SIEMENS

WinCC

User Archives

Manual

C79000-G8263-C141-01

Edition November 1998

C79000-G8263-C141-01
Printed in the Federal Republic of Germany

Siemens Aktiengesellschaft

Table of Contents

Preface

Purpose of the Manual

This manual introduces you to the functions of each software component and their operation in a reference manual format. You can find the information you need quickly by using the table of contents or the index. Naturally, the information is also available to you in the on-line help in either a context-sensitive fashion or in the on-line help contents.

Total Overview and Configuration Example

The "Getting Started" manual, which is part of the WinCC package, contains a total overview of WinCC and a configuration example in which the most significant functions of the individual components are followed through in a practical application.

Additional Support

If you have technical questions, please address them to your Siemens contact partner, located in the businesses responsible for your location. You can find the addresses in the attachment entitled Siemens Worldwide, in "S7-300 Automation System Structure in an S7-300," in catalogs, and on CompuServe (go.autforum). In addition, you may call our Hotline at 011-49-911-895-7000 (Fax 7001).

You can find additional information on the Internet under the address www.aut.siemens.de/coros/html_00/coros.htm.

Information about SIMATIC products

Up to date information about SIMATIC products can be obtained:

- from the Internet under http://www.aut.siemens.de/
- via fax# 08765-93 02 77 95 00

In addition, the SIMATIC Customer Support provides current information and downloads that can be beneficial for the utilization of SIMATIC products:

- from the Internet under http://www.aut.siemens.de/support/html_00/index.shtml
- via the SIMATIC Customer Support Mailbox under phone# +49 (911) 895-7100
- To address the mailbox, use a modem with up to V.34 (28.8 kBaud), which parameters must be set as follows: 8, N, 1, ANSI, or dial up through ISDN (x.75, 64 kBit).

The SIMATIC Customer Support can be reached by phone under the number +49 (911) 895-7000 and by fax under the number +49 (911) 895-7002. Inquiries can also be made via Internet mail or mail addressed to the above mailbox.

1 Introduction

The to the User Archives Editor contains the following information:

- Application of the User Archives
- Components of the User Archives
- Configuration and Runtime
- Functionality of the User Archives
- Legend

1.1 Application of the User Archives

The WinCC User Archives is a user configurable database system.

Data from technical processes can be stored continuously on a server PC via the User Archives of WinCC. In the Graphics Designer, an OLE Control can be configured that displays the online data from the User Archives, in table form, during runtime.

User Archives are also used to provide data to PLCs (e.g. S5, S7 or Allen Bradley). If required, data can be read by the PLCs in form of recipes or setpoint values.

1.2 Components of the User Archives

The WinCC User Archives offer two types of database tables:

– ***Archives***: Archives are database tables where users can set up their own data fields. Archives store data and provide database-like access to that data.

– ***Views***: Views receive data from the archives and summarize that data, e.g. to form overviews about product groups.

There are two ways to create User Archives:

– ***the User Archives Editor*** for a convenient, interactive configuration

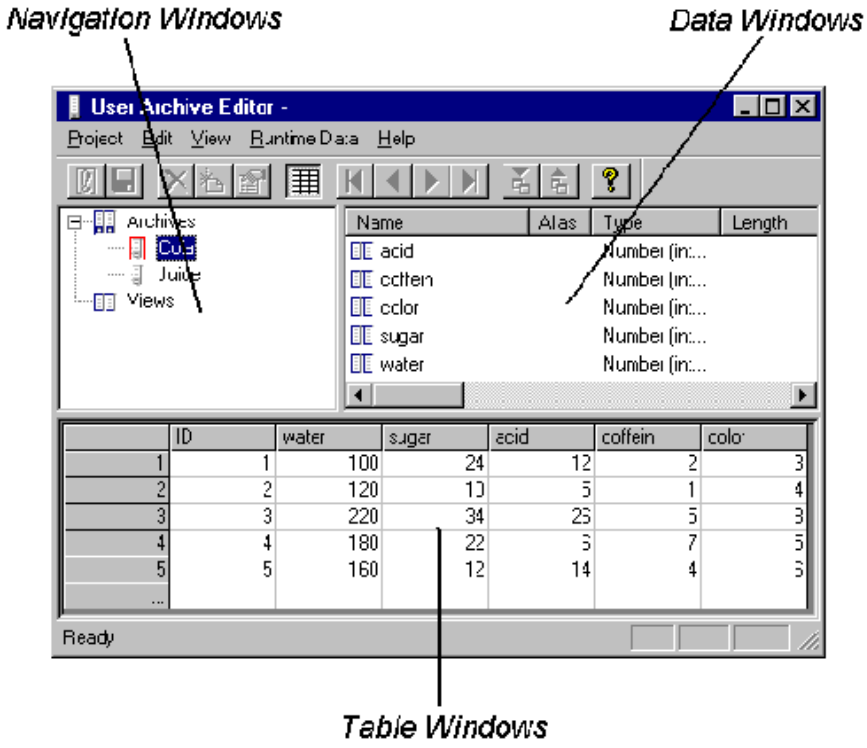
– ***the User Archives Script Functions*** for configuring in the WinCC script language

The User Archives script functions also allow the implementation of various actions for the runtime operation. In the runtime picture, an OCX table can be configured, which is directly connected to the process pictures of the PLCs.

1.2.1 The User Archives Editor

The User Archives Editor

The User Archives Editor, with its Windows-like user interface, makes it easy to set up and maintain User Archives. The User Archives Editor is separated into three areas:



- The **Navigation Window** (the window at the top left) for selecting archives and views.
- The **Data Window** (the window at the top right) for displaying and editing fields. The Data Window displays the fields of the archives and views, which were selected from the navigation window.
- The **Table Window** (the window at the bottom) for displaying and changing online data of the selected archives and views. In the table window of the User Archives Editor, an online connection to the process pictures of the PLCs can be made.

The navigation and data windows of the User Archives Editor provide fast access to all elements of the User Archives, utilizing a Windows Explorer-like user interface. The creation and editing of User Archives is done user-friendly via dialog boxes and wizards.

1.2.2 The User Archives Control

An User Archives Control can be configured using the Graphics Designer. The User Archives Control allows you to display and edit User Archives data in runtime. The Control is operated via icons.

The Control allows you to create, edit and delete contents of fields interactively. The page functions make navigation in large User Archives easier. Archives can be imported/exported and filter/sort conditions be defined.

Via a direct connection to the PLCs, Data can be read and written online.

1.2.3 User Archives Script Functions

The description of the User Archives script functions is divided into the following sections:

- **Configuration Functions** for configuring User Archives
- **Runtime Functions** for configuring various actions for the runtime operation

The User Archives functions are activated by actions in the runtime picture, for example a mouse click on a certain button. The WinCC script language has similarities to the high-level C language, and the database functions are based on the SQL standard.

1.3 Configuration and Runtime

During the configuration of the User Archives, you can create your own database tables using the User Archives editor or the User Archives script functions.

The User Archives editor also allows you to create new data records or edit data in existing data records while configuring.

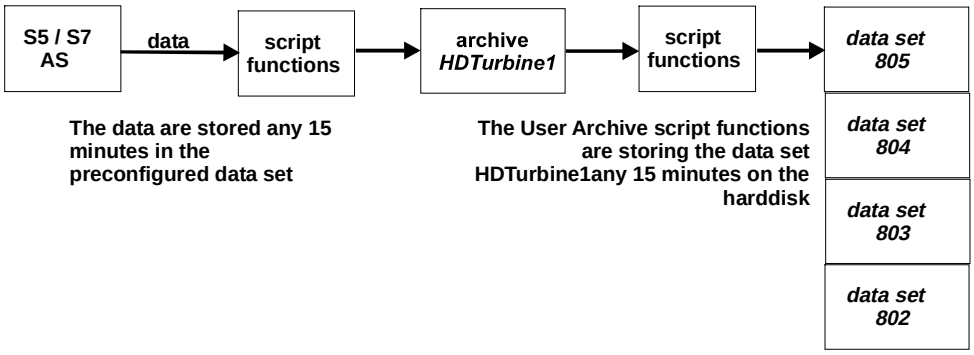
In runtime, archives (analogous to database tables) can be displayed in OLE Control windows as tables. Via WinCC raw data or data manager tags, a continuos data exchange with the PLCs can take place.

Example: Acquisition of Operating Data of a Turbine

An electric utilities company creates the "HPTurbine1" User Archive. This archive monitors the operating conditions of a high pressure turbine. The "HPTurbine1" User Archive contains the following data fields:

HDTurbine1
Index
RPM
Entry Pressure
Outlet Pressure
Steam Temperature1
Steam Temperature2
Oscillation Frequency
Oscillation Amplitude
Storage Temperature1
Storage Temperature2

In runtime, at set time intervals, the operating data of the turbine can be stored on your hard drive in the form of User Archives data records:



Using the User Archives script functions, data can then be analyzed or be visualized through the "*WinCC User Archives Table Control*" OLE control.

Example: Recipes of a Beverage Producer

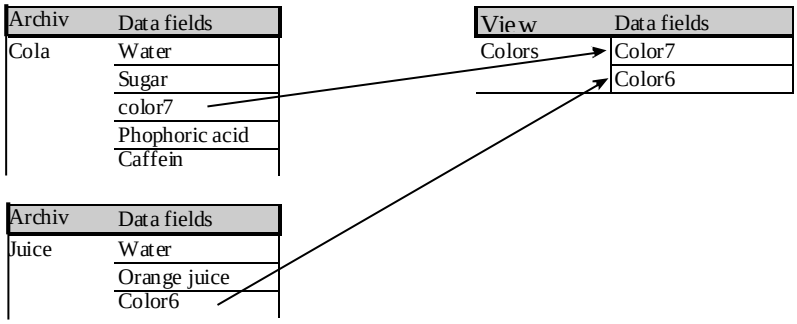
An example for a data flow to a PLC are recipes. A beverage producer, which in our example produces Cola and orange juice, uses User Archives to provide recipes of the ingredients to PLCs (S5, S7, AllenBradley, Applicom, etc.).

Archive	Data Fields
Cola	Water
	Sugar
	Coloring7
	Phosphoric Acid
	Caffeine

The User Archives use the data interfaces to the PLCs that are provided by WinCC, especially the raw data of the WinCC data manager. For the data transfer from/to PLCs, WinCC provides a set of action scripts.

Application of the Views

WinCC offers the "*Views*" as an additional feature. Views allow data fields of different User Archives to be summarized. For example, product groups, which are located in data fields of different User Archives, can be summarized in views.



In our example, the beverage producer creates views for the flavoring and coloring product groups, which are located in different User Archives.

Note

Existing software, which performed direct ODBC database accesses to the User Archives of versions older than 4.0, will not be able to access User Archives of version 4.0.

For User Archives databases older than version 4.0, the User Archives editor provides a converter for converting to the new User Archives format. Software with direct ODBC accesses, must be adapted to the new format of version 4.0 User Archives.

1.4 Functionality of the User Archives

The User Archives provide the following features:

Display of Values

- Configuration in table form (easy, direct assignment of table fields to archive fields)
- Configuration of views (assignment of table fields to various archives)
- Runtime online display in forms (process pictures) / I/O fields (assignment of archive fields via action scripts)

Reporting

- In table form (easy, direct assignment of table fields to archive fields or assignment of views to various archives)

Transfer from/to PLC (S5, S7, etc.)

- Entire data records of an archive
- Individual data fields of a data record
- Communication serial RK512/3964R, SINEC Industrial Ethernet (H1 Layer 4) or Profibus (L2)

Editing Options

- In the table display
- In forms and I/O fields (via action scripts)

Operation

- In tables via standardized buttons
- In forms via buttons and action scripts

Creating or Deleting Data Records

- In tables, creation of data records via a button
- In forms, creation and deletion of data records via buttons containing action scripts

Control Tags

- Wizard-supported creation of WinCC tags as control tags
- Fast access to User Archives for scripts and PLCs
- Indirect addressing in script programs

1.5 Legend

This manual uses the following symbols and fonts:

 indicates action via the left mouse button

 R indicates action via the right mouse button

Text texts that you enter yourself are displayed in the Courier font

File → New all WinCC menus, functions and entry fields that must be selected, are displayed in *Italic*

2 Configuration of User Archives

The first step is the configuration of a new User Archive. Wizards that guide you through the configuration are available. The following configuration steps are required:

Configuration of User Archives

- Create User Archive
- Define Archive Fields

Configuration of Views

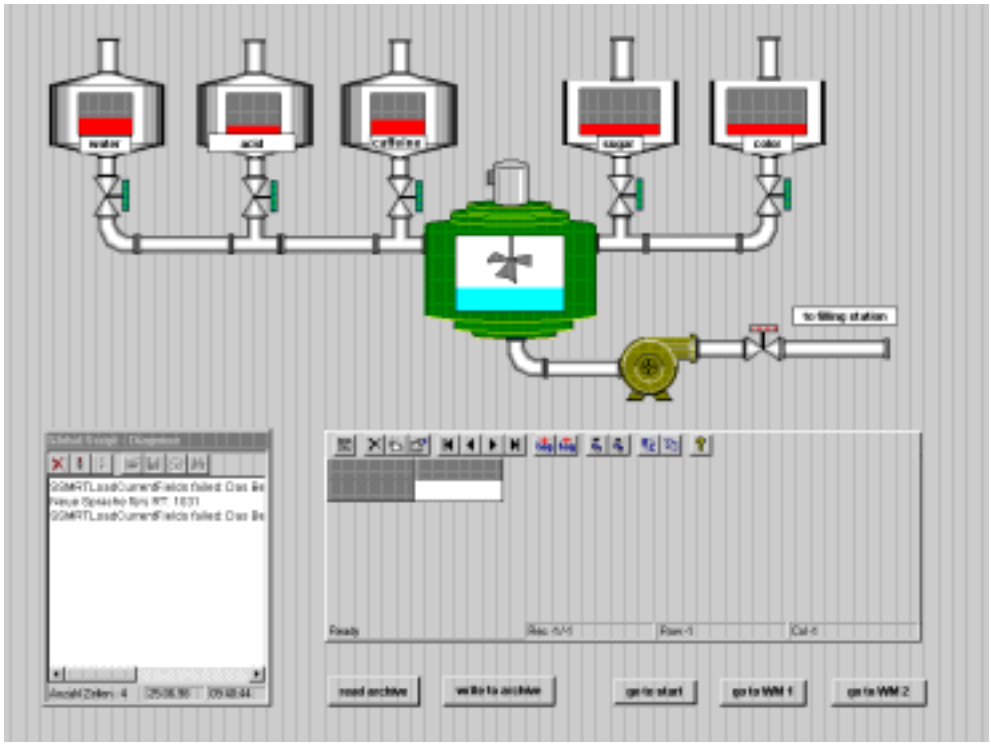
- Create View
- Define View Fields

Configuration of User Archives Control

- Create User Archives Control
- Define Form Fields

2.1 User Archive Example

In our example, the beverage producer "Sun Drink" produces "Calif Cola" and "Sunny Juice". To store the recipes of the beverages' ingredients, the WinCC User Archives are used. If a storage tank of the filling machine is empty, the recipe data is sent to the PLCs via WinCC communication channels. The PLCs will then refill the storage tank according to the recipe data.



The User Archives are used as follows:

- **Archives**: Contains an archive each for the Cola and orange juice.
- **Views**: Views summarize data fields of the two archives. In the example, this is the coloring product group.

Each archive consists of data fields with properties that can be edited. In the example, the data fields of the Cola archive contain its ingredients. Each data field has properties (like name, alias name, type, length, value, etc.). The display of the data fields and their properties in the User Archives editor takes place in lines and columns. Therefore, we will also refer to the data fields as lines and to the properties as columns. For example, the structure of the Cola archive looks as follows:

Cola Archive	**Properties (Columns)**						
Data Fields (Lines)	Name	Alias	Type	Length	Min. Value	Max. Value	Start Value
Water	Water	Well 5	Int	2	1000	1500	1000
Sugar	Sugar	Zmela	Int	2	120	140	130
Coloring7	C1007	D1007	Int	2	6	8	6
Caffeine	Caffeine	Caffeine	Int	2	2	3	2
Phosphoric Acid	Phos. A.	PhosAc	Int	2	170	190	170

2.2 Configuration of User Archives

2.2.1 New User Archive Creation

From the WinCC control center, open the "User Archives" editor:

R Right-click on "User Archives" and select the *Open* entry from the pop-up menu. The User Archives editor will be displayed.

Note

If you make changes to the configuration of an archive, this archive must not be displayed by a Control or be requested by the "UAQueryArchive" script function at the same time.

The preset option "*Create Multiple Archives in Sequence*" allows the sequential creation of multiple archives. If only one archive is to be created, this option can be deactivated from the "*Edit - Options*" menu.

To create an User Archive, proceed as follows:

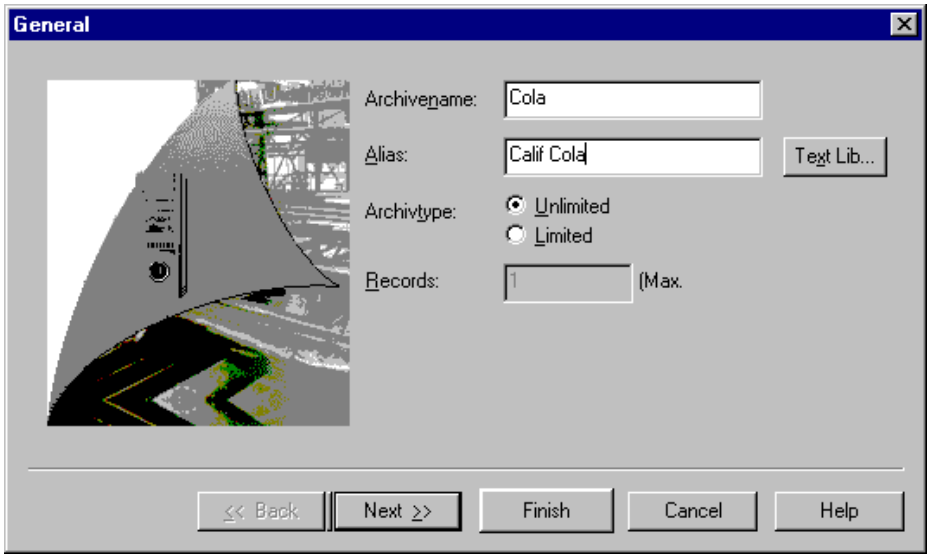
In the navigation window, click on *Archives.*

R Right-click on the navigation or data window. The "New Archive" button will be displayed.

Click on the "New Archive" button.

The "General Information" dialog box will be displayed. A new User Archive is created using this dialog box.

2.2.2 The "General Information" Dialog Box - User Archive



As the archive name, for example, enter "Cola". In the "*Alias*" field, a second name can be entered, for example "Calif Cola". The usage of an alias name is optional. The field can be left blank, or be used for comments, explanations, etc.

If the "*Limited*" archive type is specified, the maximum number of data records can be defined in the "*Number*" field. The "*Unlimited*" archive type defines archives with an unlimited number of data records.

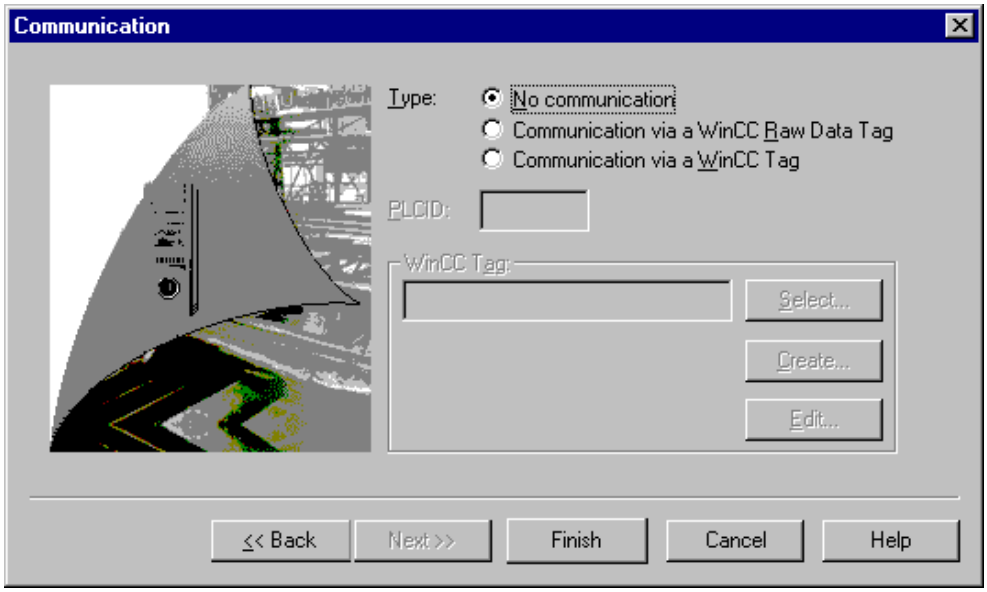
Note

Keywords (or reserved words) of the database language SQL must not be used as archive or field names. See also the "Alphabetic List of SQL Keywords" chapter.

Data records are not checked for completeness or correctness while they are created.

2.2.3 The "Communication" Dialog Box

In the "Communication" dialog box, the connection type between the PLC and the archive is set:



At the "*Type*" entry, the communication type can be defined:

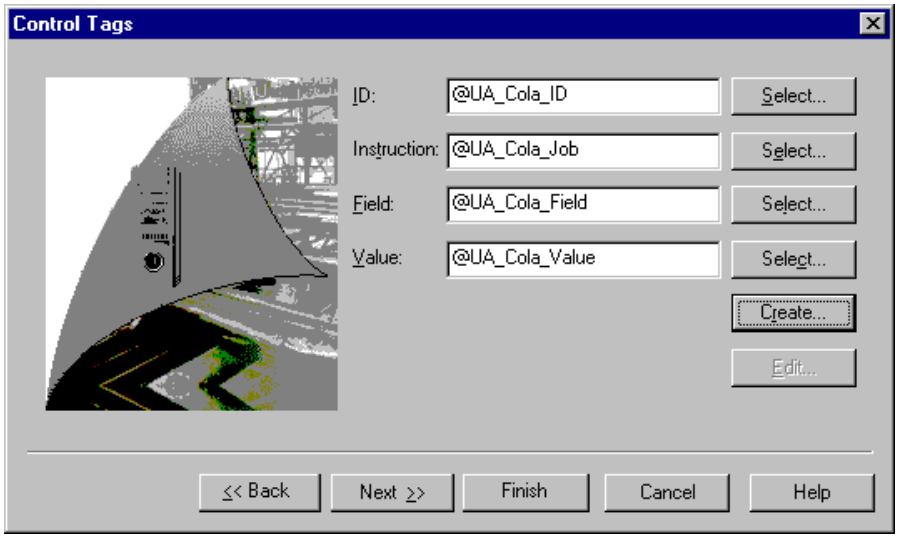
- *None*: No communication possible
- *Via Raw Data Tag*: Access to PLC via a raw data tag
- *Via Data Manager Tag*: Access to PLC via WinCC tags

To establish a connection via raw data tags, select "*via Raw Data Tag*". Enter the identification of the PLC in the "*PLCID*" field. The "*PLCID*" can contain a maximum of 8 ASCII characters. This identifier describes the corresponding archive and is required in order for the PLC to sent back the process picture data to the correct archive.

If you selected "*via Raw Data Tag*", clicking on "*Select*" allows you to choose a raw data tag.

2.2.4 The "Control Tags" Dialog Box

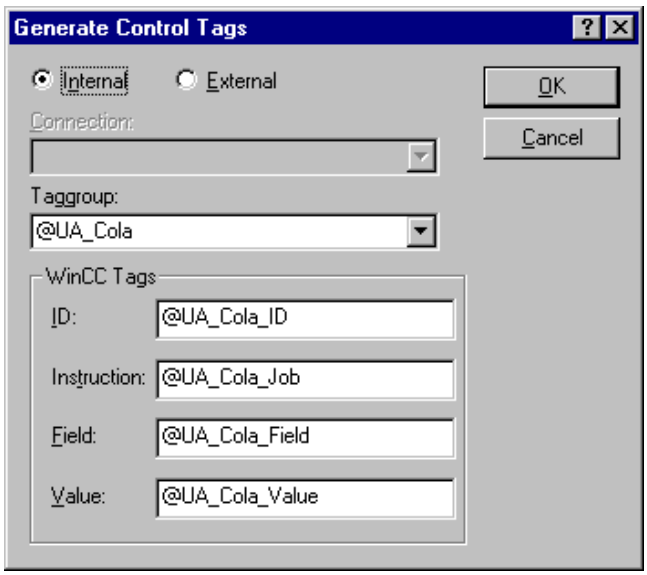
In the "Control Tags" dialog box, control tags in the form of WinCC tags are defined. These tags allow you to access archive fields.



In the four entry fields of the dialog box, WinCC tags are assigned to an "Archive ID", an instruction code, an archive field and a set/return value.

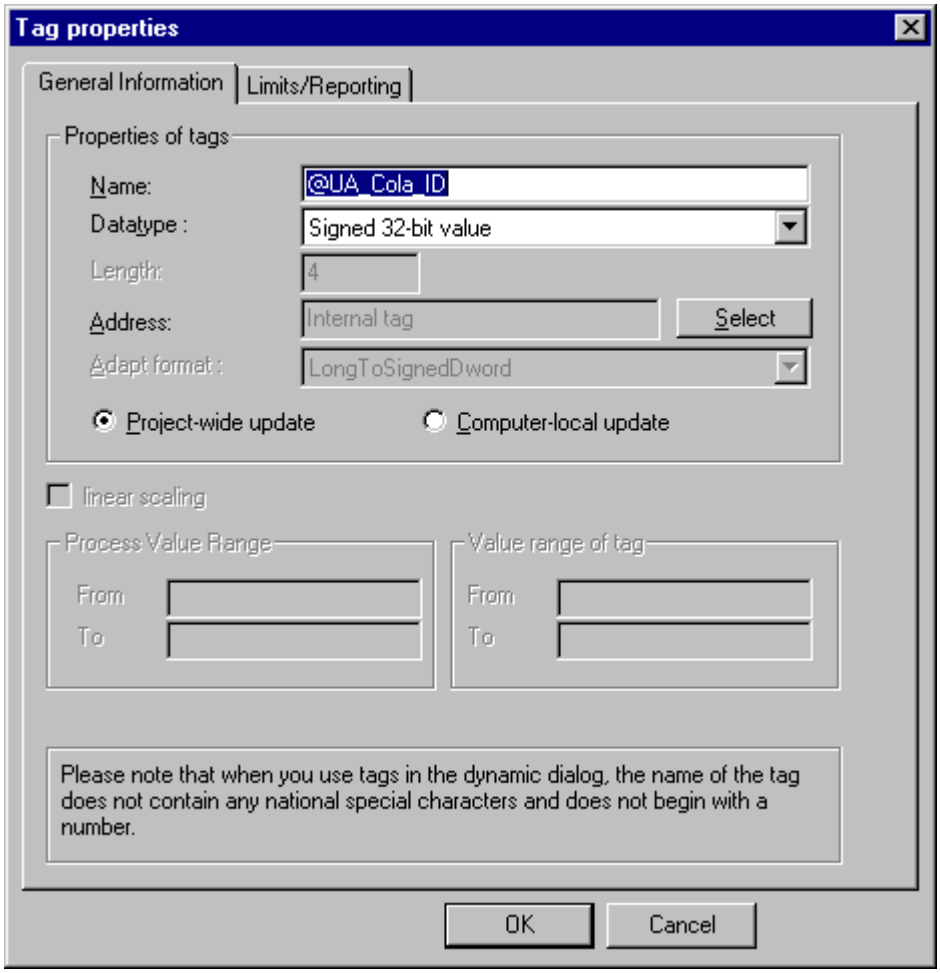
Each of these entry fields contains a "Select" button. It helps you with the assignment of the corresponding WinCC tag. After clicking on the "Select" button, the "Select Tag" dialog box is displayed in which all previously created WinCC tags are listed and can be selected.

To simplify the assignment of WinCC tags even further, the "Generate" button is provided. This button automatically generates four new WinCC tags as the User Archives control tags. Clicking on the "Generate" button will display on the "Generate Control Tags" dialog box:



In there you can define, if you want to use internal or external tags. You can also change the preset names for the tag group and WinCC tags.

Clicking on the "Edit" button will display the "*Tag Properties*" dialog box. The properties of the control tags can be edited in this dialog box.

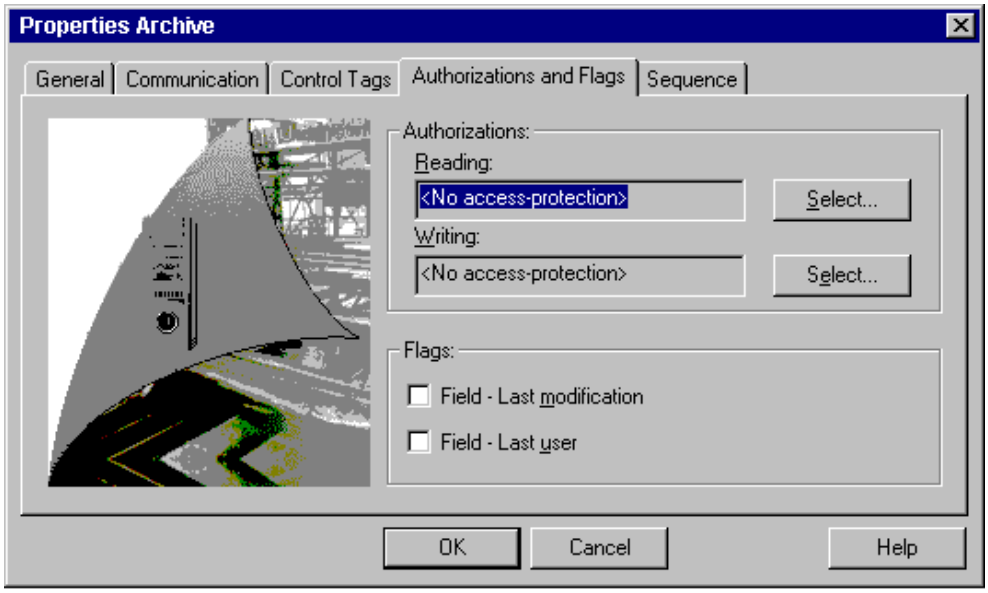


By writing the identifier of the archive, the instruction code (6, 7 or 8), the archive field and the set value (for writing) into the control tags, the archives can accessed in read and write mode. For reading (instruction code = 6), the read value will be placed in the corresponding control tag (in the example above, the "@UA_Cola_Value" tag).

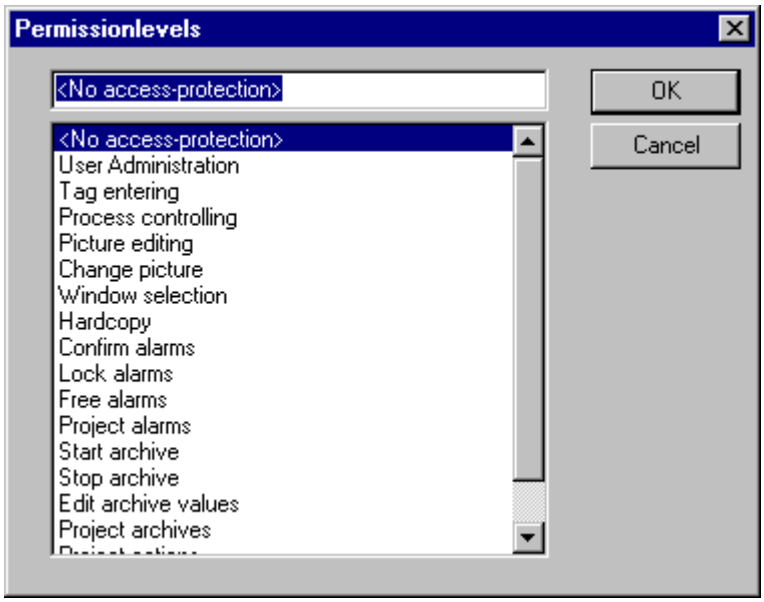
Function of the Control Tags	
ID	The identifier (or data record number) of the archive
Instruction Code	Three instruction codes are possible: Read, Write and Delete Read = 6 Write = 7 Delete = 8
Field	The archive field
Value	The set or return value

2.2.5 The "Rights and Flags" Dialog Box

The "*Rights and Flags*" dialog box allows you to define the access rights to the User Archives and the columns of the archive.



The currently set authorization levels for the read and write access are displayed. To change these settings, click on one of the "*Select*" buttons. The "*Authorization Levels*" dialog box will then be displayed, which makes available the authorization levels that have been created by the User Administrator:



Activating the "*Column - Last Access*" option creates a column containing the date and time of the last access. The "*Column - Last User*" option creates a column containing the name of the user who last accessed the User Archive.

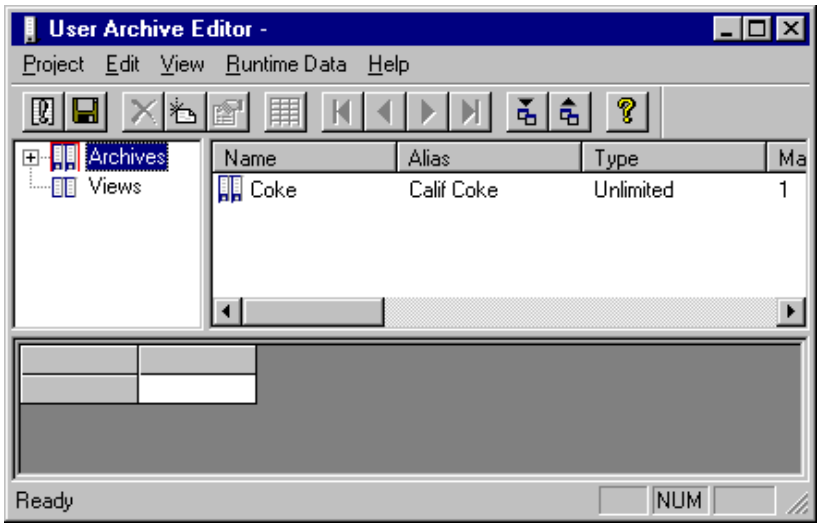
Select one of the authorization levels.

For example, select the "*Column - Last User*".

Complete the archive creation by clicking on "*Finish*".

If you selected the "*Create Multiple Archives in Sequence*" option from the "*Edit - Options*" menu, the "*Create Next Archive?*" dialog box will be displayed. If you select "*Yes*", the initial "*General Information*" dialog box for defining the next archive will be displayed.

This completes the creation of the blank "Cola" User Archive, which from now on will be displayed in the User Archives editor:



Save the new User Archive by clicking on the "Disk" (save) icon or go to the "Project - Save" menu.

Note

Changes made to an User Archive only become effective after saving that User Archive.

In our example, the properties of the Cola archive are:

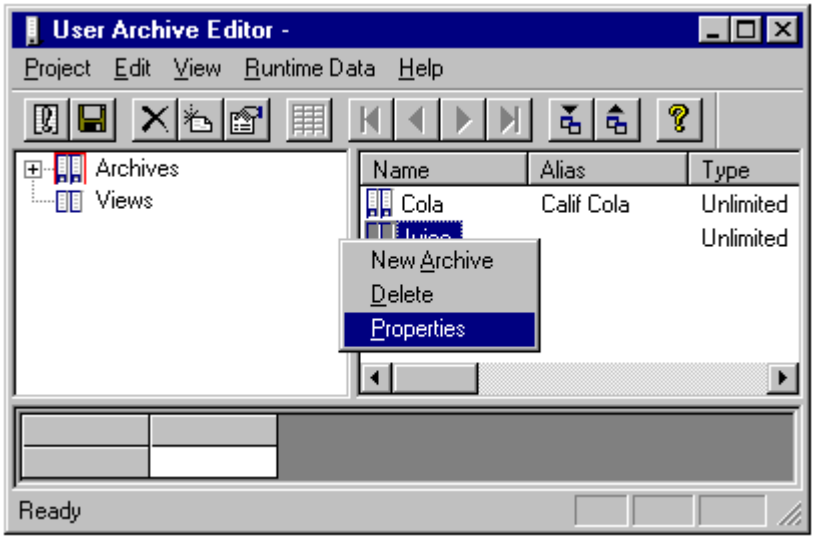
Archive	Properties
Cola	Name Cola
	Alias Calif Cola
	Type: Unlimited
	Max. Records: 1
	Com. Type: Raw
	PLCID: S7112
	Tag Name: CalifTagGroup
	Right read: 0
	Right write: 0
	Flags: U
	Pos.: 3
	Last access: 03/05/98 12:54

2.3 Archive Properties

To edit the properties of User Archives, follow these steps:

R In the navigation window, right-click on one of the archives, e.g. the "Cola" archive (expand the archives first).

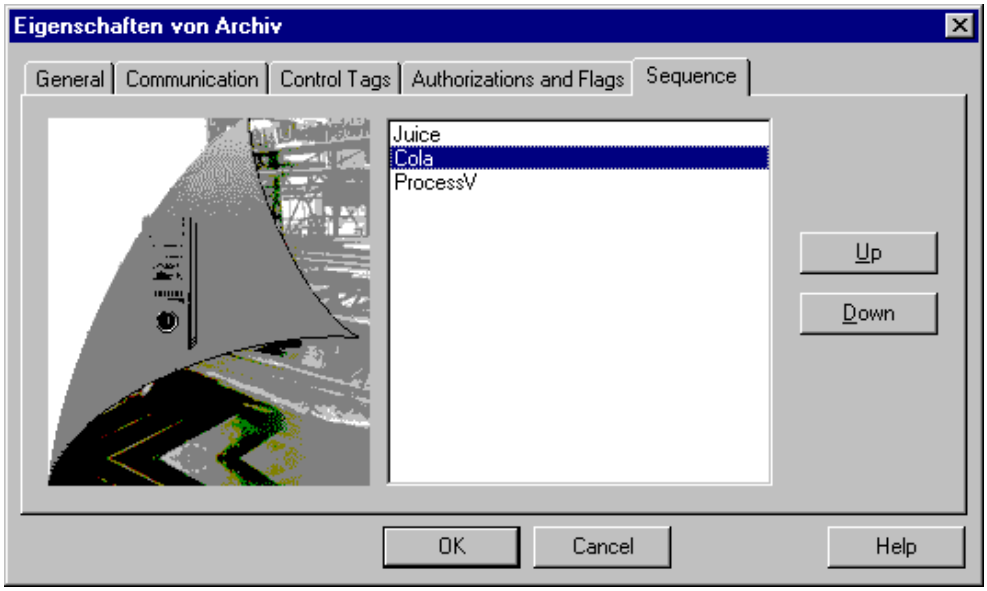
Select "*Properties*" from the pop-up menu.



The "*Archive Properties*" dialog box will then be displayed, in which you can change the properties. The "*General Information*", "*Communication*", "*Flags*" and "*Select Authorization*" tabs are described in the "Creation of a New User Archive" chapter. The additional "*Sequence*" tab defines the sequence of the archives.

2.3.1 The "Sequence" Tab

The "*Sequence*" tab defines the sequence of the archives.



Save the User Archive by clicking on the "Disk" (save) icon or go to the "Project - Save" menu.

Note

Changes made to an User Archive only become effective after saving the database.

2.4 Archive Field Configuration

This chapter describes the creation of User Archive data fields.

The preset option "*Create Multiple Fields in Sequence*" allows the sequential creation of multiple fields. If only one field is to be created, this option can be deactivated from the "*Edit - Options*" menu.

In the navigation window, expand the "*Archives*" entry (click on the "" sign). The new "Cola" archive will then be displayed in the navigation window.

R In the navigation window, right-click on the "Cola" archive name. The following pop-up menu will be displayed:

Click on *New Field.*

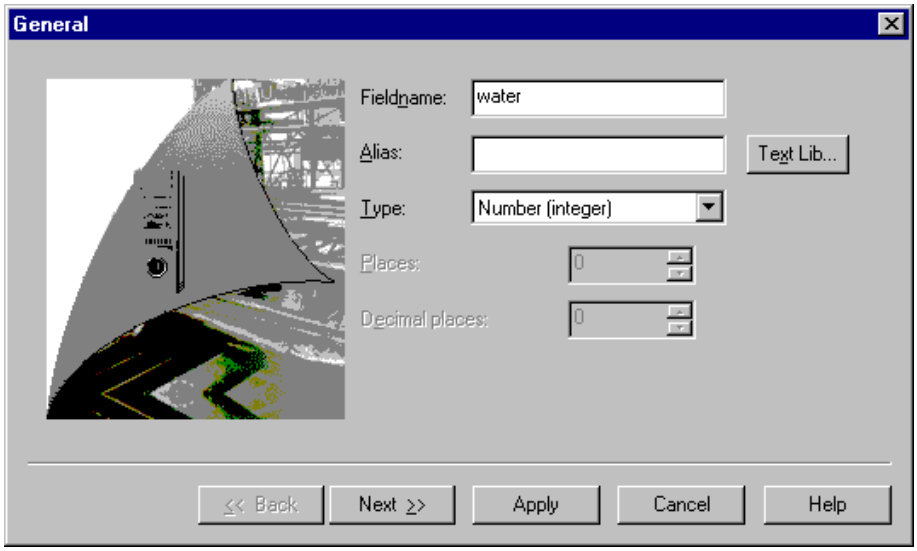
The "*General Information*" dialog box will be displayed.

Note

If archive fields are changed, data might be lost under the following circumstances:
If a new consistency requirement can not be met anymore by already existing data, e.g. for "Unique", "Not Null", etc.
If a field has been renamed.
If a new data type is unable to convert the data from the source.

2.4.1 The "General Information" Dialog Box - Archive Field

In the "General Information" dialog box, specify the archive field that you want to edit as well as the tag type, tag length and number of decimal places.



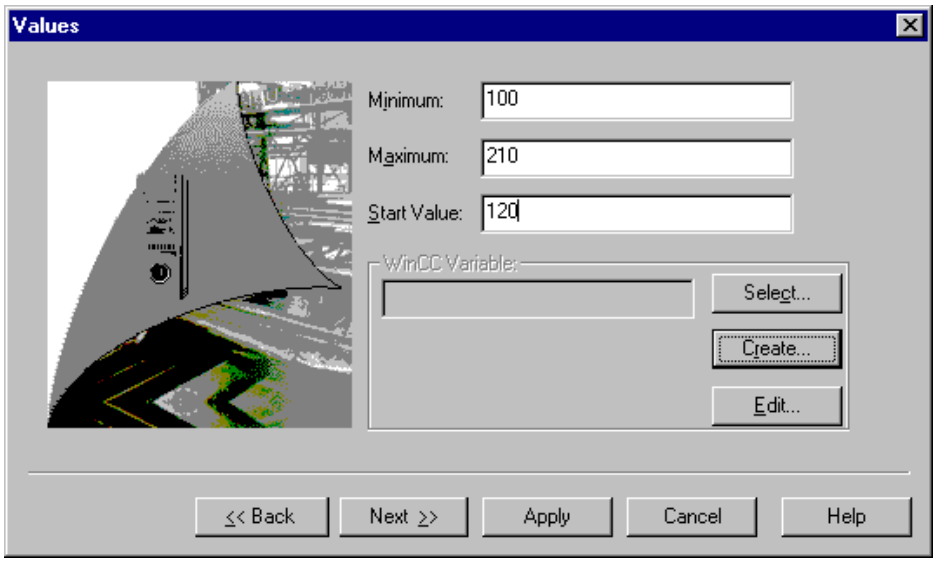
- In the *Field Name* entry field, enter the name of the first archive field. In our example, this is the recipe ingredient "*Water*".
- In the "Alias" field, a second alias name can be entered. The field can also be used for comments or explanations.

The names entered serve for the later assignment of the fields for the tabular display.

In the *Type* entry field, one of the following tag types can be selected:
Integer
Double
String
Date/Time

2.4.2 The "Values" Dialog Box

In the "Values" dialog box, the minimum, maximum and start values can be entered.



Minimum, Maximum and Start Value

A period must be used if minimum, maximum and start values of the "Double" type, and decimal values, are entered.

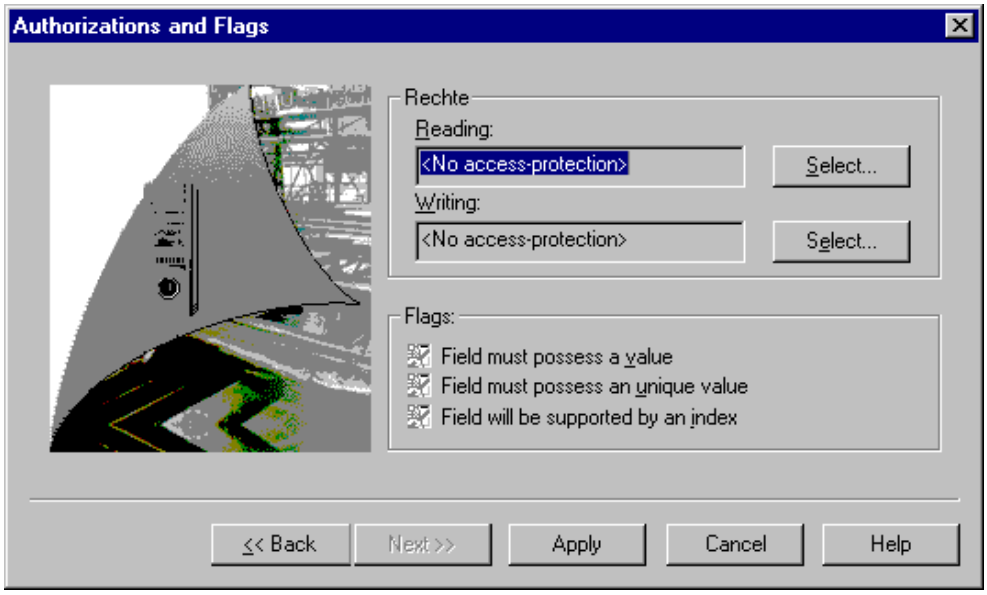
WinCC Tag

Here you can create a WinCC tag that will store the value of the archive field. Follow one of these steps:

1. Enter the tag directly in the input field.
2. Interactively choose a tag or create a new one by clicking on the "Select" button.
3. Automatically generate a new tag by clicking on the "Create" button.
4. Edit the properties of an existing tag by clicking on the "Edit" button.

2.4.3 The "Rights and Flags" Dialog Box

In the "*Rights and Flags*" dialog box, the access rights and properties of the archive fields can be set.



Rights

Using the "*Select*" buttons, the read and write access rights can be defined. These access rights are defined in the User Administrator. The creation of access rights is performed as described in the "Creation of a New User Archive" chapter.

Flags

In the "Flags" area, the following properties can be defined for the selected data field:

- *"Field must contain a Value"*:
  - The field must contain a value other than zero.
- *"Field must contain an unique Value"*:
  - The field must contain an unique value, i.e. the values in this column must differ from one another.
- *"Field supported by an Index"*:
  - The field is supported by an index value. This index, for example, can increase the performance of search commands.

Complete the data field creation by clicking on the "Finish" button.

This will create a new data field in the "Cola" User Archive.

If you selected the "*Create Multiple Fields in Sequence*" option from the "*Edit - Options*" menu, the "*Create Next Field?*" dialog box will be displayed. If you select "*Yes*", the initial "General Information" dialog box for defining the next field will be displayed.

Save the User Archive.

Note

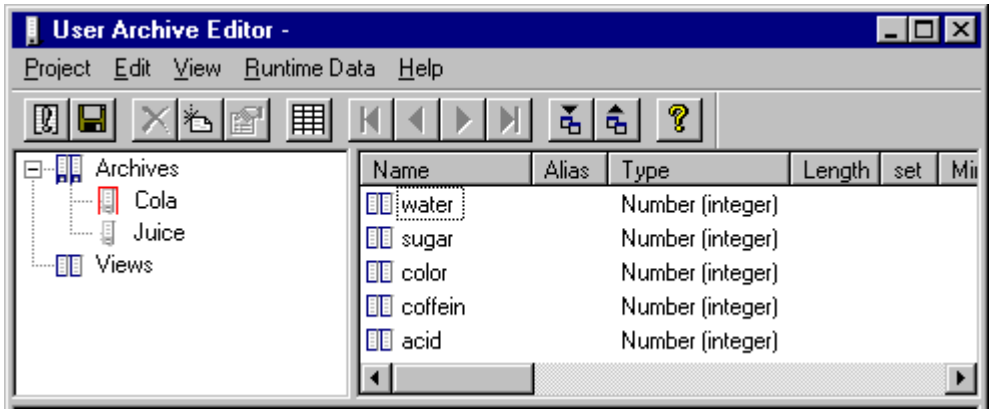
Changes made to an User Archive only become effective after saving the database.

2.5 Archive Field Properties

To edit the properties of data fields, follow these steps:

In the navigation window, click on one of the archives, e.g. the "Cola" archive (expand the archives first).

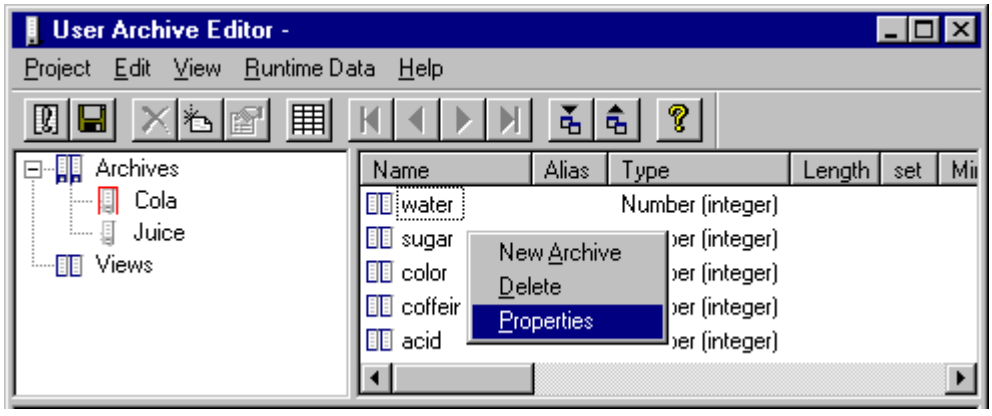
The data window of the User Archives Editor should then display the data fields of the "Cola" User Archive:



To edit the data fields of an User Archive, proceed as follows:

R In the data window of the User Archives editor, right-click on the "Water" field name.

Select "*Properties*" from the pop-up menu.



The "*Field Properties*" dialog box will then be displayed, in which the selected property can be changed.

The "*General Information*", "*Values*", "*Flags*" and "*Select Authorization*" tabs are described in the "*Defining the Archive Fields*" chapter. The additional "*Sequence*" tab defines the sequence of the archive fields.

2.5.1 "Sequence" Tab

To define the sequence of the data fields, the "*Sequence*" tab is available. The sequence set in this tab will effect the display of the data in the table window of the User Archives editor, the control of the runtime picture and the assignment of indexes for the access via script functions.

In our example, the Cola archive contains the following properties:

Archive	Data Fields	Properties
Cola	Water	Name Water
		Alias Water_from_Well_4
		Type: Integer
		Length:
		Precision:
		Min. Value: 1000
		Max.Value: 1200
		Start Value: 1100
		Tag n... :
		Right (read): 0
		Right (write): 0
		Flags: NN
		P... : 3
		Last access: 03/05/98 12:54
	Sugar	Name
		Alias
		....
	Coloring7	Name
		Alias
		....
	Caffeine	Name
		Alias
		....
	Phosphoric Acid	Name
		Alias
		....

Save the User Archive.

Note

Changes made to an User Archive only become effective after saving the database.

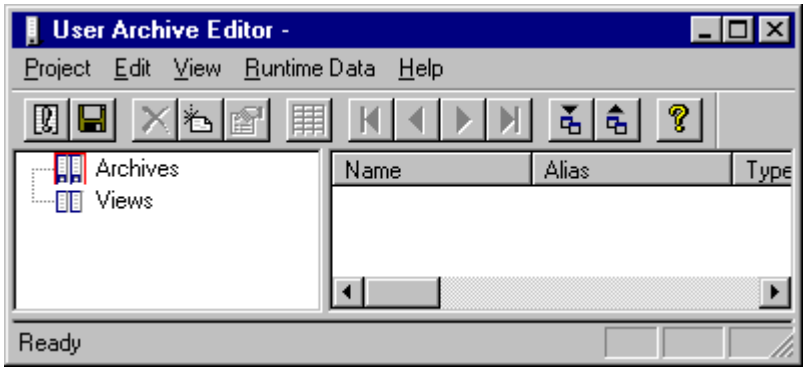
2.6 Configuration of Views

2.6.1 Create a New View

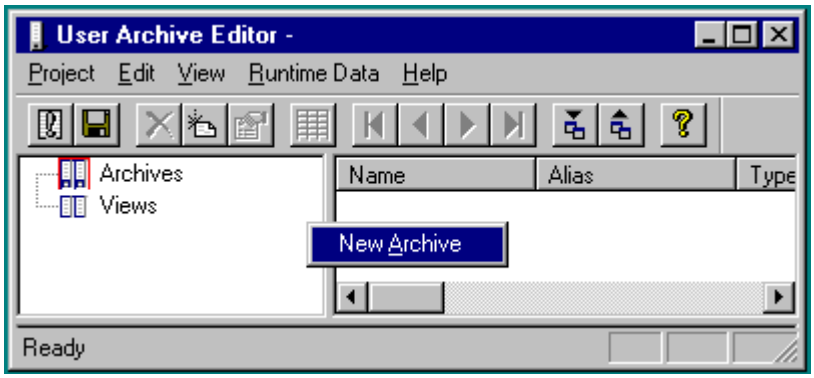
The preset option "*Create Multiple Views in Sequence*" allows the sequential creation of multiple views. If only one view is to be created, this option can be deactivated from the "*Edit - Options*" menu.

To create a new view, proceed as follows:

In the navigation window, click on *Views.*

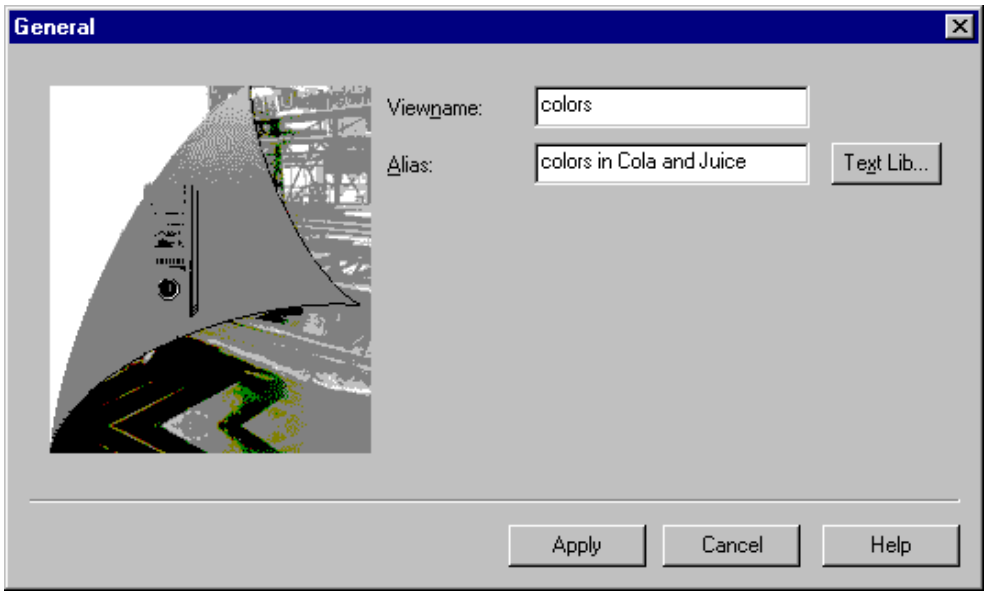


R Right-click on the navigation or data window. The button "*New View*" will be displayed.



Click on the "New View" button.

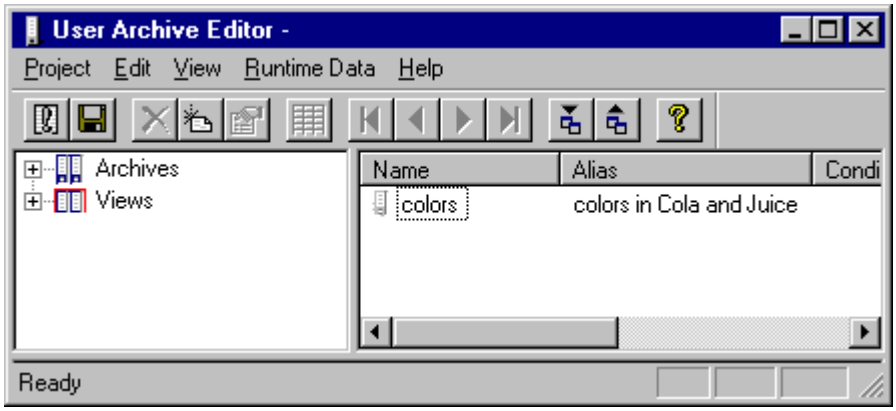
The Wizard for configuring views will be activated. The "*General Information*" dialog box will be displayed, in which a new view can be created.



As the view name, for example, enter "Cola". In the "*Alias*" field, a second name can be entered, for example "Calif Cola".

Click on the "*Finish*" button.

This creates a new, but still blank, view:



If you selected the "*Create Multiple Views in Sequence*" option from the "*Edit - Options*" menu, the "*Create Next View?*" dialog box will be displayed. If you select "*Yes*", the initial "*General Information*" dialog box for defining the next view will be displayed.

Save the view.

Note

Changes made to views only become effective after saving the database.

2.7 Properties of Views

The "*View Properties*" dialog box is called as follows:

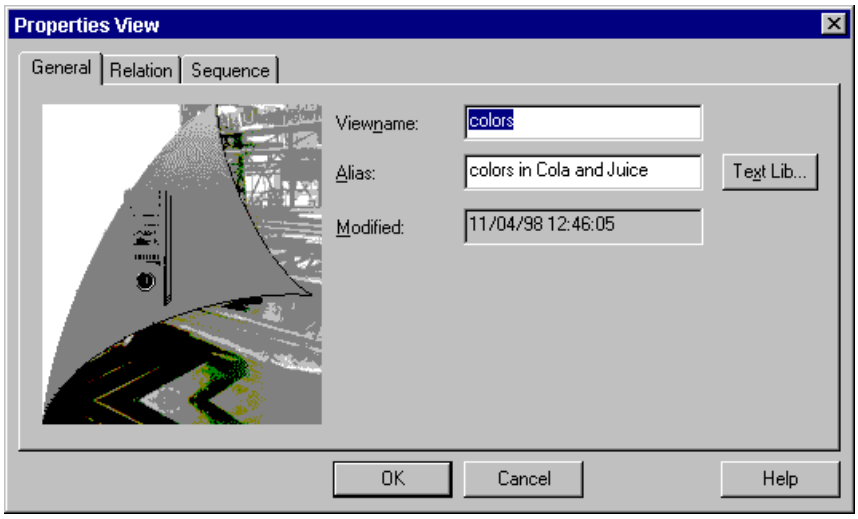
R In the User Archives editor, right-click on one of the views.

Select "*Properties*" from the pop-up menu.

The "*View Properties*" dialog box will then be displayed.

2.7.1 The "General Information" Tab

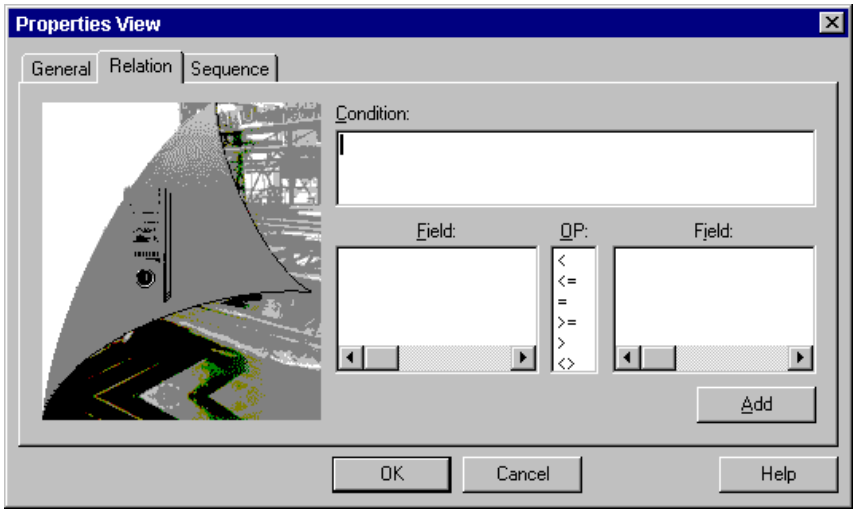
In the "General Information" tab, specify the view that you want to edit.



You can change the names in the "View Name" and "Alias" fields. The date and time of the last modification are also displayed.

2.7.2 The "Relation" Tab

In the "Relation" tab, the conditions for displaying the views can be defined.



Relation

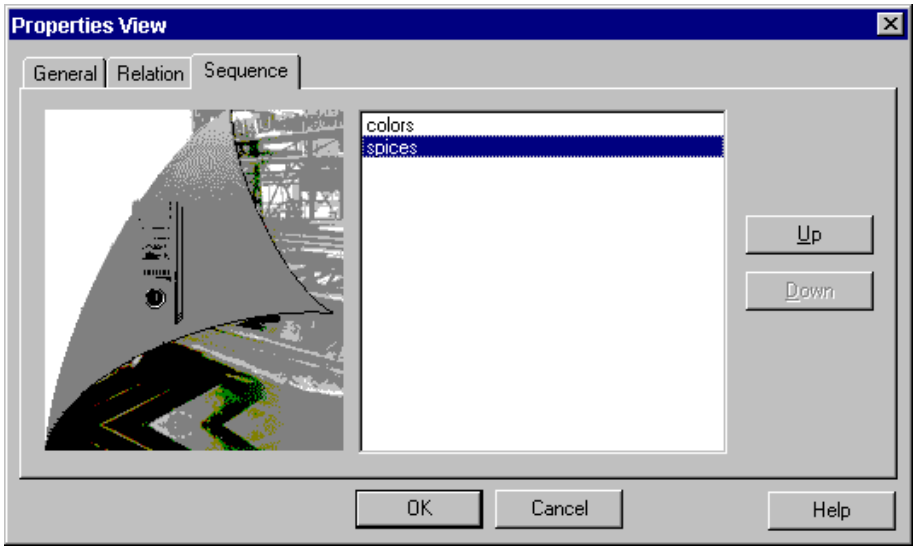
In the "*Relation*" field, SQL expressions can be entered directly. The appendix contains additional information about the SQL Language.

Conditions

In the "*Field OP*" area, conditions can be entered interactively. To do so, select entries from the left and right "Field" list boxes and set the relation by selecting an operation from the "OP" list box. Click on the "Add" button to apply the condition. This condition will then be displayed in the "Relation" field.

2.7.3 The "Sequence" Tab

In the "Sequence" tab, the sequence of the views is defined.



Procedure: Select a view via a mouse click. Use the "Up" and "Down" buttons to move the view one position up or down.

2.8 Configuration of View Fields

The preset option "*Create Multiple Columns of a View in Sequence*" allows the sequential creation of multiple columns. If only one view column is to be created, this option can be deactivated from the "*Edit - Options*" menu.

To create a new data field (column) of a view, proceed as follows:

In the navigation window, expand the "Views". The views, for example the "Coloring" view, will then be displayed in the navigation window.

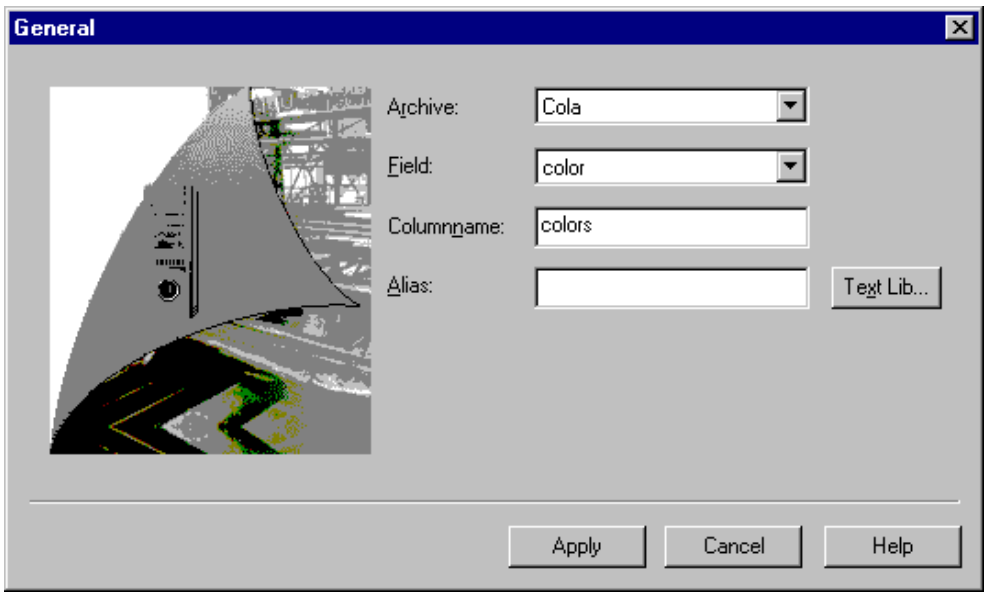
R In the navigation window, right-click on the "Coloring" view. The following pop-up menu will be displayed:

Click on *New Column.*

The "*General Information*" dialog box will then be displayed.

2.8.1 The "*General Information*" Dialog Box - Archive Field

In the "General Information" dialog box, the view fields of the archive fields can be selected and the view field be given a name.

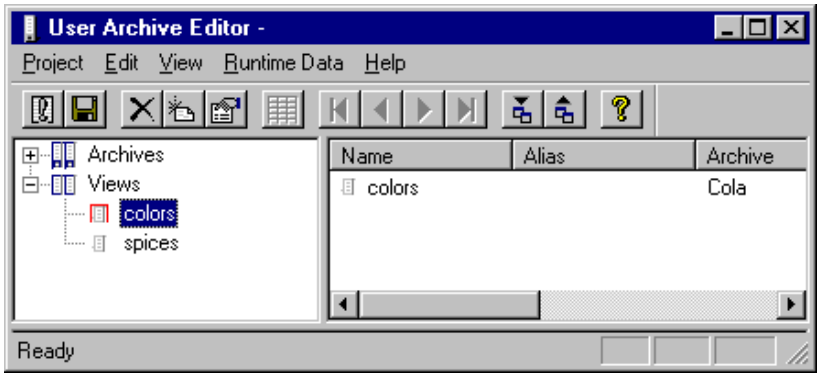


- In the "*Archive*" field, you can select one of the created User Archives. For example, keep the "Cola" archive setting.
- In the "*Archive Field*", select one data field of the Cola User Archive. For example, keep the "Coloring7" setting. TAB to the next field or select a field using the mouse.
- In the *Column Name* entry field, enter the name for the first column of the view, for example "Coloring".
- In the "Alias" field, a second name, comments or explanations can be entered. This entry is optional.

Note

The User Archives editor will only display archives and archive fields that have been saved since their last editing.

Click on the "*Finish*" button to create the defined data field:



The beverage producer in our example creates a Coloring view in which he summarizes the Coloring7 and Coloring16 data fields from the Cola and Orange Juice User Archives.

If you selected the "*Create Multiple Columns of a View in Sequence*" option from the "*Edit - Options*" menu, the "*Create Next Column?*" dialog box will be displayed. If you select "*Yes*", the initial "General Information" dialog box for defining the next column will be displayed.

Save the field of the view.

Note

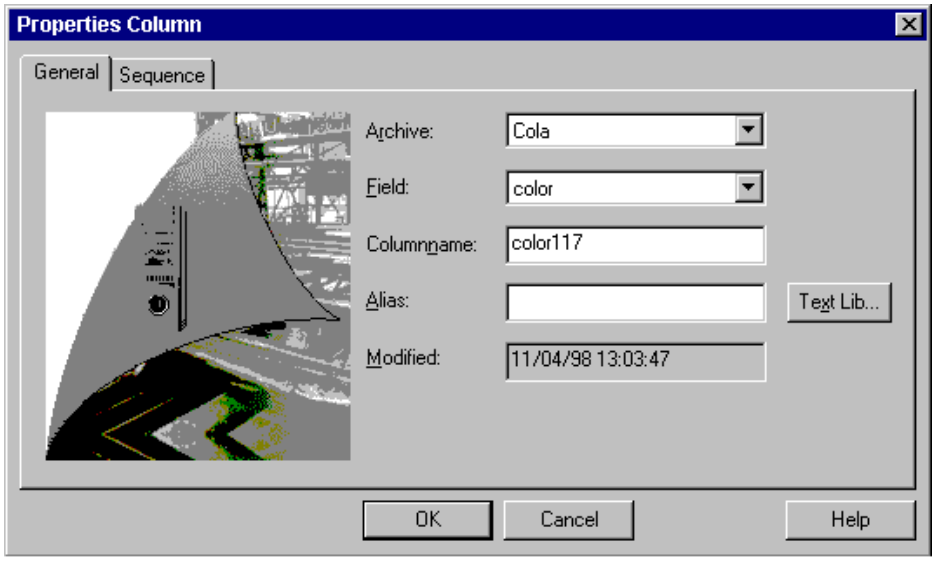
Changes made to views only become effective after saving the database.

2.9 Properties of View Fields

To edit the properties of the view windows, proceed as follows:

R In the User Archives editor, right-click on one of the view columns.

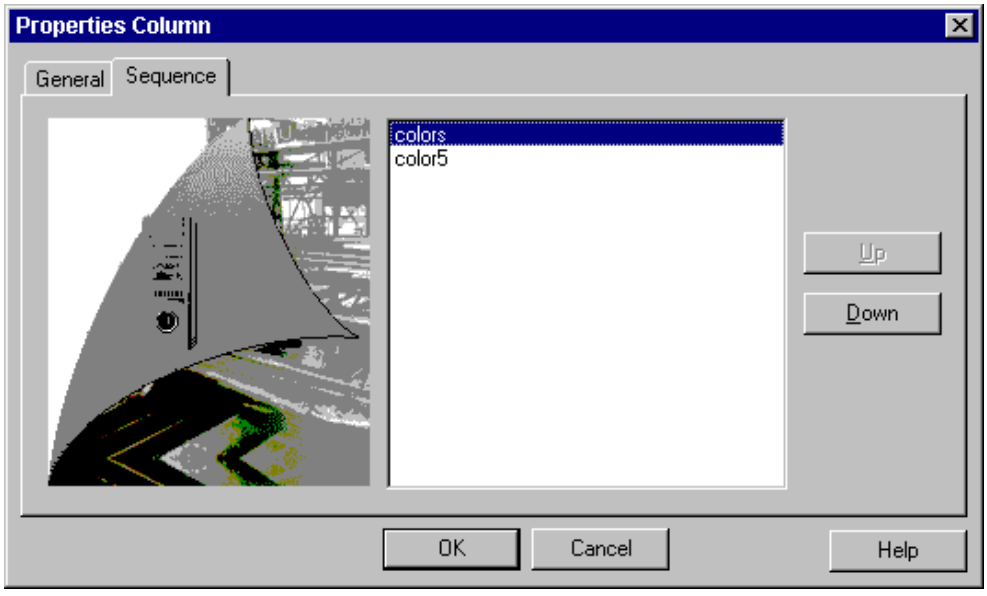
Select "Properties" from the pop-up menu. The "*Column Properties*" dialog box will then be displayed:



The "General Information" tab contains the same fields as the tab used for creating a new view column. The date and time of the last change are displayed in the "Changed" field.

2.9.1 The "Sequence" Tab

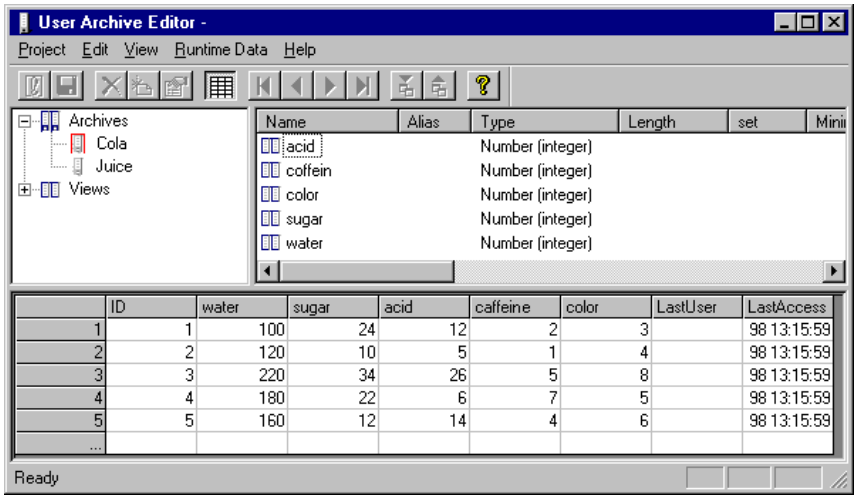
In the "*Sequence*" tab, the sequence of the view columns is defined.



Procedure:

Select a view via a mouse click. Use the "Up" and "Down" buttons to move the view one position up or down.

3 The Table Window of the User Archives Editor



 Via the "*Edit - Runtime Data*" menu or the corresponding button, the table window can be turned on or off. Double-clicking on one of the table fields enables the data entry. This is marked by a text cursor. You can navigate around the table using the arrow keys. Working in the User Archives editor table resembles the User Archive OCX table.

Note

If one or more values are changed in the User Archives Editor table or an OCX table, you must click somewhere else on the table after making the entry in order for the value to be accepted into the database and be updated in all displays.

4 Menus and Toolbar of the User Archives Editor

4.1 The Menus of the User Archives Editor

This section describes the menu-driven operation. The User Archives Editor offers the following menus:

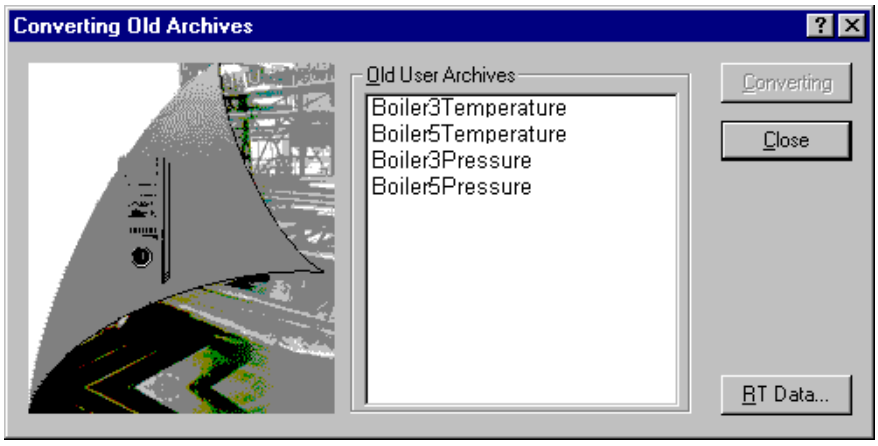
Menu	Menu Command	Shortcut
Project	Restore	Ctrl + N
	Save	Ctrl + S
	Convert	
	Exit	
Edit	Cut	Ctrl + X
	Copy	Ctrl + C
	Paste	Ctrl + V
	Runtime Data	Ctrl + R
	Options	Ctrl + O
View	Toolbar	
	Status Bar	
	Divide	
Runtime Data	Import	
	Export	
Help	Help Topics	
	About	

Restore

The "*Restore*" menu command discards the changes made and restores the last saved state. Additionally, this function allows you to apply changes that have been made and saved by scripts or external programs since opening the editor. These external changes are not automatically provided to the editor.

Convert

This menu command allows WinCC V3.x User Archives to be converted to the new WinCC V4.02 User Archives format.



The conversion is carried in two steps:

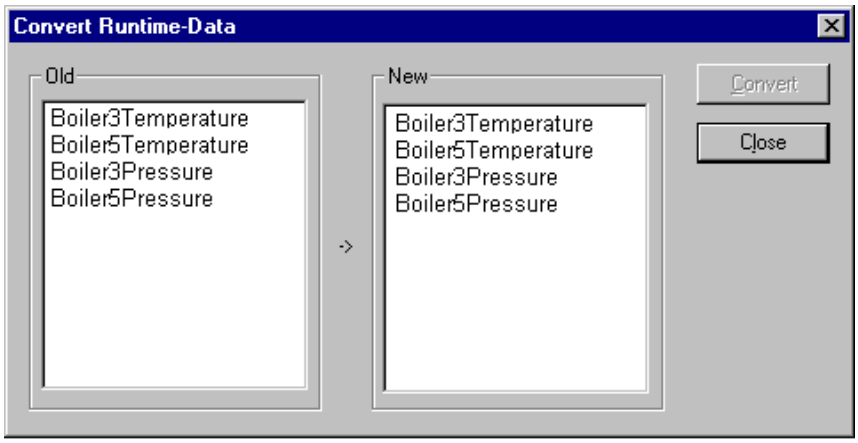
1. Conversion of the archive structure.
2. Conversion of the runtime data.

To convert the archive structure, proceed as follows:

1. Select the User Archive to be converted and start the conversion by clicking on the "Convert" button.
2. After successful conversion, exit the dialog window by clicking on the "Close" button.
3. Save the converted archive structure.

To convert the runtime data, proceed as follows:

1. Select the "Project - Convert" menu command.
2. In the "Covert Old Archives" dialog window, click on the "RT Data" button. This will open the "Convert Runtime Data" dialog window.



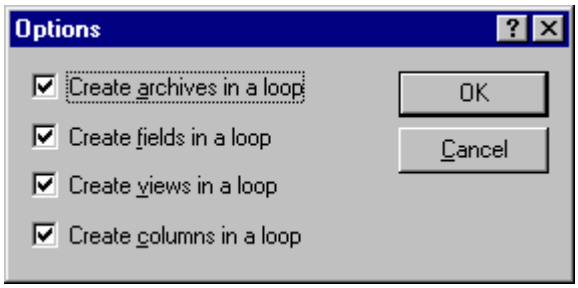
3. Select the old and newly converted archive and start the conversion by clicking on the "Convert" button.
4. Close the "Convert Runtime Data" dialog window.
5. Close the "Convert Old Archives" dialog window.

Runtime Data

This menu command allows you to edit online data in the table window. A check mark next to this menu indicates that the "Runtime Data" status is active.

Options

This menu command defines how User Archives/views and their entries are created. The following dialog box will be displayed after clicking on this menu:



Create Multiple Archives in Sequence:
If this option is checked, a dialog box for defining an additional archive will automatically be displayed after an User Archive has been created.

Create Multiple Fields in Sequence:
If this option is checked, a dialog box for defining an additional data field will automatically be displayed after an User Archive data field has been created.

Create Views in Sequence:
If this option is checked, a dialog box for defining an additional view will automatically be displayed after a view archive has been created.

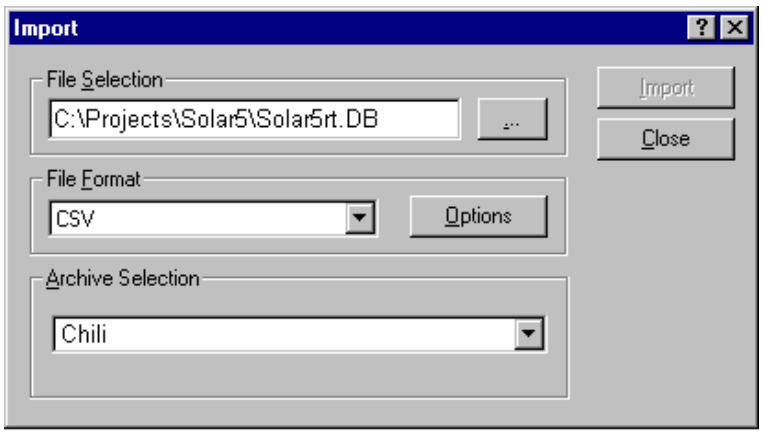
Create Multiple Columns of a View in Sequence:
If this option is checked, a dialog box for defining an additional column will automatically be displayed after a view column has been created.

Divide

Adjust the size of the three windows of the User Archives editor using this menu command.

Import

Use this menu command to import User Archives.



In the "*File Selection*" field, enter the path and file name of the User Archive to be imported. The "..." button helps you to select the file.

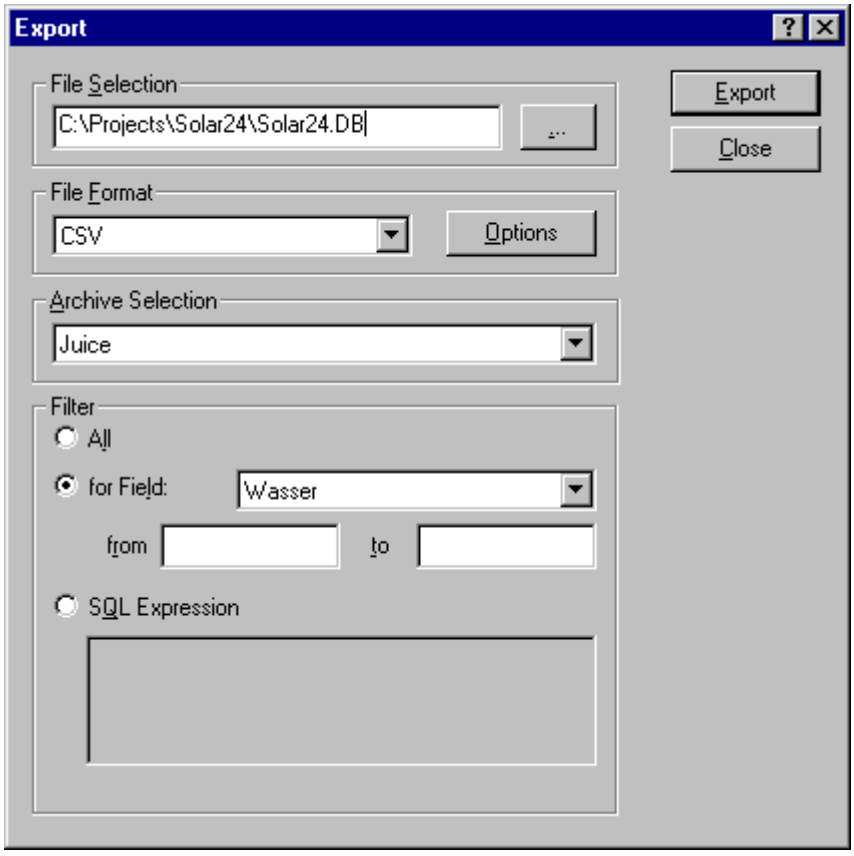
In the "*File Format*" field, the file format of the file to be read can be defined. The "*Options*" button allows you to set the desired separator. The default separator is the ";" semicolon.

In the "*Archive Selection*" field, an archive of the current project can be selected.

The import process is initiated after clicking on the "*Import*" button. The structure of the source and target archives must be identical, otherwise the import will fail.

Export

Use this menu command to export User Archives.



In the "*File Selection*" field, enter the path and file name of the User Archive to be exported. The "..." button helps you to select the file.

In the "*File Format*" field, the file format in which the archive is to be written can be selected. The "*Options*" button allows you to set the desired separator. The default separator is the ";" semicolon.

In the "*Archive Selection*" field, an archive of the current project can be selected.

In the "*Filter*" field, an export filter can be defined. In the "*Filter for Field"* box, the field the filter is referring to is specified. In the "*from ... to*" boxes, the value range passing the filter is entered.

Selecting the "*SQL Expression"* radio button allows you to enter a filter expression using the SQL language. Additional information about SQL expressions can be found in the appendix.

The export process is initiated after clicking on the "*Export*" button.

4.2 The Toolbar of the User Archives Editor

The User Archives editor can be operated from its toolbar. The following describes the individual icons of the toolbar in alphabetical order:

Icon	Description
	Paging
	Properties
	Export
	About
	Import
	Delete
	New
	Runtime Data
	Save
	Restore

Paging

The "*Paging*" buttons allow you to page through an User Archive while in runtime.

Properties

The "*Properties*" icon allows you to edit the properties of archives or data fields. A right mouse click on a data field or User Archive also enables you to change its properties.

Delete

The "*Delete*" button allows you to delete archives or data fields. A right mouse click on a data field or User Archive also enables you to delete it. You can also click on a data field or archive and then hit the "*Delete*" key (on your keyboard).

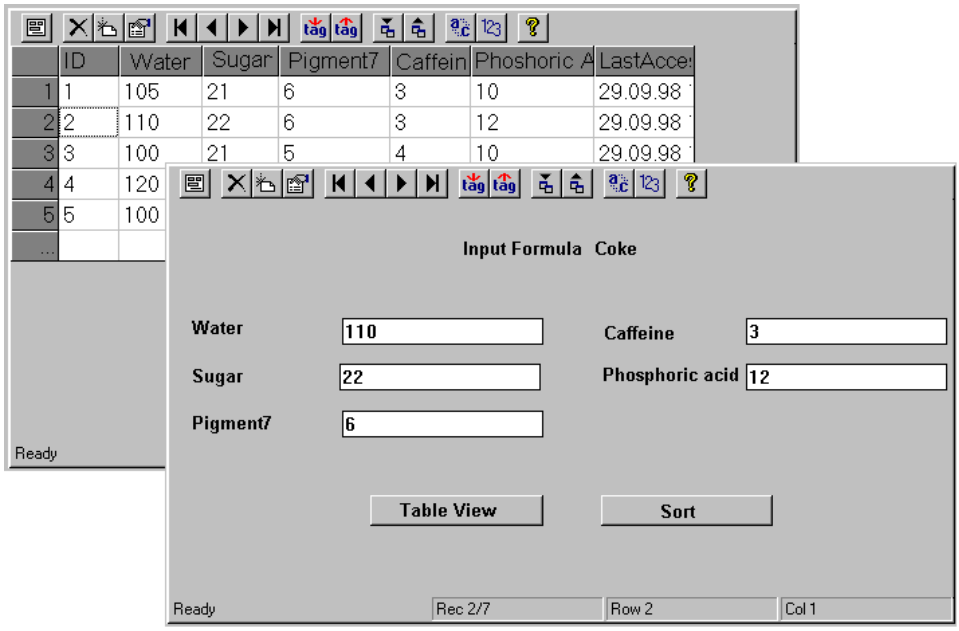
New

The "*New*" icon allows you to create new archives or data fields. A right mouse click on one of the upper windows also allows the creation of a new archive.

5 WinCC User Archives Table Control

The User Archives Control provides access to the archives and views of the User Archives. In runtime, the User Archives Control allows you to:

- Create or delete data records
- Page through User Archives
- Read and write tags via a direct tag connection
- Import and export archives
- Define filter and sort conditions



The User Archives Table Control offers two views: The table view and the form (user-defined) view.

The Table View

The table view displays the User Archives in tabular form. Each data record occupies one line with multiple columns, forming multiple data fields for each record.

The Form (User-Defined) View

The form view provides a user interface, which can be defined by the user. The form view of the User Archives offers three field types: Static Texts, Input Fields and Buttons.

5.1 Configuration of the User Archives Table Control

5.1.1 Steps to Configure the User Archives Control

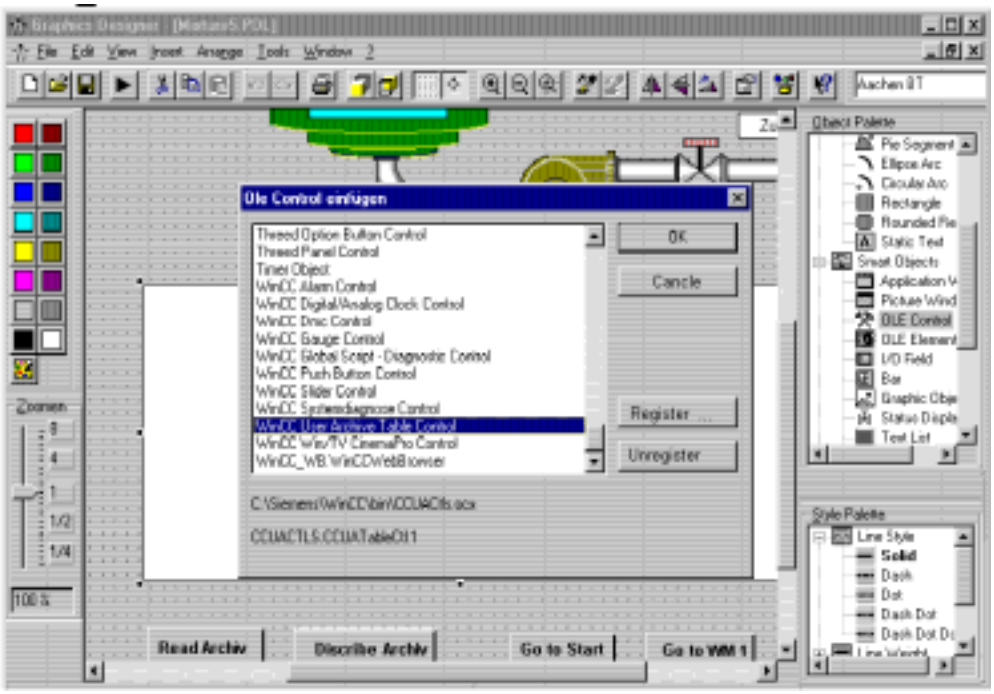
To configure the WinCC User Archives Control, proceed as follows:

1. Configure the User Archive using the User Archives Editor or the User Archives Scripts. In the User Archives Editor description, the configuration of the "*Cola*" archive has been illustrated.
2. Place a new User Archives Control in a picture of the Graphics Designers.
3. Configure the properties of the User Archives Control.
4. Configure the User Archive form view.

5.1.2 Placing the User Archives Control in a Process Picture

To set up the User Archives Control in a process picture, it must be configured in the *Graphics Designer*. Follow these steps:

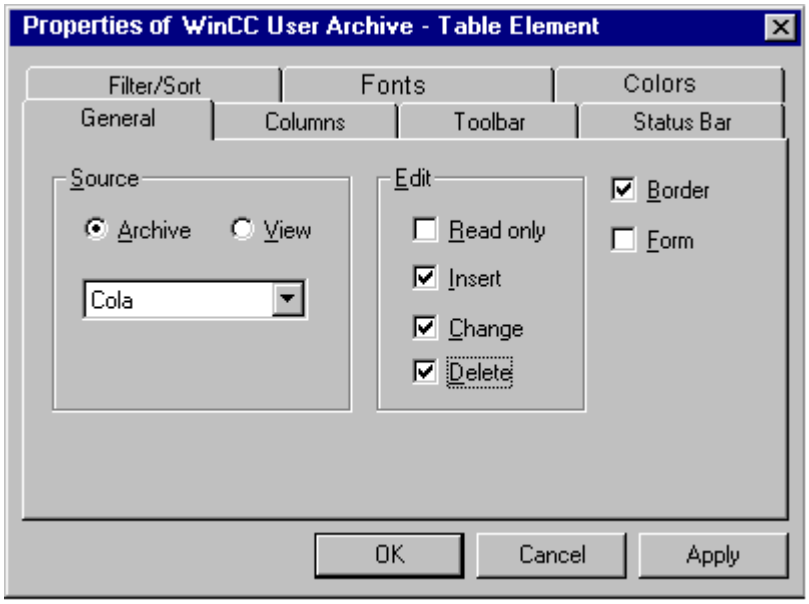
1. In the *Object Palette*, expand the "*Smart Objects*" group.
2. Click on the *OLE Control* object , place it on the screen and size it.
3. In the following "*Insert OLE Control (OCX)*" selection dialog box, select the "*WinCC User Archives Table Control*" as the window content and close the dialog box by clicking on *OK*.



5.1.3 Defining the Properties of the User Archives Control

The following guideline describes the configuration of the User Archives Control for the "Cola" archive using the "*WinCC User Archives Table Control Properties*" dialog box (from the Graphics Designer).

1. Double-click on the "WinCC User Archives Table Control". This will display the "WinCC User Archives Table Control Properties" dialog box containing the "General Information" tab.



2. In the *Source* input field, define the archive or view which is to be displayed in the Control. Click on "*Archive*" and then select "*Cola*".
3. In the *Process* field, the runtime access type can be set. Deactivate the "*Read Only*" check-box. The "*Insert*", "*Change*" and "*Delete*" access types will be listed. Activate them.
4. The "*Frame*" check-box defines, if the OCX window is displayed framed/unframed. Activate this option.

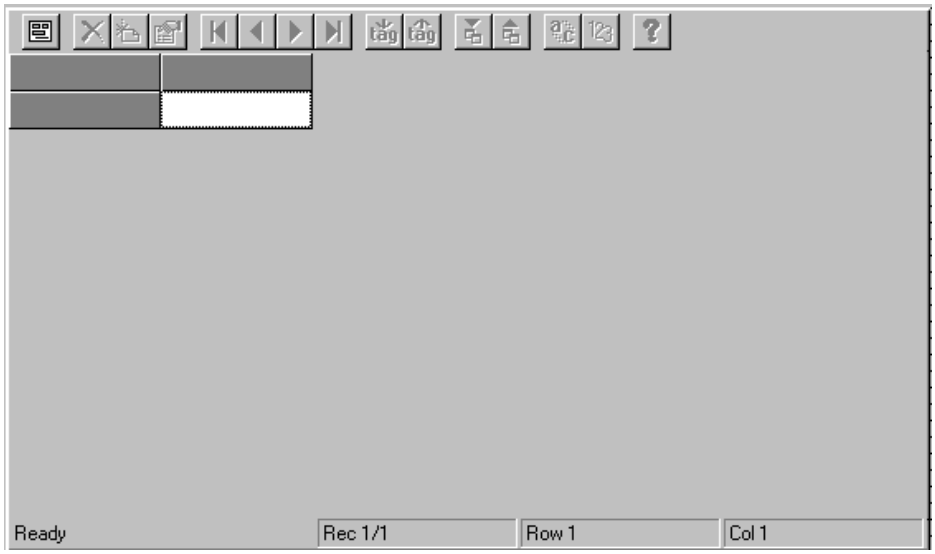
The presettings of the remaining tabs can be accepted unchanged.

5.1.4 Configuration of a Form (User-Defined) View

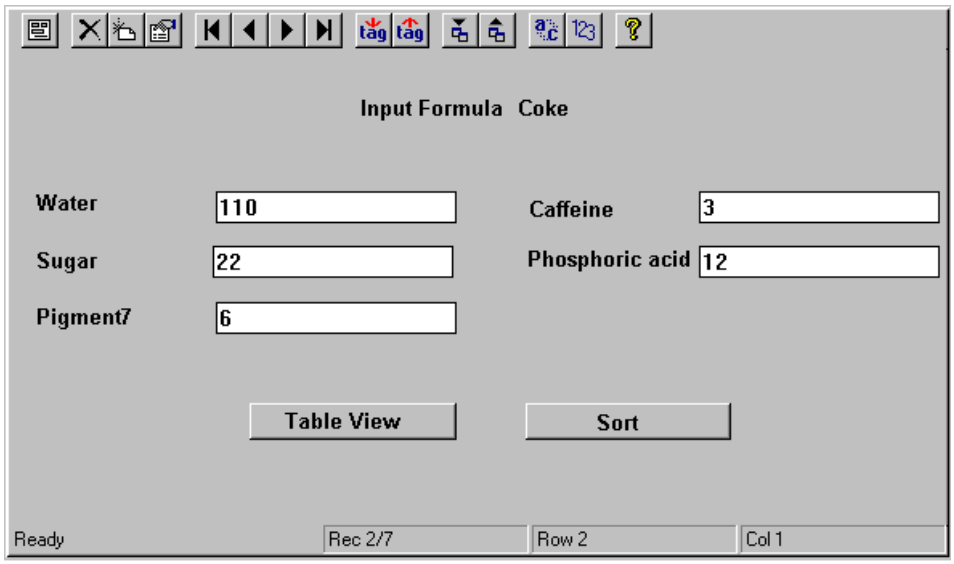
Prerequisite for the configuration of a form view is the configuration of the User Archives Control properties.

The following guideline illustrates the configuration of a new form view using the Graphics Designer.

1. While pressing the "CTRL" key, double-click on the *User Archives Control*. The table view of the User Archives Control will be displayed. The size of the Control for the runtime operation can now be preset.



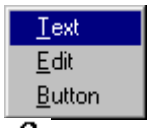
2.  This icon allows you to switch between the form and table views. Click on this icon to display the form view. Now you can start with the configuration of the form. The following form will be created:



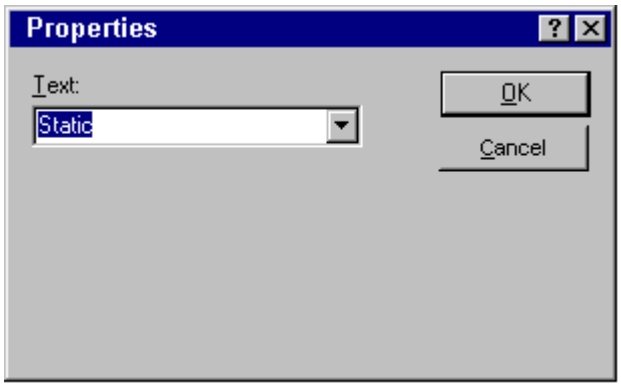
5.1.4.1 Defining the "Text" Form Field

To define a new text field for the form, follow these steps:

R Right-click on the User Archives Control. The following selection menu will be displayed:



After clicking on the "*Insert Text Field*" selection, the "*Text Field Properties*" dialog box for the configuration of the text will be displayed.



In the "*Text*" field, enter the text "`Cola Input Form`" as the title of the form.

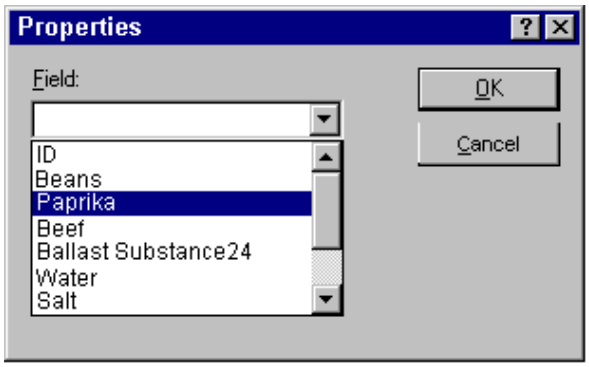
5.1.4.2 Defining the "Edit" Form Field

To define a new edit field for the form, follow these steps:

R Right-click on the User Archives Control. The following selection menu will be displayed:

Select "*Insert Edit Field*".

The "*Edit Field Properties*" dialog box will be displayed:



Click on the icon. All configured data fields of the "*Cola*" archive are available for selection from the list-box. Select the "*Water*" field. You can also define additional edit fields, e.g. Sugar, Coloring7, Caffeine, Phosphoric Acid, etc.

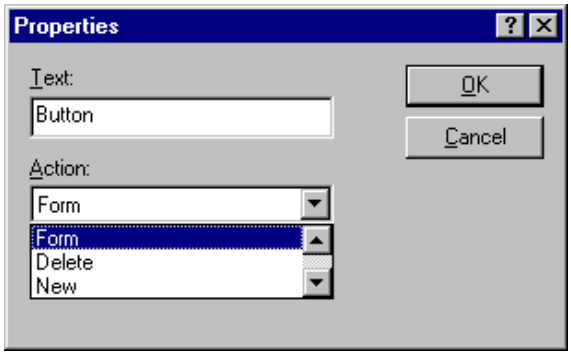
5.1.4.3 Defining the "Button" Form Field

To define a new button, follow these steps:

R Right-click on the User Archives Control. The following selection menu will be displayed:

Select "*Insert Button*".

The "*Button Properties*" dialog box for changing the button field will be displayed:



In the "*Text*" field, the button label can be entered. Enter the text "`Table View`".

In the "*Action*" field, one of the icons for the form view can be selected. Your newly configured button will perform the same action as the corresponding icon from the toolbar. Select "*Form*" to enable switching to the table view.

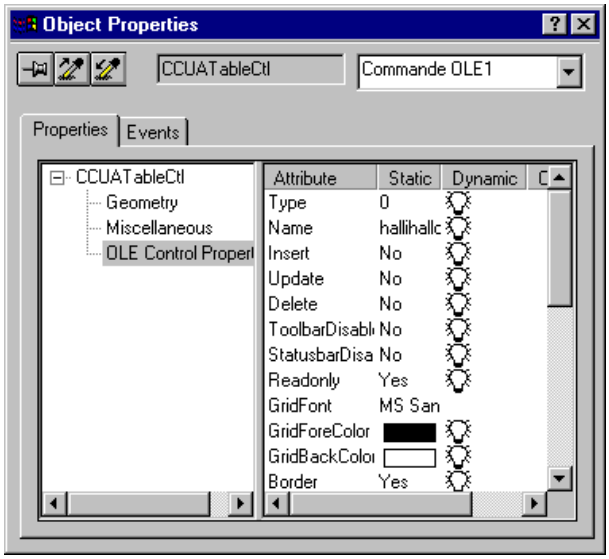
To define additional button fields, follow the steps outlined above. For example, a "Sort" button could be defined.

This completes the configuration of the User Archives Control.

5.2 The Properties of the WinCC User Archives Control

5.2.1 Object Properties of the WinCC User Archives Control

The properties of the User Archives Control can be changed by right-clicking on the object and selecting "Properties" from the displayed pop-up menu.
From the "Properties" tab of the "Object Properties" dialog box, select the "OLE Control Properties" group.



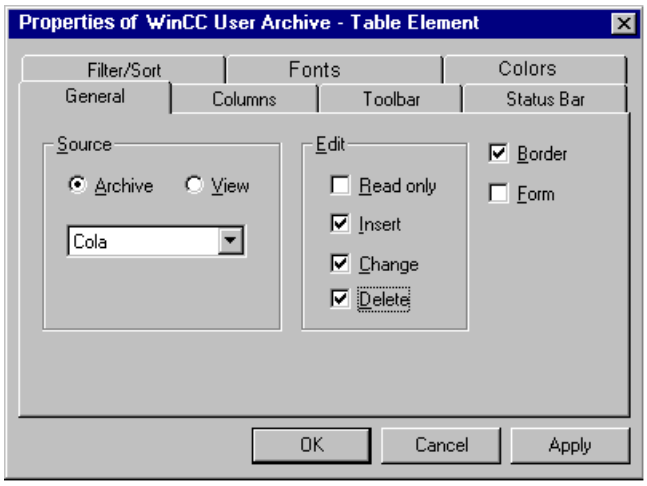
Note

A complete description of all properties of the WinCC User Archives Control can be found in the Online Help.

5.2.2 "WinCC User Archives Table Control Properties" Dialog Box

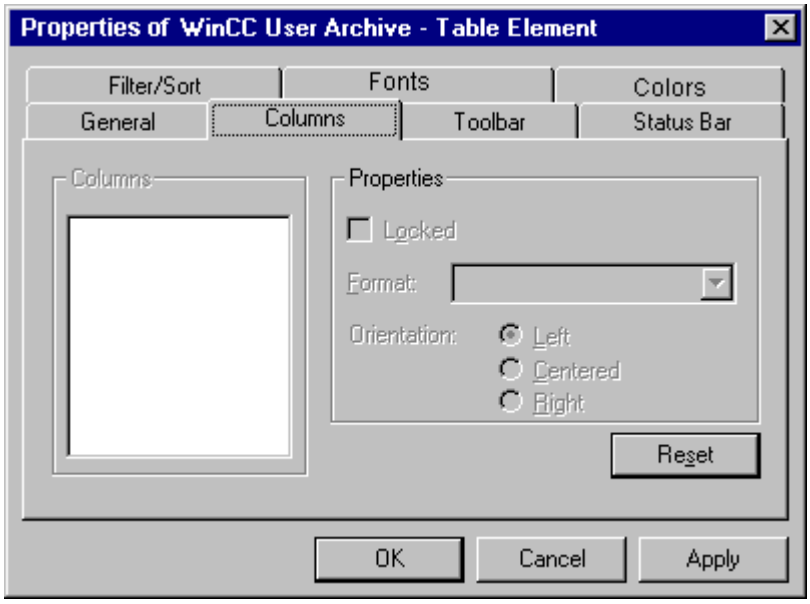
You can also configure the User Archives Control by double-clicking on it in the Graphics Designer.

Tab: *General Information*



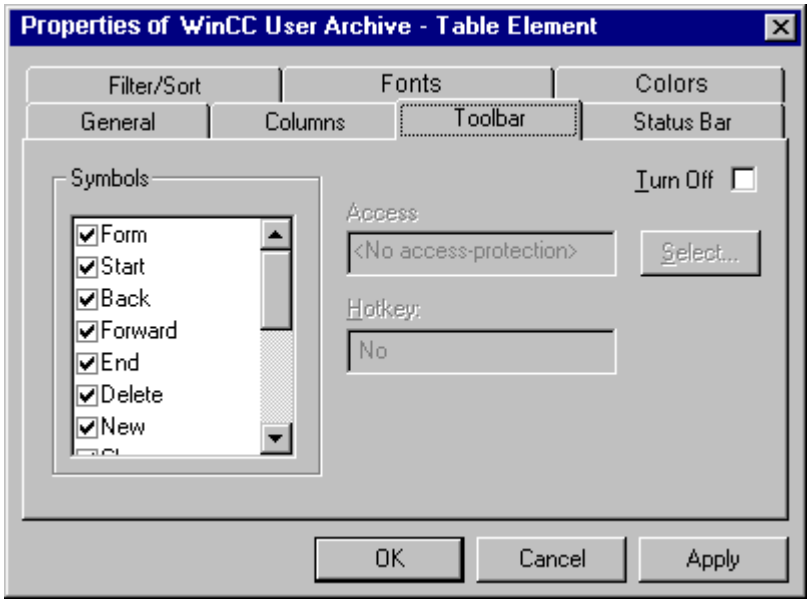
Field	Description
Archive/ View	The Archive/View selection buttons define, if an archive or view is configured.
Source	A previously configured archive/view can be selected in this field.
Edit	In the *Edit* field, the runtime access type can be defined. If the "*Read Only*" check-box is deactivated, the "*Insert*", "*Change*" and "*Delete*" access types will be listed.
Frame	The "*Frame*" check-box defines, if the Control window is displayed framed/unframed.
Form	The "*Form*" check-box defines, if the form view in the Control window should be the initial view.

Tab: *Columns*

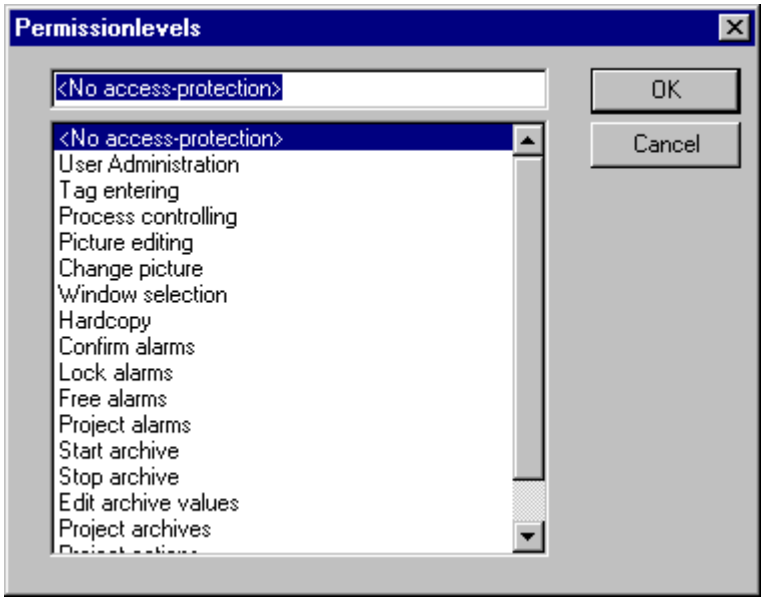


Field	Description
Columns	In the *Columns* field, the fields - created by the User Archives Editor - to be displayed in the process picture are defined.
Properties	The *Properties* field allows you to define the properties of the field currently selected in the *Columns* field.
Locked	The "*Locked*" check-box allows you to write-protect the selected field.
Format	In the "*Format*" field, the value display is defined: Fixed (fixed-point number), Scientific, Date, Time and TimeStamp. Currently, the selection of a format has no influence on the display of the value in runtime. The display of a date field always follows the "DD.MM.YY hh.mm.ss" format.
Orientation	The "*Orientation*" can either be "Left", "Centered" or "Right".
Reset	The "*Reset*" button restores the previous setting.

Tab: *Toolbar*

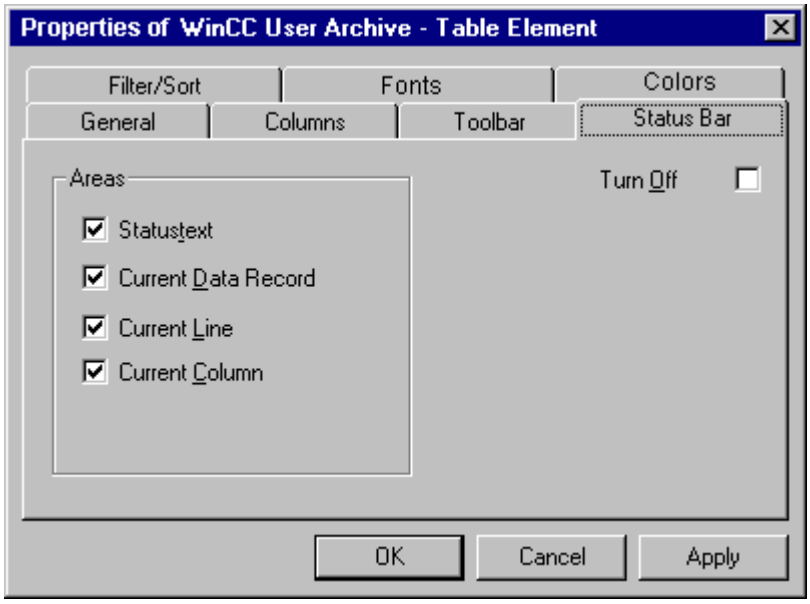


Field	Description
Icons	The "*Icons*" field allows you to select the icons of the Control's toolbar.
Access	The "*Access*" field displays the access rights of the selected icon.
Select	Clicking on the "*Select*" button will display the "*Authorization Levels*" dialog box, in which you can define the desired access.
Turn Off	The "*Turn Off*" button allows you to turn the toolbar on or off.



In the "*Authorization Levels*" dialog box, the desired access can be defined. The entries in this dialog box were previously set in the User Administrator.

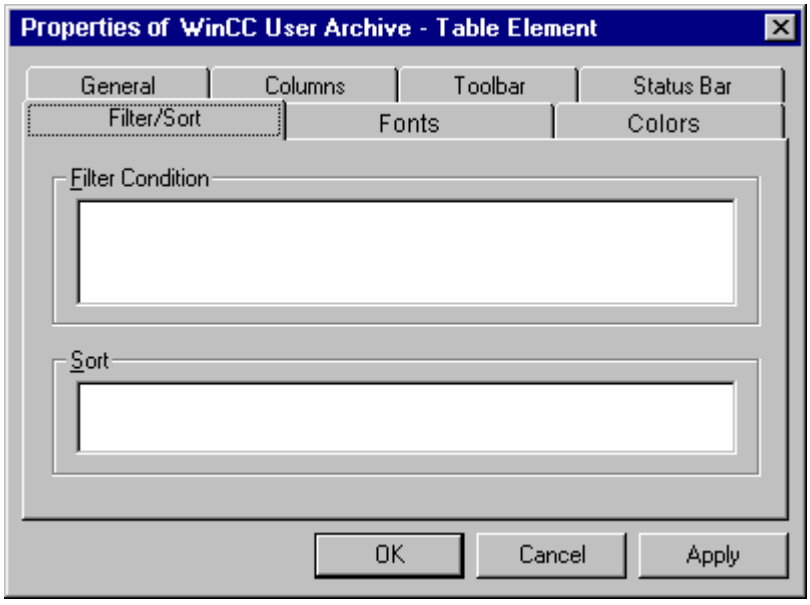
Tab: *Status Bar*



Field	Description
Elements	The "*Elements*" selection buttons define the elements of the Control's status bar.
Turn Off	The "*Turn Off*" button allows you to turn the status bar on or off.

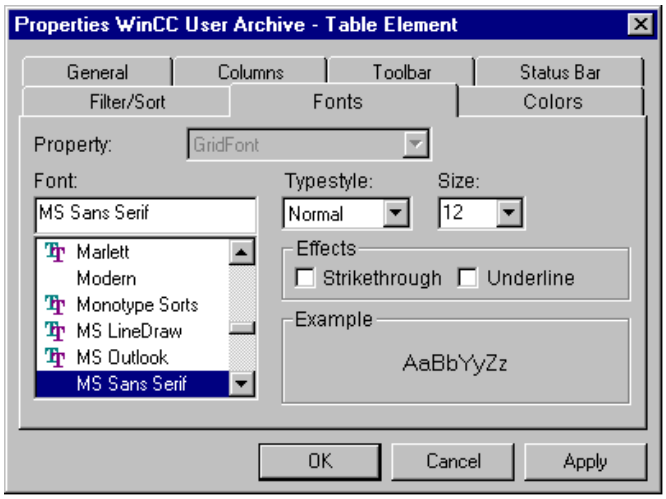
If all elements of the status bar have been activated, the status bar will look as follows:

Tab: *Filter/Sort*



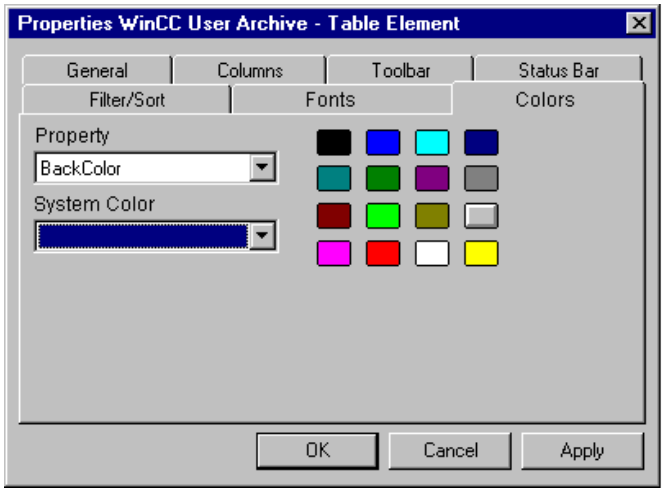
Field	Description
Filter Condition	In the "*Filter Condition*" tab, the filter conditions are defined. Enter the rules for the filter conditions directly. These conditions are formulated using the database programming language SQL (Structured Query Language). The appendix contains a Description of SQL with several, practical examples. Example: FieldC > 100 All data records in the "FieldC" column containing values greater than 100 are selected.
Sort	In the "*Sort*" tab, the sort conditions are defined. Enter the sorting rules directly using the database programming language SQL. See Description of SQL

Tab: *Fonts*



In the "*Fonts*" tab, the fonts used in the Control are defined.

Tab: *Colors*



In the "*Colors*" tab, the colors used in the Control are defined.

5.3 Configuration of Form Fields

5.3.1 Defining New Form Fields

Accessing the Form View

1. While pressing the "CTRL" key, double-cklick on the *User Archives Control*. The table view of the Control will be displayed.
2.  Click on this icon to access the form view.

Defining a New Form Field:

R In the Graphics Designer, right-click on the User Archives Control at the position, where you want to place the text. The following selection menu will be displayed:

The following field types are available:

Text: A text field contains any static text.

Edit: An edit field gives you display and editing possibilities for the current archive's data fields.

Button: A button provides you with a separate button instead of a form field icon.

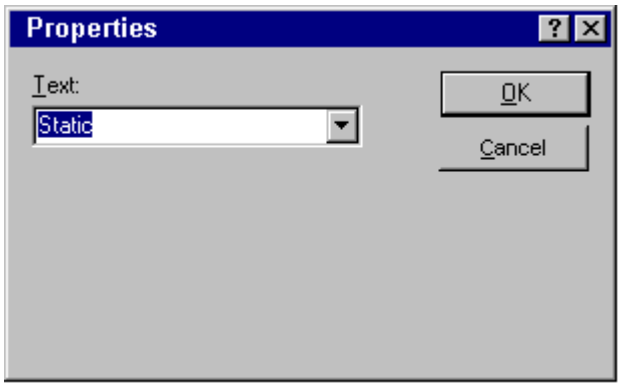
5.3.2 Defining a New "Text" Form Field

Open the Form View, if not yet opened.

To define a new "Text" form field, follow these steps:

R In the Graphics Designer, right-click on the User Archives Control at the position, where you want to place the text. The following selection menu will be displayed:

After selecting "*Insert Text Field*", the "*Text Field Properties*" dialog box is displayed:



In the "*Text*" field, the desired text can be entered. If you expand the field, all field names will be provided as static text.

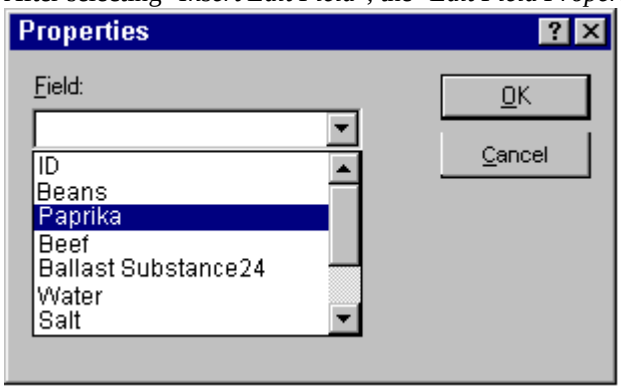
5.3.3 Defining a New "Edit" Form Field

Open the Form View, if not yet opened.

To define a new "Edit" form field, follow these steps:

R In the Graphics Designer, right-click on the User Archives Control at the position, where you want to place the edit field. The following selection menu will be displayed:

After selecting "*Insert Edit Field*", the "*Edit Field Properties*" dialog box is displayed:



In the "*Field*" field, one of the displayed fields can be selected. All fields of the archive, that has been set during configuration, are provided.

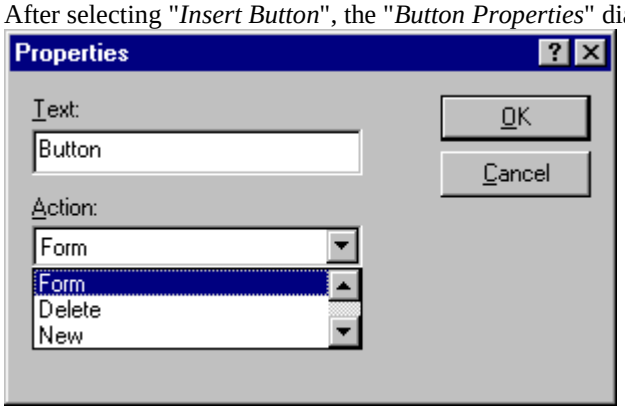
5.3.4 Defining a New "Button" Form Field

Open the Form View, if not yet opened.

To define a new button, follow these steps:

R In the Graphics Designer, right-click on the User Archives Control at the position, where you want to place the button. The following selection menu will be displayed:

After selecting "*Insert Button*", the "*Button Properties*" dialog box is displayed:



In the "Text" field, the label for the new button can be entered. For example, if you enter "`Table View`", your button will be labeled with the text "`Table View`".

In the "Action" field, one of the icons for the form view can be selected. Your newly configured button will perform the same action as the corresponding icon from the toolbar. For example, if you select the "Form" action, clicking on this button in runtime will switch you back to the table view.

5.3.5 Editing Form Fields at a Later Time

To edit a form field at a later time, follow these steps:

R Right-click on the configured form field and select "*Properties*" from the pop-up menu, or

D Double-click on the configured form field.

This will display the corresponding dialog box for editing the form field, as described in the Defining a New "Text" Form Field, Defining a New "Edit" Form Field and Defining a New "Button" Form Field chapters.

5.3.6 Deleting Form Fields

To delete a form field, follow these steps:

R Right-click on the configured form field.

Select "*Delete*" from the pop-up menu. This will delete the form field. Do not press the "Delete" key, since it will delete the entire Control.

5.4 Deleting the User Archives Control

The deletion of User Archives Controls from the Graphics Designer in is performed in two steps:

1. Click on the User Archives Control to be deleted.
2. Press the "Delete" key or select the "Edit - Delete" command.

The deletion will be carried out without a prior warning! The deletion can be reversed via the "Edit - Undo" command or the "CTRL - Z" key combination.

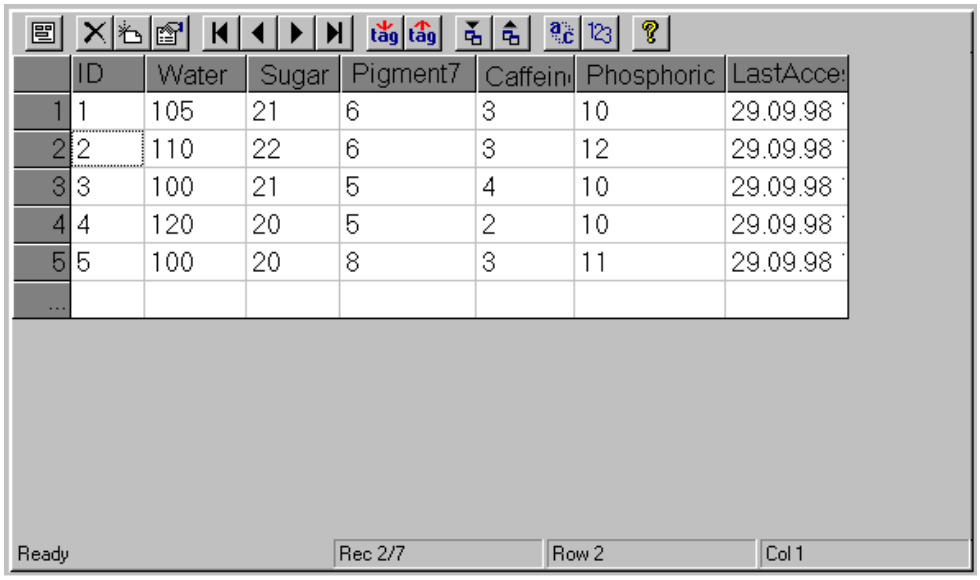
Note

If the User Archives Control is in the form view while deleting, the background of the User Archives Control will remain after deletion. This background can be ignored, since it will disappear after additional Graphics Designer objects have been configured.

5.5 User Archives Control during Runtime Operation

5.5.1 The Table of the User Archives Control

The table of the User Archives Control displays the User Archive data in tabular form during runtime.



The table and form windows of the User Archives Control table is operated with this toolbar:

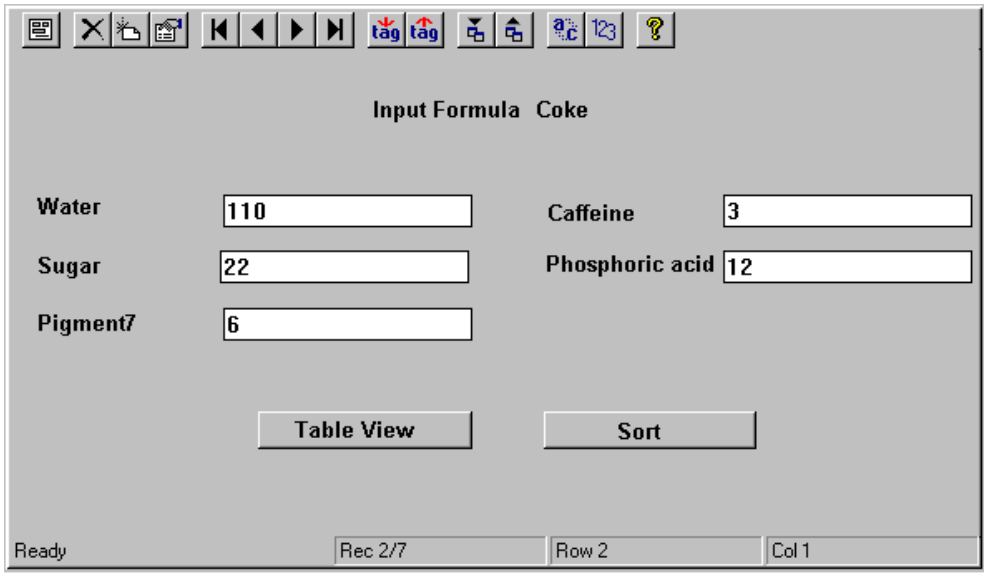
Note

If one or more values are changed in the Control table, you must click somewhere else on the table after making the entry in order for the value to be accepted into the database and be updated in all displays.

User Archive scripts must be able to select data records for themselves. A selection of data records via the User Archives Control is not possible.

5.5.2 The Form of the User Archives Control

The form of the User Archives Control can be user-defined in the Graphics Designer and serves for the display of User Archive data in runtime.



Note

If one or more values are changed in the User Archive Control form, you must click on another data record after making the entry in order for the value to be accepted into the database and be updated in all displays.

5.5.3 The Toolbar of the User Archives Control

The toolbar provides the following functions:

Field	Description
	Switch
	Delete data record
	Define a new data record
	Edit an existing field
	Page through the table window
	Read or write from tags
	Import/export archives
	Define filter conditions
	Define sort conditions
	Request help

Switch

This icon allows you to switch between the form and table views.

Delete data record

The highlighted data record is deleted.

Define a new data record

Enter values into the data fields sequentially and acknowledge input each time by clicking on this icon. After making all entries, the data record with the entered values will be created.

Edit an existing field

After clicking on this icon, click on the field you want to edit. This will display the cursor, signaling the editability of this field. As long as the "Edit an existing field" icon is active, the User Archives Control is in the "Edit" mode. This means that you can move the cursor around the table and make changes immediately. If the "Edit" mode is turned off, changes can only be made after pressing the F2 hotkey or double-clicking on the field to be changed.

Page through the table window

These buttons allow you to page forward/backward in the table window and to jump to the beginning/end of the archive.

Read or write from tags

These buttons allow you to read and write from WinCC tags.

While configuring the archive (in "Archive Properties" dialog box - "Communication" tab), the communication type Communication via WinCC Tag must be specified. In the "Control Tag" tab, a Control Tag must be defined.

Import/export archives

Clicking on these icons imports/exports User Archives in the CSV (Coma Separated Value) format.
Warning! Before exporting to Excel, the CSV file type must be specified in order for the exported WinCC CSV file to be read correctly.

Define filter conditions

This option allows the input of filter conditions. The filter conditions are formulated using the database programming language SQL (Structured Query Language). The appendix contains a Description of SQL with several, practical examples. Additional information can be obtained from appropriate literature.
Example:

ID < 100

Only data fields with IDs ranging from 1 to 99 will be selected, all other data fields will not be displayed.

Define sort conditions

This option allows the input of sort conditions. Enter the sorting rules directly using the database programming language SQL.
Also refer to the Description of SQL in the appendix. Additional information can be obtained from appropriate literature.

Request help

Click on this icon to request help for the User Archives Control.

6 Standard User Archives Script Functions

The description of the standard User Archives script functions is divided into the following chapters:

- General Information about Action Scripts
- User Archives Script Functions
- The Script Function HandlesA practical Script Function Example
- Reference for the Standard Functions of the User Archives
- A detailed description of the User Archives functions can be found in the WinCC User Archives online help.

WinCC offers a number of script functions to allow a flexible utilization of the User Archives.

The script functions of the User Archives are uniformly named. All User Archives script functions start with "*ua*", for example "*uaConnect*", "*uaArchiveOpen*", *uaArchiveGetFields*", etc. Runtime functions always start with "*uaArchive*".

The User Archives functions are divided into configuration and runtime functions. The UAHCONFIG, UAHCONNECT and UAHARCHIVE handles must first be created using corresponding script functions before the configuration and runtime functions can be used.

Note

User Archives scripts must be able to select data records for themselves. A selection of data records via the User Archives OCX control is not possible.

If a program has opened an User Archive and a record is added or deleted via a control or the User Archives editor, that program will not be informed about the change. Only after a requery will the changes be known to the program.

6.1 General Information about the Generation of Action Scripts

To configure an action script (action), carry out the following steps:

Open the Graphics Designer and create a plant picture.

R Right-click on the object to which you want to add an action (e.g. a button).

Select *Properties* from the pop-up menu

Select the element from the *Properties* or *Events* tab and double click on the desired action (e.g. to configure an action for the "Press Left" mouse action select *Events / Mouse / Press Left).* In the following dialog box, the C-Code can be entered directly and then be compiled.

Click on the *OK* button to complete the configuration of the action.

6.2 Script Functions of the User Archives

Configuration using the User Archives Editor

The first step is the configuration of the User Archives. The configuration can be carried out with the User Archives editor or the User Archives script functions.

Configuration using the User Archives Script Functions

The *uaQueryConfiguration* function provides a handle (UAHCONFIG) for the configuration functions. This handle allows you to call the *uaSetArchive, uaAddArchive, uaSetField, uaAddField,* etc. configuration functions. The "*uaReleaseConfiguration*" function ends the configuration of the User Archives.

Establishing a Connection to the User Archives

Next, the *uaConnect* standard function must be called to establish a connection to the User Archives component. "uaConnect" generates the "UAHCONNECT" handle, which allows archives and views to be opened and closed.

Runtime Functions

The runtime operation requires a configured User Archive. The *uaQueryArchive* and *uaQueryArchiveByName* functions provide a handle for the runtime functions. After opening the archive with the *uaArchiveOpen* function, the User Archives runtime functions can be used.

Functions for the Runtime Operation

The *uaArchiveNext, uaArchivePrevious, uaArchiveFirst* and *uaArchiveLast* functions move the pointer. An unique assignment to a data record of the User Archive is generated via the *hArchive* handle. This assignment allows indirect addressing, for example as required by the screen dialog boxes.

The *uaArchiveUpdate* function stores the temporary data record in the archive and overwrites the data record to which the pointer is currently pointing. This data record must previously be read by the *uaArchiveNext, uaArchivePrevious, uaArchiveFirst* or *uaArchiveLast* functions.

Terminating the Connection to the User Archives

The *uaArchiveClose* function closes an User Archive. The *uaReleaseArchive* function terminates the connection to the to the current archive and the *uaDisconnect* function terminates the connection to the User Archives component.

6.3 The Handles of the Script Functions

6.3.1 Handles for the Configuration of User Archives

The *uaQueryConfiguration* User Archives script function generates the "UAHCONFIG" handle, which is a prerequisite for the configuration of the User Archives. This means that the *uaQueryConfiguration* function must be called first in order to receive the "UAHCONFIG" handle. This handle then allows you to call the configuration script functions listed below. To complete the configuration, *uaReleaseConfiguration* must be called.

Handles for the Configuration of User Archives	
UaQueryConfiguration	---> Handle UAHCONFIG
	required from:
	uaAddArchive
	uaAddField
	uaGetArchive
	uaGetField
	uaGetNumArchives
	uaGetNumFields
	uaReleaseConfiguration
	uaRemoveAllArchives
	uaRemoveAllFields
	uaRemoveArchive
	uaRemoveField
	uaSetArchive
	uaSetField

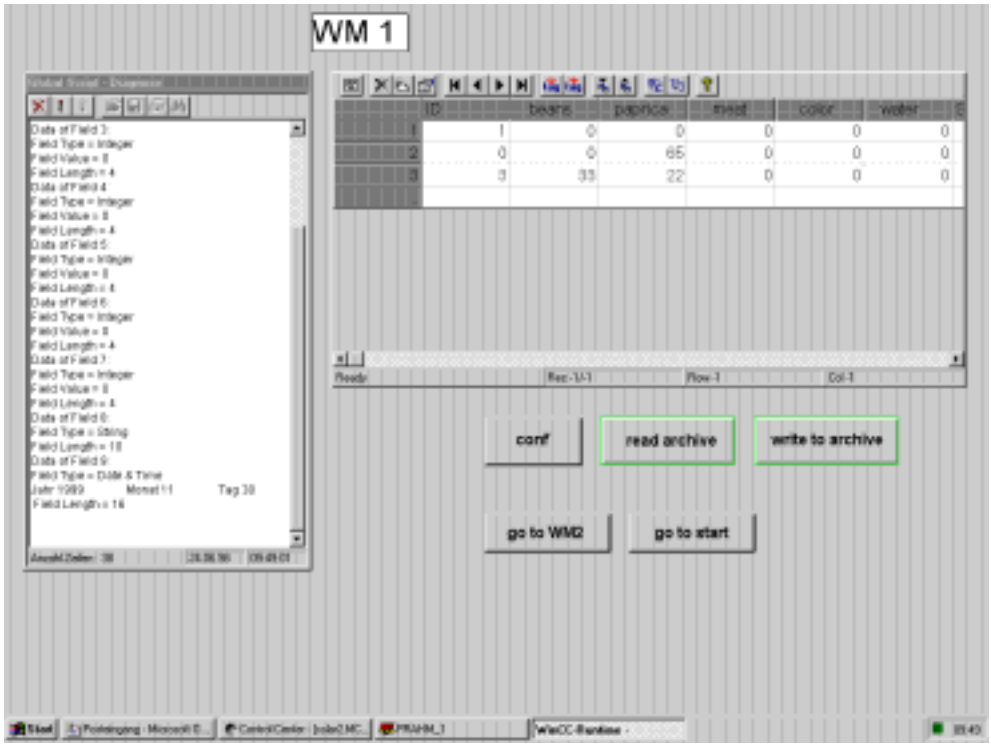
6.3.2 Handles for the Runtime Archive Functions

The *uaConnect* User Archives function generates the "UAHCONNECT" handle, which is a prerequisite for opening and closing archives and views. This means that the *uaConnect* function must be called first in order to receive the "UAHCONNECT" handle. This handle then allows you to call the script functions listed below for opening and closing archives and views. To complete the configuration, *uaDisconnect* must be called.

The *uaQueryArchive* and *uaQueryArchiveByName* functions generate the "UAHARCHIVE" handle. This handle is a prerequisite for the *uaArchiveOpen* User Archives script function, which opens the archive for the runtime operation.

Handles for the Runtime Archive Functions		
UaConnect	-> Handle UAHCONNECT	
	required from:	
	uaDisconnect	
	uaQueryArchive	--> Handle UAHARCHIVE
	uaQueryArchiveByName	--> Handle UAHARCHIVE
		required from:
		uaArchiveOpen
		Prerequisite for:
		uaArchiveClose
		uaArchiveDelete
		uaArchiveExport
		uaArchiveGetFieldLength
		uaArchiveGetFields
		uaArchiveGetFieldType
		uaArchiveGetFieldValueDate
		uaArchiveGetFieldValueDouble
		uaArchiveGetFieldValueLong
		uaArchiveGetFieldValueString
		uaArchiveGetFieldName
		uaArchiveGetFilter
		uaArchiveGetID
		uaArchiveGetName
		uaArchiveGetSort
		uaArchiveImport
		uaArchiveInsert
		uaArchiveMoveFirst
		uaArchiveMoveLast
		uaArchiveMoveNext
		uaArchiveMovePrevious
		uaArchiveReadTagValues
		uaArchiveReadTagValuesByName
		uaArchiveRequery
		uaArchiveSetFieldValueDate
		uaArchiveSetFieldValueDouble
		uaArchiveSetFieldValueLong
		uaArchiveSetFieldValueString
		uaArchiveSetFilter
		uaArchiveSetSort
		uaArchiveUpdate
		uaArchiveWriteTagValues
		uaArchiveWriteTagValuesByName
		uaReleaseArchive

6.4 A practical Script Function Example



The following example describes two standard functions for reading and writing from and to an User Archive in runtime. The "*UAReadFromArchive*" function reads the "Cola" archive and displays the data read in the "*Global Script Diagnostics Window*". The "*UAWriteToArchive*" function writes to the archive and displays states and messages. The diagnostics window is created by placing an OLE Control, from the Object Palette -> Smart Objects -> OLE Control, in the Graphics Designer and then selecting the "*WinCC Global Script - Diagnostics Control*" from the "*Insert OLE Control (OCX)*" dialog box.

In the Graphics Designer, create a new screen for your project. In this screen, create the "Read Archive" and "Write Archive" buttons and add the following script functions. The procedure is as follows:

In the Graphics Designer, from the "*Object Palette*" -> "*Windows Objects*", select "*Button*".

Place the button in the Graphics Designer and size it while keeping the mouse button pressed.

R Right-click on this new button and select "*Properties*" from its pop-up menu. In the "*Properties*" tab, the button label (text) and color can be defined. The labels, for example, could read "Read Archive" and "Write Archive".

In the "*Events*" tab, add an action to the mouse by selecting "*Mouse*" and then double-clicking on "*Mouse Action*". This will display the script editor. Enter the UAReadFromArchive standard script function listed below:

```
#include "apdefap.h"

void UAReadFromArchive()
{
    UAHCONNECT hConnect;
    UAHARCHIVE  hArchive;
    LONG        IndexArchive;
    LONG        FieldLength;
    LONG        FieldType;
    LONG        NumberOfFields;
    LONG        Index;
    long        IntValue;
    double      DoubleValue;
    char        ArchiveName[255], StringField[255];
    SYSTEMTIME   SysDate;

//******* Connect to User Archives Component ****************************
    if   ( uaConnect( &hConnect ) == FALSE )
    {
        printf( "uaConnect error: %d\n", uaGetLastError() );
        return;
    }
    if   ( hConnect == NULL )
    {
        printf( "Handle UAHCONNECT equals NULL\n" );
        return;
    }

//******* Connect to Archive via Archive Name ***************************
    if  (  uaQueryArchiveByName( hConnect, "Chili", &hArchive ) == FALSE )
    {
        printf( "uaQueryArchive Error: %d\n", uaGetLastError() );
        return;
    }


//******* Opens Archive**************************************************
    if  (  uaArchiveOpen( hArchive ) == FALSE )
    {
        printf( "uaArchive Open Error\n" );
        return;
    }

//******* Get Number of Fields ******************************************
    NumberOfFields = uaArchiveGetFields( hArchive );
    printf( "Number of Fields = %u\n", NumberOfFields );

//******* Read and Show Data Fields *************************************
    for  ( Index = 1; Index < NumberOfFields; Index )
    {
        printf( "Data of Field %u: \n", Index  );

        FieldType = uaArchiveGetFieldType( hArchive, Index );
        switch   ( FieldType )
```

```
        {
            case  UA_FIELDTYPE_INTEGER :
                printf("Field Type = Integer\n");
                if   ( uaArchiveGetFieldValueLong (hArchive, Index, &IntValue ) == TRUE)
                    printf( "Field Value = %u\n", IntValue );
                else
                    printf("Error calling uaArchiveGetFieldValueLong: %d\n",
                            GetLastError() );
            break;

            case  UA_FIELDTYPE_DOUBLE :
                printf("Field Type = Double\n");
                if     ( uaArchiveGetFieldValueDouble ( hArchive, Index, &DoubleValue )
                       == TRUE )
                    printf( "Field Value = %g\n", DoubleValue );
                else
                    printf( "Error calling uaArchiveGetFieldValueDouble: %d\n",
                            uaGetLastError() );
            break;

            case  UA_FIELDTYPE_STRING :
                printf("Field Type = String\n");
                if   ( uaArchiveGetFieldValueString ( hArchive, Index, StringField, 20 ) ==
                     TRUE )
                    printf( "Field Value = %s\n", StringField );
                else
                    printf( "Error callinguaArchiveGetFieldValueString: %d\n",
                            uaGetLastError() );
            break;

            case  UA_FIELDTYPE_DATETIME :
                printf("Field Type = Date & Time\n");
                if   ( uaArchiveGetFieldValueDate (hArchive, Index, &SysDate) == TRUE )
                    printf( "%d.%d.%d\n ",SysDate.wDay, SysDate.wMonth, ysDate.wYear);
                else
                    printf( "Error calling uaArchiveGetFieldValueLong: %d\n",
                            uaGetLastError() );
            break;

            case  -1 :
            default   :
                printf( "Error executing uaArchiveGetFieldType\n");
        }

//******* Read and Show Field Length ************************************
        FieldLength = uaArchiveGetFieldLength( hArchive, Index );
        if   ( FieldLength != -1 )
            printf( "Field Length = %u\n", FieldLength );
        else
            printf( "Error executing uaArchiveGetFieldLength\n");
    }
```

```
//******* Close Archive ************************************************
    if   ( uaArchiveClose ( hArchive ) == FALSE )
    {
        printf( "error on closing archive\n" );
        return;
    }

//******   Release Connection to Archive ***************************************
    if   ( uaReleaseArchive ( hArchive ) == FALSE )
    {
        printf( "error on releasing archive\n" );
        return;
    }

//******* Disconnect User Archives Component *************************
    if   ( uaDisconnect ( hConnect ) == FALSE )
    {
        printf( "error on disconnection\n" );
        return;
    }
}
```

Create a second button for writing to the archive. Follow the procedure described for the first button. This time, name the standard script function UAWriteToArchive and enter the following script:

```
void UAWriteToArchive()
{
    UAHCONNECT hConnect;
    UAHARCHIVE  hArchive;
    LONG        IndexArchive;
    LONG        FieldLength;
    LONG        FieldType;
    LONG        NumberOfFields;
    LONG        Index;
    long        IntValue;
    double      DoubleValue;
    char        StringField[255];
    SYSTEMTIME   SysDate;

//******* Connect to User Archives Component *************************
    if   ( uaConnect( &hConnect ) == FALSE )
    {
        printf( "uaConnect error: %d\n", uaGetLastError() );
        return;
    }
```

```
    if   ( hConnect == NULL )
    {
        printf( "Handle UAHCONNECT equals NULL\n" );
        return;
    }

//******* Connect to Archive via Name ************************************
    if  (  uaQueryArchiveByName( hConnect, "Chili", &hArchive ) == FALSE )
    {
        printf( "uaQueryArchive Error: %d\n", uaGetLastError() );
        return;
    }

//******* Opens Archive **************************************************
    if  (  uaArchiveOpen( hArchive ) == FALSE )
    {
        printf( "uaArchive Open Error\n" );
        return;
    }

//******* Get Number of Fields *******************************************
    NumberOfFields = uaArchiveGetFields( hArchive );
    printf( "Number of Fields = %u\n", NumberOfFields );

//******* Read Last Data Set *********************************************
    if   ( uaArchiveMoveLast( hArchive ) == TRUE )
        printf( "Number of Fields = %u\n", NumberOfFields );
    else
    {
        printf( "uaArchiveMoveLast Error: %d\n", uaGetLastError() );
        return;
    }

//******* Write into Data Fields *****************************************
    IntValue = 32;
    DoubleValue = 64;
    strcpy( StringField, "Text12" );
    GetSystemTime( &SysDate );

    for  ( Index = 1; Index < NumberOfFields; Index )
    {
        printf( "Data of Field %u: \n", Index  );

        FieldType = uaArchiveGetFieldType( hArchive, Index );
```

```
    switch   ( FieldType )
    {
        case  UA_FIELDTYPE_INTEGER :
            printf("Field Type = Integer\n");
            if   ( uaArchiveSetFieldValueLong ( hArchive, Index, IntValue ) == TRUE )
                printf( "Field Value = %u\n", IntValue );
            else
                printf( "Error calling uaArchiveSetFieldValueLong: %d\n",
                        uaGetLastError() );
        break;

        case  UA_FIELDTYPE_DOUBLE :
            printf("Field Type = Double\n");
            if   ( uaArchiveSetFieldValueDouble ( hArchive, Index, DoubleValue ) ==
              TRUE )
                printf( "Field Value = %g\n", DoubleValue );
            else
                printf( "Error calling uaArchiveSetFieldValueDouble: %d\n",
                        uaGetLastError() );
        break;

        case  UA_FIELDTYPE_STRING :
            printf("Field Type = String\n");
            if   ( uaArchiveSetFieldValueString ( hArchive, Index, StringField ) ==
              TRUE )
                printf( "Field Value = %s\n", StringField );
            else
                printf( "Error calling uaArchiveSetFieldValueString: %d\n",
                        uaGetLastError() );
        break;

        case  UA_FIELDTYPE_DATETIME :
            printf("Field Type = Date & Time\n");
            if   ( uaArchiveSetFieldValueDate ( hArchive, Index, &SysDate ) == TRUE )
                printf( "%d.%d.%d\n ", SysDate.wDay, SysDate.wMonth,
                                       SysDate.wYear );
            else
                printf( "Error calling uaArchiveGetFieldValueLong: %d\n",
                        uaGetLastError() );
        break;

        case  -1 :
        default   :
            printf( "Error executing uaArchiveGetFieldType\n");
    }

    FieldLength = uaArchiveGetFieldLength( hArchive, Index );
    if   ( FieldLength != -1 )
        printf( "Field Length = %u\n", FieldLength );
    else
        printf( "Error executing uaArchiveGetFieldLength\n");
}
```

```
//******* Close Archive ************************************************
    if   ( uaArchiveClose ( hArchive ) == FALSE )
    {
        printf( "error on closing archive\n" );
        return;
    }

//******   Release Connection to Archive ***************************************
    if   ( uaReleaseArchive ( hArchive ) == FALSE )
    {
        printf( "error on releasing archive\n" );
        return;
    }

//******* Disconnect User Archives Component ***************************
    if   ( uaDisconnect ( hConnect ) == FALSE )
    {
        printf( "error on disconnecting\n" );
        return;
    }
}
```

You can now close the Script Editor and the Graphics Designer and start runtime. You can then observe the effect of your script function in the *Global Script Diagnostics Window*.

6.5 Reference for the User Archives Functions

6.5.1 Reference for the User Archives API Functions

These functions read the last read error of the User Archives and the error of the last COM function.

User Archives Functions	Description
uaGetLastError	Read last error
uaGetLastHResult	Read last COM error

6.5.2 Reference for the User Archives Configuration Functions

These functions serve for the configuration of the User Archives.

User Archives Functions	Description
uaAddArchive	Adds a new archive
uaAddField	Adds a new field
uaGetArchive	Reads the archive configuration
uaGetField	Reads the field configuration
uaGetNumArchives	Determines the number of configured archives
uaGetNumFields	Determines the number of fields
uaSetArchive	Writes the archive configuration
uaRemoveArchive	Deletes an archive
uaRemoveAllArchives	Deletes all archives
uaSetField	Sets the field configuration
uaQueryConfiguration	Establishes a connection to the User Archive configuration
uaReleaseConfiguration	Terminates the connection to the configuration
uaRemoveAllFields	Deletes all fields
uaRemoveField	Deletes a field

6.5.3 Reference for the General Runtime Functions

These functions open and close archives and views for the runtime operation.

User Archives Functions	Description
uaConnect	Establishes a connection to the User Archive. This connection is valid during runtime for all archives.
uaDisconnect	If a connection to the User Archive (runtime) exists, it will be terminated
uaQueryArchive	Establishes a connection to the archive
uaQueryArchiveByName	Establishes a connection to the archive via archive name
uaReleaseArchive	Terminates the connection to the archive

6.5.4 Reference for the Archive-Specific Runtime Functions

These functions serve for the application of archives and views during runtime.

User Archives Functions	Description
uaArchiveOpen	Establishes a connection to the current archive
uaArchiveClose	Terminates the connection to the current archive
uaArchiveDelete	Deletes a data record from the current archive
uaArchiveExport	Exports the current archive
uaArchiveGetFieldLength	Reads the length of the current field
uaArchiveGetFieldName	Reads the name of the current field
uaArchiveGetFields	Reads the number of fields
uaArchiveGetFieldType	Reads the type of the current field
uaArchiveGetFieldValueDate	Reads date and time, and places them in the current data field
uaArchiveGetFieldValueDouble	Reads the Double value of the current data field
uaArchiveGetFieldValueLong	Reads the Long Int of the current data field
uaArchiveGetFieldValueString	Reads the String of the current data field
uaArchiveGetFilter	Reads the filter of the current data field
uaArchiveGetID	Reads the ID of the current data field
uaArchiveGetName	Reads the name of the current data field
uaArchiveGetSort	Read the sorting of the current data field
uaArchiveImport	Imports the archive
uaArchiveInsert	Inserts a new data record into the archive
uaArchiveMoveFirst	Goes to the first data record
uaArchiveMoveLast	Goes to the last data record
uaArchiveMoveNext	Goes to the next data record
uaArchiveMovePrevious	Goes to the previous data record
uaArchiveReadTagValues	Reads tag values
uaArchiveReadTagValuesByNam e	Reads tag values based on name
uaArchiveRequery	New Query
uaArchiveSetFieldValueDate	Writes the current data field
uaArchiveSetFieldValueDouble	Writes the Double value of the current data field
uaArchiveSetFieldValueLong	Writes the Long Int of the current data field
uaArchiveSetFieldValueString	Writes the Sting of the current data field
uaArchiveSetFilter	Sets the filter
uaArchiveSetSort	Sets the sort criteria
uaArchiveUpdate	Updates the data record
uaArchiveWriteTagValues	Writes the values of the current data record into a tag
uaArchiveWriteTagValuesByNa me	Writes the values of the current data record into a tag based on name

7 Reference for the SIMATIC S5 and S7 Message Interface

A data exchange between the User Archives and S5/S7 PLCs can be performed via raw data tags or data manager tags. All SIMATIC interfaces can be used with the exception of the AS511 programming interface.

The following PLCs can have a data exchange with WinCC:

- S7-400
- S5-PLC-115U or higher

The following topics will be described:

- Data Exchange with S5 and S7 via Data Manager Tags
- Data Exchange with S5 and S7 via Raw Data Tags
- Data Format Differences between WinCC and S5/S7

7.1 Data Exchange with S5 and S7 via Data Manager Tags

The data exchange with S5 and S7 via data manager tags is very easy to configure. But, you must ensure that the User Archives data types only use certain Tag Management data types.

If the "Integer", "Double" or "String" data types are used in the User Archives editor, the following, corresponding data types in Tag Management of the data manager must be used. For the date/time User Archives data type, no corresponding data type exists in Tag Management.

Selection in the User Archives Editor	Tag Management/Data Manager Tag
Number (Integer)	Signed 32-Bit Value
Number (Double)	Floating-Point Number 64-Bit IEEE 754
String	Text Tag 8-Bit Character Set
Date/Time	No corresponding data type

7.2 Data Exchange with S5 and S7 via Raw Data Tags

The following describes the data exchange via WinCC raw data tags. The raw data tags can be sent by the PLC via an active transmitter. The messages contain one or more requests to the WinCC archive system. These can be write or read requests. WinCC will return the requested data and a processing acknowledgment.

You will find information about the following topics:

- Sending Requests/Data to WinCC
- Sending Processing Acknowledgment/Data to SIMATIC S5 and S7
- Structure of the Message Headers

7.2.1 Sending Requests/Data to WinCC

Structure of the raw data tag for sending requests and data from SIMATIC S5 and S7 PLCs to WinCC:

Message to S5/S7
Message Header
Request Header 1
Data of Request 1
possibly Request Header 2
possibly Data of Request 2
Request n

7.2.2 Sending Processing Acknowledgment/Data to SIMATIC S5 and S7

Structure of the raw data tag for sending processing acknowledgments and data from WinCC to the SIMATIC S5 and S7 PLCs:

Raw Data Tag for Sending to S5 and S7
Processing Acknowledgment
Acknowledgment Header
Acknowledgment Data

7.2.3 Structure of the Message Headers

Structure of the message blocks in detail (breakdown by Bytes):

Field Function	Comment
Message Length in Bytes LSB *)	Length of the field is 4 Bytes
.	max. length 4091 Bytes
.	.(because of S5/S7 Transport)
Message Length in Bytes MSB **)	.
Transfer Type	1 from WinCC, 2 from the PLC
Reserved	
Number of Requests in the Message LSB *)	Length of the field is 2 Bytes
Number of Requests in the Message MSB **)	.
Name of the Archive's 1st Character	The indication of the name
.	is done in ASCII
.	Length of the field is 8
.	Bytes.
.	.
.	.
.	.
Name of the Archive's 8th Character	.

*) LSB = Least Significant Byte
**) MSB = Most Significant Byte

The Request Header

Structure of the request header in detail (breakdown by Bytes):

Field Function	Comment
Request Length in Byte LSB	Length of the field is 2 Bytes
Request Length in Byte MSB	.
Request Type	see description
Reserved	
Field Number LSB	Length of the field is 2 Bytes
Field Number MSB	.
Data Record Number LSB	Length of the field is 4 Bytes
.	.
.	.
Data Record Number MSB	.
Selection Criterion LSB	Field number, according to which the selection is made
Selection Criterion MSB	(not for 0) Length of the field is 2 Bytes

Data of the Request

The data of the request corresponds to the contents of a data record (or the addressed field).

Important Note

Text fields are not \0-terminated !!!

Numbers must be transmitted in the Intel format (first LSB, last MSB).

An Integer field has the length of 4 Bytes, a Double field 8 Bytes.

The data is moved by the length of the field that has been selected as the selection criterion, if the selection criterion has a value unequal to 0.

If the selection criterion is to be used, the beginning of the data range will be used as the selection value in the field size of the selection criterion.

Acknowledgment Header

Structure of the acknowledgment header in detail (breakdown by Bytes):

Field Function	Comment
Message Length in Bytes LSB	Length of the field is 4 Bytes
.	.
.	.
Message Length in Bytes MSB	.
Transfer Type	1 from WinCC, 2 from the PLC
Reserved	
Request Type	see description
Reserved	
Reserved	
Field Number LSB	Length of the field is 2 Bytes
Field Number MSB	.
Data Record Number LSB	Length of the field is 4 Bytes
.	.
.	.
Data Record Number MSB	.
Name of the Archive's 1st Character	The indication of the name
.	is done in ASCII
.	Length of the field is 8 Bytes
.	.
.	.
.	.
.	.
Name of the Archive's 8th Character	.

Data of the Acknowledgment

The acknowledgment either contains the data record, the addressed field (for a read request) or is empty (write request, archive request).

Description of the Request Types

Type	Description
4	Test archive for presence
5	Delete all data records from the archive
6	Read data record
7	Write data record
8	Delete data record
9	Read data record field
10	Write data record field

Description of the Error Codes

Group	No.	Description
General	0	Function has been executed
Archive	1	Invalid data
Archive	2	Data not available
Data Record	101	Invalid data
Data Record	102	Data not available
Field	201	Invalid data
Field	202	Data not available
General	254	Function not available
General	255	Undefined error

7.3 Data Format Differences between WinCC and S5/S7

The WinCC data formats generally differ from the data formats of the SIMATIC S5/S7 PLCs. This must be taken into consideration to avoid errors.

In WinCC, the data formats of Intel and Microsoft are adhered to, where the "Least Significant Byte" is generally stored first and the "Most Significant Byte" last. This data format is widely used and generally known as the "Intel Format". The following example illustrates the "Intel Format":

Intel Format

In the "Intel Format", the decimal number 300 is stored as follows:

Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Binary	0	0	0	0	0	0	0	1	0	0	1	0	1	1	0	0
Hex	0				1				2				C			

The decimal number 300 in the Intel format corresponds to the hex number 12C (1*256 2*16 12).

SIMATIC Format

In the SIMATIC format, the least significant byte is stored at more significant place (moved by 1). In the "SIMATIC Format", the decimal number 300 is stored as follows:

Bit	**15**	**14**	**13**	**12**	**11**	**10**	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**	**0**
Binary	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	1
Hex	2				C				0				1			

The decimal number 300 in the SIMATIC format corresponds to the hex number 2C01. If 2C01 is erroneously interpreted following the Intel format, the resulting decimal number would be 11265, a considerable deviation.

For the SIMATIC PLCs, function blocks are available which can perform corresponding data conversions. These function blocks should always be called before and after a data transfer between the S5/S7 and WinCC. The function blocks can be downloaded from the *Siemens Customer Support* Internet site (http://www.ad.siemens.de/support/html_00/download/s5-ag135.htm#..._download_s5-ag135_angps5_3.htm). Download the compressed "ANSI_S5.EXE" file. "ANSI_S5.EXE" contains the "*IEEE:GP*" function block.

Active sending is described in the reference manuals of the PLCs and CPs (Communication Processors).

8 Appendix

The appendix covers the following topics:

- SQL Statements for specifying sort and filter criteria of User Archives
- Alphabetical List of SQL Keywords; they must not be used as archive or field names in User Archives
- Specifications, in particular the Performance while Writing and Reading Tags and the Performance of the Picture Opening Times
- Note the Following

8.1 The SQL Language

SQL (Structured Query Language) is a powerful and widely used database language. In the WinCC script functions, the SQL language is used for database tasks. For additional information, please consult the appropriate references.

For some User Archives editor and script functions, conditions specifying the data records to be processed must be given in SQL database language. The following provides you with examples on the usage of SQL statements:

- FieldA > ’1992-12-31 23:45:12.124’
  This statement selects all data records in the "FieldA" column whose value is greater than indicated. "FieldA" is of the "DB_TYPE_TIME" data type.
- FieldB like ’Tank%’
  Selects the data records in the "FieldB" column containing the "Tank1", "Tank4", and "Tank12" values. "FieldB" is of the "DB_TYPE_CHAR" data type.
- FieldC > 100
  This condition selects all data records in the "FieldC" column containing values greater than 100. "FieldC " is of the "DB_TYPE_INTEGER" data type.
- BETWEEN FieldC = 20 AND Field C = 200
  This statement selects all data records in the "FieldC" column whose value is between 20 and 200. "FieldC " is of the "DB_TYPE_INTEGER" data type.
- FieldD
  Sorts by column "FieldD".
- FieldE desc
  Sorts by column "FieldE" in reverse alphabetical order (descending order).

8.2 Alphabetical List of SQL Keywords

Archive, view and field names must only contain letter, number and underscores "_", and not be longer than 25 characters. The first character must always be a letter.

The following terms must not be used as archive, view or field names:

- "Archive"
- "View"
- "Field"
- "ViewCol"
- All SQL keywords

Keywords (or reserved words) of the database language SQL must not be used as archive, view or field names in the User Archives. Alphabetical listing of the SQL keywords:

Keywords used in the SQL Language			
add	all	alter	and
any	as	asc	begin
between	binary	break	by
call	cascade	cast	char
char_convert	character	check	checkpoint
close	comment	commit	connect
constraint	continue	convert	create
cross	current	cursor	date
dba	dbspace	deallocate	dec
decimal	declare	default	delete
desc	distinct	do	double
drop	else	elseif	encrypted
end	endif	escape	exception
exec	execute	exists	fetch
first	float	for	foreign
from	full	goto	grant
group	having	holdlock	identified
if	in	index	inner
inout	insert	instead	int
integer	into	is	isolation
join	key	left	like
lock	long	match	membership
message	mode	modify	named
natural	noholdlock	not	null
numeric	of	off	on
open	option	options	or
order	others	out	outer
passthrough	precision	prepare	primary
print	privileges	proc	procedure
raiserror	readtext	real	reference
references	release	remote	rename
resource	restrict	return	revoke
right	rollback	save	savepoint

schedule	select	set	share
smallint	some	sqlcode	sqlstate
start	stop	subtrans	subtransaction
synchronize	syntax_error	table	temporary
then	time	tinyint	to
tran	trigger	truncate	tsequal
union	unique	unknown	update
user	using	validate	values
varbinary	varchar	variable	varying
view	when	where	while
with	work	writetext	

8.3 Specifications

Testing Environment

The measurements described below have been taken in the following testing environment:

- Hardware Setup: Pentium II 266 / 64MB
- Connection: S5 Ethernet Layer 4 CP1413 with CP143 to S5-115U
- Project Environment:
  - Message system with archiving and continuos load of 1 message/sec
  - Process Value Archiving of 8 Values/sec
  - Process Value Acquisition of 8 Values/sec

Data Manager Tags and Raw Data Tags

The data manager tags of WinCC were measured. The measurements show that access times increase with archive size.

For larger archives, the application of raw data tags is recommended. Raw data tags transfer data in packets and also provide faster access times in large archives.

8.3.1 Performance while Writing and Reading Tags

The following performance test measured the behavior of User Archives while writing and reading tags.

Number of Columns	Number of Data Records	Time for writing to tags in sec	Time for reading from tags in sec
100	1	1	4
100	10	1	4
100	50	1	4
100	100	2	4
100	1000	4	4
200	1	1	8
200	10	2	9
200	50	2	9
200	100	2	9
200	1000	8	8
500	1	2	20
500	10	4	20
500	50	3	20
500	100	3	20
500	500	8	20

8.3.2 Performance of the Picture Opening Times

The following table contains data from the performance test of the picture opening times. It is assumed that the table window of the Users Archive editor is inactive.

Number of Columns	Number of Data Records	Picture Opening Time in sec
100	1	1
100	10	2
100	100	2
100	500	4
100	1000	4
100	2000	9
100	3000	10
200	1	1
200	10	3
200	100	3
200	500	5
200	1000	11
200	1500	15
500	1	2
500	10	5
500	100	8
500	500	22

8.4 Note the Following

- The communication between the PLCs and the User Archives is limited to one connection per User Archive.
- The "PLCID" must not contain more than 8 characters while establishing the communication to the PLC.
- In the table window of the User Archives Editors, a maximum 100 lines can be displayed.
- Terms containing special characters or reserved words must not be used as field or table names. Also see the "Alphabetical List of SQL Keywords" chapter.

Index

V