DIGITROLL 2000
I/O-Server and ActiveX components
Engineering Guide

CONTROLLI

ISO9000

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EUROPEAN COMMUNITY DIRECTIVES
This equipment meets all requirements of European Community Directives for Low Voltage (72/23/EEC), General Safety (92/59/EEC) and Electromagnetic Compatibility (89/336/EEC).

FCC
This equipment has been tested and found compliant with the limits for a Class A digital devices, pursuant to Part 15 of the FCC Rules. Such limits are assigned to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Canadian Department of Communications
This digital apparatus does not exceed the Class A limits for radio noise emissions for digital apparatus set out in the radio interference regulations of the Canadian Department of Communications.

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Controlli - July 2002

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Preface

Purpose of this Manual

This manual explains how to install and use the DIGITROL 2000 I/O-Server and ActiveX component.
This manual is written for:

- Application engineers.
- Controlli technicians and field engineers.
- System administrators who need to control or view the behaviour of the DG2K I/O-Server and ActiveX component.

Manual Summary

This manual contains the following chapters:

Chapter 1 - Introduction
This chapter introduces the I/O-Server and describes its purpose.

Chapter 2 - Installing the I/O-Server
This chapter explains the hardware and software requirements and how to install the I/O-Server software.

Chapter 3 - Using the DG2K I/O-Server
This chapter describes how to configure and use the DG2K I/O-Server.

Chapter 4 - Setting Up DDE Topics and Items
This chapter explains how to set up DDE topics and items to access data from controllers in a DIGITROLL® 2000 network.

Chapter 5 - Using the ActiveX components
This chapter describes how to configure and use the DG2K ActiveX components.

Conventions

The following conventions are used in this manual:

- **Bold** is used for option names.
- *Italics* are used for *emphasis* in a statement.

Other Manuals

The DG2K I/O-Server software can be used by other components of the MicroNet View software.
For further details of how to set up and use MicroNet View with the DG2K I/O-Server software, refer to the MicroNet View Engineering Guide. The DG2K I/O-Server use EcheLon® Network Interface card. For further details of how to set up and use the card refer to the LonWorks® PCLTA-20 PCI Interface User's Guide.

Abbreviations

The following abbreviations are used in this manual:
BCD Binary Coded Decimal
DDE Dynamic Data Exchange
I/O Input/Output
IOC Input Output Code (the internal DIGITROLL® controller data index)
LAN Local Area Network
LON Local Operating Network
PC Personal Computer

Chapter 1
Introduction

What is the I/O-Server?

The DG2K I/O-Server is a DDE driver allowing DDE-enabled applications, such as MicroNet View WindowViewer, MicroNet View Monitor Tool and Microsoft Excel to communicate with a LonWoks® LAN (Local Area Network) of DIGITROLL controllers.

The DG2K I/O-Server is a component of the MicroNet View suite of software applications.
It is possible, for example, to use the DG2K I/O-Server to obtain the controller property values (such as the value at the input of a Universal Input object) in the front-end application.

An example of a system using the DG2K I/O-Server is illustrated in Figure–1.1.
Communication is via EcheLon LonWorks® Network Interface (LON) on the PC, can be directly connected to a local network of controllers (Site), or to a DG2401or DG2402 equipment (Server Modem) for communication with remote sites.

In order to use the I/O-Server, it is fundamental to configure the “LON port”, sites and poll schemes in the DG2K I/O-Server dialogue boxes. Moreover, it will be necessary to set up the front-end application with the correct DDE topic and item names to access the required data from the controller network.

An overview of these steps is given later in this chapter, with further information in Chapters 3 and 4.

The DDE driver is named DG2KIO (DIGITROLL® 2000 protocol Input/Output) and runs under Windows NT or Windows 2000.

For the DG2KIO correct use, it is also necessary to install the LON Network Interface Communication, such as EcheLon® PCLTA, PCLTA10, PCLTA20 or PCC10, and the relevant Plug and Play communication driver, running under Windows NT or Windows 2000.
For details see LonWorks® PCLTA-20 PCI Interface User’s Guide in the CD **EcheLon Manuals** folder.

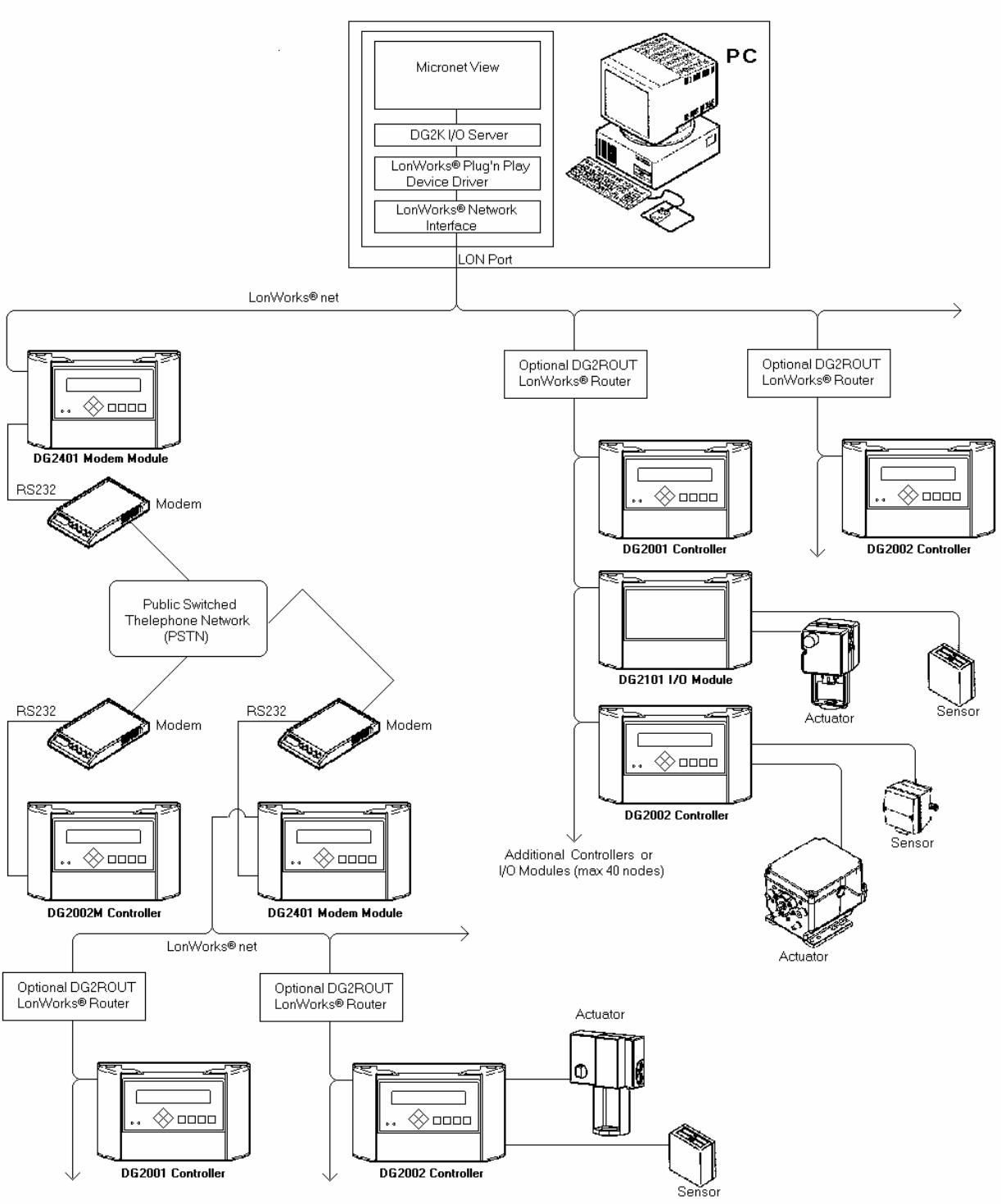


Figure- 1.1 DG2K I/O Server for DIGITROLL 2000 Network

Configuring the I/O-Server

The DG2K I/O-Server has its own user interface, as shown in Figure–1.2, which has been provided for setting up communication with the controllers in the network.

Setting up the I/O-Server involves:

1. Configuring the communication ports through which the I/O-Server will communicate. (see page 15 for details).
2. Defining the sites where the controllers are located. (see page 17 for details).
3. Defining the poll schemes, which determine how often the I/O-Server accesses controller properties at a site (see page 22 for details).

Chapter 3 fully describes how to set up the I/O-Server.

Note: The DG2K I/O-Server settings can be different for each terminal in each MicroNet View Project. When using the DG2K I/O-Server with other components of MicroNet View, it is essential to go to the correct terminal and choose the correct project (using Project Manager) before configuring or starting the DG2K I/O-Server.

Note: The operations listed at point 2 and 3 can be effected automatically using the configuration file DG_POINT.CSV.

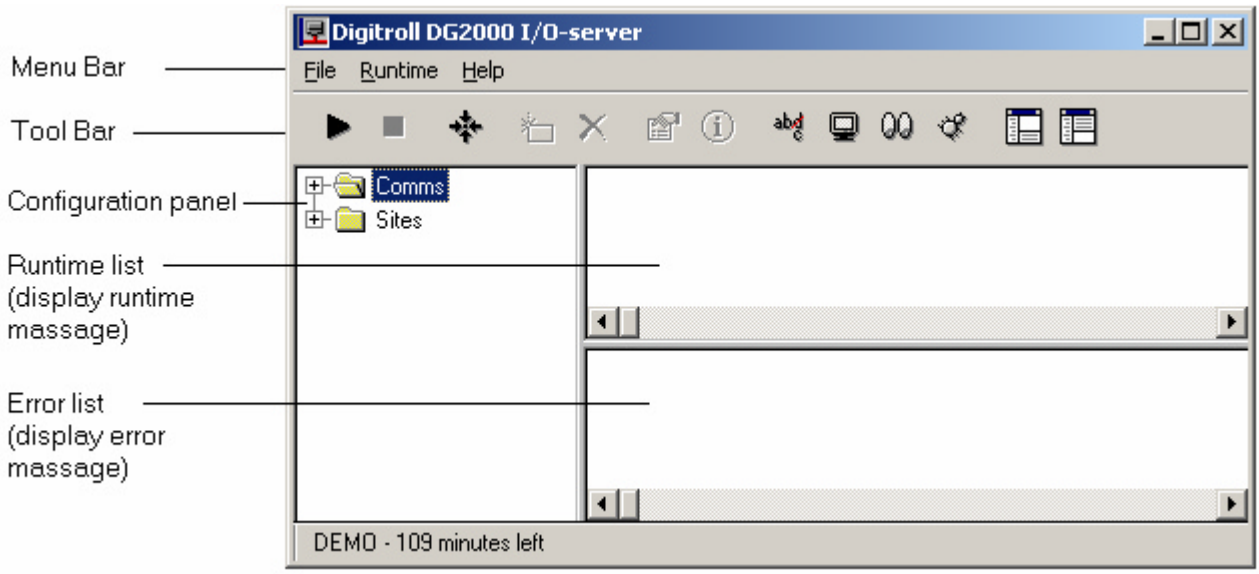


Figure-1.2 DG2K I/0 Server User Interface

Once the DG2K I/O-Server and the front-end application are set (see page 5), it is possible to start the DG2K I/O-Server by selecting **File, Start**. The I/O-Server will then attempt to communicate with the configured sites.
It is normal to keep the I/O-Server running all the time.

Setting Up the Front-End

The front-end (e.g. WindowViewer) used to monitor and display information from the DIGITROLL® 2000 controllers on the network must be set up.
This involves setting up the correct *topic* names and *item* names in the front-end application, as described below.

Note: An automatic configuration file DG_POINT.CSV for a specific site is generated by the DIGITROLL® DG2602 configuration tool programme (see DG2602 manual for details).
It is possible to set up this information automatically by importing the DG_POINT.CSV file created from DG2602 configuration tool in the project *view* folder.
When DG2K I/O Server is started it converts the DG_POINT.CSV file in DG_TAG.CSV file, that can be imported inside the MicroNet View environment database.
Use the **DBLoad** command in the MicroNet Project Manager to import the DG_TAG.CSV.

Topic Names

It is necessary to specify the correct DDE topic name for the type of information to be accessed. To access a controller property (e.g. the value on a Universal Input), the topic name is <Site>/<Poll Scheme>, where <Site> and <Poll Scheme> are the site and poll scheme names, as defined in the I/O-Server.

The correct manner to specify the topic name depends on the front-end application in use. When using the MicroNet View tools, for example, this information is set up as an *access name* in WindowMaker.

Topic and access names are described in detail in Chapter 4.

Item Names

The DDE item name specifies the exact item of information to be accessed or controlled.

For example, to access the value of a property from a controller, the item name is in the form:

<Subnet>/<Node>/<IOC Index >/< Object Type>

Where <Subnet> and <Node> are the subnet and node address of the controller, and <IOC Index>/<Object Type> specify the object that the parameter belongs to and the name of the parameter itself.

Therefore, the way to specify the item name depends on the front-end application. For MicroNet View, this information is set up as a *tag* in WindowMaker.

Item names and tags are described in detail in Chapter 4.

Chapter 2
Installing the I/O-Server

This chapter describes how to install the I/O-Server only, using the I/O-Server installation CD.

T In order to install the I/O-Server with other MicroNet View components, follow the installation instructions in the MicroNet View Engineering Guide.

Hardware and Software Requirements

Before installing the I/O-Server, make sure the system meets the specifications given below.

Note: Refer to the MicroNet View Engineering Guide for details of further requirements for MicroNet View.

PC

Pentium II 400MHz or faster with minimum 128MB RAM (256 MB for Windows 2000).

Hardware

PCLTA10 Model 7340x (for ISA PC Bus) or PCLTA20 Model 7440x (for PCI PC Bus) or PCC-10 Model 73200 (for Laptop PC with PCMCIA II slot)

Operating System

Windows NT4 (Service Pack 5 or later) or Windows 2000 Professional (Service Pack 1 or later).

Software System

MicroNet View (Version 2.1 or later).

EcheLon® Network Interface software driver for PCLTA.

Modems

Recommended: U.S. Robotics Sportster (Hayes compatible).

Controllers

The DG2K I/O-Server can communicate with the following controllers:

- DG2001 Controller w/o I/O on board
- DG2002 Controller with I/O on board
- DG2001M Controller w/o I/O on board & Modem Module inside
- DG2002M Controller with I/O on board & Modem Module inside
- DG2401 Server Modem Module
- DG2402 Server Modem Module

Installing the DG2KIO I/O-Server Software

Preliminary:

1. Install Micronet View tools (see MicroNet View Engineering Guide).
2. Install the PCLTA software driver (see LonWorks® PCLTA-20 PCI Interface User's Guide Ch. 2.4 - Windows NT® 4 and Windows 2000 Software Installation Procedure).
3. Turn off the computer, install PCLTA or PCC-10 card and restart the computer.
4. Configure and test the PCLTA card (see LonWorks® PCLTA-20 PCI Interface User's Guide Ch. 3 – Configuring and Testing the PCLTA-20 Card).

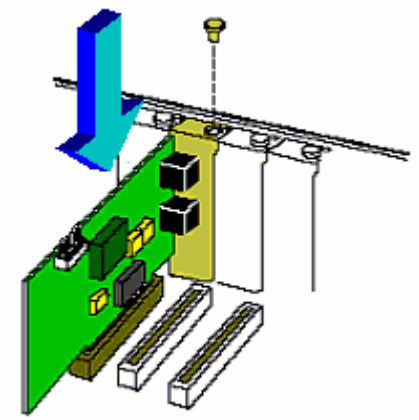


Figure- 2.1 Install PCLTA (ISA or PCI) card

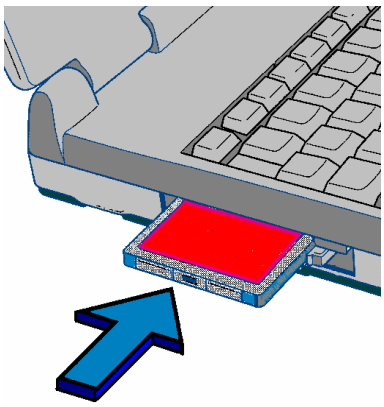


Figure- 2.2 Install PCC-10 card

Note: The power supplies of Toshiba Satellite Pro Models 4600, 7600 & 8100, Dell Latitude C610, and the Gateway Solo 5300 laptop computers have been found to inject high levels of electro-magnetic radiation into the PCMCIA device bays preventing the PCC-10 from working properly. Echelon Corp. is working with Toshiba, Dell and Gateway to resolve this issue. However, at the moment it is recommended not to use PCC-10 cards with these specific models.

To install the DG2KIO software:

1. Connect the HASP dongle to the local printer (parallel) port.

Note: The I/O-Server will run in evaluation mode for 30 minutes, if the correct dongle is not present. After this time, it will exit (although it is possible to restart it).

2. Start Windows and make sure no Windows applications are running.
3. Insert the installation CD and double-click on **Setup.exe** from **DG2KIO** folder.
4. Read the Welcome window and confirm that no other Windows programmes are
running. Select **Next** to continue with the installation.

Note: Do not remove the dongle, otherwise the programme will operate in evaluation mode and will terminate after 30 minutes.

5. Restart the computer.
6. Start **DG2K I/O-Server** and configure comms, site and poll scheme as described in the next chapter.

Adding or Removing Components

If the removal of the DG2K I/O-Server from the computer is required, run the Install/Remove programme from Control Panel and select DG2KIO.

Site, poll scheme, topic and item automatic set-up

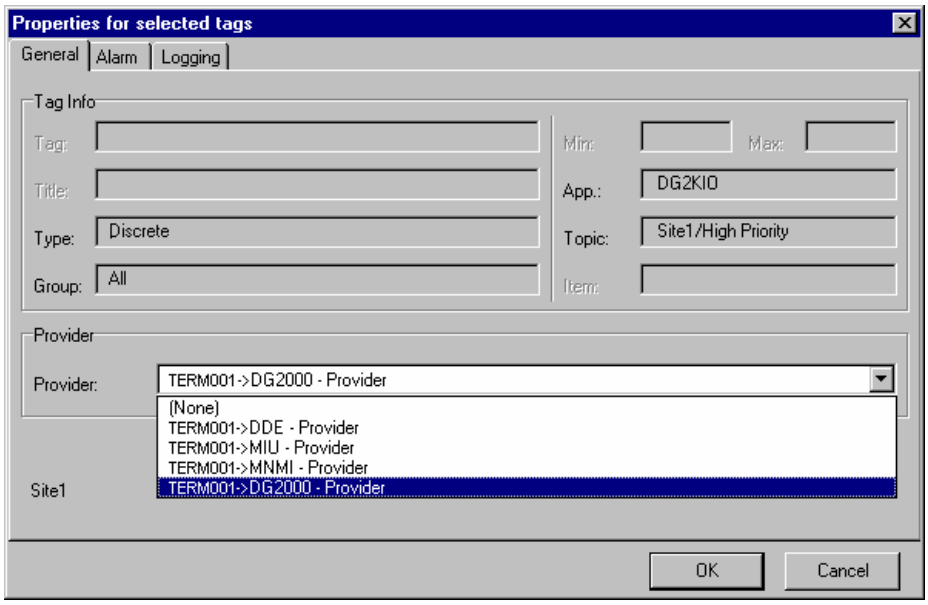
If it is required an automatic set-up of site and poll scheme in DG2K I/O-Server and all topic and items in the MicroNet View tools, use the following sequence.

1. Generate a DG_POINT.CSV file by the DIGITROLL® DG2602 configuration tools.
2. Generate a new Micronet Project in the Micronet Project Manager and activate it (for details see Micronet View Engineering Guide).
3. Copy the DG_POINT.CSV file and place it into the **View** folder of the active MicroNet project (use Project manager application to see the folder).
4. Start the DG2K I/O Server and once enabled, it will convert the DG_POINT.CSV file into the DG_TAG.CSV file in the same folder.
5. Activate the **DBLoad** command in the MicroNet Project Manager to import DG_TAG.CSV.

If the DG_POINT.CSV file date or time is changed and the DG2K I/O Server is started, the file is converted as well. Therefore, if it is necessary to modify or add a new object or site or controller in the DG2602 configuration tools, it is possible to create a new DG_POINT.CSV file, and repeat the sequence from step 3 in order to add the new information in DG2K I/O Server and Micronet View tools.
It is always necessary to repeat such operation if any plant information upgrading and/or updating occurs.
All Tags imported are visible in the Micronet WindowMaker **Tagname Dictionary**.

The DIGITROLL® DG2602 configuration tools also create a different text file with the same controller name to help using the Tagname Dictionary in Micronet WindowMaker.
In that text file the Tag Name marked with *FieldAlarm* or *SystemAlarm* are unsolicited alarms.

The DIGITROLL® 2000 unsolicited alarms can be managed by a special Alarm Provider called **DG2000-Provider** in the MicroNet View Monitor Tool (for more details see Micronet View Engineering Guide - Chapter 4).



Chapter 3
Using the I/O-Server

Starting the I/O-Server

If the I/O-Server with the MicroNet View tools is used:

1. Select the project in the MicroNet Project Manager.

Note: It is essential to select the correct project, since the I/O-Server settings can vary according to each project.

2. If WindowViewer is used to control privileges to the I/O-Server, log in to WindowViewer.

Note: Depending on the WindowViewer login name, it is probable not to have full access to all the I/O-Server options. For further information, refer to the description of the Project Manager Settings in the MicroNet View Engineering Guide.

3. Select **Start, Programmes, MicroNet** (assuming that the default programme folder during installation has been selected), then **DG2K I/O-Server**.

   After a few moments, the I/O-Server window appears:

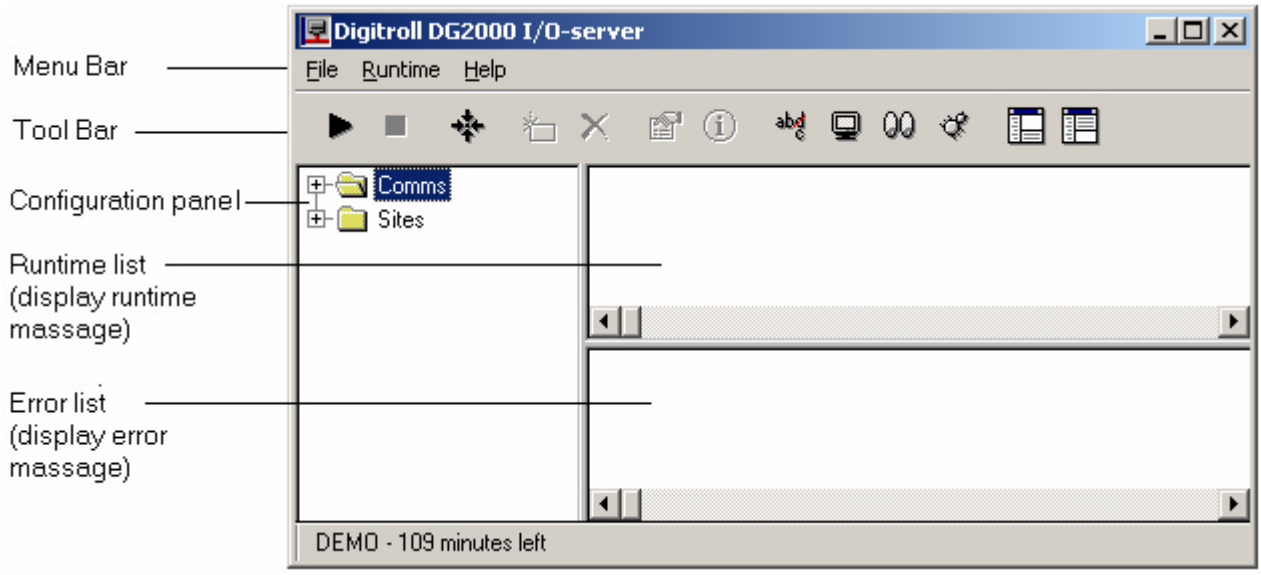


Figure-3.1 DG2K I/0 Server Windows

Menu and Tool Bars

Along the top of the display is the Menu Bar. The three menus are: File, Runtime, and Help.

Many of the options in the menus can also be selected from the right-click menu or by pressing the appropriate Tool Bar button. It is possible to find out the meaning of each Tool Bar button by positioning the pointer over the button for a few seconds.

Configuration Panel

This part of the window shows the Comms and Sites folders, which contain the I/O-Server configuration information.
The Comms folder contains details of the communication ports set-up.
The Sites folder contains details of all the controller sites that are accessed via the communications ports, and the poll schemes that are used to access the controller data.
Once the DG2K I/O-Server is running, poll schemes can also become folders, which contain an icon for each controller, the server communicates with.
The controller icon displays the subnet and node address of the DIGITROLL® controller.
A folder can be opened to view its contents by either double-clicking on the folder, or single-clicking on the '+' symbol to the left of the folder.
To close the folder, double-click on the folder, or single-click on the '-' symbol to the left of the folder.
Initially, the folders are empty because no comms ports or sites have been configured.

Runtime List

The Runtime List displays all runtime information, or runtime information about a selected comms port, site, poll scheme or controller. It is possible to choose any of three levels of runtime information according to the knowledge of DG2K I/O-Server protocol and LonTalk® communications.

It is possible to use options in the Runtime menu to control the type of information to display and to clear the Runtime List.

Error List

The Errors List displays error messages arising from communication between the DG2K I/O-Server and both the front-end system (e.g. WindowViewer) and the system controllers.

A list of error messages is given in Appendix A of this manual.

It is possible to clear the messages displayed in the Runtime List by selecting Runtime, Clear Errors List.

Using the File Menu

The options in the File menu allow to:

- Start, stop and reset the configured communication LonWorks® ports of the Network Interface on the PC.
- Configure the I/O-Server.
- Read the protection Dongle ID and input the DG2KIO licence unlocking code

The options in the File menu are the following.

Start

This option starts the I/O-Server communication via Network Interface ports on the computer.

This option is unavailable for selection unless a site in the I/O-Server has been configured.

Start is also available from the right-click menu.

Stop

This option stops I/O-Server communication through Network Interface ports on the computer.

Stop is also available from the right-click menu.

Reset

This option resets all I/O-Server internal operations, and closes any links to other MicroNet View applications. It is equivalent to the I/O-Server stop and restart.

This is not used during normal operation, but may be useful if, for example, there are communications problems when switching between WindowMaker and WindowViewer.

It is necessary to stop the Network Interface port before it is possible to use this option.

Configuring a LON Interface comms port

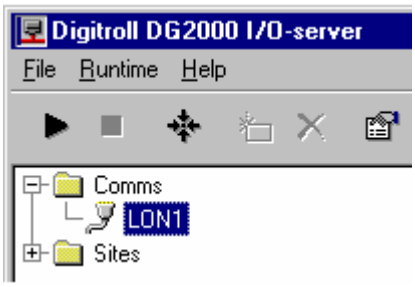
The Network Interface LON card is the PCLTA or PCC-10 installed on the PC. The Properties option enables to set up a LON Interface comms port.

Follow the procedure below to set up a LON Interface comms port (see page 17 for details about setting up a site, or to page 22 to set up a poll scheme).

To set up a LON comms port:

1. Stop the I/O-Server.

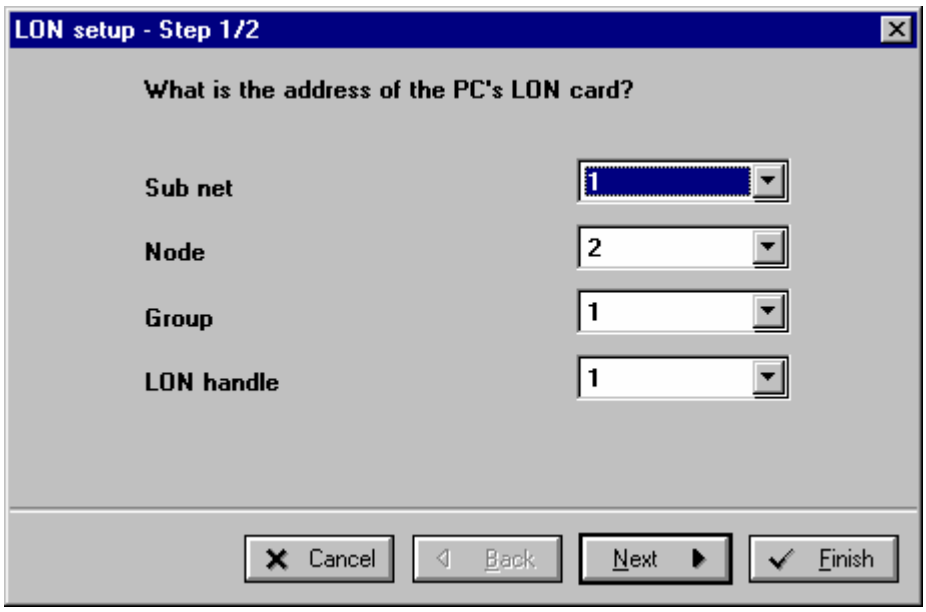
2. Open the Comms folder in the Configuration panel and select the LON1 port:



3. Select File, Properties, or Properties from the menu displayed by right-clicking in the Configuration panel.

   Select the appropriate options or enter the required information in each configuration dialogue box, as described next.

Communications - Step 1



What is the address of the PC's LON card?
The LON card have an internal EcheLon® node that must be configured. Normally the default configuration is OK.

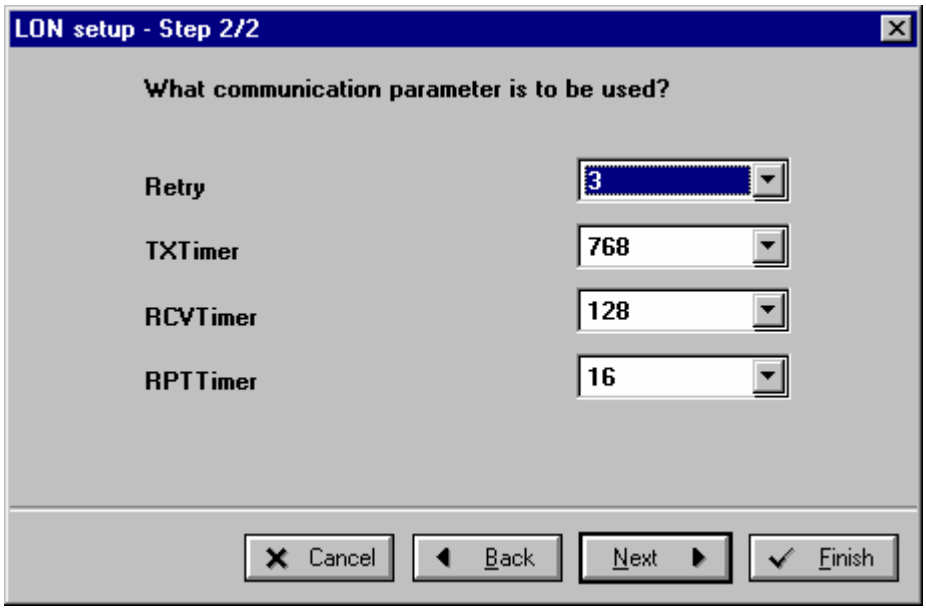
Subnet The Subnet is normally always "**1**".

Node The Node of Network Interface goes from 2 to 127, it is usually"**2**".

Group The Group is normally always "**1**".

LON handle
The LON handle of Network Interface goes from LON1 to LON9, according to the LON handle of the Network Interface driver.

Communications - Step 2



What communication parameter is to be used?
For communication parameter in the Network Interface LON card, see the EcheLon® Manual.
Normally the default configuration is OK. Avoid to modify these values unless the EcheLon® Network architecture is deeply known.

Retry
This field specifies the number of retries for acknowledged, request/response, or unacknowledged–repeated service (0–15). The maximum number of messages sent is one more than this number.

TXTimer
This field specifies the time interval (milliseconds) between retries when acknowledged or request/response service is used. The transaction retry timer is restarted after each attempt is made, and also when any acknowledgement or response (except for the last one) is received. For request/response service, the requesting node should take into account the delay necessary for the application to respond when setting the transaction timer.

RCVTimer
When the node receives a multicast (group) message, the receive timer is set to the time interval (milliseconds) specified by this field. If a message with the same transaction ID is received before the receive timer expires, it is considered to be a retry of the previous message.

RPTTimer
This field specifies the time interval (milliseconds) between repetitions of an outgoing message when unacknowledged–repeated network service is used.

New (Configuring a Site)

The New option enables to set up a new site or poll scheme.

Follow the procedure below to set up a new site.
A site comprises a single Network Interface, managing a LonWorks® Local Area Network (LAN) of DIGITROLL® controllers. The site may be connected directly to the I/O-Server PC.
The I/O-Server must be told which comms port each local site is connected to.
Additionally, the I/O-Server needs to be told how often it should try to read values from controllers on the site. This is set up by defining a poll scheme, as described on page 22.

To set up a new site:

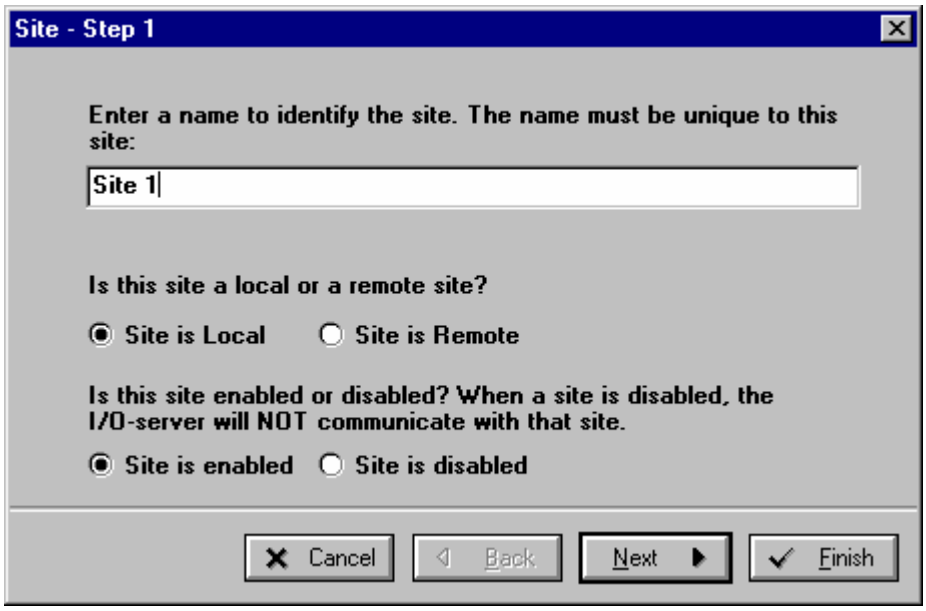
1. Stop the I/O-Server.
2. Click on the Sites folder in the Configuration panel:

3. Select File, New, or New from the menu displayed by right-clicking in the Configuration panel.

Select the appropriate options or enter the required information in each configuration dialogue box, as described next.

Note: It is not possible modify an existing site definition.

New Site - Step 1



Enter a name to identify the site. The name must be unique to this site.
Type the name of the site. The name must be unique and must not contain the '/' character.

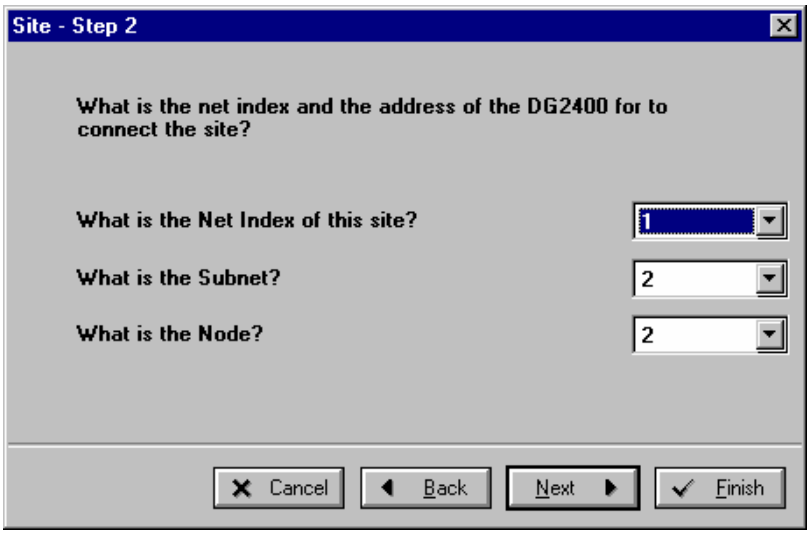
Is the site enabled or disabled?
Choose **Site is enabled** if the I/O-Server communication with the site is needed. The site may be disabled while, for example, setting up the system.

Is the site a local or a remote site?
Specify whether the site is local (with the DIGITROLL® Controller connected directly to the PC Network Interface port) or remote (accessed via a DG2402 Server Modem Module).

Note: The site name and configuration can be set automatically when the DG_TAG.CSV file is imported.

Site - Step 2 (Remote Site Only)

In order to connect a remote site is mandatory to know the Net Index of the remote site and the DG2400 (Server Modem Module) address attached to the Network interface port.



What is the Net Index of this site?
Select the Net Index of the remote site, that is either the Net Index of the DG2402 connection to the Controller, or the Net Index of the DG2001 or DG2002M in the remote site.

Note: The Net Index of a remote site starts from 1.

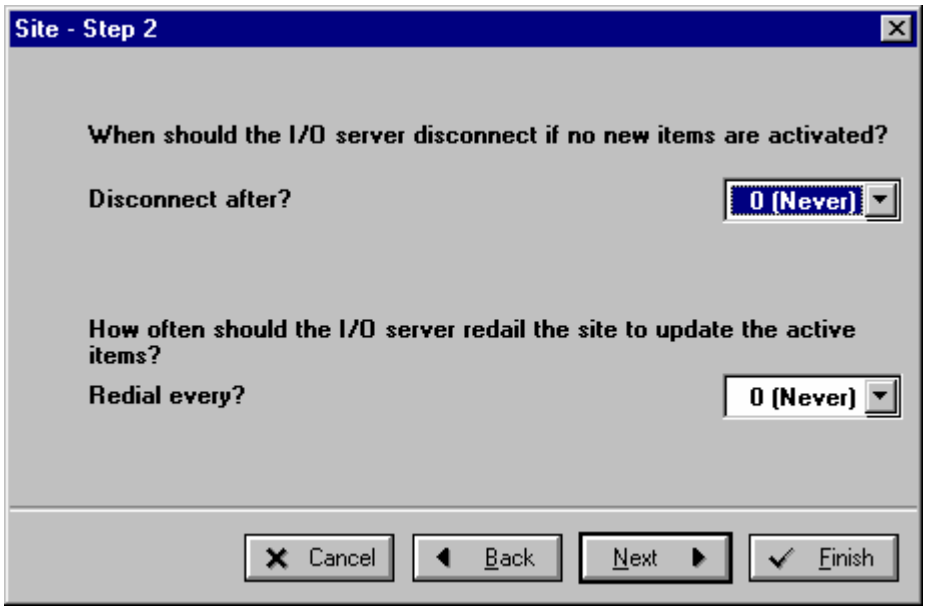
What is the Subnet?
Select the Subnet of the DG2401 or DG2402 (DG2400 Server Modem Module) connected by LonWorks® net to the Network Interface.

Note: The Subnet of Dg240X module is always 2.

What is the Node?
Select the Node of the DG2401 or DG2402 (DG2400 Server Modem Module) attach by LonWorks® net to the Network Interface.

Note: The Node of DG240X module starts from 2.

Site - Step 3 (Remote Site Only)



When should the I/O-server disconnect if no new items are activated?
Select the time after which the DG2K I/O-Server should disconnect from the remote site if the front-end is not requesting data for newly activated DDE items.

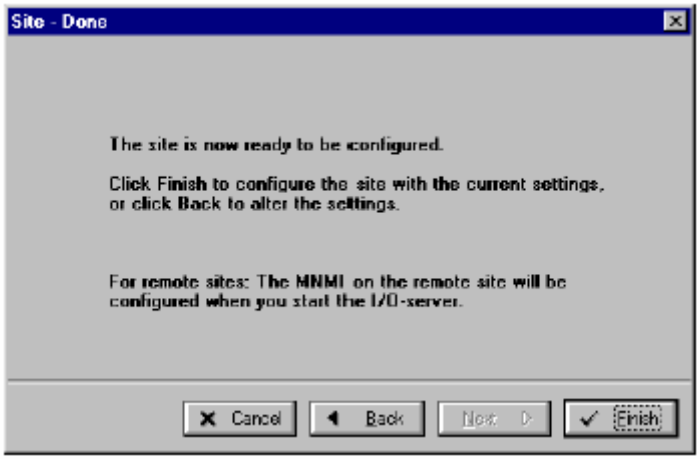
The I/O-Server will disconnect from the remote site after the specified time, even if data is being polled. Therefore, if, for example, a window is left open in WindowViewer, the I/O-Server will not remain permanently online to the site (this prevents unnecessary connect time in the event that the window is displayed, but is not in use).
When switching between windows in WindowViewer, tags and hence DDE items are being activated and deactivated and therefore the I/O-Server will remain online.
It is possible to choose a time from the pop-up list or type a customised time (in minutes) as required.

The timer is deactivated if "**0 (Never)**" is selected, and this is the normal operation mode: the connection is activated only when data is requested - for example, when there is an open window in WindowViewer - and closes when no data are requested.

How often should the I/O-server redial the site to update the active items?
Select how often the I/O-Server should redial the remote site to update active DDE items (e.g. controller data displayed in an open WindowViewer window).
The purpose of this setting is to ensure that displayed data is eventually updated if the I/O-Server has been disconnected according to the **Disconnect after** setting.
It is possible to choose a time from the pop-up list or type a customised time (in minutes) as required.

The timer is disabled, if "**0 (Never)**" is selected, and this is the normal operation mode.

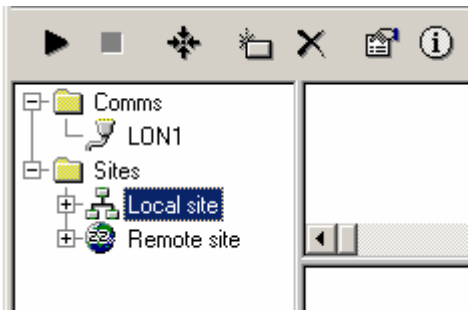
Site – Done



Click **Finish** to save the settings in the Sites folder or **Back** to make any changes to the entries before saving them.

Note: It is necessary to restart the I/O-Server to enable a remote site.

Repeat the procedure for each site to be accessed by the I/O-Server.
On completion, the configuration panel will now look similar to the following.



In this example, two sites have been configured named *Local site* and *Remote* site. *Local site* is a directly connected site and *Remote site* (depicted with a world symbol) is accessed via DG2400 Server Modem.

Note: "ZZ" displayed over a remote site name (as shown above) indicates that the I/O-Server is not currently connected to the DG2400 Module or the site is disabled (see page 18). A "ZZ" over a local site indicates that the site is disabled.

New (Configuring a Poll Scheme)

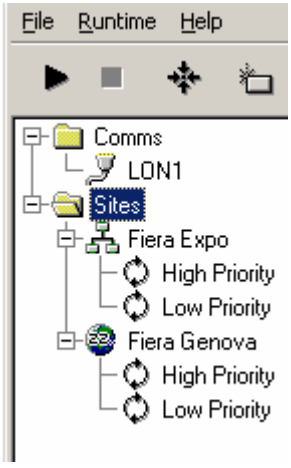
The New option enables to set up a new comms port, site or poll scheme Follow the procedure below to set up a new poll scheme. Refer to page16 for details of how to set up a comms port, or to page 17 to set up a site.

A poll scheme defines the frequency at which to obtain controller property values. When setting up the front-end application, e.g. WindowViewer, it is necessary to specify a poll scheme for each property that is to be displayed or used.

The poll scheme determines how often the property will be polled for a change in value.
Poll schemes are set using the I/O-Server. Each poll scheme belongs to a specified site and cannot be used to access information from other sites.

Two default poll schemes are automatically created by the I/O-Server when a site is defined.
These are named “High Priority” and “Low Priority”. By default, High Priority polls every second and Low Priority polls every 2 minutes. It is possible to choose either to use the default schemes, or to define customised poll schemes.

To view a site’s poll schemes, click on the ‘**+**’ sign to the left of the site name (or double-click on the site name itself). The configuration panel will now look something like this:



In this example, are displayed the poll schemes called High Priority and Low Priority for the Local and Remote sites.

To set up a new poll scheme:

1 Stop the I/O-Server.
2 Click on the on the site name (Local or Remote in the above example) in the Configuration panel.
3 Select **File, New**, or **New** from the menu displayed by right-clicking in the configuration panel.
Select the appropriate options or enter the required information in each configuration dialogue box, as described next.

Note: It is possible to modify an existing poll scheme by stopping the I/O-Server, clicking on the name of the poll scheme in the Configuration panel, then selecting **File, Properties**. The name of either of the two default poll schemes cannot be changed.

Using Poll Schemes

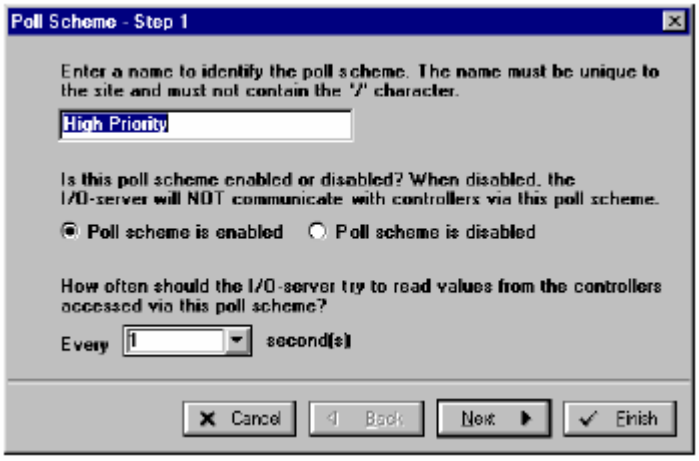
It is important to make sure that non-critical properties are not polled too often.
If, for example, many properties are displayed in WindowViewer or alarm-checked by the MicroNet View Monitor Tool, by the time the DG2K I/O-Server has polled all the items, it can take several seconds for a change at a controller to be updated on the display.
Therefore, critical property changes may not be obtained within an acceptable period of time.

For a local LAN running LonTalk®, the I/O-Server typically uses 0.15 seconds to retrieve a simple property value (such as a digital or analogue input), while the large data structure of the ActiveX controls (such as a Daily Time Schedule) in WindowViewer may take as long as 1 seconds to retrieve.
The solution is to poll less frequently non-critical data, or data considered as static. Other more critical data should be polled more often.

For example, a Time Schedule's settings may change infrequently (e.g. by using a DG2201 LCD display). It may, therefore, only be necessary to read the Time Schedule from the controller once every two minutes. However, if, for example, a temperature property may change rapidly, the time schedule can be read several times a minute.

Poll schemes therefore allow to optimise the performance of the I/O-Server by creating high and low priority schemes according to need.

Poll Scheme - Step 1

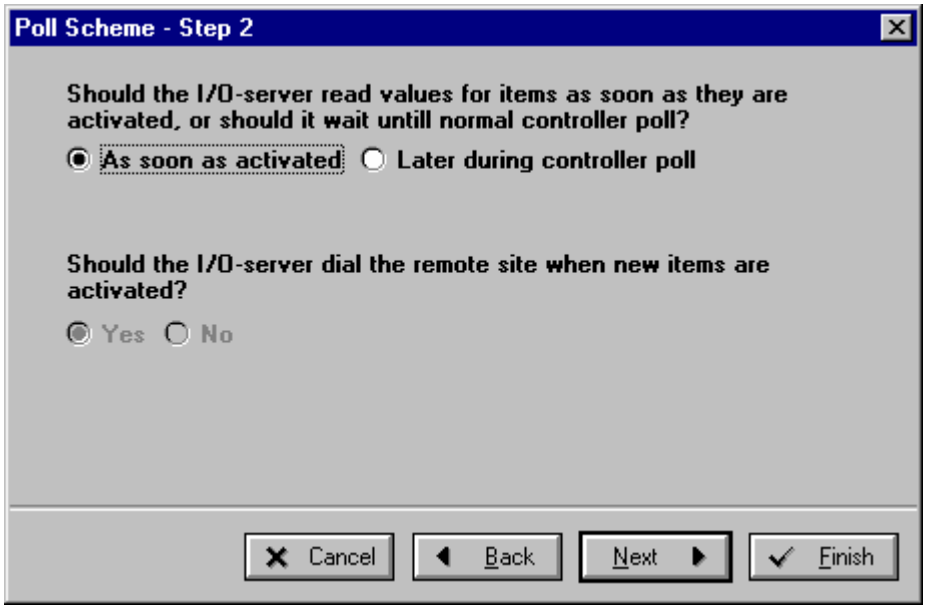


Enter a name to identify the poll scheme
Type a name for the poll scheme. The name must be unique and must not contain the '/' character.

Is this poll scheme enabled or disabled?
Choose whether to enable or disable the poll scheme.
Poll schemes are normally enabled. Disabling a poll scheme can be helpful for isolating communication problems or to disable communications if controller hardware changes are required.

How often should the I/O-server try to read values from controllers accessed via this poll scheme?
Select the frequency with which the I/O-Server should poll properties accessed using this poll scheme.
It is possible to choose a value from the pop-up list or type the selected value (in seconds) as required.

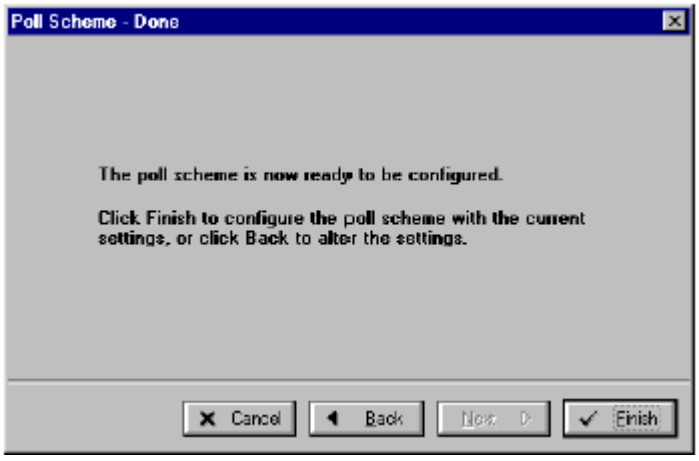
Poll Scheme - Step 2



Should the I/O-server read values for items as soon as they are activated, or should it wait until normal controller poll?
Choose whether or not the I/O-Server should read values for DDE items as soon as they become active (see page 36).
If this option is selected, the I/O-Server will interrupt the normal controller poll to read newly activated DDE items, giving a fast update response in the front-end application, e.g. WindowViewer.

Should the I/O-server dial the remote site when new items are activated? (Remote Site only)
Choose whether or not the I/O-Server should dial the remote site as soon as DDE items become active (see page 35).

Poll Scheme – Done



Click **Finish** to save the settings or **Back** to make any changes to the entries before saving them.
Repeat the procedure for each poll scheme required.

Delete

This option deletes the selected comms port (e.g. LON1), site or poll scheme.
Before using this option the comms ports must be stopped.
It is not possible to delete a comms port, if it is assigned to a site. In order to cancel it, either the site deletion or the site's comms port change is needed. A default poll scheme cannot be deleted.
Delete is also available from the menu displayed by right-clicking in the Configuration panel.

Properties

This option allows to edit an existing comms port, site or poll scheme set-up. Before using this option, the comms port must be stopped.

Properties is also available from the menu displayed by right-clicking in the Configuration pane.

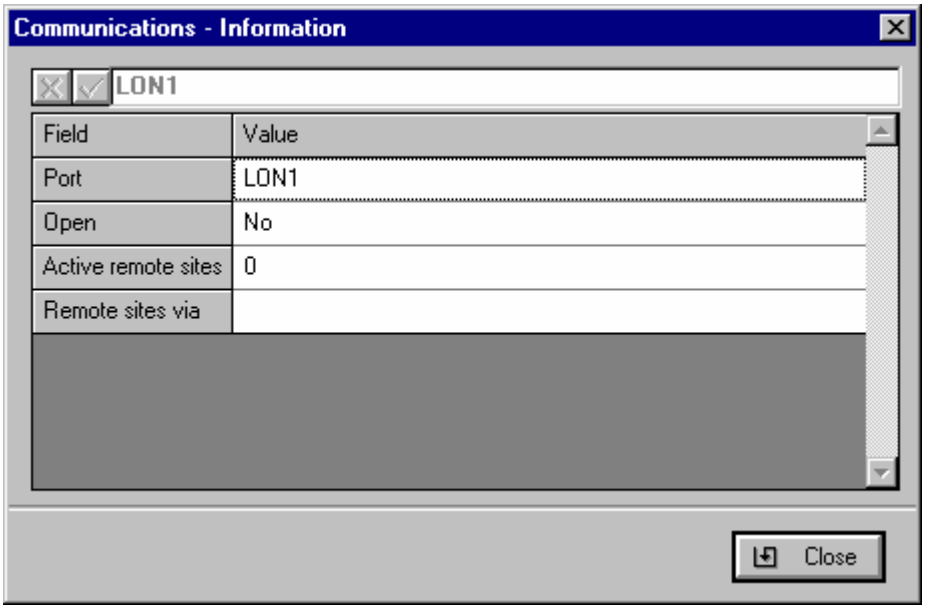
Information

This option displays a status information window about the selected comms port, site, poll scheme or controller.

Information is also available from the menu displayed by right-clicking in the Configuration pane.

Comms Port Information

Selecting a comms port, then the Information option displays the following dialogue box:



Port
It shows the selected comms port.

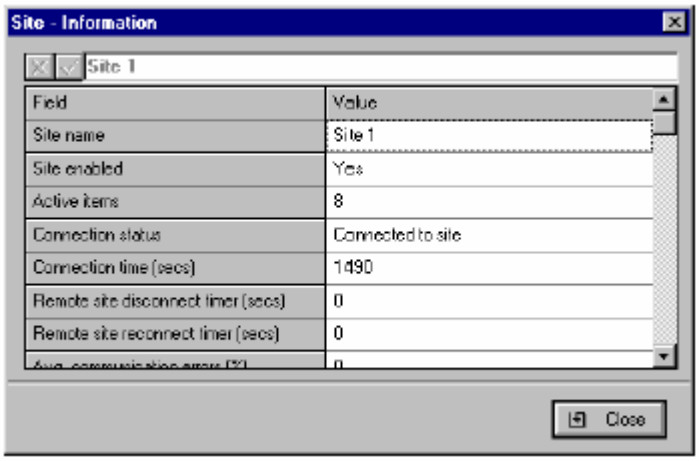
Open
It shows whether or not the comms port is currently being accessed.

Active remote site
It displays '1' if there is almost one remote active site, otherwise '0'.

Remote site
It displays the name and the address of the first remote site, if there is almost one active remote site, otherwise it displays nothing. Address is the address of the first DG2400 Server Modem Module connected to the Network Interface.

Site Information

While selecting a site, the information option displays the following dialogue box:



Site name
It shows the name of the selected site.

Site enabled
It shows whether the site has been enabled or disabled in its configuration properties.

Active items
It shows the total number of active DDE items for the site (see page 35).
Only those DDE items used to obtain data in a controller are included in the count (i.e. DDE items for site and poll-scheme status/control are not included).

Connection status
It shows the status of the communications between the site and the I/O-Server.

The possible states are:

- **Waiting for an available modem (remote site only).**
- **Connecting to site (remote site only).**
- **Disconnected from site.**
- **Performing site login (remote site only).**
- **Processing site alarms.**
- **Disconnecting from site (remote site only).**
- **Connected to site.**

Connection time (secs)
It shows the total amount of time that the site has been connected to the I/O-Server since midnight. The value is reset only if the I/O-Server is closed and restarted or if File, Reset is selected. The value is not reset if the I/O-Server is simply stopped.

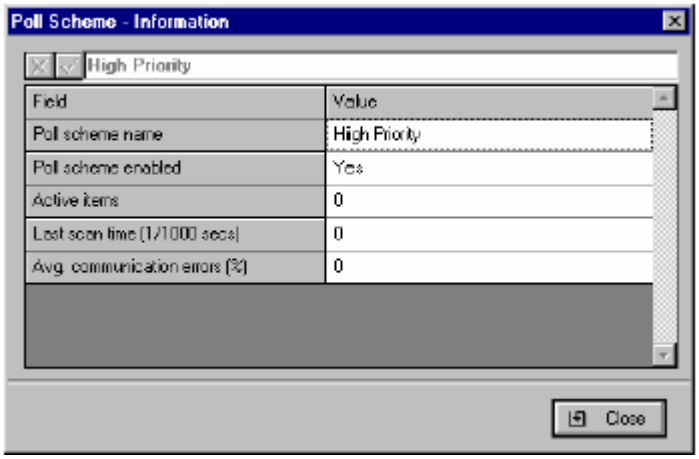
Remote site disconnect timer (secs)
It displays the time in seconds during which the communications link to the remote site remains open. The communications link will be disconnected if no new data is requested from the front-end (e.g. WindowViewer).
Each time new data are requested, the timer resets to the value specified in the remote site's **Disconnect after** property (see page 20).

Remote site reconnect timer (secs)
Displays the time in seconds to the next connection to the remote site to refresh controller property or status values in the front-end.
Note that the timer is maintained only if DDE items used to obtain controller data are active (see page 35) for the site. If no DDE items are active, no reconnection will occur.
DDE items for site status/control and poll-scheme status/control have no effect on the timer.

Avg. communication errors (%)
Displays (as a percentage value) the average error rate of the communications link to the controllers accessed via any poll scheme to the site, measured in the last 50 communications requests.
An error is generated if a controller does not reply within the specified time-out period, or if a controller replies but the reply contains errors.

Poll Scheme Information

Selecting a poll scheme, the Information option displays the following dialogue box:



Poll scheme name
This shows the name of the poll scheme selected.

Poll scheme enabled
This shows whether the poll scheme has been enabled or disabled in its configuration properties.

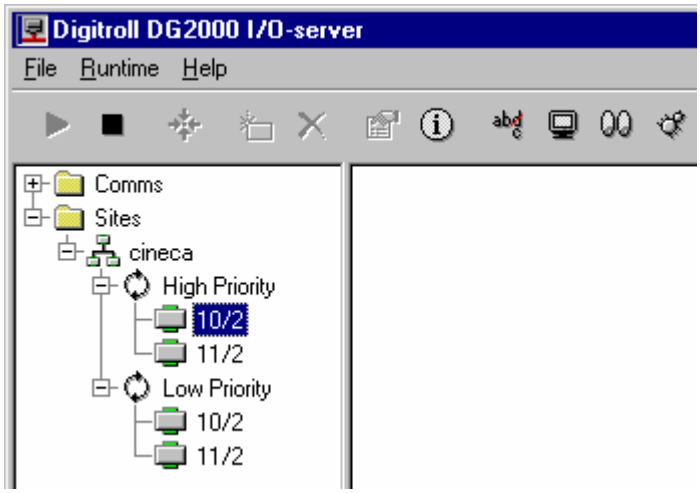
Active items
This shows the number of active DDE items (see page 35) for all controllers accessed through the poll scheme.

Last scan time (1/1000 secs)
This displays the time in milliseconds for the last complete scan through all the controllers to retrieve values for all the active DDE items (see page 35) accessed via the poll scheme.

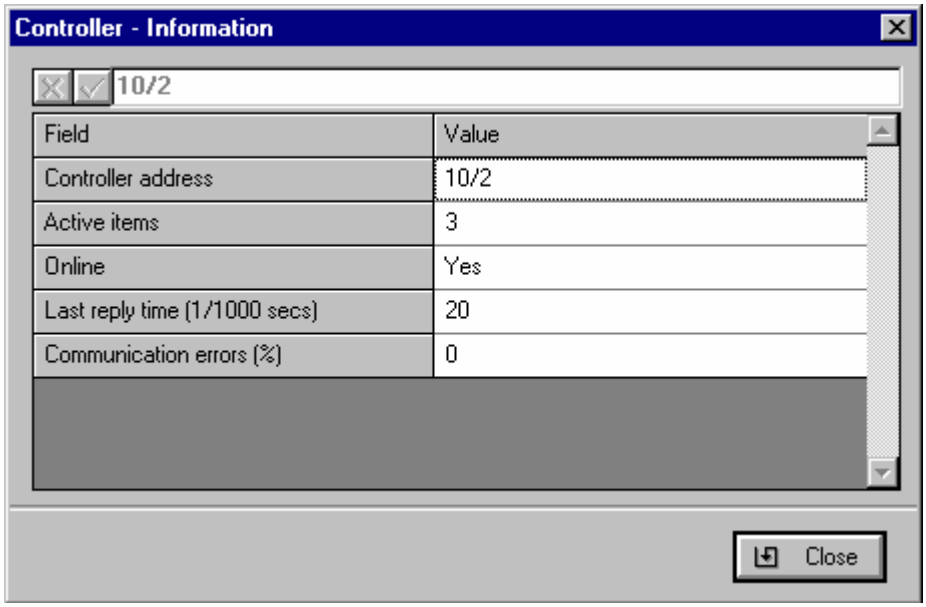
Avg. communication errors (%)
This displays (as a percentage value) the error rate of the communications link to the controllers accessed via the poll scheme, measured in the last 50 communications requests. An error is generated if the controller does not reply within the specified time-out period, or if the controller replies but the reply contains errors.

Controller Information

In order to view a DIGITROLL® Controller 's Information, click on the '+' sign on the left of the poll scheme name (or double-click on the poll scheme name itself). If there is almost one Active Item, the configuration panel will now look something like this:



Selecting a DIGITROLL® controller, then the **Information** option displays the following dialogue box.



Note: The I/O-Server must have communicated with a controller to find out information about it. The controller icon can be accessed by opening the relevant poll scheme folder in the Configuration panel.

Controller address
It shows the DIGITROLL® controller subnet and node address. The DIGITROLL® controller subnet ranges from 10 to 255 and normally the node is always two.

Active items
It returns the number of active DDE items (see page 35) for the selected device.

Online
It shows whether the device is online or offline. A device is considered offline if it has not replied properly in the last five communication requests.

Last reply time (1/1000 secs)
It displays the time in milliseconds during which the last communication to the device has been completed. The time returned starts from the moment in which the DG2K I/O-Server requested information and ends when the reply was fully received. Therefore, it can be used to identify faulty or overloaded devices on a network.

Communication errors (%)
It displays (as a percentage value) the error rate of the communications link to the device measured in the last 50 communications requests. An error is generated if the device does not reply within the specified time-out period, or if the device replies but the reply contains errors.

Dongle

This option enables to programme the dongle with the codes required to run the DG2K I/O-Server on a permanent basis (rather than on a half-hour trial basis without a dongle).

Before using this option, the comms ports must be stopped.

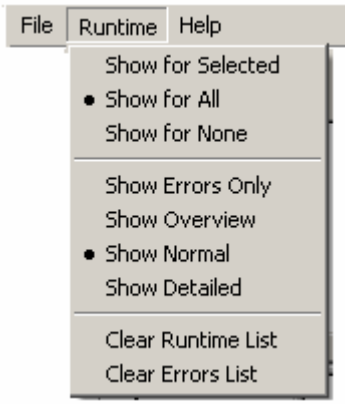
Exit

It stops the I/O-Server and communication through the LON comms ports.

Selecting the standard Windows Close button in the top-right corner of the window has the same effect.

Options in the Runtime Menu

The options in the Runtime menu allows to control the amount of information to display in the Runtime and Error Lists.



Show for Selected

This option displays runtime information for the selected comms port, site, poll scheme or controller in the Runtime List.
To select an item (e.g. a comms port), click on the item in the Configuration panel then choose **Show for Selected**. The chosen item now appears highlighted in blue.

Note: Only one of the three **Show for** options can be selected at any one time. A large dot on the left-hand side of the menu indicates the currently-selected option. None of the options are available if the **Show Errors Only** option is selected.

The three **Show for** options are also available from the menu displayed by right-clicking in the Configuration pane.

Show for All

This option displays all runtime information in the Runtime List.

Show for None

This option prevents runtime information from being displayed in the Runtime List.

Show Errors Only

Selecting the Show Errors Only option only errors will be displayed and no further runtime messages will be showed in the Runtime List.

In order to display messages again in the Runtime List, choose Show Overview, Show Normal or Show Detailed.

Note: Only one of the **Show** options can be selected at any one time. A large dot on the left-hand side of the menu indicates the currently-selected option.

The three **Show** options are also available from the menu displayed by right-clicking in the Runtime List.

Show Overview

This option displays basic communication information in the Runtime List.

Show Normal

This option displays intermediate-level information in the Runtime List, which requires some knowledge of I/O-Server DDE protocol and LON port communications.

Show Detailed

This option displays comprehensive information in the Runtime List, which requires advanced knowledge of I/O-Server DDE protocol and LON port communications.

Clear Runtime List

This option clears the messages displayed in the Runtime List.
This option is also available from the menu displayed by right-clicking in the Runtime List.

Clear Errors List

This option clears the messages displayed in the Errors List.
This option is also available from the menu displayed by right-clicking in the Errors List.

Options in the Help Menu

The **About Digitroll DG2000 I/O-server** option displays an information window showing the version of the I/O-Server in use.

Chapter 4
Setting Up DDE Topics and Items

Introduction

This chapter describes how to specify the *DDE topics* and *DDE items* in the front-end application. Setting up DDE topics and items enables the front-end application to:

- Read and write controller property values.
- Obtain controller, poll-scheme and site status information.
- Force various operations, such as a connection to a site or a polling scan.

If, for example, a controller property access is needed, a DDE topic is required to specify the site and poll scheme to use, and a DDE item is required to specify the controller's address and the property to access.

This chapter gives full information about how to specify DDE topics and items.
If MicroNet View WindowMaker is used, DDE topics are set up by defining WindowMaker *access names,* and DDE items by defining WindowMaker *tag*s.

Tags and access names for controller property values can be set up automatically by using the **DBLoad** option in the MicroNet View Project Manager. **DBLoad** imports a DG_TAG.CSV file generated at the start of DG2KIO by converting the DG_POINT.CSV.

The DG_POINT.CSV file is generated automatically from the DIGITROLL® DG2602 configuration tool.

Importing a DG_TAG.CSV file is the recommended method of setting up access names and tags for controller property values. However, if a manual set up of tags and access names, or if a change of the imported access names and tags is required, follow the instructions given in this chapter.

In order to obtain DDE status information, or if it is necessary to force DDE operations from the front-end application, tags must always be set up manually.

Setting Up the DDE Topics

DDE Topics for Controllers and Poll Schemes

A DDE topic must be defined in the front-end application for each combination of site and poll scheme which have been set up in the I/O-Server.
For example, if “North_Site” has been set up using poll scheme “Medium Priority”, a DDE topic must set up for this.

The format of a DDE topic is as follows:
<Site>/<Poll Scheme>

For example: North_Site/Medium Priority.

The poll scheme must belong to the specified site, as set up using the I/O-Server. If only the site name is specified (i.e. omit “/<Poll Scheme>”), the I/O-Server uses the default poll scheme named “High Priority”.

DDE Topics for Sites

Setting up an additional DDE topics is needed, if it is required to access site status information or to perform manual site operations from the front-end application (such as to obtain configuration information or connect to the site manually).
In these cases, the DDE topic must use the following format:

<Site>/STATUS

For example: North_Site/STATUS

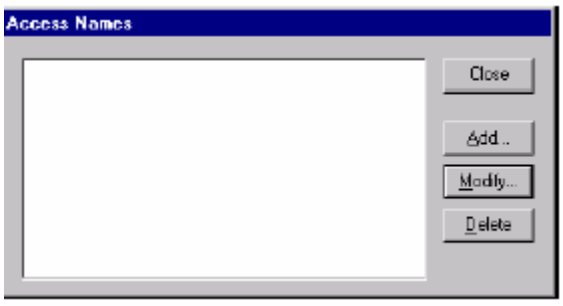
Setting Up Access Names in WindowMaker

If MicroNet View WindowMaker is used, define the DDE topics in WindowMaker access names.

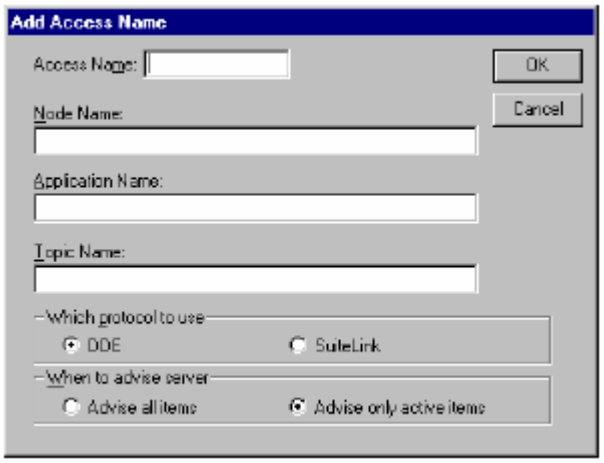
Note: When using MicroNet View, it is possible to set up access names and tags for controller properties automatically by using the **DBLoad** option in the MicroNet View Project Manager. **DBLoad** imports a DG_TAG.CSV file generated by the DIGITROLL DG2602 engineering tool. See page 32.

If it is necessary to view, modify or create an access name:

1. Select **Special\Access Names** in WindowMaker. The following is displayed (with existing access names displayed, if appropriate):



2. Select **Add**. Alternatively, choose the access name to view or modify, then select **Modify**. The following dialogue box is displayed:



Access Name
It must contain a unique access name. For simplicity, use a similar name to the one entered in the **Topic Name** field, but note that forward slashes and parentheses are illegal characters.
The name must start with an alpha character (A-Z or a-z).
The remaining characters can be A-Z, a-z, 0-9, !, @, -, ?, #, $, %, _, \ and &.

Node Name
Enter the network name of the PC that runs the I/O-Server if a networked PC is used and the I/O-Server is running on a PC different from the one on which the tag is used.
If the I/O-Server is used in a multi-terminal MicroNet View project, it is *necessary* to specify the network name of the PC on which the I/O-Server is running.

Application Name
Enter **DG2KIO** in this field.

Topic Name
Enter the DDE topic name. For example, North_Site/Medium Priority.

Which protocol to use
Select the **DDE** protocol.

When to advise server
Select **Advise only active items**.

3. Select **OK**, then continue from step 1 to add or view other access names, as required.

Setting Up DDE Items

A DDE item needs to be set up in the front-end application for:

- Each controller property to be accessed (e.g. the value of a Universal Input object).
- Each item of status information to be obtained.
- Each type of manual operation to be performed from the front-end (e.g. a site connect/disconnect).

When using MicroNet View, the DDE items are set up by defining *tags* in WindowMaker. Note, however, that tags to access controller properties can be set up automatically (see page 32).

The following sections describe the format of DDE items, which depends on the type of information to be accessed or the type of manual operation to be carried out.

Active DDE Items

The term "active DDE item" is used in this chapter to indicate that the information it obtains is being polled from the front-end application. When using MicroNet View, the DDE item is active if one of the following is true:

- If its value is displayed in a WindowViewer window.
- If the DDE item's tag has its **Log Data** option set or is being used in a WindowMaker script.
- If MicroNet View Monitor Tool is alarm-monitoring or in the process of recording a log record.

DDE Items for Controller Properties

A DDE item can be defined to access a controller property value by using table of IOC index values.
The property name format is described below.
For details of how to use the table of IOC index values, turn to 36.

The property name format is the one used by tags imported from a DG_TAG.CSV file created using the **DG2602 configuration programme** in the DG2KIO I/O-Server (see page 14).

The Tagname must be unique according to the legal tag name form. The format is free, but the use the standard format name in compliance with to the DG_TAG.CSV format is recommended.

S<Subnet>I<Net Index>T<TypicalNumber>_<Object Name>_<Object Property>

Where:
- **Subnet** is the controller Subnet address.
- **Net Index** is the controller Net Index (zero if no Net Index is used).
- **Typical Number** is the number of Typical the object belongs to.
- **Object Name** is the name of the Object
- **Object Property** is the name of the property in the object.

For example the Tagname: S10I0T4_S12_IN

is the name used for INput value of the Sensor 12 in Typical 4 of controller with Subnet 10 address (no Net Index is used).

Note: The word "Typical" in this context indicates a reference control chain running inside a DG200 controller. In a single controller up to 12 different control chains, i.e. 12 different "Typical" can be found.

Addressing Properties Using IOC Index Table Values

If it is required to set up a DDE item to address a property in a controller but cannot use the automatically property name format (see page 14), the following format can be used:

<Subnet>/<Node>/<PropAdd>/<Type>

Where:
- **<Subnet>** and **<Node>** specify the controller address.

- **<PropAdd>** is:
  - the IOC Index value for all data such as input, output, set, parameter and alarm .
  - «Typical Number» for all data such as:
    - Time-Daily Schedule programme
    - Week Schedule programme
    - Vacation Schedule programme
    - Holiday Schedule programme
  - 0 (zero) for Controller Date Time (internal controller Calendar-Clock)

Note: «Typical Number» ranges from 1 to 12 (max)

Warning: Writing a wrong or out-of-range <PropAdd> value *will* cause bad communication with the controller.

- **<Type>** is:

A Analogue real data type such as analogue input, set temperature or gain.
N Analogue integer data type such as an elapsed time or value number set.
D Digital Boolean data type such as digital input or alarm status.
T1 – T2 Time-Daily Schedule programme.
W Week Schedule programme.
V1 – V2 Vacation Schedule programme.
H Holiday Schedule programme.
K Clock – Date Time of Controller.

Addressing Examples

Example 1: A DDE item of **10/2/114/A** specifies that it is wished to access the property with IOC = 114.
The property is an Analogue real value. The property belongs to the controller having a subnet address of 10 and a node address of 2.

Example 2: A DDE item of **13/2/351/D** specifies that it is wished to access the property with IOC = 351.
The property is a Boolean ON/OFF digital value. The property belongs to the controller having a subnet address of 13 and a node address of 2.

Example 3: A DDE item of **12/2/2/W** specifies that it is required to access the property Week Schedule programme in the controller subnet13 Typical 2.
The property is of type I/O MESSAGE, and 28 bytes are to be read. The property belongs to the controller having a subnet address of 12 and a node address of 2.

Example 4: A DDE item of **10/2/0/K** specifies that it is required to access a property Date Time internal to the controller. The property is a bit value type. The property is of type I/O MESSAGE, and 28 bytes are to be read.
The property belongs to the controller having a subnet address of 10 and a node address of 2.

Note: A special ActiveX can be used to manage the special data structure T, W, V H and K (see Chapter 5 for details).

DDE Items for Controller Status Information

If it is required to obtain status information about the communications link to a controller, use the following DDE item format:

<Subnet>/<Node>/<Comms Info>

Where:

- **<Subnet>** and **<Node>** specify the address of the controller.
- **<Comms Info>** can be one of the values shown in Table below. Note that all the data is read-only.

<Comms Info>	Meaning	Type	Access	Min	Max
ACTIVE-ITEMS	Returns the number of active DDE items (see page 35) for the specified controller.	I/O INTEGER	R	-	-
COMMS-DEAD	Returns 1 if the controller has not replied to the last 15 communications requests, otherwise returns 0. A controller with a COMMS-DEAD status of 1 is polled less frequently than other controllers (every 5 minutes).	I/O DISCRETE	R	0	1
COMMS-ERRORS	Returns (as a percentage value) the error rate of the communications link to the controller measured in the last 50 communications requests. An error is generated if the controller does not reply within the specified time-out period, or if the controller replies but the reply contains errors.	I/O INTEGER	R	0	100
COMMS-ONLINE	Indicates whether the controller is online or offline. Returns a value of 1 if the controller is online, or 0 if it is offline. A controller is considered offline if it has not replied properly in the last five communications requests.	I/O DISCRETE	R	0	1
REPLY-TIME	Returns the time in milliseconds that the last communication to the controller took to complete. The time returned is from the moment the DDE requested information to the one the reply was fully received. This can be used to identify faulty or overloaded controllers on a network.	I/O INTEGER	R	-	-

Addressing Example

A DDE item of **10/2/COMMS-ERRORS** specifies that it is required to obtain communications error rate from the controller with a subnet address of 10 and a node address of 2.

DDE Items for Poll Scheme Information and Manual Scans

The DDE items shown in the Table below allow obtaining information about a poll scheme or forcing a polling scan from the front-end application.

<Site>/<Poll Scheme>/<DDE Item>

Note: The DDE topic specifies the site and poll scheme to access.

DDE Item	Meaning	Type	Access	Min	Max
ACTIVE-ITEMS	Returns the number of active DDE items (see page 35) for all controllers accessed through the poll scheme.	I/O INTEGER	R	-	-
COMMS-ERRORS	Returns (as a percentage value) the error rate of the communications link to the controllers access via the poll scheme, measured in the last 50 communications requests. An error is generated if the controller does not reply within the specified timeout period, or if the controller replies but the reply contains errors.	I/O INTEGER	R	0	100
LAST-SCAN	Returns the time in milliseconds for the last complete scan through all the controllers to retrieve values for all the active DDE items (see page 35) accessed via the poll scheme.	I/O INTEGER	R	-	-
RETIME-NOW	When set to 1, the I/O-Server retimes all controllers in the poll scheme.	I/O DISCRETE	R/W	0	1
SCAN-NOW	When set to 1, the I/O-Server forces a read of all the controllers accessed via the poll scheme. This can be used to implement an **Update Now** button in WindowViewer.	I/O DISCRETE	R/W	0	1
THIS-SCAN	Returns the time in milliseconds to scan through all the controllers to retrieve values for all the active DDE items (see page 35) accessed via the poll scheme. The value is updated as the current scan progresses.	I/O INTEGER	R	-	-

DDE Items for Site Status/Control

The DDE items shown in Table below allows obtaining runtime status information about an entire site and to perform various site control functions.

<Site>/Status/<DDE Item>

DDE Item	Meaning	Type	Access	Min	Max
ACTIVE-ITEMS	Returns the total number of active DDE items (see page 35) for the site. Only those DDE items used to obtain data in a controller are included in the count (i.e. site status and poll-scheme status tags are not included).	I/O INTEGER	R	-	-
COMMS-ERRORS	Returns (as a percentage value) the average error rate of the communications link to the controllers accessed via any poll scheme to the site, measured in the last 50 communications requests. An error is generated if a controller does not reply within the specified time-out period, or if a controller replies but the reply contains errors.	I/O INTEGER	R	0	100
CONNECT-STATUS	Returns a value that indicates that connection status of the I/O-Server to the site. A value greater than 0 indicates that the I/O-Server is connected. A value less than or equal to 0 indicates that the I/O-Server is not connected. The possible values are as follows: 0 The I/O-Server is not connected to the site. 1 The I/O-Server is performing a login to the site (remote site only). 2 The I/O-Server is collecting alarms and/or logging from the site (remote site only). 3 The I/O-Server is disconnecting from the site (remote site only). 4 The I/O-Server is connected to the site.	I/O INTEGER	R	0	4
CONNECT-TIME	Returns the total time in seconds of the connection to a the site since midnight. The value is reset if the I/O-Server is closed and restarted or when **File, Reset** is selected.	I/O INTEGER	R	-	-
DISCONNECT-TIMER	Returns the time in seconds that the communications link to the remote site remain open. The communications link will be disconnected if no new data is requested from the front-end, e.g. WindowViewer. Each time new data is requested, the timer resets to the value specified in the remote site's **Disconnect after** property, as set in the I/O-Server.	I/O DISCRETE	R	-	-
RECONNECT-TIMER	Returns the time in seconds to the next connection to the remote site to refresh controller property or status values in the front-end. Note that the timer is maintained only if DDE items used to obtain controller data are active (see page 35) for the site. If no DDE items are active, no reconnection will occur. DDE items used to obtain site status and poll-scheme status information have no effect on the timer.	I/O INTEGER	R	-	-

Setting Up Tags in WindowMaker

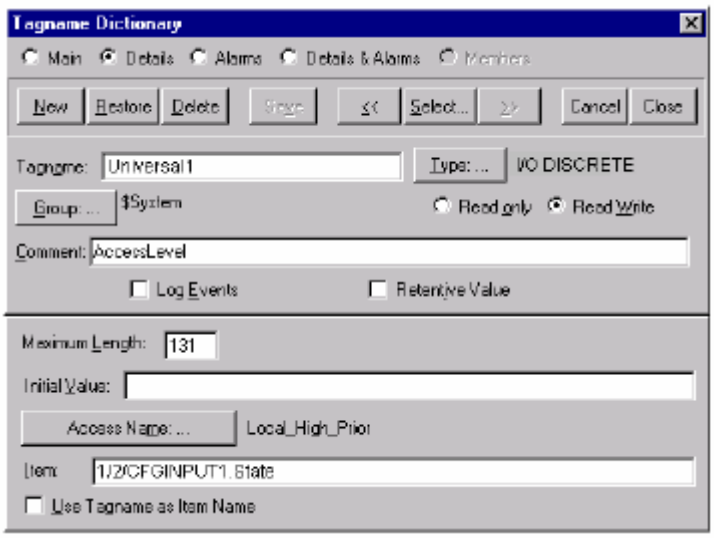
If MicroNet View WindowMaker is used, it is possible to set up DDE items by defining tags in the tagname dictionary.
It is not possible to design the WindowViewer runtime interface (i.e. the screens in which to view information from controllers) or set up alarm limits in the Monitor Tool until the tags are defined in the tagname dictionary.

Note: It is possible to set up access names and tags for controller properties automatically (see page 34).

If it is required to view, modify or create a tag:

1. Open the Tagname Dictionary using WindowMaker.

   A dialogue box similar to the following is displayed:



2. Select **New** or **Select** (to modify an existing tag), then set up and save the details of the tag. Make sure the following options (leave the remaining options at their default values) have been set.

   Tagname
   Specify a unique and legal tag name.

   Type
   The tag **Type** must correspond to the type of the controller property to be accessed, as shown in previous Tables (see pages 37, 38 and 39).
   Complete the **Item** option first, in order to understand which table and type must be used.

   Read only/ReadWrite
   Choose **ReadWrite** only if data to be editable from WindowViewer are needed.
   Some data cannot be edited from WindowViewer, even if **ReadWrite** (see previous Tables) is selected.

   Access Name
   Select the appropriate access name (see page 34).

   Item
   Specify the DDE item.

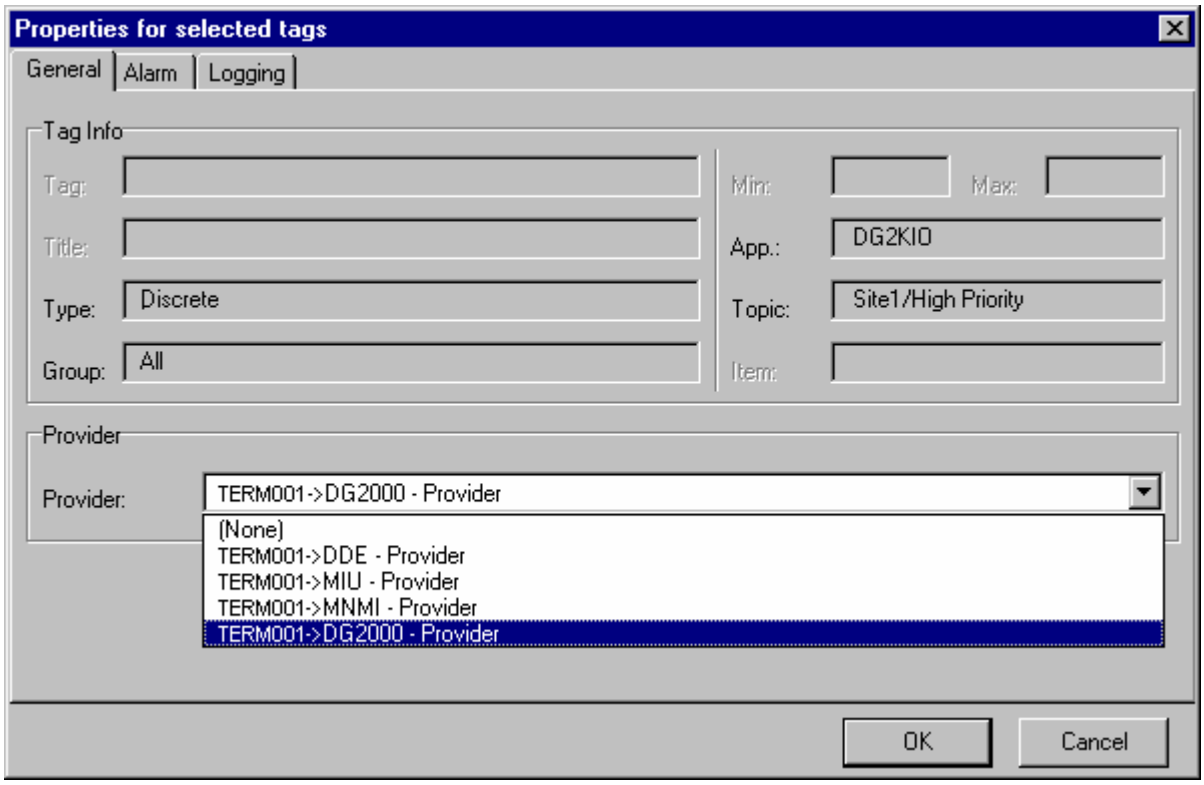
Configure unsolicited alarms in Micronet Monitor Tool

The Micronet Monitor Tool application handles alarm set-up and alarm monitoring and managing.
It handles alarm from the site by polling value, but can also receive an unsolicited alarm from DIGITROLL controller by DG2K I/O Server.

It can also receive alarms from remote sites via DG2401 Server Modem module.

The DIGITROLL unsolicited alarms are set up using the following sequence:

1. Create InView Tag database for points (see page 35).
2. Export Tag database to Monitor Tool using **DBDump** in the MicroNet Project Manager.
3. Start Micronet Monitor Tool and enter in **Set-up** mode.
4. Select **Add Tag** from **Edit** menu.
5. Select unsolicited alarms and assign them to Provider driver DG2000-Provider.



6. Set **Active Alarm** status on Monitor tool.

When the DG2K I/O Server receives an unsolicited alarm from the LON bus, it displays it on Monitor Tool.

The DG2K I/O Server operates also with the Alarm Manager Viewer ActiveX controls (see Micronet View Engineering Guide – Chapter 5 for details).

Chapter 5
Setting Up the DG2K ActiveX Control Components

Introduction

A dedicated ActiveX component must be used to display and manage the special data format in DIGITROLL® controllers.

DIGITROLL Data Type	Item Type	ActiveX Control Name
Time-Daily Schedule programme	T1 -T2	DG2KDailyProgramX
Week Schedule programme	W	DG2KWeekProgramX
Vacation Schedule programme	V1 – V2	DG2KVacationProgramX
Holiday Schedule programme	H	DG2KHolidayProgramX
Controller Calendar Clock	K	DG2KCalendarClockX

The Setup.exe installation programme adds automatically the new DG2KIO ActiveX component in the **Wizard Selection** – **ActiveX Controls** of Micronet WindowMaker.

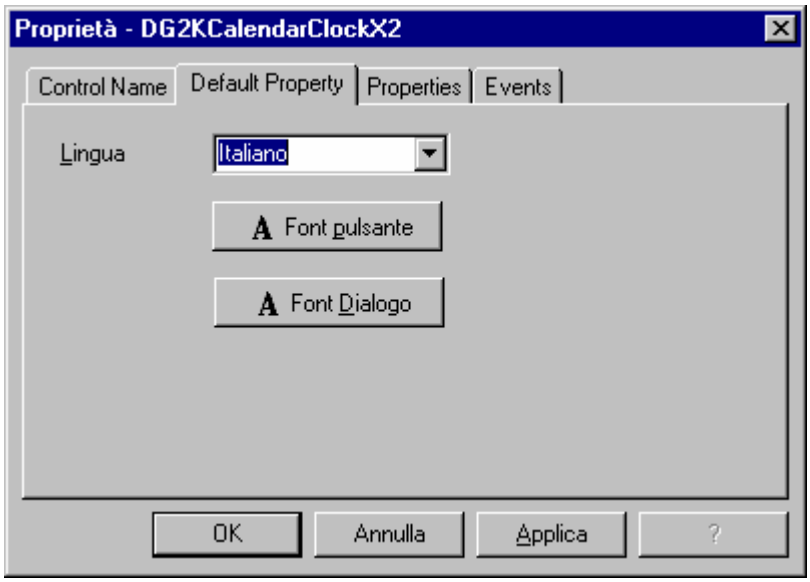
For more details on set up and use of the ActiveX Controls in Micronet WindowMaker see the Micronet View Engineering Guide – Chapter 5.

Only those properties that can probably be changed are described here.
For further information, refer to the InView documentation.

Common DG2K ActiveX Set Up Property

The following is a typical dialogue box for setting up the properties of a MicroNet View ActiveX control.
All DG2K ActiveX must be set up after the positioning in the window to locate the graphic in Micronet WindowMaker. There are many common properties valid for all DG2K ActiveX and some specific ones. For setting up the Property double-click on the graphics item button in Micronet WindowMaker after positioning.

Default Property



In Default Property it is possible to select:

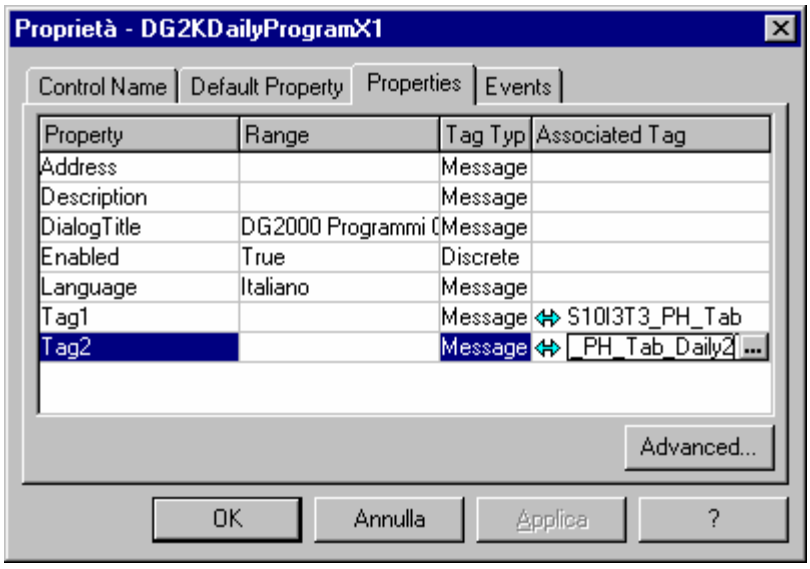
- The language of the fixed text.
- The ActiveX activating button font
- The dialogue text font.

The default language is **Italiano**; English and French are the selectable options. The DG2K ActiveX name assigned by the Micronet WindowMaker appears on the set up property mask title bar.

Properties:
The common values which can be set in the Properties mask are:

Property Name	Type	Description
AccessEdit	INTEGER	Do not change.
AccessLevel	INTEGER	Set this to the AccessLevel system tag if it is needed to make the ActiveX control available only after the WindowViewer user has been logged in. Privileges depend on the user's access level, as determined by the WindowViewer login username.
AccessRead	INTEGER	Do not change.
Caption	MESSAGE	Do not change.
Address	MESSAGE	Set this string to display in the dialogue box the address information about the ActiveX control.
Description	MESSAGE	Set this string to display in the dialogue box the description information about the ActiveX control.
Dialogue Title	MESSAGE	Change the default dialogue title of the ActiveX control.
Enabled	DISCRETE	Enable or disable the access to the ActiveX control.
Language	MESSAGE	Change the language of the fixed text in the ActiveX contr.

An example of Property Page of the Daily Programme is:



That is a typical dialogue box for setting up the properties of a MicroNet View ActiveX control.
All properties can be assigned to an associate Tag or can be set up according to the property name.
The property name has the form: **<DG2KActiveXName>.<PropertyName>** where:

DG2KactiveXName is the name assigned from the Micronet WindowMaker appearing on the set up property mask title bar.

PropertyName is the name of the property.
For example it is possible to assign a Property value **Address** in a Script by the statements:

#DG2KdailyProgramX1.Address = "*Site1 – Controller Main – Address 10 / 2* "

See the InView documentation for more details about ActiveX properties.
For details about setting up and using the DG2K ActiveX controls, refer to the appropriate section later in this chapter.

Time-Daily Schedule Programme

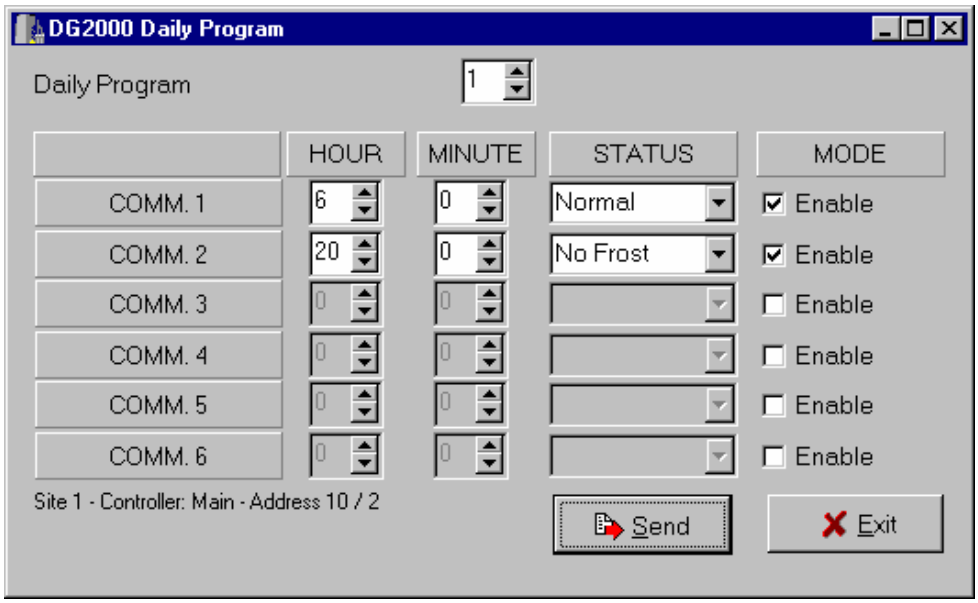
These ActiveX controls give access to the properties associated with a DG2K Time-Daily Schedule Programme object. The control allows to display and editing individually the five different "time per day" programmes.
Each "time per day" programme has up to six different "status commutation" time.

Each "status commutation" can assume one of these different values:

Normal, **Reduced** or **No Frost**.

Set **Enable** flag to activate a "status commutation" time.
Status Commutation times can be easily defined and set in hour and minute. Times can be input to one-minute accuracy.

Change the Daily Programme number for display and manage one of the five different possible.



The DG2K Time-Daily Programme must be assigned to two different Tags which have an Item type T1 and T2 respectively, and the same Subnet, Node and Typical (see page 35 for "Typical" definition).

Property Name	Type	Description
Tag1	I/O MESSAGE	Set this Tag in the Property Pages with the appropriate T1 Item type.
Tag2	I/O MESSAGE	Set this Tag in the Property Pages with the appropriate T2 Item type.

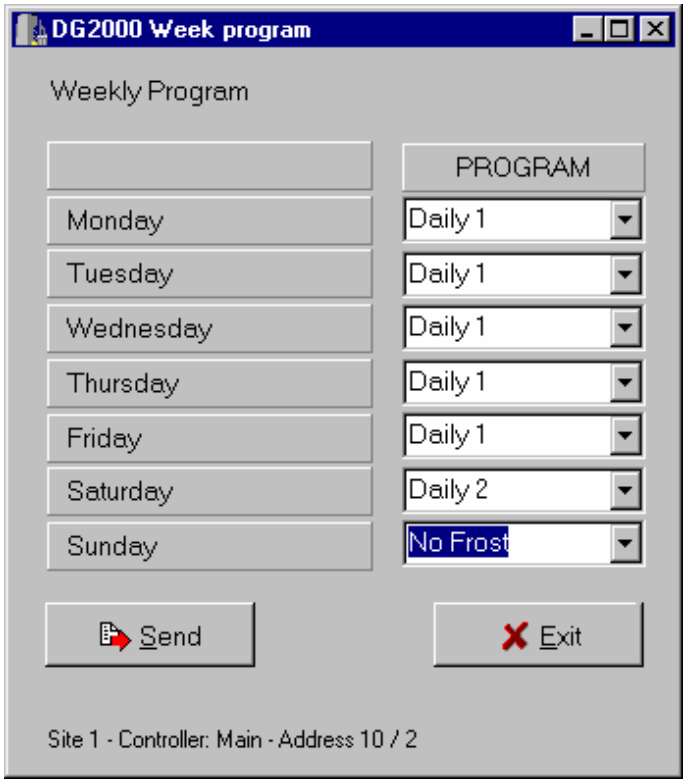
Example: Tag1 Item 10/2/1/T1 and Tag2 Item 10/2/1/T2; display and manage the Time-Daily Programme of Typical 1 in the controller with Subnet 10 Node 2 address.

Click on **Send** button to set up all Daily Programme information in the controller.
Click on **Exit** button to close the ActiveX dialogue.

Weekly Schedule Programme

These ActiveX controls give access to the properties associated with a DG2K Weekly Schedule Programme object. The control allows an individual display and editing of the different weeks daily programmes.

Each week's daily programme has up to eight different daily programme times; one of the five Daily Programmes (named **Daily 1** to **Daily 5**) or one of the three fix daily programmes (**Normal**, **Reduced** or **No Frost**.).



The DG2K Weekly Schedule must be assigned to one Tag which must have an Item type W.

Property Name	Type	Description
Tag1	I/O MESSAGE	Set this Tag in the Property Pages with the appropriate W Item's type.

Example: Tag1 Item 10/2/1/W; display and manage the Weekly Programme of Typical 1 in the controller with address Subnet 10 Node 2.

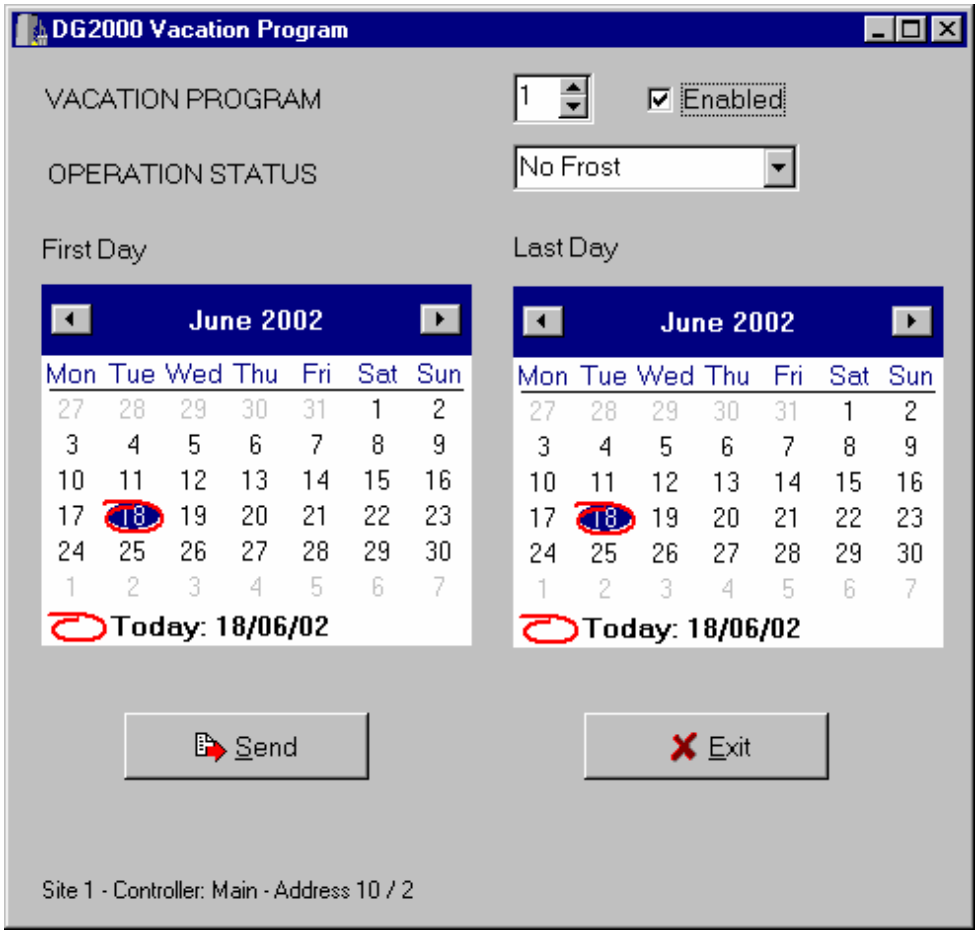
Click on **Send** button to set up all Daily Program information in the controller.
Click on **Exit** button to close the ActiveX dialogue.

Vacation Schedule Programme

These ActiveX controls give access to the properties associated with a DG2K Vacation Schedule Programme object. The control allows to display and edit individually the ten different Vacation Programmes days.
Each Vacation Programme sets up an Operation Status in the controller Typical and First Day and Last Day must be selected. Each "Operation Status" can assume one of these different values:

Normal, **Reduced** or **No Frost**.

Set **Enable** flag to activate an "Operation Status" of the holiday.
Change the Vacation Programme number to display and manage one of the ten possible.



The DG2K Vacation Programme must be assigned to two different Tags which must have an Item type V1 and V2 respectively and the same Subnet, Node and Typical.

Property Name	Type	Description
Tag1	I/O MESSAGE	Set this Tag in the Property Pages with the appropriate V1 Item type.
Tag2	I/O MESSAGE	Set this Tag in the Property Pages with the appropriate V2 Item type.

Example: Tag1 Item 10/2/1/V1 and Tag2 Item 10/2/1/V2; display and manage the Vacation Programme of Typical 1 in the controller with address Subnet 10 Node 2.

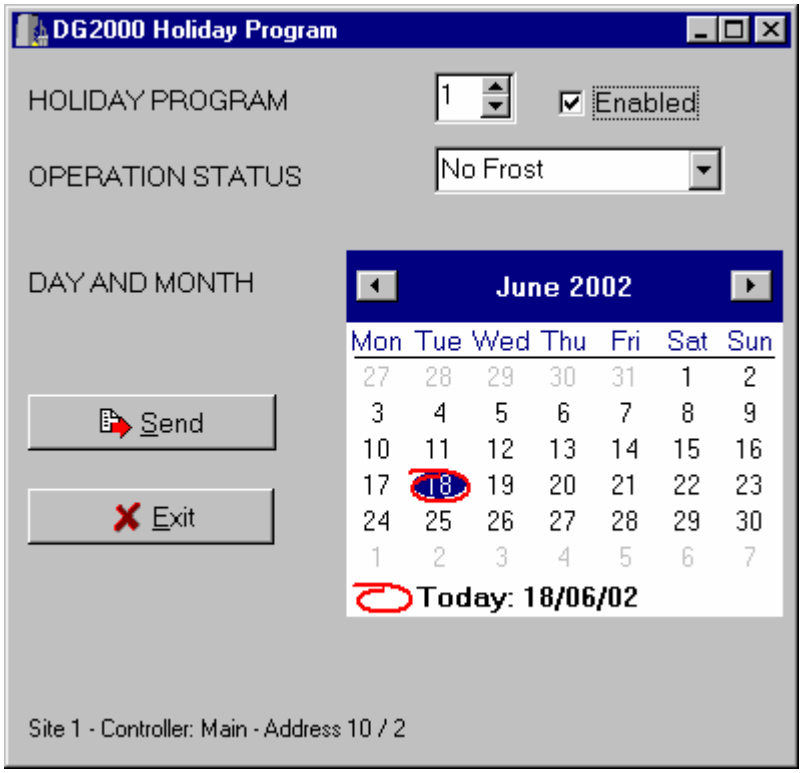
Click on **Send** button to set up all Daily Programme information in the controller.
Click on **Exit** button to close the ActiveX dialogue box.

Holiday Schedule Programme

These ActiveX controls give access to the properties associated with a DG2K holiday Schedule Programme object. The control allows to display and editing individually the different fifteen Holiday Programmes days.

Each holiday period programme sets up an Operation Status in the controller Typical and a Day must be selected. Each “Operation Status” must assume one of the following values:

Normal, **Reduced** or **No Frost**.



The DG2K Holiday Schedule must be assigned to one Tag which must have an Item type H.

Property Name	Type	Description
Tag1	I/O MESSAGE	Set this Tag in the Property Pages with the appropriate H Item type.

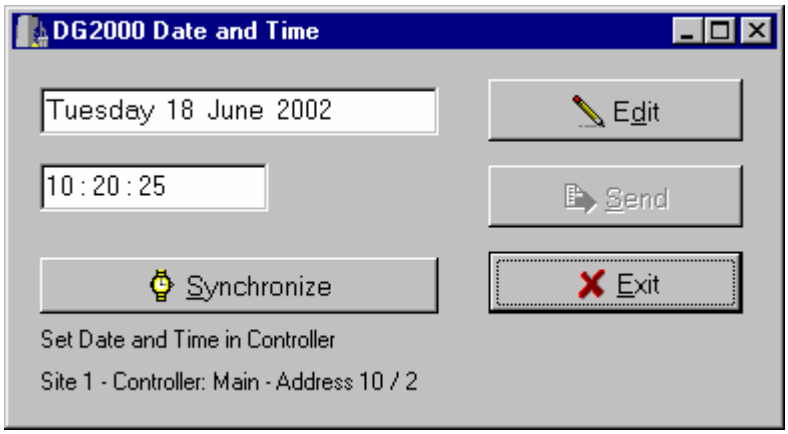
Example: Tag1 Item 10/2/1/H; displays and manages the Holiday Programme of Typical 1 in the controller with address Subnet 10 Node 2.

Click on **Send** button to set up all Daily Programme information in the controller.
Click on **Exit** button to close the ActiveX dialogue.

Controller Calendar Clock

These ActiveX controls give access to the internal Calendar Clock of the controller (date and time) associated with a DG2K Calendar Clock object.
The control allows displaying and editing individually the different date and time in the controller.

The language of the date displayed on these ActiveX controls is in accordance to the International Options in the Control Panel of the Windows Operating System.



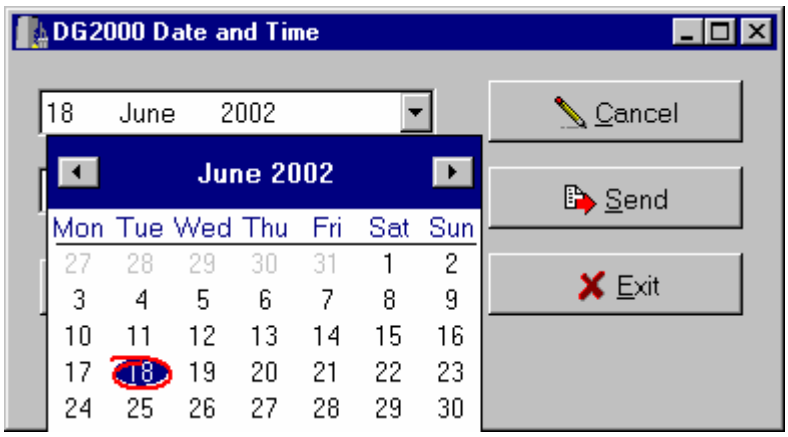
The DG2K Calendar Clock must be assigned to one Tag which must have an Item type K.

Property Name	Type	Description
Tag1	I/O MESSAGE	Set this Tag in the Property Pages with the appropriate K Item type.

Example: Tag1 Item 10/2/0/K; displays and manages the Calendar Clock in the controller with address Subnet 10 Node 2.

Note: In the DIGITROLL architecture the controller with Subnet 10 Node 2 address is the Time Master; all the other controllers connected to the LON net synchronise their date/time at midnight or some minutes after the start-up.

Click on **Synchronise** button to set up the date/time in the controller according to the computer.
Click on **Edit** button to edit manually the date/time in the controller and click on **Send** button to confirm the change.



Click on **Exit** button to close the ActiveX dialogue.
Two special properties can be set in the Property mask to change date and time.

Property Name	Type	Description
DateFormat	MESSAGE	Set the date format; default value is “dddd dd mmmm yyyy”
TimeFormat	MESSAGE	Set the time format; default value is “hh : nn : ss”

Those format specifiers can be used to change date and time display. Format specifiers may be written in capital as well as in small letters--both produce the same result. If the string given by the Format parameter is empty, the date and time value is formatted as if a 'c' format specifier had been given.

The specifiers that can be used for date are:

Specifier	Displays
c	Displays the date using the format given by the ShortDateFormat global variable, followed by the time using the format given by the LongTimeFormat global variable. The time is not displayed if the fractional part of the DateTime value is zero.
d	Displays the day as a number without a leading zero (1-31).
dd	Displays the day as a number with a leading zero (01-31).
ddd	Displays the day as an abbreviation (Sun-Sat) using the strings given by the ShortDayNames global variable.
dddd	Displays the day as a full name (Sunday-Saturday) using the strings given by the LongDayNames global variable.
ddddd	Displays the date using the format given by the ShortDateFormat global variable.
dddddd	Displays the date using the format given by the LongDateFormat global variable.
m	Displays the month as a number without a leading zero (1-12). If the m specifier immediately follows an h or hh specifier, the minute rather than the month is displayed.
mm	Displays the month as a number with a leading zero (01-12). If the mm specifier immediately follows an h or hh specifier, the minute rather than the month is displayed.
mmm	Displays the month as an abbreviation (Jan-Dec) using the strings given by the ShortMonthNames global variable.
mmmm	Displays the month as a full name (January-December) using the strings given by the LongMonthNames global variable.
yy	Displays the year as a two-digit number (00-99).
yyyy	Displays the year as a four-digit number (0000-9999).

The specifiers that can be used for time are:

Specifier	Displays
h	Displays the hour without a leading zero (0-23).
hh	Displays the hour with a leading zero (00-23).
n	Displays the minute without a leading zero (0-59).
nn	Displays the minute with a leading zero (00-59).
s	Displays the second without a leading zero (0-59).
ss	Displays the second with a leading zero (00-59).
t	Displays the time using the format given by the ShortTimeFormat global variable.
tt	Displays the time using the format given by the LongTimeFormat global variable.
am/pm	Uses the 12-hour clock for the preceding h or hh specifier, and displays 'am' for any hour before noon, and 'pm' for any hour after noon. The am/pm specifier can use lower, upper, or mixed case, and the result is displayed accordingly.
a/p	Uses the 12-hour clock for the preceding h or hh specifier, and displays 'a' for any hour before noon, and 'p' for any hour after noon. The a/p specifier can use lower, upper, or mixed case, and the result is displayed accordingly.
ampm	Uses the 12-hour clock for the preceding h or hh specifier, and displays the contents of the TimeAMString global variable for any hour before noon, and the contents of the TimePMString global variable for any hour after noon.
/	Displays the date separator character given by the DateSeparator global variable.
:	Displays the time separator character given by the TimeSeparator global variable.
'xx'/"xx"	Characters enclosed in single or double quotes are displayed as-is, and do not affect formatting.

Appendix A
Error Messages

Introduction

During runtime, the I/O-Server may show error messages in the Error Messages List in the I/O-Server window.
If the MicroNet View InView WWLogger is running, the error messages are logged within the WWLogger as well.
The error messages are grouped into three major groups: fatal errors, critical errors and normal errors.
Fatal errors indicate that the PC-system is in an unstable state and should be restarted as soon as possible.
Critical errors are probably due to an incorrect configuration of either the I/O-Server or the application using the I/O-Server to communicate with the controllers.
Normal errors are errors that may occur even in a properly configured system. Most of these are due to communication problems with the modem, the remote DG2402 or the controllers.

Fatal System Errors

Message Invalid site pointer XXXX:XXXX in LocalSiteThread
Invalid site pointer XXXX:XXXX in RemoteSiteThread

Cause The I/O-Server application has detected that some of the internal I/O-Server memory has been corrupted, either by the I/O-Server itself or by another application.

Action Terminate all running applications and reboot the system. If the problem persists, please contact Controlli

Message Unable to allocate memory for device object. Not enough memory to create item <name>
Unable to allocate memory for buffer in controller read
Unable to allocate memory for buffer in controller write

Cause The I/O-Server is not able to dynamically allocate memory from Windows. Since all Windows versions use a swap file to give access to more memory than has physically been installed in the PC, it is most likely to get this message only if some of the Windows system memory has been corrupted causing the Windows memory manager to fail.

Action Terminate all running application and reboot the system. If the problem persists, please contact Controlli.

Fatal DDE Errors

Message
Can not create topic <name> - already processing DDE message
Unable to delete topic <name> - already processing DDE message
Unable to create item <name> - already processing DDE message
Unable to delete item <name> - already processing DDE message
Unable to activate item <name> - already processing DDE message
Unable to deactivate item <name> - already processing DDE message
Unable to set item value for item <name> - already processing DDE message

Cause
The I/O-Server is only able to process one DDE message at a time, where a DDE message is one of the internal messages used when passing data between applications via DDE. This error message indicates that the I/O-Server has received another DDE message before the current DDE message had been already completely processed.

Action
Terminate all running applications and reboot the system. If the problem persists, please contact Controlli.

Message
Unable to delete topic - invalid topic pointer XXXX:XXXX passed to driver
Unable to create item - invalid topic pointer XXXX:XXXX passed to driver
Unable to delete item - invalid topic pointer XXXX:XXXX passed to driver
Unable to delete item - invalid item pointer XXXX:XXXX passed to driver
Unable to activate item - invalid topic pointer XXXX:XXXX passed to driver
Unable to activate item - invalid item pointer XXXX:XXXX passed to driver
Unable to deactivate item - invalid topic pointer XXXX:XXXX passed to driver
Unable to deactivate item - invalid item pointer XXXX:XXXX passed to driver
Unable to set item value - invalid topic pointer XXXX:XXXX passed to driver
Unable to set item value - invalid item pointer XXXX:XXXX passed to driver

Cause
Some data passed to the I/O-Server as part of the internal DDE messaging are not valid. This may be due to the internal I/O-Server memory being corrupted, either by the I/O-Server itself or by another application.

Action
Terminate all running applications and reboot the system. If the problem persists, please contact Controlli.

Critical Communication Errors

Message
Unable to open device <port>

Cause
The I/O-Server is unable to access the specified port either because the port does not exist or the port is already in use by another application.

Action
Verify that the port is valid and not in use by another application and terminate it.

Message
Unable to start site - no comms device <port> configured

Cause
The LON port selected under configuration of the site has not been configured under the Comms folder.

Action
Configure the port under the Comms folder, or edit the site properties and select a configured port.

Critical DDE Errors

Message Cannot create DDE link - site in topic <name> is undefined

Cause An application is trying to create a DDE link to the I/O-Server where the site name in the DDE topic has not been configured under the Sites folder.

Action Check site spelling.

Message Cannot create DDE link - poll in topic <site>/<poll scheme> not defined for this site

Cause An application is trying to create a DDE link to the I/O-Server where the poll scheme name in the DDE topic has not been configured for the site under the Sites folder.

Action Check poll scheme spelling.

Message Can't create item <name> - format must be <subnet>/<node>/...
Can't create item <name> - format must be <table>,<offset>,<format> or symbolic name

Cause An application is trying to create a DDE link to the I/O-Server where the DDE item name does not have the proper format.

Action Check item format.

Message Unable to create unknown status item <name>

Cause An application is trying to create a DDE link to the I/O-Server where the DDE item name is not one of the predefined status item names.

Action Check status item name.

Message Attempt to set item <name> to a value outside legal range

Cause An application is trying to set a DDE item to a value that is not legal for that type of item. To avoid controller memory being corrupted, the operation is rejected by the I/O-Server.

Action Check calling application.

Message Attempt to set value of read-only status item <name>

Cause An application is trying to set the value of a status item via DDE. Status items are read-only, so this is rejected by the I/O-Server.

Action Check calling application.

Communication Errors

Message Unable to read (<table>, <offset>, <length>) from address <subnet>/<node>

Cause The I/O-Server has not been able to read data from the specified controller address, but it will retry the next time the controller is scanned.

Action None, but monitor the communication errors percentage for that controller. If it is significantly higher than the percentage for the other controllers in the network, it may indicate either a faulty controller or LAN connection.

Message Unable to write (<table>, <offset>, <length>) to address <subnet>/<node>

Cause The I/O-Server was not able to write data to the specified controller address.

Action None, but monitor the communication errors percentage for that controller. If it is significantly higher than the percentage for the other controllers in the network, it may indicate either a faulty controller or LAN connection.

Message Unable to update real time clock in address <subnet>/<node>

Cause The I/O-Server was not unable to write the current PC clock to the specified controller address. If the poll scheme has been configured to update the real time clock in the controllers, the I/O-Server will try to set the clock again in one hour.

Action None, but monitor the communication errors percentage for that controller. If it is significantly higher than the percentage for the other controllers in the network, it may indicate either a faulty controller or LAN connection.