MXTechnologies

IOServer for Digital Corporation GP Series
Ver1.0

User's Manual

Before using, please read this manual carefully. Please refer to this manual at any time when using GP series IO Server.

Introduction

This user's manual describes about IOServer(Wonderware Fantory Suite's device communication program) for Digital GP series Touch-Panel.

For using this program, these knowledge is required.

- Wonderware's InTouch or other applications you will use
- Knowledge for using Digital GP touch panel computer.

And of course you need knowledge about operating system you will use (ex: Windows2000, Windows XP).

We can't give you any technical support for these application knowledge.

This manual

1. Before you use

Describing software outline, environment, system configuration, install and uninstall

2. How to use

Starting up, configuration utility, and shutdown

3. How to connect with InTouch

How to use this program from InTouch.

4. Error messages

WWLogger message from this program.

Section 1 Before you use

Product outline

This program acts as “IO Server” for Wonderware’s software products.

For information in detail about IO Server, please refer to Wonderware’s document.

This program communicates with Digital GP series touch panel by Ethernet and UDP/IP, then read / write data requested from client(like InTouch).

Environment

This program work with Wonderware’s product, typically with InTouch, version 7.11 or later. So operating system and hardware environment, is followed with InTouch’s environment.

If you install this program on independent PC from InTouch, pelase install “Wonderware Common components” before this program.

Install and uninstall

For installing, double click “setup.exe” on the install media.

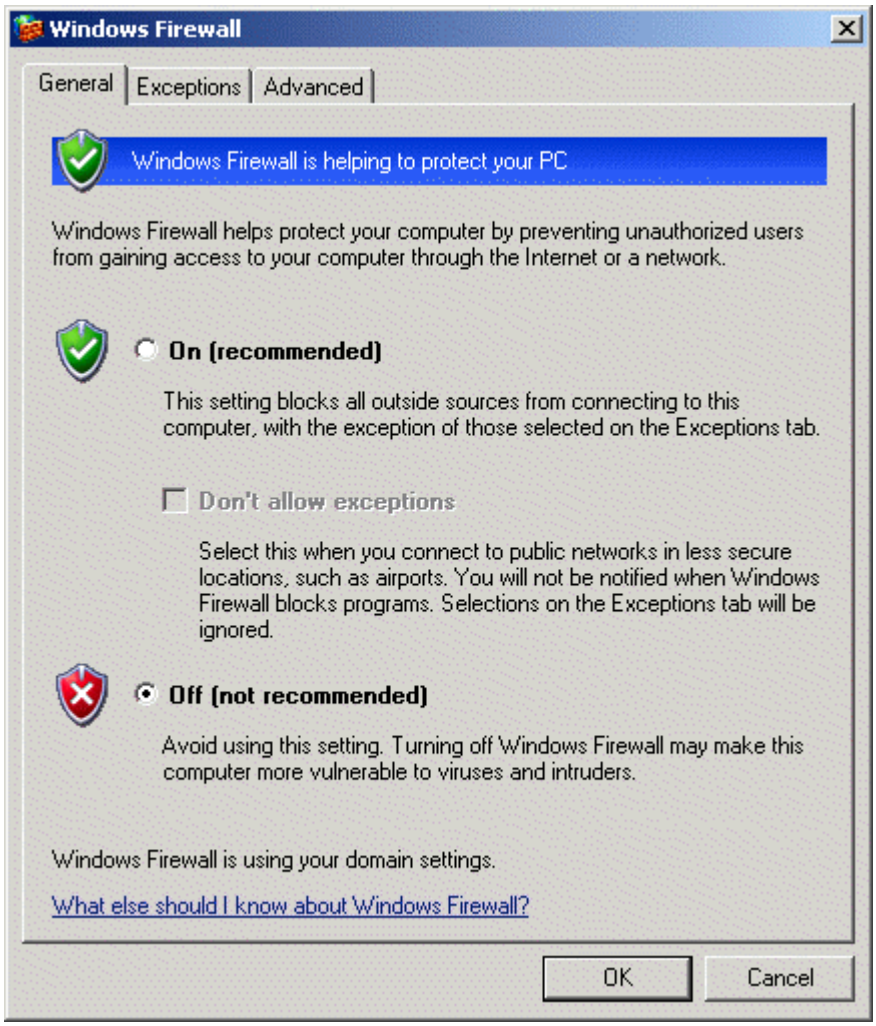
For uninstalling, Click Start, point to Settings, click Control Panel, and then double-click Add/Remove Programs.

On the Install/Uninstall tab, click GPIOSvr in the list of installed programs, and then click Add/Remove.

How to use with WindowsXP SP2

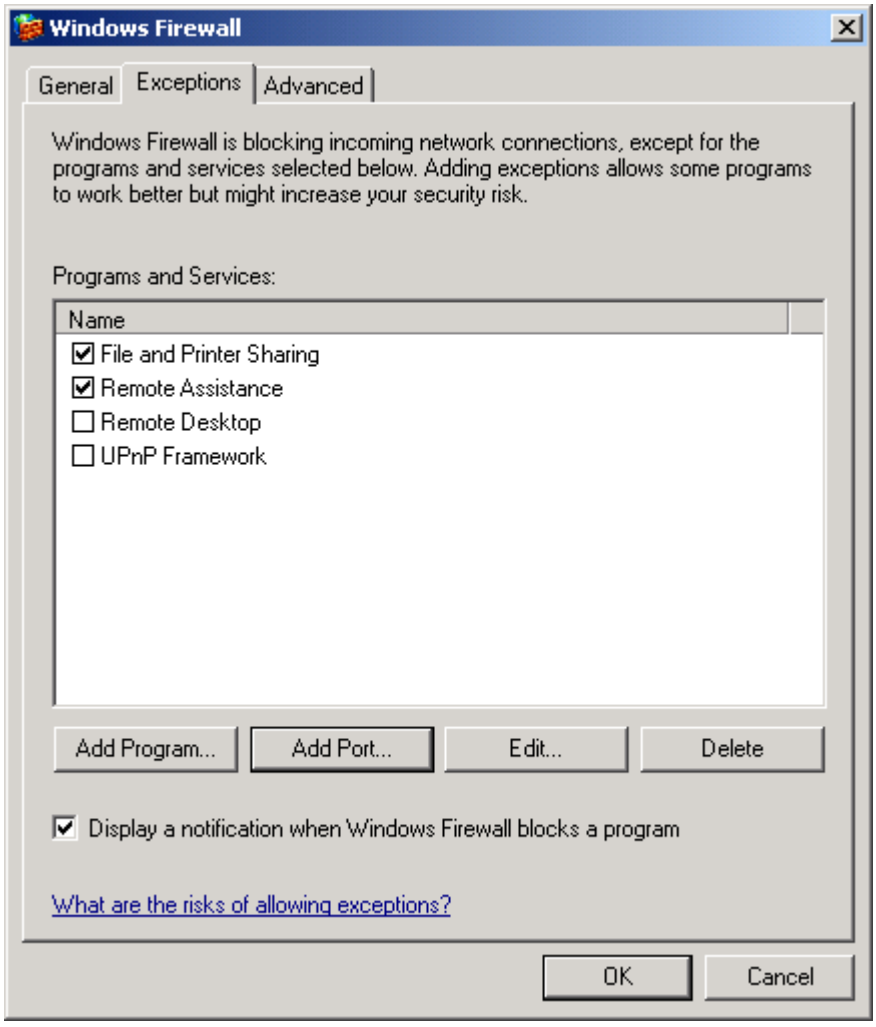
Scenario 1

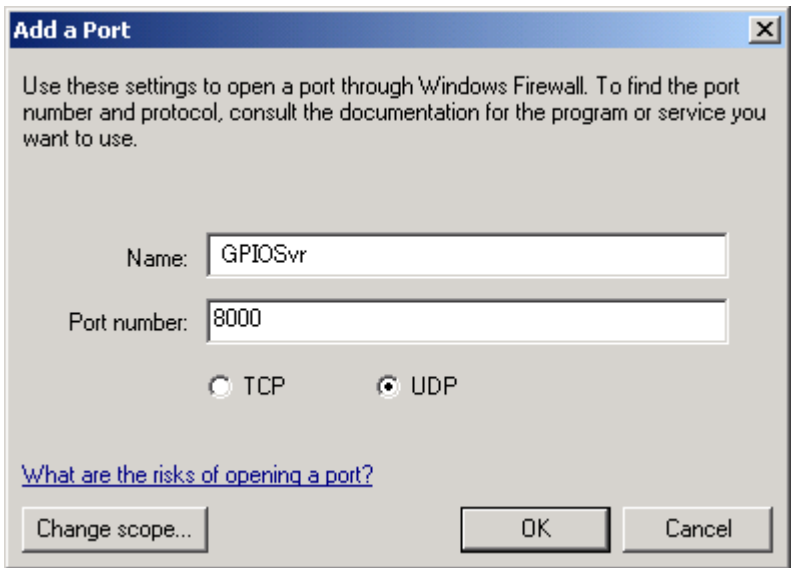
To manually disable Windows Firewall on XP SP2 machines, open Windows Firewall in Control Panel and select the Off option on the General tab:



Scenario 2

To manually allow incoming traffic on UDP port 8000 for an XP SP2, open Windows Firewall in Control Panel, switch to the Exceptions tab and click the Add Port button. Then type a descriptive name for the new exception and specify that UDP port 8000 be statically opened for unsolicited inbound traffic:


Windows Firewall
General
Exceptions
Advanced
Windows Firewall is blocking incoming network connections, except for the programs and services selected below. Adding exceptions allows some programs to work better but might increase your security risk.
Programs and Services:
Name
File and Printer Sharing
Remote Assistance
Remote Desktop
UPnP Framework
Add Program...
Add Port...
Edit...
Delete
Display a notification when Windows Firewall blocks a program
What are the risks of allowing exceptions?
OK
Cancel

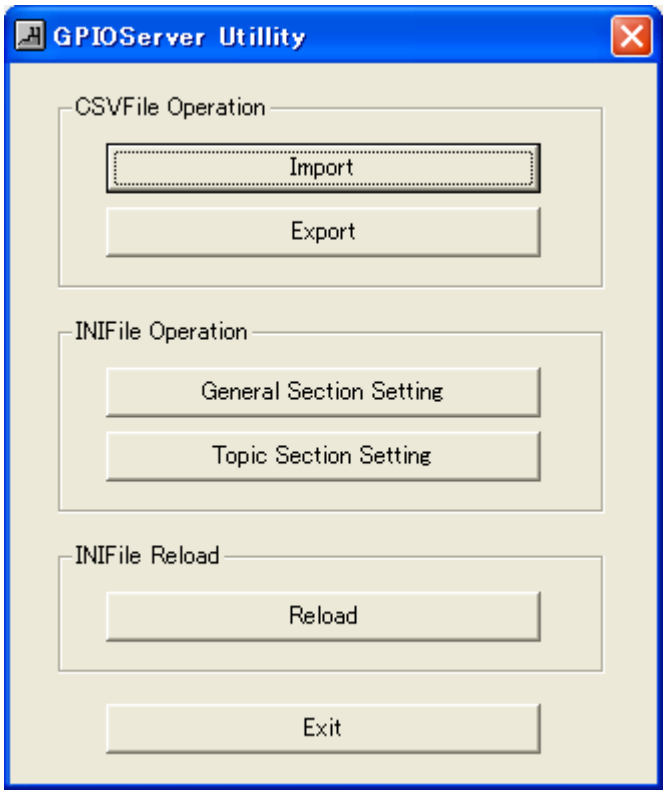

Add a Port
Use these settings to open a port through Windows Firewall. To find the port number and protocol, consult the documentation for the program or service you want to use.
Name:
GPIOSvr
Port number:
8000
TCP
UDP
What are the risks of opening a port?
Change scope...
OK
Cancel

Section 2 How to use

Parameter on startup

This program doesn't have startup parameter.

Configuration Utility



By clicking "Configure" menu of this program, Utility program is started. This utility has these functions.

(1) Converting from INI file to CSV file, CSV file to INI file

(2) Editing of INI file.

(3) Reflects INI file to IOServer.

[Export] button:

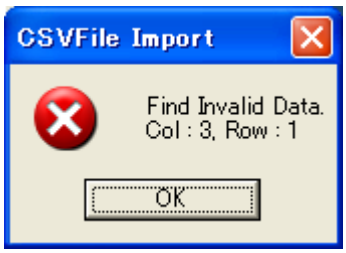
shows "Save as" standard dialog of Windows. Please select save location and CSV file name. Current contents of INI file is converted to CSV file.

When Export is carried out in the state where there is the existing CSV file, it is overwritten automatically.

[Import] button:

shows “Open File” standard dialog of Windows. You can select CSV file, written by this utility.

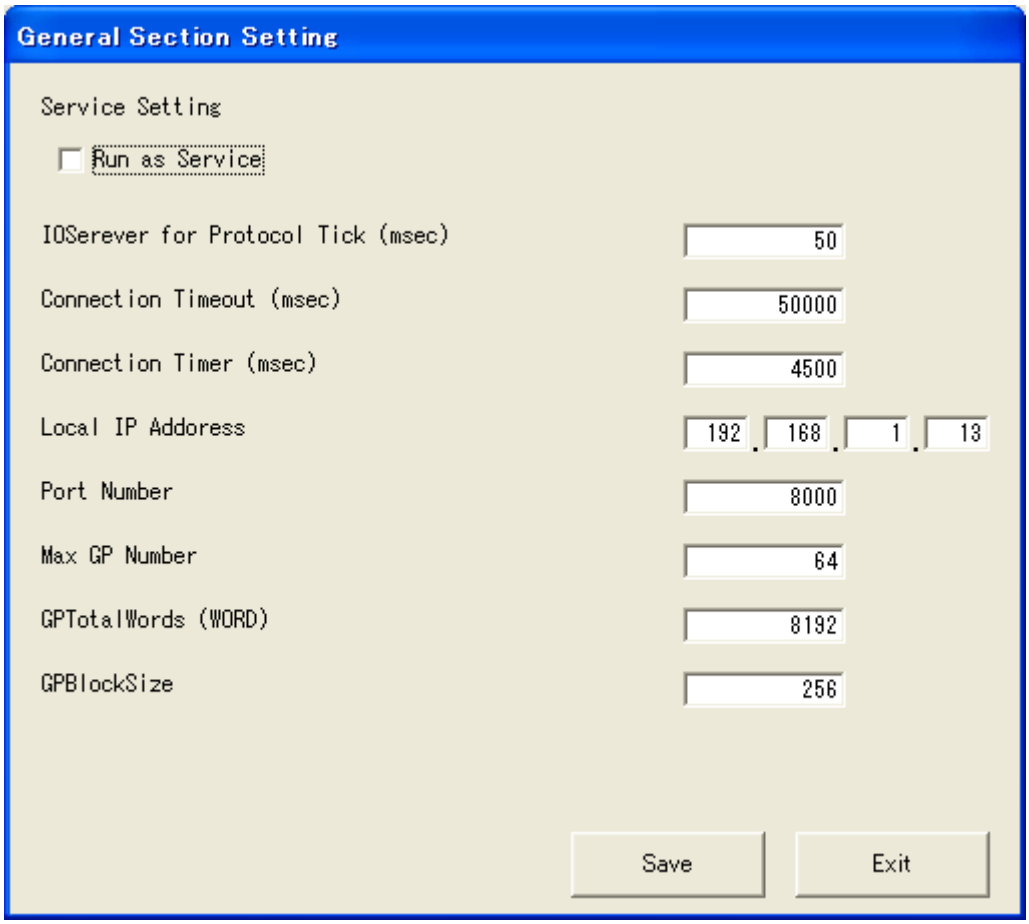
Moreover, if [Import] button is clicked in the state where an invalid value is in the edited CSV file, the following error messages will be displayed and CSV file import will be stopped.



[Reload] button:

Changed INI file is reflected to IOServer.

[General Section Setting]

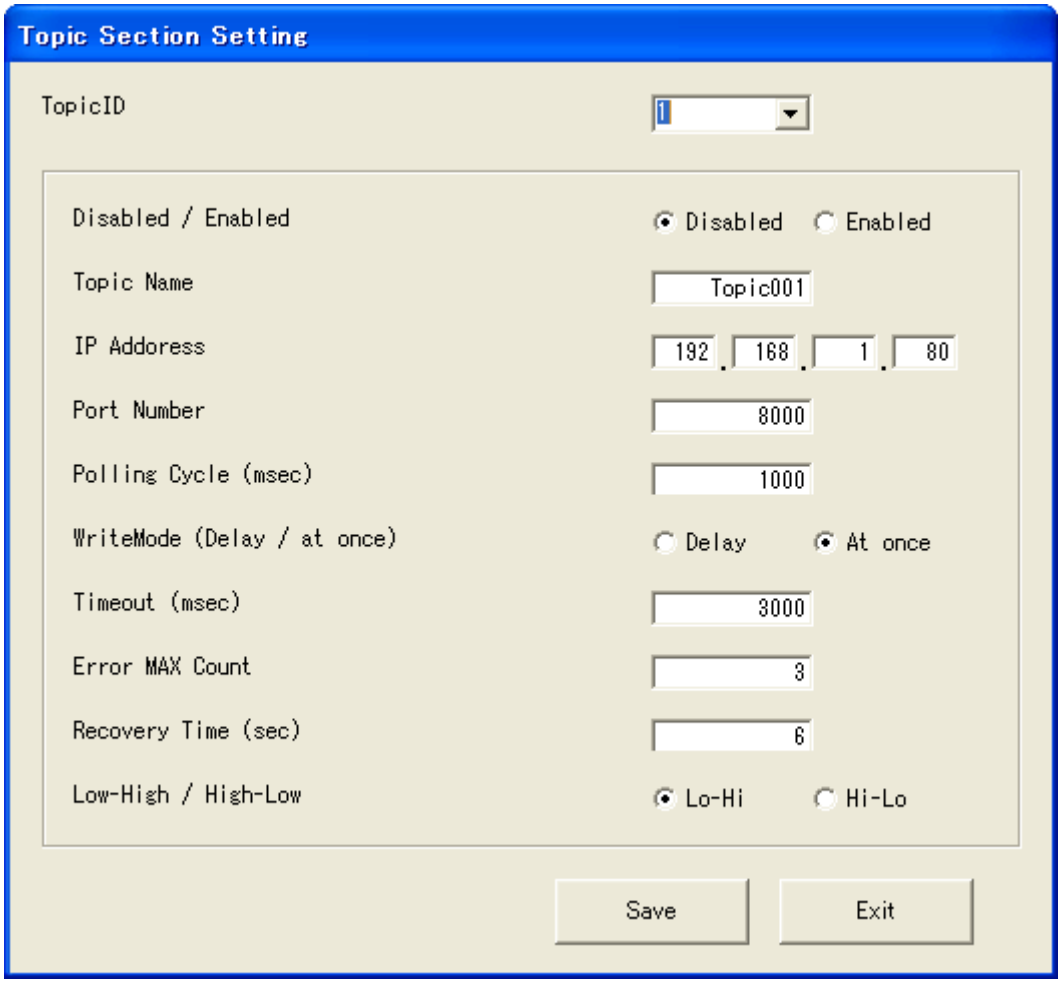


By Clicking [General Section setting] button, this screen is shown.

For explanation of each row, please refer to the following tables.

Key name	Description
RunAsService	Please check a GPIO Server to operate as Windows service.
ProtocolTick	Internal timer of GPIO Server. Do not change.
ValidDataTimeout	Timeout (msec) with InTouch communication. Do not change.
RequestTimer	Communication check cycle (msec) with InTouch. Do not chage.
LocalAddress	IP address of PC It will become an error if an invalid value (except 0 - 255) is set as each octet (example . portion which hits "192").
Port	Port number of PC It will become an error if an invalid value (except 0 – 65535) is set up.
MaxGPNum	Maximum number of GP on the LAN. It will become an error if an invalid value (except 0 – 253) is set up.
GPTotalWords	Maximum register number (Word) of GP.
GPBlockSize	Communication block size with GP. It will become an error if it sets up except an effective value (being able to divide among GPTotalWords and between 0-466).

[Topic Section Setting]



By Clicking [Topic Section setting] button, this screen is shown.

By selecting number by pull-down list box, you can edit [TopicXXX] section of INI file.

For explanation of each row, please refer to the following tables.

Key name	Description
TopicID	Please specify ID of the topic to set up. It will become an error if an invalid value (except 1 - 128) is set up.
Enabled	Please set up the use existence of each topic.
TopicName	Please set up the Topic naming. Free string.
IPAddress	Please set up the IP address of GP. It will become an error if an invalid value (except 0 - 255) is set as each octet (example: portion which hits "192"). It will become an error if an invalid value (except 0 or 1) is set

	up.
Port	Please set up the Port number of GP. It will become an error if an invalid value (except 0 – 65535) is set up.
Polling	Please set up the Poll cycle to GP(msec).
WriteMode	Please set up the mode for writing in PLC.
TimeOut	Please set up the Timeout msec for GP communication.
ErrorMaxCount	Please set up the Maximum error counter, causes recovery waiting mode.
RecoveryTimer	Please set up the Recovery waiting timer (sec)
isH_L	Please define double-word order. “Hi - Lo” means high-word to low-word order, “Lo-Hi” means low-word to high-word order.

Configuration File

GPIOSvr refers to GPIOSvr.ini file on Windows folder. (on Windows 2000, Winnt folder). This ini file can be edited by GPIOSvr utility program, or converted to/from CSV file, then edited by Excel or some SpreadSheet applications.

Ini file has these items.

[General] section

Key name	Defalut value	Description
RunAsService	0	0: normal application. 1: Run as Windows service. This change requires utility program. If you want the Windows XP/2000 service to start automatically, It must be installed InTouch 7.X
ProtocolTick	50	Internal timer of program. Do not change.
ValidDataTimeout	50000	Timeout (msec) with InTouch communication. Do not change.
RequestTimer	4500	Communication check cycle (msec) with InTouch. Do not chage.
LocalAddress	192.168.0.0	IP address of PC It will become an error if an invalid value (except 0 - 255) is set as each octet (example . portion which hits "192").
Port	8000	Port number of PC It will become an error if an invalid value (except 0 – 65535) is set up.
MaxGPNum	64	Maximum number of GP on the LAN. It will become an error if an invalid value (except 0 – 253) is set up.
GPTotalWords	8192	Maximum register number (Word) of GP.
GPBlockSize	256	Communication block size with GP. It will become an error if it sets up except an effective value (being able to divide among GPTotalWords and between 0-466).

*Notice:

This section's parameter can't be re-loaded because of too much memory free/allocation required. When configuring these parameters, please restart IOServer itself.

* Notice:

In the state where it has registered as a service program, by the usual operation, I/O Server cannot start or end. When required, please perform start/stop operation from "service" of a control panel.

In order to cancel the registration as a service program, please delete a service setup in the following procedures.

1. "Service" of a control panel is opened.
2. "The stop of service" is clicked where "GPIOSvr_IOServer" is chosen.
3. A registry editor (REGEDIT.EXE) is started.
4. The following keys are deleted.
   - \HKEY_LOCAL_MACHINE\SOFTWARE\Wonderware \GPIOSvr_IOServer
   - \HKEY_LOCAL_MACHINE\SYSTEM\ControlSet001 \Services\GPIOSvr_IOServer
   - \HKEY_LOCAL_MACHINE\SYSTEM\ControlSet003 \Services\GPIOSvr_IOServer
5. GPIOServer usually operates as application after rebooting PC.

[Topicxxx]Section.

Key name	Defalut value	Description
Enabled	0	0: not use this section, 1: use this section
TopicName	Topic000	Topic naming. Free string.
IPAddress	192.168.0.0	IP address of GP. It will become an error if an invalid value (except 0 - 255) is set as each octet (example: portion which hits "192"). It will become an error if an invalid value (except 0 or 1) is set up.
Port	8000	Port number of GP. It will become an error if an invalid value

		(except 0 – 65535) is set up.
Polling	1000	Poll cycle to GP(msec).
WriteMode	1	0: delayed write, 1: immediate write. (note 1) It will become an error if an invalid value (except 0 or 1) is set up.
TimeOut	3000	Timeout msec for GP communication.
ErrorMaxCount	2	Maximum error counter, causes recovery waiting mode. (note 2)
RecoveryTimer	6	Recovery waiting timer (sec)
isH_L	0	defines double-word order. 1 means high-word to low-word order, 0means low-word to high-word order. It will become an error if an invalid value (except 0 or 1) is set up.

Notice: "TopicName" parameter can't be reloaded because of this naming connects IOServer and InTouch. When configured this parameter, please restart IOServer.

Note 1: delayed write means, writing data from InTouch will be stored until next poling cycle. (slow response time, high throughput). Immediate write means, writing data from InTouch will generate immediate packet to GP. (fast response time, low throughput). For normal HMI application, use 1 for this option.
Note 2: if GP is power down or on screen configuration, the communication to GP will cause error. On this situation, GPIOSvr goes to "waiting mode" by counting ErrormaxCount, and wait for RecoveryTimer msecs.

How to shutdown

Shutting down this program, like normal windows application :

(1) click X icon on upper-right corner

(2) press Alt+F4

(3) select exit from control menu

When running as service, you can't shut down this program with normal procedure.

Click Start, Control panel, Management Tools, Services, and press Start/Stop to control.

Section 3 using with InTouch

Configuration of WindowViewer

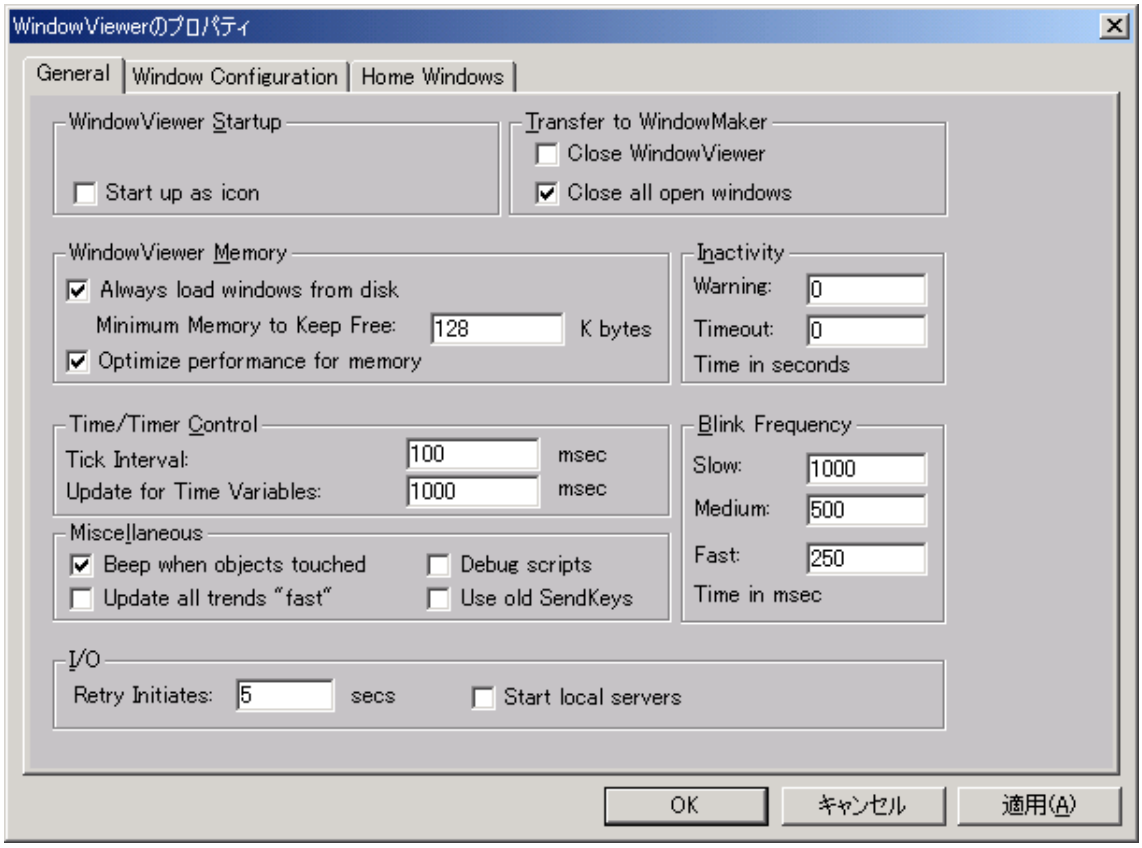


Fig 3.1　WindowViewer property

Set IO communication box as figure. Then InTouch will startup without this program, and try to communicate every 5 seconds.

Access name of InTouch

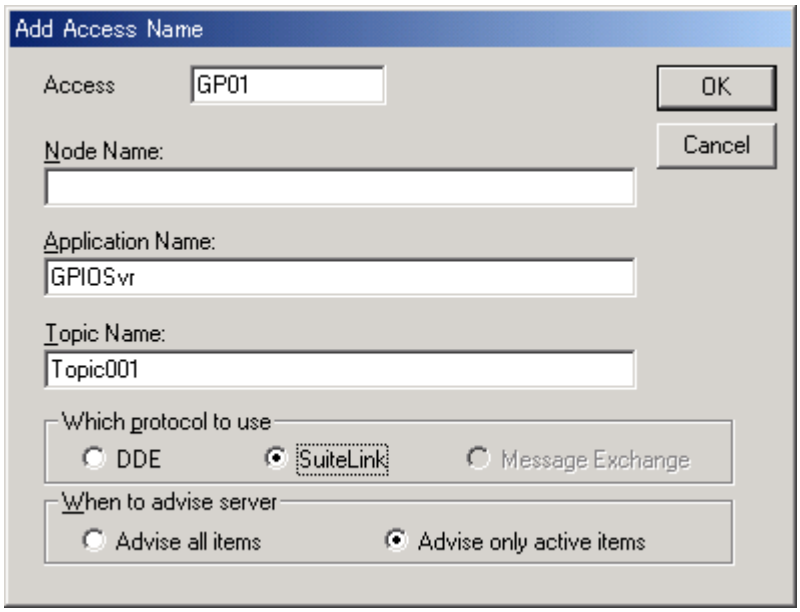


Fig 3.2　Access name dialog of InTouch

Node Name: when this program is running on separate computer with InTouch, input computer name of the PC which this program is running on.

Application Name: GPIOSvr.

Topic Name: configured in GPIOSvr.ini

Item naming

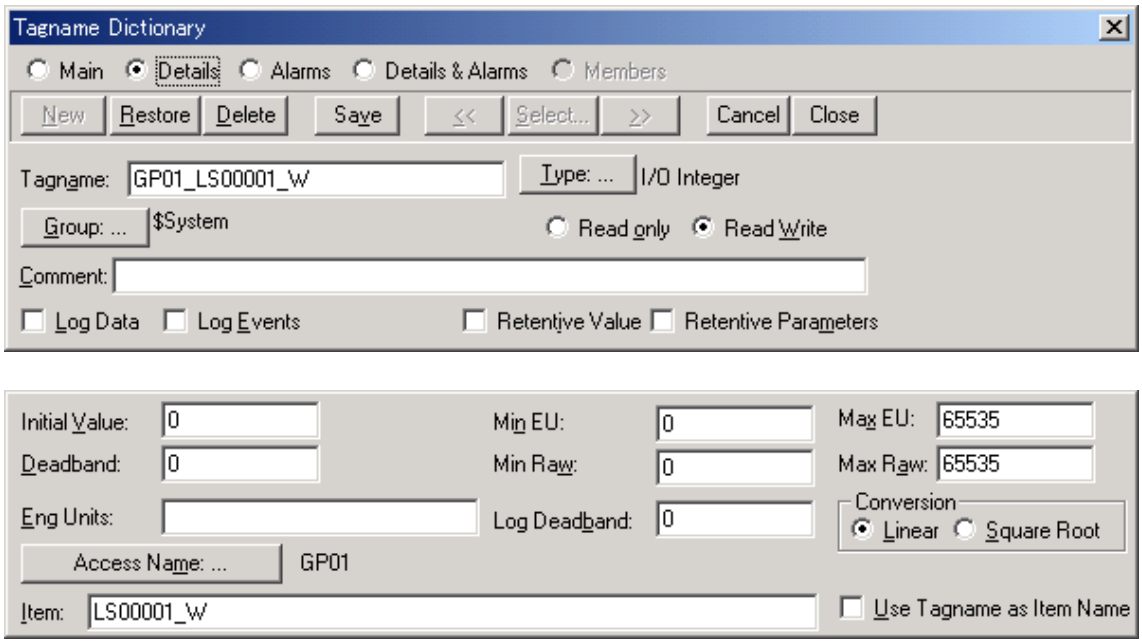


Fig 3.3 Item naming sample on InTouch Tag dictionary

Upper sample means how to access register 1 by WORD type.

Item types supported by this program is listed below.

Type	example	condition	Data range
WORD	LS00008_W		0 to 65535
SHORT	LS00009_S		-32768 to 32767
DWORD	LS00010_D	Even address	0 to 2147483647
INT	LS00014_I	Even address	-2147483648 to 2147483647
message	LS00016_S_12	Add message length. In the block(configured in ini file)	ASCII string
Bit	LS00030_B_05	Add bit position	0/1
Status	Status	(fix name)	0:normal, 1:2:error

Section 4 messages

This program logs information, warning, error message to Wonderware's Logger. The messages are listed below.

List 4.1 messages

messages	description
Can't create Socket, WSAError=	Network error.
Can't bind Socket , WSAError=	Network error.
Can't set async mode to Socket , WSAError=	Network error.
There are no usable winsock DLL.	Network error.
Winsock Version 2.0 required.	Network error.
Item name must start with LS. :_____	Item naming error.
Item name must contain at least LS + 5 digit + type. ex: LS00123_S :	Item naming error.
Item name contains not a digit character at 5 digit area. :	Item naming error.
Item name's format is not correct. _ between Address and Type can't be found. :	Item naming error.
Address must be greater than 0. :	Item naming error.
Address range over, max address =xxx. :	Item naming error.
Dword item's address must be even. :	Item naming error.
Integer item's address must be even. :	Item naming error.
Message or Bit Item must contain at least LS + 5 digit + _type + _SubInfo . ex: LS00123_M_14 :	Item naming error.
Item name's format is not correct. _ between Type and SubInfo can't be found. :	Item naming error.
Message or Bit Item contains not a digit character at SubInfo area. :	Item naming error.
SubInfo message length must be greater than 0. :	Item naming error.
SubInfo message length must be smaller than 131(InTouch's limit). :	Item naming error.
Message can't exceed 256 words boundary. :	Item naming error.
SubInfo Bit Position must be greater than or equal to 0. :	Item naming error.
Bit Position can't exceed 16. :	Item naming error.
Type character does not match B,W,S,D,I,M. :	Item naming error.
Status item can't be written. Topic name:	Read only item.
Error on recvfrom(), code :	Network error.
Error on WinSock, code:	Network error.
Startup…	Information.
Exit …	Information.
Topic Name wrong, or no entry in GPIOSvr.ini. :	Topic naming or configuration error.

Memo

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