Agent**. This status means that the GSA will keep retrying, every 60 seconds, to restart the Magic xpa server.

- You can now filter the information displayed in the Magic xpa GigaSpaces Monitor by parking on a specific server or context.

- From the Magic xpa GigaSpaces Monitor, you can now start and stop a Magic engine, terminate a context, and terminate a pending request.

Space Databases

- Direct SQL can now be used for execution commands (commands that do not retrieve records).

- The **Part of Datetime** column property is now supported.

- Most of the database functions are now supported when using the Space database.

Single Sign-on Support for RIA Clients

Single Sign-on for RIA clients is now supported. The user's authentication on the client machine can be sent to the Web server and on to the application server for use with LDAP or Active Directory within the Magic application.

Mobile Changes

- Magic xpa now supports the Android Studio and uses the Gradle tool for compiling the APK file. To compile the client, you need to install the Android Support Repository and Android Support Library component from the **Extras** folder in the Android SDK Manager. When compiling the client, you must have internet access (at least on the first build) in order to download all of the Gradle components.

- The Android folder structure was changed.

  o The source files are now located at:
    RIAModules\Android\Source\app\src\main\java\com\magicsoftware\magicdev

  o The manifest file is now located at:
    RIAModules\Android\Source\app\src\main

- When the **Execution on Android** button is pressed in and you run a project or program, if the mobile application is not installed on the device, the Magic xpa Studio will install it.

- Magic xpa now uses the Android Support Library v23.

- You can now use the generic RIA client (available on the store) and provide the application URL as an argument to it. This enhancement allows you to open the same client with different application URLs.

- The **Sortable** column property is now supported for Android and iOS devices.

- **Action Bar Menu** form property – You can define a menu entry that will be seen on the right side of the Action or Navigation bar.

- The Check Box control's **Appearance** property now has a **Switch** option for use on Android devices.

- You can now refresh the task's view by swiping down from the top of the table if the **Swipe Refresh** property of the Table control is set.

- For iOS devices, the caret only appears on the focused Edit control when the keyboard is present. In previous versions, the caret always appeared on focused Edit controls.

- In the **Title BG Color** table property and **Title Color** tab property, you can now use expressions for iOS and Android devices.

- The size of the icons for Tab controls was changed to 25 points, which is compliant with the iOS Human Interface Guidelines.

- Xcode 7 is now supported instead of Xcode 6.

Special Settings

- **SpecialKeyboardBuffering** – Instead of just **N** and **Y** values, this flag now has the following values:
  - o **N** – No buffering
  - o **B** – Basic buffering inside an existing editable Label control
  - o **E** – Extended buffering

- **SpecialRIAEncryptCache** – This flag controls the security of cached files.

- **SpecialOldZorder** – This flag supports the Z-order for orphan windows.

- **SpecialExpReturnNull** – This flag maintains backward compatibility when comparing a variable that has a Null value to an empty value.

- **SpecialSwipeFlickeringRemoval** – This flag removes flickering when swiping a laptop's touch screen.

Partitioning Error Change

-117 RQGNRC ERR MISMATCHED REQIDS – This error is issued when a requester sent a request to a Magic xpa server and received a response that was directed to another request. In previous versions, error RQ_ERR_UNEXPECTED (-200) was returned in this scenario.

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Source Files

Source files were changed to better support external merge and compare tools.

Windows 10 Support

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

Pervasive 12 Support

Magic xpa was tested and is compatible to work with Pervasive 12 including Unicode support.

iOS Support

Magic xpa was tested and is compatible to work with iOS 8 and above. iOS 6 and iOS 7 are no longer supported.

Android 6.0 Support

Magic xpa was tested and is compatible to work with Android 6.0 Marshmallow.

Internet Explorer 11 Support

Magic xpa was tested and is compatible to work with Internet Explorer 11.

Microsoft Edge – Rich Client Compatibility

Magic xpa's Rich Client functionality is compatible to work with Microsoft Edge.

Magic xpa's Browser Client functionality is not supported on Microsoft Edge.

Magic xpa 3.0a: New Features, Feature Enhancements and Behavior Changes

Windows 10 Support

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

Array Size's Calculated Value Increased

The default calculated value of the data source's array size was increased in order to improve performance.

A new environment setting, **Cache size for array fetching(kb)**, was added to the **Preferences** tab in order to define the cache size to be used when fetching records.

Space Gateway – Performance Improvements

The performance of different aspects of the Space gateway was improved.

Support Array Fetching

In the Space gateway, records are now fetched according to the array size defined for the data source in the Data Sources repository or the Data Source properties. This functionality reduces network calls and improves performance.

Batch Task as a Selection Program

You can now select a Batch task as a Selection program. This functionality is offered for backward compatibility.

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Magic xpa 3.0: General Information

Introducing Magic xpa 3.0

We are delighted to provide you with the new major release of Magic Software's Magic xpa Application Platform.

Magic xpa 3.0 enables software vendors and enterprises to quickly and cost effectively develop and deploy complex multi-channel business applications and enjoy all the benefits of .NET applications, Rich Internet Applications (RIA) and Mobile applications whether on-premise or on-demand.

Migrating from Magic xpa 2.5 to Magic xpa 3.0

Magic xpa 3.0 works with the same source files as Magic xpa 2.5. No migration is required.

Rich Client – Client-Server Compatibility

The internal communication protocol between the Client module and the Server was changed. Therefore, Magic xpa 2.x clients (such as 2.5) cannot be used with a
Magic xpa 3.0 server, and Magic xpa 3.0 clients cannot be used with Magic xpa 2.5 servers.

Licensing

To use Magic xpa 3.0, you need to obtain version 3 licenses. To obtain Magic xpa licenses, please contact your local Magic Software representative.

Magic xpa 3.0: New Features, Feature Enhancements and Behavior Changes

New and Improved Form Designer

The new Visual Studio-based Form Designer offers an intuitive and user-friendly experience that makes designing Display forms even easier. The new Form Designer offers a variety of enhancements, including:

- Modern workspace with improved docking capabilities.
- New Toolbox and Variable panes that replace the Control and Variable palettes.
- New Models pane to allow fast and simple dropping of pre-defined controls onto the form.
- Improved Document Outline view that allows you to easily locate controls and move them into container controls.
- Filtering capability of properties.
- Improved Table control with visual indication for dropping controls over it and automatic attachment of controls to the proper columns.
- .NET controls that are visible on the Form Designer and a visible .NET control icon in the Models pane.
- Control alignment lines (when the Show Grid property is set to False).

Change of behavior:

- All of the multiple-control related actions (such as alignment and make same size) are done now according to the first selected control instead of according to the outer control.
- The Maximum Width, Maximum Height, Minimum Width, and Minimum Height control commands are no longer supported. Instead, you should use the Make Same Size command and select the outer control as the first control.
- Selection of a value in a Combo Box and Radio Button control is now done via the action arrow of the control.
- When placing a control in a container control, the control is automatically attached to the container.

- Resizing the table header height will also move the controls in the table line.

- The default value of the Show Grid property was set to False in order to take advantage of the new alignment capabilities of the Form Designer.

- A Radio Button control with the appearance set to Button will show buttons according to the number of items defined and not according to the Choice Column property value.

- The Automatic Tab Order and Automatic Z-Order properties are now properties of the form (and not the palette).

- The Form Designer shows the form of the current task only. This means that for child windows, the parent form will not be shown behind the current form.

- In the Form Designer, the Edit control will not appear with a transparent background color, even if a transparent color was assigned to it.

- A Table control cannot be placed on a Tab control using the mouse. If you want to have a Table control on a Tab control, place the Table control on the form and move it onto the Tab control using the arrow keys.

- The Quick Expression Editor is currently not supported in the property grid of the new Form Designer.

- Support for display templates was removed.

- RTF-related properties were removed from the Label control and Label-related properties were removed from the RTF control. To achieve the same functionality as Enable RTF=Yes, you should define an RTF control.

Note: The Visual Studio-based Form Designer is used to design Display forms only. Other forms are currently designed in the legacy designer.

Mobile Form Preview

Magic xpa 3 introduces the Mobile Form Preview to make developing for mobile platforms even easier. This new feature lets you play around with the placement and size of the controls and see how the controls will appear on various mobile devices as you create them.

Refer to the **Mobile Devices Settings** topic in the *Magic xpa Help* for additional information on how to define your own devices.

New and Improved Expression Editor

The new Expression Editor offers a smoother experience including:

- Improved Auto Complete of functions
- On the fly coloring of the expression
- Improved error indications
- Embedded pick lists in the right pane
- Expression filtering capability

Change of behavior:

- Adding an expression above a line of the Expression Editor is now done by pressing Ctrl+Shift+F4. Therefore, to add an expression as the first expression, park on the first line and use this shortcut.
- The filtering capability replaces the Locate dialog box. To search for an entry, simply type any part of its name and all of the relevant entries will be shown.
- Overwriting an entry is available using Ctrl+Shift+W instead of Ctrl+Shift+O.
- When the Expression Editor is opened, it is not possible to go directly to other task dialog boxes such as the Sort dialog box. You need to first close the Expression Editor to reach other task dialog boxes.

Selection Lists Enhancements

Selection lists that are opened from the new Form Designer were enhanced as follows:

- Filtering capability – The filtering capability replaces the incremental locate and the Locate dialog box. To search for an entry, simply type any part of its name and all of the relevant entries will be shown. Note that you can start typing even if the focus in not on the filtering field.
- The description area can now be resized.
- The tasks in the Variable list and the folders in other lists can be collapsed and expanded.

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Mobile Design Mode

You can now switch to a Mobile Design mode, which takes into account certain constraints necessary for developing a mobile application. For example:

- The default form size will be small, which is the required size for mobile phones.
- Controls placed on the form will receive default values adapted for mobile for some of the properties, such as the control height and placement.
- When dragging variables to the form with the Shift key pressed, the variable name will be added as the value of the Hint property.
- When dragging a Tab control on the form, it will occupy the entire form size.

In-Memory Data Grid Messaging Middleware

Magic xpa 3.0 offers an additional enhanced and robust messaging layer. The award winning XAP middleware from GigaSpaces is now supported as a messaging layer, which uses a distributed, self-healing and scalable architecture. This directly enhances Magic xpa 3.0 projects. Existing projects upgraded to this version can be easily scaled to multiple processes and even to multiple machines (scale out) just by changing external configurations.

Note: The Magic Request Broker middleware is still supported as in the previous versions.

To use the In-Memory Data Grid middleware, you need to obtain a specific license. To obtain this license, please contact your local Magic Software representative.

Refer to the Deploying Applications on GigaSpaces concept paper in the *Magic xpa Help* or the **Support** folder for additional information.

In-Memory Data Grid Data Access

Magic xpa 3.0 provides a new GigaSpaces database gateway for storing and accessing data in the space. This gateway is similar to the other Magic xpa database gateways and enables complete access to information stored in the space.

The GigaSpaces database provides the opportunity to work with asynchronous persistency in what's referred to as Write Behind mode in Hibernate, which provides the ability to handle extremely large transaction workloads. The data is uploaded to the space from a backend database. When this data is changed in the space via a Magic xpa application, Hibernate then does the work of updating the database server. The gateway allows access to the data that is connected to the application, while significantly improving performance and ensuring that data is not lost. A new Hibernate Data Source Builder was added to generate objects in the space from Magic xpa data sources.

To benefit fully from these new functionalities, see the **Deploying Applications on GigaSpaces** concept paper in the *Magic xpa Help* or the **Support** folder for additional information.

To use the In-Memory Data Grid data access, you need to obtain a specific license. To obtain this license, please contact your local Magic Software representative.

Online and Rich Client – Focused Control Color

You can now define the color that will be used on a control when the control gets focus. This is done via a new property, Focus Color, which was added to the Edit control on Online and Rich Client forms.

This functionality is not supported for mobile devices.

Online Select Program – Change of Behavior

An Online program that is opened using the Select Program property is opened according to its defined Window Type (as it was in version 1.9) and not as a Modal window (which was the behavior in version 2).

Checker – New Warning Message

A new warning message was added for tasks defined with a physical transaction but without a data source. You can disable this message in the Checker Messages settings screen.

Rich Client – Non-Modal Window – Change of Behavior

A non-modal window opened from a non-interactive task will now keep its window type and will not be changed to a modal window. The non-interactive task will still wait for the called program to end.

This behavior is supported only when the following conditions are met:

1. The Close Rich Client tasks on parent activation environment setting must be set to Yes.

2. The non-interactive task did not open a window.

3. The non-interactive task was not called from a task with a Modal window type.

Removed Functionality

The following functionality was removed:

- Calling a Magic application as a COM object.
- J2EE support and the EJB interface builder.
- SNMP support and the SNMPNotify() function.
- Client Network Recovery Interval for RIA.
- The deprecated internal events, such as the Settings events were removed from the Internal Events selection list.

English Only Studio

As part of using the Visual Studio infrastructure, the Magic xpa Studio is no longer translated to different languages. It is now available in English only.

Note: The const file is still required for proper runtime execution.

Runtime Error Messages – Translations and Customizations

The error messages shown to the end user at runtime are now translated as part of the multilingual support. These messages are stored under the **Support** folder in files named **msg_rnt.xxx** (where xxx is the language).

This allows you to customize the error messages by rebuilding the translation files using the **MLS_BLD.exe** utility.

Backward compatibility:

1. If you use your own ini file and you want to see the translated runtime messages, you need to define a language in the environment settings that point to the required mls file.

2. If your application already uses a translation file, you can add the strings from the **msg_rnt.xxx** file to your translation file.

64-Bit Removed from Installation

The 64-bit requesters are no longer supported and were removed from the installation. The Web requester is installed on IIS using application pools, so the 32-bit requester can be used together with other 64-bit IIS elements.

IIS 6 End of Support

IIS 6 is no longer supported. Magic xpa is compatible with IIS 7 and above.

Encrypted Local and SQLite Database Support

Encryption is now supported for Local databases on Android and iOS devices and for SQLite databases.

The encryption password is defined in the database properties.

It is not possible to migrate an existing non-encrypted Local or SQLite database to an encrypted database. If you have an existing application with a Local or SQLite database and you want to use encryption, you need to run a one-time process by defining a different database with encryption and synchronizing your data to this database.

Note: Encryption is not supported for Local databases on the Windows desktop client.

Large Numeric Columns in SQLite and Local Databases – Change of Behavior

Since the Local and SQLite databases now support encryption, large Numeric columns no longer support the following settings:

- **Stored As=Packed Decimal**
- **Stored As=String Number** and **SQL Type=Binary**

Therefore, it is not possible to open SQL data sources from previous versions if they have these settings or if the **Stored As=String Number** and **SQL Type** has no value (since the default **SQL Type** value was **BINARY**). Data from such data sources should be converted using a prior version of Magic xpa.

The SQL data source defaults of a **Numeric** column with a **Size** of **18** or above were changed accordingly and they now match the Local data source defaults.

Therefore, if you need to copy an SQLite data source with large numbers from the server to the client, you no longer need to change the **Stored As** property or define the **BINARY** value in the **SQL Type** property of **String Number** columns in the Local database.

Android and iOS Functionality

- The **Border Width**, **Border Color** and **Corner Radius** mobile properties were removed from the Image, Check Box and Radio controls and were disabled for the Image button. To display an image in a border, place the image in a Group control or draw the border in the image.

- The default value of the **Corner Radius** mobile property of the Table and Subform controls was changed to **0**.

- The **Corner Radius** property is now set to **0** when placing controls on a table. This was done to improve the runtime performance.

- A pixel is no longer added to the border width when a control (with a non-system color) is in focus. If you want to replicate the previous behavior, you should set the **Border Focus Width** property manually.

- The option to capture movies when opening the camera using the **ClientFileOpenDlg** function was removed.

- It is now possible to define the header color of the Table control by setting a value in the new **Title Color** property.

- It is now possible to define the color of the Tab control titles by setting a value in the Tab control's **Color** property.
- New samples were added for printing an HTML string to the printer, using offline digital signatures and interacting with the device calendar.

Android Specific Functionality

- The Android client now supports printing PDFs using the Google Cloud Print protocol.
- Material design support – Native controls will now be displayed using the Android 5.0 material design. As part of this change:
- The application icon is no longer shown in the title bar of the forms.
- The title bar color is now a flat gray, without a shadow effect.
- The Label control color is now light gray.
- The Edit control appears as a flat line.
- Buttons appear flat and no longer have a transparent effect.
- The Combo Box appearance was changed to a small triangle.
- Improved Tab control – The Tab control was changed (in all Android versions) and it will now look like an Android 5 native tab. As part of this change:
- The tabs will no longer be added to the title bar when executed on tablets.
- A tab with a system color will be shown in the same color as the form's title bar color.
- The selected tab indicator will be colored with the same color as the text.
- Unselected tabs will have a non-selection effect.
- Native color customization – By changing the application theme you can change the native color of the following objects:
- Underline color for an Edit control that has focus
- Check Box color
- Combo Box rectangle color
- Navigation drawer indication icon color

Refer to the **Native color customization** section of the **Display for Mobile Devices** topic in the *Magic xpa Help* for additional information.

- Android 2.3.x and 3.x are no longer supported. Magic xpa is compatible with Android 4.0.3 and above.

- The Android client now requires compilation using Android SDK 21or above. This requirement is only for compilation.

- On Android devices, a Local database is limited to 1 MB per record.

- Defining a context menu per control is no longer supported.

iOS Specific Functionality

- The iPad mini resolution was fixed and now controls on the iPad mini will have the same size as other iOS platforms.

- The iOS client now supports a more native look for controls defined with a system color. If you need your controls to appear non-native, you should define them with a non-system color. As part of this change:

- The Edit and Combo Box controls will not have a border (as in Android).

- The default background color of the Table control is **White**.

- Some of the splash screen images were removed and some new images were added to properly support iPhone 6 and iPhone 6+ devices.

- A new sample for using the Touch ID capabilities was added.

Windows Mobile

The Windows Mobile client is no longer supported.

Additional Documentation

Two new documents describing the steps required to deploy a Rich Client application were added:

3. **Deploying Rich Client Applications.pdf** – This document contains the basic guidelines and instructions for preparing applications for deployment and configuring the deployment environment. In this document, the messaging middleware is the Magic Request Broker.

4. **Deploying Applications on GigaSpaces.pdf** – This document contains information about the GigaSpaces configuration required for deployment of RIA applications.

These documents can be found in the **Support** folder or in the **Concept Paper** section of the *Magic xpa Help* and can be accessed via a link from the **Start** menu.

Courses

The following three courses have been revised and upgraded for Magic xpa 3.0:

- Getting Started with Magic xpa 3.x and Mobile
- Going Mobile with Magic xpa 3.x
- Migration from uniPaaS V1.x to Magic xpa 3.x

You can download the PDF for these courses from: http://www.magicsoftware.com/resources#selfpace.

To take the course in a classroom setting, please contact your local branch.

Prerequisite Changes

.NET Framework

The Studio and Runtime modules of Magic xpa are based on the .NET Framework. The following .NET Framework requirements apply:

- To develop an application using the Magic xpa Studio, you must have .NET Framework V4.0 (or above) installed on your machine.

- The Magic xpa In-Memory Data Grid requester requires .NET Framework V4.0 (or above).

Studio Installation

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

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.

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