Chapter 10  Connecting KingView to a Database

In this chapter, you will
- Understand how to use KingView SQL access manager
- Understand how to connect to an extra database
- Understand how to write data to a database
- Understand how to search for data from the database

Section 1 SQL Access Manager

Introduction

The KingView SQL access function is designed to transfer data between KingView and other extra databases (through the access interface of ODBC), it includes KingView SQL access manager and relevant SQL functions.

KingView SQL access manager is used to create a relationship between the fields of the database and the KingView variables, it includes the "table template" and the "bind list". Create corresponding tables in the database using table templates; build a relationship between the table fields in the database and KingView using the bind list, which allows KingView direct access the data in the database.

Creating a data source and a database

First, build a database, we use Access databases (path: d:\peixun, database name: mydb.mdb).

Then use ODBC Data Sources (32bit) from the management tool in the control pane of WINDOWS to create a, new data source through the “Microsoft Access Driver (*.mdb)”, called: mine, then select the Access database (that is mydb.mdb) just created as figure 10-1 shows:

![Figure 10-1 Create ODBC data source](image)
Creating a table template

1. In the “project catalog display zone” on the left side of the TouchExplorer window select “SQL access manager”, then select “table template”. Double-click the “new” icon in the “catalog content display zone” create a table template in the “Create a Table Template” dialogue box and define three fields as figure 10-2 shows:

![Figure 10-2 Dialog box of creating table template](image)

2. Select “confirm” to finish setting the table template.

The purpose of creating a table template is to define the database format, this is then used to auto-create a table in the Access database when you use the function: SQLCreatTable().

Creating a bind list

1. In the “project catalog display zone” on the left side of the TouchExplorer window, select “SQL access manager”, then “bind list”. Double-click on the “new” icon in the “catalog content display zone”, the bind list dialogue box will appear as figure 10-3 shows:

![Figure 10-3 Dialog box of creating bind list](image)

The bind list defines the relationship between the fields of the Access database table and the KingView variables as shown below:

<table>
<thead>
<tr>
<th>Table field of Access database</th>
<th>KingView variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date field</td>
<td>\local site$date</td>
</tr>
</tbody>
</table>
That is: write variable “\\\local site\\$date” to the field “date field” in the Access database, write the variable “\\\local site\\$time” to the field “time field” in the Access database, write the variable “\\\local site\\$material oil liquid level value” to the field “material oil liquid level value” in the Access database,

2. Click “OK” to finish creating the bind list.

**Note:** The field name in the bind list must correspond to the table template; the variable’s data type in the bind list must correspond with the data type of the same field in table template

### Section 2 Database Operations

#### Connection database

1. Define a memory integer variable in the “Tagname dictionary”:
   - Variable name: DeviceID
   - Variable type: memory integer
2. Create a new picture and call it “graph of database operation”
3. Select from the toolbox, and insert the following text in the picture: database operation
4. Add a button, and change the text to: database connection
5. Input the following script in the button’s “Key Up” dialogue box as figure 10-4 shows:

![Figure 10-4 Syntax of database connection](image)

The function of the above syntax is to create a connection with the data source “mine” (that is, to connect to the database “mydb.mdb”).

Write the above syntax in a practical project to: project browser) script) application program script) If written in Starting, KingView will automatically connect to the database when it switches to view.

### Creating a database table

1. Add a button to the graph, and change the button text to: create database table.
2. Input the following syntax in the button event dialogue box as figure 10-5 shows:
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Figure 10-5 Syntax of creation database table

The function of the above syntax is to create a table named “KingTable” in the database in the form of table template “Table1”, the table will contain three fields, the field names are: date field, time field and material oil liquid level. The type, length and index type of every field will correspond with the definition in the table template “Table1”.

This syntax only needs to be executed once, if table template is altered, the user needs to first delete the table in the database and then the table can be re-created.

Write the above syntax in a practical project to: project browser＞script＞application program script＞In Starting KingView will automatically create the database table when it switches to view.

Inserting a record

1. Add a button to the picture, and change the button text to: insert record.
2. Input the following syntax in the button event dialogue box as figure 10-6 shows:

Figure 10-6 Syntax for inserting a record

The function of the above syntax is to insert a new record in the table KingTable.

KingView will then insert the current value of the KingView variable into the table “KingTable” in the Access database if you click on the button, you can create a record whilst also writing the KingView data to an extra database.

Querying a record

The user needs to create a bind list if they want to display data from the database in KingView, the field names in the bind list must correspond to the field names in the database table. The type of variable connected must also correspond with the field type of the database; the setup is as follows:

1. Define three memory variables in data dictionary:
   a. Variable name: record date
   variable type: memory character string
   initial value: empty
b. variable name: record time  
variable type: memory character string  
initial value: empty  
c. variable name: return value of material oil liquid level  
variable type: memory real  
initial value: 0  
2. Create a new graph, called “graph of query database”  
3. Select T from the toolbox and insert the following text into the picture: “query database”.  
4. Add three texts to the graph, and connect the variables “\local\record date”, \local\record time and  
“\local\return value of material oil liquid level” to the three texts separately, therefore the  
search result will be displayed in the picture when you have selected the data from the  
database.  
5. Define a bind list in the TouchExplorer window, figure 10-7 shows the ensuing property window:  

![Figure 10-7 Property setting dialog of bind list](image)

6. Add a button to the picture, and change the button text: selected data.  
7. Input the following syntax in button event dialogue box as the figure 10-8 shows:  

```
SQLSelect[DeviceID, "KingTable", "bind2", "", ""]
```

![Figure 10-8 Script dialog box of search for record](image)

The function of the above syntax is to return the first record of the table in KingTable in the  
form of the bind list Bind2.  
8. From the “file” menu select “save all pictures” to save the settings.  
9. From the “file” menu select “Switch to View” to enter the running system. The data  
records in the database will be displayed in the textbox when you click on the button “selected  
data ” whilst the system is running as figure 10-9 shows:
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Figure 10-9 Search of record in database

10. Add four buttons to the picture, and set their properties as follows:
   a. Button text: First
      To set up an animation link: SQLFirst(DeviceID)
   b. Button text: Next
      To set up an animation link: SQLNext( DeviceID )
   c. Button text: Previous
      To set up an animation link: SQLPrev( DeviceID )
   d. Button text: Last
      To set up an animation link: SQLLast( DeviceID )
   The function of the above syntax is to select the first, next, previous and last record, thus enabling you to query the data.

Disconnecting

1. Add a button to the picture and change the button text: “Disconnect database”.
2. Input the following syntax in the button event dialogue box as figure 10-10 shows:

   Figure 10-10 Syntax for disconnecting the database connection

   Write the above syntax in a practical project to: project browser › script › application script
   In Stopping KingView will disconnect form the database.

Section 3 Query Control in the Database

A database query can easily be carried out using KVADODBGrid Class, a control offered by KingView, to set this up follow these steps:

1. Click the “Insert General Controls” button from the toolbox or select the “Edit/Insert General Controls” menu, then in the control dialogue box, select “KVADODBGrid Class” as figure 10-11 shows:
2. Add the KVADODBGrid Class control to the picture, select and then double-click the control, set the control name in the Animation link properties dialogue box: Grid1.

3. Select the control and right click on “control properties” in the menu and property dialog box will popup as figure 10-12 shows:

4. Once you have checked your settings, close the dialogue box and you can now query the database and print the selected data using the “methods” and “properties” controls.

**Button 1: query all record**
grid1.FetchData();
grid1.FetchEnd();

**Button 2: condition search**
long aa;
aa= grid1.QueryDialog();
if (aa==1)
{
    grid1.FetchData();
    grid1.FetchEnd();
}

**Button 3: print control**
grid1.Print();

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**Review:**

1. Read about the KVADODBGrid control state in appendix three
2. Create a dynamical data search system to search data records.