



System Configuration User Guide  
IGSS Version 9.0

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# Chapter 1: Welcome to System Configuration

## 1.1 What is System Configuration ?

### Purpose

The purposes of this program are:

- to set up the individual stations of the IGSS system (single user, server or operation stations)
- to enable the communication between IGSS and the data collection devices (typically PLCs) in the plant
- to configure the relevant communication [drivers](#)

### Use

With the **System Configuration** program you can:

- Define the station type and name of the individual stations in the system
- Include up to 8 drivers that can run simultaneously in IGSS
- Choose the relevant [interface\(s\)](#) for the driver
- Define the required [nodes](#) and [subnodes](#)

### The typical workflow

To put System Configuration into a broader perspective, here is an outline of the typical workflow when you set up a multiuser system.

1. Create the new configuration in **System Configuration**.
2. In **System Configuration**, define the IGSS servers and operator stations.
3. Define the setup parameters for the servers.
4. Define the setup parameters for the operator stations.
5. Include the drivers you want to use and set up the individual nodes (PLCs).
6. Design and install the configuration in **Definition**.
7. Start and test the configuration (**IGSS Starter** and **Supervise**)

## Key features and benefits

For a detailed list of features and benefits, [click here](#).

## Program components

The **System Configuration** program consists of the following key components:

Component	Description	Location
SysConfig.exe	Program executable	[InstallPath]\Gss\
[MyDriver].dll	Two DLLs for each driver supported. The driver DLL and the configuration DLL. For example, 7TAB.DLL and 7TABC.DLL.	[InstallPath]\Gss\
SysConfig.chm	The Help file for the <b>System Configuration</b> program.	[InstallPath]\Gss\ [Language Code]
DrvSpec.chm	The driver-specific Help file with information about the individual drivers and error codes.	[InstallPath]\Gss\ [Language Code]
DrvEvent.chm	The Help file which describes how to use event-oriented communication with IGSS.	[InstallPath]\Gss\ [Language Code]

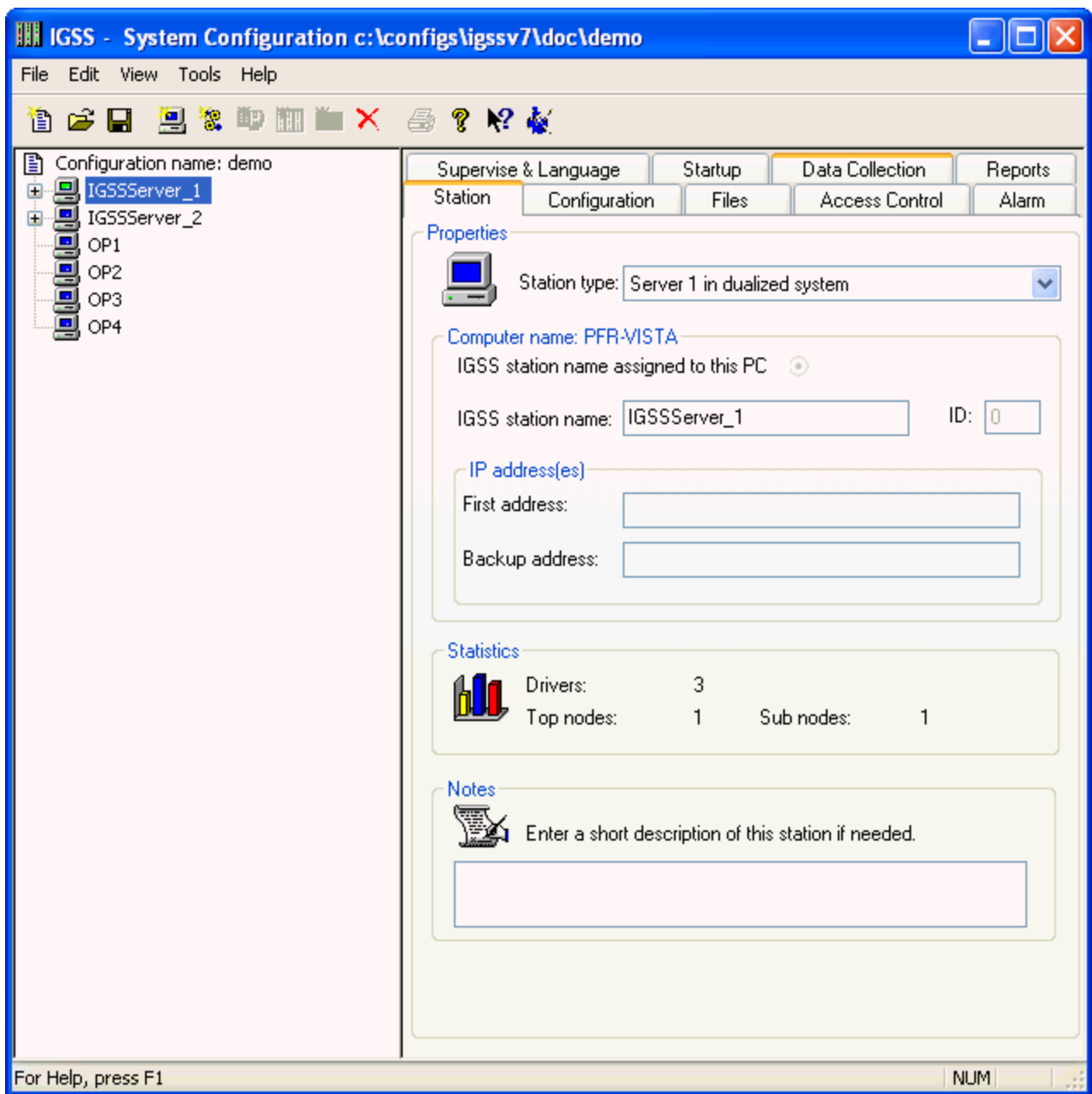
## 1.2 The User Interface

### Main window

The main window consists of four elements:

- The menu bar
- The toolbar area
- The tree view
- The property pages area

Click on any part of the figure below for further information.



## Menus

The following menus are available. To get a detailed description of each menu item, click one of the menus below.

[File menu](#)

[Edit menu](#)

[View menu](#)

[Tools menu](#)

[Help menu](#)

[Right-click menu](#)

## **Right-click menus**

In the tree view pane, a context-sensitive right-click menu is available for adding or removing elements and to expand or collapse the selected branch of the tree view.

To see what a menu item does, click its name below.

[This PC](#)

Preset Station

[New Station](#)

[New Driver](#)

[New Node](#)

[New Subnode](#))

[Remove Station, Driver, Node or Subnode](#)

[Suspend Driver](#)

[Suspend Device](#)

[Suspend Node](#)

[Expand Branch \(right-click menu\)](#)

[Collapse Branch \(right-click menu\)](#)

## **The toolbar**

To see what a button does, click it in the following illustration.



# Chapter 2: Setting up IGSS Servers and Operator Stations

## 2.1 Overview

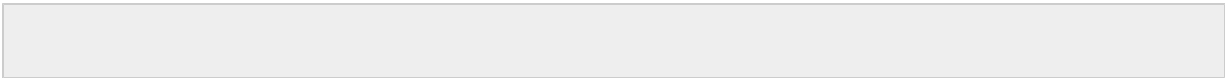
### How it works

#### Downloading or uploading the system configuration

In a multiuser system, the settings from **System Configuration** are saved in the configuration database, [MyConfig].mdb. This file is one of the four core configuration files shown in the illustration below.

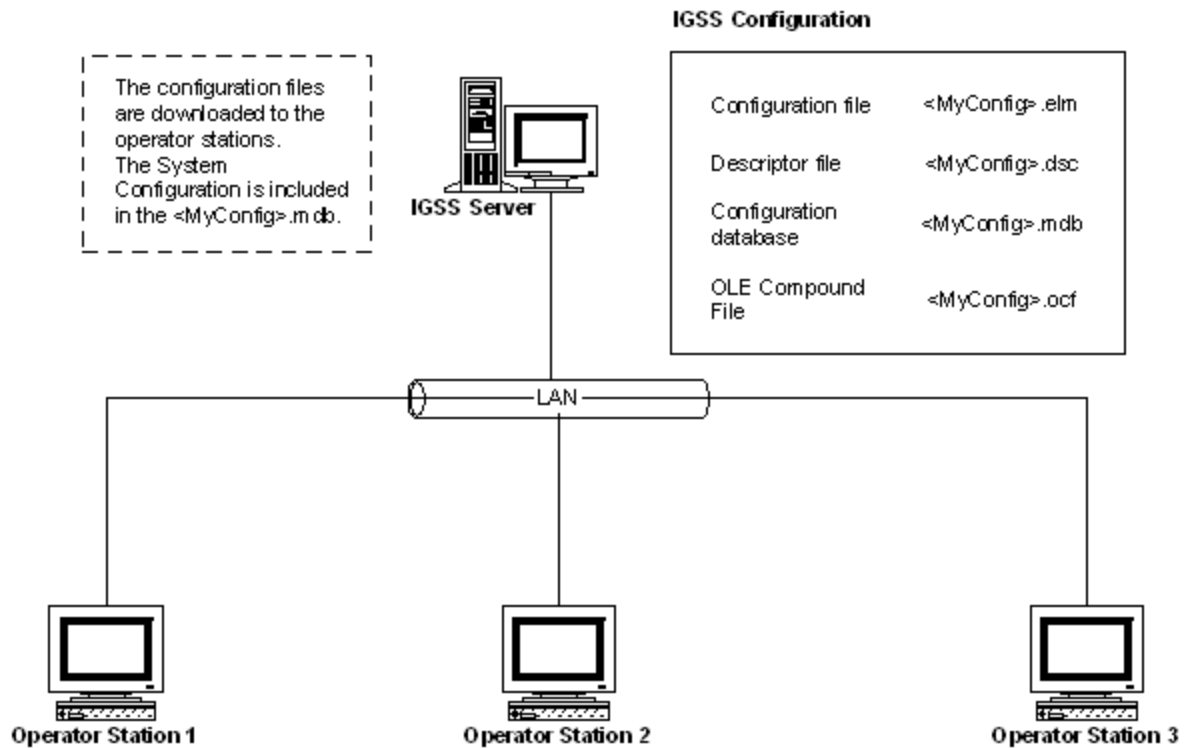
Typically, the IGSS configuration and the system configuration are maintained on the IGSS server. When changes are made to either, they are automatically downloaded to the operator stations in the system.

It is also possible, however, to make changes to the configuration or the system configuration on one of the operator stations and then upload those changes to the IGSS server. In that case, the changes are first uploaded to the IGSS server which, in turn, makes sure that all the remaining operation stations are updated.



#### Overview

The illustration below gives you an overview of how the system configuration is distributed in a multiuser system.



### Initial setup explained

The following steps outline how you set up a multiuser system the first time. For detailed step-by-step procedures, refer to the "How To" book in the Table of Contents.

1. The configuration is created on the IGSS server.
2. All the stations of the system are defined and set up.

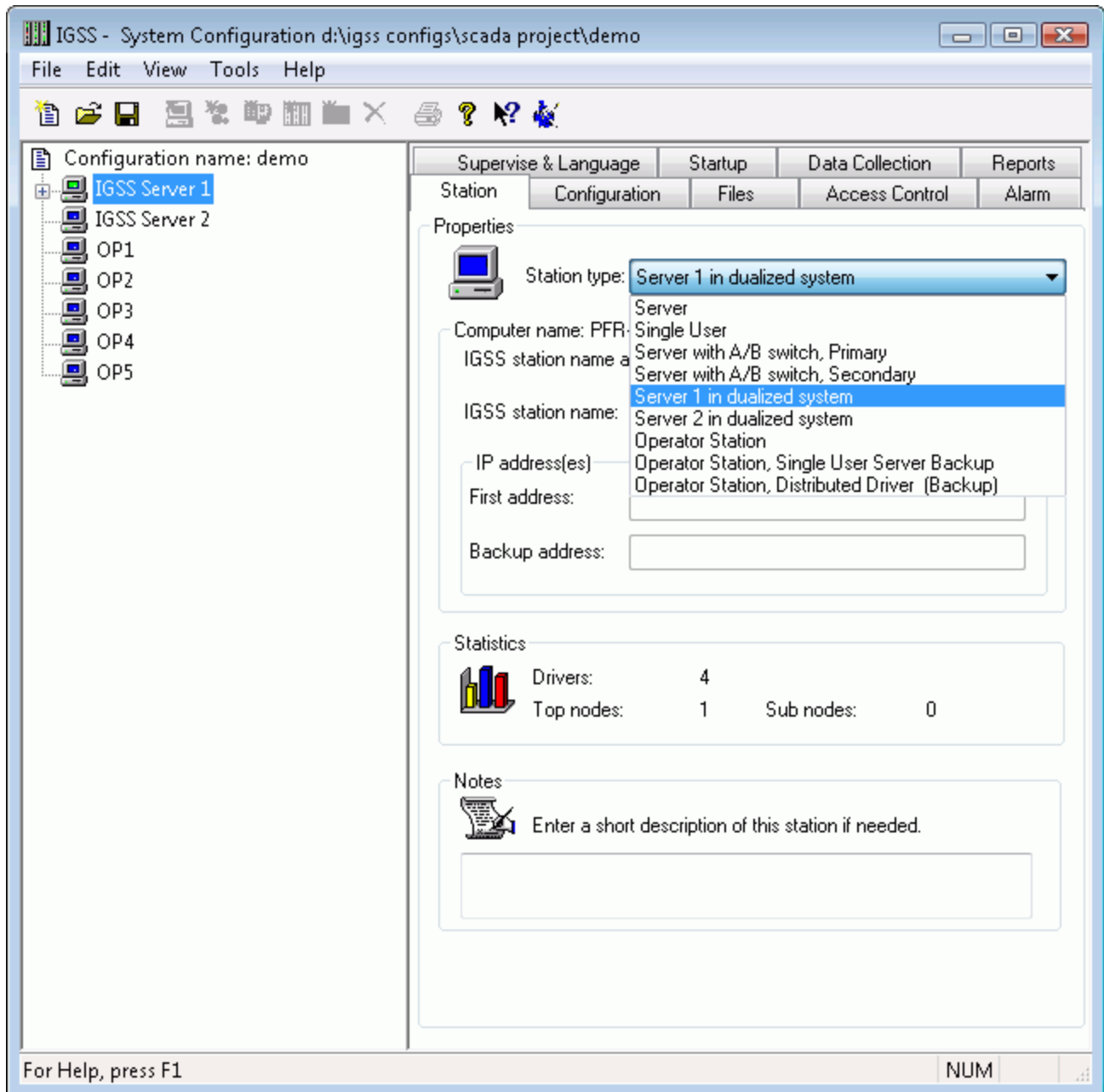
From the IGSS Server you can set up the parameters for all the stations in the system. This makes it a lot easier to make the setup of the individual stations consistent.

3. The communication drivers and PLCs are set up.
4. The mimic diagrams are configured on the IGSS server and the IGSS configuration is installed.
5. On each operator station, the following is done:

- Open the **System Configuration** program and specify the station type and name. The name must be exactly the same as the one specified on the IGSS Server.
  - Launch the **IGSS Starter** program. When prompted for the server's address, specify the IP address of the IGSS Server.
  - The IGSS configuration is now downloaded including the file [MyConfig].mdb which includes the entire system configuration.
6. When you subsequently open the **System Configuration** program on the operator station, the appropriate station name will be highlighted in the tree view. The parameters for the station have also been downloaded from the IGSS Server.
  7. The IGSS configuration is now identical on all stations of the system. When changes are made on one of the stations in the system, they are automatically distributed to the other stations of the system. If required, the system can be set up to display a message before changes are downloaded or uploaded.

### **Brief description of station types**

The following descriptions give an overview of the different station types available in the IGSS system. Setting up of station types is done in the System Configuration module.



Station type (name)	Description
<b>Server</b>	The station type configured on the PC to be used as IGSS server in a network where one or more operator stations are also present.
<b>Single User</b>	The station type chosen in a system with only one PC acting as both operator station and server.

Station type (name)	Description
<b>Server with A/B switch, Primary</b>	<p>This is a station type used in a redundant system. Selecting this station type sets up the Primary server in the network and this must be later paired with the corresponding Secondary server, which is the hot standby server.</p> <p>The solution is used mainly in cases where data is collected from remote locations with only one communications line into the central server site feeding data to the Primary server. The feeder line can then be switched (software wise or hardware wise) from the Primary to the Secondary server in the network. This switching feature also enables altering the IGSS system on the Secondary server while the Primary server is running. When changes are complete, operator stations are switched to this server, which now becomes the Primary server.</p>
<b>Server with A/B switch, Secondary</b>	<p>The backup server station which is set up with a switch in event of Primary server failure. (See the description above for Server with A/B switch, Primary.)</p>
<b>Server 1 in dualized system</b>	<p>The primary server in a normal, dualized system. Network connections to all the same PLCs as Server 2 in a dualized system.</p>
<b>Server 2 in dualized system</b>	<p>The hot standby server station in a normal, dualized system. Network connections to all the same PLCs as Server 1 in a dualized system.</p>
<b>Operator Station</b>	<p>The station type selected to function as a control and monitoring station in the network from which plant personnel carry out their duties.</p>
<b>Operator Station, Single User Backup</b>	<p>Under normal operation the station functions as an ordinary operator station as long as there's a connection between it and the IGSS server. If, however, the connection between the server and the operator station fails, then this station automatically restarts as <b>Single User Backup</b> and will go into one of the following modes:</p> <p><b>Complete backup of the IGSS server:</b> If the station has been configured in the <b>System Configuration</b> module without further underlying resources, then when it starts up in backup mode, it will assume the same function as the first server defined in the station tree. In other words, it will connect to the same nodes as the IGSS server originally was connected to and also fetch data from distributed drivers, if present.</p> <p><b>Limited backup of IGSS server.</b> To prevent selected PLC drivers present on the IGSS server from being activated when</p>

Station type (name)	Description
	<p>the Operator station goes into backup mode, open the <b>System Configuration</b> module, select the driver in question in the tree view on the left, click on the <b>Advanced</b> tab on the right, find the checkbox <b>Single user backup</b> and clear it.</p> <p><b>Controlled backup of the IGSS server.</b> If in <b>System Configuration</b>, driver and node resources have been set up for <b>Operator Station, Single User Backup</b>, then these will be activated when the station goes into backup mode. This type of operator station is thus able to activate more or fewer resources than are found on the IGSS server itself. If the backup station is to activate more drivers or nodes than the server, then these resources must be defined on the IGSS server as <i>de-activated</i> resources in order to be available for configuration purposes in the <b>Definition</b> module.</p>
Operator Station, Distributed Driver	<p>The station functions as an operator station and activates driver(s) for the PLC(s) to which it's physically connected. The station collects process data and sends this data on to the IGSS server. The distributed driver solution is typically chosen in cases where PLCs are located at remote locations thus making it impractical to cable the PLC directly to the IGSS server..</p>



## Defining the stations in the system

### Introduction

For each station in your IGSS system, you need to define a number of properties. These properties include the IGSS station type and station name.

### The Station tab

When you define a station, the **Station** tab appears allowing you to choose the relevant station type and define a unique station name. When you choose a station type, the relevant set of properties and options will appear.

### Multiuser systems

In a multiuser system, define all the stations in the system from the IGSS Server. On each operator station, enter the **System Configuration** program and specify the station name exactly matching the one specified on the server. When the operator station establishes connection to the server, the configuration will be downloaded. IGSS will recognize the station name. If you open the **System Configuration** program again, this station name will be highlighted.

## Single user and server setup

If you define one of the following station types, a number of setup tabs will appear in the right pane.

[Click here for further details:](#)

- Server
- Single user
- Server with A/B switch, Primary
- Server with A/B switch, Secondary
- Server 1 or 2 in dualized system

## Operator station setup

If you define one of the following operator station types, a limited number of setup tabs will appear.

[Click here for further details:](#)

- Operator station
- Operator station, Distributed Driver (Backup)
- Operator station, Single User Server Backup

## Setting up an IGSS server or single user

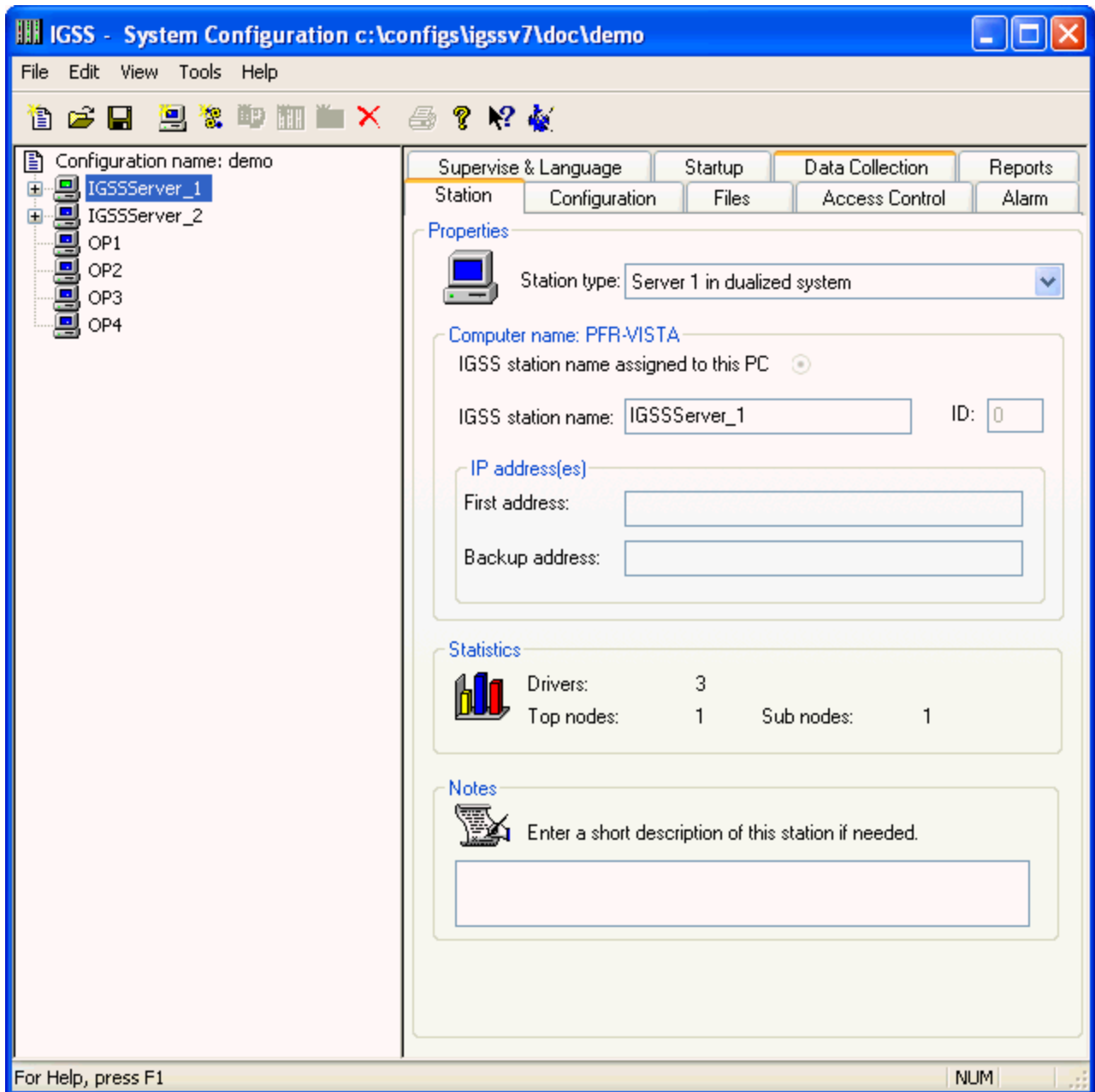
### Introduction

When you select an IGSS server or single user station in the tree view, a number of setup tabs appear in the right pane.

This topic gives you an overview of the functionality. [Click here](#) for the step-by-step procedure.


### Example

In this example, we're looking at an IGSS server in a [dualized system](#).



### Overview of setup tabs

The table below gives you an overview of the setup tabs available for an IGSS server or single user station.

For help on the individual item on the tab, click the  then click on the item.

On this tab	You define the following
<b>Station</b>	Station type (server, operator station, etc.) and sta-

On this tab	You define the following
	tion name.
<b>Configuration</b>	Data management parameters such as scan intervals, base intervals and logging deadband.
<b>Files</b>	The lifetime of the key data files (alarm, log and .bcl files) and hour, day and month values for the standard reports. Furthermore, setup of synchronization of data files between a primary server and a dualized server. In the <b>Backup</b> field, a path is keyed in to the backup folder on the hard disk, and when the system is running, IGSS files are automatically backed up to the designated location.
<b>Access Control</b>	Key settings for the user administration functionality and setup of users for the <b>Super Alarm</b> program.
<b>Alarm</b>	Customization parameters for the <b>Alarm</b> program, for example, locking of alarm window and icon positions, alarm counter settings, etc.
<b>Supervise &amp; Language</b>	Customization parameters for the <b>Supervise</b> program, for example, locking of size and position of process diagrams and graphs.
<b>Startup</b>	Startup mode and auto start of IGSS utility programs (Job Scheduler, WinPager, etc.).
<b>Data Collection</b>	Parameters for the Data Collection engine: simulation mode, logging of PLC driver communication packets, etc.
<b>Reports</b>	Setup of the alarm and log printers, report header and logo.

## Setting up an operator station

### Introduction

When you select an operator station in the tree view, a limited number of setup tabs appear in the right pane.

This topic gives you an overview of the functionality. [Click here](#) for the step-by-step procedure.

### STEP 1: Define the connection to the IGSS server

The first time you open the **System Configuration** program, it is assumed that you've defined all the stations in the system on the IGSS server. The next step is to identify the current operator station and define the connection to the IGSS server(s). The latter is done on the **Server & Backup** tab.

### STEP 2: Download the configuration from the IGSS server

Once the connection is defined, download the configuration from the IGSS server. The following core configuration files will be downloaded to the operator station:

- [MyConfig].elm – The main configuration file
- [MyConfig].dsc – The **descriptor**<sup>1</sup> file (information about the graphical display of objects)
- [MyConfig].mdb – The configuration database (object names, descriptions, alarm texts, **the system configuration**, etc.)
- [MyConfig].ocf – The OLE Compound File (information about ActiveX, OLE and VBA/Automation)

### STEP 3: Set up the operator station

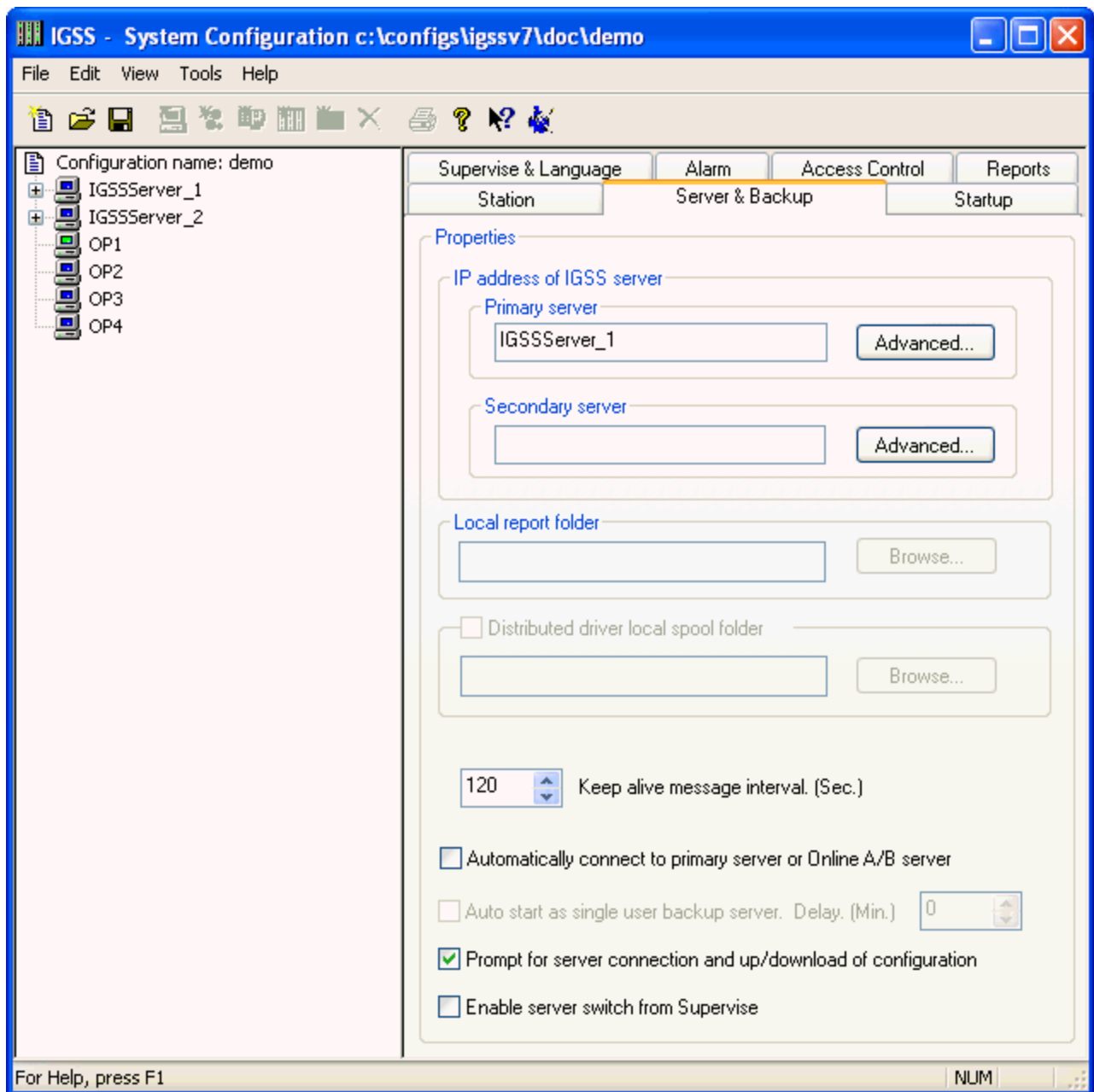
Open the **System Configuration** program again. It will now show you all the stations in the system. Select the current operator station and go through the setup tabs outlined below.

#### Example

The program allows you to customize the settings, for example, for the **Supervise** and **Alarm** programs. Most importantly, you define the connection to the IGSS server on the **Server & Backup** tab.


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<sup>1</sup>A descriptor is the graphical display of an object. IGSS includes many types of descriptors including: - Built-in standard symbols - Animated symbols (Symbol Factory library) - Graphics and animation - Drawing symbols - Windows controls - ActiveX controls An IGSS object can be represented with different descriptors on different diagrams.



### Overview of setup tabs

The table below gives you an overview of the setup tabs available for an operator station.

For help on the individual item on the tab, click the  then click on the item.

On this tab	You define the following
<b>Station</b>	Station type and station name.

On this tab	You define the following
<b>Server &amp; Backup</b>	The connection to the IGSS server(s) and backup system options (if you've purchased a Dualized System or Single-User Backup license).
<b>Startup</b>	Startup mode and auto start of IGSS utility programs (Job Scheduler, WinPager, etc.).
<b>Supervise &amp; Language</b>	Customization parameters for the <b>Supervise</b> program, for example, locking of size and position of process diagrams and graphs. The language is also chosen here.
<b>Alarm</b>	Customization parameters for the <b>Alarm</b> program, for example, locking of alarm window and icon positions, alarm counter settings, etc.
<b>Access Control</b>	Key settings for the user administration functionality and setup of users for the <b>Super Alarm</b> program.

For the station types **Operator Station, Distributed Driver (Backup)** and **Operator Station, Single User Server Backup**, the driver(s) must be able to run on the operator station. Thus the data collection parameters must be set up for this station.

<b>Data Collection</b>	Parameters for the Data Collection engine: simulation mode, logging of PLC driver communication packets, etc.
------------------------	---------------------------------------------------------------------------------------------------------------

## Redundancy solutions in IGSS

### Introduction

There are two basic types of redundancy solutions available in the IGSS system: the hot standby server, also known as the dualized server, and the single-user backup server. These redundancy options are safeguards against lost production output or safety hazards arising from the absence of on-line surveillance data. Their characteristics are described in further detail in the following.

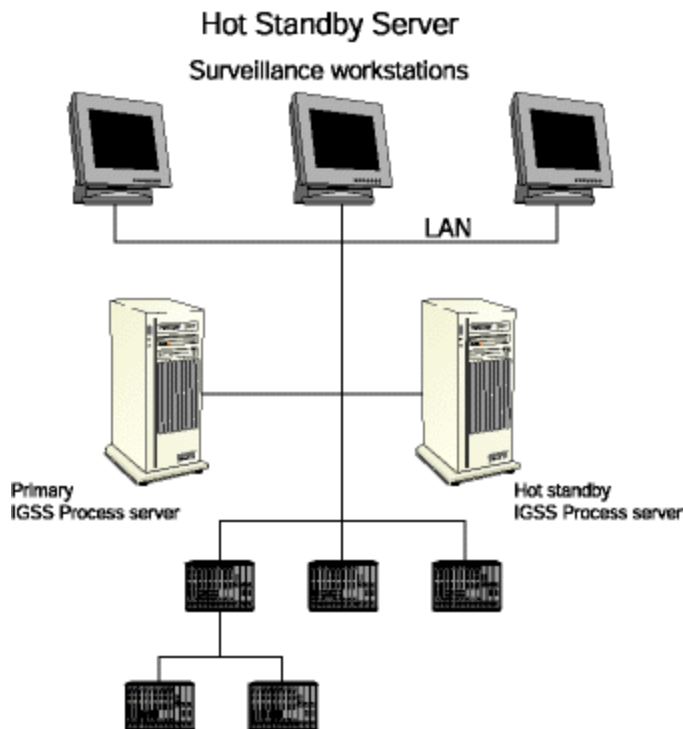
Note

Neither solution is included in the standard IGSS package. They must be purchased separately.

### Hot standby (or dualized) server

As the name implies, this solution protects your system against server failure. By setting up a second, or dualized server, uninterrupted process surveillance and control is assured. The dualized server runs in parallel to the primary IGSS server in hot standby mode. All process data received by the primary server is also received on the dualized server. Upon primary server failure, the hot standby server takes over the full server function both with respect to data collection and communication with plant surveillance workstations. There is no loss of data or loss of process control due to blackouts.

After recovery, the primary server resumes its normal function. The data collection gap present on the primary server, which occurred when it was "down", is remedied by fetching the missing data from the hot standby server when the primary server is brought back on-line.



### A/B switch

This option is only chosen in the following two specific situations. The first is when there is only one transmission line available for communication between the IGSS server and remote PLCs. This might be the case, for example, in a context where the expense of leasing a second transmission line for communicating with outlying PLCs would be prohibitive. The second situation is when the PLCs are unable to communicate effectively with 2 servers simultaneously due to PLC resource limitations of one kind or another.

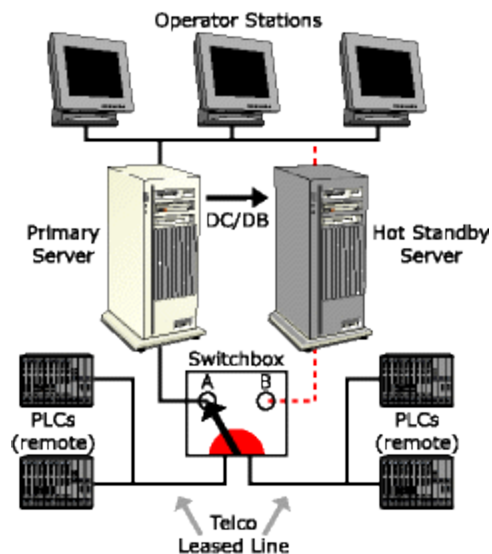
The A/B switch can be implemented as a software solution only, or with a physical hardware switch.

In the hardware switch solution, the A/B switch box is installed with one switch position connected to each of the two servers, the primary server and the hot standby server. Additions or modifications to the running configuration can be implemented on the hot standby server by an administrator. When the changes are completed, the administrator switches plant surveillance workstations over to the hot standby server and then uploads the new configuration to the primary server. After the new configuration is in place on the primary server, the administrator once again switches surveillance workstations back to the primary server and the new configuration becomes the newest, valid operations configuration. The A/B switch is placed at the LAN/WAN periphery to control to which server data collection from remote PLCs is to be directed.

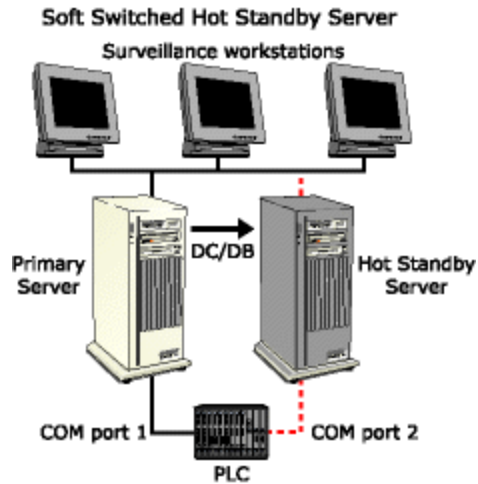
Workstations are automatically switched to the hot standby server while the new configuration is being uploaded to the primary server, and back again when the new configuration is running on the primary server. These workstations need not be informed of the changes and are switched back and forth between the servers automatically.

In the event of Primary server loss, the Secondary server goes into operation automatically and takes over as (new) Primary server. While the original Primary server has been in operation, all its data has automatically been replicated onto the Secondary server.

(Implementation of this solution requires the following hardware from, for instance, Black Box: Ganged Switching System, Remote System Gang Controller and an RS-232/V.24 Line Sharer.)



In the "soft switch" solution, the primary and the hot standby server are both connected to the PLCs. This solution assumes that the individual PLCs have two connections available to the data communication network. No other hardware is required.



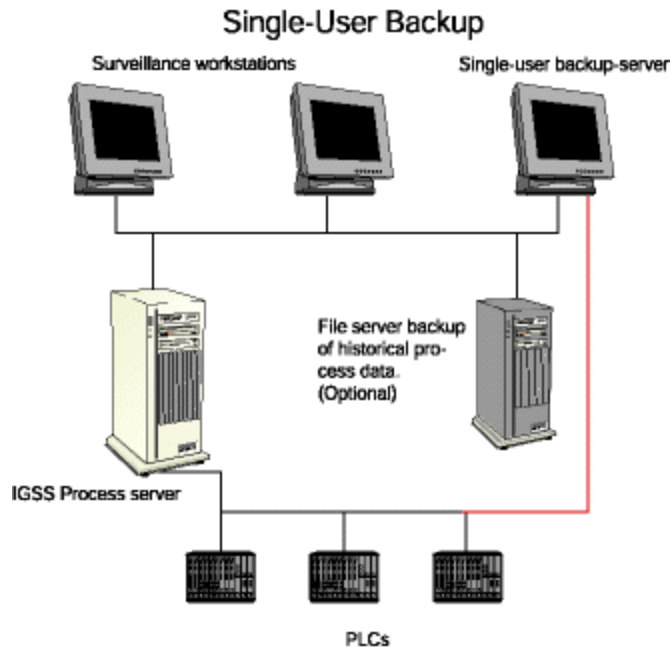
For both A/B switch solutions, the appropriate station type for the servers must be correctly selected in the System Configuration program. In this case, **AB primary** must be selected for the primary IGSS server, and **AB secondary** must be selected for the hot standby server.

### Single-user backup server

Another type of redundancy is the single-user backup server. This solution is often used in remote locations where process data collection and plant control must continue even in the event of a communications line failure into the IGSS server, or in situations where protection of only selected components in a plant is required.

The single-user backup server is set up on an ordinary plant surveillance workstation. In the event of failure of the IGSS server, the workstation then restarts as a single-user backup server and fulfills the functions of both surveillance workstation and server at the same time. The process components to be safeguarded here must, of course, be connected to the single-user backup server in addition to having been connected to the IGSS server.

If there is a need to maintain access to historical data when the IGSS server fails and the single-user backup server takes over, then installation of a separate file server which stores historical data is recommended.



## 2.2 Add and Manage Stations




### Add a new station

In a multiuser system, define all the stations and assign the appropriate station type.

1. Select **Edit** → **New Station** or click the icon in the toolbar.  
A new station appears in the tree view.

You can also add a new station using the **New Configuration Wizard**. In the **File** menu select **New Configuration Wizard**

or click the  icon in the toolbar. Follow the on-screen instructions.

2. In the **Station type** drop-down list, select the appropriate type. The number of options available depends on the chosen station type. Click the relevant type below to continue:

**Important:** In a multiuser system all stations must be defined in **System Configuration**. This is typically done from the IGSS Server.

[Add a single user or server station](#)

[Add an operator station](#)

## Edit station properties

1. In the tree view, select the station whose properties you want to change.
2. Edit the properties, as required.



## Remove a station

1. In the tree view, select the station you want to remove.
2. Select **Edit** → **Remove** or click the above icon.

## 2.3 The IGSS Data Server

### The IGSS Data Server

#### The challenge

Throughout the years the volume of data collected and logged by IGSS for graph and reporting purposes has increased dramatically. In larger installations, this means that a simple operation as viewing a graph involves reading several Gigabytes of data. Luckily, the capacity of modern networks have grown almost just as fast as the volume of IGSS **LOG** data in typical LAN installations.

However, in multiuser systems where one or more operator stations are connected to the IGSS Server with a WAN connection, problems may arise. The response time for an IGSS graph in WAN solutions could be way too long.

#### The solution

To overcome the above problem, 7T has invented the IGSS Data Server, which optimizes the use of the bandwidth between the IGSS Server and the WAN operator station. These operator stations will see a significant improvement in the response times when opening LOG-based graphs.

### Activating the IGSS Data Server

The IGSS Data Server must be activated on the IGSS Server. It will by default run in the background without any user interface. When an operator station connects to the IGSS Server, it will detect whether the Data Server is running. If so, it will automatically use the Data Server when fetching data for LOG-based graphs. If the Data Server is not activated, data fetching will be done as in earlier versions of IGSS.

### Auto starting the IGSS Data Server

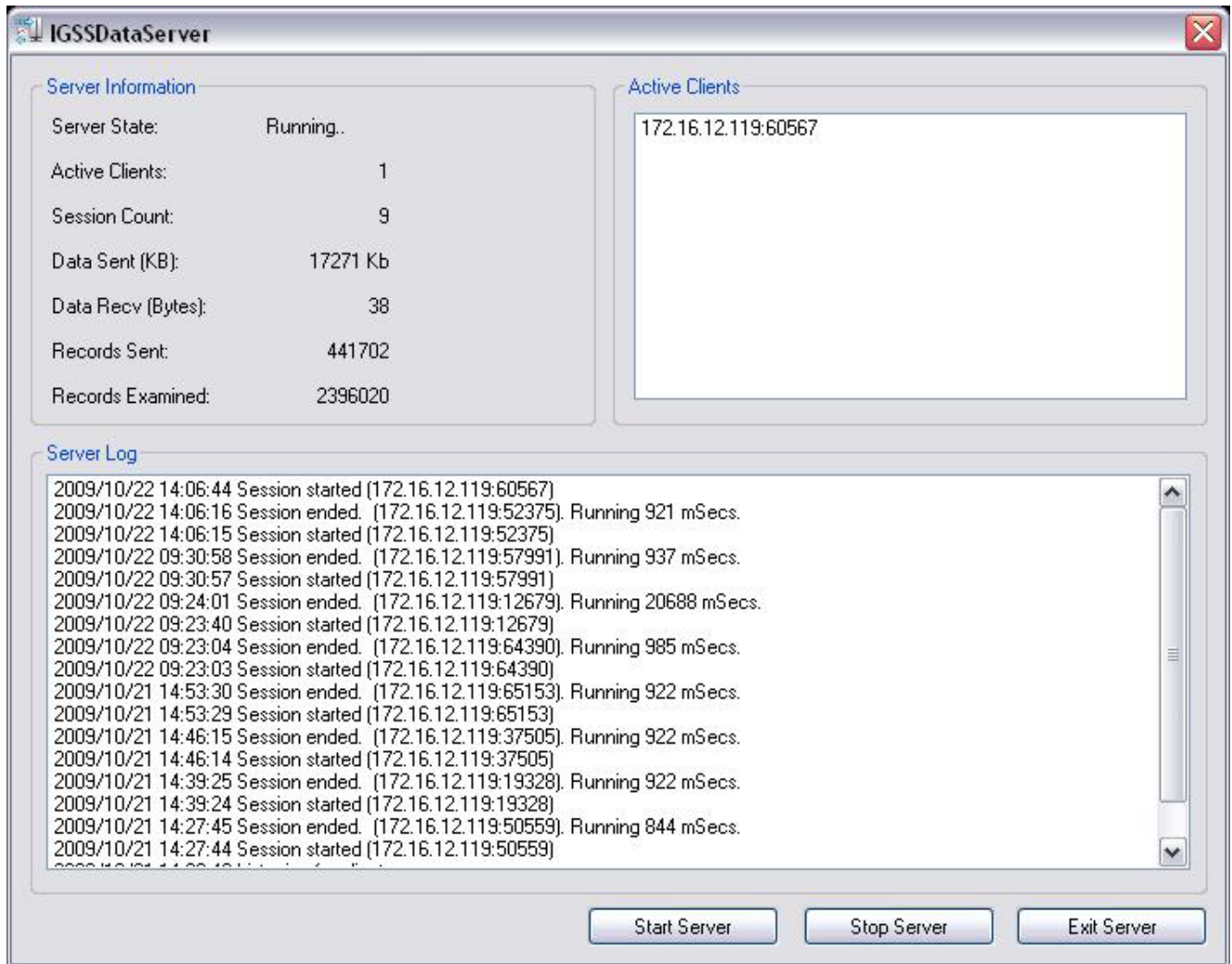
To auto start the Data Server, simply select the **Data Server** check box on the **Startup** tab for the IGSS Server.

### Manually starting the IGSS Data Server

You can start the Data Server manually by typing this command in the Windows Command Prompt:

```
igssdataserver
```

The following user interface will then appear:



It shows the following information:

- Server state (running, stopped)
- Number of active clients (operator stations)
- Various data statistics


You can run the Data Server in hidden mode. Simply right-click the icon in the upper left corner of the window and select **Hide**.

### Port numbers used

Port number 12401 must be open on the IGSS Server to allow communication with the IGSS Data Server. If you are using a firewall, this port must be open.

## 2.4 Synchronization of Dualized Servers

### What is synchronization of dualized servers ?

When using an IGSS dualized server solution, which is a hot standby server solution, the **Dual Server Synchronization** utility  is used to ensure that both servers are identical.

The utility can be run on any PC in the network where the IGSS software has been installed. For example it could be run from one or the other of the two server PCs in the dualized system, from an IGSS operator station or from a dedicated PC, which only runs **Dual Server Synchronization**.


**Important: Never** run the Dual Server Synchronization utility from more than one PC in the network. Doing so will result in errors for which no warning will be given.

There are certain parameters that are not automatically updated between the servers. These are typically configuration changes, which are not reflected in the PLCs to which the two servers in the dualized system are connected.

The **Dual Server Synchronization** utility is used for updating these parameters, which are:


Parameter name	What it is
<b>Local object</b>	Objects not found in the PLCs to which both servers are connected in a dualized system, i.e. objects created "locally" on the one or the other server.
<b>Local ACK</b>	Acknowledgement of alarms where the alarm <b>atom</b> is set to local on the <b>Edit Mapping</b> tab under <b>I/O mode</b> .
<b>Alarm inhibit</b>	Operator initiated alarm blocking, which always originates "locally" due to operating personnel decision in light of specific situations.

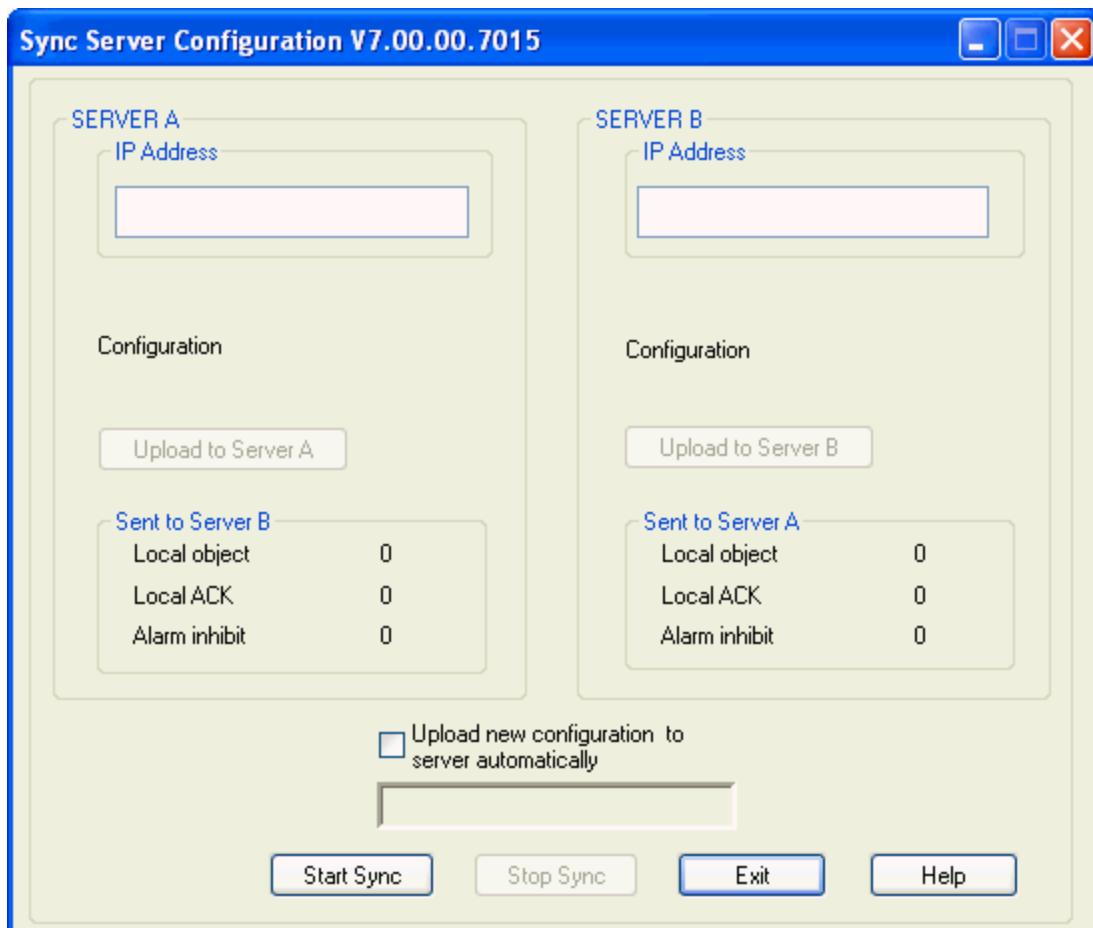
In Definition you can create a digital object to monitor the states of the two dualized servers. For more info, [click here](#).

To activate the synchronization function, double click on the **SYNC** icon  found in the IGSS program group and the **Sync Server Configuration** dialog box appears.

To continue with the next steps in setting up the **Sync Server**, [click here](#).

## Configuring Sync Server parameters

1. Make sure that the two IGSS servers in the system are up and running.
2. Click on the **SYNC** icon , and the dialog box called **Sync Server Configuration** appears.



**Sync Server Configuration V7.00.00.7015**

SERVER A	SERVER B
IP Address	IP Address
Configuration	Configuration
Upload to Server A	Upload to Server B
Sent to Server B	Sent to Server A
Local object	Local object
Local ACK	Local ACK
Alarm inhibit	Alarm inhibit

Upload new configuration to server automatically

Start Sync   Stop Sync   Exit   Help

3. Key in the respective IP addresses for **SERVER A** and for **SERVER B**.
4. Click on the **Start Sync** button.

The **Sync Server** application will now connect to the two servers and check if the two IGSS configurations are identical. If this is **not** the case, then you must choose which server to upload to and click on the appropriate button.

*Example:* You click **Start Sync** and the message appears telling you that Server A is old (compared to Server B). But before synchronization can take place, the two must be identical. Therefore, you would click the button **Upload to Server A**.

To upload automatically, select the checkbox **Upload new configuration to server automatically**

For a description of the parameters **Local object**, **Local ACK** and **Alarm inhibit**, [click here](#).

**Important: Sync Server** will only synchronize objects if the configurations on the two servers are found to be identical.

# Chapter 3: Setting up PLC Drivers

## 3.1 Driver Setup

### Overview



#### Overview: IGSS drivers

### Definition

An IGSS driver is a control program enabling the system to communicate with the devices (typically PLCs) which control the process. 7-Technologies has developed drivers for a wide range of communication protocols.

### Use

You set up the driver(s) for a given [configuration](#) in the **System Configuration** program. Once defined, you can select these drivers in the **Definition** program and they will be activated when you start the configuration.

### How it works

[Click here to get a graphical overview](#) of how drivers are defined.

### Types of drivers

The supported PLC drivers can be divided into two main groups:

- PLCs using [polled communication](#)
- PLCs using the SICOS protocol (event-based communication)

If your driver is using the SICOS protocol, additional parameters must be specified.

The interface(s) and topology supported by the individual drivers differ. The visual presentation in **System Configuration** will thus vary dependent on the driver used.


### Supported drivers

The list of drivers supported by IGSS is continuously expanded. An up-to-date list is available on the 7T Web Site. From the [Drivers Available Now](#) page, driver details such as hardware and software requirements are available.

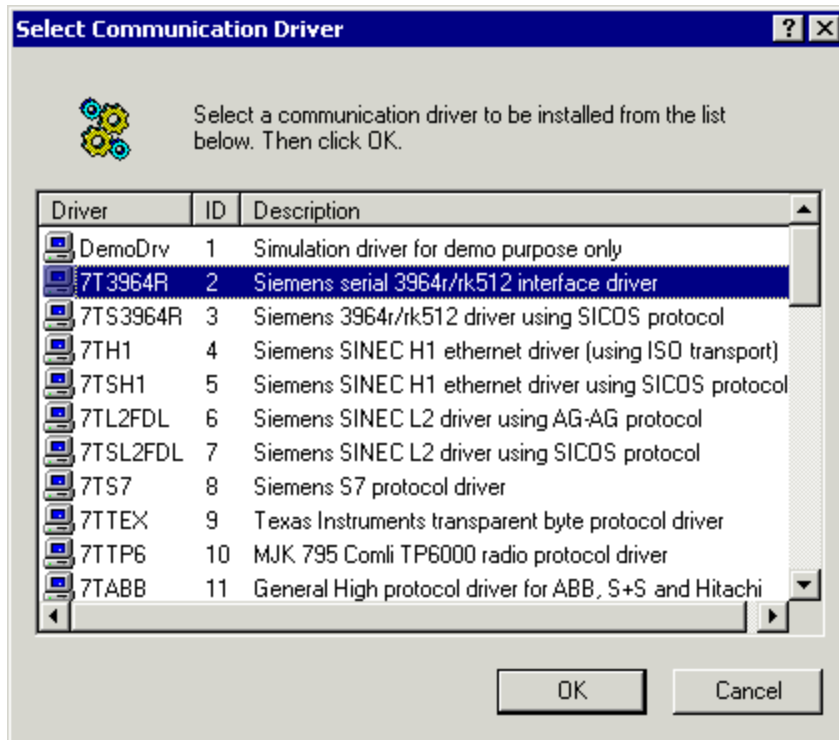


#### Managing drivers

### Adding a new driver

To add a new driver, click  and select the relevant driver in the **Select Communication Driver** dialogue.

**Tip:** Click the column header to sort the items in the list.

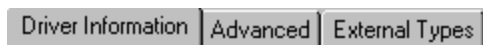


### Editing driver properties

When the driver is added, its name appears in the tree view pane and a number of property sheets appear to the right.

Three tabs are general to all driver types, whereas SICOS drivers require additional parameters (see below).

Click on a tab for details.



### Special SICOS parameters

If you are using a SICOS driver, the **General** and **Time Services** tabs appear.

Click on a tab for details.



## Driver Information tab

### What it shows

On this tab, you can view the following information:

In this group ...	you see the following ...
<b>Driver Information</b>	The name of the selected driver and its driver ID. The number of nodes and subnodes defined for this driver.
<b>File Versions</b>	The filename and version of the <a href="#">Driver DLL</a> and the <a href="#">Configuration DLL</a> .

### How it looks

The figure below shows the **Driver Information** tab.

The screenshot shows a software interface with a tree view on the left and a detailed view on the right. The tree view shows a configuration named 'Demo' with two servers: 'IGSSServer\_1' and 'IGSSServer\_2'. Under 'IGSSServer\_1', there are four drivers: 'Generic TCP/IP Driver', 'Modicon Modbus protocol driver' (highlighted), and 'OPC (OLE For Process Control) Client side'. Under 'IGSSServer\_2', there are five operators: 'OP1', 'OP2', 'OP3', 'OP4', and 'OP5'. The right pane is titled 'Driver Information' and has three tabs: 'Driver Information', 'Advanced', and 'External Types'. The 'Driver Information' tab is active and displays the following information:

- Driver Information:** Modicon Modbus protocol driver (Driver Id: 20)
- Statistics:**
  - Top Nodes: 1
  - Sub Nodes: 0
- File Versions:**
  - Driver DLL:**
    - File: 7TMOD.DLL
    - Version: 6.00.00 (build: 4267)
  - Configuration DLL:**
    - File: 7TMODC.DLL
    - Version: 6.00.00 (build: 4267)

## Advanced tab

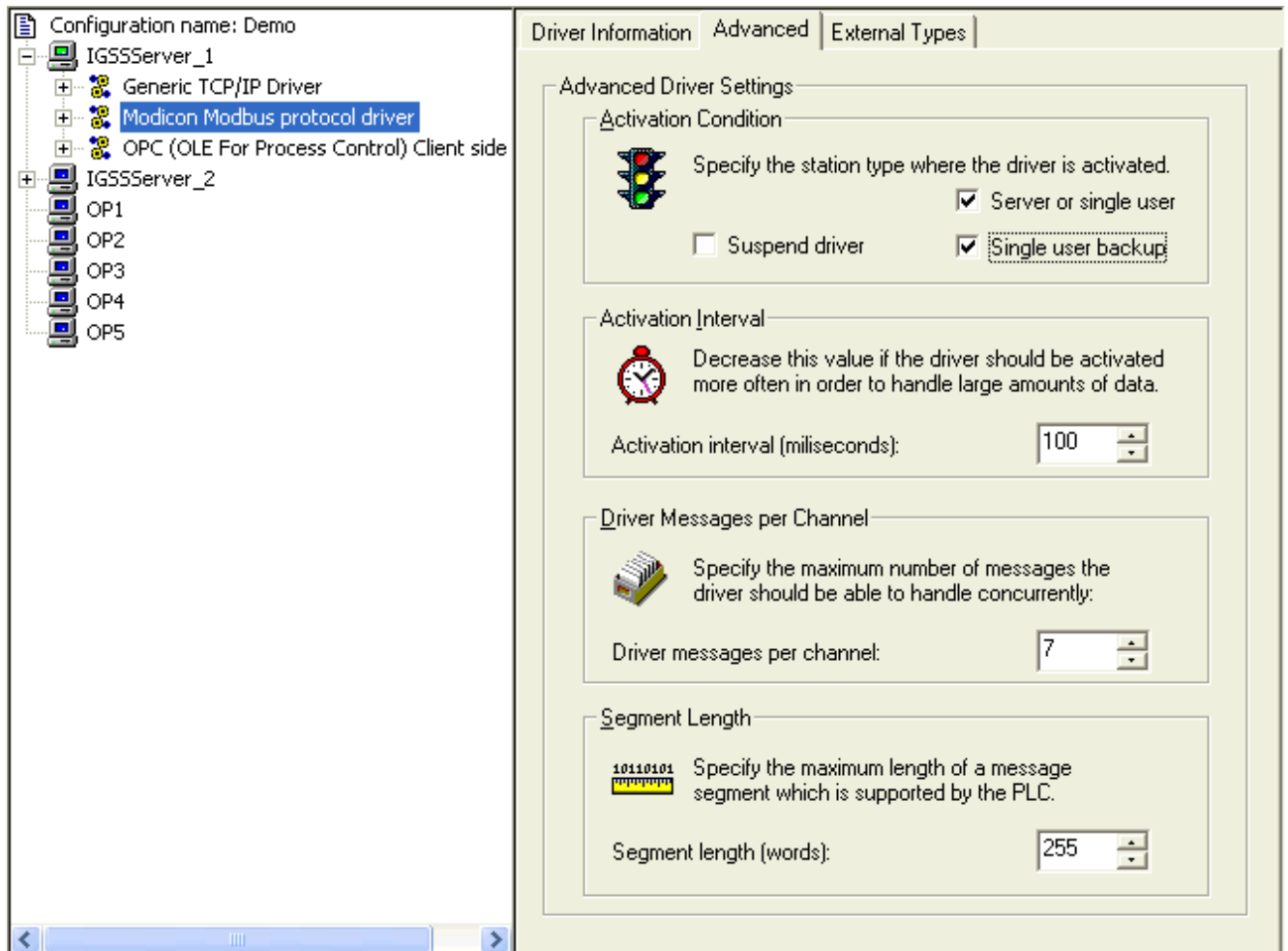
### What it shows

On this tab, you can specify the following:

In this group ...	you can specify ...
<b>Activation Condition</b>	where the driver is activated. Typically, the driver runs on the server, but if you are using distributed drivers, it can run on the operator station.
<b>Activation Interval</b>	How often you want to activate the driver.
<b>Driver Messages per Channel</b>	How many messages the driver must be able to handle concurrently.
<b>Segment Length</b>	The max. length of a message segment supported by the PLC.

### How it looks

The figure below shows the **Advanced** tab.



## External Types tab

### What it shows

On this tab, you can enable or disable the relevant [external types](#) (PLC data types) for numerical values and string values.

In most cases, the default choices will be relevant, but you can change them, if necessary.

The changes made on this tab are global to the selected driver. If the driver is part of another configuration, the changes will also apply here.

### External types

The external type is a central concept in IGSS. When you specify the external type as part of the PLC address, IGSS knows how to interpret the incoming value from the PLC, so that a meaningful value is shown during supervision.

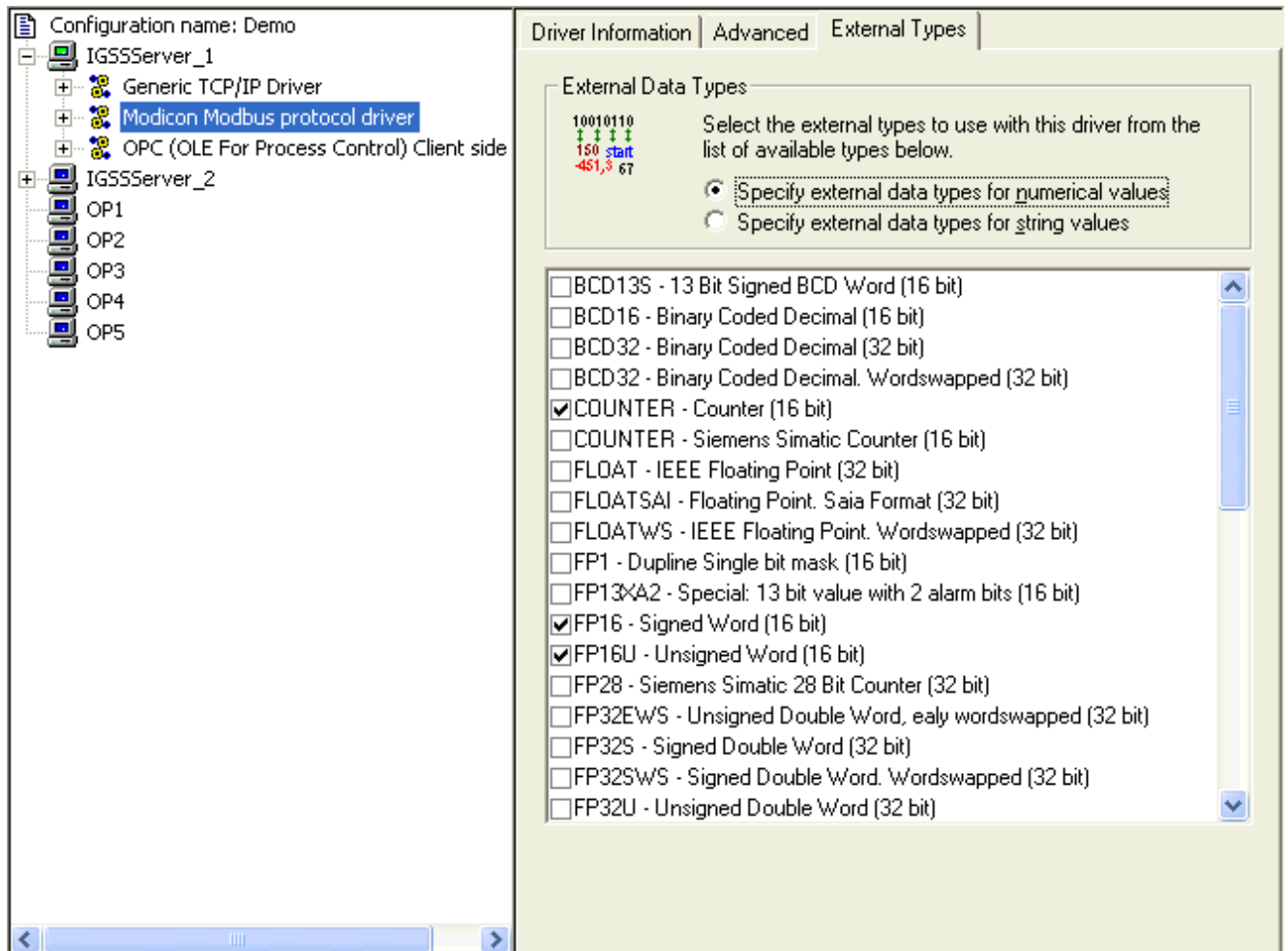
For details about the individual external types, [click here](#).

The external type is selected as part of the PLC address on the **Edit Mapping** tab in the **Definition** program as shown below. The drop-down list contains the external types which are enabled in **System Configuration** (see figure below).

The screenshot shows a software window titled "p1 @ Global - Pump water" with several tabs: "Change State", "Bit Map I/O", "Alarm In/Ack Bit", "Command/State Config", "Data Management Definitions", "Display", "Edit Mapping", "Report Format", and "Symbol Definition". The "Edit Mapping" tab is active. On the left, under "Atom", there is a list of options: "Command" (checked), "State" (checked), "Free Value" (checked), "Alarm-In" (checked), and "Alarm-Out" (unchecked). Below this list is an "I/O mode" dropdown set to "in". Under "Alarm Details", there is a dropdown menu, a "Digital Alarms" dropdown set to "<+ 1. 206", and buttons for "New", "Edit", and "Delete". On the right, under "PLC Node for object: p1", there are two dropdowns: "Driver" set to "7TAS511 (IGSS\_Server1)" and "Node" set to "0". Below that, under "PLC Address for Command atom:", there are four input fields: "Data Group" (20), "Word Offset" (106), "Bit Offset" (0), and "External Type" (FP16). At the bottom of the window, there are "OK", "Cancel", and "Help" buttons.

### How it looks

The figure below shows the **External Types** tab.



## Add and Manage Drivers



### Add a new driver

1. Select **Edit** → **New Driver** or click the icon above.  
The **Select Communication Driver** dialogue appears.

To add a new driver, you can also right-click the station name and select **New Driver**.

2. Double-click the driver you want to add. Sort the list by clicking a column header.

**Result:** The driver name is added to the tree view. If the driver only supports one interface type, it is automatically added.

3. Edit the driver properties, as required.
4. When you have made the necessary changes, click the button below.

 [Add a new interface](#)

### **Edit driver properties**

1. In the tree view, select the driver whose properties you want to change.
2. Edit the properties, as required. For details about a property tab, click its name below.

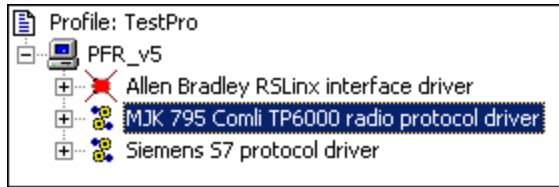
Changes made on the **External Types** tab are global to the selected driver.

### **Suspend a driver**

In some special situations, you may want to suspend a driver. For example, if the process components connected to its associated PLCs are being serviced, the values received by IGSS will be erroneous. In that case, you can suspend the driver temporarily by following this procedure:

1. Right-click the driver you want to suspend.
2. Select **Suspend driver**.

**Result:** The driver is now suspended and will not collect data from its associated PLCs until you select this menu item again. A red cross appears in the tree view clearly indicating that the driver is suspended.



## Remove a driver

1. In the tree view, select the driver you want to remove.
2. Select **Edit** → **Remove** or click the above icon.  
A confirmation message appears.
3. Click **Yes** to remove the driver.

You can also right-click the interface and select **Remove Driver**.

## Import and Export Driver Settings

### Import/Export files (\*.ixd)

All settings defined in **System Configuration** can be exported and imported. You can -

- Export driver settings from v2 to an export file (\*.ixd)
- Export driver settings from the current version to an export file (\*.ixd)
- Import driver settings into the current version from either of the two sources above

### Export IGSS v2 driver settings

You can export the driver settings from the active v2 driver profile for the purpose of importing those settings into the current version. This function will read the settings for the active driver profile in the Windows Registry.

1. Select **Tools** → **Export IGSS V2 Driver Settings**. The **Save As** dialog box appears.
2. Give the export file a meaningful name, for example, **MyDrvSetupv2.idx** and click **Save**.

3. To import these settings, open the relevant configuration and select **Tools → Import IGSS Driver Settings**.

### Export IGSS v8 driver settings

You can export the driver settings to a file for the purpose of importing those settings into another configuration. The typical case is when you are configuring the drivers at your own office and want to copy these settings onto the IGSS server at the plant.

1. Select **Tools → Export IGSS v8 Driver Settings**. The **Save As** dialog box appears.
2. Give the export file a meaningful name, for example, **MyDrvSetupv8.idx** and click **Save**.
3. To import these settings, open the relevant configuration in the **System Configuration** program and select **Tools → Import IGSS Driver Settings**.

### Import IGSS driver settings

You can now import the driver settings saved in an IGSS driver file (\*.idx) exported from either v2 or the current version.

1. Open the relevant configuration in the **System Configuration** program.
2. Select **Tools → Import IGSS Driver Settings**. The **Open** dialog box appears.
3. Find the relevant IGSS driver file (\*.idx).
4. Click **Open**. The settings are imported.

## 3.2 Interface Setup

### Overview



#### Types of interfaces

#### Two main types of interfaces

A driver can use one of the two main interface types:

- Serial connection (COM port, modem or [other scheduled connection](#))
- Driver-specific interface (proprietary interface card or standard network card)



### COM port connection

If the PLC and the PC are directly connected with a serial cable, select this option on the **Connection Type** tab and configure the COM port on the **Serial Port** tab.



### Modem connection

If the PLC and the PC are connected via a modem, select this option on the **Connection Type** tab and configure the modem, as required.

Remember to set the special parameters for remote connections on the **Remote** tab.




### Other scheduled connection connection

If the PLC and the PC are connected via another type of scheduled connection, select this option on the **Connection Type** tab.

Configure the COM port on the **Serial Port** tab and remember to set the special parameters for remote connections on the **Remote** tab.

### Device-specific interface

Some drivers do not support any of the above serial connections, but only connections via device-specific interface cards or standard network cards.

When you add such a driver, this icon  appears in the tree view. Dependent on the interface, one or more property sheets are shown.

Refer to the manufacturer's documentation for further information.




### Managing interfaces



### Adding interfaces

To add a new interface, right-click the relevant driver and select **New Interface** in the popup menu or click the above icon.

By default, a relevant interface is added, for example, a COM port represented as  in the tree view.


To change the connection type, simply select another type on the **Connection Type** tab.

### Editing interface properties

To edit interface properties, select the interface in the tree view, then edit the properties on the tabs displayed.

For further information on the individual tabs, [click here](#).

### Deleting interfaces




To delete an interface, select it in the tree view, then click 

### Connection Type tab

#### What it shows

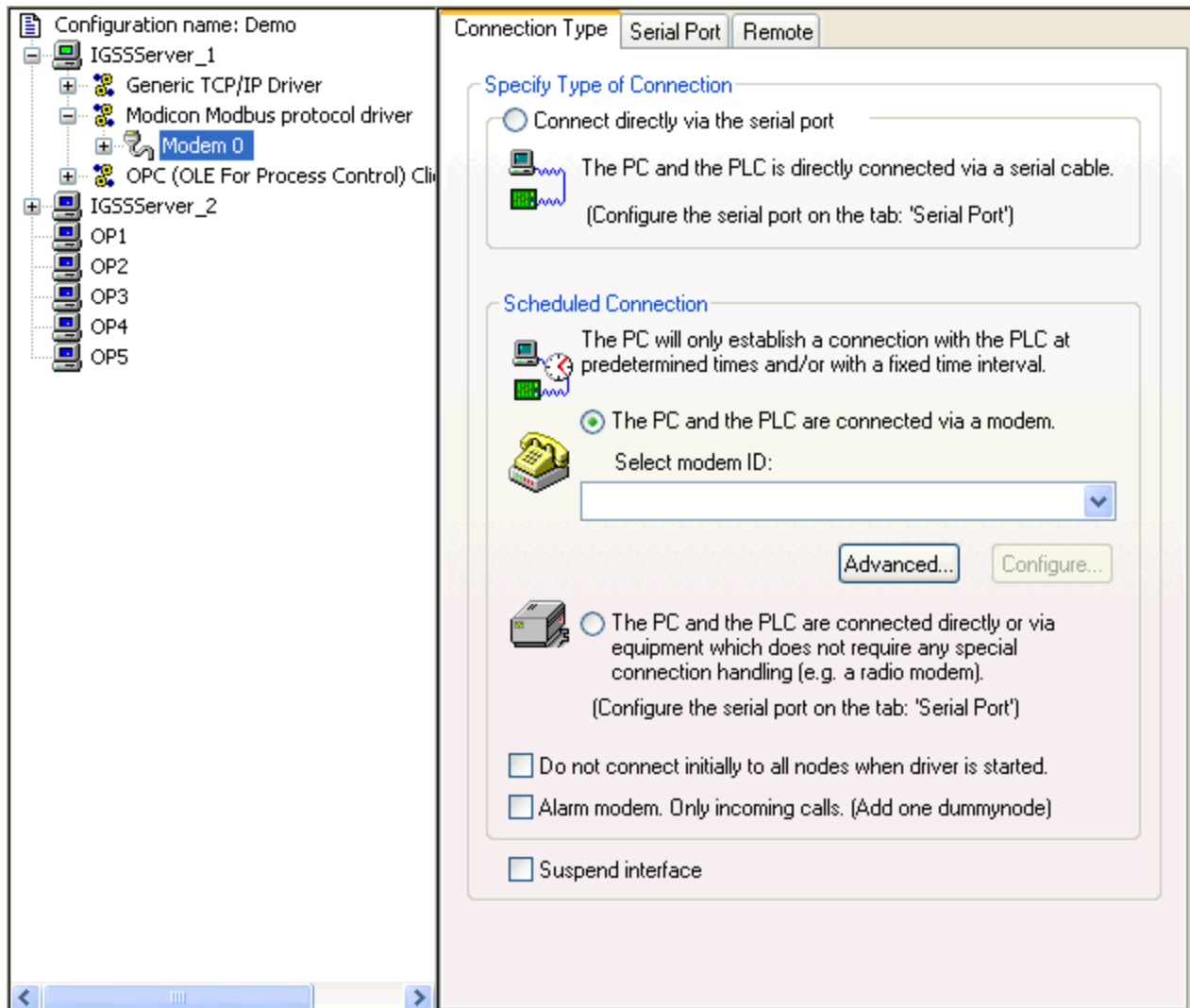
When you select a serial connection in the tree view, this tab appears.

It allows you to select the connection type as follows:

Select this option ...	if the PLC and PC are ...
	directly connected via a serial cable.
	connected via modem. Use the <b>Configure Connection</b> and <b>Configure Modem</b> buttons to configure the modem.
	connected via a <a href="#">other scheduled connection</a> .

#### How it looks

The figure below shows the **Connection Type** tab.



## Serial Port tab

### What it shows

When you select a serial connection in the tree view, this tab appears.

It allows you to select the relevant COM port and configure it as follows:

This dialog box item ...	allows you to ...
<b>Select communications port</b>	select the relevant COM port to which the PLC is connected.

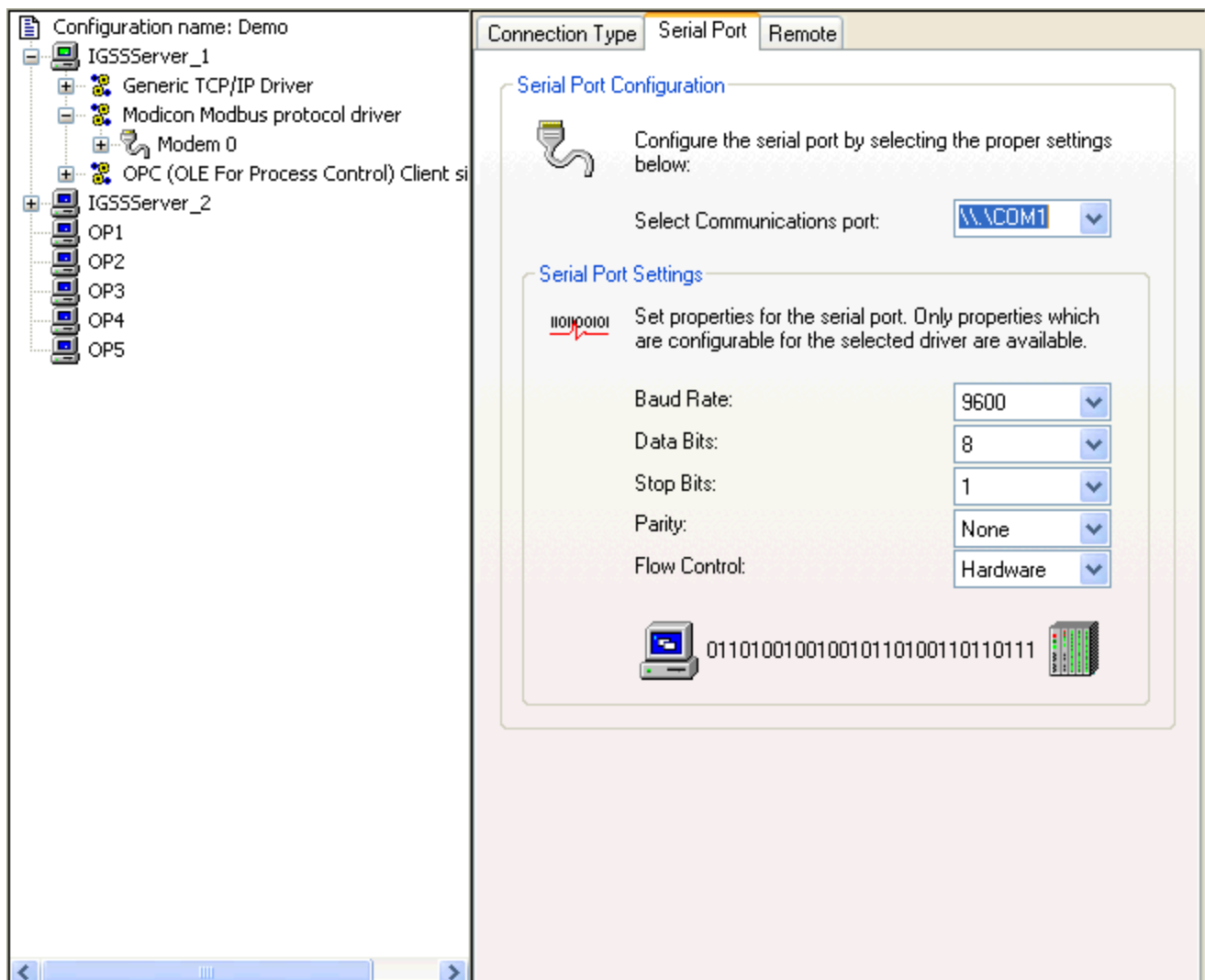
## Serial Port Settings

set the communication parameters for the selected COM port, as required.

**Note:** The number of parameters that can be changed depends on the selected driver.

## How it looks

The figure below shows the **Serial Port** tab.





## Remote tab

### What it shows

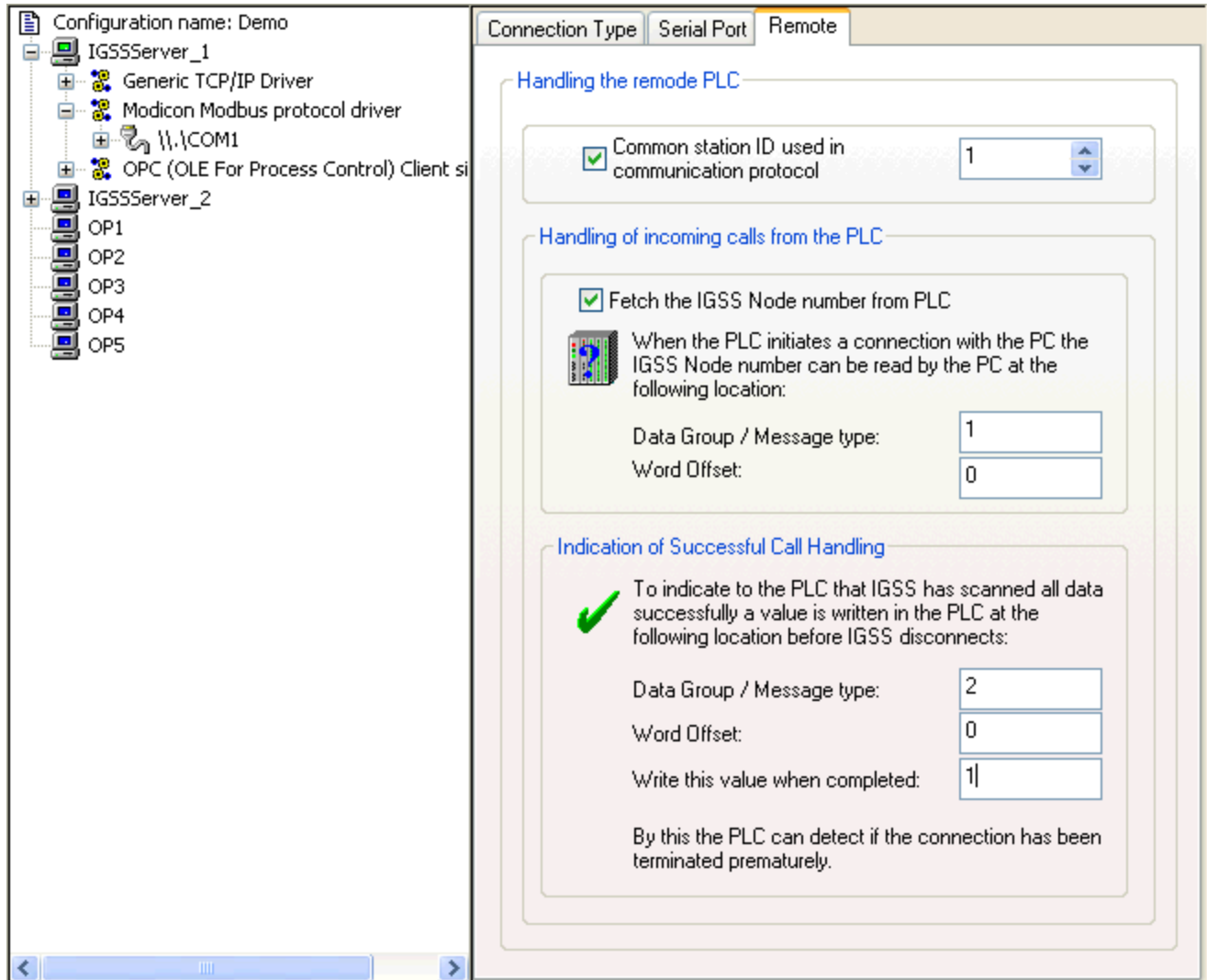
When you select a serial connection in the tree view, this tab appears.

It allows you to specify special parameters for remote connections (modem or other scheduled connection):

In this group ...	you must specify ...
 <b>Handling of incoming calls</b>	a PLC address where IGSS can read the logical node number of the PLC. This ensures that the data will be associated with the correct node number in IGSS.
 <b>Indication of Successful Call Handling</b>	a value at a specific PLC address where IGSS can indicate that all data has been successfully scanned (current and historical values). IGSS will disconnect once this value is written to the specified address.

### How it looks

The figure below shows the **Remote** tab.



## Driver-specific tabs

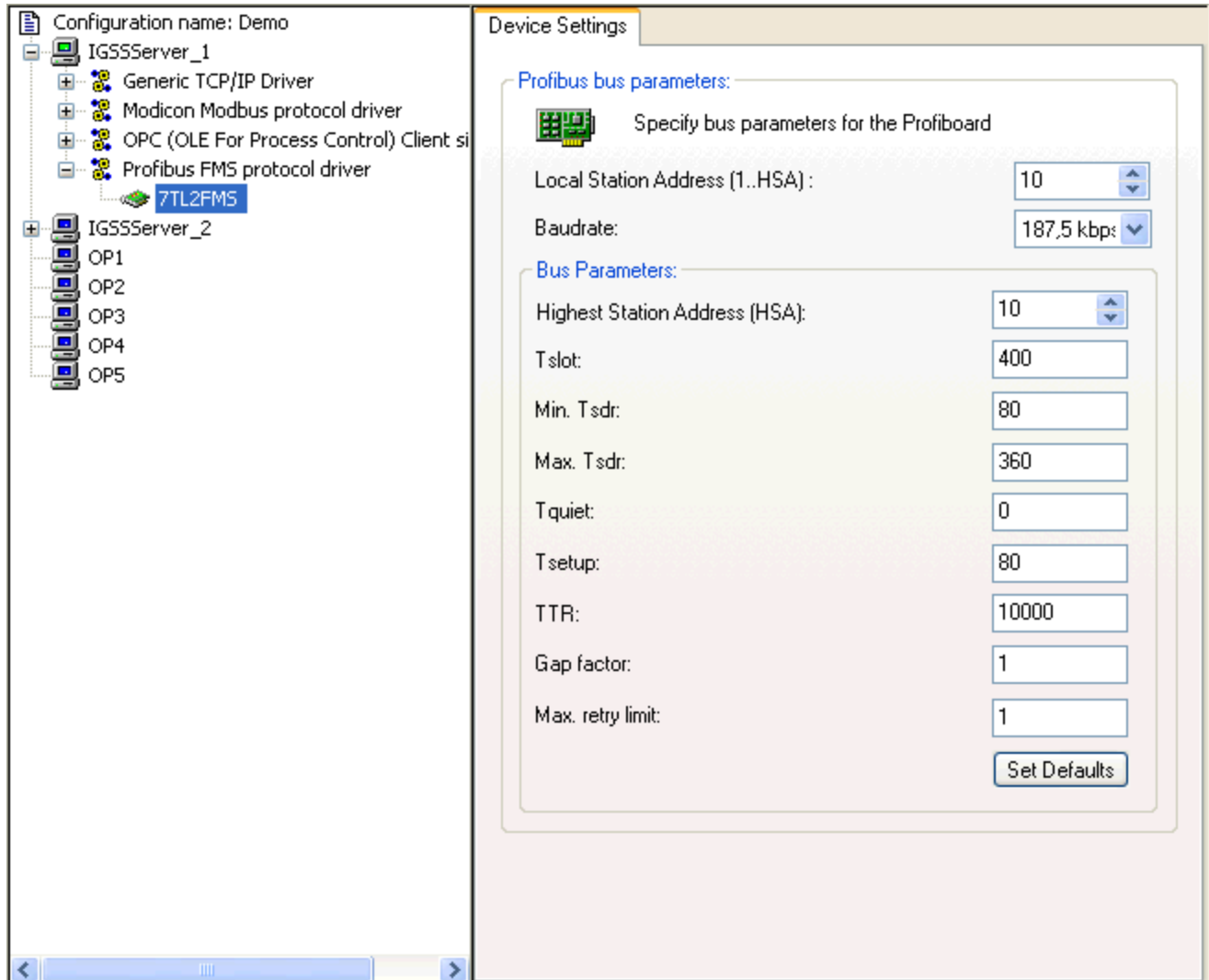
### Introduction

If your driver supports only one specific interface, it will be automatically added when you add the driver. One or more property sheets will appear showing the specific parameters you can set.

For further information about the individual properties, refer to the manufacturer's documentation.

### Example: Profibus FMS protocol driver interface

The figure below shows the **Device Settings** tab for the above interface.



## Add and Manage Interfaces



### Add a new interface

1. In the tree view, select the driver to which you want to add an interface.

If the selected driver only supports one interface type, it is already shown in the tree view.

2. Select **Edit** → **New Interface** or click the above icon.
3. Click the interface you want to use:

 [Direct connection \(COM port\)](#)

 [Modem connection](#)

 [Other scheduled connection](#)

 [Driver-specific interface](#)

### **Edit interface properties**

1. In the tree view, select the interface whose properties you want to change.
2. Edit the properties, as required. For details about a tab, click its name below.

### **Suspend an interface**

In some special situations, you may want to suspend an interface of a driver. For example, if you have a dial-up connection and the modem is not currently working or being serviced. You can suspend the interface as follows:

1. Right-click the relevant driver.
2. Select **Suspend interface**.

**Result:** The interface is now suspended and will not collect data from its associated PLCs until you select this menu item again. The interface will be clearly marked with a red cross to indicate the suspended mode.



## Remove an interface

1. In the tree view, select the interface you want to remove.
2. Select **Edit** → **Remove** or click the above icon.  
A confirmation message appears.
3. Click **Yes** to remove the interface.

You can also right-click the interface and select **Remove Device**.

## 3.3 Node Setup

### Overview

#### What is a node in IGSS ?

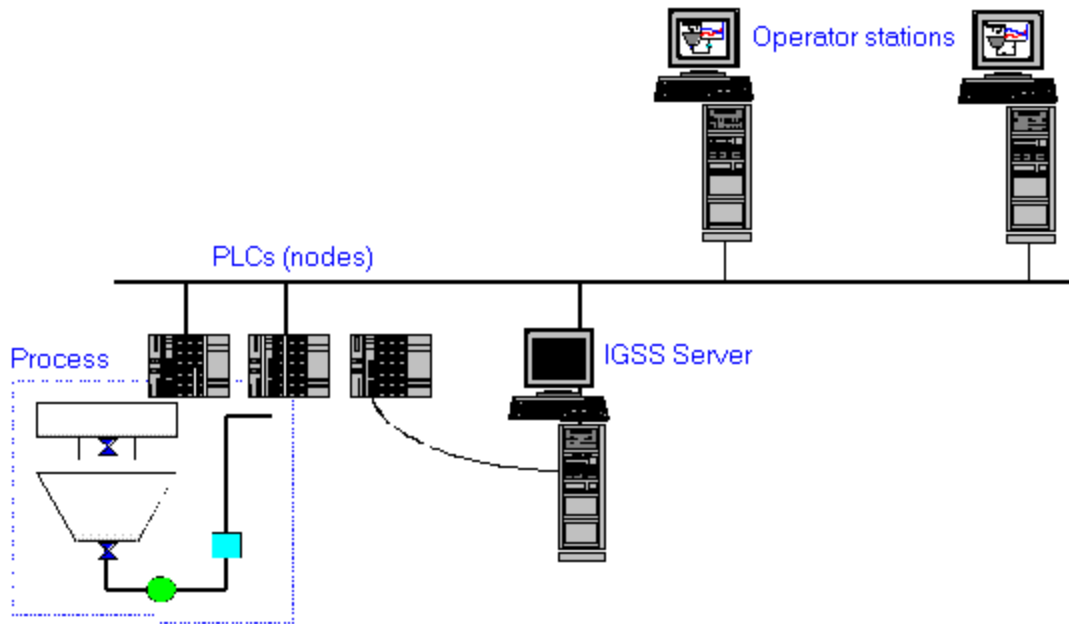
#### Definition

A node represents a physical control device in the process (typically a PLC). Each node has a logical node number that is used by IGSS to identify the PLC.

When IGSS knows this number, it can associate the correct process values with the corresponding process components (which are connected to the PLC).

#### Example: An IGSS network

The figure below shows a simple IGSS network with a server, two operator stations and three PLCs (nodes). Each node has a logical node number that identifies it in the system – the IGSS node number.



## Identifying the node

When you define a process component in the **Definition** program, you must indicate which PLC (node) it is connected to. This is done on the **Edit Mapping** tab of the object properties dialog box. Open the dialog box by double-clicking the symbol representing the process component.

For further details [click here](#).

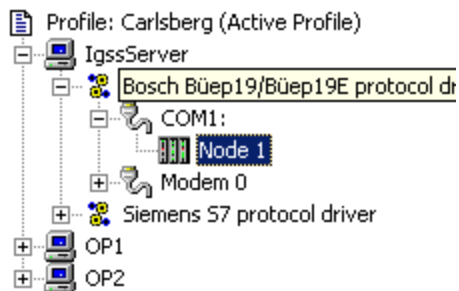
## Managing nodes



### Adding nodes

To add a node, right-click the relevant interface in the tree view and select **New Node** or click the above icon in the toolbar.

A default node number is added which you can change on the **Node Properties** tab.



## Editing node properties

To edit node properties, select the relevant node in the tree view, then edit the properties on the tabs displayed. The number of tabs depend on the driver you use, the interface configuration, etc. The table below shows the tabs displayed for different configurations. Click a tab for further information.

**Note:** Apart from the tabs below, driver-specific tabs may also appear.

For this type of interface...	these tabs appear ...
Direct connection via COM port	Node properties   Advanced
Scheduled connection (for example, modem or radio link)	Node properties   Remote Connection   Connection Misc.   Advanced
SICOS driver	Node properties   SICOS parameters

## Deleting nodes

To delete a node, select it in the tree view, then click the icon in the toolbar.

## Node Properties tab

### What it shows

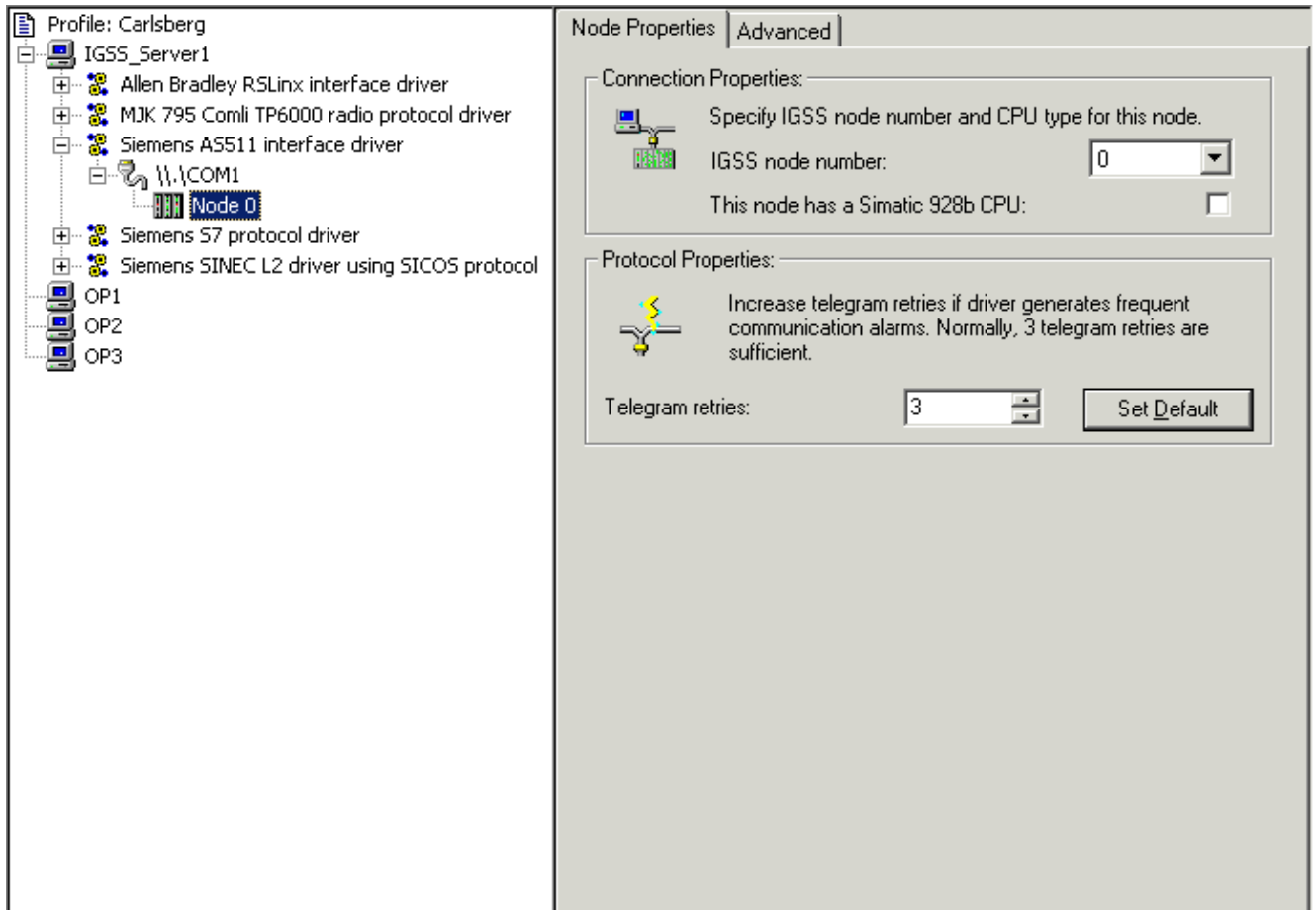
When you select a node in the tree view, this tab appears. The properties displayed are driver-specific, but the following properties are always displayed:

This property ...	allows you to ...
<b>IGSS node number</b>	specify the logical node number of the PLC. This is the node number you select in Definition when you define a process component (IGSS object).
<b>Telegram Retries</b>	adjust the number of times you

want the driver to retry sending of telegrams to the node. The default setting is **3**.

### How it looks

The figure below shows the **Node Properties** tab for the Siemens AS511 interface driver.



### Advanced tab - Overview

#### What it shows

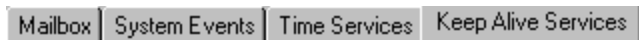
When you select a node in the tree view, this tab appears (except for SICOS drivers).

It includes four subtabs that allow you to send special telegrams to and from the selected node (PLC). Together, these telegrams are called extended services. They include system start, time synchronisation and keep alive telegrams.

- Note:** To use all the extended services, you must enable the mailbox and specify its location and size within the PLC where IGSS can post the special telegrams.

### How it looks

The figure below shows the four tabs. Click on any of them for further information.



### Advanced - Mailbox tab

#### What it shows

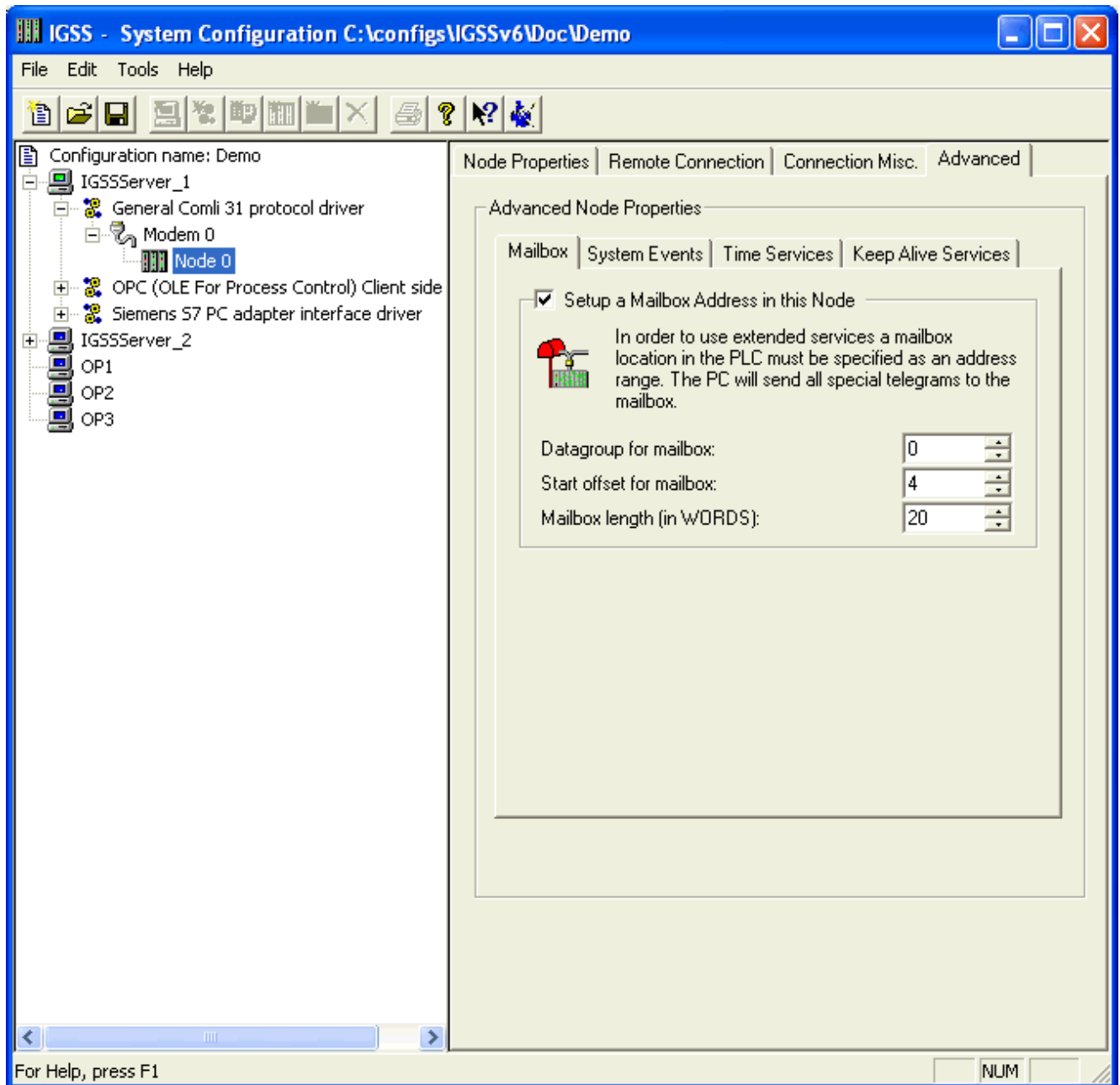
When you select a node in the tree view, this subtab appears on the **Advanced** tab (except for SICOS drivers).

The following properties are available:

This property ...	allows you to ...
Enable mailbox	enable the <a href="#">mailbox</a> .  <b>Note:</b> You must enable the mailbox to use all the <a href="#">extended services</a> and to define subnodes.
PLC address	specify the exact PLC address where the special telegrams (extended services) should be written to.
Mailbox length	specify the number of words allocated for the special telegrams. The required number of words depends on how many telegrams you use and their data format. In most cases, 20 words will be sufficient.

### How it looks

The figure below shows the **Mailbox** tab.



## Advanced - System Events tab

### What it shows

When you select a node in the tree view, this subtab appears on the **Advanced** tab (except for SICOS drivers).

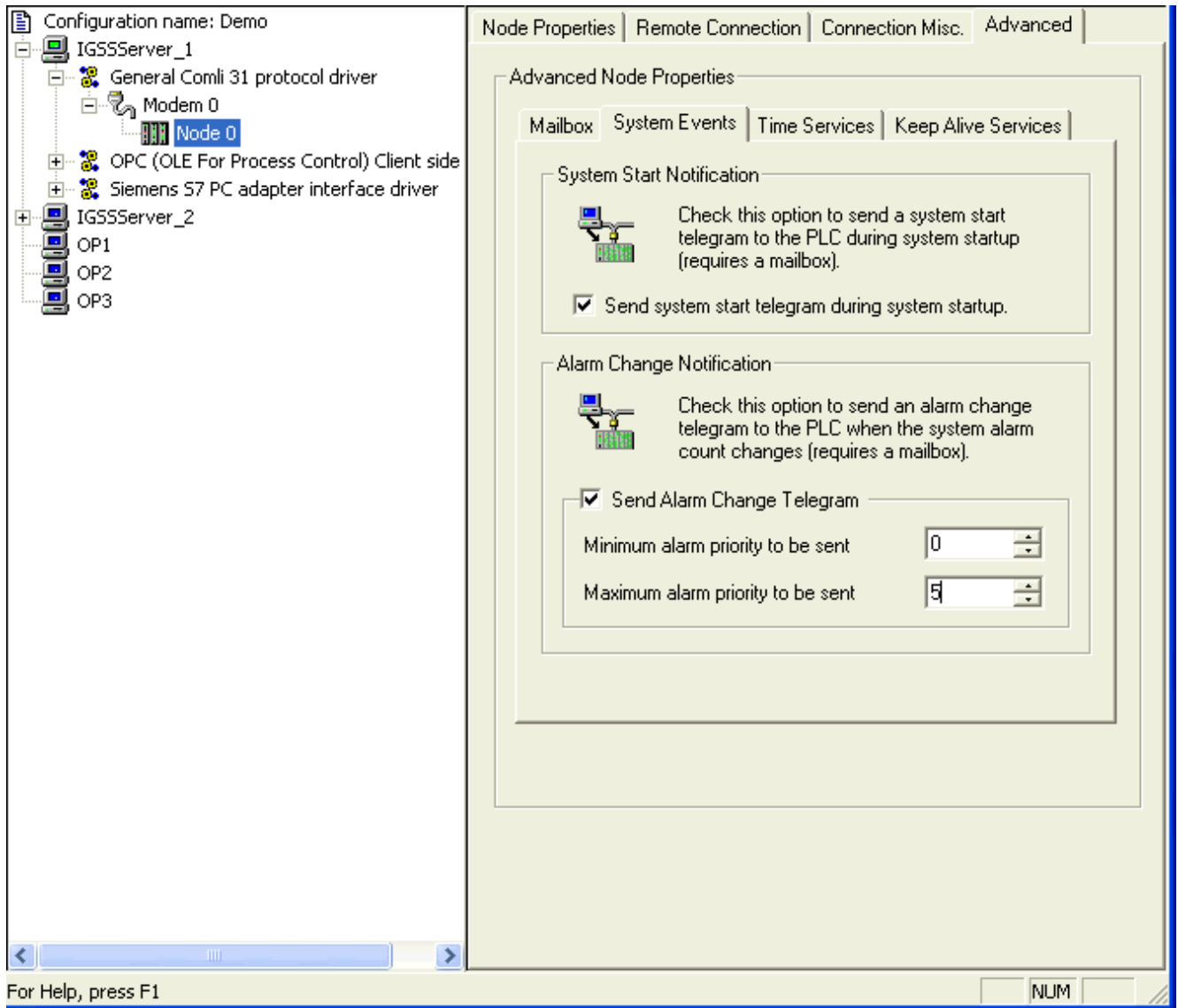
The following properties are available:

**Note:** You must enable the mailbox on the **Mailbox** tab in order to use system event telegrams.

In this group ...	you can ...	Telegram format
<b>System Start Notification</b>	enable the system start telegram which is sent to the PLC when the IGSS configuration is started (DC).	For details on the system start telegram, <a href="#">click here</a> .
<b>Alarm Change Notification</b>	<p>enable the alarm change telegram and specify the min. and max. alarm priorities to be reported. The telegram is sent if the alarm count changes in the running IGSS configuration.</p> <p>Two preconditions must be met, before the telegram is sent:</p> <ul style="list-style-type: none"> <li>• The alarm priority must be within the specified min. and max. range.</li> <li>• The <b>To PLC</b> option must be selected for the alarm text in question. This is done in the <b>Edit Alarm Description</b> dialog box in Definition.</li> </ul>	For details on the alarm change telegram, <a href="#">click here</a> .

### How it looks

The figure below shows the **System Events** tab.



## Advanced - Time Services tab

### What it shows

When you select a node in the tree view, this subtab appears on the **Advanced** tab (except for SICOS drivers).

The following properties are available:

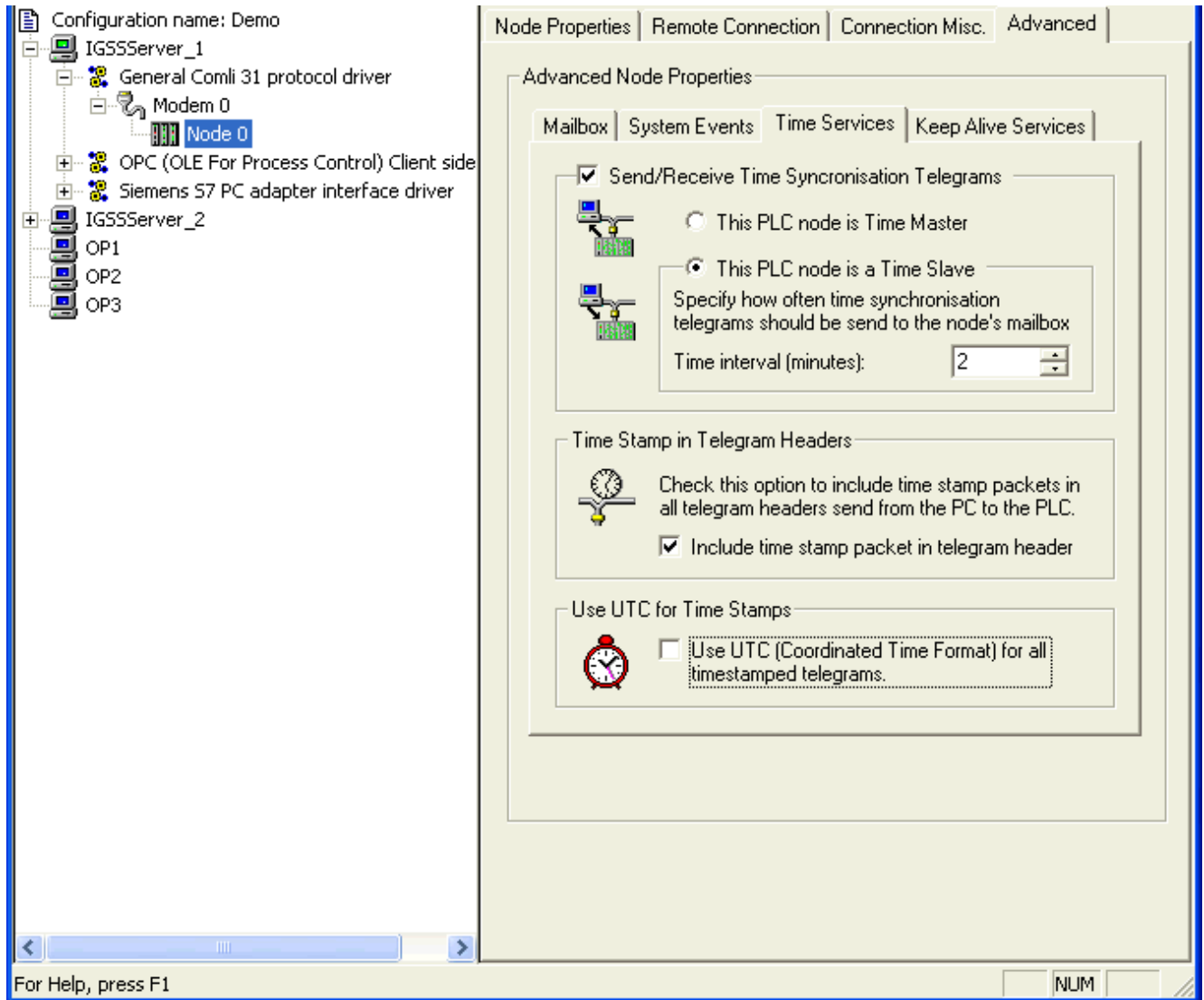
<b>In this group ...</b>	<b>you can ...</b>	<b>Telegram format</b>
<b>Send/Receive Time Synchronisation Telegrams</b>	enable the time synchronisation telegram and choose whether the node is the time slave or master.	For details on the time synchronisation telegram, <a href="#">click here</a> .
<b>Time Stamp</b>	include a time stamp in all telegram headers sent from the PC to the PLC	For details on the time stamp telegram, <a href="#">click here</a> .
<b>Use UTC<sup>1</sup> for Time Stamps</b>	enable the universal time format, <a href="#">UTC</a> or use local time.	-

### How it looks

The figure below shows the **Time Services** tab.

---

<sup>1</sup>Universal Time Coordinated (formerly Greenwich Mean Time), used as the basis for calculating time in most parts of the world. IGSS uses this time format internally in the database. You can switch between UTC and local time by enabling or disabling the "UTC" field in various dialog boxes in the system.



## Advanced - Keep Alive Services tab

### What it shows

When you select a node in the tree view, this subtab appears on the **Advanced** tab (except for SICOS drivers).

The following properties are available:

This property ...	allows you to ...	Telegram format
<b>Keep Alive PC → PLC</b>	send keep alive telegrams from IGSS to the PLC with a fixed interval.	For details on the keep alive telegram, <a href="#">click here</a> .
<b>Keep Alive PLC → PC</b>	send keep alive telegrams	For details on the keep

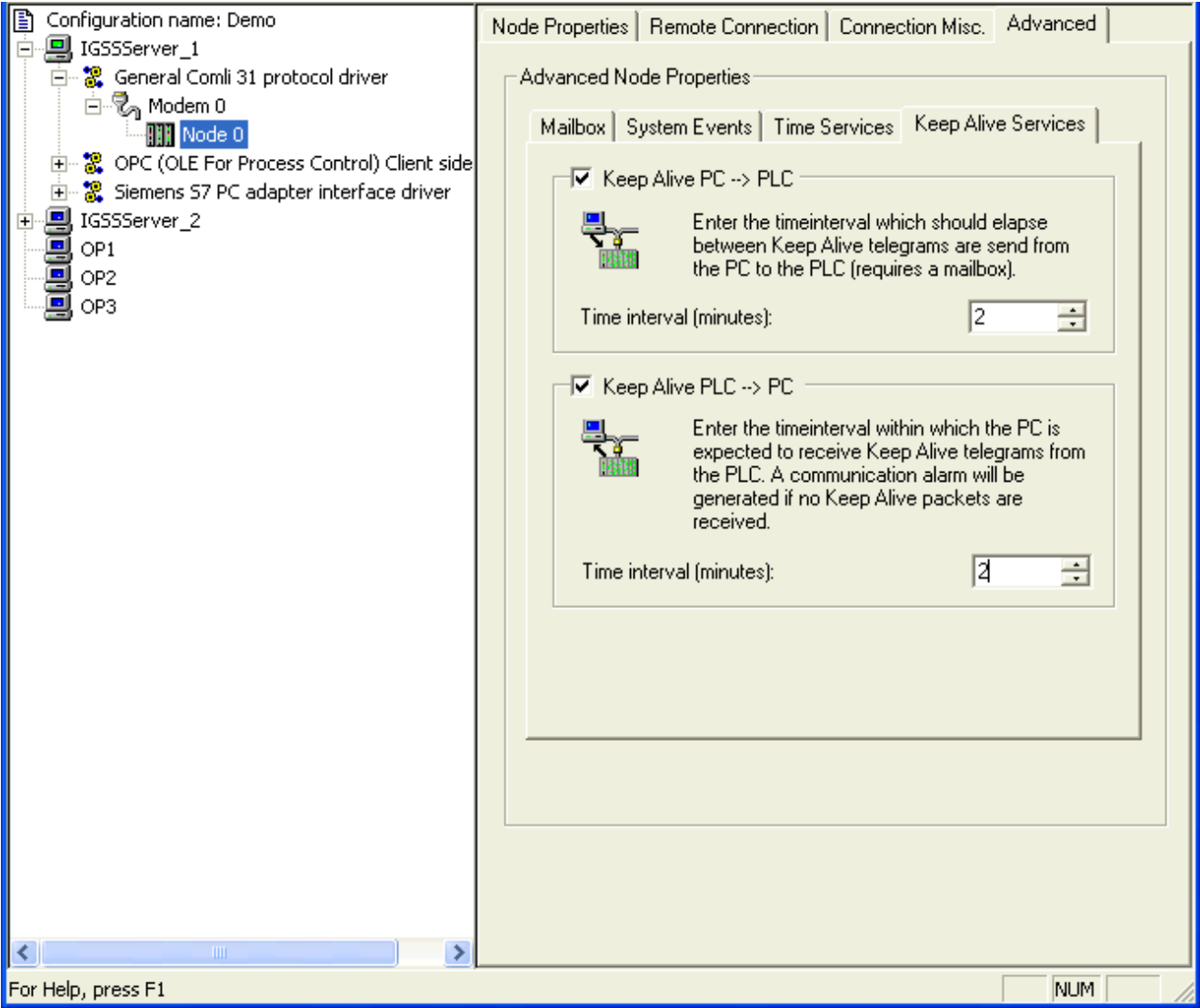
	from the PLC to IGSS with a fixed interval.	alive telegram, <a href="#">click here</a> .
--	---------------------------------------------	----------------------------------------------

If the keep alive interval times out, alarm no. 46 "No heartbeat received" will occur in the alarm list.

**Note:** The **Driver** object which is included in every IGSS configuration you create monitors the communication at the driver level between the PLC and IGSS. The keep alive function monitors the communication at the node level.

**How it looks**

The figure below shows the **Keep Alive Services** tab.



## Remote Connection tab (remote only)

### What it shows

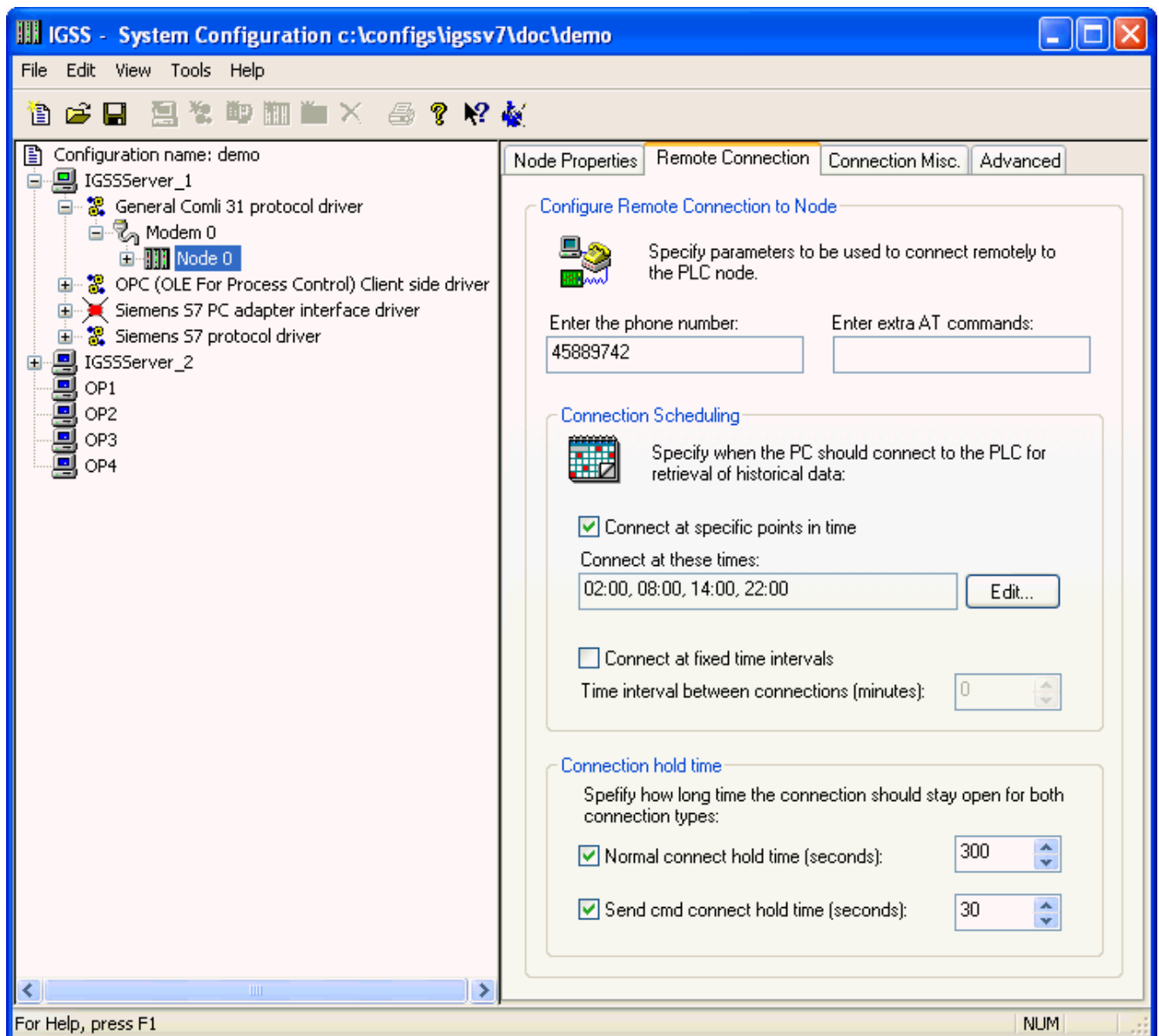
When you select a node in the tree view which is reached via a remote connection (modem or other scheduled connection), this tab appears.

The following properties are available:

<b>This property ...</b>	<b>allows you to ...</b>
<b>Phone number</b>	type the phone number of the PLC you want to connect to.
<b>Connect at specific points in time</b>	connect to the PLC at specific times. Click Edit to define the times.
<b>Connect at fixed time intervals</b>	connect to the PLC with a fixed time interval (given in minutes).
<b>Connection hold time</b>	specify the time you want to hold the remote connection open when the operator goes manually online or sends a command to the remote PLC.

### How it looks

The figure below shows the **Remote Connection** tab.




## Connection Misc. tab (remote only)

### What it shows

When you select a node in the tree view which is reached via a remote connection (modem or other scheduled connection), this tab appears.

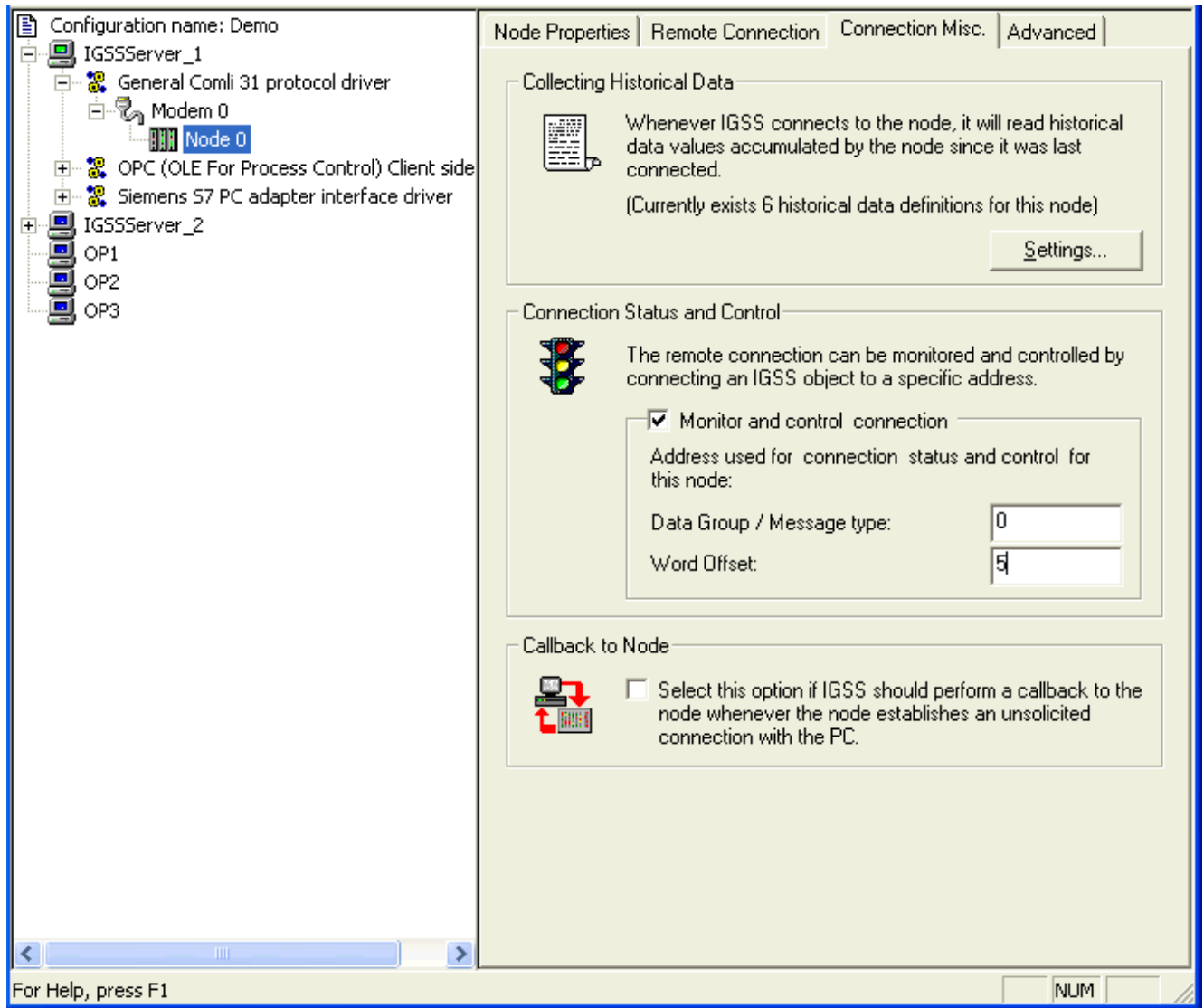
The following properties are available:

In this group ...	you can ...
<b>Collecting Historical Data</b>	configure where you want IGSS to collect historical data. Click <b>Configure</b> to make the definitions.
<b>Connection Status and Control</b>	specify the PLC address for a digital object in your

	<p>IGSS configuration that shows you the connection status. The object is created in Definition.</p> <p>Click here  to learn how.</p>
<b>Callback to Node</b>	<p>make IGSS perform a callback to the node when the latter makes an unsolicited connection with the PC.</p> <p>Note</p> <p>In most cases, you will not enable this option, because it means that it will take longer to get the data that the node was trying to deliver to IGSS. But in some cases, the driver may require that you do it.</p>

### How it looks

The figure below shows the **Connection Misc** tab.



## Add and Manage Nodes



### Add a new node

1. In the tree view, select the interface to which you want to add a node.
2. In some cases, the node is automatically added with the interface. In that case, skip the next step.
3. Select **Edit** → **New Node** or click the above icon in the toolbar.  
A new node number and icon appears in the tree view.
4. Edit the node properties, as required.

5. If you want to add a subnode, click the button below.

 [Add a new subnode](#)

If you want to add subnodes and use the [extended services](#), you must enable the mailbox on the **Advanced** tab (SICOS drivers excepted).

### **Edit node properties**

1. In the tree view, select the node whose properties you want to change.
2. Edit the node properties, as required. For details about a tab, click its name below.

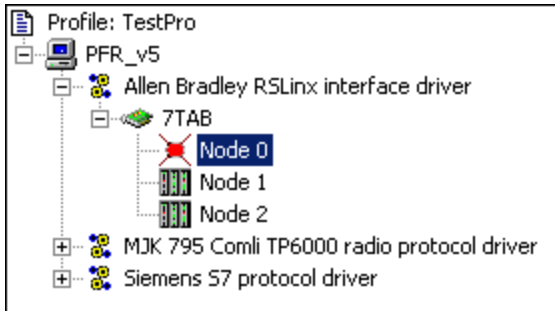
If you want to add subnodes and use the [extended services](#), you must enable the mailbox on the Advanced tab (SICOS drivers excepted).

### **Suspend a node**

In some situations, you may want to suspend a node. For example, if the process components that are connected to a certain PLC are being serviced and thus provide erroneous values to IGSS. You can suspend the node as follows:

1. Right-click the node you want to suspend.
2. Select **Suspend node**.

The node is now suspended and will not collect data from its associated process components until you select this menu item again.



If you suspend a manager node, all its associated subnodes will also be suspended because IGSS only communicates with the manager node.

### **Remove a node**

1. In the tree view, select the node you want to remove.
2. Select **Edit** → **Remove** or click the above icon in the toolbar. A confirmation message appears.
3. Click **Yes** to remove the node.

You can also right-click the node and select **Remove Node**.

## Collecting Historical Data from a Remote PLC

### Collecting historical data from a remote PLC

#### Introduction

In some IGSS installations remote PLCs will collect process data. A typical example could be remote pump stations for a wastewater treatment plant.

These PLCs are not online all the time, but are automatically dialed up with a fixed interval (for example, twice a day). The dial up schedule is set up on the **Remote Connection** tab. Also the operator can manually dial up the remote PLC.

During the offline period, the remote PLC will store process values with a given interval. Some PLCs will even support storing of events (only changes in process values are stored). This is what we call historical data. The historical data can be collected by IGSS when the remote PLC is online by following the procedure below.

To allow the operator to create graphs and reports for the monitored objects, the historical data must be saved in the IGSS [log files](#) and the [.bcl files](#).

### Example

To illustrate the functionality, we will make an example based on the IGSS Demo Configuration. We will go through the following steps:

1. In **System Configuration** [add the remote PLC](#) using the General Comli 31 protocol driver.
2. In **System Configuration**, [define the Historical Data Settings](#).
3. In **Definition**, [create the object that collects historical data](#).
4. In **Definition**, [create a graph that shows the historical data](#).
5. In **Supervise**, [show the graph](#).

## 3.4 Subnode Setup

### Overview

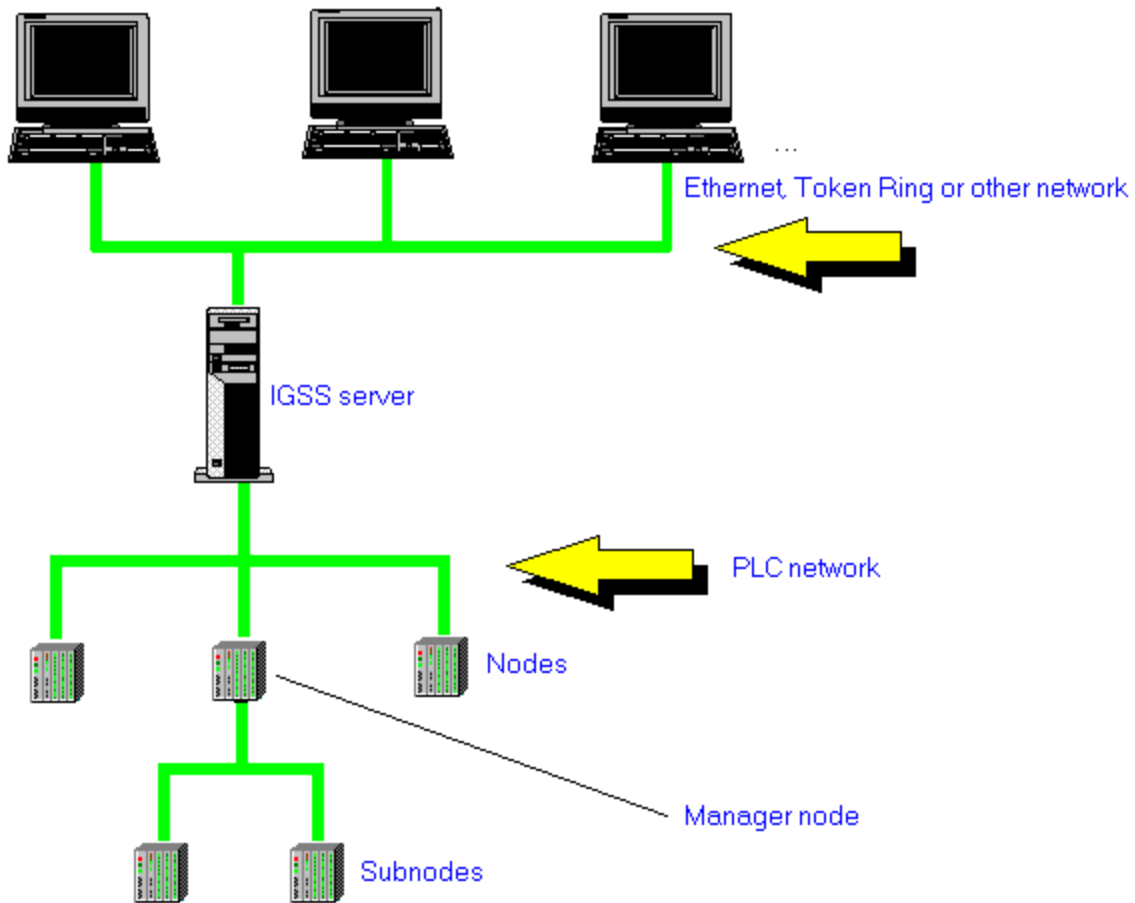
#### What is a subnode ?

#### Definition

A subnode is a node (PLC) which communicates with IGSS through a gateway node (the [manager node](#)).

#### Manager node and subnode

All communication between a subnode and IGSS is routed via the manager node which is therefore the communication gateway for IGSS as shown below.



## Preconditions

To define a subnode, the following preconditions must be met:

- The PLC program in the manager node must be written to support subnodes
- The [mailbox](#) must be enabled for the manager node. The mailbox is an address area on the manager node reserved for communication with the subnode.

All SICOS drivers support subnodes and do not require a mailbox.

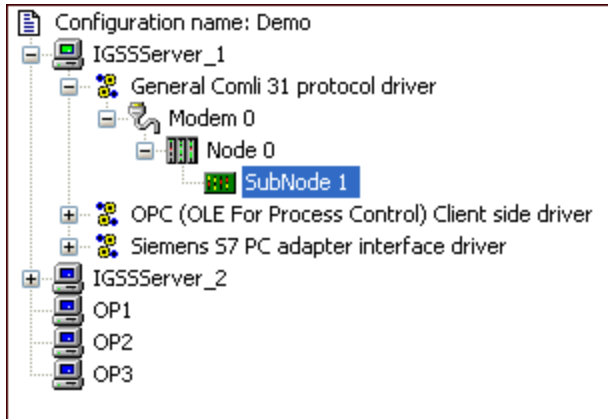
## Managing subnodes



### Adding subnodes

To add a subnode, right-click the relevant [manager node](#) in the tree view, then select **New Subnode** in the menu or click the above icon.

A default subnode number is added which you can change on the **Subnode Properties** tab.

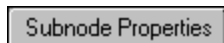


### Editing subnode properties

To edit subnode properties, select the relevant subnode in the tree view, then edit the properties on the **Subnode Properties** tab. Click the tab below for details.



For a SICOS driver, the properties are a bit different. Click the tab below for details.



### Deleting subnodes

To delete a subnode, select it in the tree view, then click the icon above.

## Subnode Properties tab

### What it shows

When you select a subnode in the tree view, this tab appears.


The following properties are available:

This property ...	allows you to ...
-------------------	-------------------

<b>IGSS subnode number</b>	define the node number for the PLC – the one you address in Definition.
<b>Keep Alive PLC → PC</b>	enable keep alive telegrams from the subnode to IGSS and define the appropriate interval.

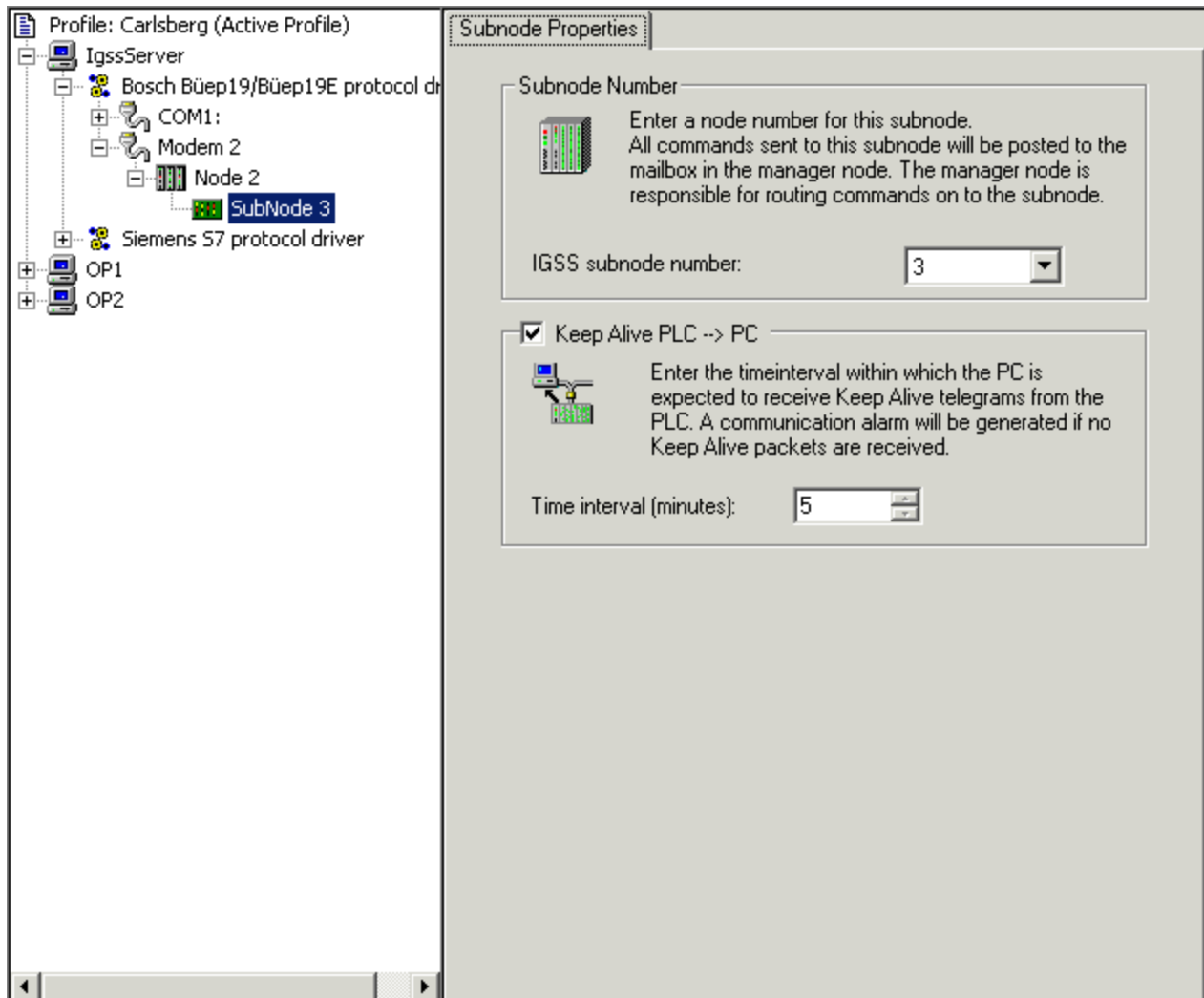
If the keep alive interval times out, alarm no. 46 “No heartbeat received” will occur in the alarm list.

**Note:** The **Driver** object, which is predefined in a new IGSS configuration, monitors the communication at the driver level between the PLC and IGSS. The keep alive function monitors the communication at the node level.

For details about a property, click , then click the item.

### How it looks

The figure below shows the **Subnode Properties** tab.



## Add and Manage Subnodes

### Add a new subnode

To be able to add a subnode, the [mailbox](#) must be enabled for the manager node on the **Advanced** tab (SICOS drivers excepted). All communication with the subnode is handled by the manager node.

1. In the tree view, select the node (manager node) to which you want to add a subnode.

Select **Edit → New Subnode** or click the above icon in the toolbar. A new subnode number and icon appear in the tree view.

2. Edit the subnode properties, as required.

### **Edit subnode properties**

1. In the tree view, select the subnode whose properties you want to change.
2. Edit the subnode properties, as required.



### **Remove a subnode**

1. In the tree view, select the subnode you want to remove.
2. Select **Edit → Remove** or click the above icon in the toolbar.  
A confirmation message appears.
3. Click **Yes** to remove the subnode.

You can also right-click the subnode and select **Remove Subnode**.

# Chapter 4: Monitoring and Controlling the Communication Status

## 4.1 The Driver object

### Definition

In every configuration you create, a standard system object called **Driver** exists. It provides information about the driver: Whether the driver is running and whether communication to the PLC(s) is possible as well as communication alarms.

The **Driver** object monitors the communication at the driver level, so if you have several nodes defined for a driver, it is recommended to create a status object for each node. Click **See Also** for details.

### Communication alarms

The alarm numbers between 10 and 51 are reserved for various communication errors (the communication ports, the PLC, the data collection engine, etc.). These alarms are automatically reported in the alarm list, if communication errors occur.

Alarm numbers ...	are used when ...
10 and 11	the setup of drivers is erroneous.
20 and 21	the communications ports are faulty.
30 to 39	the extended event-driven communication drivers fail; please refer to driver documentation.
40	a general PLC error occurs; please refer to PLC documentation.
41 to 45	there are driver communication errors; please refer to driver documentation.
46	the connection to the PLC program is missing; the physical connection may be in order, but for some reason the PC has not received the expected "I'm alive" message.
47	the extended event-driven communication drivers fail; please refer to driver documentation.
48	there is an interface error to a remote driver.
49	there is an interface error to the Alarmnet.
50	incomprehensible data from the PLC is received by the data collection engine (DC).
51	too much data output is generated, for example, if a DDE

Alarm numbers ...	are used when ...
	link generates too much data.

### Handling driver alarms

During supervision, possible communication alarms will appear in the alarm list and can be handled as any other alarm (acknowledged, etc.).

### Displaying the Driver object

The **Driver** object may be shown on a process diagram to easily view its status. If any of the alarms from the table above occur, the symbol representing the object will blink with the alarm colour defined for the alarm text. To view the alarm text definitions, select **Edit → Alarm Texts**, select the relevant alarm text and click **Edit**.

The figure below shows an example of how you can represent the **Driver** object using a \*.bmp file. The object has two states:

- < - **1** when the driver is running
- < - **0** when the driver is not running

Driver



## 4.2 The node status object

### Purpose

To monitor the communication status of the individual node, we recommend that you create a node status object. You can then reserve one or more process diagrams for an overview of your PLC network where you can view the status of each PLC in the system at a glance.

### How to create a node status object

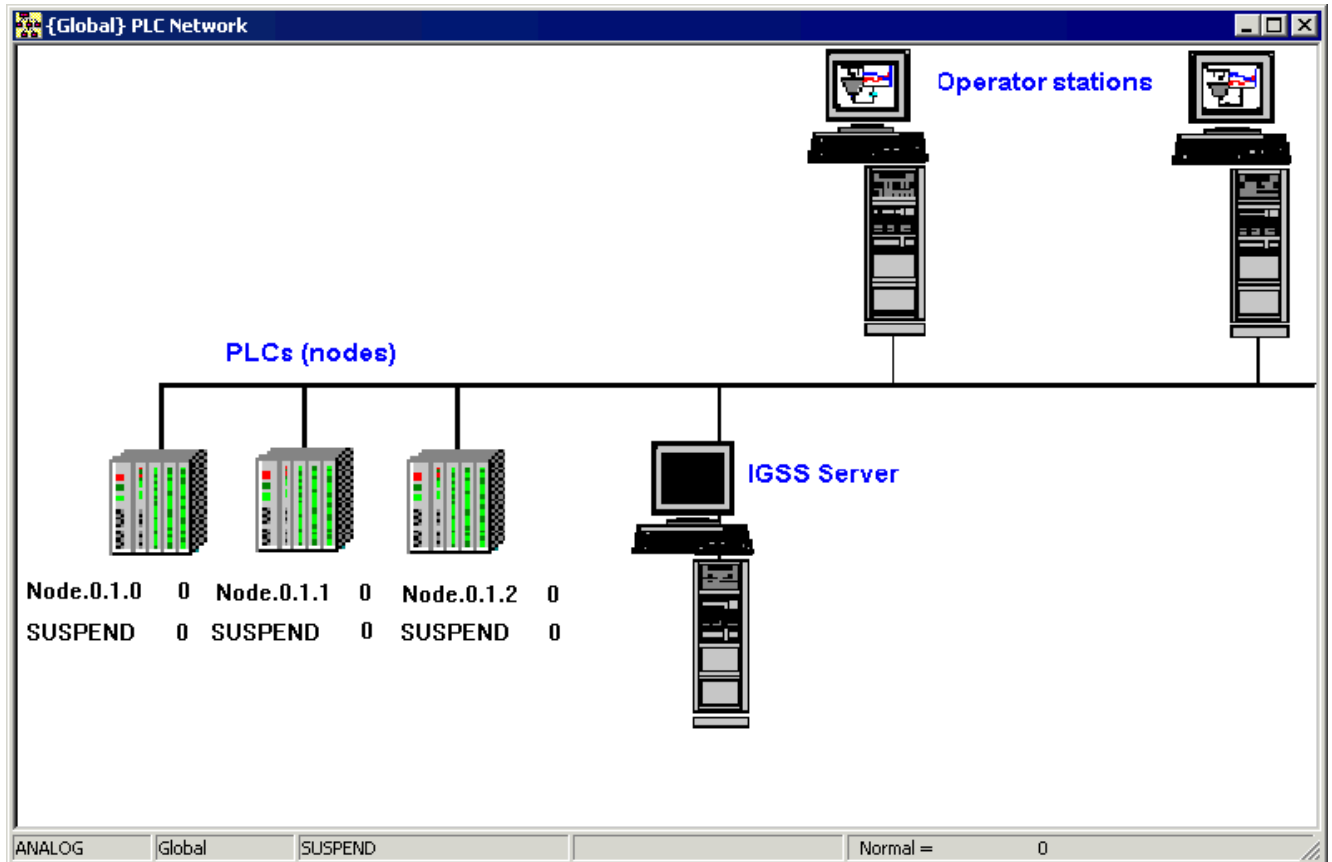
The node status object is created as an analog object in Definition. Click here  for details.

### Example: PLC network with node status objects

The figure below shows a PLC network where each PLC icon has been connected to a node status object. An alarm text has been attached to the object to make communication alarms visible in the Alarm List.

If the communication fails with a PLC, its icon will blink and the communication alarm will occur as an error code in the **Value** field of the Alarm List.

**Note:** The value **0** means that there are no communication errors.

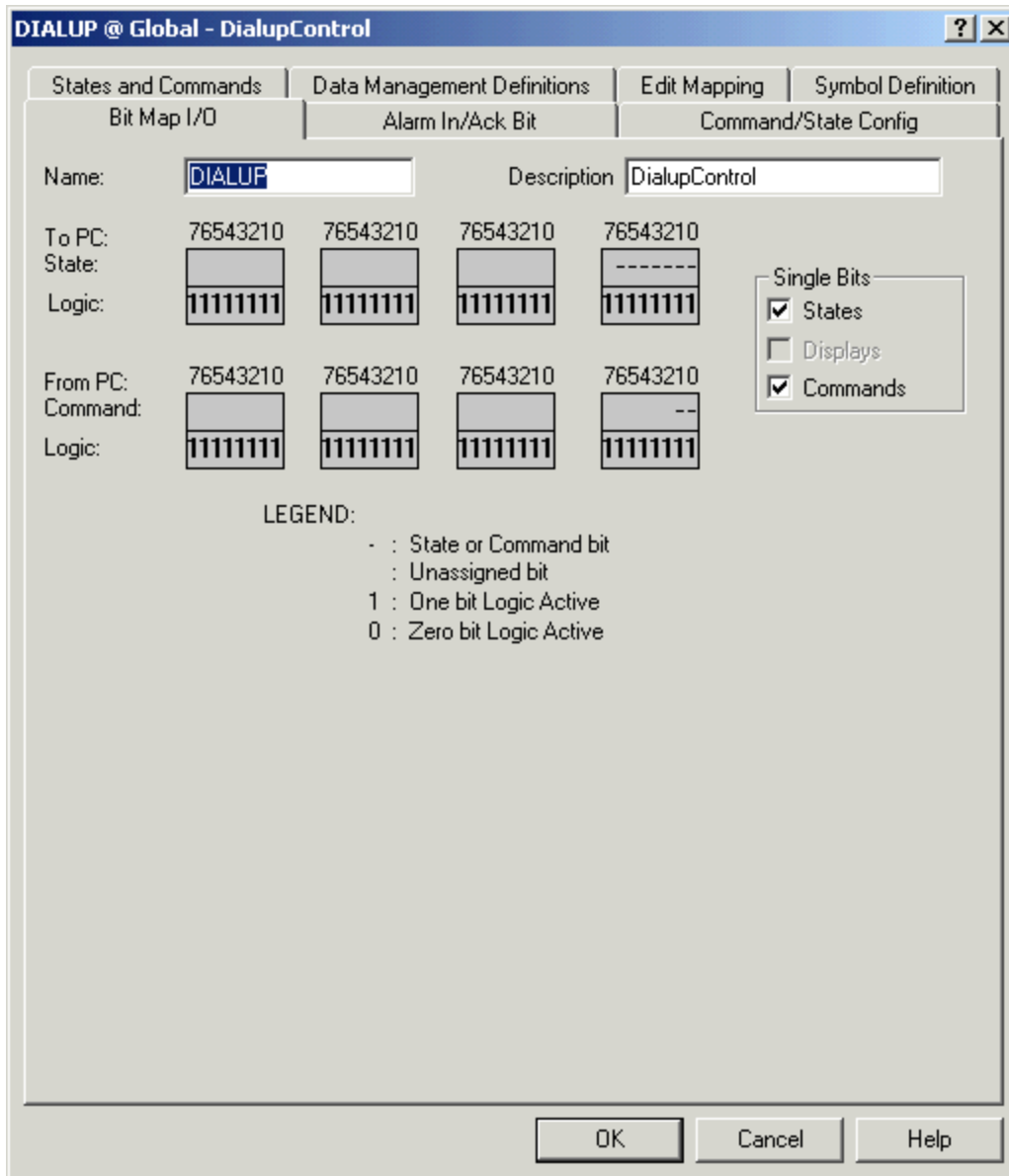


## 1.1 Monitoring and controlling the remote connection status

In the **Definition** program, it is recommended to create a status object for each remote PLC defined in **System Configuration**. This is done by creating a digital object for each remote connection with a PLC address that matches the one defined on the **Connection Misc** tab for the remote connection.

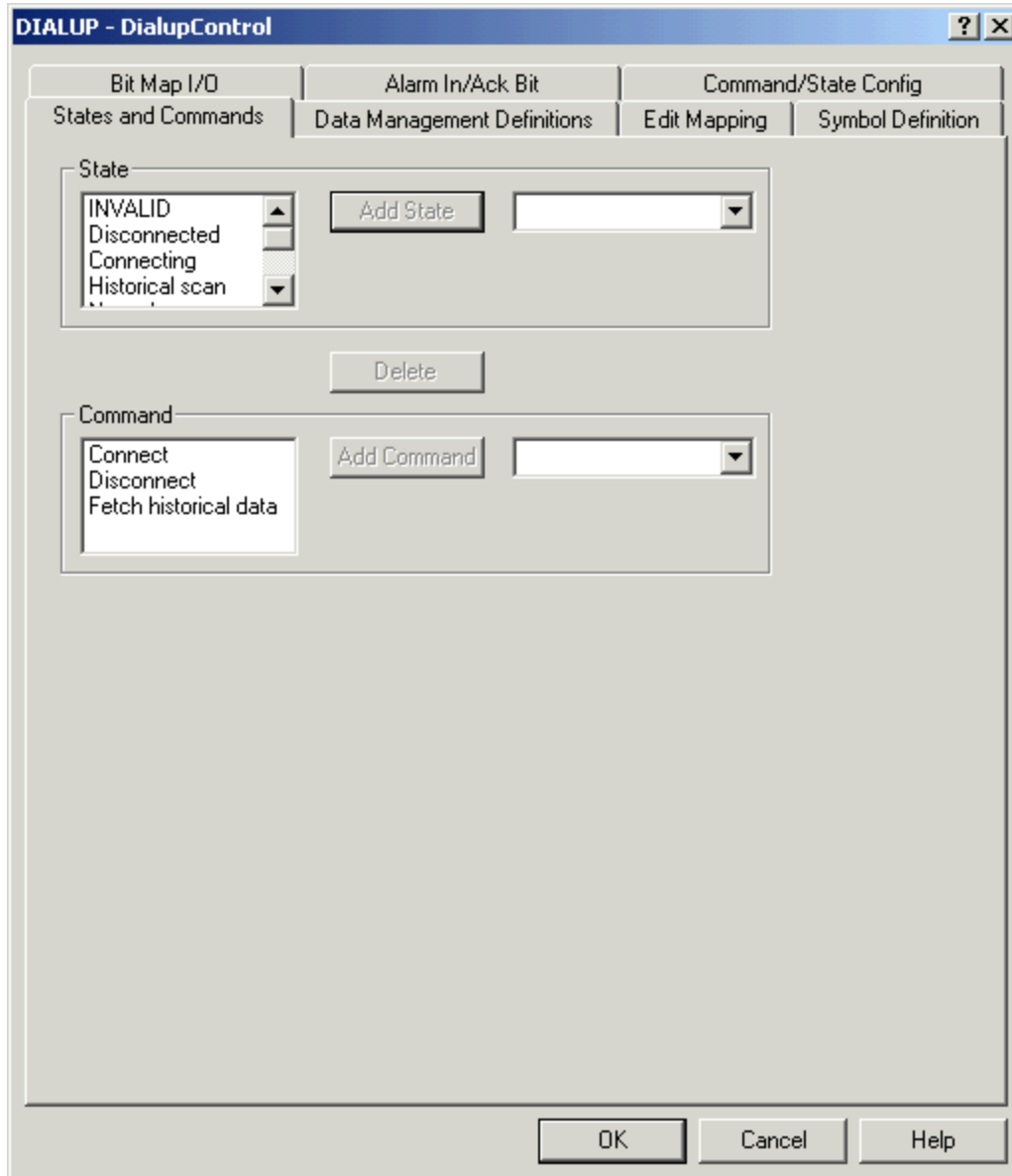
**Important:** The DIALUP template is built into every new configuration you create. So, if you've created the configuration from scratch in version 5 or higher, you can skip this first part of the procedure to start creating the status object immediately. If the configuration was created in a previous version of IGSS, follow the procedure to create the template first.

1. Open **Definition** and create a digital template called **DIALUP**.
2. In the template properties dialog box, click the **Bit Map I/O** tab and set the state bits (7) and command bits (2) as shown below. Remember to check the **States** and **Commands** boxes under **Single Bits**.

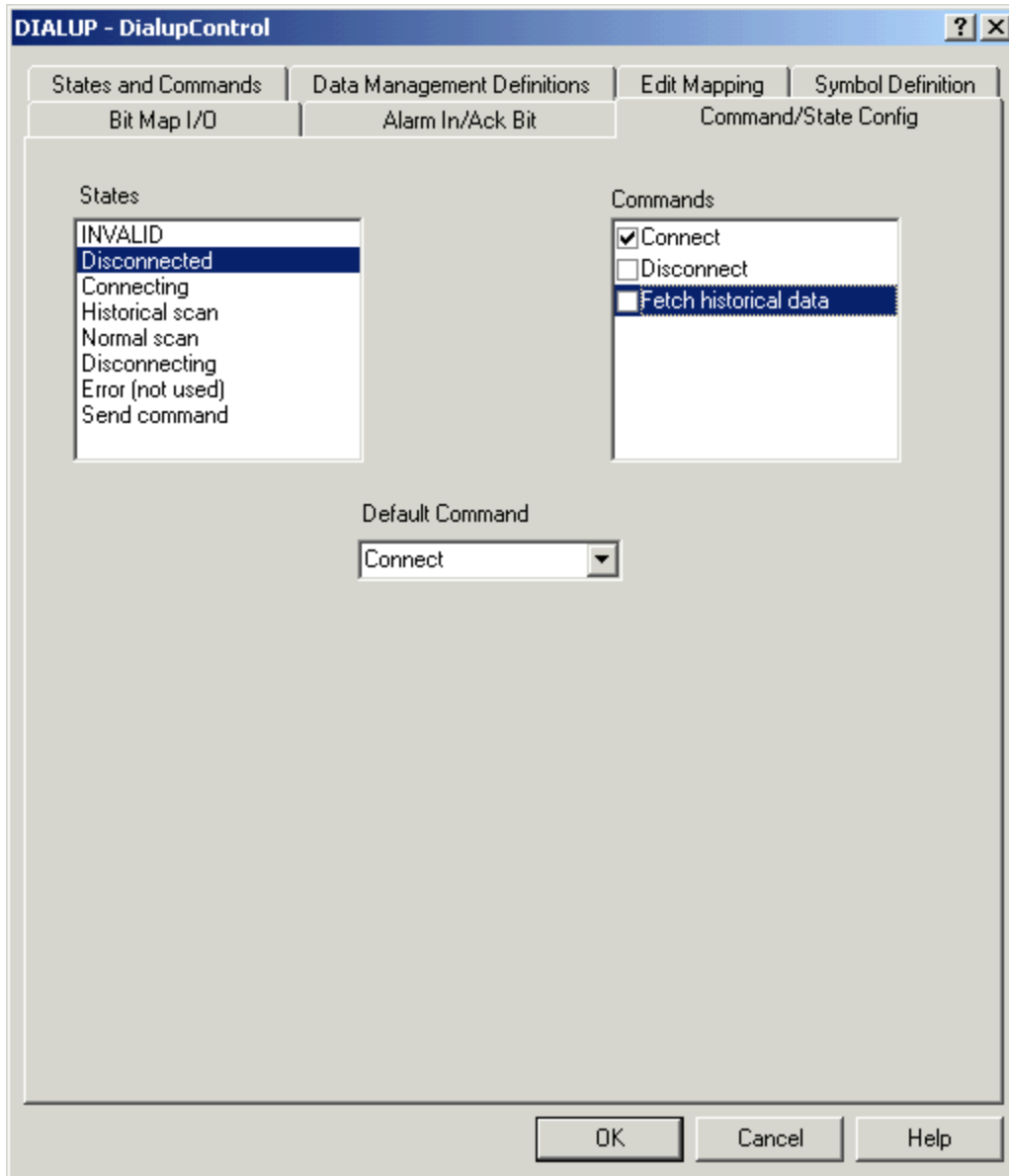


3. Click the **States** and **Commands** tab to define these state and command names (bit number in brackets):

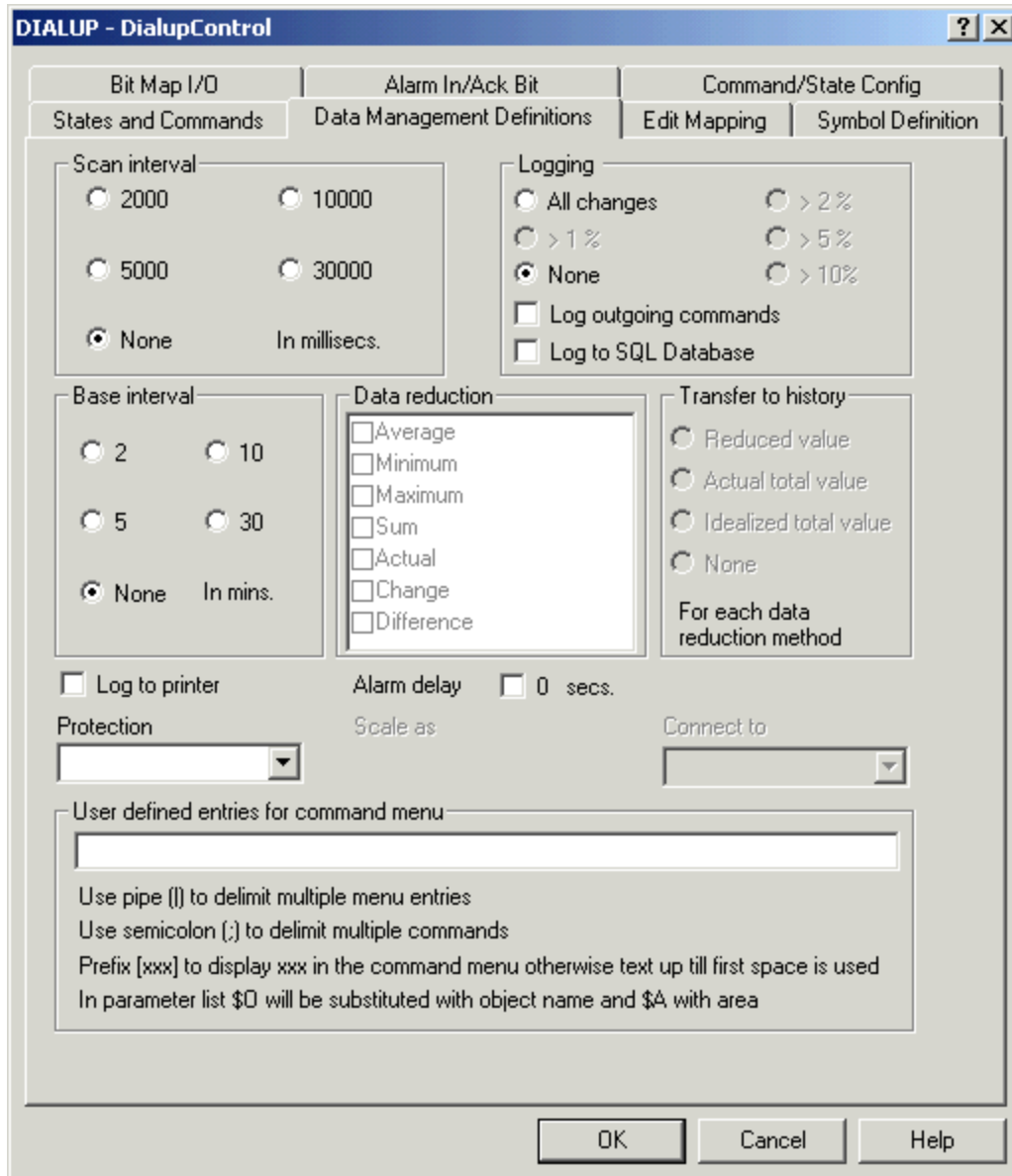
- States: **Invalid (0)**, **Disconnected (1)**, **Connecting (2)**, **Historical scan (3)**, **Normal scan (4)**, **Disconnecting (5)**, **Error (not used) (6)**, **Send command (7)**.
- Commands: **Connect (0)**, **Disconnect (1)** and **Fetch historical data (2)**.



4. Click the **Command/State Config** tab to enable the relevant command(s) for each state. Select each state and enable the relevant command(s). For example, for the **Disconnected** state, enable the **Connect** command.

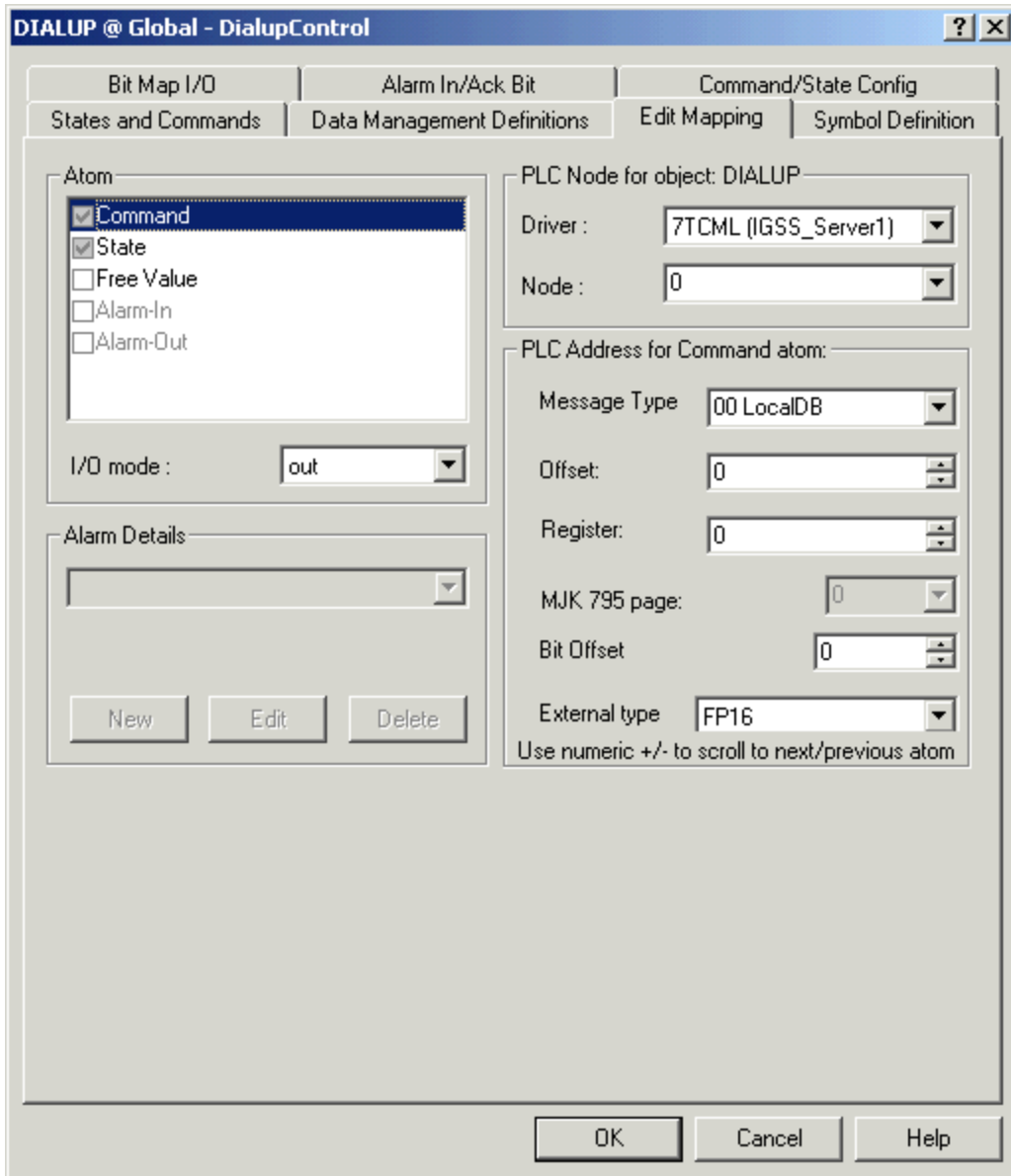


5. On the **Data Management Definitions** tab, make sure that scanning, logging and data reduction are disabled.



- Click the **Edit Mapping** tab to define the relevant driver and node number for the **State** and **Command atoms**. We do not specify the full PLC address in the template, this is done for the individual status objects.

**Result:** The template is now ready for use. Click **OK** to save it.

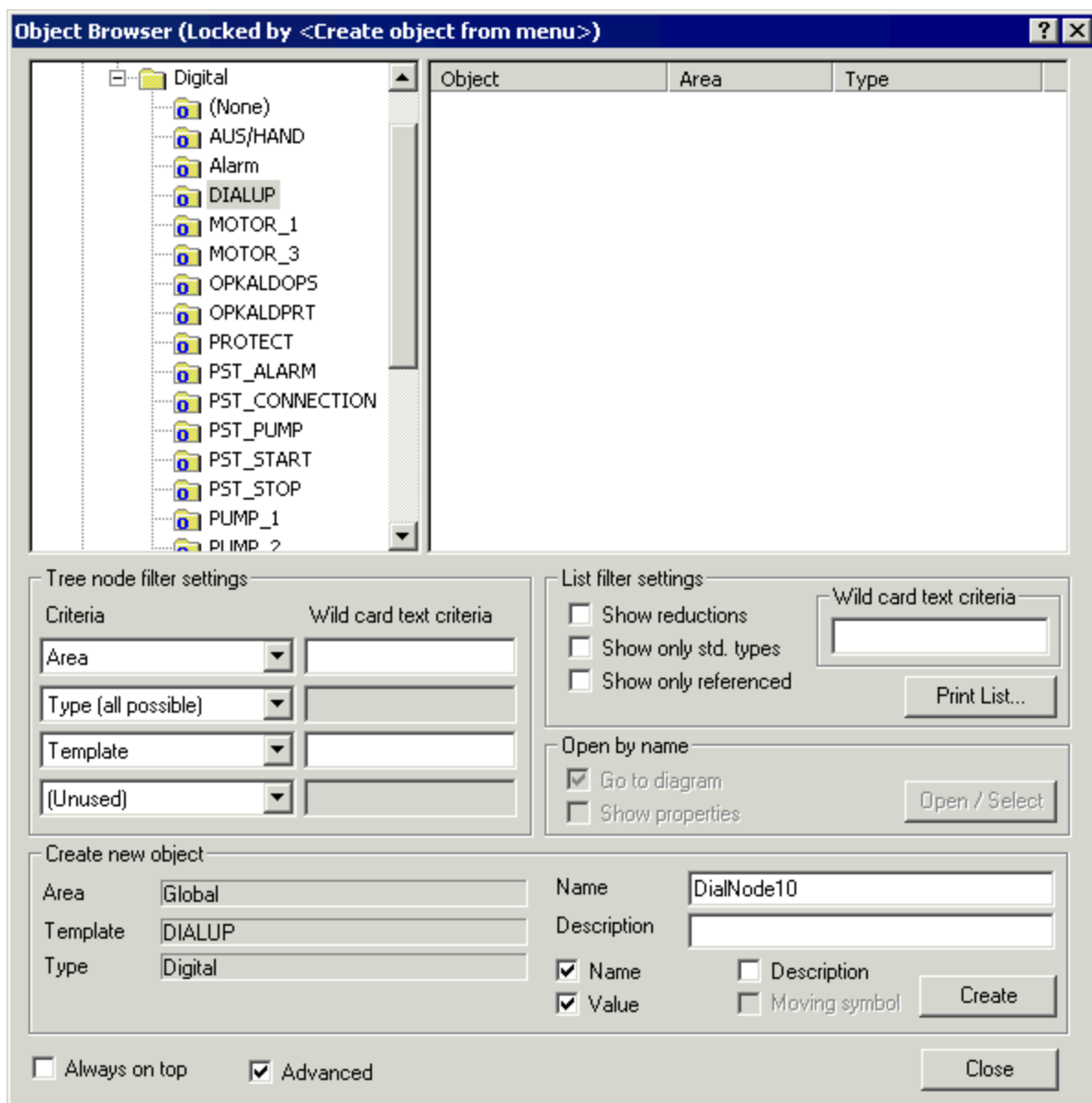


#### Note

No alarm bits are defined for this template and it is recommended to use a command field to display the status object on the process diagram. Therefore, you need not select a symbol on the **Symbol Definition** tab.

**The next step is to create the status object:**

1. Right-click at the position where you want the object and select **New → Command Field**. This is the recommended way of showing the status object. The **Object Browser** dialog box appears.
2. Click the **+** sign beside the area in which you want to create the status object.
3. Click the **+** sign beside **Digital** to show all digital templates and objects.
4. Select the **DIALUP** template.
5. At the bottom of the dialog box in the **Create new object** area, type the name of the status object. In this example, we've used DialNode10.



5. Click **Create**. The properties dialog box for the status object appears with all the predefined properties from the **DIALUP** template.
6. Click the **Edit Mapping** tab to define the PLC addresses for the **State** and **Command** atoms.

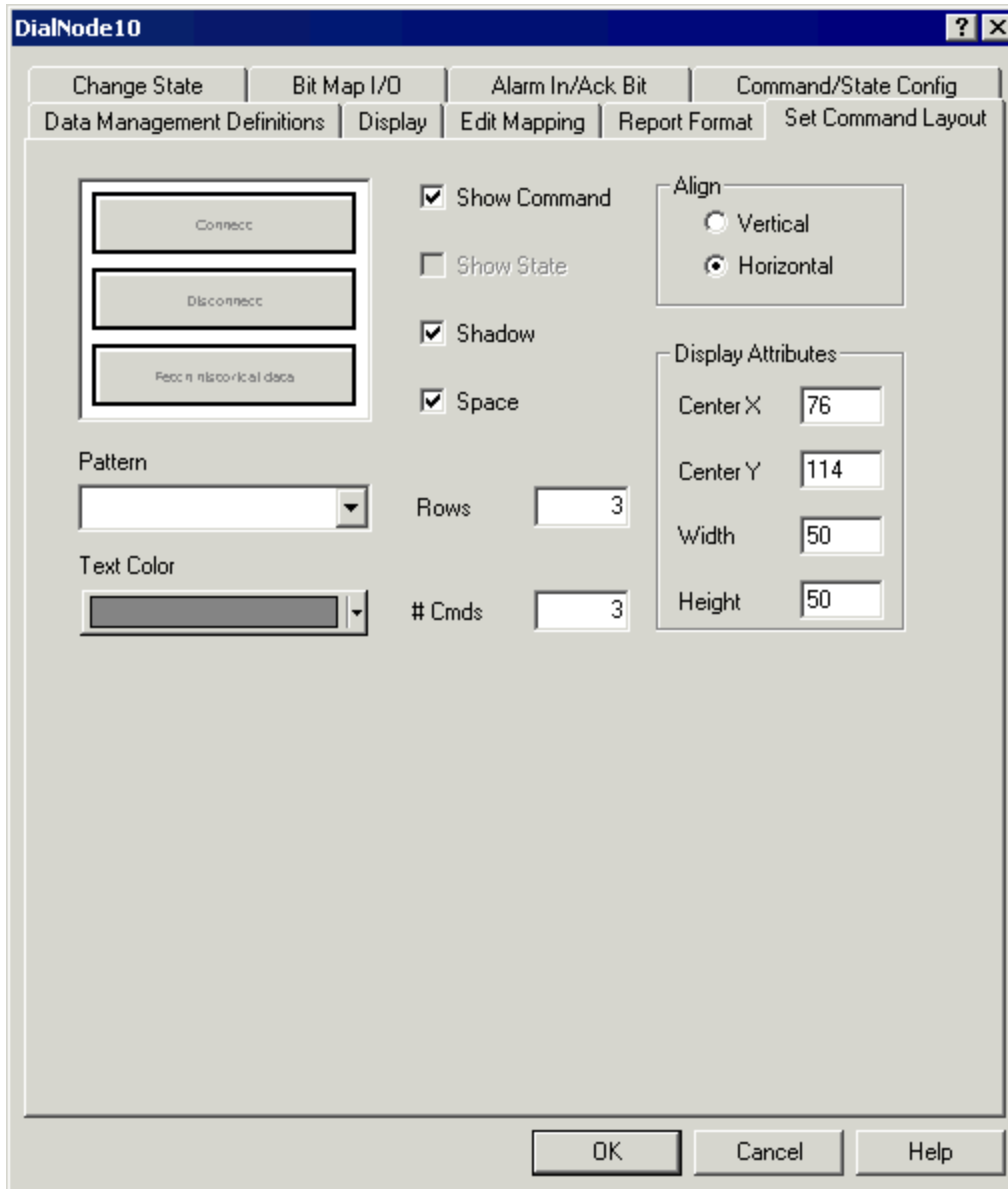
**Tip:** The PLC address for the **State** and **Command** atoms must match the address defined on the **Connection Misc** tab in **System Configuration**. It is recommended to set the **Data Group** and **Word Offset** to "0" to collect this type of status objects in this address range.

The screenshot shows the 'DIALUP @ Global - DialupControl' dialog box with the 'Edit Mapping' tab selected. The dialog is divided into several sections:

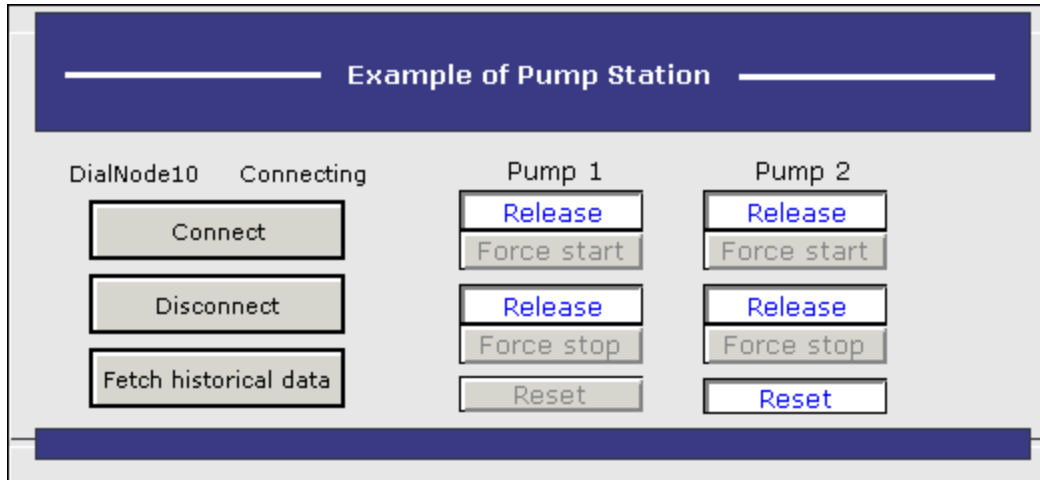
- Atom Selection:** A list box on the left contains 'Command' (checked), 'State' (checked), 'Free Value' (unchecked), 'Alarm-In' (unchecked), and 'Alarm-Out' (unchecked). Below it, the 'I/O mode' is set to 'out'.
- Alarm Details:** A dropdown menu is empty, and there are 'New', 'Edit', and 'Delete' buttons below it.
- PLC Node for object: DIALUP:** 'Driver' is set to '7TCML (IGSS\_Server1)' and 'Node' is set to '0'.
- PLC Address for Command atom:** 'Message Type' is '00 LocalDB', 'Offset' is '0', 'Register' is '0', 'MJK 795 page' is '0', and 'Bit Offset' is '0'.
- External type:** Set to 'FP16'. A note below reads: 'Use numeric +/- to scroll to next/previous atom'.

At the bottom of the dialog are 'OK', 'Cancel', and 'Help' buttons.

7. Click the **Set Command Layout** tab to configure the command field as shown below. The status object is now ready to be placed on the process diagram.



8. Click **OK**. The command field and the object name and description now appear.
9. Resize the field and place the name and description, as required. See example below.



**Result:** When you start the IGSS configuration, the current status of the remote connection will be shown and the operator can connect, disconnect and fetch historical data using the command buttons.

#### Tips

- To define more status objects, simply repeat the above procedure.
- For nodes that are directly connected via a serial port, you can create a node status object in the **Definition** program. Click here [»»](#) for details.

### 4.3 Suspending a remote connection from Supervise

#### Purpose

If a remote PLC is being serviced, the operator will get communication alarms in the Alarm List. In that case, the operator may want to temporarily suspend the communication.

#### The DIALSUSPEND template

For that purpose, a template is included in every new IGSS configuration. The template is called DIALSUSPEND. By using this template, the operator has access to two additional commands compared to the DIALUP template: **Suspend** and **Resume**.

The template includes the following states and commands:

States	Commands
Invalid	Connect (For internal use)

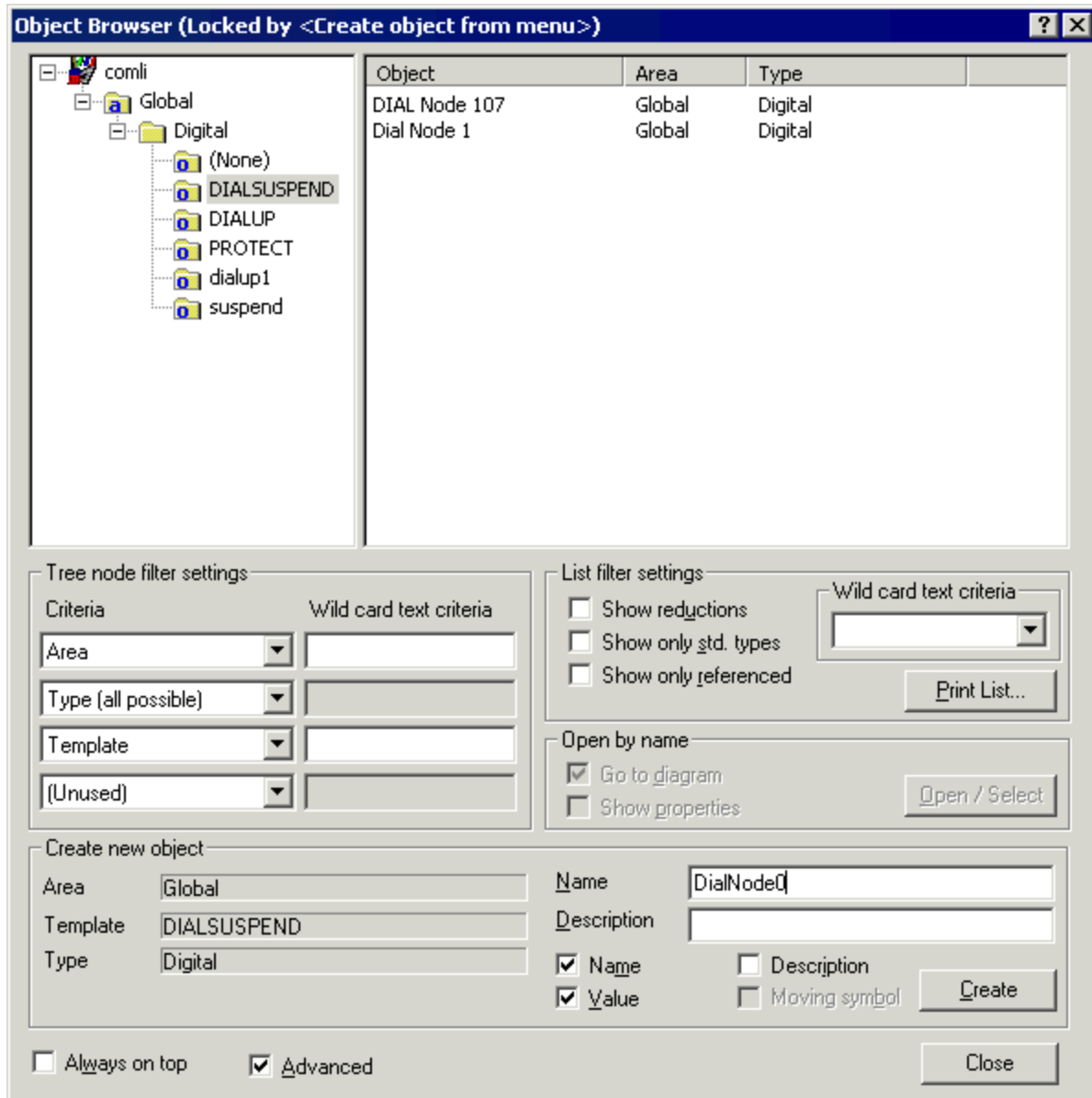
Disconnected	Disconnect
Connecting	Fetch historical data
Historical scan	Connect
Normal scan	Suspend
Disconnecting	Resume
Error	6-> (For internal use)
Send command	7-> (For internal use)
Suspended	

### Create the suspend / resume object

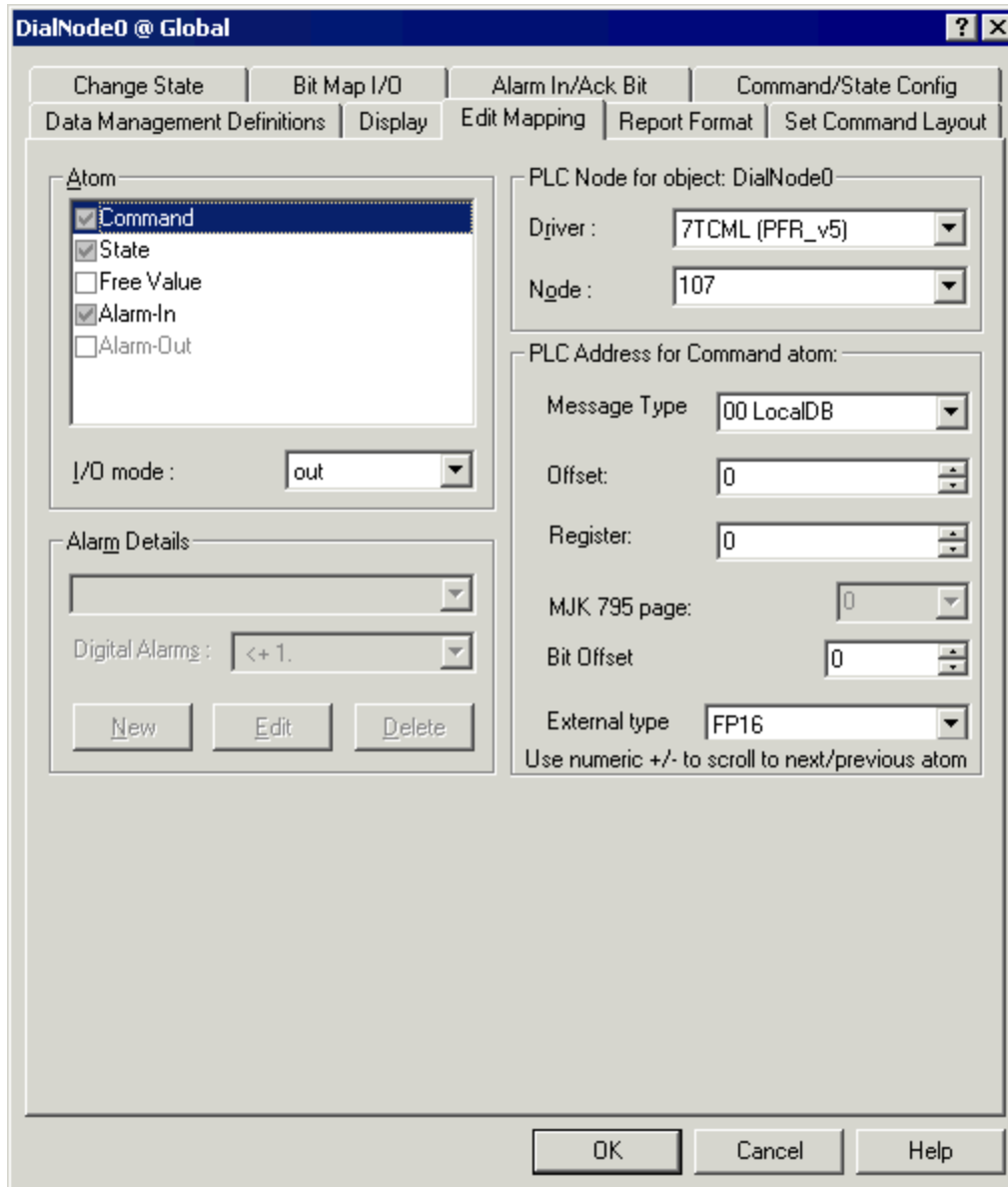
In the following procedure, 7T recommends that you create two separate displays for this object. One for the normal commands: **Connect**, **Disconnect** and **Fetch historical data** and two buttons from which the operator can suspend and resume the remote connection.

### Create the command field

1. In the **Definition** program, right-click at the diagram where you want to place the object.
2. Select **New** → **Command Field**. The **Object Browser** dialog box appears.
3. Click the **+** sign beside the relevant area of the configuration.
4. Click the **+** sign beside **Digital** and select the **DIALSUSPEND** template.
5. At the bottom of the dialog box in the **Create new object** area, type the relevant name of the object, for example, **DialNode0**.



6. Click the **Create** button. The object properties dialog box appears.
7. On the **Edit Mapping** tab, do the following for both **State** and **Command**:
  - Select the relevant driver and node number for the remote connection.
  - In the **Data Group** and **Word Offset** fields, type the exact addresses specified on the **Connection Misc** tab for the node. It is recommended to set the Data Group and Word Offset to "0" to collect this type of status objects in this address range.



8. Click the **Set Command Layout** tab and do the following:

- In the **Rows** and **# Cmds** fields, type 3 to match the number of commands to display.
- Click the **Show command** and **Shadow** check boxes.
- Under **Align**, select **Horizontal** and click **OK**.

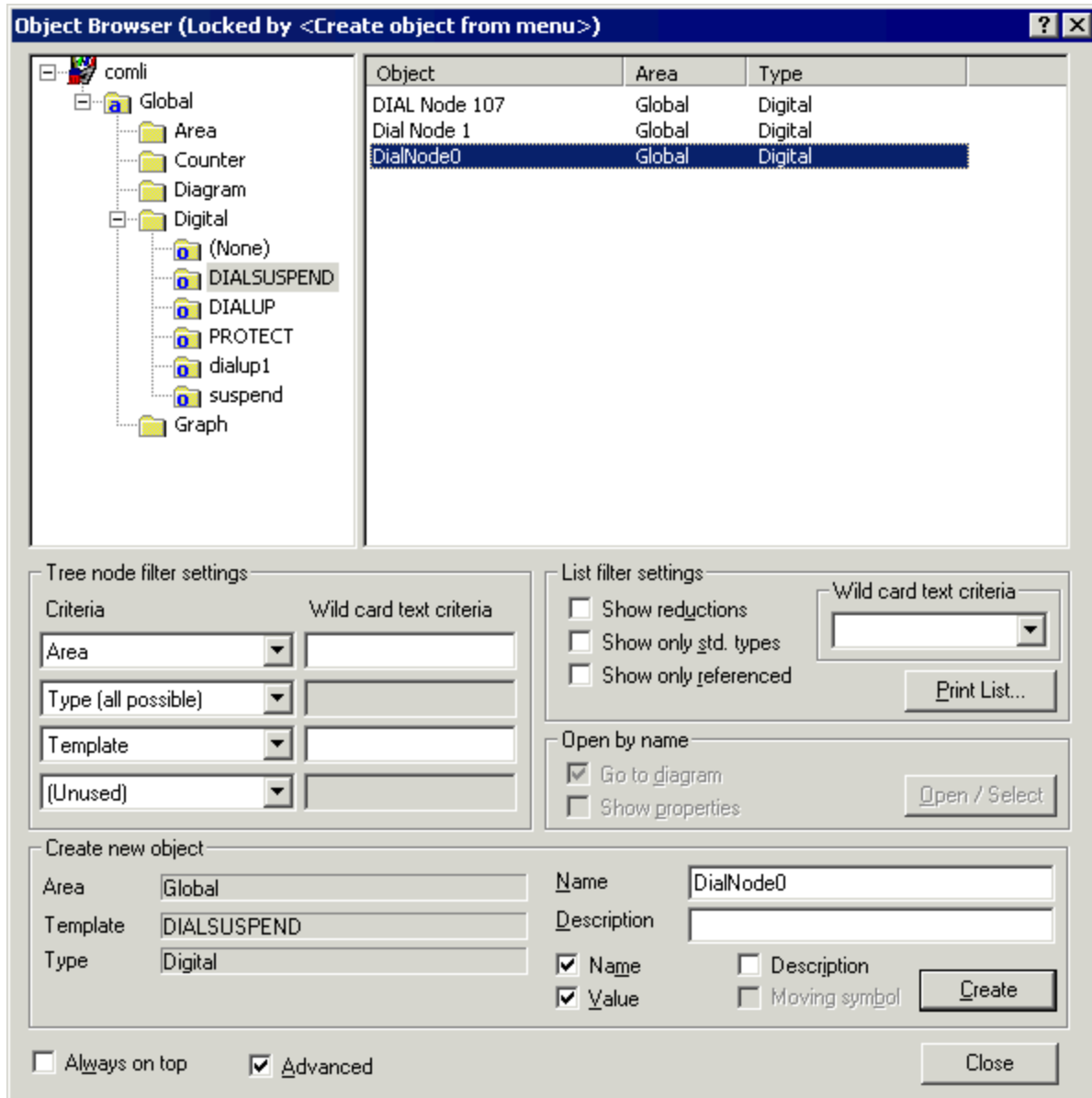
9. Place and resize the command field, the object name and state, as required.



- The operator will now be able to connect, disconnect and fetch historical data from the **Supervise** program.

### Create the Suspend button

1. Right-click where you want to place the **Suspend** button. It is recommended to place it beside the command field we just created.
2. Select **New** → **Standard Descriptors** → **Button Control**. The **Object Browser** dialog box appears.
3. Click the **+** sign beside the relevant area of the configuration.
4. Click the **+** sign beside **Digital** and select the **DIALSUSPEND** template.
5. Click the name of the object we created in the previous procedure and click the **Create** button.



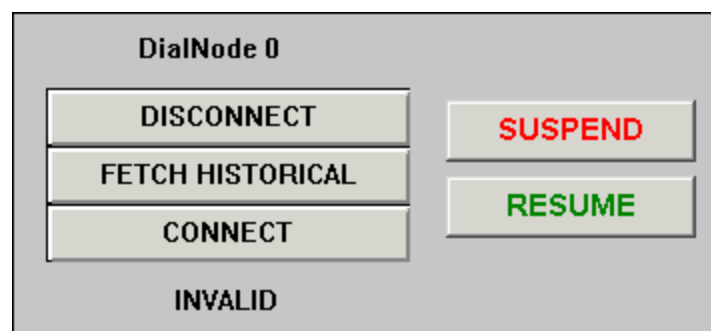
2. Double-click the button to change its properties.
3. Click the **Display** tab and clear the **Enable** check boxes under **Name** and **State / value**.
4. Click the **Attributes of Button** tab and do the following:
  - Double-click the **Bind command on click** setting to enable it.
  - Double-click the **Suspend** setting to make the button send that command.
  - Under **Style**, double-click the **Font** property and make the text bold.

- Under **Style**, double-click the **Text color** property and select the red color to illustrate the suspend command.
5. Click **OK** twice to close the dialog box.
  6. Position and resize the button.

### Create the Resume button

1. Right-click the button we just created and select **Copy**.
2. Right-click again and select **Paste → As Reference**.
3. Drag the button down below the first button.
4. Double-click the new button to change its properties.
5. Click the **Attributes of Button** tab.
6. Under **Command on click**, double-click the **Resume** setting to make the button send that command.
7. Under **Style**, double-click the **Text color** and choose a green color to illustrate the resume command.
8. Click **OK** twice to close the dialog box.

The final result should now look like this:



## 4.4 Communication alarms

On the **Data Collection** tab there are settings for controlling how to display communication alarms in the **Alarm** list. There are 2 sets of settings as represented by the two groups at the bottom of the tab, the **Alarms to Driver object** and the **Alarms to Node Status object** groups.

### Alarms to Driver object

There are two settings from which to choose. These are:

- Only if no Node Status object defined or if node number unknown

Select this option if **Node Status** objects have been created for some of, or all, nodes in the system. Alarms not related to a specific node will still be shown on the **Driver** object in the **Alarm** list and will be given the node number **1026**.

- To use this setting in a meaningful way, the **Node Status** object must have been created and attached to nodes in the system For more information on the **Node Status** object, [click here](#)
- **Always**

Selecting this option assumes that *no* **Node Status** objects have been used in the system; driver alarms will be displayed

### Alarms to Node Status object

- Only Node Status (High Alarm) alarms

Selecting this option displays only **Node Status** alarms on **Node Status** objects.

- **Both Node Status (High Alarm) alarms and Driver object alarms**

Selecting this option displays *both* **Node Status** alarms *and* **Driver** alarms on the **Node Status** object.

- To use these settings in a meaningful way, the **Node Status** object must have been created and attached to nodes in the system For more information on the **Node Status** object, [click here](#)

There are two additional benefits worth noting when using the **Node Status** object. These are:

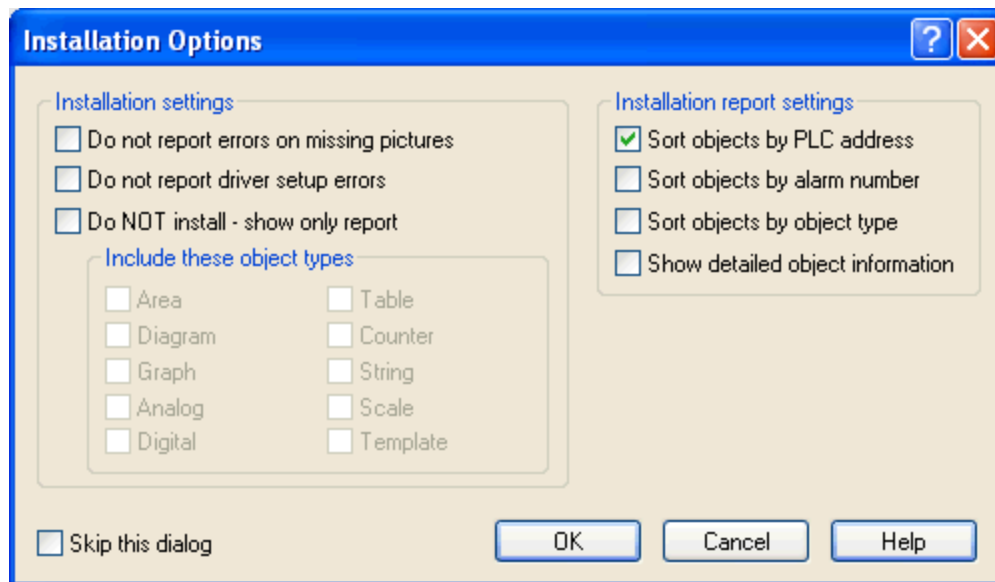
1. Alarm delay can be defined for the **Node Status** object.
2. A quick and reliable overview of node status can be presented graphically in the system as a mimic.

## Chapter 5: Tuning and Optimizing Data Communication

### 5.1 Communication efficiency information – [MyConfig].prt

#### The installation report [MyConfig].prt

When you install an IGSS configuration, you get the option of viewing an installation report. You determine what you want to view in the report in the **Installation Options** dialogue shown below.



#### PLC-related information

The installation report contains the following sections related to PLC communication:

- The entire system configuration (setup of stations and drivers)
- Objects sorted by PLC address
- Objects sorted by scan class (the **Scan intervals** chosen on the **Data Management Definitions** tab in the object properties dialog box)
- PLC communication efficiency information

For further details about the installation report, [click here](#).

#### The setup of stations and drivers

This section of the report shows the settings defined for all stations and drivers.

```

=====
Driver configuration
-----
Active profile                org
Number of stations           5
-----
Station name                  IGSSServer_1
-----
Station type                  Dualized server
Station description           -
LAN A                         -
LAN B                         -
Number of drivers            3
-----
Driver name                   OPC (OLE For Process Control) Client side driver (7TOPC)
-----
Driver activation condition   Operator station, Server or single user
Activation interval 10       Msg. pr. channel    100      Segment length    64
-----
Node0
-----
alarmmaxpriority    0      alarmminpriority    0      clockmaster        0
keepalivein        0      keepaliveout        0      manager            1
recvdatagroup      0      recvlength          100    recvoffset         0
reqsystemstart     0      reqtimestamp        0      reqtimesynch      0
subnodes           -      suspendnode         0      useutctime         1

```

### Objects sorted by data group

This section contains a list of all objects for which a PLC address has been defined. The objects are sorted by data group. Notice that overlapping PLC addresses are marked with the word **Overlap** in the last column.

Objects [sorted by data group](#).

Data group, node number	Address	Length	Object name	Atom	Scan class	Extern. type
0, 0	0.00	2	TANK2AUTO	State	Manual	FP16 -
	0.00	2	TANK2AUTO	Command	-	FP16 -
	0.00	2	TANK1AUTO	State	Manual	FP16 -
	0.00	2	TANK1AUTO	Command	-	FP16 -
	0.00	2	TANK2AUTO	State	Manual	FP16 -
	0.00	2	TANK2AUTO	Command	-	FP16 -
	0.00	2	TANK1AUTO	State	Manual	FP16 -
	0.00	2	TANK1AUTO	Command	-	FP16 -
	0.00	3	PST01-conn.	State	Manual	FP16 -
	0.00	2	PST01-conn.	Command	-	FP16 -
	0.00	16	PST01-LevelTotal_1	Val-in	Manual	FP16 -
50, 0	1.00	16	PST01-LevelYest_1	Val-in	Manual	SATTANA -
	1.00	16	PST01-LevelYest	Val-in	Manual	SATTANA Overlap
0, 2	0.00	3	PST02-conn.	State	Manual	FP16 -
	0.00	2	PST02-conn.	Command	-	FP16 -
	0.00	16	PST02-LevelTotal	Val-in	Manual	FP16 -
50, 2	1.00	16	PST02-LevelYest	Val-in	Manual	SATTANA -
0, 3	0.00	3	PST03-conn.	State	Manual	FP16 -
	0.00	2	PST03-conn.	Command	-	FP16 -
	0.00	16	PST03-LevelTotal	Val-in	Manual	FP16 -
50, 3	1.00	16	PST03-LevelYest	Val-in	Manual	SATTANA -
0, 1	1.00	16	PST01-Level_Hist	Val-in	Manual	FP16 -
10, 1	1.00	16	PST01-LevelTotal	Val-in	Manual	FP16 -
0, 0	0.00	4	Panel-4_2	State	Manual	FP16 -
	0.00	1	Panel-4_2	Command	-	FP16 -
	0.00	4	Panel-4_1	State	Manual	FP16 -
	0.00	1	Panel-4_1	Command	-	FP16 -
	0.00	4	Panel-4	State	Manual	FP16 -
	0.00	1	Panel-4	Command	-	FP16 -
	0.00	4	Panel-3	State	Manual	FP16 -
	0.00	1	Panel-3	Command	-	FP16 -
	0.00	4	Panel-2	State	Manual	FP16 -
	0.00	1	Panel-2	Command	-	FP16 -
	0.00	4	Panel-1	State	Manual	FP16 -

### Objects sorted by scan class

The scan classes section of the report shows a list of [scan records](#) divided into the four scan classes as shown below.

Scan classes:						
-----						
2:	1.000 sec.					
Drv id:	15	Node number:	13	Data group:	0	Word:3002 Length: 32
Drv id:	15	Node number:	13	Data group:	0	Word:3034 Length: 31
Drv id:	15	Node number:	13	Data group:	0	Word:3066 Length: 7
Drv id:	15	Node number:	14	Data group:	0	Word:3002 Length: 32
Drv id:	15	Node number:	14	Data group:	0	Word:3034 Length: 31
Drv id:	15	Node number:	14	Data group:	0	Word:3066 Length: 8
Drv id:	15	Node number:	113	Data group:	0	Word:3002 Length: 32
Drv id:	15	Node number:	113	Data group:	0	Word:3034 Length: 31
Drv id:	15	Node number:	113	Data group:	0	Word:3066 Length: 7
-----						
3:	5.000 sec.					
-----						
4:	10.000 sec.					
Drv id:	15	Node number:	13	Data group:	0	Word:3094 Length: 1
Drv id:	15	Node number:	14	Data group:	0	Word:3094 Length: 1
Drv id:	15	Node number:	113	Data group:	0	Word:3094 Length: 1
-----						
5:	30.000 sec.					
-----						
1:	Manual					
-----						

**PLC communication efficiency information**

Towards the end of the report, information about PLC communication efficiency is provided. The system designer can use the efficiency figures found to optimize the use of the PLC memory area. For both the parameters below, i.e. "Number of bits used for objects" and "Total number of words in scan records", the aim is to get the efficiency percentage as close to 100 % as possible. This will result in the most effective and speediest communication between IGSS and the PLC.

The two efficiency percentages are calculated and used as follows:

**Number of bits used for objects**

The efficiency percentage is calculated as follows:

$$\frac{\text{Number of bits used}}{\text{Total number of bits}} \times 100$$

The percentage expresses how effectively the bits used for IGSS objects have been packed within the data words read by IGSS. For example, if you're defining a digital object and only use the first two bits in a data word for two different digital states, the remaining bits of the data

word are unused. Avoid unused bits by packing the word with digital states so that no bits remain unused.

**Note:** If this percentage is higher than 100 %, it means that some PLC addresses are not unique. In some cases, you can do this deliberately to save space in the PLC, but in other cases it may mean that relevant data is overwritten.

### Total number of words in scan records

The efficiency percentage is calculated as follows:

$$\frac{\text{Total number of words}}{\text{Possible number of words with the same number of scan records}} \times 100$$

The percentage expresses how many relevant data words IGSS has read within a scan record. For example, if IGSS is reading 32 data words in one scan and only 25 of those are used for IGSS objects, the PLC addressing can be optimized. The closer you get to 100 %, the more efficient and faster the PLC address scanning takes place.

Closely related to these efficiency percentages is one of the key PLC design considerations. When you plan the use of the PLC memory area, make sure that IGSS objects with the same scan interval reside in the same data groups and words. This will reduce the number of scan records and thus optimize communication between IGSS and the PLC.

#### Communication efficiency in scan records:

Number of bits used for objects:	4021
Total number of bits in scanrecords:	3424
Efficiency:	117%
Total number of words in scanrecords:	214
Possible number of words with same number of scanrecords:	384
Efficiency:	56%

# Chapter 6: Property Page Help

## 6.1 Access Control tab

Supervise & Language		Startup	Data Collection	Reports
Station	Configuration	Files	Access Control	Alarm

Access control

Disable access control       Allow permanent user login

Monitor mode only       Old style login

Save latest user logged in       Force user login at program startup

Keep a record of all user activity in an audit trail database

Activity:	Store audit trail	Comment required
Output	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Limits	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Access	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Notes and ack's	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Data management	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
System	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Keep audit trail for  days

Alarm Management System and Super Alarm server settings

Disable AMS interface

Admin User	<input type="button" value="Add..."/>	TCP/IP port
	<input type="button" value="Edit..."/>	<input type="text" value="12399"/>
	<input type="button" value="Remove"/>	<input type="button" value="Default Port"/>

### Overview

The **Access Control** tab allows you to set up various parameters related to access control and user administration. You can do the following tasks:

- Enable/disable user administration
- Set up various user administration options
- Enable and set up the Audit Trail database

- Set up users who can establish connections to IGSS servers from an AMS or Super Alarm server

### Field help

Group name	Field	Description
	For user login at program startup	<p>This setting is only active on an operator station.</p> <p>Select this option to automatically activate the user login dialog box when the user/operator clicks on the <b>IGSS Starter</b>.</p> <p>The requirement for using this feature is that the <b>User Administration</b> module has been set up with user names and passwords.</p>

Monitor mode only	Select this setting to restrict the operator station from doing anything but passively monitoring the process on this PC.
Save latest user logged in	Check this box to have the system automatically insert the user name of the latest user who logged into the system. Then the user only needs to type his password.
Allow permanent user login	<p>Check this box to enable the <b>Make new user permanent</b> option in the <b>Temporary Login</b> dialog box which appears if the user who is currently logged in does not have the right to perform a certain operation.</p> <p>Instead, another user with the necessary privileges can log in to do the operation. If the above option is checked in the dialog box, the new user is logged in permanently, that is, also after the operation has been performed.</p>
Old style login	Check this box to use the password protection concept from

the IGSS, version 8.x 16-bit Windows edition. When enabled, the user is only prompted for a password when he logs in. Normally, logging onto an IGSS system requires both password and user name.

If you use this option, you must define your users with a user name but no password in **User Administration**.

When they log in, they are only prompted for a password which is identical to the user name defined. the IGSS, version 8.x 16-bit Windows edition. When enabled, the user is only prompted for a password when he logs in. Normally, logging onto an IGSS system requires both password and user name.

If you use this option, you must define your users with a user name but no password in the IGSS, version 8.x 16-bit Windows edition. When enabled, the user is only prompted for a password when he logs in. Normally, logging onto an IGSS system requires both pass-

	<p>e your users with a user name but no password in e your users with a user name but no password in e your users with a user name but no password in</p>
<p>For user login at program startup</p>	<p>This setting is only active on an operator station. Select this option to automatically activate the user login dialog box when the user/operator clicks on the <b>IGSS Starter</b>.</p> <p>The requirement for using this feature is that the <b>User Administration</b> module has been set up with user names and passwords.</p>

Audit Trail	Keep a record of all user activity in audit trail database	Select this check box to save user activity in the <b>Audit Trail</b> database.  You select which activities to save in the two columns named <b>Store audit trail</b> and <b>Comment required</b> below.
-------------	------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Keep audit trail for  
... (days)

Type the number of days for which you want  
to keep the user activity records in the Audit  
Trail database.

Limits	<b>Store audit trail</b>	<b>Comment required</b>
	Will save all alarm limit operations	The user must input a comment for each operation.
Access	<b>Store audit trail</b>	<b>Comment required</b>
	Will save all user access operations, such as the user logging in and out of the system. Also, automatic log-out of users will be recorded with this option.	The user must input a comment for each operation.
Notes and ack's	<b>Store audit trail</b>	<b>Comment required</b>
	Will save all activities where the user creates an object or user note or acknowledges an alarm.	The user must input a comment for each operation.
Data management	<b>Store audit trail</b>	<b>Comment required</b>

	<p>Will save all data collection and logging activities. The user can start/stop data collection, start/stop logging on specific objects or all objects in the configuration. Those operations will be recorded under Data Management.</p> <p>Will save all data collection and logging activities. The user can start/stop data collection, start/stop logging on specific objects or all objects in the configuration. Those operations will be recorded under Data Management.</p>	<p>The user must input a comment for each operation.</p> <p>The user must input a comment for each operation.</p>
--	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------

System	<b>Store audit trail</b>	<b>Comment required</b>
	Will save all system operations, such as starting and stopping the system.	The user must input a comment for each operation.
Keep audit trail for ... (days)	Type the number of days for which you want to keep the user activity records in the Audit Trail database.	

AMS and Super Alarm server settings	List of users	Lists the users who are authorized to establish connections to IGSS servers from AMS or Super Alarm.
	Disable AMS interface	Select this check box to prevent users logging onto the AMS server from using its user interface.
	Add...	Click this button to create a new user who will be authorized to establish connection to an IGSS server from AMS or Super Alarm.
	Edit...	Allows you to edit the user name and password of the selected user.
	Remove	Removes the selected user from the list.
	TCP/IP port	Specify the TCP/IP port which will be used for communicating with the AMS or Super Alarm server. This setting should only be changed, if there's a conflict with the default port number.
	Default port	Click this button to insert the default port number which is 12399.

# Chapter 7: Importing and Exporting Settings

## 7.1 Import/Export files (\*.ixd)

All settings defined in **System Configuration** can be exported and imported. You can -

- Export driver settings from v2 to an export file (\*.ixd)
- Export driver settings from the current version to an export file (\*.ixd)
- Import driver settings into the current version from either of the two sources above

## 7.2 Export IGSS v2 driver settings

You can export the driver settings from the active v2 driver profile for the purpose of importing those settings into the current version. This function will read the settings for the active driver profile in the Windows Registry.

1. Select **Tools** → **Export IGSS V2 Driver Settings**. The **Save As** dialog box appears.
2. Give the export file a meaningful name, for example, **MyDrvSetupv2.idx** and click **Save**.
3. To import these settings, open the relevant configuration and select **Tools** → **Import IGSS Driver Settings**.

## 7.3 Export IGSS v8 driver settings

You can export the driver settings to a file for the purpose of importing those settings into another configuration. The typical case is when you are configuring the drivers at your own office and want to copy these settings onto the IGSS server at the plant.

1. Select **Tools** → **Export IGSS v8 Driver Settings**. The **Save As** dialog box appears.
2. Give the export file a meaningful name, for example, **MyDrvSetupv8.idx** and click **Save**.
3. To import these settings, open the relevant configuration in the **System Configuration** program and select **Tools** → **Import IGSS Driver Settings**.

## 7.4 Import IGSS driver settings

You can now import the driver settings saved in an IGSS driver file (\*.idx) exported from either v2 or the current version.

1. Open the relevant configuration in the **System Configuration** program.
2. Select **Tools** → **Import IGSS Driver Settings**. The **Open** dialog box appears.
3. Find the relevant IGSS driver file (\*.idx).
4. Click **Open**. The settings are imported.

# Chapter 8: Reference and Lookup

## 8.1 Conventions in this Manual

The following typographical conventions are used:

Convention	Description	Example
User interface element	When referring to labels and names in the user interface.	The <b>Data Management</b> tab.
User input	When the user has to type specific data in IGSS.	Type the following description: <b>Incoming flow in Tank 2</b>
Module name	When referring to a module in IGSS	Open the <b>Definition</b> module.
Note	A note emphasizes or supplements important points of the main text. A note provides information that may apply only in special cases.	By default, the timestamp is in universal time format, <b>UTC</b> <sup>1</sup> . This can be changed in the Driver Log Filters dialog box.
Tip	A tip suggests alternative methods that may not be obvious in the user interface. A tip also helps the user in working more effectively with IGSS. A tip is not essential to the basic understanding of the text.	Alternative to this simple find function, you can also filter on text in the messages in Driver Log Filters dialog box.
Warning	A warning is an important note that is essential for the completion of a task. In some cases, disregarding a warning may result in undesirable functionality or loss of data.	If you disregard the System alarm, you may risk loss of data in the <b>LOG</b> and <b>BCL</b> files.

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<sup>1</sup>Universal Time Coordinated (formerly Greenwich Mean Time), used as the basis for calculating time in most parts of the world. IGSS uses this time format internally in the database. You can switch between UTC and local time by enabling or disabling the "UTC" field in various dialog boxes in the system.

## 8.2 Getting Help in IGSS

IGSS comes with a comprehensive help system designed to help both system designers and operators to get started with IGSS as quickly as possible.

### Documentation overview

The IGSS documentation includes the following items:

Documentation item	Description
Getting Started	An introduction to IGSS and its most fundamental terms and features. Getting Started is intended to get you up and running as fast as possible. The manual provides a system and architecture overview followed by a number of real-life use cases you can go through before building your first real IGSS project. The manual is available in Adobe Acrobat format (.pdf).
Module help	<p>For each module there is a help file with the same name as the module itself, for example, Igss.chm for the Master module, Igss.exe.</p> <p>The help file is invoked by clicking the  in the upper right corner of the module. The Table of Contents will then allow you to browse through the topics.</p>
Dialog box help	<p>For each dialog box there is a help topic with the following standard information:</p> <ul style="list-style-type: none"><li>• Overview</li><li>• Preconditions</li><li>• Where do I find it?</li><li>• Field help</li></ul> <p>Dialog box help is invoked by clicking the help button  in the upper right hand corner of the dialog box.</p>
Thematic help	IGSS also provides thematic help. When there is a special theme that requires special attention from the user, a dedicated help file is provided. Examples include "Driver-Specific Help" and "Database Administration Help".

### Where are the help files located?

The IGSS help files are located in the appropriate language folder under the [IGSS InstallPath]. The help files are available in English at release time.

The paths to the help files are:

Language	Path
English	[IGSS InstallPath]\ENG
Danish	[IGSS InstallPath]\DAN
German	[IGSS InstallPath]\DEU

### Translated help files

Selected help files have been translated into Danish and German. If you require help files in your language, please contact 7T.

### Help updates

The IGSS help files are continuously updated and improved. Check regularly with the **IGSS Update** module in the IGSS Start menu.

## 8.3 Version Information (IGSS Help System)

© 7-Technologies A/S, IGSS Version 9.0

The IGSS help files are based on software build number 10305 (initial release)

### English help files

To update the help files, you must activate the **IGSS Update** module in the IGSS Start menu. There must be a connection from the PC to the Internet. Every time **IGSS Update** is run, IGSS help files as well as IGSS system files will automatically be updated on the PC from the 7-Technologies web server.

You select the languages you want to update in the **Tools** menu of the **IGSS Update** module.

If you are not able to update the IGSS system directly via the Internet, the alternative is to download the updates from the 7-Technologies website as zip files. These can then be transferred onto a CD or USB memory stick, which is then the medium used to update on site.

After running **IGSS Update**, the build numbers in various IGSS modules may change to a higher number. This signifies that the module in question has been updated with newer files. Build numbers consist of four digits, where the first digit represents the year and the

last three represent the day number in the year in question. The build number can be seen in the **About** dialog box which can be activated from the **Help** menu.

An example:

**Build number = 10305**

**10 = the year 2010**

**210 = The 210<sup>th</sup> day of the year**

## Chapter 9: Glossary

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### A

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#### **Application menu**

The Application menu is the first ribbon in the IGSS Master module. Click the icon to drop down the menu. The menu contains items that were typically found in the File menu in previous versions of IGSS. In most modules, an "Options" item allows the user to define global module settings. The Application menu was introduced in the Microsoft Office 2010 package. It replaces the Application button (nicknamed Doughnut) which was introduced in IGSS V7 and V8.

### D

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#### **descriptor**

A descriptor is the graphical display of an object. IGSS includes many types of descriptors including: - Built-in standard symbols - Animated symbols (Symbol Factory library) - Graphics and animation - Drawing symbols - Windows controls - ActiveX controls An IGSS object can be represented with different descriptors on different diagrams.

### Q

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#### **Quick Access Bar**

You can customize the Quick Access Bar to include the functions you use most frequently. Simply drag the relevant function from the ribbon to the Quick Access Bar.

### R

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#### **Ribbon**

The Ribbon is a new term/element in the Microsoft universe. The Ribbon replaces the well-known toolbars in applications. The Ribbon provides quick access to the most commonly used functions in the application. The Ribbon is divided into logical groups (the tabs) and each tab is divided into sections (the blocks in the tab). The Ribbon is context-sensitive which means that only relevant functions are accessible dependent on the current user action.

### S

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#### **SCADA**

Supervisory Control & Data Acquisition

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## **U**

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### **UTC**

Universal Time Coordinated (formerly Greenwich Mean Time), used as the basis for calculating time in most parts of the world. IGSS uses this time format internally in the database. You can switch between UTC and local time by enabling or disabling the "UTC" field in various dialog boxes in the system.