

**Previsé™**

**Users Manual**

# **Configurator**

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Prepared by:



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# 1 Introduction

This Users Manual is for the Previs driver and/or OPC Server to connect your HMI to the Bailey Net 90 or Infi 90 Distributed Control System. This driver and/or OPC Server is used with various HMI (human Machine Interface) products. This manual is general in nature, and does not include details specific to your HMI.

This manual provides:

- User instructions on how to use the Configurator
- Troubleshooting Guide

## Features

Configurator features include:

- Primary HMI used to configure the OPC Server/Driver tag database
- Supports specifying CIU, module and tag data
- Supports definition of default path information
- Supports connection to local or remote OPC Server/Driver
- Supports tree view of all objects
- Provides communication statistics for all objects

## Installation

Product installation is described in other manuals, all of which are included on your CD-ROM. If you are using this product from within the OPsCon product for iFIX, please refer to the OPsCon Administrators Manual for installation instructions. If you are using this product as an OPC Server only, please refer to Installation Manual – OPC Server.

## License

This is a licensed software product. Your license is limited. You may determine what your license limits are at the appropriate Configurator dialogue box (refer to Configurator Menu Bar options). Details may vary by product version. Contact your supplier if this is an issue.

License information may be found at the **Configurator Options | Serial Number** dialogue box.

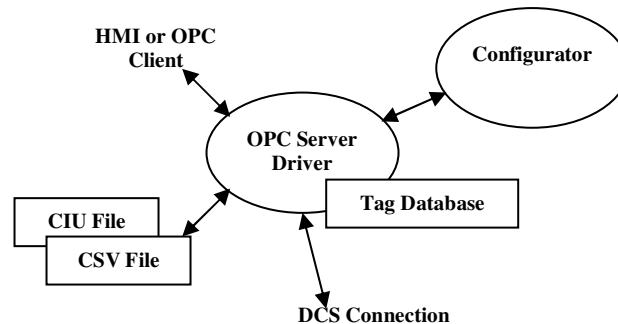
## Software Version

Version information may be found at the **Configurator Help | About Configurator** dialogue box. Provide this information whenever you request product support.

## 2 Configurator Overview

### 2.1 How it Works

The accompanying diagram illustrates the way that the Configurator connects to the rest of the system.



The Configurator connects to the OPC Server/Driver, and provides the means to configure the OPC Server/Driver. This connection is an OLE Automation connection, which may be performed locally, on the same computer, or remotely over a network.

The OPC Server/Driver uses an internal tag database to manage communications with the DCS via the DCS connection. The OPC Server/Driver also provides all process data communications to the HMI or OPC Client which is connected.

The OPC Server/Driver supports File Open/File Save operations, under control of the Configurator, for two file types:

- **CSV File** – This is a comma delimited ASCII text file containing the entire tag database for use inside the OPC Server/Driver
- **CIU File** – This is a binary file, containing the same information as the CSV File. However, the OPC Server/Driver can open the CIU file much quicker than the CSV file, so the CIU file is usually set to auto-open at startup.

### What You See In Task Manager

Start Task Manager and look at the process view. When the OPC Server/Driver and the Configurator are running, you will see:

- CIUDRV.EXE is the OPC Server/Driver
- CIUIDW.EXE is the Configurator..

Image Name	PID	CPU	CPU Time	Mem Usage
CIUIDW.EXE	1892	00	0:00:00	772 K
CIUDRV.EXE	1612	00	0:00:00	6,268 K

## 2.2 Startup Sequence

Startup sequence has an impact on behavior of both the driver and the Configurator.

### **Startup the OPC Server/Driver First**

The normal startup sequence is to start the OPC Server/Driver first, and then start up the Configurator to connect to the OPC Server/Driver.

If you are using iFIX, then you should normally let iFIX start the Driver at iFIX Startup. Do not start the driver manually, and do not start the Configurator until iFIX startup is complete.

If you are using the OPC Server only version, you must ensure that the OPC Server is started as a service under the Microsoft operating system **before** you start the Configurator. Consult the OPC Server installation instructions.

### **What Happens if the Configurator is started First?**

If the Configurator is started first, then the Configurator will automatically start the OPC Server/Driver. This is useful for situations where you may **ONLY** want the OPC Server/Driver and Configurator to be executing.

However, when/if you later start your HMI, the HMI may also try to start the OPC Server/Driver, and may result in two instances of CIUDRV.EXE in execution.

This will not work.

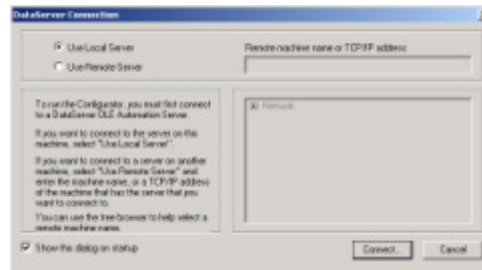
If you encounter this situation, with two instances of CIUDRV.EXE (the driver) running, you must (1) kill both instances (with Task manager), (2) execute a system restart and (3) start up the system following the correct sequence.

## 2.3 Starting the Configurator

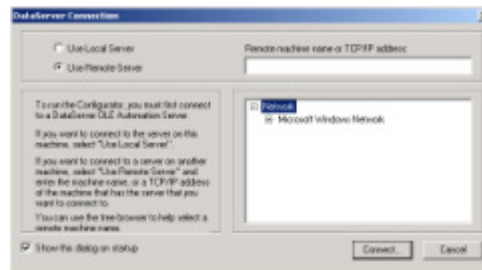


**NOTE:** *It is assumed that the OPC Server/Driver is started and already running when the Configurator is started.*

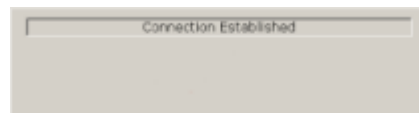
Locate and select the Configurator on the Start Menu. At startup the following Server Connection dialogue appears:



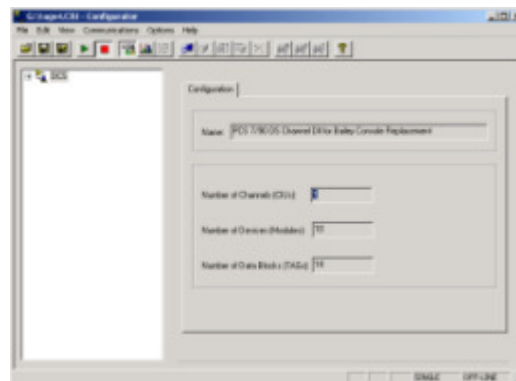
Select either Local Server (on your machine) or Remote Server (on some other machine on the network) and press Connect.



The Configurator then attempts to connect to the OPC Server. You will see a message box to tell you if connection is successful or not.



Once the connection is complete you will see the Configurator GUI.

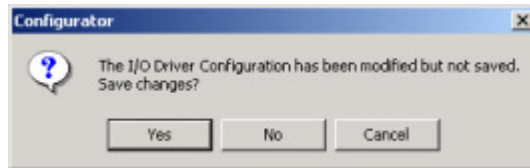


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## 2.4 Stop and Exit the Configurator

Select **File | Exit** on the Configurator menu to stop and exit the Configurator.

When you exit you will frequently see the following dialogue, requesting you to save the tag database before you exit.



The Tag database is resident in the OPC Server/Driver and not in the Configurator. The OPC Server/Driver will continue to execute after you close the Configurator. As a result, if you choose not to save changes, and changes that you have made to the tag database will not immediately be lost.

However, it is recommended that you use **File | Save** or **File | Save As** function to save any tag database changes that you do not wish to lose to a CIU or CSV format file.



***NOTE: It is recommended to save BOTH CIU and CSV format files after any tag database edit session. The OPC Server should be set to auto-start with the CIU file. However, when performing a software version upgrade of the OPC Server, the tag database from the old version must be imported into the new version using the CSV file.***

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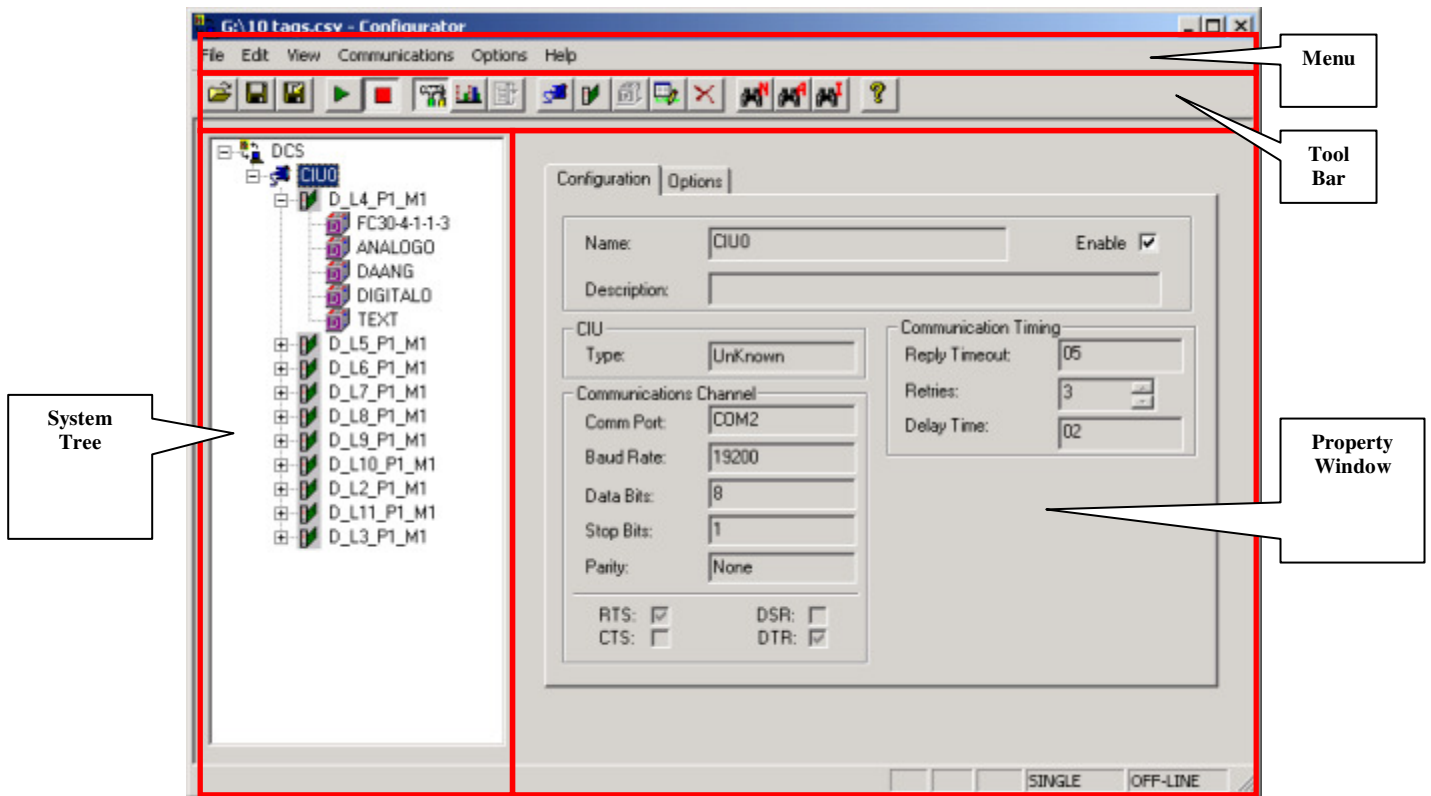
Both CIU and CSV file types should be maintained.



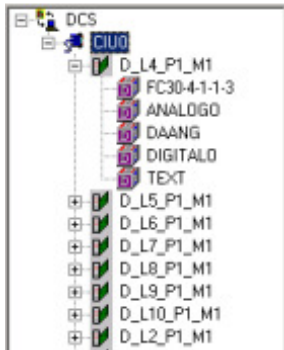
## 2.5 Configurator User Interface Overview

As shown in the accompanying diagram, the main elements of the Configurator Window are:

- **Menu** provides access to all functions
- **Toolbar** provides access to the most frequently used functions
- **System Tree** provides a tree view of all objects configured into the OPC Server/Driver
- **Property Window** provides a detailed property view for the selected object in the system tree.



## 2.6 System Tree



The Configurator System Tree displays a hierarchical list of all objects configured into the driver or OPC Server. This list is separated into a hierarchy as follows:

- **Level 1 – OPC Server Root** - The Root object is always present and can not be edited.
- **Level 2 – CIU (Channel)** - The Configurator supports definition of multiple CIU objects..
- **Level 3 – Module (Device)** - Each CIU can support multiple Modules.
- **Level 4 – Tag (Data Block)** - Each controller module can support multiple tags.

### Navigating the Tree

Connection lines show the relationship between CIUs, Modules and Tags. The +/- buttons show whether items are expanded or collapsed.

Collapse or expand the tree by double clicking the item or by pressing the RIGHT or LEFT ARROW key.

You can navigate through the tree by clicking on its items or by using the keyboard. Use the UP and DOWN or LEFT and RIGHT ARROW keys to cycle through all expanded items. Note that pressing the RIGHT ARROW key expands items that are collapsed and pressing the LEFT ARROW key collapses items that are expanded. You can also press a letter key to jump to the nearest item that begins with that letter.

When you click on an item in the Tree Browser, its properties display in the Properties Viewer. From the View menu, you can choose to view the item's configuration or statistics properties.

### Refreshing the Tree

When you add or modify channels, devices, or datablocks in the Configurator, changes are made immediately to the Tree<sup>1</sup>.

<sup>1</sup> NOTE: It is not recommended that multiple copies of the Configurator be used to edit a tag database at the same time. However, if this is done, edits made at one Configurator will not update automatically on the other. Use the F5 function key to force a Configurator refresh in this circumstance.



Add CIU



Add Module



Add Tag

## Adding Objects

Use the Configurator to add CIU, Module or Tag objects to the driver.

- To add a CIU you must stop communications then click Add CIU.
- To add a Module you must stop communications. Then select a CIU and click Add Module.
- To add a Tag there is no need to stop communications. Just select a Module and click Add Tag.

## Editing and Deleting Objects

To edit or delete an object you must:

- If you wish to edit or delete a CIU or Module you must first stop communications. If you wish to edit or delete a Tag then there is no need to stop communications
- Select the object in the System Tree that you wish to edit or delete.
- Select the Edit or Delete function.



Edit

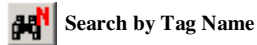


Delete

## Finding Tags

To find a tag within the System Tree you may:

- (Optionally) Select the CIU or Module within which you know the tag exists and look for the tag.
- Click one of the search Buttons to search by tag name, or by address.



Search by Tag Name

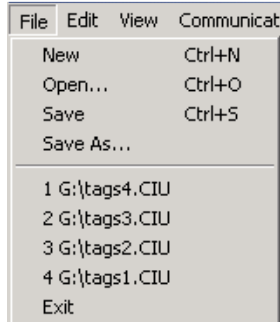


Search by L:P:M:B Address



Search by Point Index

## 2.7 Configurator Menu Bar

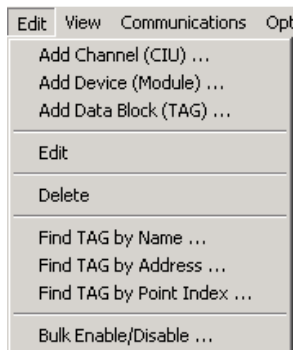


### File Menu

File menu options include:

- **New** and empty tag database
- **Open** CIU or CSV tag database. Note that CSV file will take much longer than CIU file to open.  
**NOTE:** For large CSB files you may encounter a Microsoft error dialogue box reading “Server Busy...”. This is caused by delays in driver response to the Configurator as it processes the CSV file. Just wait 10 seconds and click the retry button.
- **Save** current tag database will save the currently opened file (i.e. CSV or CIU file).
- **Save As** new CIU or CSV format file
- **Export** will save file TagStatistics.RPT. Refer to section below entitled Export to TagStatistics.RPT File.

Note that data communications must be stopped before you will be able to open a new file or make a new empty tag database.



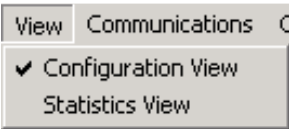
### Edit Menu

Edit menu options include:

- **Add Channel (CIU)** to OPC server. The new CIU will be connected to the root system tree object. The OPC Server/Driver can support multiple CIU at the same time. You must stop data communications first.
- **Add Device (Module)** to selected CIU. You must select the CIU that you wish to use for this module first. You must stop data communications first.
- **Add Data Block (Tag)** to selected module. You must select the Module that you wish to use for this tag first. This must be the controller module that contains the block that this tag will connect to.
- **Edit** selected object. You must select the object that you wish to edit first. If you wish to edit a CIU or module object you must stop data communications first. Tag objects can be edited on line.
- **Delete** selected object. You must select the object that you wish to delete first. If you wish to delete a CIU or module object you must stop data communications first. Tag objects can be deleted on line.
- **Find Tag by Name** search function. Type the tag name into the search field that appears. The search will narrow as you type characters.
- **Find Tag by Address** search function. Type the Loop:PCU:Module:block address into the search window. The search will narrow as you type.
- **Find Tag by Point Index** search function. Type the point index into the search window that appears. The search will narrow as you type.
- **Bulk Enable/Disable** function. This function will enable or disable Modules or Tags in bulk, for all module or tags within a CIU, or within a Module. This is useful for turning on and off large sets of tags. iFIX users may also use this function will to bulk enable or disable alarms.



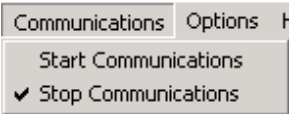
**NOTE:** Alarm Enable/Disable function will enable/disable alarms at iFIX but not at the OPC Server/Driver where all alarms are always enabled.



## View Menu

View options include:

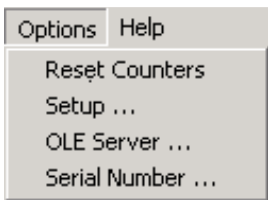
- **Configuration View** to select the Properties View in the Properties Window. Review or change configuration for the selected object.
- **Statistics View** to select the Property View communication statistics Window so that you may review statistics for the selected object.



## Communications Menu

Communications options include:

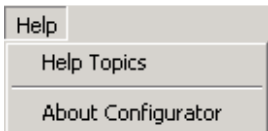
- **Start Communications** to DCS. Communications will restart immediately, However, depending on the tag database size it may take several minutes for complete console initialization.
- **Stop Communications** to DCS.



## Options Menu

Selections at the Options menu include:

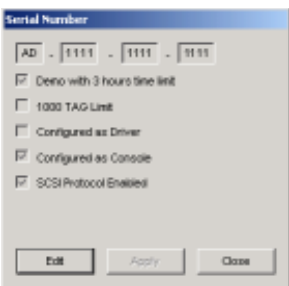
- **Reset Counters.** This will reset all communication statistics in the Communications Statistics Property Window.
- **Setup** this OPC server. Refer to the following section for details
- **OLE Server** to connect to another server. This will allow you to disconnect from the OPC Server/Driver that you are currently connected to, and to reconnect to a different OPC Server/Driver.
- **Serial Number** to review/change serial number.



## Help

Help options include:

- **Help Topics** for on line help. This will point you to this manual. On Line help has been removed.
- **About Configurator** for version information and the date upon which this version was built. This information will be required to when you contact your support provider. Record this information before you call.



## Serial Number Dialogue

The serial number dialogue box will vary, depending on which version of the product you are using.

This product requires a serial number to activate features. Without this “activation” serial number, the features your “free demo” product has may vary depending on which version of the product you are using.

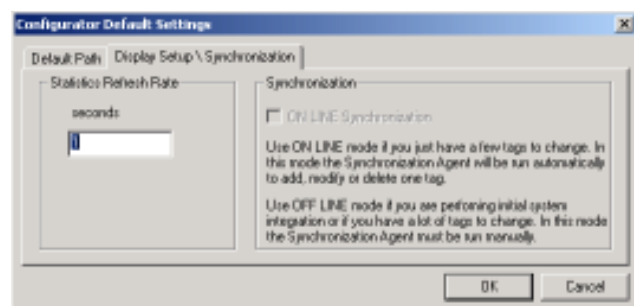
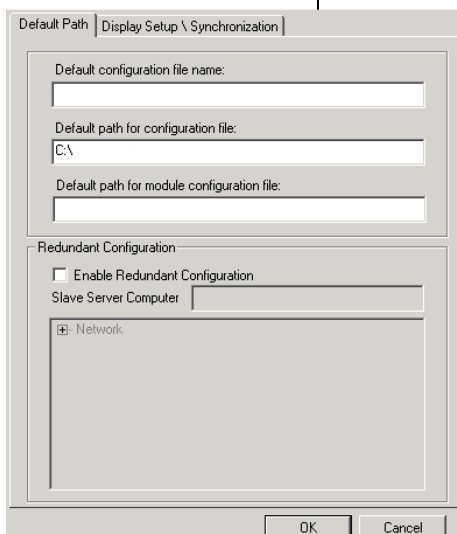
The serial number dialogue box contains (depending on version):

- A display showing the current serial number installed and the means to change the serial number
- Duration of demo version license (if applicable)
- Tag size limitation and SCSI protocol enabled or not
- Console (read/write) or Data acquisition (some write disabled) version

## Options | Setup Dialogue

When you select **Options | Setup** a dialogue box with two tabs appears. The settings for the various options in this dialogue are described in the following table.




Settings for Options   Setup Dialogue Box		
Property	Description	Hints
<b>Default Path Tab</b>		
Default Configuration File Name	This is the filename of the tag database that will be auto-opened at system startup. The file is opened when the driver starts up, and data communications will start automatically. <b>This should always be a CIU type file.</b>	Type <filename>.CIU
Default Path for Configuration File	This is the file system path to the above CIU file that you wish to auto-open at startup.	e.g. c:\path\
Default Path for Module Configuration File	This is the default directory path containing all CFG and LST type files. These files relate to the program configuration of controller modules within the DCS.	This setting is of value only if you intend to use the CLU (Configuration and Loading Utility) application, described elsewhere..
Redundant Configuration	CHECK this function if you wish the Configurator to update TWO OPC Servers at the same time.	Some restrictions apply. Refer to section 2.9 for more information.
Slave Server Computer	The computer on which the secondary or slave OPC Server resides.	
Network Path	Network path tool to find the slave computer.	
<b>Display Setup \ Synchronization Tab</b>		
Statistics Refresh rate	Refresh (i.e. zero) the communication statistics in the current property window	Set to 1 (second)
Synchronization	For iFIX only: This controls the mode of Synchronization Agent (SA). In OFF LINE mode, SA adds tags from the driver to iFIX only when manually requested. In ON LINE mode, tags are added as soon as you edit them into the driver via the Configurator..	Use OFF LINE mode when initially integrating the system. Use ON LINE mode for on going system maintenance.



## 2.8 Configurator Tool Bar

This section describes the buttons on the Configurator Toolbar.

### File Functions

Provide  **File Open**,  **File Save** and  **File Save As...** functions to open and save **CIU** and **CSV** files. The CIU file is a binary file suitable for quick auto-start. The CSV file is an ASCII delimited text file suitable for import and export.

### Tag Database Editing

These functions support adding, editing and deleting objects.



**Add CIU (Channel)** - Initiate addition of new CIU.



**Add Module (Device)** - Initiate addition of new Module.



**Add Tag (Datablock)** - Initiate addition of new Tag.



**Edit Object** - Initiate edit of currently selected object.



**Delete Object** - Deletes the CIU, Module or Tag currently selected in the System Tree.

### Start and Stop



**Start** — Starts communications with the DCS. The initialization process may take several minutes, depending on database size.



**Stop** — Stops communications with the DCS.

### View



**Configuration** - Display the configuration for the selected item. The display is read-only unless editing is selected.



**Statistics** - Display statistics for the selected item. The display is read-only.



**Reset** - Resets the statistics for the displayed item.

### Tag Search Functions



Use these buttons to help search for tags by tag name, by point index, or by address.

## 2.9 Synchronizing Redundant Servers

You may configure your installation so that the Configurator can update TWO OPC Server/Drivers at once. To do this, you must observe the following limitations:

- Complete all initial installation and system configuration WITHOUT setting up the redundant server update feature.
- Install the SAME CSV file to both servers. You will need to change CIU address parameters in the redundant servers. The tag database must be the same with this one exception.
- You must ensure that ANY change to the two servers is synchronized so that the two servers always contain the same tag database.

## 2.10 Export to TagStatistics.RPT File

You may use the Configurator | File | Export function to export a file entitled TagStatistics.RPT. This file, which may be imported into Notepad or Excel, is a comma delimited file that contains communications statistics (receives/transmits) for all tags.



***The TagStatistics.RPT file does NOT include all tag information, and is not a suitable means to backup the tag database. No matching Import function is provided.***

The primary purpose of this file is to provide a simple means to observe the rate of exceptions received at each tag. You would use this if you suspect that the rate of exceptions being received is sufficiently high that the communications channel is overloaded.

To obtain communication statistics you should:

1. Select the CIU object in the System Tree.
2. RESET communications statistics for this object (which also resets statistics for all child objects).
3. Wait an appropriate time, to collect new communication statistics (recommend at least one hour).
4. Use Configurator | File | Export function to export TagStatistics.RPT file. This file will be stored to the default location for the CIU file as specified at Configurator | Options | Setup.
5. Open this file into EXCEL. The file is comma delimited and EXCEL will open with a wizard to help you parse the file to columns. You will see the summary of exception traffic in EXCEL
6. The most common values in the Quality Field are (0 = bad, 192 = Good, 193/194/195 = Good value but in alarm)



## 2.11 Root DCS Object

The Root DCS object can not be edited or deleted and simply acts as a holder for CIU objects. Select the root object to see properties and communication statistics.

<b>Root Object Properties</b>		
<b>Property</b>	<b>Description</b>	<b>Hints</b>
<b>Configuration Tab</b>		
Name	The Previs internal name of this product	Disregard the version number
Number of Channels (CIU)	The number of CIU objects configured into the tag database	This OPC Server/Driver can support multiple CIU connections simultaneously
Number of Devices (modules)	This is the number of modules configured into the tag database.	Modules can include MFP, MFC and other controller modules, plus PCU, CIU, and other module types.
Number of Datablocks (tags)	This is the number of tags configured into the tag database	Your license limits the number of tags you may add. The CIU type you use also limits the number of tags.

### Communication Statistics

<b>Root Object Communication Statistics</b>		
<b>Property</b>	<b>Description</b>	<b>Hints</b>
Transmits	Number of packets transmitted	CIU level statistics are more useful
Receives	Number of packets received	CIU level statistics are more useful
Timeouts	Number of timeouts	CIU level statistics are more useful
Retries	Number of retries	CIU level statistics are more useful
Errors	Number of errors	CIU level statistics are more useful
Overruns	Number of overruns	CIU level statistics are more useful

## 3 Add, Edit or Delete a CIU

CIU and Channel mean the same thing. The CIU is the communication channel. Multiple CIU objects are supported at the same time. Communications must be stopped before a CIU object may be edited.

### 3.1 CIU Types Supported

Refer to the White paper - Bailey DCS Connection support, elsewhere in this product, for a list of the supported CIU types. Some hardware and configuration limitations may apply.


Both serial and SCSI CIU types are supported.

#### Via TCP/IP Connection

TCP/IP connection to the Previs Inc. Bailey DCS Simulator is supported, as well as both serial and SCSI connection. Further information is presented in this manual.


### 3.2 Adding a New CIU



DCS data communications must be stopped before you can add a CIU.

Click the **Edit | Add CIU** button in the main menu or click  on the toolbar. A channel icon appears and is highlighted under the root object in the System Tree and the CIU properties page appears.

Enter the properties for the new channel. Refer to section 3.5 for a detailed description of each property.

Properties do not take effect until you **Apply** the changes. When done, choose **Close** and click the **Enable** check box to enable communication to this CIU.

You may now use the  start button to start communications.


Press  to view communications statistics. Press  to return to the properties view. Refer to section 3.6 for a description of the statistics.

### 3.3 Edit an Existing CIU

To modify a CIU you must use the Stop button  to first stop DCS communications.

Select the CIU you wish to modify in the System Tree. The properties for this CIU appear in the Properties Viewer.

Click the **Enable** checkbox to Disable this CIU.

Click on the Edit button  to initiate edit of the CIU. Make whatever changes you wish to make. Refer to section 3.5 for a detailed description of each CIU property.

The new properties do not take effect until you **Apply** the changes.


When done, choose **Close** and click the **Enable** check box to enable communication to this CIU. You may now start communications.

### 3.4 Delete an Existing CIU

To delete a CIU you must use the Stop button  to first stop DCS communications.

Select the CIU you wish to delete in the System Tree. The properties for this CIU appear in the Properties Viewer.

Click the Enable checkbox to Disable this CIU.

Click on the Delete button  to delete the CIU. All modules and tags within this CIU will also be deleted. You may now start communications.

### 3.5 CIU Properties

CIU Properties		
Property	Description	Hints
<b>Properties Page - Configuration Tab</b>		
Name	Specifies the name of the CIU. Valid Entries are up to 30 alphanumeric characters, including _ and -. No spaces.	Name must be unique.
Description	Describes the selected channel. Valid entries are up to 40 characters including all alphanumeric characters and symbols.	Suggest you identify the CIU name in the DCS configuration.
Enable Box	If not checked, all communications to the CIU, and all modules and tags within it, are disabled when the driver is turned on.	A common problem is forgetting to enable an object. Use bulk enable to enable large sets of objects.
CIU Type	Enter the CIU type for the CIU you will connect to, or UNKNOWN to auto-identify the CIU type.	The auto-identify feature will only work for some CIU types. Will not work for CIC01/02/03 models. This feature requires that all comm. parameters be correct before it will work.
Reply Timeout	Specify how long to wait for response to selected module commands. Format: <days>:<hours>:<minutes>:seconds. For Example: 1 = 1 second; 1:00 = 1 minute 1:30:00 = 1 hour and 30 minutes	Set to a time from 5 to 15 seconds.  Start at 15 seconds & decrease until timeouts occur, and then double it.

<b>CIU Properties</b>		
<b>Property</b>	<b>Description</b>	<b>Hints</b>
Retries	Specifies how many times the Data Server resends failed message to the device before marking module failed.	Valid Entries are 0 to 9 . <b>Default should not be changed in most situations.</b>
Delay Time	Specifies how long to waits after all retries have failed. Format same as Reply Timeout field.	<b>Default should not be changed in most situations.</b>
<b>Communication Channel Settings - Serial Port COM 1, COM2, etc</b>		
COMM Port	Set to COM<n> for serial RS-232 communications, where <n> is the COM port number used.	Ensure that selected channel is not used by another application .
Baud Rate	Specify the baud rate, which must match the selected CIU device.	Most Bailey serial CIU devices communicate at 9,600 or 19,200 baud. Try 19,200 first. High speed should be used if available.
Data Bits	Number of data bits. Must match CIU. Valid entries are 5, 6, 7 and 8.	Must be 8 data bits.
Stop Bits	Number of stop bits. Must match the CIU settings. Valid entries are 1 and 2	Use default in 99% of cases.
Parity	Specifies device parity. Must match CIU settings. Valid entries: <ul style="list-style-type: none"> <li>▪ <b>None</b> - No parity used.</li> <li>▪ <b>Odd</b> - Odd parity used.</li> <li>▪ <b>Even</b> - Even parity used</li> <li>▪ <b>Mark</b> - Parity bit always 1</li> <li>▪ <b>Space</b> - Parity bit always 0.</li> </ul>	The default value should be suitable in most cases.  Some CIU are set to ODD parity by Bailey. Most are EVEN.
RTS	Request To Send	Use default in 99% of cases.
CTS	Clear to Send	Use default in 99% of cases.
DSR	Data Set Ready	Use default in 99% of cases.
DTR	Data Terminal Ready	Use default in 99% of cases.
<b>Communication Channel Settings - SCSI Channel</b>		
COMM Port	Windows will enumerate the available SCSI devices. Select the SCSI device from the list of available devices. <i>e.g. SCSI2:0:1:0 Bailey</i> <i>Ignore serial COM port settings that may be shown. These have no effect.</i>	The SCSI channel used for CIU communications MUST have only ONE SCSI device. If additional SCSI devices are needed in this computer,, you MUST use additional SCSI adapter cards.
<b>Communication Channel Settings - Telnet Connection to Simulator</b>		
COMM Port	Set to the following string for TCP/IP connection for Bailey DCS software simulator: <b>TELNET:&lt;IP address&gt;:23</b> <i>e.g. TELNET:192.168.1.7:23</i> The IP address is for the computer containing the emulator. 23 refers to the port number and is fixed.	Bailey simulator supports multiple TCP/IP connection. <i>Ignore serial COM port settings that may be shown. These have no effect.</i> <b>NOTE: Recommend Reply Timeout of 15 seconds when TCP/IP connection used.</b> <i>When simulator and driver located on same computer use TCP/IP address: 127.0.0.1</i>

<b>CIU Properties</b>		
<b>Property</b>	<b>Description</b>	<b>Hints</b>
<b>Properties Page – Options Tab</b>		
WD Timeout	Specifies the time in ¼ seconds between commands allowed before the CIU will take itself off line.	ALWAYS use default of 0 to disable this function.
Station Control Allowed	Enables or disables control of stations (FC 21, 22, 23, 80).	ENABLE in most cases. DISABLE only if you wish to inhibit STATION control
Exception Screening	Affects CIU03 only to separate command and data exceptions.	Use default value at all times.
DAANG Type	Some old systems require DAANG to use the STATION point type for connection.	Use default at first. If DAANG does not receive data then change this setting.
Checksum enabled	If CHECKED, then protocol checksum is enabled. ELSE no protocol checksum is performed	MOST installations will use checksum enabled. EITHER enable checksum on CIU or disable it here.
Time Sync	Sets the Time Synchronization mode of the CIU connected to this channel.	<b>Refer to section 3.7 for a further descriptions. See also Node Desc property for modules.</b>
Clock Accuracy	Sets the clock accuracy setting.	
Periodic Restart Enabled	If checked, driver will restart at periodic intervals	<b>CAUTION:</b> Should NOT be used for ANY console application. Should be used when connecting via INICI03 with firmware versions F0 and later ONLY, and even then ONLY when application is for data acquisition only.
Restart Time	In format <b>hh:mm</b> of 24 hour clock (i.e. 13.34 means restart at 34 minutes after 1:00pm)	
Odd Days Restart	If checked, then restart on ODD days	
Even Days Restart	If checked, then restart on EVEN days	
Receive Alarm Acknowledge	If CHECKED then enables receive of ALARM ACK from other consoles. Will result in ACK reflected by OPC interface. <b>For iFIX Users:</b> Will not result in alarm ACK in iFIX	NOTE: Currently supported for plant loop CIU02/03 only. Refer to Section 3.9 for further detail.
Enable Extended Problem Reports	If NOT checked (i.e. DISABLE) then System Explorer and CLU will NOT be able to obtain extended problem reports	Normally ENABLE. Select DISABLE if extended problem reports not needed.
Tuning Parameter	DCS Communications Tuning Parameter. Recommend Default 500, Min 100, Max 1250.	Increase to reduce comm. overhead while slowing responsiveness.

## 3.6 CIU Communication Statistics

<b>CIU Communication Statistics</b>		
<b>Property</b>	<b>Description</b>	<b>Hints</b>
<b>CIU Section</b>		
Type	CIU module type from DCS	
Mode	Should display the same data as Type in most instances.	If does NOT display same information as Type, verify that you have the correct CIU type selected.
SW Rev	CIU firmware version (e.g. A0, E3 etc)	
Loop	Loop number this CIU connected to	MUST be positive integer
PCU	PCU number this CIU connected to	Must be positive integer
Status	Driver status is one of: Stopped, Initializing, Uninitialized, Running.	Changes when driver is started or stopped.
<b>Messages Section</b>		
Transmits	Number of messages queued to send to the CIU for all objects in this CIU.	Should be rising steadily in normal operation.
Receives	Number of messages received from CIU, whether valid or invalid.	Should be rising steadily in normal operation.
Timeouts	Number of timeouts for CIU. Timeouts result from Reply Timeout setting. If no response is received to sent command within Reply Timeout a timeout occurs.	Most likely problems are COM port setting and baud rate. Refer to Appendix B for further suggestions.
Retries	Number of messages resent to CIU	Same as for timeouts
Errors	Number of errors received for CIU. For more information see Last Error field	Same as for timeouts
Overruns	Number of overruns for CIU. Overrun occurs when server sends new message before response to previous message.	Same as for timeouts
Read Count Max	Internal parameter	Contact supplier if value greater than 6 observed
Write Count Max	Internal parameter	Contact supplier if value greater than 6 observed
# of devices	Number of modules in this CIU	Device is the same as module in this driver.
# of datablocks	Number of tags in this CIU	Datablock is the same as tag in this driver
Last Error	Last error received from DCS for this object. Errors are sourced in DCS.	Should always be 0=no error. Refer to Appendix B.

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## 3.7 Time Synchronization

Within the standard DCS configuration, the responsibility for maintaining an accurate time clock is a distributed responsibility, with a number of components contributing to maintenance of an accurate time clock throughout the DCS system.

This is accomplished by having a number of DCS components broadcasting a Time Sync signal, combined with a time priority that describes the “quality” of the time signal.

Each console is normally expected to participate in the time synchronization process, either as a Time Master (broadcasts time) or as a Time Slave (receives only).

The OPC Server supports these functions.

Use the Configurator to set all time sync options for each Server. Select the suitable time synchronization setting from the list in the Time Sync and Clock Accuracy box, on the Configurator CIU properties.

### Time Synchronization Options

The Configurator supports the following time synchronization options or modes:

- **Disabled** (no time sync performed),
- **Slave** (the Server’s clock will be set to match the DCS when higher accuracy DCS time sync is received),
- **Master** (Server will issue time sync signal, with clock accuracy, every 10 minutes.
- **Both** (Server acts as both Master and Slave).
- **Date Map** (Makes the Bailey DCS Y2K compliant by backdating the DCS to ensure that it never reaches December 31, 1999.

### Clock Accuracy

The Configurator supports setting the clock accuracy setting. The Clock Accuracy field sets the accuracy of the local clock in a range from 0 to 12. The typical setting would be 3 for a low accuracy battery-backed clock.

### Plant Loop Systems

For time synchronization, Plant Loop systems are configured a little differently than Super Loop systems. In order for time synchronization to function properly in a Plant Loop systems, you must:

- Ensure that you have added some modules to the data base configuration via the Configurator. You must add the CIU modules, and the PCU modules themselves.
- Ensure that the Node Desc field in the Configurator must be set properly for these devices. The Node Desc field can be edited by choosing the “Device” or “Module” level in the left-hand tree display in the Configurator.

## Node Description Field

The **Node Desc** field must contain either a BLANK (for Super Loop or systems without time synch) or one of the keywords selectable by the selector arrow on the Node Desc box of the Configurator. These keywords include:

- CIC01, CIU01, CIU02, CIU03, CIU04, PCU
- e.g. Field **MUST** contain either a BLANK (for Super Loop systems or when no time synch required in Plant Loop system) or one of the above strings. Enter "CIU02" if this node is a CIU02 node requiring time synch.

The Node Desc field is used (only by the Plant Loop system) for time synchronization by informing the CIU of all other nodes that will be time synchronized.

To accomplish this, all nodes (CIU's and PCU's) that require time synchronization must be configured as modules into the database using the Configurator, and the Node Description (Node Desc) field must be correctly configured for each.

As an example, the accompanying diagram shows the correct module setup for a DCS system with two CIU devices and three PCU devices. The correct address (i.e. loop|pcu|module) must be set for each of these modules and the Node Desc field must also be correctly set for each. Once the system is fully set up, verify that time synchronization messages propagate to all required modules.

### Sample from Specific site installation

IN CONFIGURATOR AT CIU (CHANNEL) LEVEL (On time sync tab screen)  
set time sync to "2 - Master"  
set clock accuracy to "12-Satellite".. this is the highest level available (can always be reduced later)

IN CONFIGURATOR AT MODULE LEVEL (set node desc for PCU5)  
Set Node Desc to PCU for Module: LIM/BIM\_0-5 at address 1:05:00  
Set Node Desc to PCU for Module: LIM/BIM\_1-5 at address 1:05:01  
This added the PCU cabinets to the database configuration

IN CONFIGURATOR AT MODULE LEVEL (set node desc for CIU that you are connected to)  
Set Node Desc to CIU<xx> for Module: MCS1 at address 1:07:02  
This added the CIU to the configuration

This SHOULD establish time sync for ALL modules in PCU5 unless some OTHER device is set for very high time priority (in which case OPC Server time may still be overridden). Time synch signal is issued about every 10 minutes. If it works then you still need to set time synch for all other PCU cabinets. Try just one first. Addresses must be right or it will not work.

## Date Mapping

The OPC Server supports a special time synchronization mode known as "date mapping". In this mode, intended to provide a Y2K solution, the OPC Server will set both the time and the date throughout the DCS system, and will ensure that the internal clocks within the DCS never reach December 31, 1999 even as the real date moves onwards.



**CAUTION - Use of this feature requires appropriate verifications. Obtain a copy of the White Paper - Year 2000 Compliance.**



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## 3.8 Bailey DCS Simulator

A Bailey DCS simulator is available as a separate product from Previs. This simulator executes as a service under Microsoft Windows and supports execution of all Bailey controller binary files (i.e. CFG files) at real time on a PC. The CFG files are executed without change. An API is provided to connect field equipment, or a plant process simulator. This simulator is used to support applications including:

- Integration with plant process simulation
- Operator training aid or Bailey DCS staff training aid
- Support Factory Acceptance Test for operators console
- Control systems development aid
- Live DCS behavior for console graphics development
- Checkout and verification of consoles prior to installation
- All without the cost of putting all the DCS hardware in place

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## 3.9 Alarm ACK in Mixed Console Systems

Some systems will be installed with mixed operators consoles, meaning one or more ABB/Bailey consoles plus one or more third party consoles using this Previs software.

In such systems it is desirable to be able to share Alarm ACK between the two types of consoles. This would permit an ACK on a native Bailey console to be seen (i.e. alarm acknowledged) on the third party console, and would permit an ACK on the third party console.

At present, this feature, called shared alarm acknowledge, is supported but with limitations as follows:

- Supported on CIU03 only (support for other CIU may be added in future)
- Supported for OPC Interface only (no shared alarm ACK for iFIX Users)

Check with your supplier to inquire whether further updates have been made to extend this support.

To shared the alarm ACK you must make the following settings:

- To TRANSMIT an alarm ACK for a given tag you must check the **Send Alarm ACK Message** checkbox at the Tag Properties Window for that tag. This will enable broadcast of alarm ACK to all other consoles on this Loop of the Bailey DCS.
- To TRANSMIT an alarm ACK for a given module you must check the **Send Alarm ACK Message** checkbox at the Module Properties Window for that tag. This will enable broadcast of alarm ACK to all other consoles on this Loop of the Bailey DCS.
- To RECEIVE an alarm ACK, you must check the Receive Alarm Acknowledge checkbox at the CIU properties window. This will enable receipt of Alarm ACK for all tags within the CIU.
- **iFIX Users:** Note that shared Alarm ACK will be reflected at the OPC interface to the driver, but will not be reflected in the Process Database.

## 4 Add, Edit or Delete a Module


Module and Device mean the same thing. The term Module is used in this manual. The module is generally an electronic component within the Bailey DCS system. Multiple Modules are supported at the same time. Communications must be stopped before a Module may be edited.

### 4.1 Module Types Supported

Various module types are supported. This includes Bailey DCS controller modules (e.g. COM, AMM< MFP, MFC etc) and non-controller modules (e.g. CIU, OIS, PCU and others).

### 4.2 Adding a New Module



DCS data communications must be stopped before a Module is added.

Click the **Edit | Add Module** in the main menu or click  on the toolbar. A module icon appears and is highlighted under the root object in the System Tree and the Module properties page appears.


Enter the properties for the new module. Refer to section 4.6 for a detailed description of each property.

Properties do not take effect until you **Apply** the changes. When done, choose **Close** and click the **Enable** check box to enable communication to this Module.

You may now start communications.


Press  to view communications statistics. Press  to return to the properties view. Refer to section 4.7 for a description of the statistics.

### 4.3 Edit an Existing Module

To modify a Module you must use the Stop button  to first stop DCS communications.

Select the Module you wish to modify in the System Tree. The properties for this Module appear in the Properties Viewer.

Click the **Enable** checkbox to Disable this Module.


Click on the Edit button  to initiate edit of the Module. Make whatever changes you wish to make.

The new properties do not take effect until you **Apply** the changes.

When done, choose **Close** and click the **Enable** check box to enable communication to this Module.


You may now start communications.

## 4.4 Delete an Existing Module

To delete a Module you must use the Stop button  to first stop DCS communications.

Select the Module you wish to delete in the System Tree. The properties for this Module appear in the Properties Viewer.

Click the Enable checkbox to Disable this Module.

Click on the Delete button  to delete the Module. All tags within this Module will also be deleted.

You may now start communications.

## 4.5 Redundant Controller Modules

The driver and Configurator supports definition of redundant controller module pairs where installed in the DCS. Such modules are always configured in the DCS at adjacent module addresses, such that one module has a low address and one has a high address.

- e.g. Module 1:2:3 (low address) and module 1:2:4 (high address)

To configure a redundant pair into the tag database:

- Add the controller module with low address. This module must be ENABLED and must have a point index defined  $> 0$ . Name this module clearly so identify it as the PRIMARY module having the LOW address. ***This module will point to the module actually in control, REGARDLESS of module physical address (high or low).***
- Add the controller module with high address. This module must be ENABLED with NO point index defined (point index = none = -1). Name this module clearly to identify it as the BACKUP module having the HIGH address. ***This module will point to the backup module, REGARDLESS of module physical address (high or low).***
- Add all tags to the controller module with the LOW ADDRESS.



***NOTE: Both modules must be added for CLU (Configuration Loading Utility) on-line configuration functions to work correctly. Refer to the CLU Users Manual for further information.***

You do NOT need to configure both modules into the tag database unless you wish to use some of the module configuration functions in CLU. If you configure the primary controller (i.e. low address) you will be able to obtain overall status of the secondary module through the primary module.

## 4.6 Module Properties

Module Properties		
Property	Description	Hints
<b>Properties Page – Configuration Tab</b>		
Name	Specifies the name of the selected module. Valid Entries may have up to 30 alphanumeric characters, including _ and -. No spaces are allowed.	Name must be unique.
Description	Describes the selected channel. Valid entries are up to 40 characters including all alphanumeric characters and symbols.	Use Module name from DCS.
Enable Box	If not checked, all communications to the tags within the module are disabled when the driver is turned on.	Module status is still collected for this Module when disabled.
Address	Specifies address of the module in format L:P:M (colon separators ( : ) where: <ul style="list-style-type: none"> <li>▪ L = Loop number. 0 for Net 90 and from 1 to 250 for Infi 90</li> <li>▪ P = PCU address, from 1 to 250</li> <li>▪ M = Module address from 0 to 31</li> </ul>	Take care to get the address correct.
Point Index	Point Index is the assigned index (i.e. a unique key field) in the CIU point table that this exception reporting tag is assigned to. A tag must have a point index to receive data.	Enter “?” to get new number
Node Desc	Short description of node type. Used in Plant Loop systems (ONLY) for time synchronization by informing the CIU of all other nodes that will be time synchronized.	<i>Refer to section 3.7 for description of setup</i>
Reply Timeout	Specify how long to wait for response to selected module commands. Format: <days>:<hours>:<minutes>:seconds. For Example: 1 = 1 second; 1:00 = 1 minute 1:30:00 = 1 hour and 30 minutes	<b>Default should not be changed in most situations.</b>
Retries	Specifies how many times the Data Server resends failed message to the device before marking module failed.	Valid Entries are 0 to 9 . <b>Use default in most situations.</b>
Delay Time	Specifies how long to wait after all retries have failed. Format same as Reply Timeout field.	<b>Use default in most situations.</b>
Polling	Defines period between polls to obtained extended problem reports information. Does not increase speed of data exceptions.	Minimum 15 seconds. INCREASE this parameter to increase data exception rate.
Secondary Rate	Internal parameter	Set to <b>Disabled</b>
Phase	Phase offset for polls to obtain extended problem reports for modules in integer seconds	Calculate polling period divided by number of controller modules. Round up to next larger integer second. Use this value.

<b>Module Properties</b>		
<b>Property</b>	<b>Description</b>	<b>Hints</b>
Access Time	Internal parameter	Set to <b>05:00</b>
Extended Module Status	If NOT CHECKED, the driver will NOT request extended 16 byte module status from this module. If CHECKED, the driver will request 16 byte module status. Some old Net 90 controller modules such as AMM and COM modules <sup>2</sup> , can not accept this request and will red light (i.e. fail and require reset) at receipt of request.	Leave UNCHECKED until module type is known.  CHECK for all Infi 90 modules.  <b>CAUTION: May affect NET 90 DCS operations.</b>
Send Alarm Acknowledge Message	Enables Shared Alarm ACK for this module from console to console.	Affects module but not tags within the module. Refer to section 3.9 for further information.
<b>Properties Page – Alarm Tab</b>		
<b>Alarm Section</b>		
Enabled	ENABLE alarms for this module object (does not affect alarms on tags within module – just module object)	
<b>NOTE 1</b>	Area	Alarm Area
<b>NOTE 1</b>	Alarm Priority	Alarm Priority INFO, LOLO, LOW, MEDIUM, HIGH, HIHI, CRITICAL
<b>Alarm Inhibit Section</b>		
<b>NOTE 1</b>	Tag	Tag name for source of alarm inhibit
<b>NOTE 1</b>	State	Type or mode of alarm inhibit selected from: OPEN, CLOSE, ALARM, ZERO, ONE, TWO, THREE, Floating point number, String
<b>Alarm Extension Section</b>		
<b>NOTE 1</b>	1 and 2	Text field for alarm extension 1 and 2.
<b>NOTE 1</b>	These fields are NOT reflected at OPC interface and are of use for installations with iFIX HMI only	

<sup>2</sup> UNCHECK extended module status (i.e. disable it) for the following module types: CBC01, IMCOM03, IMQRC01, INPPT01, NMFC01/02/03, CLC01, IMCOM04, INIIT02, INSEM01, NMFC04/05, CLC02, IMLMM02, INIPT01, NAMM01/ 02, NLSM01, CLC03, IMMFC03, INIPT02, NCOM02, IMCOMM02/03/04, CLC04, IMMFC04, INLCM01/02, NGCM01, IMAOM01, CSC01, IMMFC05, INLCM03, NGCM02, NCTM01, IMAMM03, IMMPC01, INGCM01, NLMM01

## 4.7 Module Communication Statistics

<b>Module Communication Statistics</b>		
<b>Property</b>	<b>Description</b>	<b>Hints</b>
<b>Module Section</b>		
Mode	Current MODE of module: CONFIG, EXECUTE, FAIL, ERROR.	If MODE=CONFIGURE then no tag exceptions received and last received exception should be bad Q.
Type	Module type reported from module e.g. MFC04	INVALID if no module type reported. Read Appendix B.
SW Revision	Firmware version for module if supported by this module.	Reported from DCS.
Error Summary	Summary flag to indicate if errors present at module.	See System Explore or CLU for full details
Module Status	Module status byte string	Information only
Problem Reports	Decode module status byte string	Information only
<b>Messages Section</b>		
Transmits	Number of messages queued to send to the DCS for this module.	Should be much less than CIU transmits. Only a few per hour.
Receives	Number of messages received from DCS for this module	Should be much less than CIU receives.
Timeouts	Number of timeouts for module. Results from Reply Timeout setting. If no response is received to sent command within Reply Timeout a timeout occurs.	If non-zero refer to Appendix B
Retries	Number of messages resent to module	Same as for timeouts
Errors	Number of errors received for module. For more information see Last Error field	Same as for timeouts
Overruns	Number of overruns for module. Overrun occurs when server sends new message before response to previous message.	Same as for timeouts
# of Tags	Number of tags in this module	
Last Error	Last error received from DCS for this object. Errors are sourced in DCS.	Should always be 0=no error. Refer to Appendix B.

## 5 Add, Edit or Delete a Tag

Tag and Datablock mean the same thing. The term Tag is used in this manual. The tag is generally connected to a BLOCK (i.e. Function Code) inside a Controller Module (e.g. MFP, MFC) within the Bailey DCS system.

The number of tags supported is limited to the lesser of (a) 30,000 and (b) the maximum number of tags supported by the CIU you are using.

Communications do not need to be stopped before editing a Tag.


### 5.1 Tag Types Supported

The OPC Server/Driver supports the following tag types:

Data Type	Function Codes Supported
ANALOG	FC 30, FC 222, FC 223
DIGITAL	FC 45, FC 224, FC 225
RCM	FC 62
RMSC	FC 68
STATION	FC 80, 21, 22, 23
DD	FC 123
MSDD	FC 129
RMCB	FC 136
TEXT	FC 151
TEXTSTR	FC 194 (User Defined Data Export)
DAANG	FC 177
XAI	FC 222 (Harmony Analog Channel/IN)
XAO	FC 223 (Harmony Analog Channel/OUT)
XDI	FC 224 (Harmony Digital Channel/IN)
XDO	FC 225 (Harmony Digital Channel/OUT)
ANALOGO	FC 30 to FC 26
DIGITALO	FC 45 to FC 42

### 5.2 Adding a New Tag

DCS data communications does *not* need to be stopped before adding a tag. You may add a Tag with DCS communications running or with DCS communications stopped.

Click the **Edit | Add Tag** button in the main menu or click  on the toolbar. A tag icon appears and is highlighted under the root object in the System Tree and the Tag properties page appears.

Enter the properties for the new tag. Properties do not take effect until you **Apply** the changes. When done, choose **Close** and click the **Enable** check box to enable communication to this Tag.


You may now start communications if not already started.

## 5.3 Edit an Existing Tag

To modify a Tag you do **not** need to stop DCS data communications.

Select the Tag you wish to modify in the System Tree. The properties for this Tag appear in the Properties Viewer.

Click the **Enable** checkbox to Disable this Module.

Click on the Edit button  to initiate edit of the Tag. Make whatever changes you wish to make.

The new properties do not take effect until you **Apply** the changes.

When done, choose **Close** and click the **Enable** check box to enable communication to this Tag.

You may now start communications if not already started.

## 5.4 Delete an Existing Tag

To delete a Tag you do **not** need to stop DCS communications. Select the Tag you wish to delete in the System Tree. The properties for this Tag appear in the Properties Viewer. Click the Enable checkbox to

Disable this Tag. Click on the Delete button  to delete the Tag.

## 5.5 Preventing Write to DCS

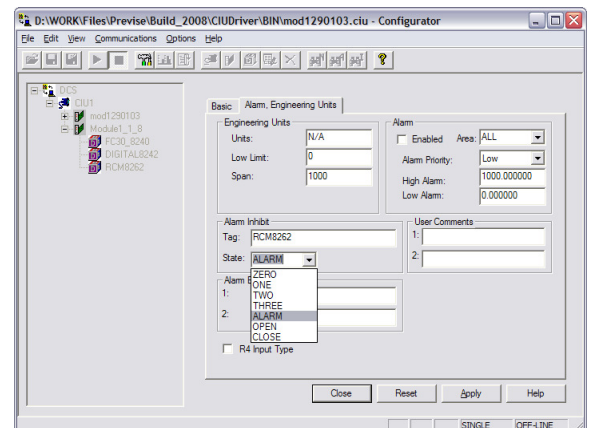
In some circumstances you may wish to set up the tag database, but prevent actual process write commands (i.e. motor on/off, Station SP change) from being sent to the DCS.

You may accomplish this via various means including:

- DISABLE the tag in question or check the Disable Outputs field.
- DISABLE an entire Module or CIU

## 5.6 Inhibiting Alarms at iFIX

To inhibit an iFIX alarm, configure the Alarm Inhibit Tag and Alarm Inhibit State properties for each tag for which alarm must be inhibited. This will NOT effect alarms at the OPC A&E interface unless the **EnableInhibit** property is configured to ON at the **BaileyOPCServer.ini** file [AlarmOptions] section.





## 5.7 Inhibiting Alarms at OPC Alarm & Event Interface

To inhibit an alarm at the OPC Alarm and Event interface you must:

1. Set the *EnableInhibit* property to ON at the *BaileyOPCServer.ini* file [AlarmOptions] section in iFIX.
2. Configure the Alarm Inhibit Tag and Alarm Inhibit State properties for each tag for which you wish to inhibit alarms at the OPC A&E interface. Alarms inhibited at the A&E interface are also inhibited in iFIX if installed.

## 5.8 Tag Properties

<b>Tag Properties</b>		
<b>Property</b>	<b>Description</b>	<b>Hints</b>
<b>Properties Page – Basic Tab</b>		
Name	Specifies the name of the tag. Valid Entries may have up to 30 alphanumeric characters, including _ and -. No spaces.	Name must be unique.
Description	Describes the selected tag. Valid entries to 40 characters including all alphanumeric characters and symbols.	
Enable Box	If not checked, all communications to the tag are disabled.	
Address	Specifies the block address within the controller module for this tag. The Module address is defined in the Module Object containing this tag.	Take care to get the address correct.
Type	Select from: ANALOG, DAANG, DD, DIGITAL, MSDD, RCM, RMCB, RMSC, STATION, TEXT, TEXTSTR, XAI, XAO, XDI, XDO, ANALOGO, DIGITALO.	Type maps to controller function block per table in section 5.1. For ANALOGO or DIGITALO blocks, refer to more detailed instructions in OPC interface manual.
Point Index	Point Index is the assigned index (i.e. a unique key field) in the CIU point table that this exception reporting tag is assigned to. A tag must have a point index to receive data.	
Latch Data	When selected, the OPC server will continue to serve last known good value upon communications error.	
Disable Outputs	Use to disable output (i.e. control to the DCS) from this tag.	
Send Alarm Ack. Message	Enables Shared Alarm ACK from console to console.	Refer to section 3.9 for further information.
<b>Properties Page – Other Tabs</b>		
<b>Common Tag Properties – Alarms</b>		
Enabled	ENABLE alarms for this tag	
<b>NOTE 1</b>	Area	Alarm Area
<b>NOTE 1</b>	Alarm Priority	Alarm Priority INFO, LOLO, LOW, MEDIUM, HIGH, HIHI, CRITICAL
<b>Common Tag Properties – Alarm Inhibit</b>		
<b>NOTE 1</b>	Tag	Tag name for source of alarm inhibit
<b>NOTE 1</b>	State	Type or mode of alarm inhibit from: OPEN, CLOSE, ALARM, ZERO, ONE, TWO, THREE Refer to Process Database Manual and OPC interface for further information.
<b>Common Tag Properties – User Comments</b>		
<b>NOTE 1</b>	1 and 2	Text field to provide user comments
<b>Common Tag Properties – Alarm Extension</b>		
<b>NOTE 1</b>	1 and 2	Text field to provide alarm comments

<b>Tag Properties</b>		
<b>Property</b>	<b>Description</b>	<b>Hints</b>
<b>Analog Tags – Fields on Alarm, Engineering Units Tabs</b>		
▪ <b>Type: ANALOG, RMSC, STATION, DAANG, XAI, XAO</b>		
Units	Engineering Units Descriptor string	
Low Limit	Low limit of valid values. Often called ZERO	Enter INITIAL values into these fields. Each of these fields will be overwritten by spec data from DCS when available.
Zero	Defines zero value	
PV Zero	PV zero value	
SP Zero	SP zero value	
Span	Span of valid values	
High Alarm	High Alarm (disregard for DAANG)	
Low Alarm	Low alarm (disregard for DAANG)	
R4 Data Type	Enable 4 byte IEEE data format for analog values (ANALOG and ANALOGO tags only)	Where supported by module. Else 3 byte representation used.
<b>ANALOGO Tag – Alarm, Engineering Units Tab</b>		
Low Limit	CV below this value is sent BAD Q	
High Limit	CV above this value is sent BAD Q	
High Alarm	High alarm specification	
Low Alarm	Low alarm specification	
Alarm State Logic	Defines alarm state for this tag. Write to OPC interface (or via iFIX) will overwrite this value	Enter 0 (NO alarm) or 1 (LO alarm) or 2 (HI alarm)
<b>Digital Tags – Fields on Alarm, Engineering Units &amp; Advanced Tabs</b>		
▪ <b>Type: DIGITAL, RCM, DD, RMCB, XDI, XDO</b>		
Open Tag	Text String for OPEN state	
Close Tag	Text String for CLOSE state	
<b>RCM Tag – Advanced Tab</b>		
FB0 & FB1 Tag	Text string for each Feedback state	
<b>DD Tag – Alarm, Engineering Units and Advanced Tabs</b>		
Feedback Fields	Text string for each Feedback state	
<b>MSDD Tag – Advanced Tab</b>		
Feedback Fields	Text string for each Feedback state	
State Fields	Text string for each MSDD state	
<b>RMCB Tag - Alarm, Engineering Units and Advanced Tabs</b>		
Feedback Fields	Text string for each Feedback state	
Permissive Fields	Text string for each permissive state	
<b>DIGITALO Tag – Alarm Tab</b>		
Alarm State Logic		

**NOTE 1**

These fields are NOT reflected at OPC interface and are of use for installations with iFIX HMI only

## 5.9 Tag Communication Statistics

Tag Communication Statistics		
Property	Description	Hints
Transmits	Number of messages queued to send to this DCS from this tag.	Transmit happens every time operator command is sent.
Receives	Total number of messages received from the DCS for this tag.	Each exception received to this tag increments count.
Timeouts	Total number of communications timeouts for the tag. Timeouts are a result of the Reply Timeout setting. If a command is sent with no response within Reply Timeout seconds a timeout occurs.	MUST resolve communications issue at CIU level before dealing with tag issues. Try increasing the value for Reply Timeout.
Retries	Total number of messages resent to the DCS from this tag.	Same as for timeouts
Errors	Total number of errors received for the selected tag. For more information see Last Error field	Same as for timeouts
Overruns	Number of overruns for the tag. Occurs when new message sent before response to previous message	Same as for timeouts
Last Error	Last error received from DCS for this object. Errors are sourced in DCS.	Should always be 0=no error. Refer to Appendix B.
Last Read Time	Time/date of last exception received	Should update with each exception to tag.
Last Write Time	Time/date of last write to DCS	Should update with each operator command from tag.
Last Error Time	Time/date of Last Error received	See Last Error above.
Current Value	Current value is displayed without units, to provide an indication of most recent value received	

## Appendix A – Glossary of Terms

Glossary of Terms	
Term	Meaning
Block Address	A number designating a specific function block within a module.
Cascade Station	An analog control station configuration that allows an externally generated signal, such as the output of an upstream controller, to control the set point. One of three station types is available in the normal operating mode.
CIU File	Binary file containing OPC Server/Driver tag database. Opens quickly upon auto-start of driver.
Control Module or Controller	The control module guides field processes through an I/O module. One example of this is the multi-function processor.
Controlway	A controlway is a high-speed, redundant, peer-to-peer communications tie. It is used to carry information between smart modules within a process control unit.
CSV File	A comma-separated file opened or saved by the OPC Server/Driver under Configurator control imports or exports a configuration file. Comma separated files can be edited in any third-party application that supports CSV files, such as Microsoft Excel or a text editor. Comma separated value files, provided they have the right format, can also be created in a third-party application and opened using the Configurator. <b>CAUTION: Auto-change features within EXCEL may cause changes to a CSV file that prevent it from being re-opened into the OPC Server/Driver.</b>
Data Highway	The following is a list of data highways: Please see each of the highway types for a detailed explanation: <ul style="list-style-type: none"> <li>▪ Plant Loop – 500 Kbaud - 63 Nodes on one ring</li> <li>▪ Super Loop – 10 Mbaud - 250 Nodes on 250 rings</li> <li>▪ Infi Net - 10 Mbaud - 250 Nodes on 250 rings</li> </ul>
Exception Report	Information update generated when the status or value of a TAG changes by more than a specified amount. This is the primary method for propagating values in the Bailey DCS systems. This method minimizes traffic by only transmitting significant changes while prioritizing alarms.
Firmware	Firmware is the EPROM located in each of the intelligent modules of the Bailey system. The firmware contains the module operating system and the program for each of the function codes. The revision of the firmware is generally located on stickers on the firmware chips. The format of the label is (F11) the major revision letter, the relative position of the chip, and the sub-revision number.
Function Code	This is a code number that defines the functionality of the blocks contained in the Bailey control modules. The function and parameters of these codes are defined in the Bailey Function Code Application Manual. Certain function codes are designed to produce exception reports for use on the data highway. Operator consoles make use of these exception generating function codes.
InfiNet	InfiNet is a unidirectional ring with two sets of cables for redundancy. Super Loop supports up to 250 nodes on each of up to 250 rings connected to a central ring. Later versions of InfiNet support advanced exception reporting which includes a time stamp from the source module. The communication rate is 500 Kbaud, 2 Mbaud, or 10 Mbaud with multiple point addressing.

<b>Glossary of Terms</b>	
<b>Term</b>	<b>Meaning</b>
MFC / MFP	Multi-Function Controller / Multi-Function Processor. The brains of the Bailey systems reside in these modules. This is where the function blocks are configured that control the plant. The exception reports used for monitoring and control originate here.
Module Address	A unique identifier of a specific device or a communication channel. Refers to Controlway or module bus address.
Module Modes	The control modules have several modes of operation. These include: <ul style="list-style-type: none"> <li>▪ <b>Execute</b> - Control logic is being executed normally.</li> <li>▪ <b>Configure</b> - Module is stopped and can accept changes.</li> <li>▪ <b>Error</b> - Module configuration error (generally) has occurred.</li> <li>▪ <b>Fail</b> - Module has experienced a fatal error, may recover after reset</li> </ul>
LAN90/PCV	Process Control View. Developed by Bailey Canada, this was the first PC-based console offered by Bailey. Prior to version 5, these consoles were based on the text-based version of QNX. After version 5, the windows version of QNX was used. Earlier versions used ARCNET if they were networked. Later versions used either ARCNET or Ethernet for interconnection.
MCS	Management Command System. This is an integrated operator console with data acquisition and reporting capabilities. It provides digital access into the process for control and monitoring. MCS was the successor to the OIU. The MCS is still a candidate for replacement due to high maintenance costs and lack of availability of plant data external to the console. The MCS was available configured for Plant Loop, InfiNet, or Super Loop.
OIS 10, 11, 12	Operator Interface Station 10, 11, 12. LAN90/PCV consoles made to look like the other members of the OIS family. See LAN90/PCV for details.
OIS 20	Operator Interface Station 20. The OIS 20 uses an improved hardware platform to the MCS, but many of the cards are the same. The OIS 20 uses the same software as the MCS and a CIU modified to fit in the card cage. Previs driver can connect to the CIU in this console
OIS 40 Series	Operator Interface Station 40 Series. These consoles are based on DEC VAX computers with a software driver to interface the operating system of the MCS to the VMS operating system. These are the high-end consoles of the Bailey line.
OIU	Operator Interface Unit. This was the original HMI for Bailey systems. Based on the TI99 processors, no new hardware has been manufactured in 10 years. None of the OIU's are year 2000-compliant and the only option is replacement. The 1,400 TAG version uses a special interface card called a PIM that is not adaptable to new consoles.
Override	A remote switch input to a remote control memory function block that can adjust the block output.
PCI	Plant Loop to Computer Interface. See description under CIU.
Plant Loop	Plant Loop is the original data highway of the Bailey Network 90 system. This highway is a unidirectional ring with two sets of cables for redundancy. The communication rate on Plant Loop is 500 Kbaud with the capability of 63 nodes on a single ring.
Point Index	Point Index is the assigned index (i.e. a unique key field) in the CIU point table that this exception reporting tag is assigned to. A tag must have a point index to receive data. Point index 0 must be assigned to the CIU to which the OPC Server/Driver is connected. All other point index must be unique integer number from 1 to <maximum number of tags>. Maximum number of tags is the lesser of (a) 30,000 and (b) the number of tags supported by your CIU device.

<b>Glossary of Terms</b>	
<b>Term</b>	<b>Meaning</b>
Polling	This is the method of requesting information from blocks in the system. This method would cause excessive traffic if used for a large number of points in the system. This function is used for reading non-exception report blocks in the system. The OPC Server/Driver limits the number of these reads in order to prevent overloading of the data highway.
Problem Report	A summary of error conditions provided by Infi 90 modules.
Ratio Index	An analog input to a station function block.
RMSC	Remote Manual Set Constant; a function code which generates exception reports consisting of a status and an analog value.
Specifications	Function block input values that govern function block characteristics.
Super Loop	Super Loop is the predecessor to InfiNet and for all practical purposes is the same thing. Super Loop is a unidirectional ring with two sets of cables for redundancy. Super Loop supports up to 250 nodes on each of up to 250 rings connected to a central ring. Communication rate is 500 Kbaud, 2 Mbaud, or 10 Mbaud with multiple point addressing.
TAG	A point in an industrial process where a particular parameter such as temperature is measured. Also, an analog or digital process value determined in the console to be a control or monitor point.
Tag Index	Same as point Index

## Appendix B - Troubleshooting

This Appendix is provides troubleshooting support.

Table B-1 provides general troubleshooting assistance.

Table B-2 provides additional troubleshooting to iFIX users, to accompany use of the OPsCon product including this Configurator.

In each table:

- **Observation** – Describes what you have observed.
- **Diagnosis** – Describes other observations you may have to make to diagnose the problem.
- **Action** – Describes the action you should take.

If the problem that you have encountered is NOT addressed in these tables, please forward your issue to the place where you have purchased this software.

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### B.1 Tools for Troubleshooting

This section overviews some of the tools available to troubleshoot your OPC Server installation.

#### **Configurator – Statistics View**

The Configurator displays communication statistics for each CIU, Module and Tag. These statistics are useful to narrow down any communications problems.

#### **OPC Interface - Statistics**

Further, and more detailed, statistics are available at the OPC interface to the driver. These statistics are documented in the OPC Interface manual with this product. Please note that an easy to use OPC Client is installed with this product. This OPC Client may be used to view the OPC interface statistics.

#### **Event Log**

Some errors are logged to the Microsoft Event Log. The event log should be reviewed for any messages from source **CIU**.



**Table B-1 - General Troubleshooting Guide**

Issue	Observation	Diagnosis	Action
<b>Issues Related to Startup, Connection of Configurator to Driver, and File IO</b>			
1	Configurator will not connect to a remote server	General	<ol style="list-style-type: none"> <li>1. Make sure you have entered the correct name or IP address for the location of the remote server.</li> <li>2. Make sure you have security permission to access the remote server.</li> <li>3. Make sure the remote server is started</li> </ol>
		If you cannot see the remote server from Microsoft Explorer or using the Ping program	You have a networking problem. You may want to speak to your network administrator.
		If you were running the Configurator and you changed the server location	<ol style="list-style-type: none"> <li>1. Exit the Configurator and restart it.</li> </ol>
2	The OPC Server/Driver would not load and execute.	General	Check the Windows Event Viewer which may provide clues.
		iFIX Users: If you have been starting the driver from iFIX	Try starting the driver without FIX running (restart computer and run configurator locally – should start driver automatically. If this works, then you need to figure out why iFIX can't start driver. Ensure that file CIUVER.DRV in the FIX path.
		If you are starting a OPC Server/Driver on a remote machine and it does not load.	Try starting it on your local machine. If it loads correctly on the local machine, you may be experiencing network problems or security issues.
		If the OPC Server/Driver still does not load	Rename the default CIU file so the driver loads a blank configuration. If the CIU file is corrupt, it may cause the driver to not load. You can retrieve a corrupted configuration file if you saved it as a .CSV file otherwise, you have to rebuild the Data Server configuration.
3	Failure to open CSV file at Configurator <b>File   Open</b> command.	Have edited CSV file with EXCEL. It has been frequently reported that the auto-correction functions in EXCEL have resulted in changes to CSV file format that render the file unreadable by driver. Most likely changes are auto-change of string to numeric.	<ol style="list-style-type: none"> <li>1. Ensure all auto-correction features in EXCEL turned off before opening CSV file.</li> <li>2. Review address columns to ensure all address in correct format</li> <li>3. Revert to backup CSV file</li> <li>4. Revert to CIU file and save new CSV file</li> <li>5. Users are urged to save both CIU and CSV formats after tag database changes and to retain backup copies of both files.</li> </ol>
		Have edited CSV file with NotePad or other program	<ol style="list-style-type: none"> <li>1. Verify that format of file is correct. File requires correct comma delimiters to work properly.</li> </ol>
		Have just upgraded Driver version. Driver is designed to be able to open CSV file saved at earlier versions.	<ol style="list-style-type: none"> <li>1. Contact supplier if problem persists</li> </ol>
4	Failure to open CIU file at Configurator <b>File   Open</b> command. Error dialogue received "unable to open file".	If you just upgraded the VERSION of the Previs OPC Server or Driver.	May not be able to move CIU file from Version X to Version X + 1. Must more CSV file instead of the CIU file.
		If you didn't just upgraded versions	<ol style="list-style-type: none"> <li>1. Import CSV file instead and save new CIU file.</li> <li>2. If problem persists contact your supplier</li> </ol>

**Table B-1 - General Troubleshooting Guide**

Issue	Observation	Diagnosis	Action
5	OPC Server was running, and then stopped		Verify that PC power saving option in BIOS is not enabled. Option may put the hard drive in sleep mode.
		IF INICIO3/INICT03 module is used is CIU	<ol style="list-style-type: none"> <li>1. Verify INICT03 firmware version number.</li> <li>2. Version E0 and earlier are supported. Version F0, F1 and later are currently supported ONLY with the periodic restart feature enabled for CIU, and are not suitable for console application.</li> </ol>
<b>Issues Related to CIU Communications (RESOLVE ISSUES BEFORE THIS LINE BEFORE ADDRESSING ISSUES AFTER THIS LINE)</b>			
6	Not getting ANY valid data communications with the DCS for multiple CIU		<ol style="list-style-type: none"> <li>1. Deal with the CIU one at a time as below.</li> </ol>
7	Not getting ANY valid data exceptions from DCS for ONE CIU.	CIU transmit and receive increasing together. Timeout and retry increasing more slowly but consistently.	<ol style="list-style-type: none"> <li>1. Check the cable for bad connection.</li> <li>2. Check CIU setup parameters, which must match CIU hardware settings. Most likely problems are baud rate or COM port. Very few installations require changes to other parameters.</li> <li>3. Verify PC IRQ not shared with any other device. Using same interrupts for a computer expansion board and COM ports 1 and 2. Most PC assign IRQ4 to COM1 and IRQ3 to COM2. If conflict occurs, change the interrupt of the conflicting expansion board.</li> <li>4. Try increased Reply Timeout (maximum 15 seconds)</li> <li>5. <b>iFIX Users:</b> Make sure SAC is running.</li> <li>6. <b>iFIX Users:</b> Verify that CIU driver installed and started with iFIX</li> </ol>
		CIU transmit and receive NOT incrementing at all.	<ol style="list-style-type: none"> <li>1. Verify at Configurator data communications turned on</li> <li>2. Verify CIU enabled</li> <li>3. Verify all controller modules enabled.</li> <li>4. Verify all tags enabled</li> <li>5. <b>iFIX Users:</b> Make sure that IOCCTRL is started from the SCU. You should have a /a on the IOCCTRL command line to have it automatically start the driver.</li> </ol>
		CIU transmit and received incrementing together and no timeout, retry, overrun or error. This is the normal state and SHOULD result in data exceptions being received.	<ol style="list-style-type: none"> <li>1. Verify that CIU is correctly installed and functioning.</li> <li>2. Verify that modules and tags are in tag database and enabled.</li> <li>3. Verify module and tag addresses.</li> </ol>
8	I am receiving communication Overrun errors, but NO timeout OR retries.	If you are receiving Timeout and retry, then deal with these issues first.	This should not occur. Contact supplier.
10	LAST ERROR Field at CIU is NOT 0		<ol style="list-style-type: none"> <li>1. Look up last error code in accompanying table.</li> </ol>
<b>Issues Related to Module Communications (RESOLVE ISSUES BEFORE THIS LINE BEFORE ADDRESSING ISSUES AFTER THIS LINE)</b>			

**Table B-1 - General Troubleshooting Guide**

Issue	Observation	Diagnosis	Action
10	Module Type Field in Configurator is INVALID		<ol style="list-style-type: none"> <li>1. Verify module address</li> <li>2. Verify that module is enabled</li> <li>3. Verify that module is not defective (is it actually working? Is it red lighted?)</li> </ol>
11	Module Status is NOT EXECUTE	Module can be in EXECUTE, CONFIGURE ERROR and FAIL mode.	<ol style="list-style-type: none"> <li>1. Module is not in execute mode. Status should be one of the states shown. Bailey expertise required for further troubleshooting.</li> </ol>
12	High (greater than 30 per minute) number transmits from module. Module type is valid and module is in EXECUTE mode.	The problem is not persistent. Transmits increase for a time and then stop increasing.	<ol style="list-style-type: none"> <li>1. Increase POLL RATE at Configurator (suggest a minimum of 15 seconds and a maximum of 5 minutes). May cause old data to display in System Explorer &amp; CLU screen and related ActiveX control..</li> </ol>
		Problem may be caused by actual hardware and/or control program problems within the module.	<ol style="list-style-type: none"> <li>1. You should verify that this module is in fact OK.</li> <li>2. ELSE large data reports from module may be CORRECT operation</li> </ol>
		Problem is persistent and cannot be resolved	<ol style="list-style-type: none"> <li>1. Contact your supplier.</li> </ol>
13	AMM, COM and other old controller modules may “red light” at driver startup.	Some old modules can not accept a request for extended 16 byte module status.	<ol style="list-style-type: none"> <li>1. UNCHECK the Extended Module Status parameter at the MODULE properties for this module.</li> </ol>
14	LAST ERROR Field at Module is NOT 0		<ol style="list-style-type: none"> <li>1. Look up last error code in accompanying table.</li> </ol>
<b>Issues Related to Tag Communications (RESOLVE ISSUES BEFORE THIS LINE BEFORE ADDRESSING ISSUES AFTER THIS LINE)</b>			
14	CIU and Module communications are OK, but a number of tags fail to receive exceptions.	Initial exceptions are received, but it takes too long to receive them.	<ol style="list-style-type: none"> <li>1. Wait for up to 3 to 5 minutes for driver to fully initialize the CIU for large tag databases.</li> <li>2. Wait for DCS to have time to report exceptions. Exceptions are only reported (a) upon change or (b) at a background reporting interval which is configurable but normally set to 60 seconds.</li> </ol>
		Initial exceptions for a given set of tags are NOT received at all approximately 2 minutes after driver initialization complete (see CIU state).	<ol style="list-style-type: none"> <li>1. Verify that tags and modules are enabled.</li> <li>2. Verify that tag and module addresses are correct</li> <li>3. Verify that point index for affected tags is integer in range 1, 2, 3, ...</li> <li>4. Verify that function block type connected to generates exceptions</li> <li>5. Verify that function block connected to has changing data.</li> <li>6. Verify module background exception reporting interval</li> <li>7. Verify that Module is in EXECUTE mode</li> <li>8. Verify that module is NOT red lighted.</li> </ol>

**Table B-1 - General Troubleshooting Guide**

Issue	Observation	Diagnosis	Action
15	<p>CIU and Module communications are OK. Most tags are reporting exceptions and are correct. However, there is a group of tags that are not reporting exceptions. All of these tags are within one module and have contiguous block addresses within the module, or perhaps multiple modules are involved (but still contiguous block addresses).</p>	<p>Verify that the tags that don't work are a block of tags with contiguous tag address.</p> <p>Is this a NET 90 console installation? Some sites have experienced an issue where the point tables within the PCU modules overflowed, apparently due to the limited memory size of the LIM/BIM modules, and due to the fact that the point table from earlier console installations persist in these tables, consuming space. The new console, when installed, consumes further space, causing an overflow. The result is that a group of tags, and contiguous high address range, fail to receive exceptions.</p>	<ol style="list-style-type: none"> <li>1. Solution was to initiate hardware reset of LIM/BIM modules. Modules were powered down and hardware reset confirmed.</li> <li>2. This issue seems confined to NET 90 DCS installations, where the point table space available is limited. This problem may also be experienced on systems with greater than average number of CIU connections, as each consumes point table space.</li> <li>3. Contact supplier for technical paper if encountered.</li> </ol>
16	<p>STATION tags (FC80 – BST block) do not control properly. A/M mode changes, and SP or CO changes made at console do not appear to arrive at DCS.</p>	<p>Specific means to disable these controls exist.</p>	<ol style="list-style-type: none"> <li>1. At Configurator   Options   Serial number, verify that serial number enables full console mode. If configured as <b>Driver</b> then serial number is incorrect and needs to be changed. Contact supplier.</li> <li>2. At Configurator configuration display for CIU (Channel) object, verify that STATION control is ENABLED.</li> </ol>
17	<p>Digital device will not control, even though all addresses are set correctly.</p>	<p>Some control actions can not be performed because interlocks within DCS prevent the action. You may verify that a command is sent to the DCS by watching the transmit count for the tag in question. When the command is sent, the transmit count will increment.</p>	<p>Verify state of process interlocks and permissive in DCS.</p>
18	<p>The time in seconds that it takes for an operator action to pass from the control popup, through the driver to the DCS, and for feedbacks to come back from the DCS to the driver and onwards to the screen (i.e. feedback latency) is too long. This time should normally be under 4 seconds.</p>	<p>Verify that the communications port is not overloaded with exceptions. For a 19,200 baud serial connection, the maximum number of exceptions per second that can be received is between 150 and 250, and varies by the mix of tag types being received (digitals have the least bytes and stations have the most).</p>	<ol style="list-style-type: none"> <li>1. Review StatExceptionInPacket at CIU object at OPC Interface (using OPC Client provided). Monitor this over several minutes. If many values of 200+ are received, then communications may be bandwidth limited.</li> <li>2. Review StatLastInterval at CIU object at OPC Interface (using OPC Client provided). Monitor this over several minutes. If many values of 800 (milliseconds) are received, then communications may be bandwidth limited.</li> <li>3. Use the Configurator   File   Export function to export tag communications statistics to see which tags are generating a very high number of exceptions. You may need to modify the DCS configuration to reduce exception rate for these tags.</li> </ol>

**Table B-1 - General Troubleshooting Guide**

Issue	Observation	Diagnosis	Action
19	Driver reads values, but will not write values.	Verify that your license supports write operations. License is available for data acquisition only, with some (but not all) write functions disabled.	4. Verify in Configurator that Disable Output is not set for the tag.
20	Rate of exceptions from DCS seems too slow for a given tag, or group of tags.	Verify that the process value for the tags you are looking at is actually changing. Tags with slow moving data will report fewer exceptions.	
		Review the dead band set for the tag or tags. Ensure that the controller module, and the tag, are set to report exceptions at the desired rate.	1. Change dead band to increase reporting frequency. Bailey DCS process knowledge is required.
		Review the background exception reporting interval, usually set to 60 seconds, for the module in which the tags reside.	1. Change background exception reporting interval to increase reporting frequency. Bailey DCS process knowledge is required.
		Check the module address for all modules. If commands are sent to a module that is offline or does not exist, the driver performs a series of timeouts and retries causing a slow message rate	<ol style="list-style-type: none"> <li>1. Correct the module address</li> <li>2. Disable module and all tags within it if not required</li> <li>3. Delete the module from tag database if not required.</li> </ol>
<b>Event Log Messages from Source: CIU (Review event log)</b>			
21	Event Log Error message appears to indicate problems with FILES. Note keywords (in event description) such as FILE, CSV, LOG FILE, FILE SERIALIZATION, and others that suggest file problems.	Suggests problem with CIU or CSV file	<ol style="list-style-type: none"> <li>1. Save new CIU and CSV file</li> <li>2. Backup CIU and CSV file and do not discard earlier copies</li> <li>3. Reboot system</li> <li>4. If problems with CIU file persist, switch to CSV file</li> <li>5. Follow instructions as above for CSV file</li> <li>6. If problems with CSV file persist contact supplier.</li> </ol>
22	Event Log Error message appears to indicate problems with COMMUNICATIONS. Note keywords (in event description) such as COM, COMM, PORT, LINE, SERIAL, PARITY, SERIAL, MODEM, TRANSMIT, RECEIVE, CONNECT, DICONNECT, TIMEOUT, IO and others that suggest communications problems.	Suggests problem with communications to CIU	Verify that driver communications settings for the CIU being used are correct. Verify CIU communications working correctly as above. Review communication statistics.
23	Other events		<ol style="list-style-type: none"> <li>1. Restart computer.</li> <li>2. If error persists, reinstall software</li> </ol>
24	Events persist after all attempted corrective action		1. Contact supplier with screen shot of each distinct Event type observed in LOG.

**Table B-2 – Additional Troubleshooting Guide for iFIX/OPsCon Users**

Issue	Observation	Diagnosis	Action
1	Driver messages not received in Alarm History.	You may have started driver before starting FIX.	<ol style="list-style-type: none"> <li>1. Shut down iFIX and the Configurator. Start iFIX. The driver automatically initializes and you should see the following alarm history message: <i>CIU – Server Initialized</i></li> </ol>
2	I ran out of memory	<p>You may have overwritten the default configuration file NODENAME. in FIXPDB. FIX reads the first four bytes of this file to load the Data Server. The first four bytes of NODENAME. define how much memory to allocate for the Data Server. If you overwrite this file with a normal Data Server configuration file, FIX still reads the first four bytes. This number can be large causing FIX to reserve too large an area of memory for the Data Server.</p>	To retrieve the default FIX configuration file NODENAME., you must reinstall the driver.
3	FIX has not loaded the OPsCon Data Server.		<ol style="list-style-type: none"> <li>1. Use SCU: make sure the driver is listed in the SCADA Configuration dialog box.</li> <li>2. Make sure that the applications section of the SCU is setup to start the IOCNTRL program and that it has a /a in the command line.</li> </ol>

Table B-3 - Error Codes

Error	Description	Error	Description	Error	Description
0	No error	28	Index already established (by another computer)	100	Undefined message type
1	Waiting for Loop	29	Point type incompatible with command	101	Busy
2	Improper format	30	Watchdog timeout	102	Mode conflict
3	Illegal Command	31	Checksum compare error	103	Illegal data
4	Index already established	32	Destination Node off-line	104	Invalid block number
5	Block already established another point	33	CALLUP Command required	105	Undefined block number
6	Command too long	34	Computer interface error	106	Block not readable
7	Bad reply from Node Interface	35	Computer interface busy	107	Invalid function code
8	Export Used as Import	36	INBTM01 or INNIS01 offline	108	Function code and block number not compatible
9	Repeat RESTART Command	37	Conflict with Monitor Mode	109	Insufficient memory to write block
10	Undefined Index	38	Point Type	110	Module not responding
11	Memory Full	39	Destination Loop Offline		
12	Host Communication Error	40	Destination Node Busy		
13	INBM01 or INNIS01 not responding	41	Destination Loop Busy		
14	Import used as Export	42	Enhanced trend not established		
15	Timeout of Plant Loop Response				
16	Number out of range			128	Waiting for module reply
17	Illegal Key				
18	Need a restart command				
19	Module status used as Import			255	CIU not responding
20	Message Active on Loop				
21	Import or Export used as Module Status				
22	Exception report specifications lost				
23	No message Queued/Dequeued Received				
24	Reply too large				
25	Illegal station mode command				
26	Illegal Module number in command				
27	Timeout between bytes in command				