

**SIEMENS**  
*Ingenuity for life*

# WinCC IndustrialDataBridge

WinCC Option IndustrialDataBridge

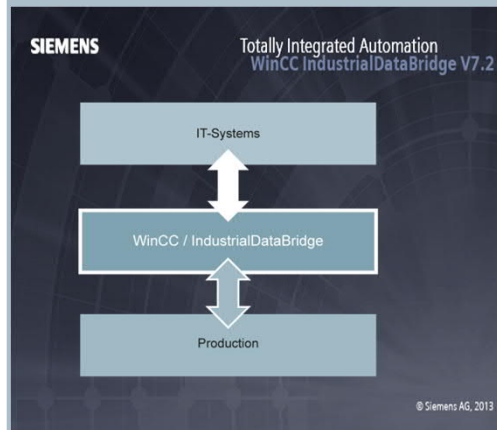
Unrestricted © Siemens AG 2016

[siemens.com/wincc-v7](http://siemens.com/wincc-v7)

<b>1</b>	<b>Vision &amp; Motivation</b>
1.1	Trends & Challenges
1.2	Answers
<b>2</b>	<b>Requirements</b>
<b>3</b>	<b>Siemens answers</b>
<b>4</b>	<b>Misc</b>
<b>5</b>	<b>Order data</b>
<b>6</b>	<b>Highlights</b>
<b>7</b>	<b>Conclusion</b>

### 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)

1 Vision & Motivation

**2 Requirements**

2.1 Challenges & needs

2.2 System/Product requirements

3 Siemens answers

4 Misc

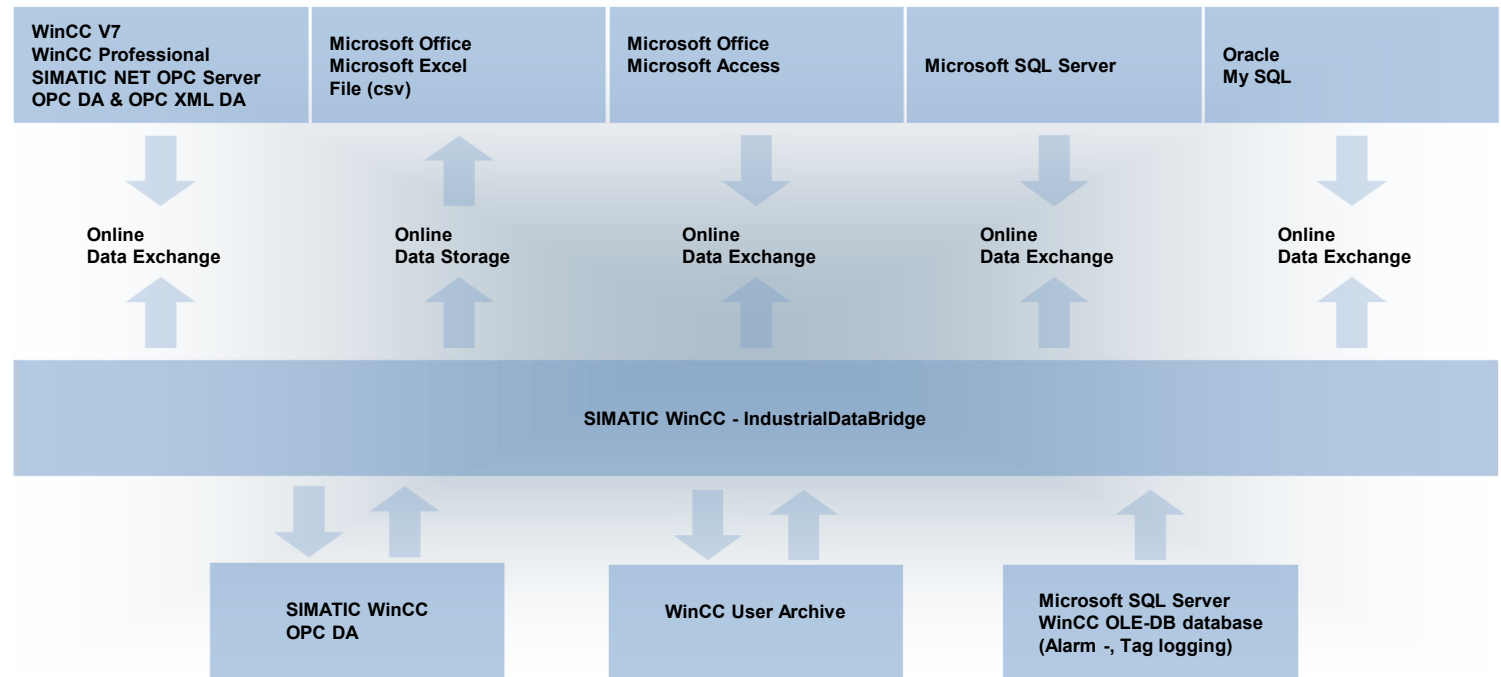
5 Order data

6 Highlights

7 Conclusion

## 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**

1 Vision & Motivation

2 Requirements

**3 Siemens answers**

3.1 Situation description

3.2 Added value argumentation

3.3 Product portfolio

4 Misc

5 Order data

6 Highlights

7 Conclusion

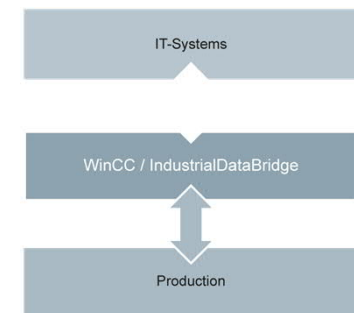
# WinCC / IndustrialDataBridge Highlights

SIEMENS



## 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



G\_STB0\_XX\_00515



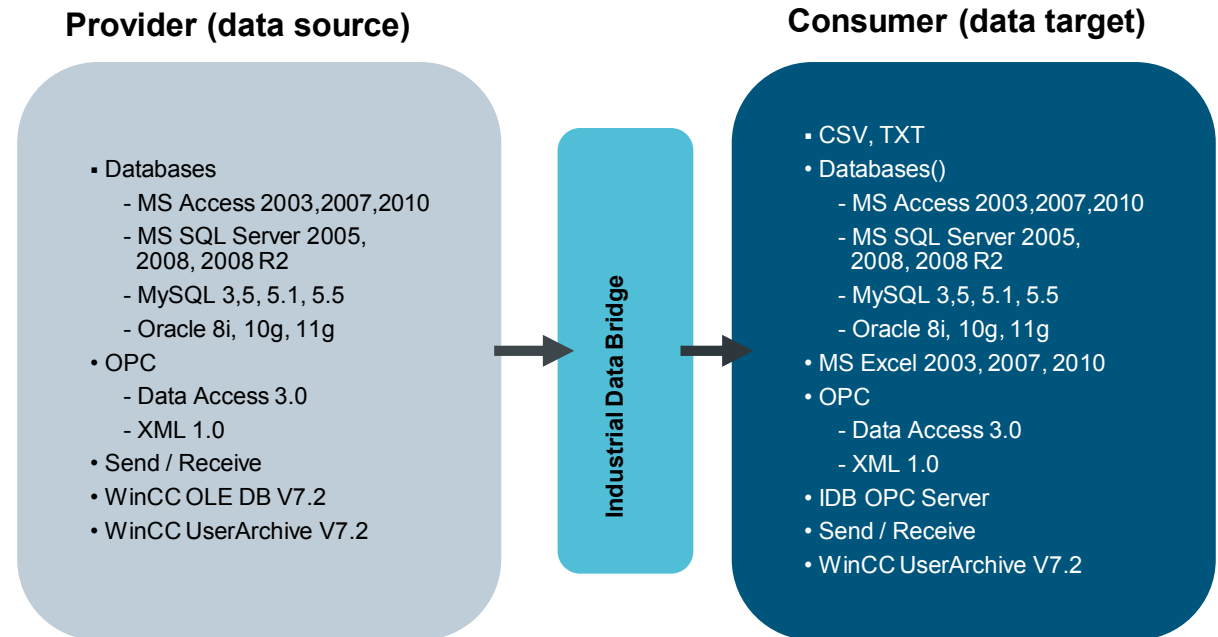
**Configurable information flow between WinCC and the IT world**

# WinCC / IndustrialDataBridge

## Complexity of interfaces and data formats

SIEMENS

- **Very flexible**, by supporting various data base 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 archiving using the **BLOB** type for databases

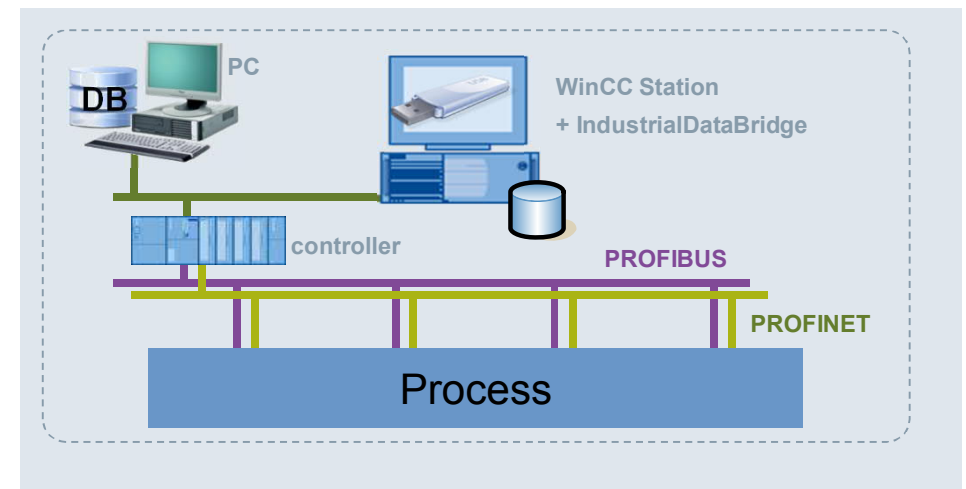


**Reduction of complexity: one tool for a range of interfaces and data formats**



### Scenario: Data transmission between WinCC and data bases

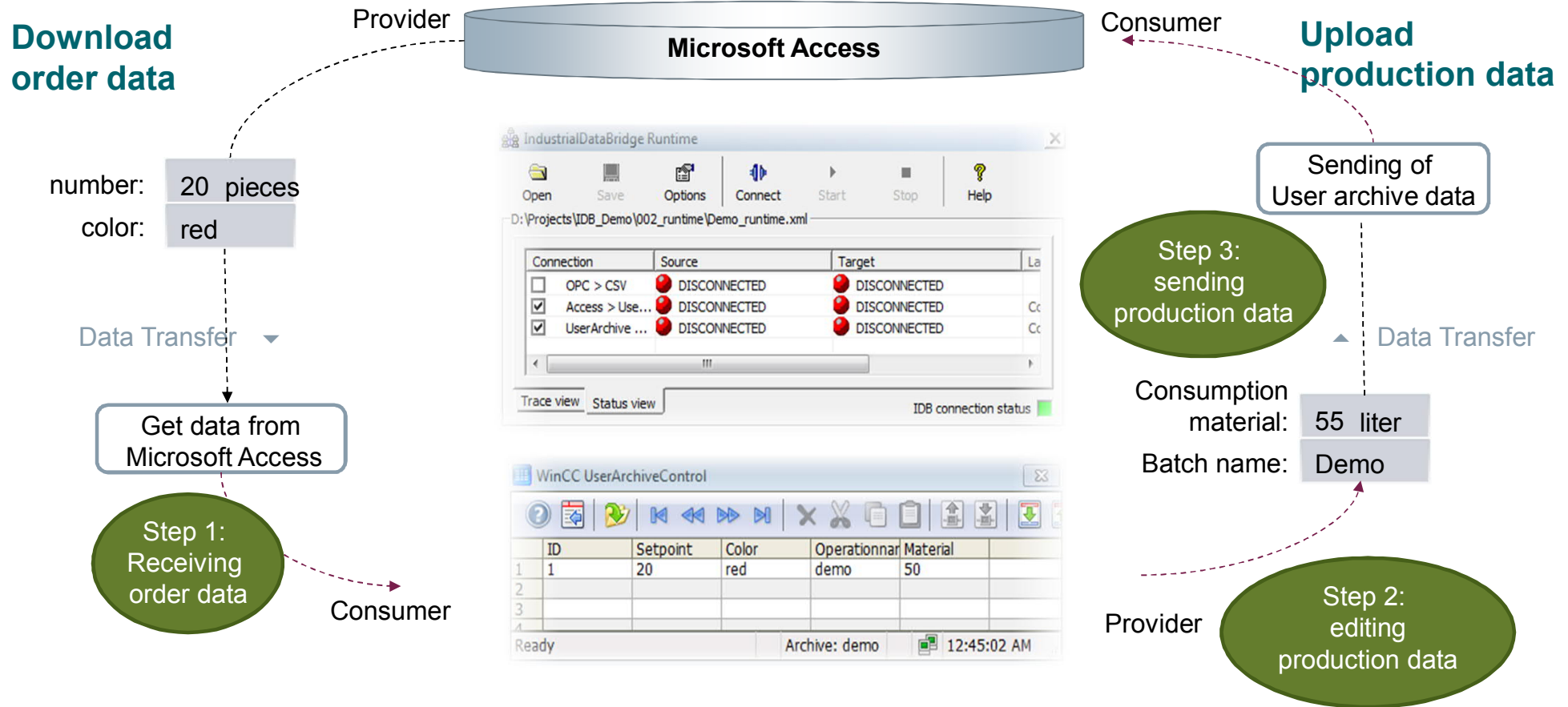
- Transmission of production data to a superior Oracle data base
- Link to data bases located at the WinCC station or any PC in the LAN
- Loading of e.g. recipes from a superior MS Access data base to WinCC User Archives (Getting Started)



**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



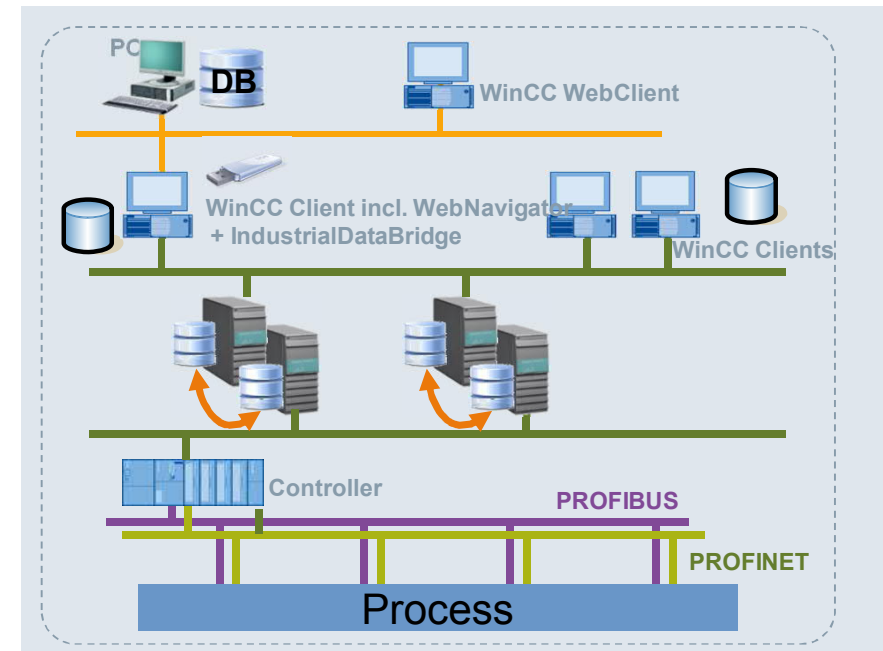
## WinCC / IndustrialDataBridge

Scenarios – transparent data exchange via WinCC Client

SIEMENS

### 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

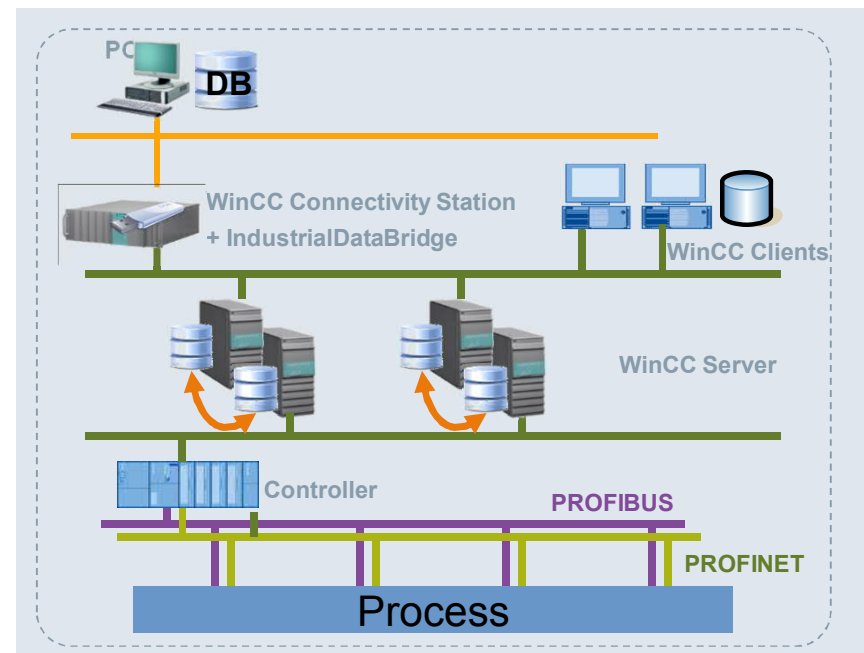
## Scenarios – Data transmission over WinCC/Connectivity Station

SIEMENS

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

Simultaneous data transmission  
via IDB to:

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



Productivity

Time to Market

Security

Availability

**Access to various, subordinated WinCC data via Connectivity Station**

### Scenario: event driven reports to a CSV file

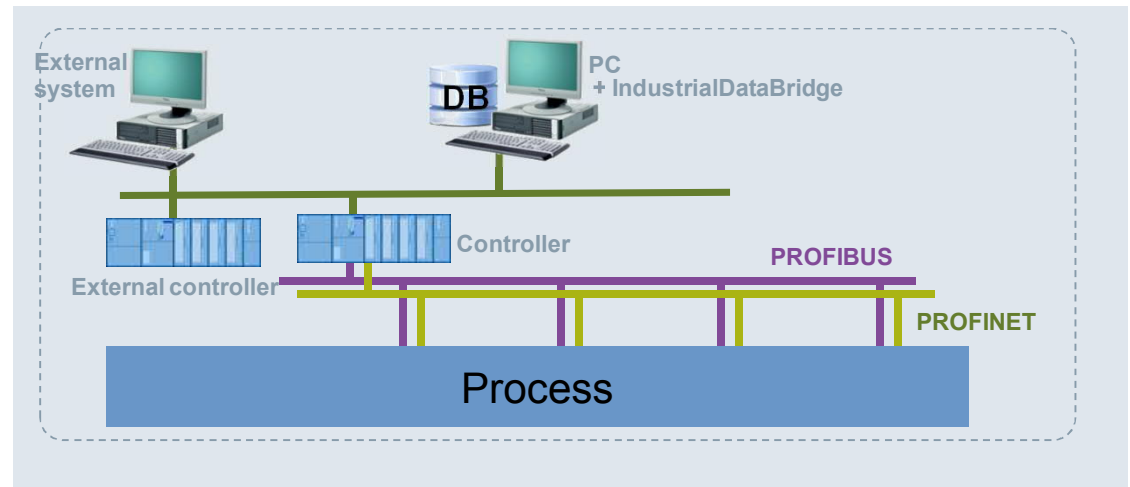
- Production data per shift
- Weekly, monthly data (Option WinCC / Calendar Scheduler)
- Specific alarms e.g.: malfunction alarms per production shift
- Configurable file name

	A	B	C	D	E	F	G	H
163	'101'	'02.07.2012 14:45:52'	'2'	'Alarm 1 activated, without ackn.'				
164	'207'	'02.07.2012 14:45:52'	'2'	'Groupmessage (for message 101-104)'				
165	'205'	'02.07.2012 14:45:52'	'2'	'Alarm 1 deactivated, without ackn.'				

**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**

1 Vision & Motivation

2 Requirements

3 Siemens answers

**4 Misc**

5 Order data

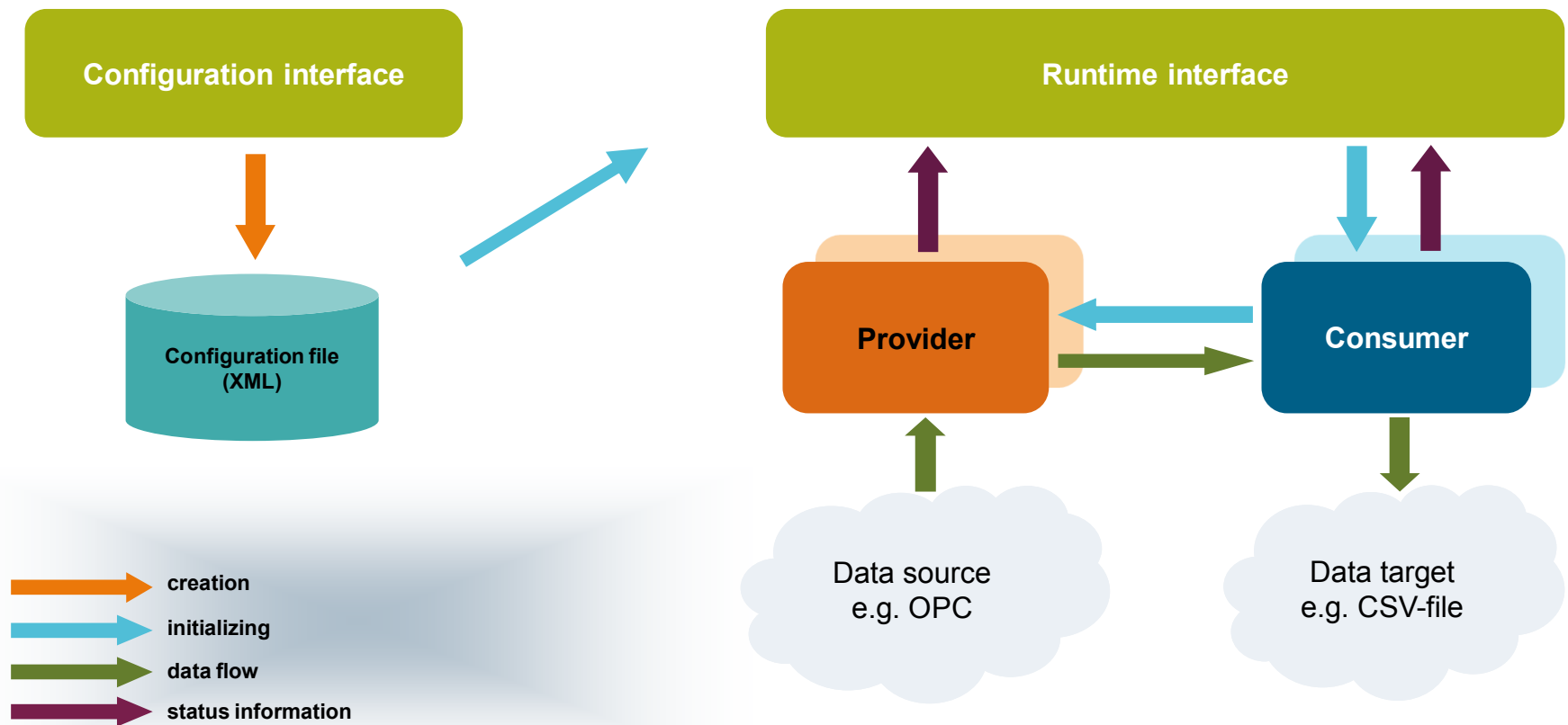
6 Highlights

7 Conclusion

- 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



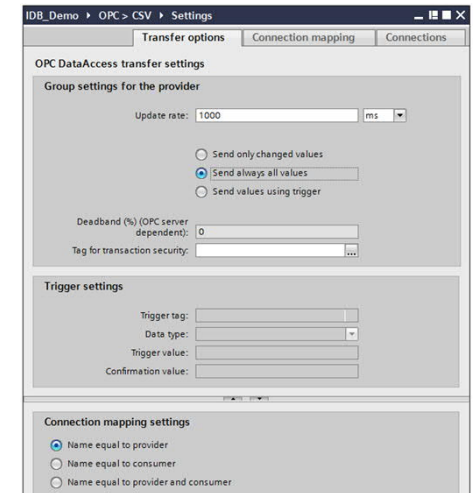
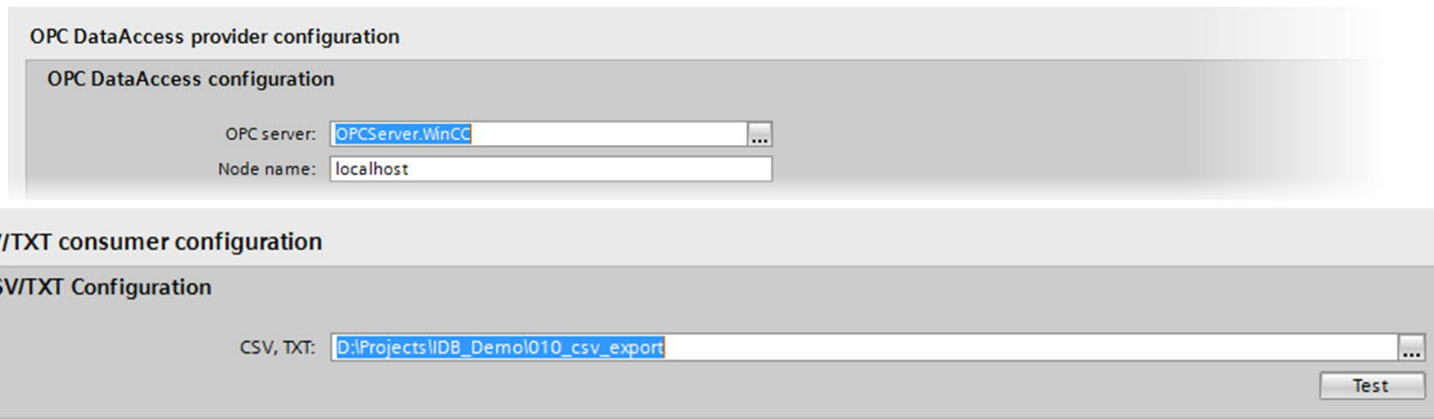
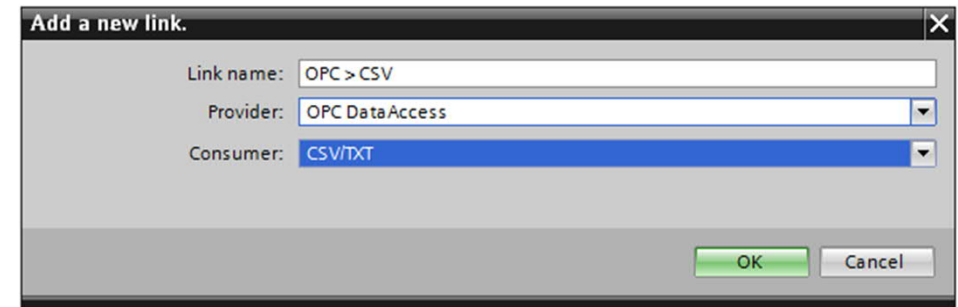




# WinCC / IndustrialDataBridge Configuration data connection

SIEMENS

- 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"

# WinCC / IndustrialDataBridge Configuration data connection

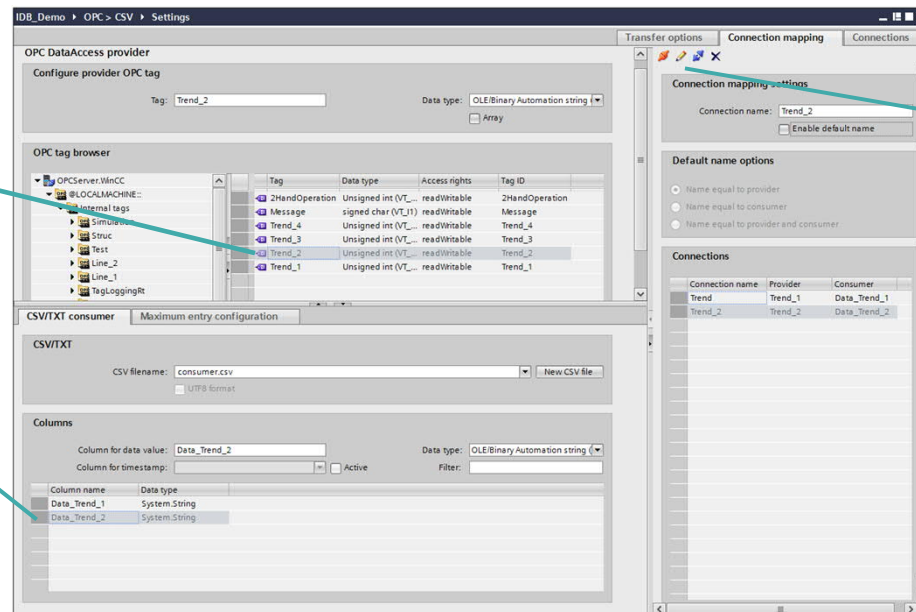
SIEMENS

1

Select the data source

2

Select the data target



3

Connect the data points

...

Repeating for further data connections

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

# WinCC / IndustrialDataBridge Configuration – runtime interface

SIEMENS

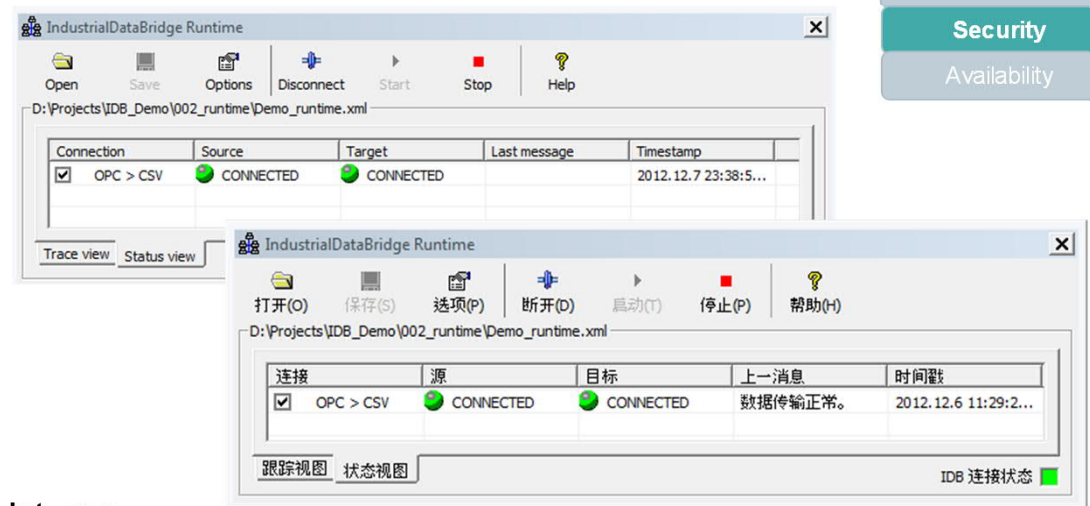
IDB Runtime can be started as **system service** or **application**:

## 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)



Productivity

Time to Market

**Security**

Availability

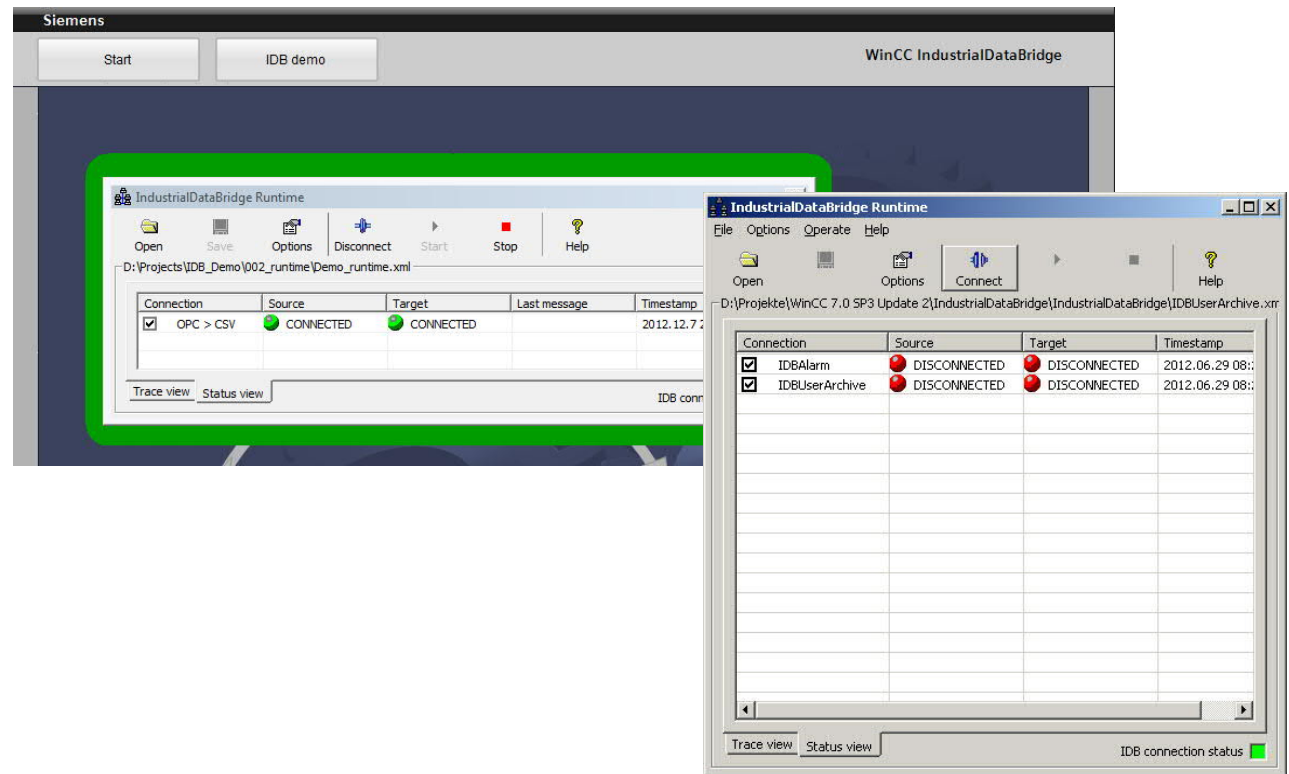
**Data security due to password protection (password is required when starting IndustrialDataBridge)**

# WinCC / IndustrialDataBridge Configuration – runtime interface

SIEMENS

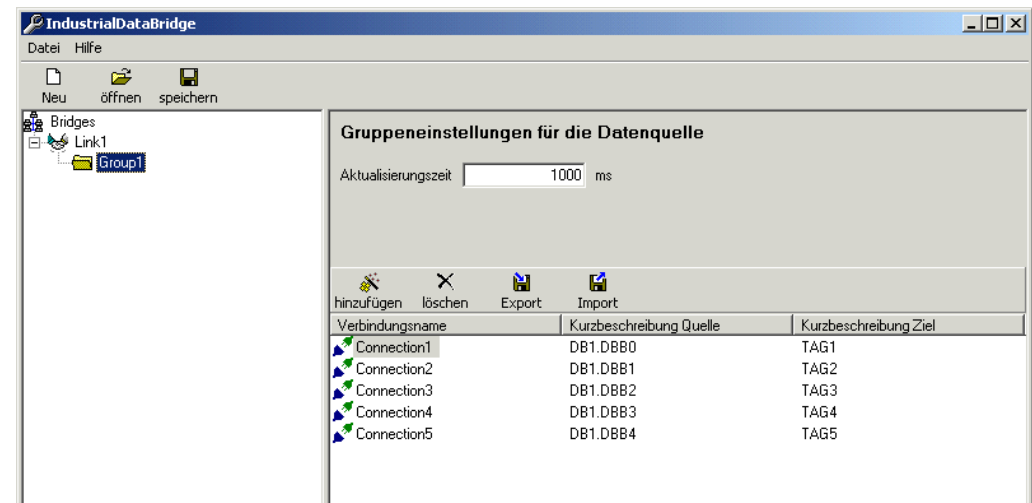
Integration of IDB control in:

- **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**

- 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

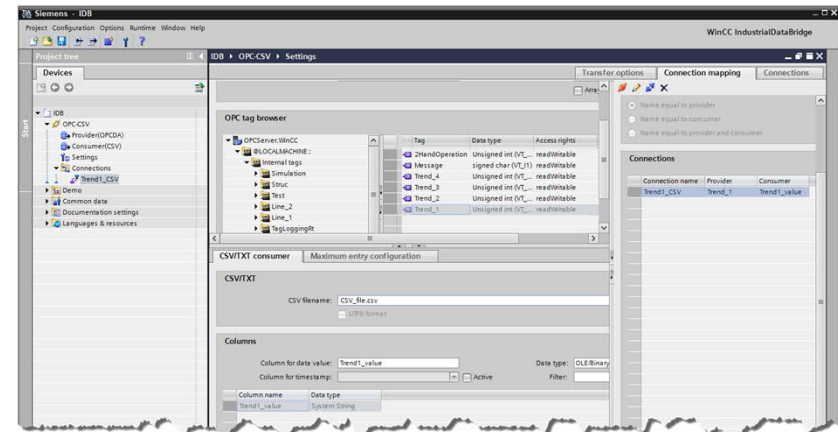
# SIMATIC WinCC - IndustrialDataBridge

Improved, simple and easy to use configuration system

SIEMENS

## 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



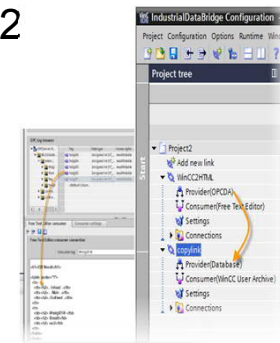
## What's new in WinCC/IndustrialDataBridge V7.2

### 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

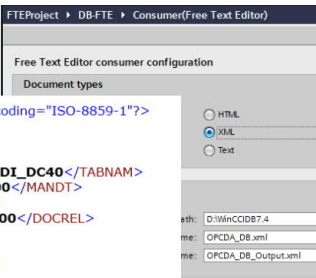
**Free Text- und HTML- Editor**

- 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)

SIEMENS



Free Text Editor consumer configuration

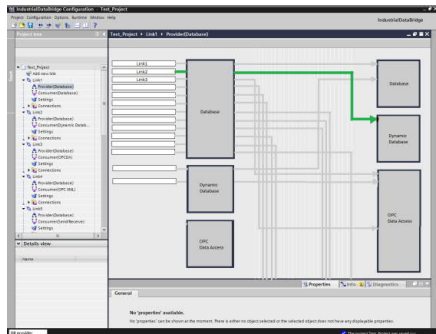
Document types

HTML  
 XML  
 Text

Path: D:\WinCCDB7.4  
Name: OPCDA\_DB.xml  
Name: OPCDA\_DB\_Output.xml

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<ORDERS05>
  <IDOC>
    <EDL_DC>
      <TABNAM>EDI_DC40</TABNAM>
      <MANDT>100</MANDT>
      <DOCNUM/>
      <DOCREL>700</DOCREL>
      <STATUS/>
      <DIRECT/>
      <OUTMOD/>
      <EXPRS/>
      <TEST/>
      <IDOCTYP>ORDERS05</IDOCTYP>
      <CIMTYP/>
      <MESTYP>ORDERS</MESTYP>
      <MESCOD/>
    </EDL_DC>
  </IDOC>
</ORDERS05>
```

**Runtime:**  
**Advanced connectivity / flexible license concept**  
**Maximize flexibility**



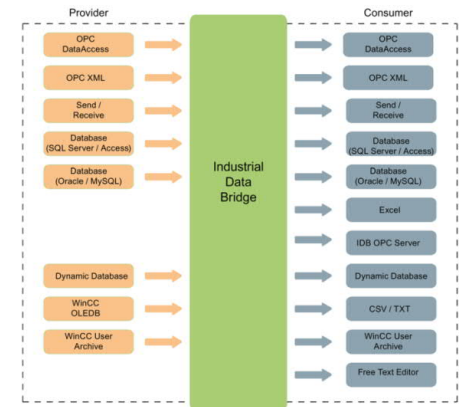
**Configuration**  
**Efficient configuration system for fast time to communicate**  
**Minimize engineering costs**

# What's new in WinCC / IndustrialDataBridge V7.4 Runtime



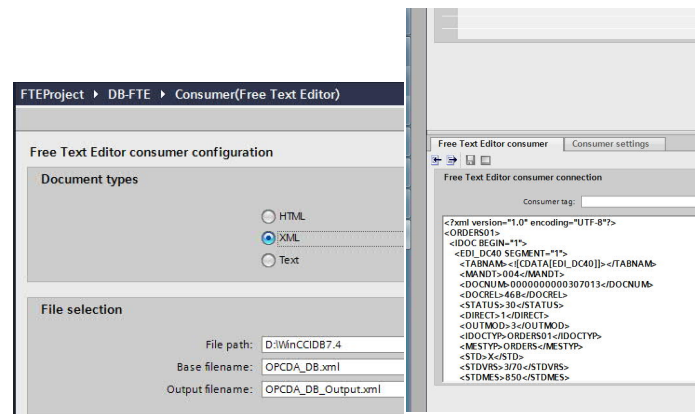
## Runtime: Advanced connectivity / flexible license concept

- 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



```
<?xml version="1.0" encoding="ISO-8859-1"?>
- <ORDERS05>
- <IDOC>
- <EDI_DC>
  <TABNAM>EDI_DC40</TABNAM>
  <MANDT>100</MANDT>
  <DOCNUM/>
  <DOCREL>700</DOCREL>
  <STATUS/>
  <DIRECT/>
  <OUTMOD/>
  <EXPRS/>
  <TEST/>
  <IDOCTYP>ORDERS05</IDOCTYP>
  <CIMTYP/>
  <MESTYP>ORDERS</MESTYP>
  <MESCOD/>
```

# WinCC / IndustrialDataBridge V7.4

## Overview data consumer and data provider



Provider (data sources)	Consumer (data targets)
<ul style="list-style-type: none"> <li>❖ MS Access 2003, 2007, 2010, 2013</li> <li>❖ MS SQL Server 2005, 2008, 2008R2, 2012</li> <li>❖ MySQL 3.5, 5.1, 5.5, 5.6, <b>5.7</b></li> <li>❖ Oracle 8i, 10g, 11g 12c Release 2, <b>12c</b></li> <li>❖ OPC Data Access 3.0</li> <li>❖ OPC XML 1.0</li> <li>❖ Send / Receive</li> <li>❖ WinCC OLE DB 7.2, 7.3</li> <li>❖ WinCC UserArchive 7.2, 7.3</li> <li>❖ WinCC RT Professional V13 SP1 (via OLE DB Provider)</li> </ul>	<ul style="list-style-type: none"> <li>❖ MS Access 2003, 2007, 2010, 2013</li> <li>❖ MS SQL Server 2005, 2008, 2008R2, 2012, 2014</li> <li>❖ MySQL 3.5, 5.1, 5.5, 5.6, <b>5.7</b></li> <li>❖ Oracle 8i, 10g, 11g, 12c Release 2, <b>12c</b></li> <li>❖ MS Excel 2003, 2007, 2010, 2013</li> <li>❖ OPC Data Access 3.0</li> <li>❖ OPC XML 1.0</li> <li>❖ IDB OPC Server</li> <li>❖ Send / Receive</li> <li>❖ WinCC UserArchive 7.2, 7.3</li> <li>❖ Configurable file editor TXT / HTML / <b>XML</b></li> <li>❖ WinCC RT Professional V13 SP1 (Q4/2014) (via OLE DB Consumer)</li> </ul>

**= new**

1 Vision & Motivation

2 Requirements

3 Siemens answers

4 Misc

**5 Order data**

6 Highlights

7 Conclusion

# WinCC / IndustrialDataBridge

## Order data IDB V7.2

**SIEMENS**

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



- Productivity
- Time to Market
- Security
- Availability**

Configuration	Supported
IDB Standalone (without WinCC)	✓
WinCC Station	✓
WinCC Connectivity Station	✓

\*) 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

**SIEMENS**

### WinCC/IndustrialDataBridge V7.3

### Order number

WinCC/IndustrialDataBridge 128 tags *)	6AV6 371-1DX07-3AX0
WinCC/IndustrialDataBridge 512 tags	6AV6 371-1DX07-3BX0
WinCC/IndustrialDataBridge 2048 tags	6AV6 371-1DX07-3CX0
WinCC/IndustrialDataBridge 10.000 tags	6AV6 371-1DX07-3DX0
Power pack 128 to 512 tags	6AV6 371-1DX07-3AB0
Power pack 512 auf 2048 tags	6AV6 371-1DX07-3BC0
Power pack 2048 auf 10.000 tags	6AV6 371-1DX07-3CD0
Upgrade V6.x to V7.3	6AV6 371-1DX07-3XX4
Upgrade V7.0 to V7.3	6AV6 371-1DX07-3XX3



- Productivity
- Time to Market
- Security
- Availability**

Configuration	Supported
IDB Standalone (without WinCC)	✓
WinCC Station	✓
WinCC Connectivity Station	✓

\*) 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 V7.4

**SIEMENS**



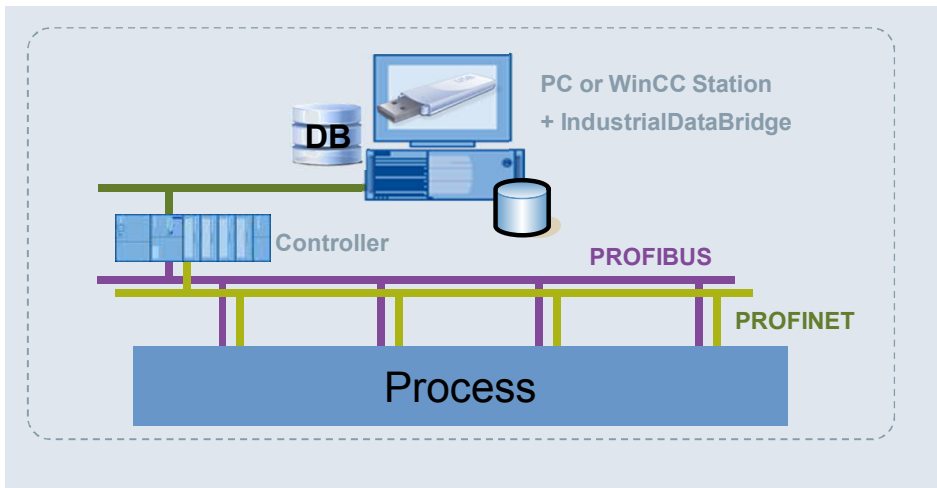
- Productivity
- Time to Market
- Security
- Availability**

WinCC/IndustrialDataBridge V7.4	MLFB	MLFB - OSD
WinCC/IndustrialDataBridge Basic Package	6AV6362-4AA07-4AA0	6AV6362-4AA07-4AH0
WinCC/IndustrialDataBridge 300 tags *) (Countable)	6AV6362-4AD00-0BB0	6AV6362-4AD00-0AH0
WinCC/IndustrialDataBridge 1000 tags (Countable)	6AV6362-4AF00-0BB0	6AV6362-4AF00-0AH0
WinCC/IndustrialDataBridge 3000 tags (Countable)	6AV6362-4AH00-0BB0	6AV6362-4AH00-0AH0
Upgrade V7.X to V7.4	6AV6362-4AA07-4AE0	6AV6362-4AA07-4AK0

Configuration	Supported
IDB Standalone (without WinCC)	✓
WinCC Station	✓
WinCC Connectivity Station	✓

\*) 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)

IDB on WinCC Station or standalone PC:



Order data

- Productivity
- Time to Market
- Security
- Availability**

Product	Number
WinCC/IndustrialDataBridge xxx tags *)	1

\*) dependent on the number of linked data points

Database access from WinCC Station or PC with IDB

1 Vision & Motivation

2 Requirements

3 Siemens answers

4 Misc

5 Order data

**6 Highlights**

6.1 Why WinCC / Industrial Data Bridge?

6.2 Benefits

7 Conclusion

## 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

1 Vision & Motivation

2 Requirements

3 Siemens answers

4 Misc

5 Order data

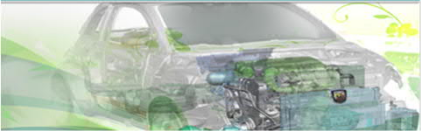



6 Highlights

**7 Conclusion**

7.1 Customer requirements

7.2 Siemens answers

7.3 Added value argumentation

Main topics	Answers of industrial automation – from Siemens	USP
<b>Flexible</b> 	Support of standard interfaces	<b>Flexible information platform of automation and IT world</b>
<b>Efficient</b> 	Bi-directional data exchange with high performance.	
<b>Time and cost pressure</b> 	Simple and fast configuration – without programming	
<b>Security</b> 	Security through password protection and start as a system service.	

# WinCC / IndustrialDataBridge

## Summary – Added value argumentation

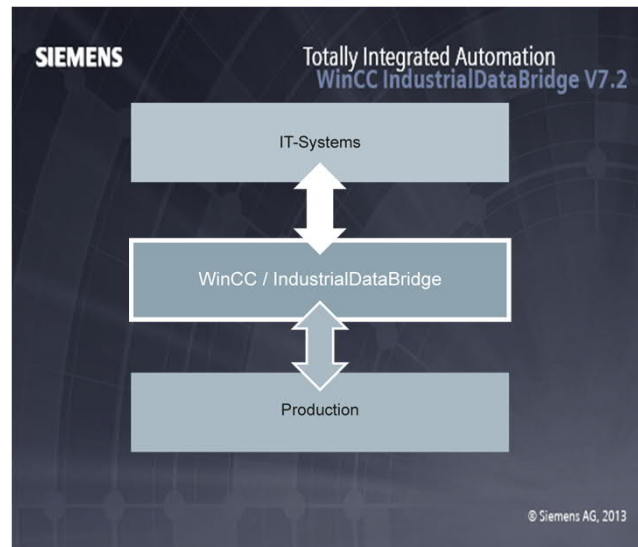
SIEMENS

### 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

SIEMENS

Flyer WinCC V7.2

External

[Flyer WinCC V7.2](#)



Internet (WinCC)

External

Available on the Internet at WinCC Options / WinCC Industrial Data Bridge

[www.siemens.com/simatic-wincc](http://www.siemens.com/simatic-wincc)

[www.siemens.com/simatic-wincc-options](http://www.siemens.com/simatic-wincc-options)



Intranet (Promotors)

Internal

Demos on the promoters share point

[\\ww004.siemens.net/BU01\\$INBGM/PROJ/PROMOTOREN\\_VM/VM\\_WARE\\_WORLD\\_WITHOUT\\_UCL](http://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](http://www.siemens.com/industrialsecurity)**

Productivity

Time to Market

**Security**

Availability



Subject to changes and errors. The information given in this document only contains general descriptions and/or performance features which may not always specifically reflect those described, or which may undergo modification in the course of further development of the products. The requested performance features are binding only when they are expressly agreed upon in the concluded contract.

All product designations, product names, etc. may contain trademarks or other rights of Siemens AG, its affiliated companies or third parties. Their unauthorized use may infringe the rights of the respective owner.

**siemens.com**