

# Magic xpa 4.5a Release Notes



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# Contents

- Contents ..... i
- Web Client New Features ..... 1
- Web Client Enhancements ..... 1
- 64-bit Runtime Features ..... 2
- General ..... 2
- Fixed Issues ..... 2
- Magic xpa 4.5 ..... 4
- Support for 64-bit Server Engine ..... 4
- Web Client New Features ..... 5
- Web Client Enhancements ..... 8
- Non-Web Client New Features ..... 11
- Non-Web Client Enhancements ..... 11
- Non-Web Client Removed Features ..... 12
- Magic xpa 4.1 ..... 13
- New Features and Enhancements ..... 13
- Fixed Issue ..... 14
- Magic xpa 4.0 ..... 15
- The Magic Web Application Framework ..... 15
- About Magic Software Enterprises ..... 18



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.

### 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 occurred 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.



# Past Release Notes



# 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.
  - **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).



- **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.
- **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.

1. **IsLoggedIn()**: Checks if a user is logged in or not.
2. **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%;
}
.table_overflow{
    overflow: hidden;
}
.table_scrollBar{
    height: 600px;
    overflow-y: scroll;
}
.container_border{
    border: lightskyblue solid 1px;
```



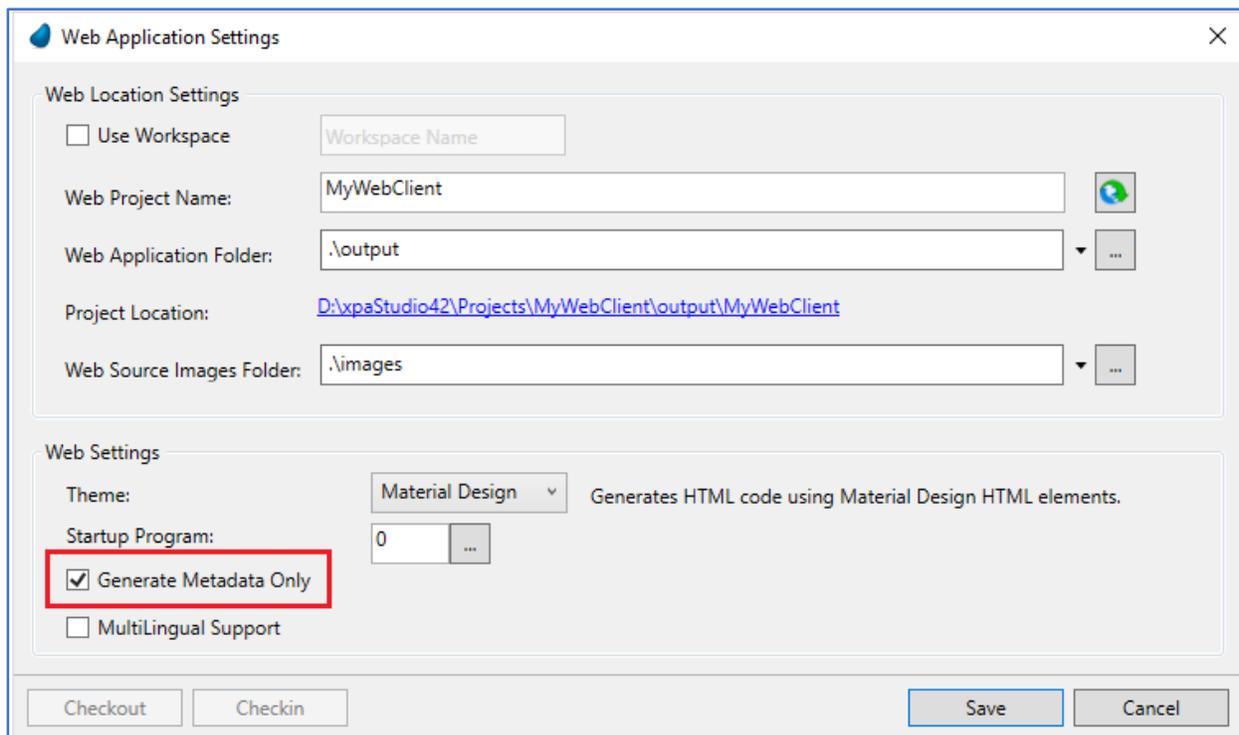
```
}  
.selected {  
  background: #F5F5F5;  
}  
.table_row:hover {  
  background-color: #EEEEEE;  
}
```

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
  - Row Editing in Web Client
  - Routing in Web Client
  - Customizing Overlay Windows
  - Navigating Browser History
  - Customizing Alert and Confirmation Messages
  - Concepts of Login and Logout
  - 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.



## 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.



## 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.

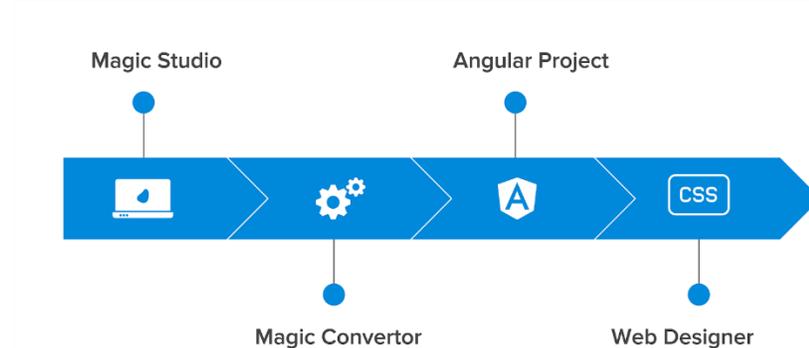
### Apps Powered by Angular

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:



3. In the **Magic Studio**, you define your business logic.
4. 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.
5. 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.
6. 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 [www.magicsoftware.com](http://www.magicsoftware.com).



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