

# ACME Library Database Technical Resource Kit

## Table Structures

In the following section, the “Type” column describes the format of the data stored in the field. Generic terms are used here. Each type can be mapped to its SQL Server equivalent as follows.

Generic Term	SQL Server Equivalent	Comments
Boolean	bit	True or False value. The bit data type supports NULL values, but in the library database, all Boolean fields are required.
Currency	money	Used for patron fines and other financial values.
Date	datetime	All date related values except for standalone years.
Integer	smallint	Used for most non-decimal values.
Long	bigint	Mainly used for primary keys values. Some primary key fields have a type of “Long - Auto,” which indicates that the ID value is autogenerated by SQL Server using the IDENTITY field property.
Memo	varchar(max)	Long, descriptive text and comments.
Number	decimal	All non-financial decimal values.
Text(x)	varchar(x)	All variable-length text values other than long comments.

**Activity** - This table defines the features of the application that can be secured using group rights. These activities are linked with security groups (from the *GroupName* table) to establish the rights for a particular group.

Field	Type	Description
ID	Long	Primary key. This key is not auto-generated; the value supplied matches internal values used within the Library application. Required.
FullName	Text(50)	Descriptive name of this activity. Required.

The following activities are defined at this time.

- 1 - Manage authors and names
- 2 - Manage author and name types
- 3 - Manage copy status codes
- 4 - Manage media types
- 5 - Manage series
- 6 - Manage security groups
- 7 - Manage library materials
- 8 - Manage patrons
- 9 - Manage publishers
- 10 - Manage system values
- 11 - Manage administrative users
- 12 - Process and accept fees
- 13 - Manage locations
- 14 - Check out library items
- 15 - Check in library items
- 16 - Access administrative features
- 17 - Perform daily processing
- 18 - Run system reports
- 19 - Access patrons without patron password
- 20 - Manage barcodes
- 21 - Manage holidays

- 22 - Manage patron groups
- 23 - View administrative patron messages

**Author** - Someone who writes, edits, illustrates, or in some other way contributes to a book or media item. In all cases, when the term “author” appears in this table, it refers to anyone who contributes to the item.

Field	Type	Description
ID	Long - Auto	Primary key; automatically assigned. Required.
LastName	Text(50)	Last name of this author. Required.
FirstName	Text(30)	First name of this author. Optional.
MiddleName	Text(30)	Middle name or initial of this author. Optional.
Suffix	Text(10)	Name suffix, such as “Jr.” Optional.
BirthYear	Integer	Year of birth. Use negative numbers for BC. Optional
DeathYear	Integer	Year of death. Use negative numbers for BC. Optional.
Comments	Text(250)	Miscellaneous comments about this author. Optional.

**BarcodeLabel** - Describes the template for a single label on a barcode sheet. There may be any number of labels on a single sheet, but they all have the same shape and format.

Field	Type	Description
ID	Long - Auto	Primary key; automatically assigned. Required.
FullName	Text(50)	Name of this label template. Required.
BarcodeSheet	Long	The sheet template on which this label template appears. Foreign reference to BarcodeSheet.ID. Required.
UnitType	Text(1)	Units used in the various measurements found in most fields in this record. Required. <ul style="list-style-type: none"> <li>• I = Inches</li> <li>• C = Centimeters</li> <li>• P = Points</li> <li>• T = Twips</li> </ul>

**BarcodeLabelItem** - Describes a single item as found on a barcode label. Items include static and generated text, lines, rectangles, and generated barcodes.

Field	Type	Description
ID	Long - Auto	Primary key; automatically assigned. Required.
Priority	Integer	Identifies the order in which items on the label are printed. Lower numbers are printed first. Required.
BarcodeLabel	Long	The label template on which this item appears. Foreign reference to BarcodeLabel.ID. Required.
ItemType	Text(1)	What type of item does this record represent? Required. <ul style="list-style-type: none"> <li>• T = Static text</li> <li>• B = Barcode</li> <li>• N = Barcode number</li> <li>• L = Line</li> <li>• R = Rectangle</li> </ul>
PosLeft	Number	Left edge of the item relative to the left edge of the label. Measured according to the related BarcodeLabel.UnitType field. Required.
PosTop	Number	Top edge of the item relative to the top edge of the label. Measured according to the related BarcodeLabel.UnitType field. Required.
PosWidth	Number	Width of the item, or of the box in which the item is drawn. For lines, this is the X-coordinate of the end point. Measured according to the related BarcodeLabel.UnitType field. Required.
PosHeight	Number	Height of the item, or of the box in which the item is drawn. For lines, this is the Y-coordinate of the end point. Measured according to the related BarcodeLabel.UnitType field. Required.
Rotation	Integer	Rotation angle, in degrees, of the box in which the item is drawn. Zero

Field	Type	Description
		(0) equals no angle, and increasing angles proceed clockwise. Ranges from 0 to 359. Only used when ItemType is T, B, N, or R. Optional.
FontName	Text(50)	The name of the font used to write the text. Valid only when ItemType is T or N. Optional.
FontSize	Number	The size of the font used to write the text. Valid only when ItemType is T, B, or N. Optional.
StaticText	Text(100)	The static text to display on the label. Valid only when ItemType is T. Optional.
FontStyle	Text(4)	The style of the font text. May be any combination of the following four codes. <ul style="list-style-type: none"> <li>• B = Bold</li> <li>• I = Italic</li> <li>• U = Underline</li> <li>• K = Strikeout</li> </ul> Leave this field NULL to use the normal style. Valid only when ItemType is T or N. Optional.
Color1	Long	The main color of the text, barcode, or line. When printing a rectangle, this is the border color. If NULL, black is used. A standard Windows 32-bit RGB color value. Optional.
Color2	Long	The fill color when printing a rectangle. If NULL, white is used. A standard Windows 32-bit RGB color value. Optional.
Alignment	Integer	The alignment of the text within the bounding box. Valid only when ItemType is T, B, or N. <ul style="list-style-type: none"> <li>• 1 = Align in top-left corner of box</li> <li>• 2 = Align in top-center area of box</li> <li>• 4 = Align in top-right corner of box</li> <li>• 16 = Align in middle-left area of box</li> <li>• 32 = Align in middle-center area of box</li> <li>• 64 = Align in middle-right area of box</li> <li>• 256 = Align in bottom-left corner of box</li> <li>• 512 = Align in bottom-center area of box</li> <li>• 1024 = Align in bottom-right corner of box</li> </ul>
PadDigits	Integer	The number of digits in which to pad the barcode number. Set to zero (0) to ignore padding. Ranges from 0 to 20. If the barcode length is less than the specified number of digits, it is padded on the left with zeros. Only applies to ItemTypes of B and N.

**BarcodeSheet** - Describes the template for a single page of barcode labels.

Field	Type	Description
ID	Long - Auto	Primary key; automatically assigned. Required.
FullName	Text(50)	Name of this sheet template. Required.
UnitType	Text(1)	Units used in the various measurements found in most fields in this record. Required. <ul style="list-style-type: none"> <li>• I = Inches</li> <li>• C = Centimeters</li> <li>• P = Points</li> <li>• T = Twips</li> </ul>
PageWidth	Number	Width of the entire page. Required.
PageHeight	Number	Height of the entire page. Required.
MarginLeft	Number	Left border, up to the edge of the printable label area. Required.
MarginRight	Number	Right border, up to the edge of the printable label area. Required.
MarginTop	Number	Top border, up to the edge of the printable label area. Required.
MarginBottom	Number	Bottom border, up to the edge of the printable label area. Required.

Field	Type	Description
IntraColumn	Number	The width of the blank area between label columns. Required.
IntraRow	Number	The height of the blank area between label rows. Required.
ColumnsCount	Integer	The number of label columns on this template. Required.
RowsCount	Integer	The number of label rows on this template. Required.

**CodeAuthorType** - In the Library program, the word “author” is a generic term used for authors, illustrators, editors, and any other similar contributor to an item in the library’s inventory. This table lets you define those roles.

Field	Type	Description
ID	Long - Auto	Primary key; automatically assigned. Required.
FullName	Text(50)	Name of this type of author or contributor. Required.

**CodeCopyStatus** - Copy status codes include things like “circulating,” “being repaired,” and any other primary status the library wishes to set. The checked-in or checked-out status is handled through other features, as is the flag that indicates whether an item is a reference item or not.

Field	Type	Description
ID	Long - Auto	Primary key; automatically assigned. Required.
FullName	Text(50)	Name of this status entry. Required.

**CodeLocation** - Physical locations where library items are stored. This could be separate sites, or rooms or areas within a common location.

Field	Type	Description
ID	Long - Auto	Primary key; automatically assigned. Required.
FullName	Text(50)	Name of this location. Required.
LastProcessing	Date	The date when Daily Processing was last done for this location. If NULL, processing has not yet been done. Optional.

**CodeMediaType** - Types of media, such as Book, Magazine, Video, CD, etc.

Field	Type	Description
ID	Long - Auto	Primary key; automatically assigned. Required.
FullName	Text(50)	Name of this media type. Required.
CheckoutDays	Integer	Number of days for which items in this type can be checked out, before renewal. Required.
RenewDays	Integer	Number of days to add to the original checkout period for a renewal of items within this type. Required.
RenewTimes	Integer	Maximum number of times the item can be renewed by a patron before it must be returned. Required.
DailyFine	Currency	Amount charged per day for an overdue item of this type. Required.

**CodePatronGroup** - Categories of groups into which patrons are placed. These are not security groups, but general groups for reporting purposes. This was added to support grouping of patrons by units within a company, or by class/grade within a school library setting.

Field	Type	Description
ID	Long - Auto	Primary key; automatically assigned. Required.
FullName	Text(50)	Name of this patron group. Required.

**CodeSeries** - Some items appear as part of a larger series or collection. This table defines the collection and series names.

Field	Type	Description
ID	Long - Auto	Primary key; automatically assigned. Required.
FullName	Text(50)	Name of this series or collection. Required.

**GroupActivity** - This table connects records in the *Activity* table to records in the *GroupName* table (a many-to-many relationship) to establish the activities a security group can perform.

Field	Type	Description
GroupID	Long	Primary key. The associated security group. Foreign reference to GroupName.ID. Required.
ActivityID	Long	Primary key. The activity that members of the associated security group can perform. Foreign reference to Activity.ID. Required.

**GroupName** - Each record in this table defines a single security group. Librarians and other administrators each belong to a single security group.

Field	Type	Description
ID	Long - Auto	Primary key; automatically assigned. Required.
FullName	Text(50)	Name of this group. Required.

**Holiday** - When checking an item out to a patron, the return date should not fall on holiday (or any day that the library is closed) since the patron might not have a way to return the book on the day it's due. This table defines one-time and recurring holidays.

Field	Type	Description								
ID	Long - Auto	Primary key; automatically assigned. Required.								
FullName	Text(50)	Name of this holiday. Not necessarily unique. Required.								
EntryType	Text(1)	The type of entry. Required. From the following list. <ul style="list-style-type: none"><li>• A = Annual (as in “every December 25”)</li><li>• E = Weekly (as in “every Sunday”)</li><li>• O = One-time (as in “2/16/2004 is President’s Day”)</li></ul>								
EntryDetail	Text(10)	Entry-type-specific detail. Required. Differs for each entry type. <table><tr><th>Entry Type</th><th>Detail Value</th></tr><tr><td>A</td><td>Month and Day in “mm/dd” format.</td></tr><tr><td>E</td><td>Single digit: 1=Sunday through 7=Saturday</td></tr><tr><td>O</td><td>Date in “yyyy/mm/dd” format.</td></tr></table>	Entry Type	Detail Value	A	Month and Day in “mm/dd” format.	E	Single digit: 1=Sunday through 7=Saturday	O	Date in “yyyy/mm/dd” format.
Entry Type	Detail Value									
A	Month and Day in “mm/dd” format.									
E	Single digit: 1=Sunday through 7=Saturday									
O	Date in “yyyy/mm/dd” format.									

**ItemAuthor** - An author, editor, and so on, for a specific named item. This table establishes a many-to-many relationship between the *NamedItem* and *Author* tables.

Field	Type	Description
ItemID	Long	Primary key. The associated named item. Foreign reference to NamedItem.ID. Required.
AuthorID	Long	Primary key. The author associated with the named item. Foreign reference to Author.ID. Required.
Sequence	Integer	Relative order of this author among the authors for this named item. Authors with smaller numbers appear first. Required.
AuthorType	Long	The specific type of contribution given by this author for this named item. Foreign reference to CodeAuthorType.ID. Required.

**ItemCopy** - A single copy of a named item. Separate copies of the same item will appear as separate records in this table.

Field	Type	Description
ID	Long - Auto	Primary key; automatically assigned. Required.
ItemID	Long	The related named item record. Foreign reference to NamedItem.ID. Required.
CopyNumber	Integer	Numbered position of this item within the set of copies for a named item. Required, and unique among items with the same ItemID field value.
Description	Memo	Comments specific to this copy of the item. Optional.
Available	Boolean	Is this copy available for checkout or circulation? 0 for False, 1 for True. Required.

Field	Type	Description
Missing	Boolean	Has this copy been reported missing? 0 for False, 1 for True. Required.
Reference	Boolean	Is this a reference copy? 0 for False, 1 for True. Required.
Condition	Text(30)	Any comments relevant to the condition of this copy. Optional.
Acquired	Date	Date this copy was acquired by the library. Optional.
Cost	Currency	Value of this item, either original or replacement value. Optional.
Status	Long	The general status of this copy. Foreign reference to CodeCopyStatus.ID. Required.
Barcode	Text(20)	Barcode found on the copy. At this time, only numeric barcodes are supported. Optional.
Location	Long	The site or room location of this item. Foreign reference to CodeLocation.ID. Optional.

**ItemKeyword** - Connects a keyword with a named item through a many-to-many relationship between the *NamedItem* and *Keyword* tables.

Field	Type	Description
ItemID	Long	Primary key. The associated named item. Foreign reference to NamedItem.ID. Required.
KeywordID	Long	Primary key. The keyword to associate with the named item. Foreign reference to Keyword.ID. Required.

**ItemSubject** - Connects a subject with a named item through a many-to-many relationship between the *NamedItem* and *Subject* tables.

Field	Type	Description
ItemID	Long	Primary key. The associated named item. Foreign reference to NamedItem.ID. Required.
SubjectID	Long	Primary key. The subject to associate with the named item. Foreign reference to Subject.ID. Required.

**Keyword** - Custom words that can be applied to named items to make searching easier.

Field	Type	Description
ID	Long - Auto	Primary key; automatically assigned. Required.
FullName	Text(50)	Name of this keyword. Required.

**NamedItem** - A library item, such as a book, CD, or magazine. This table represents a general item, and not the actual copy of the item.

Field	Type	Description
ID	Long - Auto	Primary key; automatically assigned. Required.
Title	Text(150)	Title of this item. Required.
Subtitle	Text(150)	Subtitle of this item. Optional.
Description	Memo	Full description of this item. Optional.
Edition	Text(10)	Edition number for this item. Optional.
Publisher	Long	This item's publisher. Foreign reference to Publisher.ID. Optional.
Dewey	Text(20)	Dewey decimal number. Use "/" for line breaks. Optional.
LC	Text(25)	Library of Congress number. Use "/" for line breaks. Optional.
ISxN	Text(20)	ISBN, ISSN, or other standardized number of this item. Optional.
LCCN	Text(12)	Library of Congress control number. Optional.
Copyright	Integer	Year of original copyright, or of believed original copyright. Optional.
Series	Long	The series or collection in which this item appears. Foreign reference to CodeSeries.ID. Optional.
MediaType	Long	The media classification of this item. Foreign reference to CodeMediaType.ID. Required.
OutOfPrint	Boolean	Is this title out of print? 0 for False, 1 for True. Required.

**Patron** - An identified library user. Patrons usually have check-out privileges.

Field	Type	Description
ID	Long - Auto	Primary key; automatically assigned. Required.
LastName	Text(30)	Last name of this patron. Required.
FirstName	Text(30)	First name of this patron. Required.
LastActivity	Date	Date of last checkout, renewal, or return. Optional.
Active	Boolean	Is this an active patron? 0 for False, 1 for True. Required.
Comments	Memo	Any comments associated with this patron. Optional.
AdminMessage	Memo	Comments that are displayed to administrative users when the patron's record is accessed. Optional.
Barcode	Text(20)	Barcode found on this patron's library card. At this time, only numeric barcodes are supported. Optional.
Password	Text(20)	Patron's password, in an encrypted format. Required.
Email	Text(100)	Patron's email address. Optional.
Phone	Text(20)	Patron's phone number. Optional.
Address	Text(50)	Patron's street address. Optional.
City	Text(20)	Patron's city. Optional.
State	Text(2)	Patron's state abbreviation. Optional.
Postal	Text(10)	Patron's postal code. Optional.
PatronGroup	Long	The group in which this patron appears. Foreign reference to CodePatronGroup.ID. Optional.

**PatronCopy** - This table manages item copies currently checked out by a patron, or item copies that have been previously checked out and have since been returned.

Field	Type	Description
ID	Long - Auto	Primary key; automatically assigned. Required.
Patron	Long	The associated patron. Foreign reference to Patron.ID. Required.
ItemCopy	Long	The item copy currently or previously checked out by the patron. Foreign reference to ItemCopy.ID. Required.
CheckOut	Date	The date when this item copy was initially checked out. Required.
Renewal	Integer	The number of times this item copy has been renewed. Set to 0 when the item copy is first checked out. Required.
DueDate	Date	Current due date for this item copy. Required.
CheckIn	Date	The date when this item copy was returned. Optional.
Returned	Boolean	Has the item copy been returned? 0 for False, 1 for True. Required.
Missing	Boolean	Is the item copy missing and considered lost? 0 for False, 1 for True. Required.
Fine	Currency	Total fine accumulated for this item copy. Defaults to 0.00. An administrator may reduce an accumulated fine. Required.
Paid	Currency	Total amount paid (in fees) for this item copy. Required.
ProcessDate	Date	When an item copy is processed for overdue fines, this field contains the last date for which processing was done. Optional.

**PatronPayment** - Fines, payments, and dismissals on a patron copy record. Overdue fines are not recorded in this table, but administrator-initiated fines due to charges for missing items are recorded here.

Field	Type	Description
ID	Long - Auto	Primary key; automatically assigned. Required.
PatronCopy	Long	The associated patron. Foreign reference to PatronCopy.ID. Required.
EntryDate	Date	Date and time when this entry was recorded. Required.
EntryType	Text(1)	The type of payment entry. Required. The possible values are: <ul style="list-style-type: none"> <li>• "P" - The patron made a payment.</li> <li>• "F" - A fine (other than a standard overdue fine) was imposed by</li> </ul>

Field	Type	Description
		an administrator. <ul style="list-style-type: none"> <li>• “D” - A portion (or all) of the fine was dismissed.</li> <li>• “R” - A refund was given to the patron due to overpayment.</li> </ul>
Amount	Currency	The amount associated with this entry. The value is always positive. Required.
Comment	Text(50)	A short comment about this entry. Optional.
UserID	Long	The user who added this payment event. Foreign reference to UserName.ID. Optional.

**Publisher** - An organization that publishes books or some other type of media.

Field	Type	Description
ID	Long - Auto	Primary key; automatically assigned. Required.
FullName	Text(100)	Name of the publisher. Required.
WebSite	Text(255)	URL for this publisher’s web site. Optional.

**Subject** - Subject headings used to classify named items.

Field	Type	Description
ID	Long - Auto	Primary key; automatically assigned. Required.
FullName	Text(150)	Name of this subject. Required.

**SystemValue** - This table stores miscellaneous enterprise-wide settings that apply to every workstation. Local workstation-specific settings are stored on each machine, not in the database.

Field	Type	Description
ID	Long - Auto	Primary key; automatically assigned. Required.
ValueName	Text(50)	Name of this value. Required.
ValueData	Text(100)	Information associated with this entry. Optional.

The following system values are defined at this time. The name of the code appears in the *ValueName* field. The corresponding value appears in the *ValueData* field.

- **BarcodeCode39** - Is the specified barcode in “code 39” or “code 3 of 9” format? If so, an asterisk will be placed before and after the barcode number before it is printed on a label. Use a value of 0 for False, or any non-zero value for True (-1 is preferred). If missing or NULL, False is assumed.
- **BarcodeFont** - The name of the font used to print barcodes. This font must be installed on any workstation that displays or prints barcodes. It is not needed to scan barcodes.
- **DatabaseVersion** - Which structural version of the database is currently in use? Right now it is set to “1,” and is reserved for future enhancement.
- **DefaultLocation** - CodeLocation.ID value for the location that is set as the default.
- **FineGrace** - Number of days that an item can be overdue without incurring a fine.
- **NextBarcodeItem** - The next starting value to use when printing item barcodes.
- **NextBarcodeMisc** - The next starting value to use when printing miscellaneous barcodes.
- **NextBarcodePatron** - The next starting value to use when printing patron barcodes.
- **PatronCheckOut** - Indicates whether patrons can check out items without being logged in as an administrative user. Use a value of 0 (zero) to indicate no check out privileges, or any non-zero value to allow patron check out (-1 is preferred). If this value is missing or empty, patrons will not be allowed to check out items without administrator assistance.
- **SearchLimit** - Indicates the maximum number of results returned in any search or lookup. If this value is missing or invalid, a default of 250 is used. The allowed range is between 25 and 5000, inclusive.
- **TicketHeading** - Display text to be printed at the top of check-out tickets. All lines are centered on the ticket. Include the vertical bar character (“|”) to break the text into multiple lines.
- **TicketFooting** - Display text to be printed at the bottom of check-out tickets. All lines are centered on the ticket. Include the vertical bar character (“|”) to break the text into multiple lines.
- **UseLC** - Indicates whether books are categorized by Dewey or by Library of Congress (LC) call numbers. Use a value of 0 (zero) to indicate Dewey, or any non-zero value for LC (-1 is preferred). If this value is missing or empty, Dewey is assumed.



**UserName** - This table contains the actual records for each librarian or administrator. Each record includes the user's password and security group setting.

Field	Type	Description
ID	Long - Auto	Primary key; automatically assigned. Required.
FullName	Text(50)	Name of this user, administrator, or librarian. Required.
LoginID	Text(20)	User ID that gives this user access to the system. It is entered into the Library program's "login" form, along with the password, to gain access to enhanced features. Required.
Password	Text(20)	The password for this user, in an encrypted format. Optional.
Active	Boolean	Is this user allowed to access the system? 0 for False, 1 for True. Required.
GroupID	Long	To which security group does this user belong? Foreign reference to GroupName.ID. Required.

## Report Configuration File

The library application can be configured to run any number of reports through the Reports form. The list of available reports is managed through an XML report configuration file, a file containing "groups" and "items." All items are reports, and appear within a group. You can nest groups within groups to any depth, and the list of reports displayed in the Library program will indent each subordinate group to help the user see the organization of the reports. There is no limit to the nesting of groups.

The root element of the XML file must be named **<reportList>**, and it may contain any number of **<reportGroup>** and **<reportItem>** data elements.

- **<reportItem>** - Represents a single report entry. This entry has one required attribute, and up to five subordinate data elements depending on the setting of the attribute.
  - **type** (attribute) - Set to one of the following values:
    - **built-in** - Run one of the built-in programs. This type of report uses the **<displayText>**, **<reportPath>**, and **<description>** data elements.
    - **program** - Runs a separate EXE program. This type of report uses the **<displayText>**, **<reportPath>**, **<reportArgs>**, **<reportFlags>**, and **<description>** data elements.
    - **url** - Starts a URL, such as a web page or a 'mailto' email to a recipient address. This type of report uses the **<displayText>**, **<reportPath>**, and **<description>** data elements.
  - **<displayText>** - A short name or description for this report, as it will appear in the list of report choices. This element is required for all types of reports.
  - **<reportPath>** - The full path, URL, or number of the report, depending on the type of report. For program (EXE) reports, this is the full UNC or driver-letter-based path to the report, without additional arguments. For built-in reports, this is a report number, from 1 to 5 (values and their meanings are listed later in this section). For URL reports, this is the actual URL, as in "http://mysite.com/myreport.aspx" or "mailto:helpdesk@mysite.com." This element is required for all types of reports.
  - **<reportArgs>** - For program (EXE) reports, this entry includes any command-line arguments to be included when running the program. This element is only valid for program (EXE) reports, and is always optional.
  - **<reportFlags>** - For program (EXE) reports, this entry indicates the optional flags that should be appended to the application command as arguments. At this time, the only flag is the U flag. When this element is set to U, the argument "-u *userid*" is appended to the command string (where *userid* is the user's login ID, from the database field UserName.LoginID). This element is only valid for program (EXE) reports, and is always optional.
  - **<description>** - This is a longer, verbose description of the report, up to about 200 characters, which will appear on the Report form when the user selects the report from the list. This description should assist the user in selecting the right report. This element is valid for all types of reports, but is always optional.

- **<reportGroup>** - Represents a category group, used to visibly group and indent reports in the display list. This element must contain exactly one **<displayText>** element, but may contain any number of **<reportItem>** or **<reportGroup>** elements.
  - **<displayText>** - A short name or description for this group, as it will appear in the list of report choices. This element is required.

When using the “built-in” report type, the **<reportPath>** element is set to one of the following integer values.

- **1** - Items Checked Out Report
- **2** - Items Overdue Report
- **3** - Items Missing Report
- **4** - Fines Owed by Patrons Report
- **5** - Library Database Statistics Report

## User Settings

The Library project uses Visual Basic’s *settings* system to track user-specific state values maintained between uses of the application. All of these settings are stored in an XML file in the user’s portion of the *C:\Documents and Settings* (or equivalent) directory in a format dictated by .NET.

- **DBConnection** (String) - A properly-formatted connection string that identifies the SQL Server database used by the application. If missing, the application will prompt for the location of the database on startup.
- **HelpFile** (String) - Indicates the UNC or drive-letter-based location of the basic application online help file, with a “.chm” extension.
- **HelpFileAdmin** (String) - Indicates the UNC or drive-letter-based location of the administrative application online help file, with a “.chm” extension.
- **HideLogin** (Boolean) - Indicates whether the *Login* button in the upper-right corner of the main Library form should be hidden from view when in patron (non-administrative) mode. Use *True* to hide the button, or *False* to show the button. If this field is missing, *False* is assumed.
- **LicenseFileLocation** - The path to the Library License file on this workstation. If not supplied, the program will look for a file named *LibraryLicense.lic* in the same folder as the application.
- **MainFormPosition** (System.Drawing.Point) - The position of the upper-left corner of the main Library form. This value is updated each time the application closes. If missing, the form will be centered on the display.
- **ReceiptPostlude** (String) - Any raw character data to send to the receipt printer at the end of each ticket. This text may include the following special characters.
  - \n - A newline character (ASCII 10).
  - \r - A carriage return character (ASCII 13).
  - \e - An escape character (ASCII 27).
  - \x?? - Any ASCII value, where “??” is a two-character hexadecimal code.
  - \\ - The backslash character (“\”).
- **ReceiptPrinter** (String) - The UNC pathname to the receipt printer used by this workstation to print out patron check-out receipts and payment receipts.
- **ReceiptWidth** (Integer) - The width, in characters, of each line on the receipt printer. If missing or empty, the program uses a default width of 40 characters.
- **ReportConfig** (String) - Indicates the UNC or drive-letter-based location of the XML report configuration file. This file has the XML format described in the *Report Configuration File* section of this document. This file indicates the reports available in the application.
- **SettingsUpgraded** (Boolean) - When upgrading the application from an older release, this flag indicates whether the settings associated with that older release have already been upgraded into this new version. It defaults to *False* for all new releases.
- **UseReceipts** (Boolean) - Indicates whether printed receipts are to be used at this workstation. If this field is missing, *False* is assumed.

## License File

The Library Project reads a customer-specific license file generated by the Library License Generation support application. That program generates a digitally-signed XML license file that includes licensee information. Here is a sample of the license file content.

```
<?xml version="1.0"?>
<License>
  <Product>Library Project</Product>
  <LicenseDate>1/1/2000</LicenseDate>
  <ExpireDate>12/31/2999</ExpireDate>
  <CoveredVersion>1.*</CoveredVersion>
  <Licensee>John Q. Public</Licensee>
  <SerialNumber>LIB-123456789</SerialNumber>
  <Signature>
    Digital signature appears here (not shown)
  </Signature>
</License>
```

The <LicenseDate> and <ExpireDate> tags indicate the first and last valid dates of the license. <Licensee> indicates the name of the license owner. <SerialNumber> includes the vendor-defined serial number associated with this license. The <CoveredVersion> tag contains data similar to the assembly version number included in .NET applications. It has up to four dot-delimited parts:

```
<major>.<minor>.<build>.<revision>
```

Each component can include a number from 0 to 9999, or the “\*” character, which indicates all valid values for that position.

The <Signature> section contains the generated digital signature. Its format is dependant on the XML Cryptography tools in .NET that generate this section. Always use the Library License Generation support application to build license files, to ensure a proper digital signature.

That support application generates a public and private key pair for use in digital signing. The public portion of this key (as an XML file) must be added as a resource named *LicensePublicKey* to the Library application. The private portion must be kept private. For consistency, the same key-pair should be used throughout the lifetime of the Library Project’s availability.