WinCC Industrial Data Bridge
WinCC Option Industrial Data Bridge
## Vision & Motivation

1.1 Trends & Challenges  
1.2 Answers

2 Requirements

3 Siemens answers

4 Misc

5 Order data

6 Highlights

7 Conclusion
**WinCC / IndustrialDataBridge**

**Vision and Motivation**

**Trends / Challenges**

- Connecting the automation level with the IT world
- Integration of systems from different vendors via standard interfaces
- Trend to share information

**Siemens answers**

- WinCC V7.2 and Option WinCC/IndustrialDataBridge an open SCADA System
- Information flow between production (WinCC) and IT world (safe and with high performance)
- Simple, cost-efficient configuration (without programming)
## Agenda

1. Vision & Motivation
2. Requirements
   - 2.1 Challenges & needs
   - 2.2 System/Product requirements
3. Siemens answers
4. Misc
5. Order data
6. Highlights
7. Conclusion
WinCC / IndustrialDataBridge

Requirements

- Bi-directional data transmission of single data or data blocks with high performance
- Cost-efficient integration via standard interfaces
- Connection of
  - external data bases
  - other applications

Safe data exchange between different systems with high performance
## Agenda

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</table>
WinCC / IndustrialDataBridge
Highlights

Simple and flexible link of the automation level to the IT-world with WinCC/IDB

- Flexible information platform between applications
- Connection of SCADA and IT systems
- Reduction of complex interfaces and data formats
- Transmission of process data to/from of Office or to/from databases
- Easy configuration using standard software not requiring programming knowledge
  - Unicode-support and new runtime languages
  - Selection of Provider and Consumer via standard names and –pathnames
- Getting Started: Data exchange of WinCC/UserArchive and MS Access

Configurable information flow between WinCC and the IT world
WinCC / IndustrialDataBridge
Complexity of interfaces and data formats

- **Very flexible**, by supporting various database systems and standard interfaces
- **Efficient** because of transmission of single data or data blocks (">", "<", "inside where …")
- **OPC XML DA** for data exchange via Internet using HTTP / SOAP
- Data exchange with **WinCC Professional (TIA Portal)**
- Easy arching using the **BLOB** type for databases
WinCC / IndustrialDataBridge
Scenarios – Connection of a data base

Scenario: Data transmission between WinCC and data bases

- Transmission of production data to a superior Oracle data base
- Link to data bases located at the WinCC station or any PC in the LAN
- Loading of e.g. recipes from a superior MS Access data base to WinCC User Archives (Getting Started)

Transmission of single data or selectable data blocks (e.g. global recipes or relevant production data)
WinCC / IndustrialDataBridge
Getting Started – Data transfer MS Access <> WinCC / User Archives

Download order data

Provider

Microsoft Access

Consumer

number: 20 pieces

color: red

Get data from Microsoft Access

Data Transfer

Step 1: Receiving order data

Consumer

Upload production data

Provider

Sending of User archive data

Consumption material: 55 liter

Batch name: Demo

Step 2: editing production data

Data Transfer

Step 3: sending production data
**WinCC / IndustrialDataBridge**
Scenarios – transparent data exchange via WinCC Client

**Scenario: Data access via central access gate: WinCC Client with IDB**

- Simultaneous data exchange via IDB to one or multiple (redundant) WinCC Server
- Administration (Start / stop) and diagnose of each individual data connection from WinCC Client, WebClient during runtime

**Access to various, subordinated WinCC data via Client**
**WinCC / IndustrialDataBridge**
Scenarios – Data transmission over WinCC/Connectivity Station

**Scenario: Data access via central access point:** WinCC Connectivity Station

Simultaneous data transmission via IDB to:

- One or multiple (redundant) WinCC server
- WinCC clients

**Access to various, subordinated WinCC data via Connectivity Station**
WinCC / IndustrialDataBridge
Scenarios – data export into a CSV file

Scenario: event driven reports to a CSV file

- Production data per shift
- Weekly, monthly data
  (Option WinCC / Calendar Scheduler)
- Specific alarms
  e.g.: malfunction alarms per production shift
- Configurable file name

Event driven generation of CSV-files after a adjustable number of entries,
or e.g. daily or at beginning of shifts
Scenario: IndustrialDataBridge as a standalone system

- Communication between SIMATIC controller and database
- Connection between 2 OPC server

Central data base with process data from WinCC and other systems
WinCC / IndustrialDataBridge
Concept of data transfer

- Link between Provider and Consumer (pair)
- Data transfer from provider to consumer
- A Link is a unidirectional connection (one way)
- Reverse direction with second link
- Data flow is independent from other links
WinCC / IndustrialDataBridge
Principle: configuration & runtime

Configuration interface
- Configuration file (XML)

Runtime interface
- Provider
- Consumer
- Data source e.g. OPC
- Data target e.g. CSV-file

Arrows:
- creation
- initializing
- data flow
- status information
WinCC / IndustrialDataBridge
Configuration data connection

• Creation of a link
• A link defines a connection channel between the data provider and data consumer
• Setup of the transfer behavior (group settings)

Example: The value of the OPC tag "Trend_1" shall every second written into the file "consumer.csv"
Configuration of the data connection without programming

Example: The value of the OPC tag "Trend_1" shall every second written into the file "consumer.csv"
WinCC / IndustrialDataBridge
Configuration – runtime interface

IDB Runtime can be started as **system service** or **application**:

**IDB as system service**
- No user login is required for PC
- Configuration file will be loaded automatically
  ➔ For unattended computer in computer centers

**IDB as application**
- Login of windows user
- Industrial Data Bridge used as control in WinCC pictures
  ➔ for WinCC stations (Start /Stop and state of each individual connection during runtime)

Data security due to password protection (password is required when starting IndustrialDataBridge)
WinCC / IndustrialDataBridge
Configuration – runtime interface

Integration of IDB control in:
- **WinCC V7 Process pictures**
- **WinCC WebClients**

- For each link:
  - Define connection between Provider and Consumer
  - Start data transmission
  - Link diagnosis, trace logging

Administration (Start / Stop) and diagnosis of each link during runtime
WinCC / IndustrialDataBridge
Configuration – Relation of data

• Definition of link between data provider (source) and consumer (target)
• Set transmission behavior in groups
• Connect source- and target data
  • single data
  • data blocks (”, “>”, ”<”, ”inside where statement“, ”Select … from … where …“)
• Save configuration

Configuration of data connections – without programming
SIMATIC WinCC - IndustrialDataBridge
Improved, simple and easy to use configuration system

Configuration enhancements for a faster and more flexible access to IDB

- Unicode-support
- Asian language support (Chinese simplified, Japanese)
- New look and feel
- Improved selection of provider and consumer
  - Default names and path
- OPC XML DA Provider / Consumer
  (Exchange of plant data across the internet using HTTP and SOAP)

Documentation

- Improve documentation
  (rework of send & receive description, description of special needed characteristics, FAQ chapter)
- Getting started for data exchange between User Archive and Microsoft Access
What’s new in WinCC/IndustrialDataBridge V7.2

Runtime enhancements for a faster and more flexible access to IDB

- Unicode-support
  - Asian language support (Chinese simplified, Japanese)
  - Transfer of any characters
- Configuring service setting using user interface
- Improved diagnosis (log file entries, error messages, system messages for WinCC)
- Support of WebNavigator (IndustrialDataBridge on WebNavigator server)
- Support of Data transfer with WinCC Professional
What’s new in WinCC/IndustrialDataBridge V7.2

Additional up-to-date connectivity for more flexibility

• **New Consumer/Provider**
  - OPC XML Client and Server
  - WinCC Runtime Professional (TIA Portal)

• **New version for Consumer/Provider**
  - MySQL 5.5
  - MS SQL Server 2008, 2008 R2
  - Oracle 11g
  - MS Access 2007 & 2010
  - MS Excel 2007 & 2010

• Easy archiving using datatype BLOB for databases
What’s new in WinCC/IndustrialDataBridge V7.3

- Support of current operating systems, Excel versions and databases
  - Support of Windows 2012; Windows 8; MS Excel 2013 / MS Access 2013 /
  - MS SQL Server 2012; MYSQL 5.6 & ODBC Driver 5.2 / Oracle 12c, Release 2

- Fast configuration of connections due to
  - Drag & drop within connection settings
  - Copy & Paste within Project navigation
  - Add new link icon within project navigation
  - Add new column within csv consumer

- Wide range of connectivity
  - RT professional higher than V12
  - Free Text Editor (txt, HTML)
What’s new in WinCC/IndustrialDataBridge V7.3

Free Text- und HTML- Editor
1: Copy & paste
2: Export & Import Templates
3: HTML Preview
4: Consumer settings
What's new in WinCC / IndustrialDataBridge V7.4
Safe data exchange with high performance (with or w/o WinCC

Runtime:
Advanced connectivity / flexible license concept
Maximize flexibility

Configuration
Efficient configuration system for fast time to communicate
Minimize engineering costs
What’s new in WinCC / IndustrialDataBridge V7.4

Runtime

Runtime: Advanced connectivity / flexible license concept

• Support of former data consumer and data provider
• Operating Systems as WinCC 7.4
• Additional Support of new data Providers: MYSQL 5.7, MS SQL Server 2014, Microsoft Access 2013, Oracle 12c (Latest Patch)
• XML File based data exchange (e.g. SAP iDoc)
• Flexible side by side license model

Documentation

• All WinCC European languages plus Japanese and Chinese
### WinCC / IndustrialDataBridge V7.4
Overview data consumer and data provider

<table>
<thead>
<tr>
<th>Provider (data sources)</th>
<th>Consumer (data targets)</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ MySQL 3.5, 5.1, 5.5, 5.6, 5.7</td>
<td>✓ MySQL 3.5, 5.1, 5.5, 5.6, 5.7</td>
</tr>
<tr>
<td>✓ Oracle 8i, 10g, 11g 12c Release 2, 12c</td>
<td>✓ Oracle 8i, 10g, 11g, 12c Release 2, 12c</td>
</tr>
<tr>
<td>✓ OPC XML 1.0</td>
<td>✓ OPC Data Access 3.0</td>
</tr>
<tr>
<td>✓ Send / Receive</td>
<td>✓ OPC XML 1.0</td>
</tr>
<tr>
<td>✓ WinCC OLE DB 7.2, 7.3</td>
<td>✓ IDB OPC Server</td>
</tr>
<tr>
<td>✓ WinCC UserArchive 7.2, 7.3</td>
<td>✓ Send / Receive</td>
</tr>
<tr>
<td>✓ WinCC RT Professional V13 SP1 (via OLE DB Provider)</td>
<td>✓ WinCC UserArchive 7.2, 7.3</td>
</tr>
<tr>
<td></td>
<td>✓ Configurable file editor TXT / HTML / XML</td>
</tr>
<tr>
<td></td>
<td>✓ WinCC RT Professional V13 SP1 (Q4/2014) (via OLE DB Consumer)</td>
</tr>
<tr>
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<td>Agenda</td>
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<td><strong>Order data</strong></td>
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<td>Conclusion</td>
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</tbody>
</table>
## WinCC / IndustrialDataBridge
Order data IDB V7.2

<table>
<thead>
<tr>
<th>WinCC/IndustrialDataBridge V7.2</th>
<th>Order number</th>
</tr>
</thead>
<tbody>
<tr>
<td>WinCC/IndustrialDataBridge 128 tags *)</td>
<td>6AV6 371-1DX07-2AX0</td>
</tr>
<tr>
<td>WinCC/IndustrialDataBridge 512 tags</td>
<td>6AV6 371-1DX07-2BX0</td>
</tr>
<tr>
<td>WinCC/IndustrialDataBridge 2048 tags</td>
<td>6AV6 371-1DX07-2CX0</td>
</tr>
<tr>
<td>WinCC/IndustrialDataBridge 10.000 tags</td>
<td>6AV6 371-1DX07-2DX0</td>
</tr>
<tr>
<td>Power pack 128 to 512 tags</td>
<td>6AV6 371-1DX07-2AB0</td>
</tr>
<tr>
<td>Power pack 512 to 2048 tags</td>
<td>6AV6 371-1DX07-2BC0</td>
</tr>
<tr>
<td>Power pack 2048 to 10.000 tags</td>
<td>6AV6 371-1DX07-2CD0</td>
</tr>
<tr>
<td>Upgrade V6.x to V7.2</td>
<td>6AV6 371-1DX07-2XX4</td>
</tr>
<tr>
<td>Upgrade V7.0 to V7.2</td>
<td>6AV6 371-1DX07-2XX3</td>
</tr>
</tbody>
</table>

*) each link between two data points corresponds 1 tag:
  - max. 32 links e.g. WinCC -> csv file = 1 link
  - max. 10.000 data points (also arrays)
WinCC / IndustrialDataBridge
Order data IDB 7.3

<table>
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<tr>
<th>WinCC/IndustrialDataBridge V7.3</th>
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<tr>
<td>WinCC/IndustrialDataBridge 128 tags *)</td>
<td>6AV6 371-1DX07-3AX0</td>
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**WinCC / IndustrialDataBridge**
Order data IDB V7.4

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<thead>
<tr>
<th>WinCC/IndustrialDataBridge V7.4</th>
<th>MLFB</th>
<th>MLFB - OSD</th>
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<tbody>
<tr>
<td>WinCC/IndustrialDataBridge Basic Package</td>
<td>6AV6362-4AA07-4AA0</td>
<td>6AV6362-4AA07-4AH0</td>
</tr>
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<td>WinCC/IndustrialDataBridge 300 tags *) (Countable)</td>
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<td>6AV6362-4AD00-0AH0</td>
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<tr>
<td>WinCC/IndustrialDataBridge 1000 tags (Countable)</td>
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<td>6AV6362-4AF00-0AH0</td>
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<tr>
<td>WinCC/IndustrialDataBridge 3000 tags (Countable)</td>
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<td>6AV6362-4AH00-0AH0</td>
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<tr>
<td>Upgrade V7.X to V7.4</td>
<td>6AV6362-4AA07-4AE0</td>
<td>6AV6362-4AA07-4AK0</td>
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<table>
<thead>
<tr>
<th>Configuration</th>
<th>Supported</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDB Standalone (without WinCC)</td>
<td>✓</td>
</tr>
<tr>
<td>WinCC Station</td>
<td>✓</td>
</tr>
<tr>
<td>WinCC Connectivity Station</td>
<td>✓</td>
</tr>
</tbody>
</table>
WinCC / IndustrialDataBridge
Order data

IDB on WinCC Station or standalone PC:

Order data

<table>
<thead>
<tr>
<th>Product</th>
<th>Number</th>
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</thead>
<tbody>
<tr>
<td>WinCC/IndustrialDataBridge xxx tags *)</td>
<td>1</td>
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</tbody>
</table>

*) dependent on the number of linked data points

Database access from WinCC Station or PC with IDB
# Agenda

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<td>Highlights</td>
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<tr>
<td>6.1</td>
<td>Why WinCC / Industrial Data Bridge?</td>
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<td>6.2</td>
<td>Benefits</td>
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<tr>
<td>7</td>
<td>Conclusion</td>
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</table>
WinCC / IndustrialDataBridge
Highlights

Why IndustrialDataBridge?

- WinCC/IDB – the intelligent information flow between WinCC and the IT world

Benefits

- Cost-efficient through configuration without programming
- Efficient through safe, data exchange with high performance
- Flexible and vendor independent because of standard interfaces
- Integrated to the process visualization

Economic

Using the WinCC Option Industrial Data Bridge, data connections can be realized easily and cost effectively without programming. This helps avoiding mistakes.

Efficient

Security during data exchange is guaranteed by the possibility of running IDB as system service and password protection. Data transmission with high performance either as single values or as data blocks.

Flexible

Vendor independent protocols make sure that further requirements can be met. Configured links can be added or changed at any time.

Information flow between WinCC and the IT world
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<tr>
<td>7.1</td>
<td>Customer requirements</td>
</tr>
<tr>
<td>7.2</td>
<td>Siemens answers</td>
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<tr>
<td>7.3</td>
<td>Added value argumentation</td>
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### WinCC / IndustrialDataBridge

#### Summary

**Main topics**

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<tr>
<th>Flexible</th>
<th>Answers of industrial automation – from Siemens</th>
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<tbody>
<tr>
<td></td>
<td>Support of standard interfaces</td>
</tr>
<tr>
<td>Efficient</td>
<td>Bi-directional data exchange with high performance.</td>
</tr>
<tr>
<td>Time and cost pressure</td>
<td>Simple and fast configuration – without programming</td>
</tr>
<tr>
<td>Security</td>
<td>Security through password protection and start as a system service.</td>
</tr>
</tbody>
</table>

**Flexible information platform of automation and IT world**
WinCC / IndustrialDataBridge
Summary – Added value argumentation

The challenge
• Data transfer between automation and IT-world
• Integration of systems of different vendors
• Complexity of interfaces and data formats

The added value
• Support of standard interfaces
• Fast and safe by configuration instead of programming (avoidance of mistakes)

Our offer
• Flexible interface between applications
• Connection of WinCC to data bases and IT-systems
SCADA System WinCC V7 with option WinCC / IndustrialDataBridge

The difference
• Bi-directional data exchange with high performance between different systems
• Management of data links during runtime
• Access to WinCC data
## Useful links

### Sales information

<table>
<thead>
<tr>
<th>Type</th>
<th>Link</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flyer WinCC V7.2</td>
<td><img src="image_url" alt="Image of Flyer WinCC V7.2" /></td>
</tr>
</tbody>
</table>
| Internet (WinCC)| [Available on the Internet at WinCC Options / WinCC Industrial Data Bridge](www.siemens.com/simatic-wincc)  
|                 | [www.siemens.com/simatic-wincc-options](www.siemens.com/simatic-wincc-options) |
| Intranet (Promoters)| ![Image of Intranet (Promoters)](image_url)                        |
|                 | [Demos on the promoters share point](\ww004.siemens.net\BU01\$INBGM\PROJ\PROMOTOREN_VM\VM_WARE_WORLD_WITHOUT_UCL) |
Suitable protective measures (among others IT-Security, e.g. network segmentation) have to be taken up to ensure a safe operation of the plant. You find further information about the topic of Industrial Security on the Internet under www.siemens.com/industrialsecurity
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