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# 1 Release Notes

## Archive Connector

### Monitored Folders in the Archive Connector

In the Archive Connector, the folder of the WinCC Runtime archives and its subfolders must not be added to the list of folders to be monitored. Likewise, no archives in this folder or its subfolders must be manually linked to the SQL Server with the help of the Archive Connector.

### Activating/Deactivating the Monitoring for Folders in the Archive Connector

If the monitoring is activated or deactivated in the list of folders to be monitored, the change will only become effective after closing the Archive Connector.

### Language Switch of the Archive Connector

The user interface language of the Archive Connector is dependent on the settings of the regional and language options.

### Procedure

1. Close the Archive Connector.
2. In the Windows "Control Panel", click on the icon "Regional and Language Options". This will open the dialog box "Regional and Language Options".
3. In the tab "Regional Options", specify the language at "Standards and Formats".
4. Close the dialog box and start the Archive Connector.

## Querying Alarm Message Archives

When querying for alarm message archives, the result is summarized by archive, but without a sorting of the queried archive segments.

If a sorting is to be carried out, the filter condition needs to be expanded accordingly, e.g. for a chronological sorting, with "ORDER BY DateTime ASC, MS ASC".

## Time Range for Querying the Archives for Alarms and Process Values

If a time range is selected for querying the archives regarding messages or process values in which no logs or values are contained, no notification occurs or other display concerning this status. If this status should be indicated, the user must perform error handling.

A simple method for this error handling is provided in the example script under the topic "Example: Reading Alarm Message Archive Data with the WinCC OLE DB Provider".

## Installation of the Examples

When installing the Connectivity Pack, the included examples will also be installed in the path "<InstallationFolder>\SAMPLES".

### Prerequisite for the Access via the WinCC OLE DB Provider

If archive data is to be accessed via the WinCC OLE DB Provider on a computer without a Connectivity Pack installation, the WinCC V6.0 SP1 Hotfix 1 (or higher) must be present on this computer.

### Microsoft Message Queuing Services

WinCC Connectivity Pack implements the Message Queuing Services of Microsoft. MS Message Queuing is not a standard setting of the Windows installation and must be installed later, if necessary.

The Windows installation CD is required to complete the installation.

#### Procedure

1. Open the operating system Start menu and select "Settings" > "Control Panel" > "Software".
2. Click on the "Add/Remove Windows Components" button in the "Windows Components Wizard".
3. Select the component "Message Queuing Services".  
Under Windows 2000 :
  4. Click on the "Next" button.
  5. Select the "Independent Client" MSMQ type. Click on the "Continue" button.
  6. Select the "Message Queuing does not access the Active Directory" setting". Click on the "Continue" button.
  7. When the "Data Carrier" dialog opens insert the requested Windows installation CD-ROM. Click on the "OK" button. MS Message Queuing is installed.
  8. Close the dialog using the "Complete" button.Under Windows XP :
  4. Click on the "Details" button. The dialog "Message Queuing" opens up.
  5. Activate the "Common" subcomponent. Deactivate all other subcomponents and confirm with "OK".
  6. When the "Data Carrier" dialog opens insert the requested Windows installation CD-ROM. Click on the "OK" button. MS Message Queuing is installed.
  7. Close the dialog using the "Complete" button.

## 2 WinCC / Connectivity Pack

### Introduction

Various providers offer interfaces that can be used for accessing databases. These interfaces also enable you to directly access the archive databases of WinCC.

OPC allows for a manufacturer-independent communication in the automation arena. WinCC V6.0 is expanded by OPC HDA 1.1 (Historical Data Access) and OPC A&E 1.0 (Alarm & Events). In addition, WinCC also supports OPC DA 2.0. As a result, WinCC operating as an OPC server can forward current process data to other OPC clients (e.g. Microsoft Excel).

Process values with fast acquisition cycles are stored in compressed form in the archive databases. Use the WinCC OLE DB Provider to access these compressed process values.

With the WinCC / Connectivity Pack, a licensed access to online values and archive data of WinCC is possible via OPC and the WinCC OLE DB Provider.

The Connectivity Pack includes:

- The server OPC HDA 1.1 (Historical Data Access) for accessing historical data of the WinCC archive system.
- The Server OPC A&E 1.0 (Alarms & Events) for forwarding or acknowledging alarms
- The WinCC OLE DB Provider for directly accessing process value and alarm archives in the SQL server database on the WinCC RT computer and on a long-term archive server.
- The tool "Archive Connector" for configuring the database access. With it, swapped out WinCC archive databases can be connected to or disconnected for the SQL server. In doing so, an overview of the individual database segments is generated. The Archive Connector can monitor folders and automatically connect copied in archives.
- The authorizations for the OPC server, WinCC OLE DB Provider and Microsoft OLE DB/ODBC.

## WinCC OLE DB Provider

The WinCC OLE DB Provider is available on the following systems:

- The Connectivity Pack Client
- The Connectivity Pack Server
- The WinCC Station

Via the WinCC OLE DB Provider, a Connectivity Pack Client gains direct access to the WinCC archive data.

The access can take place under various configurations of the Connectivity Pack Client:

- WinCC Runtime is running on the client computer.
- No WinCC software is installed on the client computer. Then the Connectivity Pack Client needs to be installed on the client computer.

### Simultaneous access to archive and runtime databases

From version 6.0 SP1, the Connectivity Pack includes the "ArchiveMonitor" function. The function automatically merges the data from runtime and archive databases of the activated WinCC project together in an SQL database "CC\_ExternalBrowsing" and creates the "AMT" and "ARCHIVE" views in it. Since these views provide all the necessary information for the WinCC OLE DB Provider, the "CC\_ExternalBrowsing" database can be used as a data source for the provider. On deactivating WinCC runtime, views additionally created in "CC\_ExternalBrowsing" are deleted.

Since no runtime databases are existing on a long-term archive server, the access for archive databases isn't possible by the database "CC\_ExternalBrowsing".

### WinCC OLE DB Provider as a "Linked Server"

The WinCC OLE DB Provider can be registered in the SQL server in the list of "Linked Servers". This is independent of whether the database is local or remote.

---

#### Note

When configuring WinCC OLE DB Provider as a "Linked Server", the "WinCC OLE DB Provider for Archives" entry must be selected in the "Provider Name" field of the "Linked Server Properties" dialog. Activate the "AllowInProcess" checkbox in the "Provider Options" dialog.

More descriptions are available in "SQL Server Books Online" under "Configuring OLE DB Providers for Distributed Queries".

---

Example of a WINCC OLE DB Provider as a Linked Server with the server name "WinCC":

```
select min(realvalue) from openquery(WINCC,'Tag:R,1,"0000-00-00
00:01:00.000","0000-00-00 00:00:00.000"')
select * from openquery(WINCC,'Tag:R,1,"0000-00-00 00:01:00.000","0000-00-00
00:00:00.000"')
```

## WinCC Archive Connector

The Connectivity Pack also includes the tool "Archive Connector" for the configuration of the database access. With it, swapped out WinCC archives can be reconnected to an SQL server. The archive data is made available again via the WinCC OLE DB Provider. With the Archive Connector, the following functions are possible:

- Manual Connection: Locally swapped out WinCC archive databases are selected and connected to the local SQL server.
- Manual Disconnection: Connected databases are selected and disconnected from the SQL server.
- Automatic Connection: Local folders for swapped out WinCC archives are selected. All archives in the selected folders are automatically connected to the SQL server when copied in.

The Archive Connector indicates the archive type during the archive selection. The identifiers are:

- "A" = Alarm Logging
- "TF" = Tag Logging (Fast)
- "TS" = Tag Logging (Slow)

The Archive Connector can only be operated with a local SQL server and a Connectivity Pack authorization.

## OPC

WinCC supplies historical data from the archive system to other applications via the WinCC OPC HDA server. An OPC client - such as a reporting tool - can specify the beginning and the end of a time interval and specifically request the corresponding data. An OPC client can also specifically request data already processed on the WinCC OPC HDA server and actively affect a data compression before the data is transferred.

With the WinCC OPC A&E server, a WinCC message is portrayed as an alarm. The alarm can only be forwarded with its accompanying process values to the production or management level of the company, where it is also acknowledged. Via filters, only selected data is transferred.

The database access via OPC can only take place on computers on which WinCC Runtime is running.



## 3 Basics of the WinCC OLE DB

### Introduction

The OLE DB interface of WinCC and the corresponding database provider enable you to access process value and alarm message archives.

### OLE DB

OLE DB is an open standard for a fast access to different databases. It is irrelevant whether the database is relational or not.

The connection between the OLE DB level and the database is established through a database provider.

OLE DB interfaces and providers are offered from various manufacturers. For the access to WinCC archive data, the Microsoft OLE DB or ODBC (among others) can be used besides the WinCC OLE DB interface.

### WinCC OLE DB Provider

Via the WinCC OLE DB Provider, you can directly access WinCC archive data stored in the MS SQL Server database. Data with an acquisition cycle of less than or equal to one minute is stored in compressed form. The WinCC OLE DB Provider also enables a transparent access to this data.

### Microsoft OLE DB/ODBC

With the Microsoft OLE DB or ODBC, only uncompressed process value and alarm message archives can be accessed. For the remote access to the MS SQL Server database, a WinCC client access license is required.

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**Note**

At the present time, the explicit access via the Microsoft OLE DB/ODBC has not been tested nor released. Use the WinCC OLE DB Provider for accessing archive data.

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## 4 Licensing

### Introduction

The WinCC / Connectivity Pack enables a licensed access to the WinCC archive data via OPC and WinCC OLE DB.

The Connectivity Pack includes the following authorizations:

- WinCC OPC HDA Server
- WinCC OPC A&E Server
- WinCC OLE DB Provider
- Microsoft OLE DB/ODBC

### WinCC Client Access Licence (WinCC / CAL)

With any Windows computer, WinCC archive data of one or multiple WinCC servers can be accessed or further processed. If no product of the WinCC family (WinCC, Web Navigator, Dat@Monitor) is installed on the Windows computer, a WinCC client access licence is required.

A WinCC client access licence is necessary for every office computer, which accesses or further processes WinCC archive data of one or multiple WinCC servers.

This also applies, if - in conjunction with the Connectivity Pack - the access is to take place via OPC HDA, OPC A&E or the WinCC/MS OLE DB Provider.

The WinCC / CAL includes a Microsoft license for the remote access to the MS SQL Server database.

Just like WinCC Basic, the option packages Web Navigator and Dat@Monitor also already come with the required WinCC client access licences.



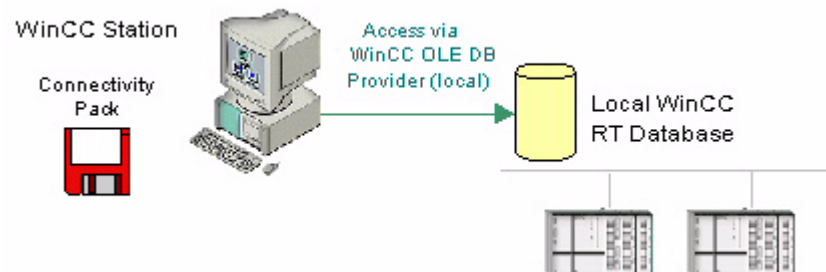
## 5 Use Cases: Access via WinCC the OLE DB Provider

### Overview

Use Cases for the Connectivity Pack:

- Access via the WinCC OLE DB Provider to local WinCC RT databases.
- Access with the Connectivity Pack Client to WinCC RT databases.
- Access via the WinCC OLE DB Provider to local WinCC archive databases.
- Access to WinCC archive databases using the Connectivity Pack Client.
- Access via WinCC OLE-DB Provider using the Data Transformation Services (DTS) of the SQL server.

## 5.1 Use Case 1: Access to local WinCC RT Databases



### Principle

An application accesses the local WinCC RT database via the WinCC OLE DB Provider.

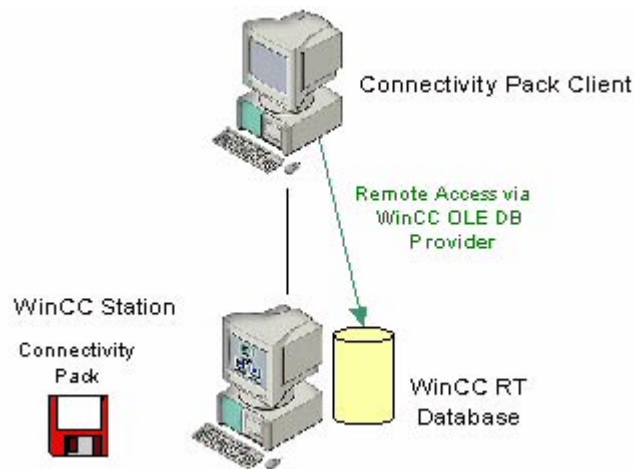
You can analyze the archive data locally and, for example, compute how large the standard deviation of a process value is.

### Software Requirements

On the WinCC station, the following licenses need to be installed:

- WinCC Basic System
- WinCC Option Connectivity Pack

## 5.2 Use Case 2: Remote Access to WinCC RT Databases



### Principle

The Connectivity Pack Client remotely accesses the WinCC RT database of a WinCC station. Via the WinCC OLE DB Provider, the Connectivity Pack Client reads the data of the process value and alarm message archives.

On the Connectivity Pack Client, the data can be displayed, analyzed or further processed, e.g. by exporting it as a csv file.

### Software Requirements

On the WinCC station, the following licenses need to be installed:

- WinCC Basic System
- WinCC Option Connectivity Pack

The access can take place under various configurations of the Connectivity Pack Client:

- WinCC Runtime is running on the client computer.
- No WinCC software is installed on the client computer. Then, the Connectivity Pack Client and a WinCC client access licence need to be installed on the client computer.

### 5.3 Use Case 3: Access to local WinCC Archive Databases



#### Principle

An application accesses the local archive database via the WinCC OLE DB Provider. The older archive data is copied from the WinCC RT database to a separate folder on the same, physical PC.

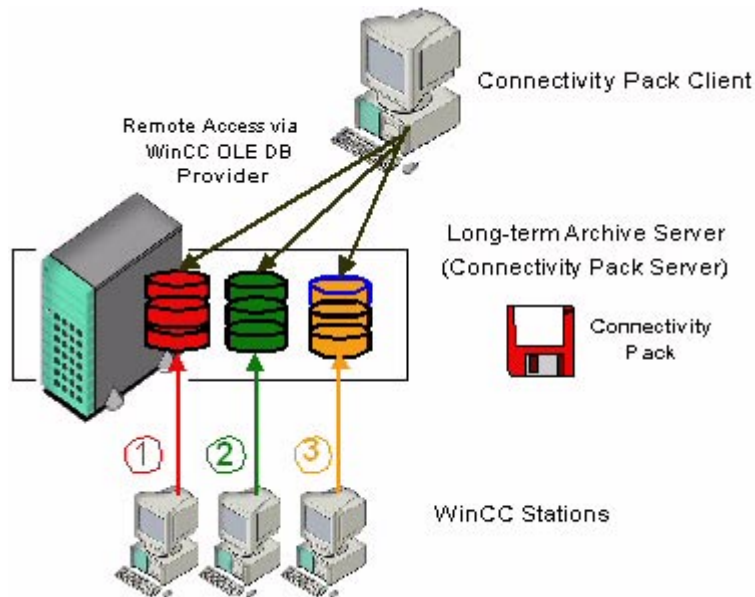
Local archive data can be displayed, searched or analyzed, e.g. to locate process errors or optimize processes.

#### Software Requirements

The WinCC station requires the following to be installed:

- WinCC Basic System
- License for the WinCC Basic System
- License for the WinCC Option Connectivity Pack

## 5.4 Use Case 4: Remote Access to WinCC Archive Databases



### Principle

A long-term archive server is used to back up the database files of process value and alarm message archives, for example, on a monthly basis.

With the Archive Connector, the swapped out WinCC archives are reconnected to an SQL Server. The archives are then available for access with the WinCC OLE DB Provider.

The Connectivity Pack Client accesses the archives via the WinCC OLE DB Provider. Using a VB application, the archives can be analyzed and, for example, the process values of a specific day be displayed.

### Software Requirements

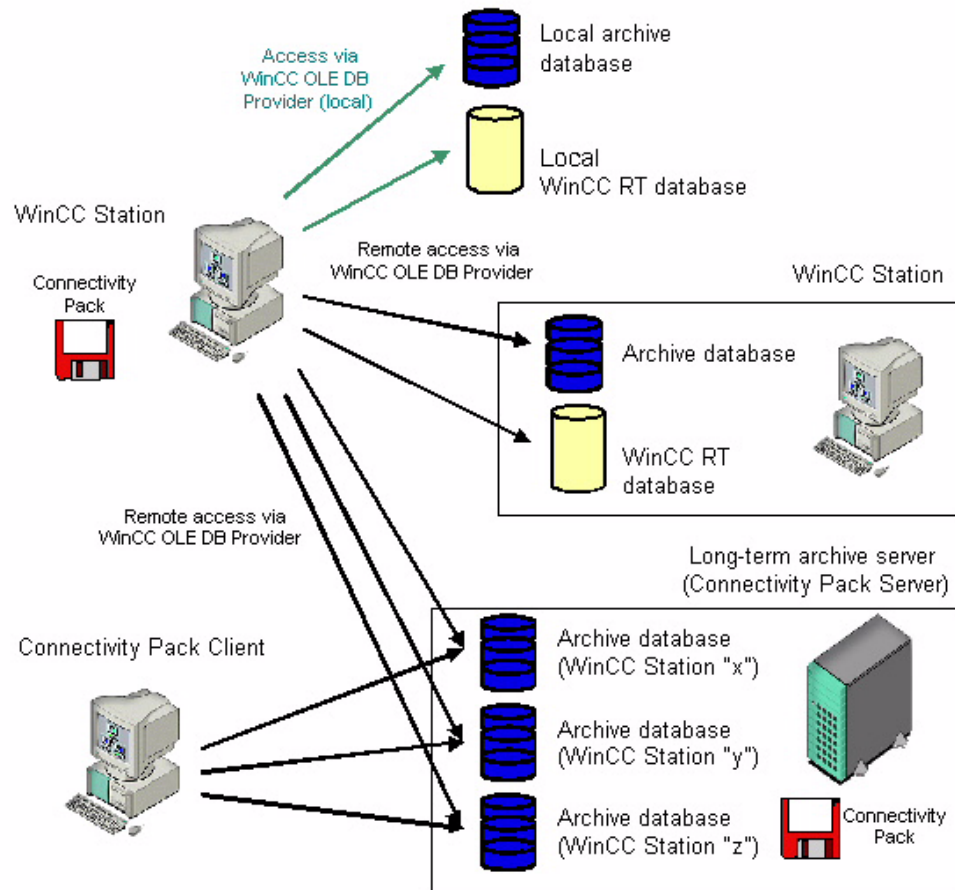
The long-term archive server requires the following to be installed:

- Connectivity Pack Server
- License for the WinCC Option Connectivity Pack

The access can take place under various configurations of the Connectivity Pack Client:

- WinCC Runtime is running on the client computer.
- No WinCC software is installed on the client computer. Then, the Connectivity Pack Client and a WinCC client access license need to be installed on the client computer.

## 5.5 Use Case 5: Access via WinCC OLE-DB Provider using DTS



### Principle

The WinCC OLE-DB Provider can be used to access WinCC databases using the MS Data Transformation Services (DTS).

DTS is an integrated tool of the MS SQL server and enables data to be extracted from various sources and its export in other formats, e.g. Excel spreadsheets, text files. The databases are linked via OLE DB, access to WinCC databases via the WinCC OLE-DB Provider. The query for data is defined in DTS in the so called packages.

The packages from DTS can, for example, be integrated in scripts in order to achieve a time-controlled data query and data transmission in the required format. In the same way, the tasks can also be integrated in packages in order, for example, to initiate a notification by mail following execution of the package.

Using WinCC computers, access to the runtime and archive databases can be made locally or remotely. In the case of long-term archive servers, local or remote access is only possible to the archive databases since they have no runtime databases.

### Conditions for configuring the package in DTS

- As the data source, insert the "MS OLE DB-Provider for SQL Server" in the package and select "WinCC OLE DB-Provider for Archives" in the "Data source" field in the "Connection Properties" dialog.
- In the "Transform Data Task Properties" dialog, the "SQL query" option must be activated on the "Source" tab control so that the source can be defined as SQL query. This also applies when it concerns a "non-SQL Command Provider" and, thus, the syntax used does not match the standard SQL syntax. In the case of tags, the expression in "SQL Query" must have the following syntax: "Tag:R,<ValueID/ValueName>,<timea>,<timeb> " <timea>" and "<timeb>" have the format "YYYY-MM-DD hh:mm:ss.uuu" , whereby the value for milliseconds "uuu" must always be in three digits. Where "<timea>" equals "0000-00-00 00:00:00.000" (ZERO), the query starts from the start of the archive database. Where "<timeb>" equals "0000-00-00 00:00:00.000", the query ends at the end of the archive database. "<timea>" and "<timeb>" cannot both be ZERO simultaneously. If "YYYY-MM" = 0, the time assumed is relative to the current time. In the case of alarms, the expression in "SQL Query" must have the following syntax: "ALARMVIEW:<sql\_expression>"
- Possible target formats are, e.g. MS OLE DB Provider for SQL Server, Text File, MS Access or MS Excel.

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#### Note

Some applications cannot resolve the time in steps of 1 ms which can lead to inaccuracies.

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### Software Requirements

The WinCC station requires the following to be installed:

- WinCC Basic System
- License for the WinCC Basic System
- License for the WinCC Option Connectivity Pack



## 6 Installation

### Introduction

The installation of the Connectivity Pack takes place as either:

- Connectivity Pack Server, or
- Connectivity Pack Client

## 6.1 Installing the Connectivity Pack Server

### Introduction

The installation of the Connectivity Pack Server includes the following components:

- WinCC OLE DB Provider
- SQL Server 2000 incl. SP3
- "AuthorsW" for managing the WinCC Authorizations
- WinCC Archive Connector
- WinCC Basic Components
- Documentation
- Examples

### Requirements

- Pentium III, 800 MHz, 512 MB RAM
- Windows 2000 SP4 or
- Windows XP SP1
- Internet Explorer 6.0 or higher
- For the access to WinCC RT archives, WinCC V6.0 SP2 needs to be installed

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#### Note

In order to have more than three clients, the Server version of Windows 2000 must be installed, since the Workstation version is limited to three clients.

---

### Installation

To configure a computer as Connectivity Pack Server, run the Connectivity Pack Server setup on the computer.

From the menu "Install Software" of the installation CD-ROM, select the entry "WinCC V6.0 Connectivity Server".

### Licensing

The operation of the Connectivity Pack Server requires the license for the WinCC Connectivity Pack option.

## 6.2 Installing the Connectivity Pack Client

### Introduction

- The installation of the Connectivity Pack Client includes the following components:
- WinCC OLE DB Provider
- SQL Connectivity Tools
- WinCC Components

### Requirements

- Windows 2000 SP4 or
- Windows XP SP1
- Internet Explorer 6.0 or higher

### Installation

To configure a computer as Connectivity Pack Client, run the Connectivity Pack Client setup on the computer.

From the menu "Install Software" of the installation CD-ROM, select the entry "WinCC V6.0 Connectivity Client".

If WinCC V6.0 SP2 is already installed on the client, the additional installation of the Connectivity Pack Client is not necessary.



## 7 Accessing Archive Data via the WinCC OLE DB Provider

### Introduction

With the OLE DB, you have the following options for accessing WinCC archive data and for displaying it via an external interface:

#### **Access with the WinCC OLE DB Provider**

With the WinCC OLE DB, all WinCC archive data can be accessed.

If you want to access process tags or archives with an acquisition cycle of less than or equal to one minute, the OLE DB interface has to be used. Such data is only archived in compressed form.

#### **Access with the Microsoft OLE DB or ODBC**

With the Microsoft OLE DB or ODBC, uncompressed tag and alarm message archives can be accessed.

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#### **Note**

At the present time, the explicit access via the Microsoft OLE DB/ODBC has not been tested nor released. Use the WinCC OLE DB Provider for accessing archive data.

---

### Configuration Possibilities

For the access to databases with the WinCC OLE DB, you can write your own applications. For the communication with the WinCC OLE DB Provider, applications - created with, for example, Visual Basic, VBScript or VBA - use the ADO DB.

### Basic Procedure

1. For the access to archive data, the computer must have WinCC, the Connectivity Pack Server or Connectivity Pack Client installed.
2. For swapped out archives, establish the connection between the SQL database and the swapped out archives with the WinCC Archive Connector. For WinCC RT databases, the explicit connection of the database is not necessary. Your connection to the SQL Server is managed by the WinCC system.
3. Establish the connection to the database, e.g. using a Control, MS Excel, VBS or VB. Define the desired selection criteria and read the archive data.
4. The query result can be displayed by a Control in MS Excel or be exported as a csv file.

## 7.1 WinCC Archive Connector

### Introduction

The WinCC "Archive Connector" is used for configuring the access to the archive database. The tool is included with WinCC Dat@View and the Connectivity Pack. With the Archive Connector, already swapped out WinCC archives can be reconnected to an SQL Server. Afterwards, the Dat@View client or the WinCC OLE DB Provider can access the archives.

WinCC RT archives cannot be connected or disconnected with the Archive Connector, since their connection to the SQL Server is not managed by the WinCC basic system.

Functions of the WinCC Archive Connector:

- **Manual Connection:** Local databases are selected and connected to the local SQL Server.
- **Manual Disconnection:** Connected databases can be selected and disconnected from the SQL Server.
- **Automatic Connection:** Local directories can be selected in which WinCC archives have been exported. All the archives are automatically linked to the SQL servers which were added to the selected directories from the moment change monitoring was activated.

The WinCC Archive Connector requires the following Authorizations/Licenses:

- Local SQL Server
- WinCC Dat@Monitor or WinCC Connectivity Pack

Once the configuration has been completed, the Archive Connector can be closed. The automatic connection is carried out by a service.

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### Note

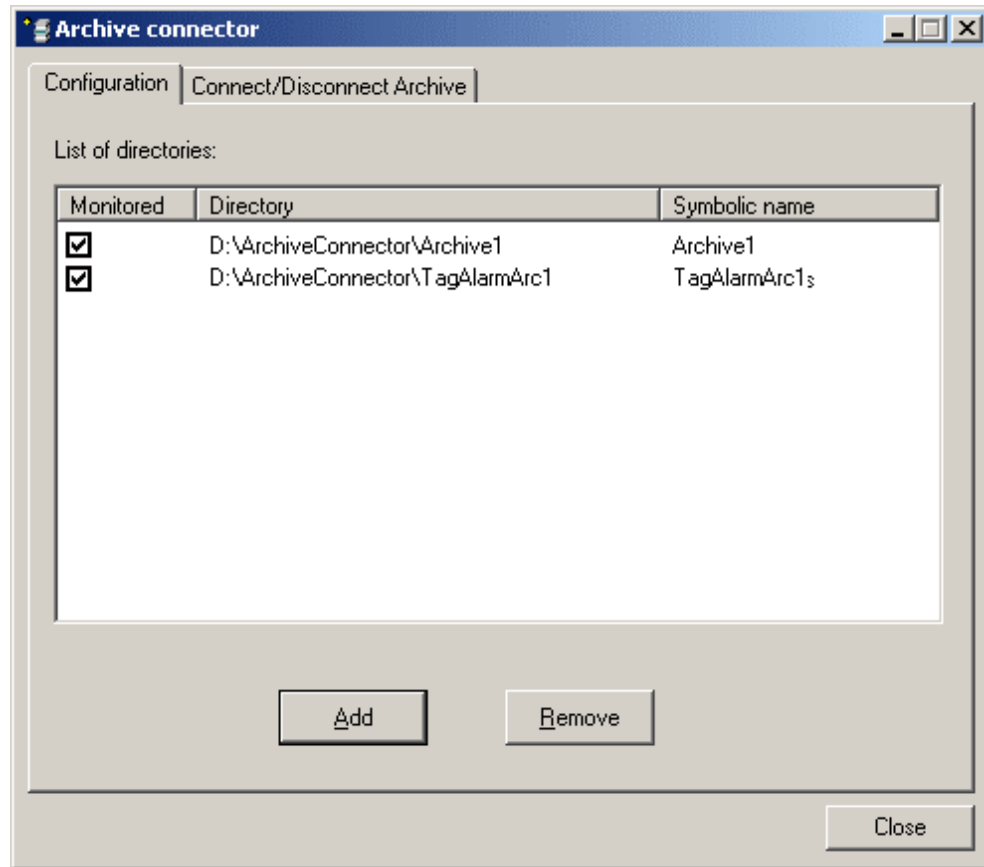
If access is to be made to swapped archives which are on interchangeable media such as tape or MOD drives, pay attention that the connection to these archives on this medium is disconnected using the Archive Connector before changing the medium in the drive. After changing the medium, use the Archive Connector to check whether the archives on the new medium are connected.

The path for the swapped out WinCC archives is set with the Archive Configurator, e.g. of Tag Logging, not with the WinCC Archive Connector of the Connectivity Pack.

The configuration with the WinCC Archive Connector should only be performed by experts. The general access to the tool should therefore be protected. Employ Windows Security mechanisms for this, e.g. limit the access to users with administrator rights or store the tool in a protected folder.

---

## The "Configuration" Tab



In the "Configuration" tab, archiving folders are displayed and managed that can be accessed via the Web or the WinCC OLE DB Provider.

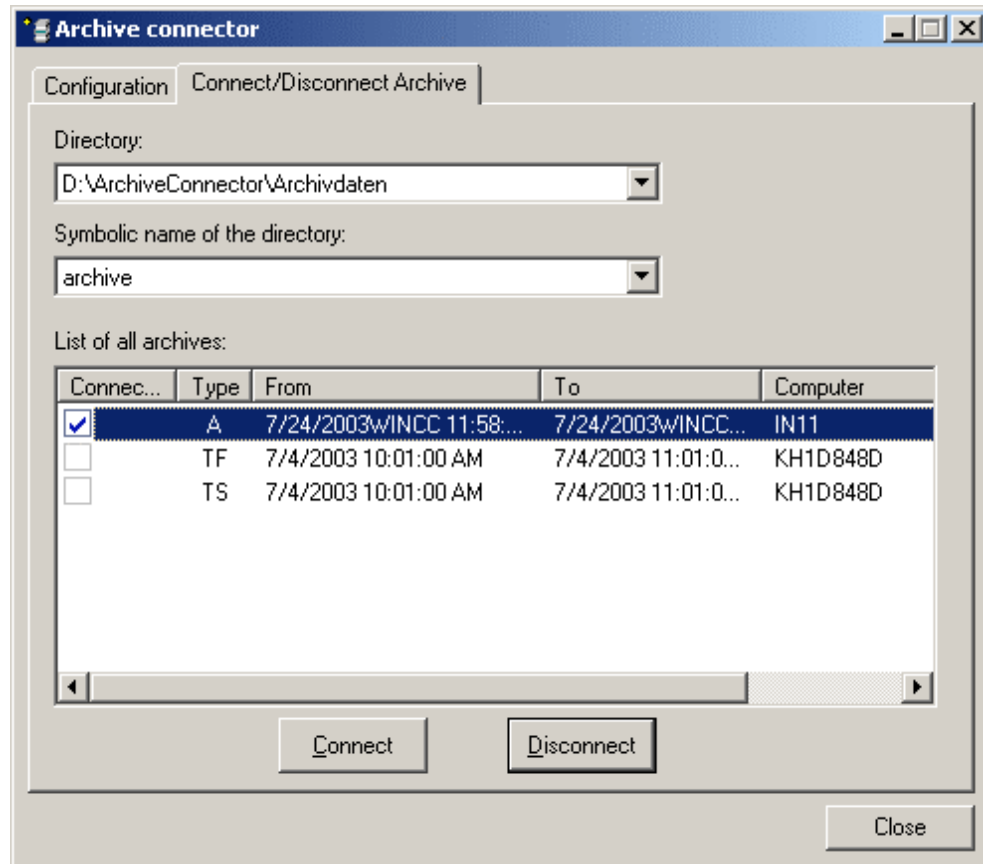
Via buttons, archiving folders can be added or removed. For each archiving folder, a symbolic, unique name has to be assigned during the configuration.

The symbolic name is used by the Dat@View client or the WinCC OLE DB Provider to access the archive.

The name is also used for managing and connecting exported data from multiple computers or projects.

The symbolic names must only contain SQL-syntax-permissible characters. If the corresponding check-box is activated, all archives added to the selected folder will automatically be connected to the SQL Server.

### The "Connect/Disconnect Archive" Tab



The "Connect/Disconnect Archive" tab lists all archives located in the archiving folders.

The connection status of each archive is displayed. The connection to the archives can be established or terminated via buttons.

The archive type is shown in the field "Type":

- "A" = Alarm Logging
- "TF" = Tag Logging (Fast)
- "TS" = Tag Logging (Slow)

In the columns "From" and "To", the time interval for the local time zone is indicated.

---

#### Note

The connection of multiple, swapped out archives to the SQL Server can take a number of seconds.

It is not possible to connect a database file with the same name twice.

The WinCC Archive Connector connects finalized and backed up (swapped out) archives to the SQL Server. Archives not finalized are not supported.

---

## 7.2 Establishing the Connection to the Archive Database

### Introduction

For ActiveX data objects (ADO), the connection between the application and the archive database is established by the connection object. In this case, the most important parameter is the ConnectionString. The ConnectionString contains all necessary information for the database access via the WinCC OLE DB Provider.

#### Structure of the ConnectionString

"Provider = Name of the OLE DB Provider; Catalog = Database Name; Data Source = Server Name"

Parameter	Description
Provider	Name of the OLE DB Provider: WinCCOLEDBProvider
Catalog	Name of the WinCC Database: For WinCC RT databases, use the database names that end with "R": <DatabaseName_R>. If you have connected swapped out WinCC archives to the SQL Server via the WinCC Archive Connector, use their symbolic name.
Data Source	Server Name: Local: .\WinCC Remote: ComputerName\WinCC

#### Example:

In the following example, a connection object is generated and then the connection to the WinCC database established.

```
Set cnn = CreateObject("ADODB.Connection")
cnn.open
"Provider=WinCCOLEDBProvider.1;Catalog=CC_OpenArch_03_05_27_14_11_46R;Data Source=.\WinCC"
```

---

#### Note

To improve the performance of the local access, enter "ComputerName\WinCC" as the data source instead of ".\WinCC".

---

## 7.3 Querying the Archive Data

### Introduction

The queries are forwarded to the database by the command object. In this case, the most important parameter is the CommandString. The CommandText transmits the query. The result is returned as the Recordset.

In the following examples, a command object each is generated and the query transmitted as CommandText.

#### Structure of the CommandText

"CommandText = Query for Tag or Alarm Message Archives"

#### Process Value Archives:

```
Set oRs = CreateObject("ADODB.Recordset")
Set oCom = CreateObject("ADODB.Command")
oCom.CommandType = 1
Set oCom.ActiveConnection = conn
oCom.CommandText = "TAG:R,'PVArchive\Tag1','0000-00-00
00:10:00.000','0000-00-00 00:00:00.000'"
```

#### Alarm Message Archives:

```
Set oRs = CreateObject("ADODB.Recordset")
Set oCom = CreateObject("ADODB.Command")
oCom.CommandType = 1
Set oCom.ActiveConnection = conn
oCom.CommandText = "ALARMVIEW:Select * FROM AlgViewEnu"
```

### 7.3.1 Querying Process Value Archives

#### Principle

With the following query, a process value archive can be accessed. The data can be selected using filter criteria. The queries are forwarded to the database by the command object.

#### Syntax

TAG:R, <ValueID or ValueName>,<TimeBegin>,<TimeEnd>

#### Parameters

##### Selection of an absolute Time Interval

Parameter	Description
ValueID	ValueID from the database table.
ValueName	ValueName in the format "ArchiveName\ValueName". The ValueName must be enclosed by single quotation marks.
TimeBegin	Start time in the format YYYY-MM-DD hh.mm.ss.mmm
TimeEnd	End time in the format YYYY-MM-DD hh.mm.ss.mmm

##### Selection of a relative Time Interval

Parameter	Description
ValueID	ValueID from the database table.
ValueName	ValueName in the format "ArchiveName\ValueName". The ValueName must be enclosed by single quotation marks.
TimeBegin	0000-00-00 00:00:00.000: Reads from the beginning of the recording.
TimeEnd	0000-00-00 00:00:00.000: Reads until the end of the recording.
Example 1	<TimeBegin> = From 2002-02-02 12:00:00.000 until <TimeEnd> = 0000-00-00 00:00:10.000: Reads 10 seconds forward.
Example 2	<TimeBegin> = From 0000-00-00 00:00:10.000 until <TimeEnd> = 2002-02-02 12:00:00.000: Reads 10 seconds back.

#### Note

TimeBegin and TimeEnd cannot be both "0".

To improve the performance, use the "TagID" instead of the "ArchiveName\TagName" in the query. The TagID can be determined from the table "Archives".

---

## 7.3.2 Querying Alarm Message Archives

### Principle

With the following query, an alarm message archive can be accessed. The data can be selected using filter criteria. The queries are forwarded to the database by the command object.

### Syntax

ALARMVIEW:SELECT\*FROM <ViewName>[WHERE <condition>..., optional]

### Parameters

Parameter	Description
ViewName	Name of the database table. The table has to be specified in the desired language. AlgViewDeu: German message archive data AlgViewEnu: English message archive data AlgViewEsp: Spanish message archive data AlgViewFra: French message archive data AlgViewIta: Italian message archive data
Condition	Filter Criterion, e.g.: DateTime>'2003-06-01' AND DateTime<'2003-07-01' DateTime>'2003-06-01 17:30:00' MsgNr = 5 MsgNr in (4, 5) State = 2  For DateTime, only absolute time data can be used.

### 7.3.3 Displaying Process Value Archives

#### Introduction

The query result is returned as the Recordset. In this chapter, the structure of the Recordset for process value archives is described.

#### Recordset Structure

Field Name	Type	Comments
ValueID	Integer 4 Bytes	Unique identification of the value.
TimeStamp	DateTime	Time Stamp
RealValue	Real 8 Bytes	Tag Value
Quality	Integer 4 Bytes	QualityCode of the value (e.g. "good" or "bad").
Flags	Integer 4 Bytes	Internal Control Parameter

## 7.3.4 Displaying Alarm Log Archives

### Introduction

The query result is returned as the Recordset. In this chapter, the structure of the Recordset for alarm log archives is described.

### Recordset Structure

Position	Field Name	Type	Comments
1	MsgNr	Integer 4 Bytes	Alarm Log Number
2	State	Small Integer 2 Byte	Alarm Log State
3	DateTime	DateTime 8 Bytes	Time as System Time
4	Instance	VarChar(255)	Instance Name of the Alarm Log
5	Flags1	Integer 4 Bytes	(only for internal use)
6	PValueUsed	Integer 4 Bytes	Process Values used
7 to 16	PValue1 to PValue10	Real 8 Bytes	Numerical Process Value 1 to 10
17 to 26	PText1 to PText10	VarChar(255)	Process Value Text 1 to 10
27	ComputerName	VarChar(255)	Computer Name
28	Application	VarChar(255)	Application Name
29	Comment	VarChar(255)	Comments
30	UserName	VarChar(255)	User Name
31	Counter	Integer 4 Bytes	Running Alarm Message Counter
32	TimeDiff	Integer 4 Bytes	Time difference to "Came in" status
33	ClassName	VarChar(255)	Name of the Alarm Message Class
34	Type Name	VarChar(255)	Name of alarm type
35	Class	Small Integer 2 Byte	Alarm Message Class
36	Type	Small Integer 2 Byte	Alarm type
37 to 46	Text1 to Text10	VarChar(255)	Message Text 1 to 10
47	AG_NR	Small Integer 2 Byte	Number of the PLC
48	CPU_NR	Small Integer 2 Byte	Number of the CPU
49	CrComeFore	Integer 4 Bytes	Foreground Color for the State "Came in"
50	CrComeBack	Integer 4 Bytes	Background Color for the State "Came in"
51	CrGoFore	Integer 4 Bytes	Foreground Color for the

Position	Field Name	Type	Comments
			State "Went out"
52	CrGoBack	Integer 4 Bytes	Background Color for the State "Went out"
53	CrAckFore	Integer 4 Bytes	Foreground Color for the State "Acknowledged"
54	CrAckBack	Integer 4 Bytes	Background Color for the State "Acknowledged"
55	LocalID	Integer 4 Bytes	Location of the Alarm
56	Priority	Integer 4 Bytes	Priority
57	AP_type	Integer 4 Bytes	Loop-in-Alarm
58	AP_name	VarChar(255)	Loop-in-Alarm Function Name
59	AP_PAR	VarChar(255)	Loop-in-Alarm Screen
60	InfoText	VarChar(255)	Information Text
61	TxtCame	VarChar(255)	Text came in
62	TxtWent	VarChar(255)	Text went out
63	TxtCameNWent	VarChar(255)	Text came in and went out
64	TxtAck	VarChar(255)	Text acknowledged
65	AlarmTag	Integer 4 Bytes	Alarm Message Tag
66	AckType	Small Integer 2 Byte	Acknowledgement Type
67	Params	Integer 4 Bytes	Parameters

## 8 Examples

### Overview

The following examples demonstrate different ways of displaying and analyzing archive data.

### 8.1 Configuring the Access to Archive Data using VB

#### Introduction

The following example shows you how to configure a tabular display with Microsoft Controls. You can also use other Controls or program your own ones.

#### Requirements

Archive data located locally on the computer.

#### Procedure

	Procedure
1	In the Visual Basic Editor, create a new form, which will be used for displaying the archive data.
2	In the Visual Basic Editor, select the menu commands "Project" > "Components".
3	Activate the Controls that you want to use, e.g. an "MS Data Grid Control" and an "MS ADO Data Control". The corresponding icons will be shown in the tool collection.
4	In your form, create an "MS Data Grid Control" for the tabular display of the archive data.
5	In your form, create an "MS ADO Data Control" for the navigation in the tabular display.
6	Highlight the MS Data Grid Control and select the entry "Adoc1" as the "DataSource" in the "PropertyView" to link the two Controls together.
7	Highlight the MS ADO Data Control and select "ConnectionString" from the properties window. Click on the button "...". The dialog box "Property Pages" will be shown.
8	Next to the entry "ConnectionString", click on the button "Create...". The dialog box "Data Link Properties" will be shown.
9	In the tab "Provider", select "WinCC OLE DB Provider for Archives" and then click on "Next".
10	In the tab "Connection", enter the data source in the field "DataSource": <ComputerName>\WinCC.

	Procedure
11	Test the connection by clicking on the button "Test Connection".
12	<p>In the tab "All", enter the name of the WinCC database in the field "Catalog". The database name can be found in the SQL Enterprise Manager at "SQL Server Group" &gt; "&lt;ComputerName&gt;/WinCC" &gt; "Databases" &gt; "&lt;DatabaseName_R&gt;".</p> <p>If the project is active, only use database names that end with "R".</p> <p>If you have connected swapped out WinCC archives to the SQL Server via the WinCC Archive Connector, use the symbolic name of the database.</p> <p>Confirm your entries with "OK".</p>
13	<p>Highlight the MS ADO Data Control and select "RecordSource" from the properties window.</p> <p>The dialog box "Property Pages" will be shown.</p> <p>Select "adCmdText" in the field "CommandType" and enter a valid statement e.g. TAG:R,1,'0000-00-00 00:10:00.000','0000-00-00 00:00:00.000' in the field "CommandText".</p>
14	Confirm your entries with "OK" and start Visual Basic Runtime.

## 8.2 Examples: Analyzing Process Value Archives

### 8.2.1 Example: Reading a Process Value Archive with the WinCC OLE DB Provider

#### Introduction

In this example, the values of the last 10 minutes of the tag "Tag1" are read from the local WinCC RT database. The data is displayed in a ListView with a time stamp, value and quality code. The output of the values is limited to 1000.

The example does not include error processing.

#### Procedure

	Procedure
1	Create a WinCC tag named "Tag1".
2	Create a process value archive named "PVArchive". Connect the WinCC tag "Tag1" with the process value archive.
3	Create a Visual Basic project. Connect the MS Windows Common Controls 6.0 "ListView Control" with the name "ListView1". The columns in the ListView are created by the script.
4	Create a "CommandButton". Copy in the script from the section "Example Script" below.
6	In the script, change the name of the WinCC Runtime database "CC_OpenArch_03_05_27_14_11_46R" to that of your own project. The database name can be found in the SQL Enterprise Manager at "SQL Server Group" > "<ComputerName>/WinCC" > "Databases" > "<DatabaseName_R>".
7	This example uses "AlgViewEnu". If you want to read the archive data of another language, this entry needs to be modified.
8	Activate WinCC Runtime and start the VB application.
9	Click on the "CommandButton".

**Example Script**

```

Dim sPro As String
Dim sDsn As String
Dim sSer As String
Dim sCon As String
Dim sSql As String
Dim conn As Object
Dim oRs As Object
Dim oCom As Object
Dim oltem As ListItem
Dim m, n, s

```

## '1.1 Make connection string for ADODB

```

sPro = "Provider=WinCCOLEDBProvider.1;"
sDsn = "Catalog=CC_OpenArch_03_05_27_14_11_46R;"
sSer = "Data Source=.\\WinCC"
sCon = sPro + sDsn + sSer

```

## '1.2 Define command text in sSql (relative time)

```

sSql = "TAG:R,'PVArchive\Tag1','0000-00-00 00:10:00.000','0000-00-00
00:00:00.000'"
'sSql = "TAG:R,1,'0000-00-00 00:10:00.000','0000-00-00 00:00:00.000'"
MsgBox "Open with:" & vbCr & sCon & vbCr & sSql & vbCr

```

## '2.1 Make connection

```

Set conn = CreateObject("ADODB.Connection")
conn.ConnectionString = sCon
conn.CursorLocation = 3
conn.Open

```

## '2.2 Use command text for query

```

Set oRs = CreateObject("ADODB.Recordset")
Set oCom = CreateObject("ADODB.Command")
oCom.CommandType = 1
Set oCom.ActiveConnection = conn
oCom.CommandText = sSql

```

## '2.3 Fill the recordset

```

Set oRs = oCom.Execute
m = oRs.Fields.Count

```

## '3.0 Fill standard listview object with recordset

```

ListView1.ColumnHeaders.Clear
ListView1.ColumnHeaders.Add , , CStr(oRs.Fields(1).Name), 140
ListView1.ColumnHeaders.Add , , CStr(oRs.Fields(2).Name), 70
ListView1.ColumnHeaders.Add , , CStr(oRs.Fields(3).Name), 70
If (m > 0) Then
oRs.MoveFirst
n = 0

```

```
Do While Not oRs.EOF
n = n + 1
s = Left(CStr(oRs.Fields(1).Value), 23)
Set oltem = ListView1.ListItems.Add()
oltem.Text = Left(CStr(oRs.Fields(1).Value), 23)
oltem.SubItems(1) = FormatNumber(oRs.Fields(2).Value, 4)
oltem.SubItems(2) = Hex(oRs.Fields(3).Value)
If (n > 1000) Then Exit Do
oRs.MoveNext
Loop
oRs.Close
Else

End If
Set oRs = Nothing
conn.Close
Set conn = Nothing
```

---

**Note**

To improve the performance, note the following information:

- At "DataSource", enter the "ComputerName\WinCC" instead of ".\WinCC".
  - In the query, use the "TagID" instead of the "ArchiveName\TagName".
-

## 8.2.2 Example: Analyzing Process Value Archives in the WinCC Project

### Introduction

This example shows the operation of the WinCC project "OPConPack". The WinCC project contains the process value archives used. The queries are created for this archive data. The query result is displayed in tabular form with time stamp, value and quality code. Statistics show the number, the average value, the sum and the standard deviation of the process values. The result can be exported as a csv file.

The WinCC project "OPConPack" can be installed together with the Connectivity Pack Server. The project can also be copied to the hard drive of your computer at a later time from the folder "\\Samples\DemoProject" located on the "Connectivity Pack" CD-ROM.

### Requirements

- The computer has been entered as a server in the computer list of the WinCC project.
- The WinCC project "OPConPack" has been activated.
- The folder "D:\out" has been created.

**Procedure**

Procedure	
1	Click on the button "Simulator on". The simulator supplies the tags with values.
2	Click on the button "Tags archive 1x". The dialog box "Database Taglogging1" will open.

The screenshot shows the 'Database Taglogging1' dialog box in WinCC-Runtime. At the top, there are buttons for 'Simulator on', 'TAGLOGGING', 'Tags archive 1x', and 'Tags archive 2x'. Below these, the DSN is set to 'CC\_OpConPac\_03\_08\_13\_08\_55\_50R'. The dialog also displays a summary table with the following data:

Count	300	Sum	853,7863
Avg	2,845954	Std	2,985273

Below the summary table, there are buttons for 'Execute' and 'Export Csv'. The main data table in the dialog is as follows:

DateTime	RealValue	Quality
13.08.2003 07:17:56	3,5293	801001
13.08.2003 07:17:57	3,5293	801001
13.08.2003 07:17:58	3,4009	801001
13.08.2003 07:17:59	3,4009	801001
13.08.2003 07:18:00	3,2748	801001
13.08.2003 07:18:01	3,2748	801001
13.08.2003 07:18:02	3,1509	801001
13.08.2003 07:18:03	3,1509	801001
13.08.2003 07:18:04	3,0292	801001
13.08.2003 07:18:05	3,0292	801001

### How to analyze Process Value Archives

	Procedure
1	<p>Click on the button "Q:1,Now-1h".</p> <p>The buttons "Q:..." are linked to queries. The corresponding query is shown in the field below the buttons.</p> <p>"Q:1" or "Q:2" stands for the queried tag ID.</p> <p>"Q:1,Now-5m" and "Q:2,Now -5m" return as result the process values of the last 5 minutes.</p> <p>"Q:1,Now-1h" returns as result the process values of the last hour.</p> <p>"Q:2,Date" returns as result the process values from 07/03/2003.</p>
2	<p>Click on the button "Execute". Confirm the following dialog box. The query will then be performed.</p>
3	<p>The data will be displayed with a time stamp (DateTime), process value (RealValue) and quality code (TypeName) in a table.</p> <p>The field "Count" contains the number of the selected process values. The field "Sum" contains the sum of all process values. The field "Avg" contains the average value of the column "RealValue" and the field "Std" the standard deviation.</p>
4	<p>Click on the button "Export Csv". Confirm the following dialog box. The query results are stored in the csv file "OutTAGEXP1.csv" in the folder "D:\out".</p>

## 8.2.3 Example: Comparing Measured Value Profiles in the WinCC Project

### Introduction

This example shows how a comparison of measured value profiles can be configured. To keep the WinCC project simple, only measured value profiles from a single and not two process value archives are compared. From the local WinCC RT database, the process values of the tag with the ID = 1 are selected. For the comparison, the process values are read time-delayed. The query results are exported in two csv files.

The WinCC project "OPConPack" can be installed together with the Connectivity Pack Server. The project can also be copied to the hard drive of your computer at a later time from the folder "\\Samples\DemoProject" located on the "Connectivity Pack" CD-ROM.

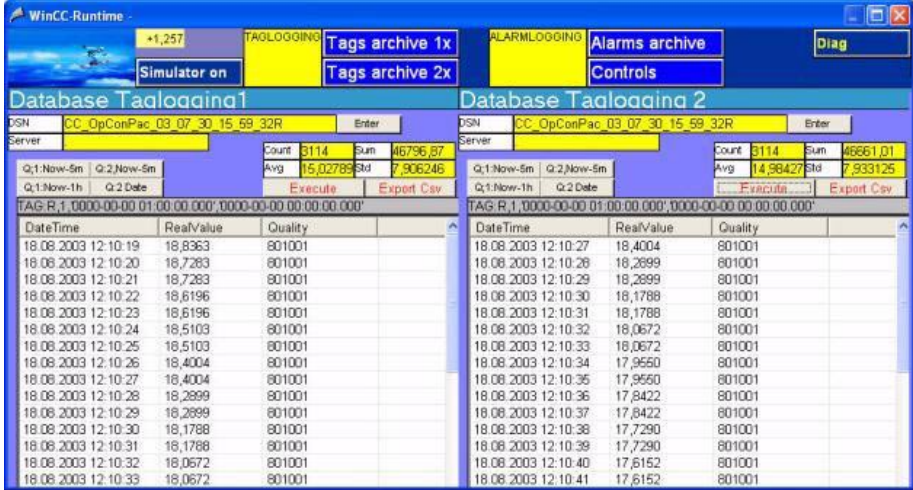
### Requirements

- The computer has been entered as a server in the computer list of the WinCC project.
- The WinCC project "OPConPack" has been activated.
- The folder "D:\out" has been created.

### Procedure

	Procedure
1	Click on the button "Simulator on". The simulator supplies the tags with values.
2	Click on the button "Tags archive 2x".

How to analyze Process Value Archives

Procedure	
1	In the area "Database Taglogging1", click on the button "Q:1,Now-1hm". Click on the button "Execute".
2	In the area "Database Taglogging2", click on the button "Q:1,Now-5m". Click on the button "Execute".
3	The data will be displayed with a time stamp (DateTime), process value (RealValue) and quality code (TypeName) in tables. 
4	The field "Std" contains the standard deviation. You can now compare the standard deviation of the databases TagLogging1 and TagLogging2 with each other.
5	Click on the button "Export Csv". Confirm the following dialog box. The query result of the database TagLogging1 is exported in the csv file "OutTAGEXP1.csv". The query result of the database TagLogging2 is exported in the csv file "OutTAGEXP2.csv".

## 8.2.4 Example: Analyzing Process Value Archives with a VB Application

### Introduction

This example shows the operation of the VB application "WinCCDBPr". This application contains several query examples. The query result is displayed in a ListView with a time stamp, value and quality code. Statistics show the number, the average value, the sum and the standard deviation of the process values. The results are exported in a csv file.

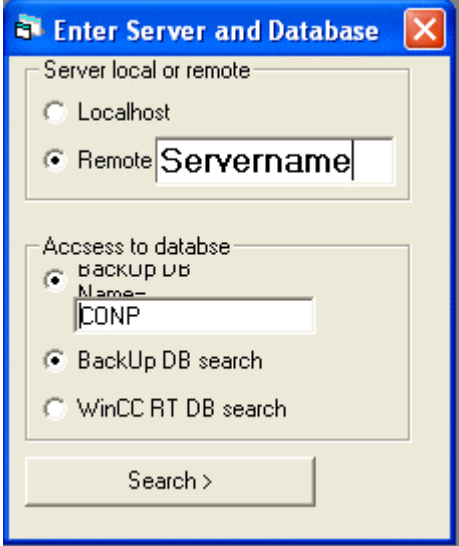
The VB application "WinCCDBPr" can be installed together with the Connectivity Pack Server. The VB application can also be installed from the "Connectivity Pack" CD-ROM at a later time. For this, double-click on the file "setup.exe" in the folder "\\Samples\VB\_Sample".

The sources of this example can be found in the folder "\\Samples\VB\_Sample\Sourcecode". The folder "\\Samples\VB\_Sample\Databases" contains Tag Logging databases for testing.

### Requirements

- The folder "D:\out" has been created.
- The VBA application "WinCCDBPr" has been installed and started.

## Procedure

	Procedure
1	<p>From the "Database" menu, select the entry "1.Connect". The dialog box "Enter Server and Database" will open.</p>  <p>For the local access, activate the radio-button "Localhost". For the remote access, activate the radio-button "Remote". Enter the server name in the field "Remote".</p>
2	<p>In the area "Access to database", the database can be specified directly or searched for. Activate the radio-button "BackUp DB search". Click on the button "Search". The dialog box "WinCC Database Example - [Select the Data ...]" will open.</p>
3	<p>Highlight the archive database and click on the button "Connect".</p>
4	<p>From the "Database" menu, select the entry "2.TagLogging".</p>
5	<p>Via the button "Next Example", the various query examples can be accessed.</p> <p>The query is shown in the field below the button. The following query examples are available:</p> <pre> TAG:R,1,'0000-00-00 00:01:00','0000-00-00 00:00:00' TAG:R,1,'0000-00-00 00:30:00.000','0000-00-00 00:00:00.000' TAG:R,1,'0000-00-00 01:00:00.000','0000-00-00 00:00:00.000' TAG:R,2,'0000-00-00 00:05:00.000','0000-00-00 00:00:00.000' TAG:R,3,'0000-00-00 00:05:00.000','0000-00-00 00:00:00.000' </pre>
6	<p>Click on the button "Execute". The query will then be performed. The data will be displayed in a table. In the upper field, the number of the selected process values is shown.</p>
7	<p>Click on the button "Statistics".</p> <p>The result will be shown in the upper field:</p> <ul style="list-style-type: none"> <li>- N = Number of the selected Process Values</li> <li>- Sum = Sum of all Process Values</li> <li>- Avg = Average Value of the Process Values</li> </ul>

	<b>Procedure</b>
	- Sta = Standard Deviation
8	Click on the button "Export(csv)". The query result is exported in the file "WCCTAG.csv" in the folder "D:\out".
9	Click on the button "Show Connection". In the upper field, the ConnectionString and the query are shown.

## 8.3 Examples: Analyzing Alarm Message Archives

### 8.3.1 Example: Reading Alarm Message Archive Data with the WinCC OLE DB Provider

#### Introduction

In this example, a time interval of 10 minutes is read from the alarm message archive data. The data is displayed in a ListView Control with a time stamp, alarm message number, state and alarm message type.

The example includes a simple error processing.

#### Procedure

	Procedure
1	Configure alarms in Alarm Logging. Activate the archiving.
2	Create a Visual Basic project. Connect the MS Windows Common Controls 6.0 "ListView Control" with the name "ListView1".
3	The columns in the ListView are created by the script.
4	Create a "CommandButton". Copy in the script from the section "Example Script" below.
5	In the script, change the name of the WinCC Runtime database "CC_OpenArch_03_05_27_14_11_46R" to that of your own project. The database name can be found in the SQL Enterprise Manager at "SQL Server Group" > "<ComputerName>/WinCC" > "Databases" > "<DatabaseName_R>".
6	This example uses "AlgViewEnu". If you want to read the archive data of another language, this entry needs to be modified.
7	Activate WinCC Runtime and start the VB application.
8	Click on the "CommandButton".

**Example Script**

```

Dim sPro As String
Dim sDsn As String
Dim sSer As String
Dim sCon As String
Dim sSql As String

Dim conn As Object
Dim oRs As Object
Dim oCom As Object
Dim oltem As ListItem

Dim m, n, s

On Error GoTo ErrorHandlerA

'1.1 Make connection string for ADODB
sPro = "Provider=WinCCOLEDBProvider.1;"
sDsn = "Catalog=CC_OpenArch_03_05_27_14_11_46R;"
sSer = "Data Source=.\\WinCC"
sCon = sPro + sDsn + sSer

' 1.2 Define command text in sSql
sSql = "ALARMVIEW:Select * FROM AlgViewEnu WHERE DateTime>'2003-07-30 11:30:00'
AND DateTime<'2003-07-30 11:40:00'"
'sSql = "ALARMVIEW:Select * FROM AlgViewEnu WHERE MsgNr = 5"
'sSql = "ALARMVIEW:Select * FROM AlgViewEnu"
MsgBox "Open with:" & vbCr & sCon & vbCr & sSql & vbCr

' 2.1 Make connection
Set conn = CreateObject("ADODB.Connection")
conn.ConnectionString = sCon
conn.CursorLocation = 3
conn.Open

' 2.2 Use command text for query
Set oRs = CreateObject("ADODB.Recordset")
Set oCom = CreateObject("ADODB.Command")
oCom.CommandType = 1
Set oCom.ActiveConnection = conn
oCom.CommandText = sSql

' 2.3 Fill the recordset
Set oRs = oCom.Execute
m = oRs.Fields.Count

' 3.0 Fill standard listview object with recordset
ListView1.ListItems.Clear

```

```
ListView1.ColumnHeaders.Clear
ListView1.ColumnHeaders.Add , , CStr(oRs.Fields(2).Name), 140
ListView1.ColumnHeaders.Add , , CStr(oRs.Fields(0).Name), 60
ListView1.ColumnHeaders.Add , , CStr(oRs.Fields(1).Name), 60
ListView1.ColumnHeaders.Add , , CStr(oRs.Fields(34).Name), 100
If (m > 0) Then
oRs.MoveFirst
n = 0
Do While Not oRs.EOF
n = n + 1
If (n < 1000) Then
    s = Left(CStr(oRs.Fields(1).Value), 23)
    Set oltem = ListView1.ListItems.Add()
    oltem.Text = CStr(oRs.Fields(2).Value)
    oltem.SubItems(1) = CStr(oRs.Fields(0).Value)
    oltem.SubItems(2) = CStr(oRs.Fields(1).Value)
    oltem.SubItems(3) = CStr(oRs.Fields(34).Value)
End If
    oRs.MoveNext
Loop
oRs.Close
Else

End If
Set oRs = Nothing
conn.Close
Set conn = Nothing

ErrorHandlerA:
MsgBox Err.Description
```

---

**Note**

To improve the performance, enter "ComputerName\WinCC" as the data source instead of ".\WinCC".

The output of the values is limited to 1000.

The times indicated refer to the system time.

---

## 8.3.2 Example: Analyzing Alarm Message Archives in the WinCC Project

### Introduction


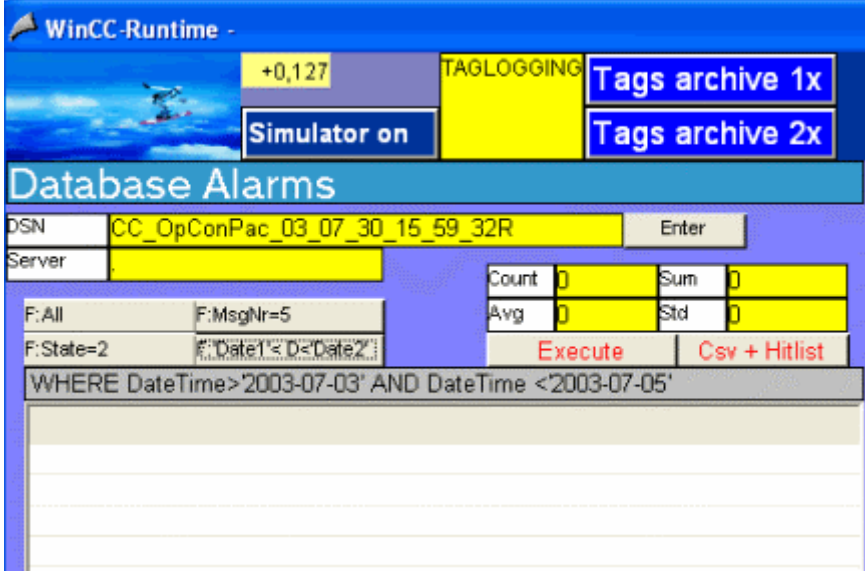
This example shows the operation of the WinCC project "OpConP". The WinCC project contains the archive databases used. The queries are created for this archive data. The query result is displayed in tabular form. The result can be exported as a csv file. A list contains information about the frequency and duration of the alarms.

The WinCC project "OPConPack" can be installed together with the Connectivity Pack Server. The project can also be copied to the hard drive of your computer at a later time from the folder "\\Samples\DemoProject" located on the "Connectivity Pack" CD-ROM.

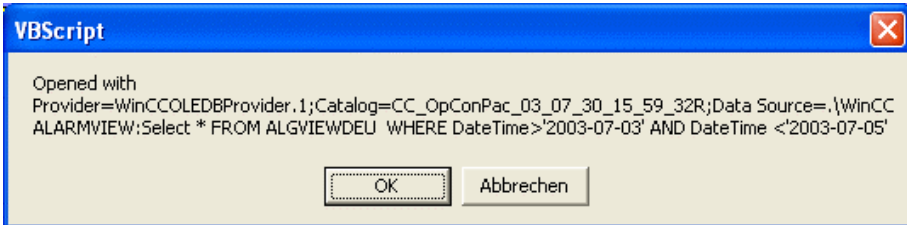
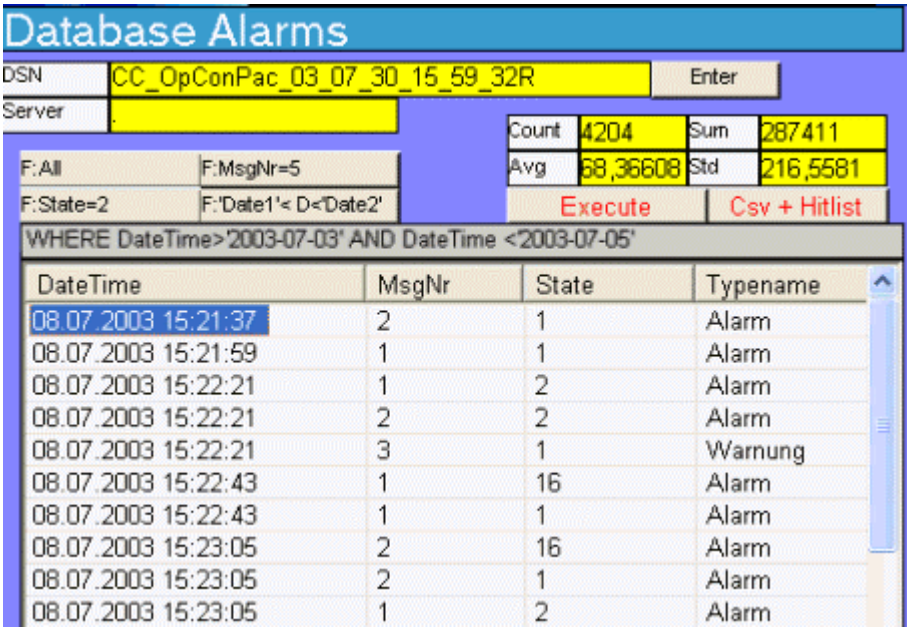
### Requirements

- The computer has been entered as a server in the computer list of the WinCC project.
- The WinCC project "OPConPack" has been activated.
- The folder "D:\out" has been created.

**Procedure**

Procedure	
1	<p>Click on the button "Simulator on". The simulator supplies the tags with values.</p>  <p>The screenshot shows the WinCC Runtime interface. At the top, there is a status bar with a value of +18,161. Below it, there are several buttons: 'Simulator on', 'TAGLOGGING', 'Tags archive 1x', 'Tags archive 2x', 'ALARMLOGGING', and 'Alarms archive'. The 'Simulator on' button is highlighted.</p>
2	<p>Click on the button "Alarms archive". The dialog box "Database Alarms" will open.</p>  <p>The screenshot shows the 'Database Alarms' dialog box. It has a title bar 'Database Alarms'. Below the title bar, there are several input fields: 'DSN' with the value 'CC_OpConPac_03_07_30_15_59_32R', 'Server', 'F:All', 'F:MsgNr=5', 'F:State=2', and 'F:Date1&lt;=Date2'. There are also buttons for 'Enter', 'Execute', and 'Csv + Hitlist'. Below the input fields, there is a text area containing the SQL query: 'WHERE DateTime&gt;'2003-07-03' AND DateTime &lt;'2003-07-05''. At the bottom, there are several empty rows for displaying results.</p> <p>The field "DSN" contains the name of the WinCC RT database. The field "Server" contains the server name.</p>

### How to analyze Alarm Message Archive Data

	Procedure																																												
1	<p>Click on the button "'F:'Date1'&lt;D'&lt;'Date2'".</p> <p>The buttons "F:..." are linked to queries. The corresponding query is shown in the field below the buttons.</p> <p>"F:All" returns as result all alarm messages.</p> <p>"F:MsgNr=5" returns as result the alarm messages of the message number 5.</p> <p>"F:State=2" returns as result the alarm messages possessing the message state 2.</p> <p>"F:'Date1'&lt;D'&lt;'Date2'" returns as result the alarm messages that were pending between 07/03/2003 and 07/05/2003.</p>																																												
2	<p>Click on the button "Execute". The following dialog box will open.</p>  <p>In this dialog box, the ConnectionString and query used are output. Close the dialog box by clicking on the button "OK". The query will then be performed.</p>																																												
3	<p>The data will be displayed with a time stamp (DateTime), alarm message number (MsgNr), alarm message state (State) and alarm message class name (TypeName) in a table.</p>  <table border="1" data-bbox="470 1406 1348 1774"> <thead> <tr> <th>DateTime</th> <th>MsgNr</th> <th>State</th> <th>Typename</th> </tr> </thead> <tbody> <tr><td>08.07.2003 15:21:37</td><td>2</td><td>1</td><td>Alarm</td></tr> <tr><td>08.07.2003 15:21:59</td><td>1</td><td>1</td><td>Alarm</td></tr> <tr><td>08.07.2003 15:22:21</td><td>1</td><td>2</td><td>Alarm</td></tr> <tr><td>08.07.2003 15:22:21</td><td>2</td><td>2</td><td>Alarm</td></tr> <tr><td>08.07.2003 15:22:21</td><td>3</td><td>1</td><td>Warnung</td></tr> <tr><td>08.07.2003 15:22:43</td><td>1</td><td>16</td><td>Alarm</td></tr> <tr><td>08.07.2003 15:22:43</td><td>1</td><td>1</td><td>Alarm</td></tr> <tr><td>08.07.2003 15:23:05</td><td>2</td><td>16</td><td>Alarm</td></tr> <tr><td>08.07.2003 15:23:05</td><td>2</td><td>1</td><td>Alarm</td></tr> <tr><td>08.07.2003 15:23:05</td><td>1</td><td>2</td><td>Alarm</td></tr> </tbody> </table>	DateTime	MsgNr	State	Typename	08.07.2003 15:21:37	2	1	Alarm	08.07.2003 15:21:59	1	1	Alarm	08.07.2003 15:22:21	1	2	Alarm	08.07.2003 15:22:21	2	2	Alarm	08.07.2003 15:22:21	3	1	Warnung	08.07.2003 15:22:43	1	16	Alarm	08.07.2003 15:22:43	1	1	Alarm	08.07.2003 15:23:05	2	16	Alarm	08.07.2003 15:23:05	2	1	Alarm	08.07.2003 15:23:05	1	2	Alarm
DateTime	MsgNr	State	Typename																																										
08.07.2003 15:21:37	2	1	Alarm																																										
08.07.2003 15:21:59	1	1	Alarm																																										
08.07.2003 15:22:21	1	2	Alarm																																										
08.07.2003 15:22:21	2	2	Alarm																																										
08.07.2003 15:22:21	3	1	Warnung																																										
08.07.2003 15:22:43	1	16	Alarm																																										
08.07.2003 15:22:43	1	1	Alarm																																										
08.07.2003 15:23:05	2	16	Alarm																																										
08.07.2003 15:23:05	2	1	Alarm																																										
08.07.2003 15:23:05	1	2	Alarm																																										
4	<p>The field "Count" contains the number of the alarm messages. The fields "Avg", "Sum" and "Std" are displayed, but are irrelevant for this example.</p>																																												
5	<p>Click on the button "Csv + Hitlist". Confirm the following dialog box. The query results are stored in the csv file "ALGEXP.csv" in the folder "D:\out".</p>																																												

**Procedure**

6 The data is shown in tabular form. The column "CNT" indicates how many times the alarm message was pending. The column "Total" indicates how long the alarm message was pending in total.

JSN  Enter

Server

Count	4035	Sum	279121
Avg	69,17497	Std	220,3618

F:All      F:MsgNr=5

F:State=2      F:'Date1'< D<'Date2'

**Execute**      **Csv + Hitlist**

WHERE DateTime>'2003-07-03' AND DateTime <'2003-07-05'

MsgNr	CNT	Total
1	2119	46532
2	1071	46577
3	528	45465
4	255	43354
5	119	38267
6	57	35437
7	14	13857
8	8	11041
9	2	5409

### 8.3.3 Example: Analyzing Alarm Message Archives with a VB Application

#### Introduction

This example shows the operation of the VB application "WinCCDBPr". This application contains several query examples. The query result is displayed in tabular form. The result can be exported as a csv file. A list contains information about the frequency and duration of the alarms.

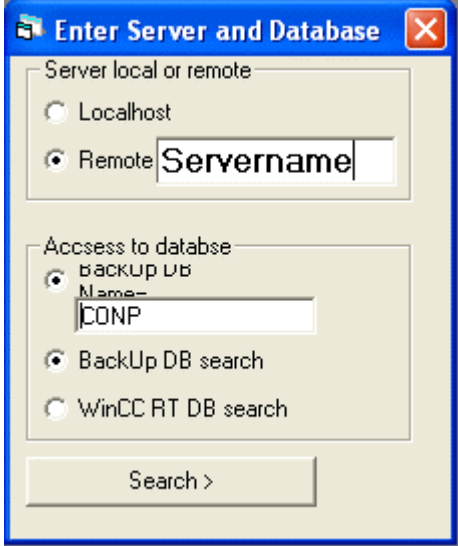
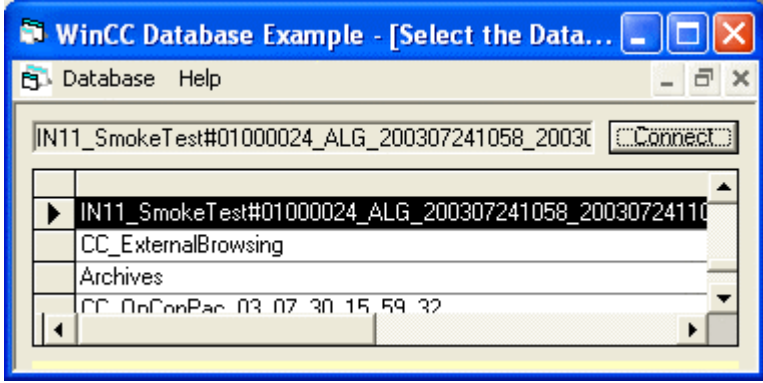
The VB application "WinCCDBPr" can be installed together with the Connectivity Pack Server. The VB application can also be installed from the "Connectivity Pack" CD-ROM at a later time. For this, double-click on the file "setup.exe" in the folder "\\Samples\VB\_Sample".

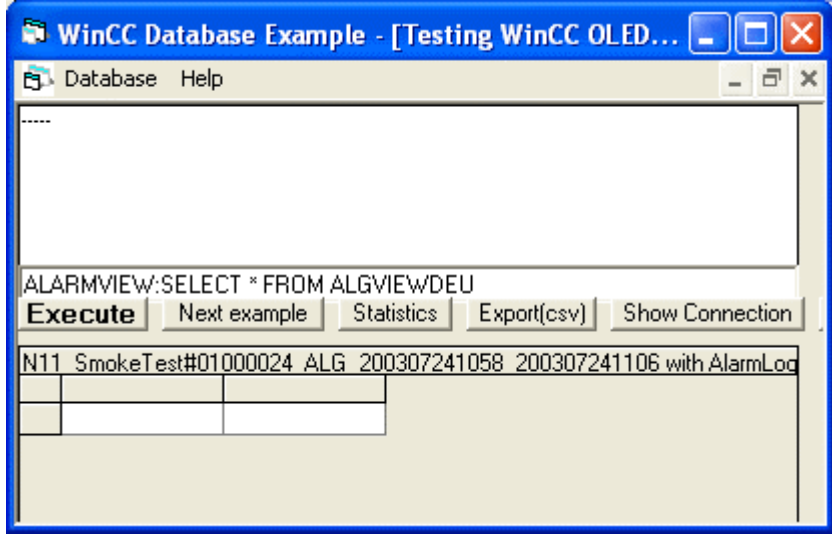
The sources for the example are in the folder "\\Samples\VB\_Sample\Sourcecode".

#### Requirements

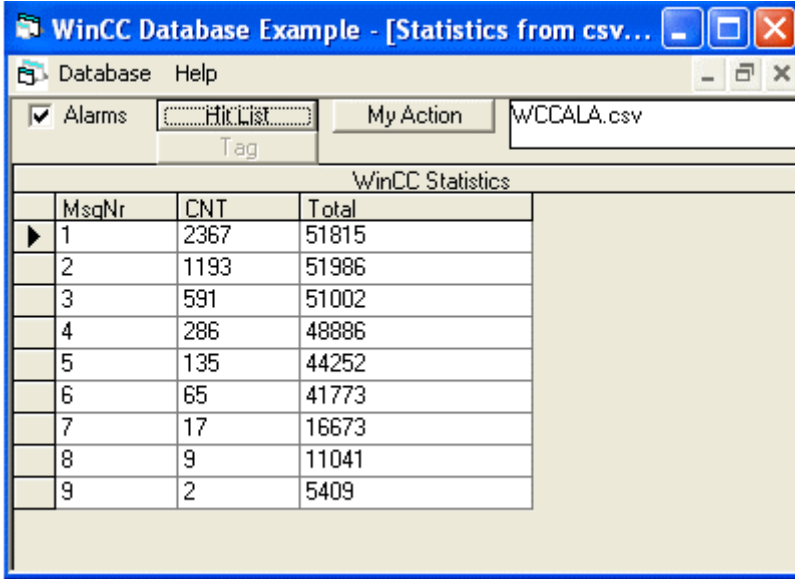
- The folder "D:\out" has been created.
- The VBA application "WinCCDBP" has been installed and started.

## Procedure

	Steps
1	<p>From the "Database" menu, select the entry "1.Connect". The dialog box "Enter Server and Database" will open.</p>  <p>For the local access, activate the radio-button "Localhost". For the remote access, activate the radio-button "Remote". Enter the server name in the field "Remote".</p>
2	<p>In the area "Access to database", the database can be specified directly or searched for. Activate the radio-button "BackUp DB search".</p>
3	<p>Click on the button "Search". The dialog box "WinCC Database Example - [Select the Data ...]" will open.</p> 
4	<p>Highlight the archive database and click on the button "Connect".</p>
5	<p>From the "Database" menu, select the entry "3.Alarms".</p>

Steps	
	
6	<p>Via the button "Next Example", the various query examples can be accessed. The query is shown in the field below the button. The time intervals can be adjusted.</p> <p>The following query examples are available:</p> <ul style="list-style-type: none"> <li>- ALARMVIEW:SELECT * FROM ALGVIEWDEU</li> <li>- ALARMVIEW:SELECT * FROM ALGVIEWDEU WHERE DateTime&gt;'2003-07-01' AND DateTime&lt;'2003-08-01'</li> <li>- ALARMVIEW:SELECT * FROM ALGVIEWDEU WHERE State=2</li> <li>- ALARMVIEW:SELECT * FROM ALGVIEWDEU WHERE DateTime&gt;'2003-08-01'</li> <li>-ALARMVIEW:SELECT * FROM ALGVIEWDEU WHERE TimeDiff&gt;100</li> </ul>
7	<p>Click on the button "Execute". The query will then be performed. The data will be displayed in a table. In the upper field, the number of the selected alarm messages is shown.</p>
8	<p>Click on the button "Statistic".</p> <p>The top field displays,</p> <ul style="list-style-type: none"> <li>- how often the alarm number 2 has queued,</li> <li>- how long it has queued in total.</li> </ul>
9	<p>Click on the button "Export(csv)". The query result is exported in the file "WCCALA.csv" in the folder "D:\out".</p>
10	<p>Click on the button "Show Connection". In the upper field, the ConnectionString and the query are shown.</p>
11	<p>From the "Database" menu, select the entry "Statistics/Csv".</p>

**Steps**



Click on the button "HitList". The data is shown in tabular form. The column "CNT" indicates how many times the alarm message was pending. The column "Total" indicates how long the alarm message was pending in total. As the database, the csv file "WCCALA.csv" is used.

MsgNr	CNT	Total
1	2367	51815
2	1193	51986
3	591	51002
4	286	48886
5	135	44252
6	65	41773
7	17	16673
8	9	11041
9	2	5409

## 9 Performance Data

### Introduction

The following tables show the times required for accessing the archive databases with the WinCC OLE DB Provider. The values were measured on a test system with a Connectivity Pack Server and a connected Client. The archive databases located on the server were connected using the Archive Connector.

- Server: Pentium 4, 2.5 GHz, 512 MB RAM Client: Pentium III, 700 MHz, 512 MB RAM
- Data was read from a Visual Basic application via ADO.
- The times measured do not include the display of the data.

---

#### Note

Differently structured and compressed data or database segments varying in number and size can result in different access times.

---

The times are indicated in milliseconds.

#### Archive "Tag Logging Fast"

Number of measured Values	Local Access Time (Server)	Remote Access Time (Client)
1000	73	349
5000	130	562
10000	208	776
20000	365	1307
50000	802	2635
100000	1537	5099

#### Archive "Tag Logging Slow"

Number of measured Values	Local Access Time (Server)	Remote Access Time (Client)
1000	230	293
5000	361	653
10000	561	1111
20000	928	1999
50000	1994	4657
100000	3701	8995

**Archive "Alarm Logging"**

<b>Number of Alarm Messages</b>	<b>Local Access Time (Server)</b>	<b>Remote Access Time (Client)</b>
1081	526	849
2162	672	1245
3242	802	1630
4323	974	1979

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