Slide Show 26:
Using the IGSS OPC Interface
Topics

• What is OPC?

• IGSS and OPC

• IGSS OPC Client-Side Driver

• IGSS OPC Server

• SCADA to SCADA with OPC

• Configuration of DCOM security
What is OPC?

- OPC = OLE for Process Control
- OPC is an interface standard developed and maintained by the OPC Foundation (http://www.opcfoundation.org/)
- Winning greater acceptance (becoming industry standard)
- Integrate hardware from different manufacturers in plant (OPC Client-side Driver)
- Interface to different SCADA systems, industrial control and reporting applications (IGSS OPC Server)
IGSS and OPC

IGSS OPC interface (server side)

IGSS

IGSS OPC interface (client side)

Process
OPC Client-Side Driver
Purpose

- The IGSS OPC client connects to an OPC Server
- The OPC Server acts as the communication channel between IGSS and the PLCs in the process
Driver History

• Released with IGSS32 Version 3, January 2001
• PLC drivers still developed by 7T but the number is decreasing due to increase in number of OPC servers commercially available
Activating the OPC driver

• Activate the OPC driver with just a single click in System Configuration.
• Definition of communication channels, nodes, addressing, etc. now found in the OPC Server itself.
• The PLC addressing of an IGSS object is different from what is characteristic for other drivers on the Edit Mapping tab.
Simple setup
Find driver ID = 42, OPC (OLE for Process Control) Client Side Driver

Click once and the required settings are entered in System Configuration.

All further setup is done in the OPC Server.
Choosing the OPC Host

Choose OPC driver

Start OPC choice of server

Choose host for OPC server or use Local Host
Choosing the OPC Server

Browse OPC servers

Choose OPC server
Choosing the OPC Group & Item

- **Group Name**
- **Update Rate**
- **Deadband**
- **Choose OPC Item**
Help on OPC Client

Driver-Specific Help
Activate the help file from System Configuration or from the "IGSS Help Files" subfolder of the IGSS program group.

Include the OPC driver in System Configuration
Setting up the OPC client-side driver in IGSS is extremely simple. Most of the configuration work must be done in the OPC Server.

1. Open the System Configuration program. The active configuration will be opened.

2. Click the Station icon in the toolbar to insert the IGSS station on which the OPC client-side driver will be running.

3. In the IGSS station name field, type a unique station name.

Note: In this example, we keep the default station type Server or single user as we're running the OPC client-side driver on the IGSS server.

4. Select the Station icon in the tree view and click the New Driver icon in the toolbar. The Select Communication Driver dialogue appears.

5. Select the OPC (OLE for Process Control) Client-side Driver in the list.

Tip: Click the header in the ID column to sort the driver IDs in ascending order. The driver has ID no. 42.

6. Click OK.

Result: The driver is inserted in the tree view. An interface and node icon appears below the driver.

7. Click the 7T OPC icon in the tree view. Notice the text on the Device properties tab. All setup for this driver is done in the relevant OPC Server.
IGSS OPC Server
Purpose

• Allows any OPC client to connect to IGSS with the purpose of reading or writing values to the IGSS configuration

• Typical scenarios:
  • SCADA to SCADA data exchange
  • Use IGSS values for administrative calculations
• The OPC server is not appended to existing code but connected with a TCP/IP interface.

• Configuration saved in ACCESS too slow.

• Beta test at Arla Foods.

• Release 1 with IGSS32 Version 4 March 2002.
Integration of OPC Server

Limited flexibility

The solution chosen
OPC Server Deployment

IGSS Server

OPC Server

Dedicated PC

OPC Server

TCP/IP

IGSS Operator

OPC Server

Client PC

OPC Server

OPC Client
Setup of OPC Server

- OPC server and IGSS server on same machine
- IP address of primary (and secondary) IGSS server
- Should all IGSS objects be visible?

If enabled, a .csv file is generated listing all objects in the configuration.

The list will be generated when the first client connects.

Can be imported into the OPC Client as OPC items.
Using Access as config. tool

OPC Server | COM | OPC Client

Access

IGSS Object Database

With Access there’s a 12 minute lapse before 10,000 elements are visible in the OPC client browse window.
Without Access there's a 12 second lapse before 10,000 elements are visible in the OPC client browse window.
• Needed data exchange between two SCADA systems: DeltaV and IGSS
• Primary data flow from IGSS to DeltaV.
• Preferred solution: IGSS as OPC Server and DeltaV as OPC Client.
• Valuable experience gained in configuring DCOM security.
Task allocation

IGSS SCADA
- Data collection
- Electricity consumption
- Fuel consumption
- Units produced
- Show result

DeltaV SCADA
- Start Production
- Batch Management
- Cost calculation
- Stop Production
Final solution

IGSS SCADA System

OPC Server

Data

DeltaV SCADA System

OPC Client

Siemens PLC

Fischer PLC
Current solution at Arla Foods

OPC Server

Operatør

OPC Server

DeltaV SCADA System
DCOM Security

• DCOM = Distributed Component Object Model
• DCOM (Distributed COM) is an integral security mechanism in Windows
• DCOM is a network extension of the COM technology
• Supports communication between objects on a network
• Enables the use of distributed programs
IGSS OPC Server uses DCOM

- When the client connects to the IGSS OPC Server, DCOM is used as the security layer.
The DCOM Configuration Tool

- DCOM security settings are defined in DCOM Configuration Properties
- Choose Start > Run > Dcomcnfg
- Two sets of security settings:
  - Default settings for all DCOM applications
  - Specific settings for the individual DCOM application
- The IGSS "Interface Help" file describes the latter method
Help on IGSS OPC Server

Interface Help
Opened from the IGSS Start menu.
Go to the book ”IGSS OPC Server”