Magic xpa 4.7 Release Notes

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Contents

We are excited to present Magic xpa 4.7 with new features and enhancements.

Studio Enhancements

The following Studio-related enhancements are added in Magic xpa.

Enhanced APG (Ctrl+R)

The existing APG utility is enhanced to create Browse programs quickly when Data Source has relationships defined for Table linking. The programs are created with the following:

- Multiple and multi-level Subforms (for 1:N relationships)
- Linked Tables (for 1:1 and N:1 multiple and multi-level relationships)

The programs are created based on the selected relationship(s) from the APG Relationship Tree.

For creating the Browse programs, you need to set a Relationship Criteria to link the Tables.

If you have linked two tables in 1:1 relationship, then with the enhanced APG, a program is created with a Link Query in it.

Confirmation while Deleting a Data Source before Overwrite

While overwriting a Data Source, Magic xpa issues a confirmation message for deleting the Data Source from the SQL-type and ISAM-type databases.

Enhanced Block Operations

Magic xpa supports expanding (+) and collapsing (-) the Block operations in Program Logic.

Note: In case of nested Block operations, expand/collapse state for the inner blocks is retained.

Debugging: Variable Values Available in Tooltips

Magic xpa provides runtime values of the variables in the tooltips while debugging programs.

Searching Program using Source File Name

Magic xpa enables you to find a desired program from the entire repository when you enter the program's source file name in **Find Text** dialog box. Magic xpa optimizes search by providing a checkbox named **Search source file name only**, which on clicking searches the text only in the source file name of the program.

Customizing Colors of Columns in Link Operations

Magic xpa enables you to customize the foreground (FG) and background (BG) colors of Columns in Link operations.

Automatic Installation of Visual Studio 2015 Shell

Magic xpa automatically installs Visual Studio 2015 Shell. Please see Known Issue.

Enhanced Git Connectivity and Support

Magic xpa brings up a number of enhancements to enable you to work with Git version control effortlessly. With the 4.7 update, Magic xpa deprecates the use of PushOk Git plugin and supports TortoiseGit plugin as a default for connecting to Git.

The following features are provided to enhance working with Git:

Automatic Identification of Project under Git

Magic xpa identifies whether a project is under a Git repository or not.

Note: Irrespective of whether a project is under Git or not, the three flags **VCActive**, **WorkOffline**, and **VCUseGitPlugin** are set to 'N' by default in the <project_name>.edp file.

Automatic Identification of Change of Working Branch from Outside Studio

If the working branch is changed from outside Magic xpa, it identifies the changed branch and loads the contents of the project repositories with the branch's name reflected in the Title bar.

Automatic Generation of Unique Version Control ID

While working with Git, Magic xpa takes the responsibility of generating developer IDs, so uniqueness of ISNs is guaranteed. Magic xpa creates developer IDs to assign unique ISNs to all the developers. It records these developer IDs in the file named **devids.txt,** which is created inside the folder in the uniqueness branch named **magicids**.

When you connect a project to Git for the first time, Magic xpa adds the following information into devids.txt file:

- Developer's ID
- Developer's Name
- Developer's eMail

When you open a Git project via xpa Studio, Magic xpa reads the uniqueness file and sets the developer's ID and Branch ID to create the ISN for that particular Developer for that specific project.

Automatic Identification of a Unique Branch

Similar to **devids.txt** file, Magic xpa maintains a branch ID file named **branchids_x.txt** in which it stores the active branch names and numbers to be able to identify a branch uniquely. The file is maintained in the uniqueness branch named **magicids** of the Git repository.

When you create a branch for the first time, Magic xpa creates *branchids_x.txt file* and pushes it to the uniqueness branch in the Git repository.

Note: You can work on at the most 64 branches.

Prerequisites for Working with Git

You will find a new option named 'Git Connectivity' under the menu **File > Version Control**. On selecting this option Magic xpa will check if:

1. TortoiseGit is installed
2. Compare and Merge is installed and configured
3. Developer eMail ID is configured
4. Developer ID is allocated for the current developer
5. A Branch ID is allocated for the current branch

If anything from the above was not done then Magic xpa informs you.

While adding a new project to Git repository, by default Magic xpa launches a Git connectivity check dialog to verify all required plugins, configurations, and settings. Once the project is added into Git, you can avail verification from **Version Control > Git connectivity check** when required.

Removal of Source Control Plugin Setting

Now that Magic xpa supports TortoiseGit by default, the **Environment** setting **Source Control Plugin** is removed, thereby relieving you from setting the type of Git Plug-in.

Overriding xpa Git Functionality

Magic xpa introduces a special flag named **SpecialDisableGITFunctionality,** which upon setting to 'Y' in Magic.ini disables all the Git-related icons and all the menu options under **File > Version Control** for a project added in Git version control.

This flag enables you to treat a Git project as a non-Git project and allows you to work with your project as though it were not in the Git repository.

Git Flow Commands

Magic xpa provides Git Flow commands as a recommended branching model. The Git Flow entries in the **File > Version Control > Git Flow** menu provide the following options:

- Git Flow Init - Initialize a directory as a Git Flow repository.
- Git Flow Feature Start - Start a Git Flow feature
- Git Flow Feature Finish - Finish a Git Flow feature

For more details regarding Git Flow, please see https://www.atlassian.com/git/tutorials/comparing-workflows/gitflow-workflow or other references to Git Flow.

Logging Git Commands from Magic xpa

You can log the commands generated by Git from Magic xpa. A special flag named **SpecialGITLog** Is introduced in order to log them. The flag when entered under [MAGIC_SPECIALS] with the value SpecialGITLog=<Filename with absolute path>, all the direct Git commands executed in Magic xpa studio are logged in the given file.

Note: When developing with Git, Magic's **Compare and Merge** tool is mandatory. The tool is external to Magic xpa installation. It is available at Downloads Area (downloads.magicsoftware.com). The tool is licensed separately. Please contact your local branch/representative regarding its license.

General Enhancements

The following general enhancements are added in Magic xpa.

Support of HTML Format in Mail

In addition to Plain Text format, Magic xpa now enables you to send and receive mails in HTML format. You can set the mode of the format to 1 (Plain Text) or 2 (HTML) using a function named **MailFormatSet(mode)**.

Note: The support for HTML format is applicable only on Java mail framework.

Support for New Functions: FileOpenDlg and FileSaveDlg

Magic xpa introduces two new functions named **FileOpenDlg** and **FileSaveDlg**, thereby enabling you to upload and download the selected file(s) respectively.

Note: FileOpenDlg and FileSaveDlg functions are available in Online tasks only.

32-bit/64-bit Open JDK with Magic xpa Installation

Magic xpa now provides 32-bit and 64-bit Open JDK version 1.8 along with xpa installation.

Support to Handle SUPERVISOR_GROUP as SUPERVISOR GROUP

While working with LDAP/AD you can create **SUPERVISOR_GROUP** (underscore in between) instead of **SUPERVISOR GROUP** (space in between) and while validating against the security file, Magic xpa treats it as **SUPERVISOR GROUP** in order to assign supervisor rights to the users.

UI Enhancements

The following user interface enhancement is added in Magic xpa.

Scaling of RIA Forms, Frames, and Controls

Magic xpa now supports scaling of Forms, Frames, and Controls in RIA executing on desktops.

Migration Enhancements

The following migration enhancements are added in Magic xpa.

Label Control Border

A 2D Label control will be migrated from UniPaaS to Magic xpa with its borders as follows:

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- Thick => 2D
- Thin => Windows
- No Border => No Border

Conversion of Edit Controls to Label Controls

While migrating an application from UniPaaS, Magic xpa enables you to convert an Edit control with Data set as an Expression and located outside the container control to a Label control with the same Expression as its Text. A new Command Line Option **UpEditWithExpToLabel** is introduced, which upon setting to 'Yes' enables this conversion.

RIA Enhancement

The following RIA enhancement is added in Magic xpa.

Enhanced Scroll Bar

In RIA, using **Scroll Here** option you can jump directly to the clicked position when **Scroll Bar Thumb** is set to **Absolute**. Magic xpa supports **Scroll Here** functionality for Preload View also.

Runtime Enhancement

The following runtime enhancement is added in Magic xpa.

New Event: Create Line Above

An Editing event named **Create Line Above** is introduced, which creates a record above the current record during Runtime. This event is supported in Online, Rich Client, and Web Client applications.

Database Enhancements

The following database enhancements are added in Magic xpa.

Enhanced Support for MySQL ODBC Gateway

Magic xpa's MySQL ODBC gateway now supports MySQL 8.x.

Support to Define Table Relationships

Magic xpa now enables you to define One-to-One (1:1), One-to-Many (1:N), and Many-to-One (N:1) relationships among the tables created in Magic Data Repository. Once the table relationships are defined, you can use the new APG (triggered by Ctrl+R) to generate programs based on those relationships.

Note: Defining relations is not supported on XML table.

Binding Support in Oracle Database

You can now use the binding (~) for the statements that do not return a result set.

Microsoft® SQL Server 2019 Support

Magic xpa was tested and is compatible to work with Microsoft SQL Server 2019.

Web Client Enhancements

The following Web Client enhancements are added in Magic xpa.

Re-initialization of the Context on Abnormal Termination of Sessions

Magic xpa introduces an **Environment** setting to handle re-initialization of the context when sessions terminate abnormally. The setting named **Reinitialize Web Client sessions on abnormal terminations** offers three options:

Yes: Reinitialize the context by default.

No: Do not re-initialize the context.

Alert: Issue an alert message to let the user decide whether they wish to reinitialize the context or not.

New Keyword: 'WebClientReInitSession'

You can use the keyword named **WebClientReInitSession**, which upon setting to 'A' in Magic.ini issues the same Alert message. The setting is effective on restarting Magic xpa Studio.

New Function: 'IsContextReInitializing()'

Magic xpa introduces a function named to indicate whether the context has been reinitialized after abnormal termination of application. The function when called from Main Program/Task Prefix returns 'TRUE' when the context is being reinitialized after crash.

Issuing Warning Message before Context Inactivity Timeout

Magic xpa introduces an **Environment** setting named **Context Inactivity Warning Time**. This setting enables you to set how much time before terminating the session you want Magic xpa to issue a warning message about termination of the session.

Note: For some Chromium browsers, the warning message is shown when the current browser tab is in focus.

New Keyword: 'ContextInactivityWarningTime'

You can use the keyword named **ContextInactivityWarningTime** to set the time in Magic.ini.

Support for Blank 'Zero fill' Characters in Numeric Pictures

The Directive for Numeric pictures is supported with blank 'Zero fill' characters. With this directive, Magic xpa fills the variable value with blanks if the variable value was zero.

Note: The characters other than blanks are not permitted in Directive of Numeric pictures.

Support for Blank Date and Time

When Date or Time is zero, Date Picker or Time Picker will display it blank respectively.

Customizable Date and Time Formats Defined on Magic xpa's Form

You can change Date and Time formats to be different than that defined on Magic xpa's Form. Please refer to Magic xpa help for more information.

CallJS() Supported in Web Client

Magic xpa now supports **CallJS()** function in Web Client tasks to let you call a JavaScript method of Magic Angular component.

Support for Character-level Binding

Magic xpa now enables you to define the level of binding between Edit control and variables. A property named **Binding Level** is introduced which lets you define binding option either as *Control* (where a variable receives a control's value on leaving the control), or as *Character* (where a variable receives a control's value on each character typed).

Support for Lazy Loading in Overlay Programs

You can now call Overlay programs from Load on Demand folder without Route.

Support for Client-Side Logging

A log level named **RequestInfo** is introduced, which upon setting in Web Client Application Execution Properties, the requests sent to server and their corresponding responses received from the server are logged on the console.

Notification of Change in Custom Properties Property

A method named **PropertyChanged()** is introduced, which on writing in the .ts file of the component notifies you about change in the value of Custom Properties property in Magic xpa. The method is invoked whenever value of any custom property changes.

Closure of Active Web Application's Browser Tab

When you change the contents of a Web page and attempt to close it without saving the changed contents, means **when the transaction cache is not empty**, Magic xpa raises a warning about the pending changes.

Note: On all browsers except Chrome the context is terminated after the context-inactivity timeout. On Chrome the context is terminated immediately.

When you do not change the contents of the Web page and attempt to close it, means **when the transaction cache is empty**, Magic xpa terminates the context immediately without issuing any warning.

No Confirm Update Dialog on Using Record Flush

Magic xpa does not issue Confirmation update dialog box on using Record Flush event.

Provision of Enum for Accessing Custom Properties

Magic xpa now provides Enum for Custom Properties so that you can access them easily.

Location Changed of displayedColumns[]Array

Earlier on generating an application containing Table control(s), the array displayedColumns[] used to be entered into **<component_name>.component.ts** file. The array is now entered into **mg.controls.g.ts** file to avoid updating the **<component_name>.component.ts** file each time a new column is added into the array.

Provision of Choice to Make Tasks non-Interactive

You have an option to make the Web Client tasks non-interactive.

Debugging Client Side Error Messages

Magic xpa now identifies the runtime path of the error message that might appear in Client-side browser console while debugging Web Client applications.

Microsoft® Visual Code IntelliSense Enabled

Microsoft® Visual Studio Code now identifies the binding and shows the drop down box of IntelliSense.

Mobile Enhancements

The following enhancements are added with respect to mobile.

Android

ZBar SDK is no longer supported in Android. Barcode is not supported via Zbar and sample project has been modified to use Pic2Shop on Android.

Android 10 Support

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

Android Specific Functionality

Update the project target SDK and compatibility libraries to **API 29**: You need to upgrade Android SDK compatibility libraries to API 29 so that your custom applications developed for higher versions will work smoothly on your latest Android devices.

iOS

Replacing deprecated UIWebview with WKWebview

- Sample projects and previously missed-out references are updated as per WKWebview implementation.
- ZBar SDK is no longer supported in iOS. Barcode is not supported via Zbar and sample project has been modified to use Pic2Shop on iOS.

GigaSpaces Enhancements

The following enhancement related to GigaSpaces is added in Magic xpa.

GigaSpaces Version 15 with xpa Installation

The underlying GigaSpaces infrastructure is updated to version 15.

Behavioral Change

The following behavioral change is implemented.

Backward Compatibility for Virtual Values Rollback

In version 3.3e, Quit and Cancel events changed their behavior and rolled-back virtual variables to their initial values. This turned out challenging in the existing applications where xpa programmers required the changed values of the virtual variables after raising a Cancel event. To facilitate the previous behavior a flag named **SpecialKeepVirtualsOnQuitOrCancel** is provided.

SpecialKeepVirtualsOnQuitOrCancel

When set to Y, this flag facilitates the previous behavior of virtual variables retaining their modified values.

Note: In case Quit event is raised, Task suffix will receive the modified values for virtual variables.

Valid values: Y, N

Default value: N

New Special Flags

The following special flags are added in Magic xpa.

SpecialUnicodeDefaultExpressionArgument

This flag was introduced for default return type while converting string parameters used in expressions. Magic xpa has some expression evaluations where the returned string could be of type 'Alpha' (ANSI) though all the function parameters are Unicode as in EvalStr('a'&'b'). Upto xpa versions 3.2d, the default value of this flag was N. Means by default ANSI string was considered as return type. This was problematic to xpi because it converted Unicode strings to ANSI

and lost the characters thereby getting '?' instead of characters. So from xpa version 3.2e onward, the default was changed to Y. Means, by default Unicode string was considered as return type.

Valid values: Y, N

Default value: N till version 3.2d, Y 3.2e onward

Since version: 3.2d

SpecialValNewPolicy

If the flag is set to 'Y', the following rules apply for the Val() function:

1. If the picture is too small for the digits after the decimal separator: cut.
2. For digits before the decimal separator: never cut.

If the flag is set to 'N' or it is nonexistent, then the previous behavior is retained.

Valid values: Y, N

Default value: N

Known Issue

As a consequence of upgrading to Visual Studio Isolated Shell 2015, there is a problem with the Form Designer ONLY while using **mgconstw.heb.** The scroll bars are displayed on incorrect side in the Form Designer for Forms and for Table controls. Despite this incorrect display, they behave properly at runtime.

Fixed Issues

#	Description
MXPA-88	A newly-defined Logical variable's 'Default value' property is displayed as 'True' instead of 'False' by default, when the 'Default value' property of the previously defined Logical variable was changed from 'False' to 'True' using mouse double click.
MXPA-128	The Edit controls in the Filter Box were not displayed properly when Font was applied to the Table's Column and Set Allow Filtering property of Column was set to 'True'.

#	Description
MXPA-212	In a particular scenario, a Table definition done in MSSQL was applied on Magic xpa Data Repository where a Table was already present with one Index entry, then if a new Index was attempted to add above the existing Index, the Position index value was not getting recorded in Datasources.xml file, which resulted in Magic xpa Runtime crash.
MXPA-425	The function Val() did not return correct value according to the 2nd parameter if the number of characters in the 2nd parameter were less than the number of characters in the 1st parameter and 'N' was part of the 2nd parameter as in Val('1234', 'N3') erroneously returned1234. Please see SpecialValNewPolicy in Release Notes.
MXPA-429	Magic xpa Component Interface Builder takes a long time (up to 2 sec) to open if a substantial number of Logical names were present.
MXPA-537	Magic xpa Help is updated with the information on the maximum number of Blobs allowed in various databases.
MXPA-2719	When an invalid number was entered in a numeric field and a User Event was raised on a Button click, both Online and RC programs displayed an error on Status bar and reset value to original. But when the same programs were executed on uniPaaS 2.0 onward, the expected event was raised in RC and was not raised in Online program.
MXPA-19628	When a Batch task was called from Main program multiple times, Menu flickered.
MXPA-19751	While using function DataViewToJSON(), some unwanted characters 'ï»¿' were displayed in Blob variable.
MXPA-19896	A program having multiple query names after WITH clause in SQL command and the Result Database set as MSSQL, issued a DB error and discontinued execution.
MXPA-19912	Edit Control Zoom Button was found visible when Show Zoom Button was set to 'True', and Visible and Enable properties were set to 'False' for Image Button type, and was seen enabled although Enable was set to 'False' for any Button type.
MXPA-19928	An error '\[MgGui.dll] Property.RefreshDisplay(): Property 730 wasn't handled.' was recorded in mgerror.log if Owner Drawn property of Checkbox was set to True in Online task.

#	Description
MXPA-19938	Magic xpa studio crashed when trying to select Simba Athena ODBC driver. Also, DB error 'Driver is not supported by the gateway' was displayed when clicking on 'Cancel' button in 'Select data source' window to select DSN name.
MXPA-19946	In UniPaaS the 'Mark Previous Char' event marked the selected characters in an Edit box whereas in Magic xpa, the event did not mark the selected characters.
MXPA-19967	The behavior of Magic xpa 4.5 and Magic xpa 4.6x was found different when a .Net decimal variable was updated with a decimal number. In Magic xpa 4.6x the decimal value was getting treated as a whole value.
MXPA-19979	When a RIA deployed on Broker as well as on GigaSpaces generated an error, it was found that on Broker the error was logged in detail whereas on GigaSpaces, the same error was logged briefly.
MXPA-20015	In case of a header detail scenario, if the header record was deleted, then instead of deleting its corresponding detail records, some other detail records were getting deleted. The header task used the condition stat(0,'D'MODE).
MXPA-20019	When you selected 'Magic Xpa Deployment Client' installation, Magic xpa help files used to get installed by default. Now you have a choice whether to install or not to install the help files.
MXPA-20024	In some specific environments, Studio performance was found degraded when performing actions like opening Program Repository or zooming into a program, or executing a program from Program Repository.
MXPA-20056	In RIA tasks, when cancelling a record which is connected to a subform, 'Record lost' error occurred. In such a scenario, moving to a new record created an empty record on the form as well as in the database.
MXPA-20068	On executing a Web Client application, when the browser was closed, the context remained opened. The context was released only when the 'ContextInactivityTimeout' was expired. This erroneous behavior was observed only on Google Chrome browser.
MXPA-20143	The function Len() returned incorrect value when Unicode type parameter was passed to it.

#	Description
MXPA-20271	If the function ClientFileRename(origin, target) contained only the filename (without its path) as the Target parameter, it previously worked like a Move operation on the current working directory. Now in such a case, it will perform the operation on the source directory itself.
MXPA-20441	In Web Client tasks, MLS translation did not work when logical names were used in Language File path of Language Repository.
MXPA-20479	A redundant confirmation dialog box was getting displayed in Version Control with the message 'Entering read-only mode', when attempted to open a program that was not checked-out at first place.
MXPA-20550	While executing an SQL Stored Procedure in an MSSQL Database application, a blank dialog box was getting displayed and the error 'Error in executing SQL command…' was getting recorded in mgerror.log.
MXPA-20620	In case of Online tasks, the focus was unduly getting shifted to Parent task from Child task when a Timer handler having Raise event (View Refresh/Screen Refresh) or Verify operation was getting executed.
MXPA-20645	The information regarding 32-bit and 64-bit Server and Database Client combination was not found in xpa help documentation.
MXPA-20648	When a Web Client application was executed from Studio with Deployment Mode set to 'Runtime', RunMode() function returned incorrect value.
MXPA-20652	While working with multiple Class 1 GUI Output forms, when a reference from Find Results pane was clicked, the control did not jump to its corresponding matching result. The same behavior was found in case of Checker error.
MXPA-20674	An Online application was found to crash at runtime when its Parent window was set as 'Task in focus' and a button was clicked in the Parent window after a Subtask having Control Hit event with Propagate property set to 'No' was called.
MXPA-20675	Print Data functionality did not display all existing files in the directory when 'All Files' (i.e. *.*) option was selected in File Open dialog.
MXPA-20715	In a particular scenario on iPad devices, an iOS application was found to crash.

#	Description
MXPA-20717	When Transparent colors were applied to Label, Edit, or Line controls and when they were placed into the Table control's Column Header, the controls were displayed neither during Form design time nor during runtime. Also, the same controls when placed inside the Table were not getting displayed during design time.
MXPA-20743	The Magic xpa Studio was getting stuck during ECF creation activity using Tools Infrastructure when AutomaticProcessingMode was set to 'B'.
MXPA-20784	In a particular scenario, when a Windows application such as Notepad, Excel, etc. and Magic xpa were co-running, and when Magic xpa invoked a Batch task with Open task window set to 'Yes' and Window type set to 'Child', then Magic xpa Batch task kept appearing intermittently while working on that Windows application.
MXPA-20798	The behavior of uniPaaS and Magic xpa 3.3 (both Japanese versions) were different with respect to displaying logon window when it was given as a command line argument. In uniPaaS the logon window was displayed with Username and Password whereas in Magic xpa 3.3, the logon window was displayed with only Username. The issue is fixed now.
MXPA-20799	In a particular scenario on iPad devices, an iOS application was found to crash while performing a general search.
MXPA-20832	In MSSQL gateway, when the function CndRange() was used on DateTime column, it failed at Runtime and threw the error 'Incorrect syntax near the keyword 'AND''.
MXPA-20866	XMLInsert() returned error -6 "Attribute already defined for element" while adding an Attribute to an Element in an existing XML, even though the Attribute was not defined.
MXPA-20922	A Table with Checkbox/Button controls was found to get loaded slower than the Table without Checkbox/Button controls in it.
MXPA-20955	In a particular scenario on the Japanese environment migrating the application, two Radio buttons having different height and same Y value placed on a Form in uniPaaS were found to have changed their positions in Magic xpa 4.6.

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#	Description
MXPA-20960	Radio Button was getting slightly cut when Radio control's Vertical Alignment property was set to 'Top', Multiline property was set to 'False', and Font Size was inherited from the Radio control's default Font size.
MXPA-20964	If an Expression ('False''log) was attached to Confirm Update property and a record was attempted to delete, then the Confirmation Dialog was appearing in RIA unlike in Online task. This erroneous behavior taking place in RIA task is now fixed.
MXPA-20983	When a Magic 9.40 application was migrated to uniPaaS or Magic xpa, some of the default images of Menu icons were observed to be incorrect in uniPaaS 1.9p and some default icons were missing from Magic xpa 4.7.
MXPA-21004	In Create mode, it was impossible to enter a value in an Edit control when a User event was executed with Force Exit set to Post Record Update, and a Batch program was called to update a variable in Record Prefix.
MXPA-21012	When an application was migrated from uniPaaS 1.9 to Magic xpa 4.6 and when a .Net Object for Date was used, then while setting Date '00/00/0000' to .Net Month Calendar Control, uniPaaS issued an exception whereas Magic xpa did Uninot issue any exception.
MXPA-21061	When Cache Strategy was set to 'Position' for parent program to 'None' for child program, then the control was getting parked on an undesired column in the Table while trying to park it on a particular column.
MXPA-21118	When 'VCProjectID' was changed in the project, it was found that the node_id and parent_id on loading the XSD file were different than the node_id and parent_id after reloading the same XSD file.
MXPA-21180	The value of the next record was getting displayed momentarily and intermittently in the field of the previous record while navigating through the records in a Table, when Record Prefix had Wait property (Invoke Operation) in GUI. It was observed that the delay was apparently caused due to calling several Online Phantom tasks from Record Prefix.
MXPA-21182	The Parallel Batch programs did not execute when tried them using GigaSpaces middleware.

#	Description
MXPA-21254	When SpecialFirstRangeOnEmptyField was set to 'Y', Range property was set for an Edit control, and the value in the Edit control was deleted, then the Edit control displayed a blank instead of the first value defined in the Range property.
MXPA-21280	In a particular scenario, an application crashed. The reason is identified and fixed now.
MXPA-21301	In RIA, on opening a project from uniPaaS 1.9 to Magic xpa 2.3 or a version latter, the Edit controls were getting displayed with Vertical Alignment as 'Center' instead of as 'Top'.
MXPA-21310	On migrating an application from uniPaaS to Magic xpa, the value of Edit control was getting trimmed by one pixel from the left-side when the Edit control's Style property was set to 3D-Sunken and the Horizontal Alignment property was set to Right.
MXPA-21313	If MLS was used, then the label controls displayed in a PDF did not change according to the MLS language selected.
MXPA-21319	When a Label control's Style was set to any style (other than 'No Border') and when it was placed in a Table control with Alternating BG Color defined, the Label control Border did not appear in the Table.
MXPA-21349	In Web Client tasks, when APG was performed on a Program with Form Size option set to 'As Content', the Form was not getting created large enough to accommodate all its contents without a Horizontal Scroll Bar.
MXPA-21373	In a particular scenario, an Internal Event used on a Button worked fine but a User Event, which in turn raised a Cancel event on a Button, did not work.
MXPA-21379	The value of the next record was getting displayed momentarily and intermittently in the field of previous record while navigating through the records in a Table.
MXPA-21465	After migrating RIA and Online projects from uniPaaS to Magic xpa, the Control Hit event handler which was not getting executed in uniPaaS was found to get executed in Magic xpa, when clicked on the Table's Scroll Bar.
MXPA-21491	In a particular scenario, an Android mobile application crashed. The reason is identified and fixed now.

#	Description
MXPA-21494	While using the SQL statements UPDATE or INSERT on Japanese machines, the '\n' (Newline) characters were getting replaced with white-spaces.
MXPA-21499	If HTTPCall(Post) was invoked for a specific URL, an error 'invalid_request' was issued.
MXPA-21578	On migrating an application from uniPaaS to XPA 4.6, it was observed that the query 'SELECT VERSION FROM V$INSTANCE' was being sent to Oracle DB although the flag 'LimitLinkToSingleFetch' was set to 'No'.
MXPA-21616	Magic xpa Help is updated with the information about MySQL & SQLite databases being supported with MGXTK, MGXRT, and MGXSRV license types.
MXPA-21697	On deleting any record(s) barring the last record from the Table, the Button control or Checkbox control were found to be present on the last record's row, when the last record itself was absent.
MXPA-21710	If two Link Write operations were executed to write data in a Table, then the second Link Write operation failed to write the data if it was performed in a RIA Non-Interactive task.
MXPA-21743	When a Batch program was being executed on setting the special flag 'SpecialKeyboardBuffering' to 'E' in Magic.ini, the Runtime window being in focus did not close on pressing the Esc key upon switching to some other program window and returning back to it.
MXPA-21791	Files of size 0-bytes were found left in Linux TMPDIR after an xpa process was finished in case TMPDIR was set to a non-default location. Also, MgxpaTempClasses subdirectory was found left in TMPDIR.
MXPA-22467	In Magic xpa Studio, the controls like .Net, Edit, and Label were impossible to bring in front of the Subform control.
MXPA-22715	If either of 'DATA' or 'SESSION' strings were used as a parameter in GetParam() function, then the function returned Null.
MXPA-22751	While executing Online and RC programs when an Edit control's 'Show Zoom Button' property was set to 'True', the Edit control's zoom button placed on the

#	Description
	Subform appeared narrower than the Edit control's zoom button placed on the parent form.
MXPA-22759	Magic xpa Help is updated with the information about the reasons why requester reset the connection to xpa server.
MXPA-22765	Magic xpa Help is updated with the information about the reason why scrollbar is visible even when there are less number of records than the view size.
MXPA-22779	While executing Online and RC tasks when an Edit control's 'Show Zoom Button' property was set to 'True', the Edit control appeared without its zoom button on the Subform.
MXPA-22804	On iOS devices while executing a RIA program using HTTPS protocol, it was found to issue an error, 'This session was closed by the server (-197)'.
MXPA-22906	During runtime, the password that was defined as a Secret Name in the database was erroneously remaining readable and available in the memory via dumps of the Runtime engine.

Past Release Notes

Magic xpa 4.6.3

We are delighted to present Magic xpa 4.6.3 with enhancements.

Database Enhancement

The following general enhancement is added in Magic xpa.

Oracle - Ability to Determine SQL type for DSQL String Binding

Since Magic xpa version 3.3a, the expressions used to bind Direct SQL parameters for Oracle are bound as NVARCHAR instead of VARCHAR2.

A DBMS flag named **DSQL_STRING_BIND_VARCHAR** is introduced in order to allow you to use VARCHAR as the type for binding. This brings back the behavior before Magic xpa version 3.3a. Upon setting it to 'Y', binding of string values using expressions is done as VARCHAR2 instead of NVARCHAR. This is relevant for Direct SQL commands using '~' for Oracle binding.

Fixed Issues

#	Description
MXPA-21360	In a Rich Internet Samples program, when a record of a Table having a multi-segment index on numeric fields was attempted to update, Magic xpa issued an error 'Operation failed. Record has been changed by another user or process'.
MXPA-21409	Calling a User-Defined Function defined in the Main program took more time as compared to previous xpa version i.e. xpa 3.x.
MXPA-21413	The text in an Edit control was aligned incorrectly when an expression was used in the Format property.
MXPA-21573	While trying to close a Phantom task, it reappeared at a different position when called from Record Prefix, Task Prefix, or from a Button Handler. This happened if Call Task was done using a Destination.

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Magic xpa 4.6.2

We are delighted to present Magic xpa 4.6.2 with new features and enhancements.

General Enhancements

The following general enhancements are added in Magic xpa.

Support of RC5 Methods in Cipher() DeCipher() Functions

Magic xpa now supports the use of **RC5 Encryption** method in Cipher() and DeCipher() functions.

Removal of Component Logging

You can now customize the behavior of component logging while loading a Magic component (ECF) at the time of opening a host application. A special flag named **SpecialComponentLogging** is introduced in order to customize the behavior of component logging.

SpecialComponentLogging

The flag upon setting to 'N' prohibits the following two lines to be displayed in the engine log:

- ⚬ Starts loading component
- ⚬ Ends loading component

Valid values: Y, N

Default value: Y

Removal of ANSI Blob NULL Check

You can now customize the display of the warning message about presence of a NULL in an ANSI Blob. A special flag named **SpecialAnsiBlobCheckNull** is introduced to customize the behavior.

SpecialAnsiBlobCheckNull

The flag upon setting to 'N', disables the functionality of showing the warning message that informs about presence of a Null character in an ANSI blob. When this special flag is set to 'Y', the Null Blob check is performed and as a consequence, the warning message, "Null in an ANSI blob, possible loss of data" is displayed; if a Null character was found.

Valid values: Y, N

Default value: Y

Fixed Issues

In this update we addressed performance-related issues and carried out some internal optimization.

Magic xpa 4.6.1

We are delighted to present Magic xpa 4.6.1 with new features and enhancements.

General Enhancements

The following general enhancements are added in Magic xpa.

New Function UserRightGet()

A function named **UserRightGet()** is introduced to retrieve the rights of the logged-in user.

New INI Parameter: MailFramework

A new INI parameter named **MailFramework** is introduced, which specifies the underlying framework used for mail functions.

When set to **'J'** (Java), the mail functionality will be based on Java and when set to **'L'** (Legacy), it will be based on the legacy technology.

Valid Values: J, L

Default Value: L

The setting is not available via Settings > Environment interface.

Magic.ini and Command Line name: MailFramework

Support for TLS and SSL for Mail Functions over Java Framework

TLS and SSL mail functionality is supported only over Java framework. To enable you to choose among SSL, TLS, or Plain, a new argument named '**protocol**' is introduced in **MailConnect()** function, which is regarded when **MailFramework=J**. The argument **protocol** can accept either of the three values: **0** (Plain), **1** (TLS), and **2** (SSL).

Note: The existing applications will not be affected, as **protocol** is an optional argument. If the **protocol** argument is not mentioned in an existing call to MailConnect() function, then the value 0 (Plain) is regarded.

Removal of Special Flag 'SpecialRIAEncryptAES'

The special flag **SpecialRIAEncryptAES** is removed from Magic xpa Help.

UI Enhancements

The following user interface enhancements are added in Magic xpa.

Enhanced Form Scaling Options

The Combo box on the Status Line provided for scaling the active form during Runtime now presents enhanced scaling options such as 110%, 120%, 130%, 140%, 150%, 175%, and 200%.

Scaling of GUI Frames Forms

Allow Scaling property which was previously present in GUI Display forms is now also added for GUI Frames forms. Scaling of GUI Frames forms is now exactly same as the scaling of GUI Display forms.

Database Enhancements

The following database enhancements are added in Magic xpa.

64-bit Gateway for AS/400

Magic xpa now provides 64-bit gateway for AS/400. The name of the dll file for AS/400 gateway is changed from mgeac32.dll to **mgeac.dll**.

32-bit Gateway Users:
3. All Invoke UDP operations related to this DLL will have to be modified from mgeac32 to mgeac.
4. The MGDB16=mgeac32.dll entry in the Magic.ini file will have to be changed to mgeac.dll in case of upgrade installation.

64-bit Gateway for DB2/400

Magic xpa now provides 64-bit gateway for DB2/400.

Web Client Enhancements

The following enhancements related to Web Client are added in Magic xpa.

Control Verification in Web Client

Control Verification is now supported for Web Client tasks.

Note: Magic xpa executes all Control Verification handlers in the current task just before executing Record Suffix. Control Verification handlers are executed in the order of their definition in the task.

New Property: Custom Validators

Custom Validators property is introduced to enable you to define a set of validators. If the condition in an expression against a validator is evaluated to 'True', then an error message is displayed.

Mobile Enhancements

The following mobile enhancements are added in Magic xpa.

iOS

Support for iOS 13: Rich Internet Applications can now be executed on iOS 13.

Support for XCode 11: Magic xpa 4.6.1 is compatible to work with Xcode 11.x.

Backward Compatibility Enhancement

The following backward compatibility enhancement is added in Magic xpa.

Flag for Space between Radio Button and its Label

To maintain the appearance of Radio button compatible with its appearance in version V9.4, the flag **SpecialRadioSpacingV9Compatibility** is introduced.

SpecialRadioSpacingV9Compatibility

The special flag **SpecialRadioSpacingV9Compatibility** when set to Y, creates an adequate space between Radio button and its Label.

Valid values: Y, N

Default value: N

Since version: 3.3g

Fixed Issues

#	Description
MXPA-143	In Magic xpa help, an incorrect license token was displayed for Web Client.
MXPA-215	Magic xpa was found to crash with an error message, "The folder <folder name> (set by the environment variable JAVA_HOME) is missing mandatory sub folders: 'jre' and 'bin\\server'.", if the executing program had Java functions such as JCall() or JCreate().
MXPA-224	In xpa installation, the option 'WinRunner Support' was renamed to 'Support Test Automation Frameworks/Tools'.
MXPA-251	The help pages named 'Java Environment' and 'Java Integration with Unix Platforms' were found to be missing in the Help of latest xpa versions.
MXPA-18681	Not all the user-defined .NET events for user controls were visible in the event list with a specific DLL of the customer.
MXPA-19433	An unknown screen was displayed in the upper-left corner on minimizing or maximizing the called Modal window in case a program was called from a non-interactive task with Raise event's Wait property set to 'No'.
MXPA-19442	When some multiline text was sent via MailSend() function, the text lost its format.
MXPA-19476	Mgerror.log displayed the error, 'There is a mismatch in return attribute of function', on executing a user-defined function having return type as Java variable which was the part of Data View.

Magic xpa 4.6

We are delighted to present Magic xpa 4.6 with new features and enhancements.

UI Enhancements

The following UI features and enhancements are added in Magic xpa 4.6.

Form Scaling

You can scale the client area of an active form of the type SDI, MDI, and child window during runtime to different sizes such as 200%, 300%, 400%, and 500% by using a combo box provided on the Status bar. You can set the flag **SpecialFormScalingByDefault** to 'Y' to set the value of **Allow Scaling** property for all the GUI Display forms in the project by default.

SpecialFormScalingByDefault

If this flag is set to 'Y', then the default value of **Allow Scaling** property will be 'True' and the form will be scalable. This means if **Allow Scaling** property is not broken, its value will be 'True'. If the property is broken, the broken value will be used.

If this flag is set to 'N' (or is nonexistent in Magic.ini), then the default value of **Allow Scaling** property will be 'False' and the form will not be scalable. This means if **Allow Scaling** property is not broken, its value will be 'False'. If the property is broken, the broken value will be used.

Valid values: Y, N

Default value: N

Note: The use of Runtime Form Designer is not supported for the forms that allow scaling.

Freezing Table Columns

Now you can set the desired number of columns in a Table control to remain frozen while scrolling the Table horizontally. The frozen columns are marked by a dark grey-colored divider by default. You can choose a color to demarcate the frozen columns from the rest. When you save a task containing tables with frozen columns and reopen it, the frozen columns that you saved last time are retained.

Note: There is no support to freeze table columns in RTL tables.

Zoom Button for Edit Control

You can add a Zoom button […] next to the Edit control, which on clicking raises Zoom event. You can also customize the Zoom button's look and feel.

Autocomplete for Edit Control

You can autocomplete the text while typing, using a new property named **Autocomplete Mode** available for Edit control.

Flag for 3D-Sunken Radio Button Colors

In order to provide backward compatibility with uniPaaS and retain the current behavior of 3D-Sunken Radio button's background and foreground colors in xpa, a special flag named **SpecialUseColorForRadio** is added.

SpecialUseColorForRadio

If this flag is set to N, the background and foreground colors are disregarded.

Valid value: Y, N

Default value: Y

Flag for Owner-Drawn Checkbox

In order to provide backward compatibility and mark the checkboxes as owner-drawn, a new property named **Owner Drawn** and a special flag named **SpecialCheckBoxOwnerDraw** are added.

SpecialCheckBoxOwnerDraw

When this flag is set to Y, all the checkboxes with their Appearance property set to Box in all the applications will be owner drawn.

Valid values: Y, N

Default value: N

Auto Drop-down for Combo Box Control

You can make the Combo Box in focus drop-down automatically and view its items immediately using a new property **Auto Drop-down.**

Setting Color for Disabled Edit Control

You can set a color of your choice for the disabled Edit control.

Controlling Border Property of 3D-Sunken Edit Controls

While migrating your uniPaaS applications to Magic xpa, you have an option for controlling the Border property setting for 3D-Sunken Edit Controls in the Migration wizard.

Setting Table Control Title's Background Color

While migrating applications from uniPaaS to Magic xpa, you can set the Table control title's background color.

Studio Enhancements

The following enhancements related to studio are added in Magic xpa 4.6.

Copy-Paste Logic Lines across Tasks

You can copy and paste Logic, Data View, and Header lines across tasks located within the same program or outside it.

Long Names for Tasks, Programs, and Forms

You can enter Task Name, Program name, and Form name as long as 100 characters.

General Enhancements

The following general enhancements are added in Magic xpa 4.6.

Unicode Arguments for Mail Functions

Mail functions of Magic xpa support Unicode arguments.

Apache Tomcat Installation Upgraded

Apache Tomcat is upgraded from 7.0.62 to 9.0.20. The previously deployed Web Services should be copied to "%tomcat_home%\webapps\axis2\WEB-INF\services\".

Web Client Enhancements

The following enhancements related to Web Client are added in Magic xpa 4.6.

Display of Spinner

You can display spinner on the page(s) of your Web Client application when the server processes lengthy requests. You can also customize the spinner.

Accessing Form Controls from HTML

A new **Controls Accessor** component named **<component name>.mg.controls.g.ts** is introduced to enable you to access Form controls and their properties from the relevant HTML file. The Controls Accessor component implements easy validation for Form controls in html.

Enhanced Web Application Generation Dialog Box

You can see the list of programs you select to generate a Web application along with the folder names in which they are created.

New Concept Paper

The following concept paper is added in the help:

Using Magic Components in Web Client Applications

You can find it under the link Home > Concept Papers > Developing Web Client Applications.

Database Enhancements

The following enhancements related to databases are added in Magic xpa 4.6.

Native PostgreSQL Database Gateway

PostgreSQL database gateway is supported natively, which is compatible with PostgreSQL 11.5. You need to procure its license separately.

Support for Physical Locking in MySQL Gateway

Magic xpa now supports physical locking in MySQL gateway. The physical locking works with MySQL server version 8.0. It can be enabled using the flag **SQL_PHYSICAL_LOCKING=**Y.

Support Oracle 18 and 19

Magic xpa was tested and is compatible to work with Oracle 18 and 19.

Scrolling to the Desired Record

It is now possible to jump directly to the desired record using Table scrollbar. For more details, please refer to Magic xpa help.

WITH Clause

You can use 'WITH' clause in Direct SQL statements.

Temporary SQLite Database Files

Now SQLite database also can be used as a Temporary database in the **Environment** setting 'Database for Sort/Temporary' under the Preferences tab.

A database information flag named **TEMP_DB** is introduced in order to define a Temporary SQLite database. For more details, please refer to Magic xpa help.

New Keyword: 'DataTypeCompatibility'

A keyword named **DataTypeCompatibility** is introduced in DB Information, which upon setting to 'Y' in the database properties of MSSQL database makes the new MSOLEDB driver handle the data in the same way the legacy SQLOLEDB driver handles it.

GigaSpaces Enhancements

The following enhancements related to GigaSpaces are added in Magic xpa 4.6.

Determining Status Update Rate

SpecialGSWorkerStatusUpdateRate

This special flag determines the number of seconds at which the worker updates its last modification time periodically.

For example, if N = 5, then the worker will update its Last modification time every 5 seconds.

Valid values: >= 1

Default value: 10

This special keyword can assist in distinguishing between non-responsive workers and genuinely busy workers engaged in executing long requests.

Provision of Workers Dynamically

The NumberOfWorkers element in the ProjectsStartup.xml file is now enhanced. According to this enhancement, the Server will create additional Workers if the current Workers count is less than (NumberofWorkers + AdditionalOnDemand), and a request waited longer than 'LoadOnDemandTimeout' seconds before processing it, even with available licenses.

Workers Pane

It is now easy for you to distinguish non-responsive workers from the workers busy executing long duration programs while using GS middleware. A pane is provided to display the workers of the selected server.

RIA Enhancements

The following enhancement related to RIA is added to Magic xpa 4.6.

Client-side Cache Clearing

A function named **ClientClearCache()** is introduced, which on passing a logical argument 'True' clears the local cache of Rich Client tasks immediately.

Mobile Enhancements

The following enhancements related to Mobile are added in Magic xpa 4.6.

Android

64-bit Compliance

Magic xpa Android client is now 64-bit compliant.

Android and iOS

Client-side Cache Clearing

A function named **ClientClearCache()** is introduced, which on passing a logical argument 'True' clears the local cache of Rich Client tasks immediately.

Keeping the Device Awake

A property **Keep Awake** is provided for Rich Client Display forms to facilitate keeping the device awake. When the property is set to 'True' and when the current form is active, the device remains awake.

Browser Client Deprecated

As of Magic xpa 4.6 Browser Client feature is declared as deprecated, it will be removed from the Magic xpa offering in a future release.

Fixed Issues

#	Description
77124	A Window Hit event defined in a subtask with Propagate set to 'No' caused the child window to move to the background while clicking on the parent Form or the title.
149898	In a particular scenario, a RIA crashed while sorting with UserFunctionality Ctrl+T.
152600	CndRange() function was found to be executed when the 'False' value was passed as its argument.
153045	When a Model was applied to an SQLite Table name and clicked on 'Inherit All Properties', DB Column name was found to be removed.
155980	The mls_bld.exe file was not getting converted properly according to the source file.
156805	Magic xpa Documentation updated for RIA License count.
157065	If there was a space at the beginning of the task variables, 'DataViewToText() - Illegal task variables specified' message was displayed.
157296	Magic xpa Studio crashed when Default Database with XML Data Source in Database was used and clicked on Data View of a program.
157309	Two Online programs behaved differently when Cnd was set to 'No' for a batch.
157499	When a Label control was placed on the Table header, the higher Z-order was displayed in the back instead of in the front.

#	Description
157561	In an Online program, the message 'Valid control input range is: ' was displayed when Range was not set.
157659	When control verification had an Internal event 'Subform Refresh', the cursor was found to be parked on the second Edit control of the called program.
157969	In a specific scenario, Magic xpa Runtime engine crashes in the host application.
158486	DBErr() function returned only 255 characters when a custom error message was longer than 255 characters.
158639	Decimal Parsing snippet returned an incorrect value.
158646	On an iOS device with the language set to Japanese, Null character appeared at the end of the fields automatically.
158742	In a particular scenario, Magic xpa Studio crashed when a user-defined function from the Main program was called in a Batch program using Evaluate operation.
158798	The Push Button was found in disabled state erroneously when an event was raised using GetParam() function.
158938	When a non-interactive program was called from an interactive program, WinMinimize() function on executing second time onwards did not work.
159054	Radio Button was found to have incorrect Vertical Alignment on migrating from UniPaaS to Magic xpa.
159055	The column title was found cut after migration.
159285	On a particular version of iOS, when the Japanese language was set, the data was not extracted.
159505	When the incremental update was set to 'Y', the variable Init was recomputed at the last record.
159534	Magic xpa Studio crashed while activating F8 on an RC program if 'Else Block' was disabled in the program.

#	Description
159714	A Push Button on a phantom task having zero records was seen as disabled when its Enabled condition was set to 'True'.
159789	The Internal event 'Mark Previous Char' was found working incorrectly at the end of the first character in an Edit box.
159810	When the encrypted text in Blob was tried to save using function Blb2File(), garbage data was displayed.
159906	If Color property was set to GUI Display in Data View, and if a 3-D style was applied to a control on the form, a new color of the reference color was found to be created for it after migration.
160524	Data was not displayed on navigating among pages using Back and Forward buttons, a Route event was raised in parent program and it was invoked from one of the two sibling programs.
161179	An error "Uncaught Reference Error: global is not defined." was returned while executing Web Client programs due to the newly introduced Angular behavior.
161289	Space was getting selected in the text selection for a Virtual variable of picture size '<space>X10', when reparked on the Edit control using the Tab key.
161466	The function Rights() was found to return an incorrect value for 64-bit engine using Active Directory.
161704	On iOS device, CndRange() function was found to be executed in a particular scenario on Local DB tables although 'False' value was passed as its argument.

Magic xpa 4.5a

We are delighted to present Magic xpa 4.5a update with new features and enhancements.

Web Client New Features

The following new features are added in Magic xpa 4.5a.

Support for Calling an Overlay Window Present in a Web Module Marked as Load on Demand

Now you can call an Overlay window present inside a Web module, when the Web module marked as '**Load on Demand**' is loaded.

Note: If you have any projects generated in Magic xpa versions prior to 4.5a, you need to perform certain steps. Please refer the help topic **Home > Reference Guide > Navigation and Workspace > Repository Manipulations > Web Module Properties.**

For new projects generated in 4.5a, those steps are not required as the generation process handles them.

Web Client Enhancements

The following features are enhanced in Magic xpa 4.5a.

Support for Angular 8

Magic xpa 4.5a update supports Angular 8 for Web Client. You are required to use node.js version 10.9 or greater.

To upgrade your Magic xpa Web Client applications from Angular 7 to Angular 8, please refer the help topic **Home > Mastering Magic xpa > Web Client Application Development > How Do I Upgrade Magic xpa Web Client Applications from Angular 7 to Angular 8?.**

Enhanced Table Row Editing

To enhance the functionality of row editing in a Table, in addition to the existing Angular function **isRowInRowEditing()**, a new Angular function **mg.isCurrentInRowEditing()** is introduced. The later enables you to edit a row in a table when the controls are part of the logical record but not inside the table.

You need to use this method only while using the controls outside the Table control and if the current row is in row editing status.

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Support for Customizing Error Message

Magic xpa 4.5a update enables you to write a custom error message using **mgError** tag.

Support for Web Application Generation from Inside a Program

You can generate a Web Client application while being inside a program. The program in working is automatically saved before application generation.

64-bit Runtime Features

The following features are provided in Magic xpa 4.5a Runtime.

Support of WMQSeries

WMQSeries is supported for 64-bit xpa Runtime Engine.

XXLNumericSize Special Flag Set to 'Yes'

For Magic xpa 64-bit Runtime Engine, the default value of the special flag **XXLNumericSize** is set to 'Yes' internally. If you set this flag to 'No' in Magic.ini, Magic xpa overrides your setting. For 32-bit Runtime Engine, the behavior remains unchanged.

General

The following concept paper is added in the help and in the documentation:

Connecting Magic xpa with Git Repository.pdf.

Fixed Issues

Defect	Description
157537	In a Web Client task, 'Index out of bounds' error occured when the task had a Link Query, the number of records were less than a page, and the Create Line event was raised.
157839	While invoking an Overlay window, when the second record was attempted to create in a table, 'Duplicate index' error occurred.
158366	In SFDC project FactoryMaster(Access), the server requests in a Subtask triggered the server requests for parent task when the parent task had main source with Link Query/Locate and an Expression in Init of a Variable causing server-side operation.
158732	Studio crashed when 'vcgantt', a third-party control was dropped on a Form.

Magic xpa 4.5

We are delighted to present Magic xpa 4.5 with the addition of some interesting features and enhancements, as well as removal of some features.

Support for 64-bit Server Engine

Magic xpa version 4.5 comes with 64-bit server engine supported in background mode in order to take utmost benefit of a 64-bit operating system. The following points are concerned with 64-bit server engine support:

- In case of Studio product installation, the default selection for 64-bit engine support is according to the Operating System (OS). For 64-bit OS, both 32-bit and 64-bit xpa engines are installed. For 32-bit OS, only 32-bit xpa engine is installed.

- In case of Server product installation you can select either from 32-bit and 64-bit Server product installation.

- While adding 64-bit pointers to buffer you need to take care of adjusting positions of the next members in the buffer so that the application can be used with 32-bit and 64-bit xpa engines.

Unsupported Gateways

All gateways except the below ones are supported:

- AS400/Db400 gateway
- Gigaspaces gateway
- Web Service gateway

Unsupported Runtime Features

- MgComCreator
- DDE
- WMQ

Discontinued Provision of Other Runtime Features

- Java installation that earlier came bundled with Magic products installation is now discontinued. You need to install Java separately.

    o **For Studio product installation:**
      - Always set 32-bit Java in all configuration files (even Web Requester of GS is 32-bit).
      - In Magic.ini, set both JAVA_HOME_32 and JAVA_HOME_64 (if installed).

- o **For Server product installation:**
  - 64-bit: Always set 64-bit Java in all configuration files.
  - 32-bit: Always set 32-bit Java in all configuration files.

- o **For Desktop Client product installation:**
  - Always set 32-bit Java in all relevant configuration files.
  - In Magic.ini, set only JAVA_HOME_32 (if installed).

Once you install Java, you can use Magic's utility **MagicJavaConfig** to set a new/update the existing JAVA_HOME path in various configuration files of xpa.

- Hardware Based Licensing (HASP) will be supported only in 32-bit products and components installation.

Web Client New Features

The following new features are added in Magic xpa 4.5.

New Events

The following new internal events are introduced:

Subform Close

The **Subform Close** event explicitly closes the running task in the specified Subform control and returns the Subform to 'None' state.

No Program Execution Right

The **No Program Execution Right** event is raised when the user trying to execute the program did not have the program execution right.

New Function mg.SimulateClick()

A new function **mg.SimulateClick()** is introduced for enabling you to raise Magic events from Angular.

New Authentication Functions

Magic xpa 4.5 provides the following new functions to enable you to work in anonymous and authenticated sessions.

5. **IsLoggedIn()**: Checks if a user is logged in or not.
6. **Logout()**: Logs-out a user from the on-going session.

Sophisticated Web Application Generation

Magic xpa update brings you a sophisticated Web generation output dialog with the provision to display the generation progress. The dialog shows the progress of generation in the step-by-step manner in the order of the tasks completion. The generation output dialog box stays on the screen until you close it. You can press the image buttons next to each step of generation to view the filtered log for the desired task.

Support for Sophisticated Functions under Web Menu

Integration with Microsoft® Visual Code

You can now open the generated project in Visual Studio Code by selecting the option **Open in Visual Studio Code** under Web menu.

Support to View Recent Generation Log

You can view the log of Web application generation recorded in the file nodejs.log file by selecting the option **Show Recent Log** under Web menu.

One-click Minimization of Modals

Now you can minimize and restore multiple modal windows in a single click. Magic xpa update introduces a new flag named **SpecialAllowMinimizeAllModals** to provide minimization of modal windows.

SpecialAllowMinimizeAllModals

When you set this flag to 'Y' and when you have multiple modal windows open, then clicking on the minimize button of the modal window in focus minimizes all the windows in the runtime tree.

Valid values: Y, N

Default value: N

Support for Ability to Modify the Code during Runtime

Now you can make changes to the Web Client project files while the runtime engine is executing in the background. All you need to do is set the value of the option **'Run project as'** to 'Web Client' and set the **'Edit Project mode'** on.

Support for Ability to Change the Program during Runtime

Now you can select another startup program and execute it without the need to stop and start the runtime engine while one program is already executing.

Web Modules for Better Folder Management

Instead of the **ngModule** that includes all the Magic components, you can now create independent Web Modules per folder for your Web Client applications, which can be generated and loaded on demand.

Utility to Check Availability of Required npm and node.js Packages

Magic xpa now provides a way to verify the Web environment on your computer. It determines if the **npm** and **node.js** Angular packages are installed and if they match the required versions.

Provision of New Property: ConfirmUpdateForWebClient

In order to override the default value of Confirm Update for Web Client tasks, a new property named **ConfirmUpdateForWebClient** is introduced. It is added to Magic.ini to control the default value for Confirm Update on Web Client tasks.

Provision of New Directives

mgFormat

Magic xpa 4.5 provides you a free hand to be able to implement masking of mobile number formatting, currency, etc., your way. Magic provides you a directive named **mgFormat** that replaces the Pattern attribute and the two earlier directives **AlphaMagicDirective** and **BooleanMagicDirective**.

NonMagicControl

You can assign a new directive **NonMagicControl** to a focusable non-Magic html element to intimate the Magic engine about a new html element in focus. If the previous control-in-focus was a Magic control, then this directive updates the variable attached to that Magic control.

Support for Customization of Alert and Confirmation Messages

Magic xpa 4.5 allows you to use your own component to customize the alert and confirmation messages to the desired ones in your Web application in place of the default JavaScript alert and confirmation messages. All you need to do is to employ the service **ConfirmationComponentsMagicProvider** to customize the UI messages.

Web Client Enhancements

The following enhancements are done in Magic xpa 4.5.

Support of Web Client for Single User Edition

The Single User Edition supports Web Client tasks. You can use the standard studio during development as in case of the other tasks. You need to set **LicenseName=MGWEB** during deployment in order to load the correct default license.

Enhanced Table Display

The tables with empty records will not show default values in columns now when 'Allow Empty DataView' property is set to 'Yes' in Web Client tasks.

Enhanced HTML Generation

With Magic xpa update, you can generate HTML code for the selected individual control, for the selected control with its child controls, and for the entire Web Client form.

You can also avail the generated HTML code for future use. You can press the Copy button and the generated HTML code is copied to Windows clipboard without having you to mark the code before copying.

No Generation or Overriding of CSS Files per Component

Magic xpa does not generate separate CSS files for each component. If you already have a project in Magic xpa 4.1/4.0 and you upgrade to Magic xpa 4.5, you need to update the file **Magic-style.css** with the following styles:

```
.button_image_background_size{
  background-size: 100% 100%;
}
.lable_overflow{
  overflow: hidden;
}
.table_scrollBar{
  height: 600px;
  overflow-y: scroll;
}
.container_border{
  border: lightskyblue solid 1px;
```

```
}
.selected {
  background: #F5F5F5;
}
.table_row:hover {
  background-color: #EEEEEE;
}
```

Now onwards, when a program or a form will be generated, the css file will not be created inside the component. The common css file will be referred.

Support to Generate Metadata

Support to Maintain Identical Metadata between Magic and Angular Projects

The Magic xpa update now copies the generated metadata files from the Magic project's **\input** folder to the Angular folder **\magic-metadata**.
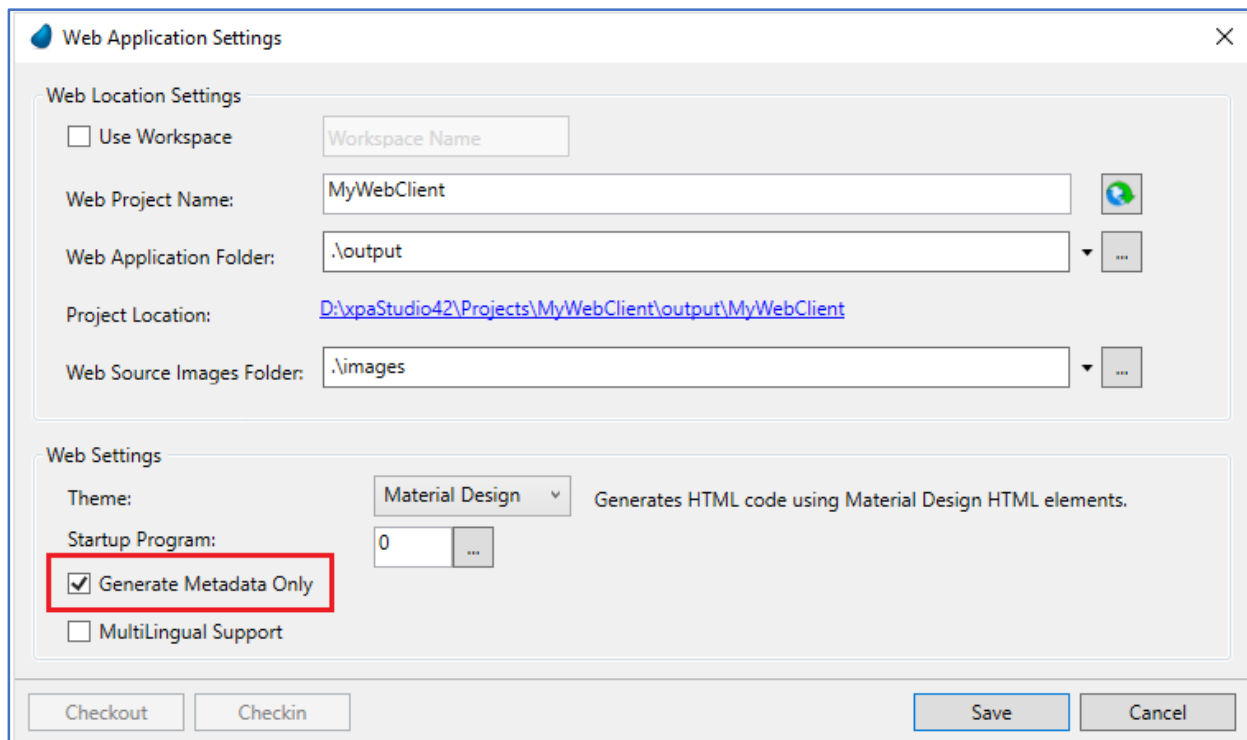
Thus, you can maintain the same versions of the metadata files between xpa and Angular projects.

Support to Maintain the Most Recent Metadata

When you generate the same Web application second time onward, Magic xpa 4.5 clears the previously created **\input** folder.

The Overlay Windows

An overlay window in Magic xpa 4.5 behaves identical to a Modal window. Means, all operations after the Call operation are executed only after the Called window is closed.

You can now control the properties of overlay windows from Angular/HTML/CSS. For more information, please see the concept paper Developing Web Client Applications.

Support for Same Workspace for Multiple Projects

Magic xpa update now provides you the ability to have multiple applications or sites under one Angular (CLI) workspace. Additionally, you can create shared set of components, directives, and services for your applications within the same Angular workspace.

New Concept Papers

The following concept papers are added in the help and in the **\Support** folder:

- Developing Web Client Applications
    - o Row Editing in Web Client
    - o Routing in Web Client
    - o Customizing Overlay Windows
    - o Navigating Browser History
    - o Customizing Alert and Confirmation Messages
    - o Concepts of Login and Logout
    - o Understanding Web Modules
- Deploying Web Client Applications

Removal of Mouse Events for Web Client

The support for two events 'Mouse Over' and 'Mouse Out' is removed for Web Client tasks.

Non-Web Client New Features

The following non-web client features are added in 4.5.

Provision to Disconnect from SQLite Database

You can disable all the existing database connections to the SQLite database once the special flag **SpecialPostRequestDBDisconnect** is set to Y.

SpecialPostRequestDBDisconnect

The runtime engine disconnects all the existing connections to the connected SQLite databases when all of the following conditions are true:

- This flag is set to Y.
- The runtime engine was executed via the xpa studio.
- The runtime engine is activated as an enterprise server (connected to a middleware).
- The runtime engine finished executing the request (the engine has just moved from available status) and is now returning control to the studio. This status can be seen when the engine is connected to a middleware.
- The connection is to a SQLite database.

Valid values: Y, N

Default value: N

Non-Web Client Enhancements

The following non-web client features are enhanced in 4.5.

Improve Git support

To overcome the limitations of PushOK Git and to enable you to work with Local and remote Git repositories, xpa integrated with TortoiseGit and work with repositories directly from the xpa studio interface.

With TortoiseGit, xpa makes it possible for you to:

- Add project files to the repository, commit your changes, pull the changes from and push them to repositories, compare, and merge for individual project repository items; without leaving the studio.
- Cherry-pick instead of merging to have exact control over which commits are ported back to the master branch.

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Session Hijacking Prevention for Web Client

The flag **SpecialRIAGenerateAndValidateSessionID** is renamed as **SpecialClientGenerateAndValidateSessionID** in Magic xpa 4.5. The latter is now effective for Web Client as well. In the previous versions (starting from Magic xpa 3.2d up until 3.3c), the flag retains its old name: **SpecialRIAGenerateAndValidateSessionID**. The flag **SpecialClientGenerateAndValidateSessionID** is not supported for Broker.

Android: Migration to Android Jetpacks

Magic app now uses AndroidX for management of Android Support Library using Jetpacks.

iOS: Support of iOS 10

Magic xpa Rich Client Applications now support minimum iOS 10.

Non-Web Client Removed Features

The following non-web client features is removed from Magic xpa 4.5.

Support for Windows 10 Mobile

Support for Windows 10 Mobile is discontinued in Magic xpa 4.5.

Support for FlexLM Licensing

Support for FlexLM License Server is discontinued from the installation of Magic 4.5 for all product types.

Magic xpa 4.1

New Features and Enhancements

We are delighted to present the Magic xpa 4.1 update with new features and enhancements.

New Features

The following new features are added in Magic xpa 4.1.

Magic xpa Needs Angular 7

Magic xpa 4.1 update now works with Angular 7.

Support for Row Editing in Table Control

Magic xpa now supports editing a row in Table control. The following new features are added to be able to achieve the row editing functionality.

- A new internal event named 'Enter Row Editing'
- A new Magic function named 'IsRowEditing()'

Support for Updating Magic Data View from Outside

Magic xpa now adds the ability to update the variables defined in Data View from Angular code. Consider it to implement uploading files to the server.

New Function DataViewToJSON()

Magic xpa introduces a new function DataViewToJSON() to return the data from program Data View to JSON format to be able to read it from Angular code.

Support for Date Field Using Form Control

Magic xpa now supports editing Date field using Input Type = Date. This is applicable for Native theme. The Date value accessor is added to support editing Date field, which is inspired by angular-date-value-accessor: https://www.npmjs.com/package/angular-date-value-accessor.

Enhancements

The following enhancements are added in Magic xpa 4.1.

Easy Row Selection

You can select a row by clicking anywhere on the desired row. If you click on the disabled controls placed on the desired row, the control does not select the desired row.

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Provision for Better Clarity in Console Messages

In order to bring more clarity with the source of errors in console, Magic xpa now marks the errors to indicate that they are distinctively from Magic.

Record Flush Event - Control Re-fetching from DB

An optional parameter named 'Refetch Record' is now added to the Internal Event 'Record Flush' to control whether the event will re-fetch the record from the database.

Fixed Issue

Defect	Description
154736	In a particular case, not all records are displayed while calling a program using Route.

Magic xpa 4.0

The Magic Web Application Framework

We are delighted to introduce our most awaited offering of Magic xpa, the Magic Web Application Framework, to provide rapid business application development with modern UI development capabilities using Angular, HTML5, and CSS.

Apps Powered by Angular

You can now easily create modern business apps powered by Angular to provide a rich user experience and meet the increasingly complex enterprise business expectations for digital transformation.

You can now take your Magic xpa business logic for the back and the front end, and easily generate Angular code from it. The new Angular-based application can then work seamlessly with any Web presentation framework. The new Web application framework is beneficial in the following ways:

- You are free to tap into the world of Angular.
- Your apps are client-free since the deployed application is pure JS, HTML5, and CSS3.
- You can outsource the screens design.

The Web Client application generation can be viewed in the following illustration:
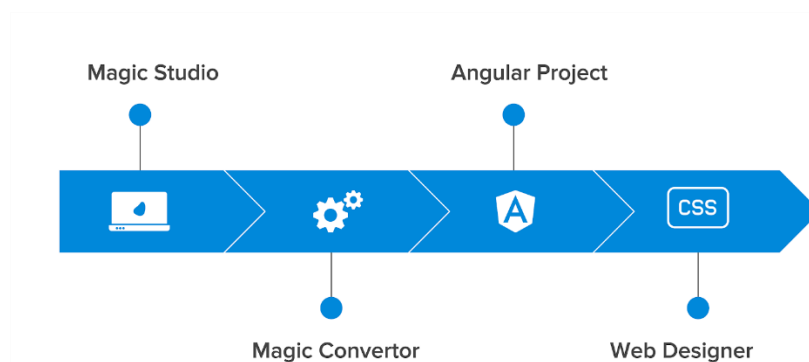
7. In the **Magic Studio,** you define your business logic.
8. In the Magic studio, with just a click of a button, you generate your Angular code using the **Magic Converter**, which is customizable by advanced users.
9. In **Angular,** your code is now ready-to-use, but you can also add additional Angular code that is pure client-side logic using some Magic tags.
10. Outside the Magic, you or a designer can update your screens using **HTML and CSS**.

In this way, you can develop highly-responsive Web applications in no time. You can use the structured, low-code Magic xpa development platform for creating the business logic together with an open platform for the presenting your screens including the UI and the UX.

Why Do You Need Magic's Web Application Framework?

Here is why you need Magic's Web Application:

Magic and Angular Fit Well Together

Applications created with Magic's Web application framework will be pure Angular applications, meaning they will be deployed and managed exactly like any Angular application.

State-of-the-art Technology

Magic's Web application framework uses state-of-the-art client-side technologies including JavaScript, Angular, CSS3, HTML5, and TypeScript. You can create full-fledged business heavy-duty, transaction intensive web-based applications including data entry, enabling you to integrate your applications with Web Technology.

Magic xpa's Client-side Architecture

All of the UI-related work, including the UI logic, is done by the browser (the client), which enables you to create fast and dynamic Web applications. In this architecture, the server only sends raw data to the client and the client generates the screen.

Manageable Large Scale Angular Applications

Over the years, the number of lines of code needed to develop functionality-intensive Web applications has been growing at a very rapid pace. As applications are evolving, the market keeps coming up with better ways to handle the ever-increasing lines of code.

Advanced Customization of Your UIs

The beauty of the decoupling of the UI and logic, which Magic's Web application framework makes possible, is the flexibility to split the effort and time invested, between the business logic and the UI/UX.

Less Code; More Versatility

The Magic engine's robust business logic paradigm can save a lot of code in Angular. It helps to set-up most of the behind-the-scenes logic for presenting the UI dynamically.

Magic offers a wide range of control and form properties, which are very simple to use and can save a lot of lines of coding in Angular. For example, validation, recompute, conditions, visible, enabled, tooltips, and more.

Expressions on any of the properties are very easy to use in Magic, which otherwise would take dozens of lines of codes to develop in Angular, to achieve dynamic behavior in apps.

The appearance properties, such as Font, were removed and the basic appearance is done in HTML/CSS/Angular. The remaining properties are for either binding or behavior and these are set in Magic with no need to code these functionalities in Angular. So, by adding a tag to Angular for one of these binding or behavior functionalities, you are basically linking Magic to Angular.

Fully Compliant with Single-Page Applications (SPAs)

Magic's Web application framework is fully compliant with single-page applications (SPA), which provide a smoother and richer user experience.

Cloud Enabler: The Sky's the Limit

Since the Web client is Web-enabled, running in the browser, the Web client is cloud enabled. This means that your apps can be deployed on any cloud.

Cross Browser Support and Portability

Your Web applications will be platform-agnostic. They will run on any browser and on any device with zero footprint. You do not need to install anything.

Ease of Maintenance in the Future

You can change your application logic from Magic and it will be reflected automatically in your Angular-based apps. Thus, there are less efforts to make changes in your application in future.

Full Git Support

Magic xpa is equipped to empower team development with its full Git support (including branching and merging).

About Magic Software Enterprises

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

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

For more information, visit http://www.magicsoftware.com.

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