# Using the fmresultset grammar

The XML element names in this grammar use FileMaker terminology, and the storage of fields is separated from the type of fields. The grammar also includes the ability to identify summary, calculation, and global fields.

To use the `fmresultset` grammar, specify the following name of the `fmresultset` grammar in the URL requesting the XML document from the Web Publishing Engine:

```
fmresultset.xml
```

For example:

```
http://192.168.123.101/fmi/xml/fmresultset.xml?-db=employees&-lay=family
&-findall
```

Note   When specifying the `fmresultset` grammar, be sure to use lowercase.

The Web Publishing Engine will generate an XML document using the `fmresultset` grammar. In the XML document, the Web Publishing Engine will reference the document type definition for the `fmresultset` grammar in the `<!DOCTYPE>` instruction in the second line of the document, immediately after the `<?xml...?>` instruction. The `<!DOCTYPE>` instruction specifies the URL for downloading the DTD for the `fmresultset` grammar.

## Description of elements in the fmresultset grammar

The `fmresultset` grammar consists primarily of the `<datasource>` element, the `<metadata>` element, and the `<resultset>` element.

**<datasource> element**

In the `fmresultset` grammar, the `<datasource>` element contains the table, layout, date-format, time-format, timestamp-format, total-count, and database attributes.

- The date-format attribute of the `<datasource>` element specifies the format of dates in the XML document:

    `MM/dd/yyyy`

where:

  - `MM` is the 2-digit value for the month (01 through 12, where 01 is January and 12 is December)
  - `dd` is the 2-digit value for the day of the month (01 through 31)
  - `yyyy` is the 4-digit value for the year
- The time-format attribute of the `<datasource>` element specifies the format of times in the XML document:

    `HH:mm:ss`

where:

  - `HH`  is the 2-digit value for hours (00 through 23, for the 24-hour format)
  - `mm`  is the 2-digit value for minutes (00 through 59)
  - `ss` is the 2-digit value for seconds (00 through 59)
- The timestamp-format attribute of the `<datasource>` element combines the formats of date-format and time-format into one timestamp:

    `MM/dd/yyyy HH:mm:ss`

**<metadata> element**

The `<metadata>` element of the `fmresultset` grammar contains one or more `<field-definition>` and `<relatedset-definition>` elements, each containing attributes for one of the fields of the result set.

The `<field-definition>` attributes specify:

- whether the field is an `auto-enter` field (`"yes"` or `"no"`)
- whether the field is a `four-digit-year` field (`"yes"` or `"no"`)
- whether it is a global field (`"yes"` or `"no"`)
- the maximum number of repeating values (`max-repeat` attribute)
- the maximum number of characters allowed (`max-characters` attribute)
- whether it is a `not-empty` field (`"yes"` or `"no"`)
- whether it is for numeric data only (`"yes"` or `"no"`)
- result (`"text"`, `"number"`, `"date"`, `"time"`, `"timestamp"`, or `"container"`)
- whether it is a `time-of-day` field (`"yes"` or `"no"`)
- type (`"normal"`, `"calculation"`, or `"summary"`)
- and the field name (fully qualified as necessary)

The `<relatedset-definition>` element represents a portal. Each related field in a portal is represented by the `<field-definition>` element contained within the `<relatedset-definition>` element. If there are multiple related fields in a portal, the field definitions for the related fields are grouped within a single `<relatedset-definition>` element.

**<resultset> element**

The `<resultset>` element contains the `<record>` elements returned as the result of a query and an attribute for the total number of records found. Each `<record>` element contains the field data for one record in the result set—including the `mod-id` and the `record-id` attributes for the record, and the `<data>` element containing the data for one field in the record.

Each record in a portal is represented by a `<record>` element within the `<relatedset>` element. The count attribute of the `<relatedset>` element specifies the number of records in the portal, and the table attribute specifies the table associated with the portal.

## Example of XML data in the fmresultset grammar

```
<fmresultset xmlns="http://www.filemaker.com/xml/fmresultset" version="1.0">
<error code="0"/>
<product build="02/10/2016" name="FileMaker Web Publishing Engine"
version="15.0.1.00"/>
<datasource database="art" date-format="MM/dd/yyyy" layout="web3" table="art"
time-format="HH:mm:ss" timestamp-format="MM/dd/yyyy HH:mm:ss"
total-count="12"/>
<metadata>
<field-definition auto-enter="no" four-digit-year="no" global="no"
max-repeat="1" name="Title" not-empty="no" numeric-only="no" result="text"
time-of-day="no" type="normal"/>
<field-definition auto-enter="no" four-digit-year="no" global="no"
max-repeat="1" name="Artist" not-empty="no" numeric-only="no" result="text"
time-of-day="no" type="normal"/>
<field-definition auto-enter="no" four-digit-year="no" global="no"
max-repeat="1" name="Style" not-empty="no" numeric-only="no" result="text"
time-of-day="no" type="normal"/>
<field-definition auto-enter="no" four-digit-year="no" global="no"
max-repeat="1" name="length" not-empty="no" numeric-only="no" result="number"
time-of-day="no" type="calculation"/>
<relatedset-definition table="artlocations">
<field-definition auto-enter="no" four-digit-year="no" global="no"
max-repeat="1" name="artlocations::Location" not-empty="no" numeric-only="no"
result="text" time-of-day="no" type="normal"/>
<field-definition auto-enter="no" four-digit-year="no" global="no"
max-repeat="1" name="artlocations::Date" not-empty="no" numeric-only="no"
result="date" time-of-day="no" type="normal"/>
</relatedset-definition>
</metadata>
<resultset count="1" fetch-size="1">
<record mod-id="6" record-id="17">
<field name="Title">
<data>Spring in Giverny 6</data>
</field>
<field name="Artist">
<data>Claude Monet</data>
</field>
<field name="Style">
<data/>
</field>
<field name="length">
<data>19</data>
</field>
<relatedset count="0" table="artlocations"/>
</record>
</resultset>
</fmresultset>
```

# Using other FileMaker XML grammars

The other FileMaker XML grammars contain information about field types, value lists, and layouts. `FMPXMLRESULT` is functionally equivalent to `fmresultset`. To access value lists and field display information in layouts, you must use the `FMPXMLLAYOUT` grammar. The `FMPXMLRESULT` and `FMPXMLLAYOUT` grammars are more compact for data interchange.

To use the `FMPXMLRESULT` grammar, specify the following grammar name in the URL requesting the XML document from the Web Publishing Engine:

`FMPXMLRESULT.xml`

For example:

`http://192.168.123.101/fmi/xml/FMPXMLRESULT.xml?-db=employees&-lay=family`
`&-findall`

To use the `FMPXMLLAYOUT` grammar, specify the following grammar name with the `-view` query command in the URL requesting the XML document from the Web Publishing Engine:

`FMPXMLLAYOUT.xml`

For example:

`http://192.168.123.101/fmi/xml/FMPXMLLAYOUT.xml?-db=employees&-lay=family`
`&-view`

Note   When specifying the `FMPXMLRESULT` and `FMPXMLLAYOUT` grammars, be sure to enter the grammar name in uppercase.

In the generated XML document, the Web Publishing Engine will reference the document type definition for the grammar in the `<!DOCTYPE>` instruction in the second line of the document, immediately after the `<?xml...?>` instruction. The `<!DOCTYPE>` instruction specifies the URL for downloading the DTD for the grammar.

## Description of elements in the FMPXMLRESULT grammar

In the `FMPXMLRESULT` grammar, the `<DATABASE>` element contains the NAME, RECORDS, DATEFORMAT, LAYOUT, and TIMEFORMAT attributes.

The DATEFORMAT attribute of the `<DATABASE>` element specifies the format of dates in the XML document. The TIMEFORMAT attribute of the `<DATABASE>` element specifies the format of times in the XML document. The date and time formats for the `FMPXMLRESULT` and the `fmresultset` grammars are the same. See "Description of elements in the fmresultset grammar" on page 28.

The `<METADATA>` element of the `FMPXMLRESULT` grammar contains one or more `<FIELD>` elements, each containing information for one of the fields/columns of the result set—including the name of the field as defined in the database, the field type, the Yes or No allowance for empty fields (EMPTYOK attribute) and the maximum number of repeating values (MAXREPEAT attribute). Valid values for field types are TEXT, NUMBER, DATE, TIME, TIMESTAMP, and CONTAINER.

The `<RESULTSET>` element contains all of the `<ROW>` elements returned as the result of a query and an attribute for the total number of records found. Each `<ROW>` element contains the field/column data for one row in the result set. This data includes the RECORDID and MODID for the row (see "–modid (Modification ID) query parameter" on page 51), and the `<COL>` element. The `<COL>` element contains the data for one field/column in the row where multiple `<DATA>` elements represent one of the values in a repeating or portal field.

## Example of XML data in the FMPXMLRESULT grammar

The following is an example of XML data generated with the `FMPXMLRESULT` grammar.

```
<FMPXMLRESULT xmlns="http://www.filemaker.com/fmpxmlresult">
<ERRORCODE>0</ERRORCODE>
<PRODUCT BUILD="02/10/2016" NAME="FileMaker Web Publishing Engine"
VERSION="15.0.1.00"/>
<DATABASE DATEFORMAT="MM/dd/yyyy" LAYOUT="web" NAME="art" RECORDS="12"
TIMEFORMAT="HH:mm:ss"/>
<METADATA>
<FIELD EMPTYOK="YES" MAXREPEAT="1" NAME="Title" TYPE="TEXT"/>
<FIELD EMPTYOK="YES" MAXREPEAT="1" NAME="Artist" TYPE="TEXT"/>
<FIELD EMPTYOK="YES" MAXREPEAT="1" NAME="Image" TYPE="CONTAINER"/>
</METADATA>
<RESULTSET FOUND="1">
<ROW MODID="6" RECORDID="18">
<COL>
<DATA>Spring in Giverny 7</DATA>
</COL>
<COL>
<DATA>Claude Monet</DATA>
</COL>
<COL>
<DATA>
/fmi/xml/cnt/Untitled.pct?-db=art&-lay=web&-recid=18&-field=Image(1)
</DATA>
</COL>
</ROW>
</RESULTSET>
</FMPXMLRESULT>
```

The order of the `<COL>` elements corresponds with the order of the `<FIELD>` elements in the `<METADATA>` element—for example, where the "Title" and "Artist" fields are listed in the `<METADATA>` element, "Spring in Giverny 7" and then "Claude Monet" are listed in the same order in the `<RESULTSET>` and `<ROW>` elements.

## Description of elements in the FMPXMLLAYOUT grammar

In the `FMPXMLLAYOUT` grammar, the `<LAYOUT>` element contains the name of the layout, the name of the database, and `<FIELD>` elements for each field found in the corresponding layout in the database. Each `<FIELD>` element describes the style type of the field, and contains the VALUELIST attribute for any associated value list of the field.

The `<VALUELISTS>` element contains one or more `<VALUELIST>` elements for each value list found in the layout—each including the name of the value list and a `<VALUE>` element for each value in the list.

Depending on the options selected in the **Specify Fields for Value List** dialog box in the FileMaker database, the `<VALUE>` element contains a DISPLAY attribute that contains the value in the first field only, the second field only, or both fields of a value list. For example, suppose the first field in a value list stores the art style's ID number (such as "100"), and the second field displays the art style's associated name (such as "Impressionism"). Here is a summary of the contents of the DISPLAY attribute when the various combinations of options are selected in the **Specify Fields for Value List** dialog box:

- If **Also display values from second field** is not selected, the DISPLAY attribute contains the value in the first field of a value list only. In the following XML data example, the DISPLAY attribute contains the art style's ID number only:

```
<VALUELISTS>
      <VALUELIST NAME="style">
        <VALUE DISPLAY="100">100</VALUE>
        <VALUE DISPLAY="101">101</VALUE>
        <VALUE DISPLAY="102">102</VALUE>
      </VALUELIST>
</VALUELISTS>
```

- If **Also display values from second field** and **Show values only from second field** are both selected, the DISPLAY attribute contains the value in the second field only. In the following XML data example, the DISPLAY attribute contains the art style's name only:

```
<VALUELISTS>
      <VALUELIST NAME="style">
        <VALUE DISPLAY="Impressionism">100</VALUE>
        <VALUE DISPLAY="Cubism">101</VALUE>
        <VALUE DISPLAY="Abstract">102</VALUE>
      </VALUELIST>
</VALUELISTS>
```

- If **Also display values from second field** is selected and **Show values only from second field** is not selected, the DISPLAY attribute contains the values in both fields of a value list. In the following XML data example, the DISPLAY attribute contains both the art style's ID number and the art style's name:

```
<VALUELISTS>
        <VALUELIST NAME="style">
          <VALUE DISPLAY="100 Impressionism">100</VALUE>
          <VALUE DISPLAY="101 Cubism">101</VALUE>
          <VALUE DISPLAY="102 Abstract">102</VALUE>
        </VALUELIST>
</VALUELISTS>
```

For date, time, and timestamp fields, data for value lists are formatted using the "fm" format for that field type. The "fm" formats are `MM/DD/YYYY` for date, `hh:mm:ss` for time, and `MM/DD/YYYY hh:mm:ss` for timestamp. For example, if a "birthdays" value list is used for a pop-up menu on a "birthdate" field of a layout, and the "birthdate" field is of type date, then the values output for that value list will all be in the "fm" date format.

Note   If two fields with different field types on a layout share the same value list, the first field's type determines the format of the value list data.

## Example of XML data in the FMPXMLLAYOUT grammar

```
<FMPXMLLAYOUT xmlns="http://www.filemaker.com/fmpxmllayout">
<ERRORCODE>0</ERRORCODE>
<PRODUCT BUILD="02/10/2016" NAME="FileMaker Web Publishing Engine"
VERSION="15.0.1.00"/>
<LAYOUT DATABASE="art" NAME="web2">
<FIELD NAME="Title">
<STYLE TYPE="EDITTEXT" VALUELIST=""/>
</FIELD>
<FIELD NAME="Artist">
<STYLE TYPE="EDITTEXT" VALUELIST=""/>
</FIELD>
<FIELD NAME="Image">
<STYLE TYPE="EDITTEXT" VALUELIST=""/>
</FIELD>
<FIELD NAME="artlocations::Location">
<STYLE TYPE="EDITTEXT" VALUELIST=""/>
</FIELD>
<FIELD NAME="artlocations::Date">
<STYLE TYPE="EDITTEXT" VALUELIST=""/>
</FIELD>
<FIELD NAME="Style">
<STYLE TYPE="POPUPMENU" VALUELIST="style"/>
</FIELD>
</LAYOUT>
<VALUELISTS>
<VALUELIST NAME="style">
<VALUE DISPLAY="Impressionist">Impressionist</VALUE>
<VALUE DISPLAY="Modern">Modern</VALUE>
<VALUE DISPLAY="Abstract">Abstract</VALUE>
</VALUELIST>
</VALUELISTS>
</FMPXMLLAYOUT>
```