



TOP Server to iFix Process Database Connectivity

Connecting the TOP Server and iFix

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Introduction

The TOP Server's support of the iFix PDB communication interface simplifies the task of connecting the TOP server with iFix applications by making the TOP Server appear as a native driver named "IDS" or "Industrial Data Server".

With built-in support of the native interface, the TOP Server allows iFix users to quickly access device data without the need to use an intermediary software bridge, i.e. the OPC Power Tool, as is done when using a strictly OPC only communications server with iFix. For Intellution users, the familiar look and feel of iFix native driver operation is maintained.

The TOP Server gives you the best of both worlds – connect to iFix as a native driver and simultaneously serve data to other OPC client applications using the TOP Server's OPC interface.



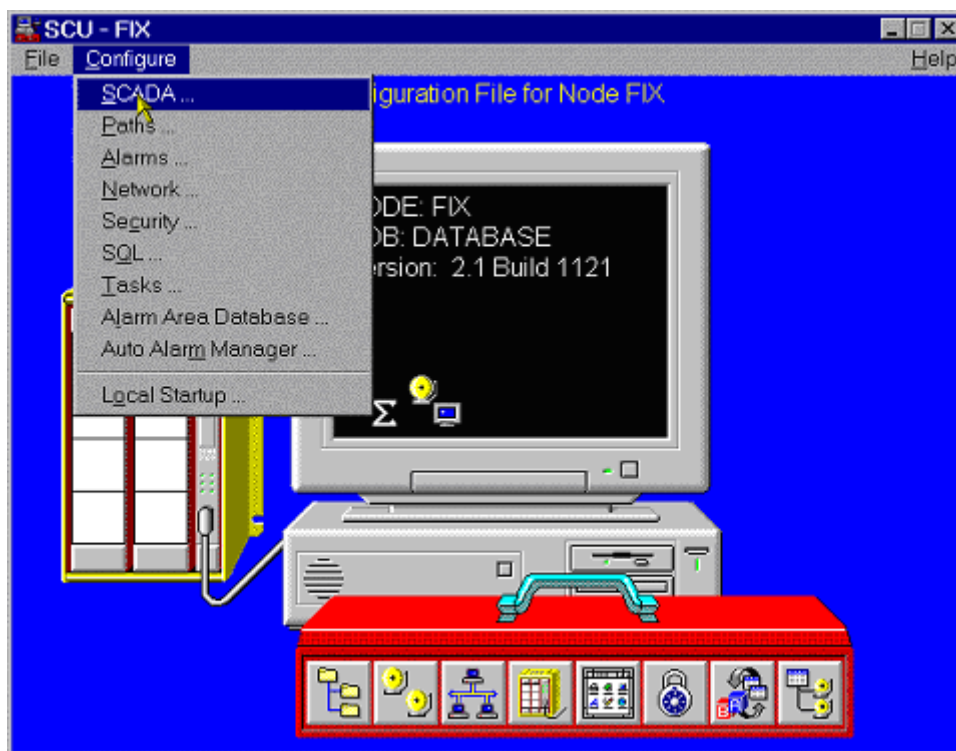
Prerequisites

- iFix 2.6 or higher installed on your target PC
- TOP Server version 4.82.223 or higher installed on the same PC as iFix and configured to communicate with your target PLC or other supported device and with iFix PDB connectivity enabled
- Working knowledge of iFix and the iFix process database



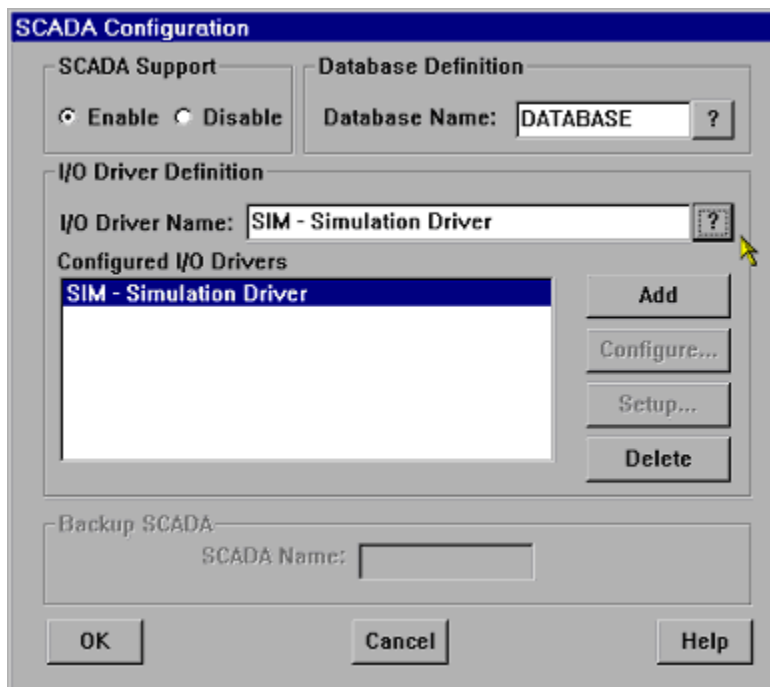
Configuring iFix SCU

The first step in configuring iFix to connect to the TOP Server as a native Intellution driver is to start the iFix configuration utility. In the SCU, choose the **Configure** and then **SCADA** menu option.



Once the SCADA Configuration Dialog opens, click on the "?" by I/O Driver Name. A list of available I/O Drivers will appear. Assuming you have the TOP Server installed, you should select the **IDS Industrial Data Server** and click **OK**.





The image shows the 'SCADA Configuration' dialog box. It has several sections: 'SCADA Support' with 'Enable' and 'Disable' radio buttons; 'Database Definition' with a 'Database Name' field containing 'DATABASE' and a help button; 'I/O Driver Definition' with an 'I/O Driver Name' field containing 'SIM - Simulation Driver' and a help button; a list box titled 'Configured I/O Drivers' containing 'SIM - Simulation Driver'; and a 'Backup SCADA' section with a 'SCADA Name' field. On the right side of the 'Configured I/O Drivers' list box are four buttons: 'Add', 'Configure...', 'Setup...', and 'Delete'. At the bottom are 'OK', 'Cancel', and 'Help' buttons.

Once the **IDS Industrial Data Server** name appears in the I/O Driver Name field, click on the **Add** button, so that it will appear in the Configured I/O Drivers list box.

If you have not configured the TOP Server to connect to your device you can click **Configure** and the TOP Server will open for configuration. If you have never configure the TOP Server before you can reference our Quick Start guide on the Internet at:

http://www.toolboxopc.com/support/quick_start/index.shtml

Once the Configuration is complete, you can close or minimize the TOP Server. Click **OK** on the SCADA Configuration window and save the configuration then close the Configuration Utility.



Creating Data-Blocks Inside iFIX Applications

To add server items to iFix Database Manager, you must first complete the following prerequisites:

- 1) Create and configure the TOP Server with a project adding a channel and a device. Optionally, you can configure item names (we refer to using item names in the TOP Server as using "static tags").
- 2) Know the three-letter acronym for the server. For the TOP Server, the acronym is **IDS** (Industrial Data Server).
- 3) Configure the server in iFix SCADA Configuration (look for the acronym **IDS**).

You do not have to define tag names in the TOP Server in order to use it with Intellution iFix. Our first example in this tutorial uses tag names that are defined in the TOP Server, but later, we will show you how to enter device addresses in iFix and pass them straight to the TOP server, a process we call "Dynamic Tags".

Connecting using tags defined in the TOP Server (Static Tags)

Since the iFix PDB does not support server tag browsing, full path information to tag names in the TOP Server will be entered into the data-blocks so that the TOP server knows which items you want in the data block in iFix. When using TOP Server drivers that can import the tag database from programming software or from the device itself, these project files can be exported from the TOP Server as CSV files that can be formatted for use in the iFix Database. This method can speed project work and minimize data entry error on large projects.

To enter driver specifications for a database block in iFix Database Manager

1. Select **Add** from the **Blocks** menu in the iFix Database Manager to add a database block. Database Manager prompts you to select the type of database block.
2. Select the type of block and click **OK**. The block's dialog box appears as shown below at default (SIM driver selected)



3. Enter a name you wish to use for the Tag in iFix in the Tag Name field.
4. Complete the driver fields in the Addressing Section with the appropriate information for your driver as shown below.

NOTE: The Hardware options and Signal Conditioning fields are not used for the IDS driver.

The Driver field in Database Manager identifies the I/O driver that the database block accesses. This field accepts a three-letter acronym associated with the particular driver you are using. The drop-down menu for this field provides the same Configured I/O Driver list as in the SCADA Configuration dialog box of the System Configuration Utility (SCU). For the TOP Server, enter **IDS** in this field or choose it from the drop-down menu.



The I/O Address for the driver has the following format:

(Channel_Name.Device_Name.AnyGroup_Names.Tag_Name)

Where:

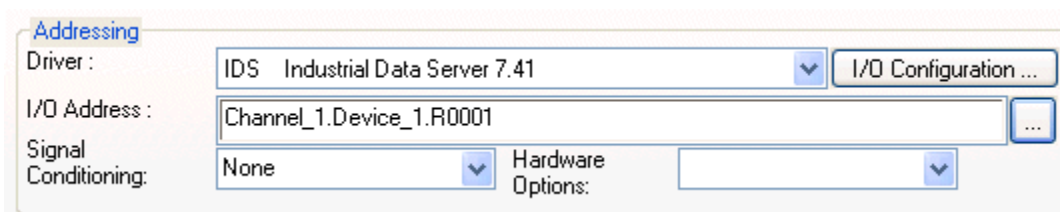
- *Channel Name*: is the protocol or driver used in the server project. This name must match the channel name in the server configuration.
- *Device Name*: is the PLC or other hardware that the server communicates with. This name must match the device name for the specified channel in the server configuration
- *Tag Name*:: is an actual tag name specified in the server

NOTES:

1. You will use IDS for the driver name in iFix regardless of which particular hardware specific TOP server driver you are using. To iFix, all the drivers look the same.
2. The IDS listing for the TOP Server must appear in iFix's SCU's Configured I/O Driver list box in order for Database Manager to recognize the acronym you enter – if you have not done this go back to the beginning of this document and repeat.

Specifying I/O Addresses in Fix Database Manager (Dynamic Tags)

You can specify the data block address that the database accesses in the Database Manager I/O Address field. Server I/O Addresses typically consist of the name of the channel, device, and tag name or address. The I/O address is specific to the driver (**Note:** This field is not case sensitive).



For this example we use the dynamic addressing format where R0001 is the actual register address in our device. The I/O address for the driver has the following format:

Channel_Name.Device_Name.Device_Address



Where:

- *Channel Name*: is the protocol or driver used in the server project. This name must match the channel name in the server configuration.
- *Device Name*: is the PLC or other hardware that the server communicates with. This name must match the device name for the specified channel in the server configuration
- *Device Address*: is an address within the PLC or other hardware device that the server communicates with

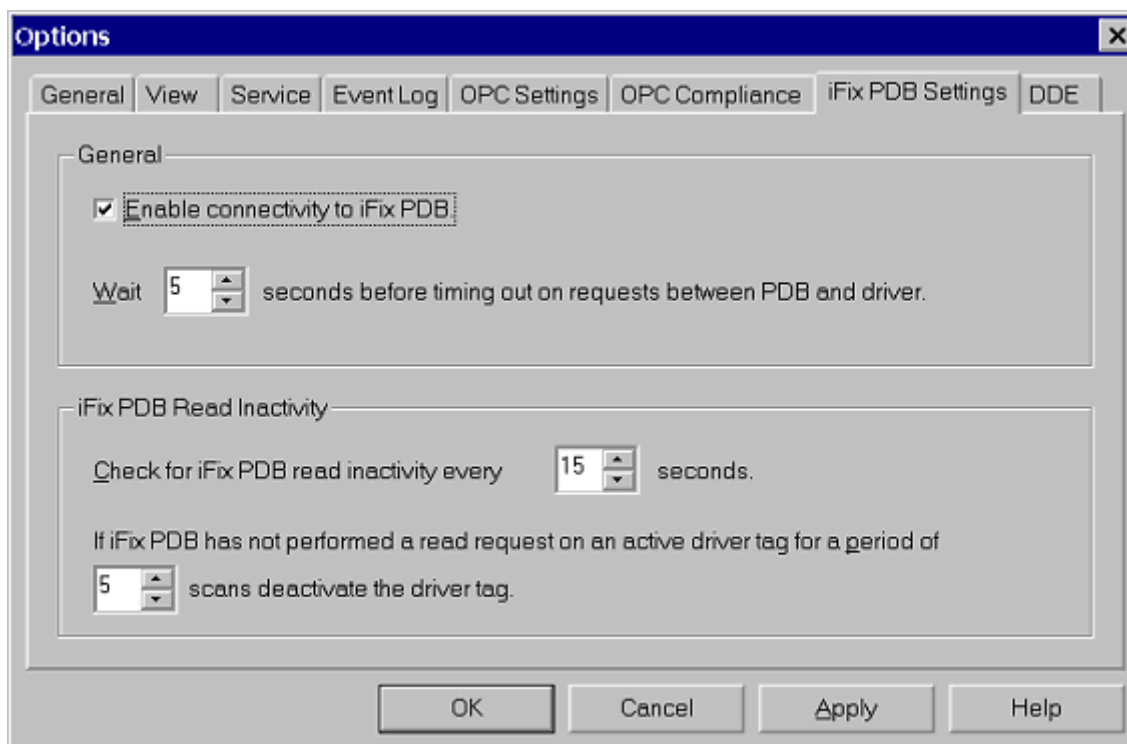


TOP SERVER iFix PDB OPTIONS

The iFix PDB Settings tab on the TOP server contains fields that enable you to adjust the behavior between the processing of the iFix process database (PDB) tags and the TOP server tags. You can access this tab from the Tools/Options menu in the TOP Server. The iFix PDB Settings tab is only displayed in the Options dialog box if you have iFix installed on your computer.

The following graphic shows the iFix PDB Settings tab.

Note: This page will only be displayed in the TOP Server's Options menu if an Intellution product is installed on your PC



The following fields are available in the iFix PDB Settings tab. It is recommended that you use the default values for each of these fields. Ensure that your settings meet the requirements of the application being used.



General Settings

- **Enable connectivity iFix PDB:** allows you to turn support of the iFix PDB interface On or Off. By default this setting will be disabled. **Important:** If iFix PDB operation is turned off (disabled), the server will not respond to any request for data by iFix PDB. If you intend to use the server only as an OPC server, you may want to disable Intellution iFix PDB operation. By doing so, you can increase the security of your data and improve the overall performance of the server.
- **Wait xx seconds before timing out on requests between PDB and Driver:** represents the amount of time the iFix PDB will wait for a response from an add/remove/read/write request before timing out. If the iFix PDB times out, it will fail the request on behalf of the server. This timeout can occur if the server is busy processing other requests, or if iFix PDB has lost communications with the server. In the case of lost communications, the iFix PDB will automatically re-establish communications with the server so that successive timeouts do not occur.

Valid Range	Default Range
5 to 60 seconds	5 seconds

iFix PDB Read Inactivity Settings

The server maintains a list of active iFix PDB tags that request data from the server. For each tag in the list, the server obtains data from the process hardware. The server has as an automatic data reduction system. The following two fields enable you to efficiently manage the active data, ensuring that only the necessary data is being updated.

- **Check for iFix PDB read inactivity every xx seconds:** determines how often the server checks for inactive data. Based on the value you supply in this field, the server checks any data that the server determines to be inactive and removes that data item from the list.

Valid Range	Default Range
10 to 30 seconds	15 seconds

- **xx scans deactivate the tag :** establishes the condition by which the server may determine if the data is active or inactive. Each PDB tag has a scan time attached to it, as defined in the iFix PDB. The



value in this field is multiplied by that scan time to determine if the tag is no longer being read. If the tag has not been read within the time of this calculated value, the tag is considered to be inactive. When a tag is considered inactive, the server stops attempting to acquire that data from the device, and the data is removed on the next inactive scan.

Valid Range	Default Value
5 to 99 periods	5 periods

Example

The following example follows a time-line to demonstrate the way the data reduction system scans for inactive data, and then removes those inactive data items from the list after the inactive period expires.

This example is based on the following settings:

- iFix PDB read inactivity field = 15 seconds
- scans deactivate driver tag field = 5 scan periods

The tag name used in the example is Tag 1 and the scan time set for Tag 1 in the iFix PDB is set at 4 seconds.

Time	Situation	Action
4 seconds	Tag 1 requests data.	
8 seconds	Tag 1 requests data.	
9 seconds	User turns Tag 1 off scan.	
15 seconds	Read inactivity scan interval checks for inactive tags; no inactive tags are found.	No action taken.
29 seconds	Server marks Tag 1 as inactive. This action takes place at this time based on a scan time of 4 seconds multiplied by 5 scan periods plus 9 seconds since Tag 1 went off scan (4X5+9).	The server stops getting the data from the controller for Tag 1.



30 seconds	Read inactivity scan interval reads Tag 1 as inactive.	Removes that data item from the list.
31 seconds	User turns Tag 1 back on scan.	
35 seconds	Tag 1 requests data. This sequence continues every 4 seconds.	
45 seconds	Read inactivity scan interval checks for inactive tags. This sequence continues every 15 seconds.	

