

# Add-on XML work

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## Section 1: Problem & Requirements Overview

### Problem Statement

Customers are currently required to build all aspects of their custom app manually from scratch (with the exception of limited copy and paste support). For new customers, this means they must have at least a basic understanding of how to build relationships, write scripts / calcs and design layouts to create custom apps. Anything of any real complexity is locked behind many hours of frustration and training.

Experienced / professional developers have a slightly different set of problems. There is no good way of doing version comparison, moving solutions forward (injecting schema, layout, scripting changes to production custom apps), or creating reusable and sharable code. This leads to an immense amount of wasted time and a cause for not only frustration, but actually blocks FileMaker from being adopted by some organizations by their IT department.

### Solution Statement

For this release our focus will be on completing the XML representation of FileMaker custom apps. The new XML will only be exposed to customers via a new version of the DDR, and if time permits, new script steps that would allow our developer community to create their own add-on tables for Emma.

### Solution Requirements

#### MUST HAVE

1. Ability to serialize custom apps to XML
2. Option for DDR 2.0 that uses new XML structure

#### NICE TO HAVE

1. Template preview; Gives Emma a preview of what the add-on table will add to her custom app
2. Script steps allowing developers to create their own XML files and add-on tables (these maybe classified as "beta" at launch)

## Section 2: Functionality and Experience

### 1. XML implementation of Draco catalogs

#### Serialize and/or deserialize Draco catalogs and catalog members

Catalog	Description	XML Sample (new in bold)
ValueList - From Another File	Add to existing ValueList for external file reference	TBD
Layout Objects - Popover Button	Add popover button to existing layout objects	TBD
Layout Objects - Slide Control	Add slide control to existing layout objects	TBD
Layout Objects - Chart	Add chart to existing layout objects	TBD
Layout Objects - Groups	Add groups to existing layout objects	TBD

Layout Objects - Single Step Action (all steps)	Update single step action for layout objects to include all script steps	TBD
ScriptStep - remaining unimplemented (44 steps)	Update ScriptSteps to include remaining steps	TBD
ScriptStep - new file I/O ScriptSteps	Add new file I/O script steps	TBD
File Options - remaining unimplemented (8 options)	Add file option properties to the file metadata section	TBD
Records - move to records.xml	Move records (Data) section from template.xml to records.xml	TBD
Account	" <i>Manage Security for "&lt;file&gt;"</i> dialog; "Accounts" tab; encompass a set of privilege sets	TBD
PrivilegeSet	" <i>Manage Security for "&lt;file&gt;"</i> dialog; "Privilege Sets" tab; content includes privilege access and extended privileges	TBD
Access (Privileges)	" <i>Custom &lt;type&gt; Privileges</i> " dialog	
ExtendedPrivilege	" <i>Manage Security for "&lt;file&gt;"</i> dialog; "Extended Privileges" tab	TBD
FileAccess	" <i>Manage Security for "&lt;file&gt;"</i> dialog; "File Access" tab	TBD
CustomFunctions	" <i>Manage Custom Functions for "&lt;file&gt;"</i> dialog	TBD
CustomMenu	" <i>Manage Custom Menus</i> " dialog; " <i>Custom Menus</i> " tab	TBD
CustomMenuItem	" <i>Edit Custom Menu</i> " dialog	TBD
CustomMenuSet	" <i>Manage Custom Menus</i> " dialog; " <i>Custom Menu Sets</i> " tab	TBD
Theme	" <i>Manage Themes for "&lt;file&gt;"</i> dialog	TBD
Container	" <i>Manage Containers</i> " dialog; base directories	TBD
ExternalDataSource	" <i>Manage External Data Sources</i> " dialog; external file reference and ODBC data source	TBD

## Miscellaneous changes to the template.xml file

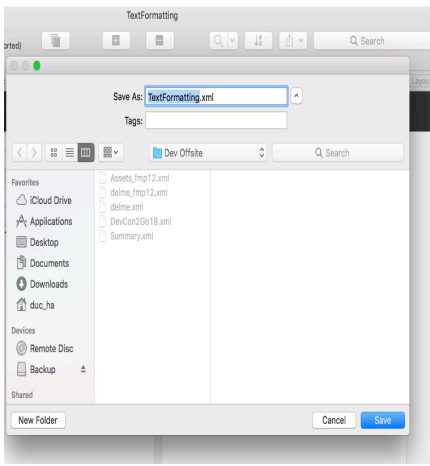
Area	Description	XML Sample
Record data with repeating fields	Record data in repeating fields will serialize /deserialize only valid repeating field data	TBD
Record data text format	Text format of record data will be serialized /deserialized	TBD
Text and Button objects text format	Text format of Text and Button layout objects will be serialized/deserialized	TBD

## 2. Database Design Report (DDR) v.2.0

We will not be replacing existing DDR functionality for this release. We will, however, provide an alternative with an "updated" XML structure, version 2.0.

### User interface to invoke and create report

Name	Purpose	Screenshot
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Menu	Menu selection for generating database design report version 2.0. Menu item name is "Save a Copy as XML".	
Dialog	<p>Standard OS "Save as" dialog, with name of current file as default name with .xml extension instead.</p> <p>Upon completion, Windows Explorer /macOS Finder opens a window to the parent folder of the newly created xml file.</p>	


### XML report of catalogs generated (template.xml)

Category	XML Element Tag	Catalog / Description
<i>Structure</i>	BaseDirectoryCatalog	Container
	ExternalDataSourceCatalog	FileReference, OdbcSource
	BaseTableCatalog	BaseTable
	TableOccurrenceCatalog	TableOccurrence, TableOccurrenceNotes
	FieldsForTables	Field
	ValueListCatalog	ValueList
	RelationshipCatalog	Relationship
	ScriptCatalog	Script
	ThemeCatalog	Theme
	LayoutCatalog	Layout
	StepsForScripts	ScriptStep
	CustomMenuCatalog	CustomMenu
	CustomMenuSetCatalog	CustomMenuSet
	CustomFunctionsCatalog	CustomFunction
	FileAccessCatalog	FileAccess
	ExtendedPrivilegesCatalog	ExtendedPrivilege
	PrivilegeSetsCatalog	PrivilegeSet
	AccountsCatalog	Account
<i>Metadata</i>	Minimum	Minimum version allowed
	Login	Log in using
	SavePassword	Allow keychain access
	requireMobile	Required iOS passcode
	Defaults	Switch to layout
	HideToolbars	Hide all toolbars

	IconData	Icons
	Spelling	Spelling
	Text	Text Handling
	DataEntry	Data Entry
	ScriptTriggers	Script Trigger
<i>Directives</i>	Metadata	Data about xml template
	PortalSetup	Portal data

### 3. Template Preview Information

Provides a visual representation of the template.xml catalogs

Category	Catalogs	Screenshot	Description
Structure	<ul style="list-style-type: none"> <li>BaseTables</li> <li>Relationships</li> <li>Layouts</li> </ul>		<ol style="list-style-type: none"> <li>1. Click Starter or Add-on item will show template information on the right pane of the Launch Center /Add-on Tables dialog.</li> <li>2. If the text area is larger than the available space, a vertical scrollbar allows the user to scroll to view.</li> <li>3. If any of the Tables, Layouts, or Scripts catalogs are unaffected by the selected template, that information will be hidden (rather than "None" appearing under the catalog type) and text will be realigned accordingly.</li> <li>4. Upon selecting another item within the dialog, the item description will scroll back to top.</li> </ol>
Directives	<ul style="list-style-type: none"> <li>Portal Data</li> <li>Layout Objects</li> <li>BaseTable</li> </ul>	N/A	

### 4. XML Version

Provide backward compatibility when serializing/deserializing previous dynamic template XML version.

When serializing and/or deserializing version 1.0, data and XML content should remain the same as with in-market FileMaker application. XML version 2.0 can include, additionally, the elements listed in section "*XML Implementation of Draco catalogs*" above.

## 5. Dynamic Template XML Script Step (Beta release)

Provide script step(s) that allow serialization of FileMaker solutions

Name	Description	Parameters
Render File as XML	<p>"Stores in a field or variable an XML representation of the schema, layouts, and scripts of an open file."</p> <p>Serializes a FileMaker file into XML ( 2.0 grammar, no records data )</p> <p>Requires Full Access to the file to serialize.</p> <p>Category: Misc</p>	<ul style="list-style-type: none"><li>• "Window name" - (Calc dialog) Name of the Window of the FileMaker file to serialize</li><li>• "Target" - (Specify Target dialog) Where to save serialized XML content</li></ul>
Save a Copy as XML	<p>"Saves a copy of an open file as an XML representation of the schema, layouts, and scripts."</p> <p>Serializes a FileMaker file into an XML file ( 2.0 grammar, no records data ). Same feature as the "Save a Copy as XML..." menu item in the Tools menu, except does not open an Explorer/Finder window to the parent folder.</p> <p>Requires Full Access to the current file.</p> <p>Category: Files</p>	<ul style="list-style-type: none"><li>• "Window name" - (Calc dialog) Name of the Window of the FileMaker file to serialize</li><li>• "Destination file" - ( Specify File dialog ) The path+name of the new XML file to save serialized XML content into</li></ul>

ETS script step(s) that allow serialization of FileMaker solutions

Name	Description	Parameters
Save a Copy as XML Package	<p>"Saves a copy of an open file as an XML template package, representing schema, layouts, scripts, and records."</p> <p>Serializes a FileMaker file into an XML template package including record data ( 2.0 grammar ) saved to the user's Desktop location. The package name is the name of the FileMaker file with an incremented number on duplicate folder names.</p> <p>Requires Full Access to the current file.</p> <p>Category: Misc</p>	<ul style="list-style-type: none"><li>• "Window name" - (Calc dialog) Name of the Window of the FileMaker file to serialize</li></ul>

## 6. External File Reference ( EXPERIMENTAL )

External file referenced deserialization can be perform if the folder exists based on the serialized external data source location.

Type	Action
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Starter / Addon	<p>prompt user to select <i>fmp12</i> file</p> <ul style="list-style-type: none"><li>• no <i>fmp12</i> file exists in the location specified by the external data source</li><li>• no <b>template.xml</b> folder with the name of the referenced external <i>fmp12</i> file exists in the location specified by the external data source</li></ul> <p>prompt user to allow access to <i>fmp12</i> file</p> <ul style="list-style-type: none"><li>• <i>fmp12</i> file exists in the location specified by the external data source</li><li>• <b>template.xml</b> folder with the name of the referenced external <i>fmp12</i> file exists in the location specified by the external data source (deserialization of external file was successful)</li></ul>
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