# **GE Digital Connectors**

# iFIX Real-time values (OPC)

This connector is used to get real time values from iFIX via the iFIX OPC server. This can be used to retrieve data from iFIX both locally on an iFIX node or remotely.

# Prerequisites

#### Verify Communication

Communication between the OPC server and an OPC client must be verified. If an OPC client is not provided with the server, **XLReporter** provides an independent OPC client to verify connectivity and data retrieval from any OPC DA server. This client is found on **XLReporter's** product CD under **Tools, OPC\_DA**. It can also be downloaded from <u>www.SmartSights.com</u>.

To run, double-click **SampleClientDA.exe**.

To connect to an OPC server, select **Edit**, **New Server Connection** to open the **Server Properties window**.

Server Properties	$\times$
General	
Registered Servers:	
Prog ID: Intellution.OPCiFIX.1 Remote Machine Name:	
OK Cancel	

Expand the OPC Data Access Servers Version 2.0, select Intellution.OPCiFIX.1 and click OK.

From the Edit menu select New Group.

Group Properties General Name: Update Rate (ms.): 100	×
Name:	
Update Rate (ms.):	
Time Bias (min.):	
Percent Deadband: 0	
Language ID: 1033	
Update Notification: OPC 2.0 🗸 Keive State	
OK Cance	

Specify Name and click OK.

Click on the group name created, and select Edit, New Item.

Item Properties			OK
Access Path:		4	Canc
Item ID:	FIX.HUMIDITY.F_CV	<ul> <li>Image: Image: Ima</li></ul>	0
Data Type:	Native	6	×
Active	<b>v</b>		
		* Native	
		1	
<	address space on selected branch	<	Add Leaves

This opens the **Add Items** window. In the browsing section, drill into the tree and select **Leaf** items on the right. To select a leaf, highlight and click the **Add Leaves** button. Click **OK** when selection is complete.

COPC Quick C	lient - Untitled *						- 0	×
File Edit View	Tools Help							
D 🖻 🔒 📸	💣 💣 😭 👗 🖻	₿ ×						
🖃 : 💼 Intellution.	OPCiFIX.1		Item ID	Data Type	Value	Timestamp	Quality	
Lange Test Co	onnection		■FIX.AMPS.F_CV ■FIX.HUMIDITY.F_CV	Float Float	360.707 74.7742	10:11:16:811 10:11:20:833	Good Good	
		]	<					>
Date	Time	Event						
1/23/2020	10:07:47 AM	Connected to se	rv					
1/23/2020	10:09:23 AM	Added group 'Te	est					
1/23/2020	10:10:41 AM	Added 1 items t	0					
1/23/2020	10:11:05 AM	Added 1 items t	o					
Ready							Item Co	unt: 2 /

All of the selected tags appear along with their real time values, type, quality, and timestamp.

If at any point you experience an issue with this client, contact GE Digital technical support to troubleshoot and correct these issues.

# **Remote Communication**

If XLReporter is not installed on the machine where iFIX is installed, the workstation must also have the OPC core components installed. To determine if the core components are installed verify the following file exists:

- C:\Windows\SysWow64\OPCEnum.exe (64-bit OS)
- C:\Windows\system32\OPCEnum.exe (32-bit OS)

If the components are not installed then they are provided in the XLReporter installation folder under *\_repairtools\OPC*. Alternatively, these can be downloaded from <u>www.opcfoundation.org</u>.

# **Server Settings**

In order to connect to iFIX remotely both the machine where the server is running and the machine where the client is running must have matching Windows user accounts and the client must be logged in with a matching account.

In addition, on the machine with iFIX, certain DCOM settings must be enabled. For details on what DCOM settings to enable, see <u>OPC and DCOM: 5 Things You Need to Know</u>.

# Windows Firewall

If the Windows Firewall is enabled on the machine where iFIX is running TCP Port 135 must be opened in order for remote clients to connect.

# Connector

To configure the connector to iFIX, from the Project Explorer select Data, Connectors.

- Click Add
- Select GE Digital, iFIX Real-time values (OPC)
- Click **OK**

FIX Real-time values	(OPC)	
Connector Name	iFIX_DA_1	
Description		
Primary Server		
Name	Intellution.OPCiFIX.1	
Node		🗹 local
		Test Connection
Secondary Serve	Intellution.OPCiFIX.1	
Node		🗹 local
		Test Connection
		Settings

#### **Primary Server**

These settings define the **Name** and **Node** of the OPC DA server. Typically, the **Name** is defaulted correctly. If the iFIX server is on the local machine, leave **local** checked, otherwise uncheck and specify either the name or IP address of the machine where iFIX is running.

Use the **Test Connection** button to verify a connection to the server.

#### **Secondary Server**

These settings define the (optional) secondary iFIX to connect to if a connection to the **Primary Server** fails.

#### Settings

For information on the specific settings, see the DATA CONNECTIVITY, OPC document.

# Verify Data Communication

To verify communication, open the **Project Explorer** and select the **Tools** tab. Launch the **System Check** application.

- Click Add
- Choose the *iFIX Real-time values (OPC)* connector from the dropdown list.
- Click the pushbutton ([...]) next to **Items** to open the Tag Browser window.

		Sel	ected items	
E FIX	^		Name	~
- AA			FIX.AMPS.F_CV	
⊕-Al ⊕-AO			FIX.HUMIDITY.F CV	
ia-AD ia-AB			FIX.IFIX1 BATCH BULKLEVEL.F CV	
B-BL			FIX.IFIX1 BATCH CIPLEVEL.F CV	
⊕-CA			FIX.IFIX1_BATCH_RAMP.F_CV	
II- DI			FIX.IFIX1_BATCH_RAMP2.F_CV	
- DR				
B- ETR				
MDI				
ie-PG	~			
ф. <b>В</b> М	Flat			
eme Name ALARNAI ALARNAI AMPS HUMIOTY HINT, BATCH, BULKLEVEL HINT, BATCH, CH, CH, CH, CH, CH, CH, CH, CH, CH,	^	>		
Nane Vane ALARMA ALARMA ALARMA ALARMA MUMDITY HUMDITS HUMDITS HUMLEVEL HIXL_BATCH_PAMP	^	<		
Implay         Name           Vane         Aurona           AMPS         Aurona           HUMDITY         First, Satch, BOLKLEVEL           First, Satch, PANP         First, Satch, PANP           First, Satch, PANP         First, Satch, PANP           First, Satch, PANP         First, Satch, PANP		<		
Tarbay Name  ALRINA AMPS HMMOTY FIRXT,BATCH,BUKLEVEL FIRXT,BATCH,DEVELEI FIRXT,BATCH,AMP2 FIRXT,BATCH,CHAMP2 FIRXT,BATCH,RAMP2 FIRXT,BATCH,RAMP2 FIRXT,BATCH,REACTORELVEL FIRXT,BATCH,REACTORELME	~	<		
iaplay Name  Alame ALARMA HUMDITY HUMDITY HIMIOTAFULUKEL HIMIOTAFULUKEL HIMIOTAFULUKEL HIMIOTAFULUKEL		<		

• Select on or more tags, click **OK** 

🖶 Add 🚽	🖉 Modify 🗼 Delete 🛛 🔛 Clear 🥚	Start	
Connector	Source	Description	Value
iFIX_DA	FIX.AMPS.F_CV	FIX.AMPS.F_CV	333.8499
iFIX_DA	FIX.HUMIDITY.F_CV	FIX.HUMIDITY.F_CV	75.3092
iFIX_DA	FIX.IFIX1_BATCH_BULKLEVEL.F_CV	FIX.IFIX1_BATCH_BULKLEVEL	623.3311
FIX_DA	FIX.IFIX1_BATCH_CIPLEVEL.F_CV	FIX.IFIX1_BATCH_CIPLEVEL.F	30.59892
FIX_DA	FIX.IFIX1_BATCH_RAMP.F_CV	FIX.IFIX1_BATCH_RAMP.F_CV	30.59892
FIX_DA	FIX.IFIX1_BATCH_RAMP2.F_CV	FIX.IFIX1_BATCH_RAMP2.F_CV	84.49989
c			
Clear			

• Click **Start** to verify the communication

# **Scheduler Startup**

The **XLReporter Scheduler** is used to process reports automatically in the background. The scheduler can be configured to start from an iFIX task so it starts when the HMI is started.

To configure, open the **System Configuration** (SCU) from the **iFIX** program group. Select **Configure, Tasks**.

Task Configurati	on					?		$\times$
Filename:	C:WLRep	orterWLRsche	edule.exe	; .		Start U O Min	p Moo imized	
Command Line:						Nor Bac		und
Configured Task	s:					<u> </u>		
% C:\PROGRAM % C:\PROGRAM C:\PROGRAM % C:\PROGRAM % C:\PROGRAM % C:\PROGRAM	M FILES (X8 FILES (X86 M FILES (X8 M FILES (X8	6j\GE\IFIX\SI i)\GE\IFIX\W( 6)\GE\IFIX\IH 6)\GE\IFIX\IH	JMQDEL DRKSPA IFIXCOLI IIFIXAEC	EXE -D05 CE.EXE .ECTOR.E>	εı	•	Ac Cha	
						•	Del	ete
	ОК	Cancel		Help				

- For **Filename** browse and select **XLRschedule.exe** from the **XLReporter** installation folder (*C:\XLReporter* by default).
- Set Start Up Mode to Normal.
- Click **Add**.
- Use the down arrow to move this to the bottom of the **Configured Tasks** list.
- Click **OK**.

Save and close the SCU. The next time iFIX is started, XLReporter's Scheduler will start with it.

# **iFIX Alarms**

This connector is used to get alarms from iFIX when they are logged to a relational database.

# Set up Alarm Logs

To set up iFIX alarm logging to a database, open **System Configuration**, from the **iFIX** program group.

Select Configure, Alarms to open the Alarm Configuration window.

Alarm Configuration	? ×
Alarm Printer 1, Disabled Alarm Printer 2, Disabled Alarm Printer 3, Disabled Alarm Printer 4, Disabled Alarm Summary Service, Enabled Alarm File Service, Disabled Alarm File Service, Disabled Alarm History Service, Enabled Alarm DDBC Service, Enabled	Status
	Options
Advanced OK Cancel	Help

- Select Alarm ODBC Service.
- Set **Status** to **Enable**.
- Click Modify to open Alarm ODBC Service Configuration.
- Click **Configure** to view and edit the settings.

SQL Login Information	nation from SQL Configuration	Database Configuration	if not found	
latabase Type:	SQL Server	Table Name: FIXALARM		
Iser Name:	sa		S Create Table	Now
assword:	xx	Column Configuration		
atabase Identifier:	iFIX Alarms	Select All	Restore Defaults	
Options	James Jame	iFIX Field Name ✓ Native Date/Time In	SQL Column Name	1
Allow Operator to P	Pause Alarm Logging	✓ Native Date/Time In	ALM_NATIVETIMEIN	
Update Interval:	1 seconds	<ul> <li>Logical Node Name</li> </ul>	ALM_LOGNODENAME	
opuale milerval.	seconds	Physical Node Name	ALM_PHYSLNODE	<b>↑</b>
AlarmQueue Size:	100	Tag Name	ALM_TAGNAME	
		Tag Description	ALM_TAGDESC	
Number of records to I	og from iFIX: 3	Value	ALM_VALUE	
	-	Unit	ALM_UNIT	
Number of records to I	og from Backup File: 2	Message Type	ALM_MSGTYPE	1
		Message Description	ALM_DESCR	
ost Connection Optio	ne	Alarm Status	ALM_ALMSTATUS	
		Alarm Priority	ALM_ALMPRIORITY	
File: C:\IFIXPF	OJECTS\SYTECH\ALM\AI	<ul> <li>Alarm Area</li> <li>Alarm Ext. Field1</li> </ul>	ALM_ALMAREA	
Tag:			ALM_ALMEXIFLUT	
Jser Fields				
Field Name1:		Field Name3:		
Field Name2		Field Name4:		

- Select the **Database Type** and the **Database Identifier** (DSN)
- Click Create Table Now.
- Specify the columns to configure. Be sure to select *Native Date/Time In* and *Native Date/Time Last* in Column Configuration.
- Click **OK** to save the configuration.

# Prerequisites

#### Verify Database

Open **Microsoft SQL Server Management Studio** and connect to the SQL Server or SQL Server Express instance set up for the iFIX Alarm Logs.

Object Explorer	- † ×	SQLQuery1.sql - SY0FlXAlarms (sa (55)) → ×
Connect - 🛃 🛃 💷 🍸 🖒 🍒		/****** Script for SelectTopNRows command from SSMS ******/
□ □ iFIXAlarms □ □ Database Diagrams	^	SELECT TOP (1000) [ALM_NATIVETIMEIN] ,[ALM_NATIVETIMELAST]
Tables  Tables  System Tables  Line Tiel Tables  Line Tiel Tables  Line Tables  Table	- 1	, [ALM_LOGNODENAME] , [ALM_PHYSLNODE] , [ALM_TAGNAME] , [ALM_TAGDESC]
Bornactannis     Views     Description and Resources     Desc		, [ALM_VALUE] , [ALM_VALUE] , [ALM_UNIT] , [ALM_DESCR] , [ALM_DESCR] , [ALM_ALMPRIORITY] , [ALM_ALMPRIORITY] , [ALM_ALMERF] , [ALM_ALMEXTFLD1]
<ul> <li>Credentials</li> <li>Cryptographic Providers</li> <li>Audits</li> </ul>		ISS M. CALM ALMEXTFLD21
Dever Audit Specifications     Dever Objects     Dever Objects     Dever Objects     Dever Objects     Dever Objects     Dever Object Obj		Instantial         Control         Contro         Control <thcontrol< th="">         &lt;</thcontrol<>

Expand **Database**, the database configured for the alarms and **Tables**. Select the alarm table, rightclick and choose **Select Top 1000 Rows**.

If no data is returned contact GE Digital technical support and correct these issues.

# Connector

To configure the connector to iFIX, from the Project Explorer select Data, Connectors.

- Click Add
- Select GE Digital, iFIX Alarms.
- Click OK

	x
iFIX_Alarms_1	
L	
Microsoft SQL Server	
192.168.9.45\sqlserver16	
FIXALARMS	~
ALM_NATIVETIMEIN	$\sim$
Date includes Time	
	$\sim$
	Settings
	OK Cancel
	Microsoft SQL Server 192.168.9.45\sqlserver16 FIXALARMS ALM_NATIVETIMEIN

#### **Primary Database**

This setting defines the SQL Server connection where the iFIX Alarms are configured to log to. Use the browse button [...] to define the database connection.

### Table/Column

Once the **Primary Database** is configured, set **Table** to the table where the alarms are being logged. This should match the **Database Identifier** configured in iFIX.

Set the **Date Column** to *ALM\_NATIVETIMEIN* or *ALM\_NATIVETIMELAST* and check **Date includes Time**.

#### Settings

The **Settings** button opens the **Settings** dialog that defines characteristics of the database that are used to retrieve data.

Settings ×
Client Wait Time (sec) 60
Table/Column Delimiter Start [ End ]
Date/Time Delimiter End [*
Date/Time Storage
Local Date and Time $\sim$
Date format is YYYY-MM-DD
OK Cancel

Typically, these settings are defaulted correctly for the **Primary Server**.

If queries timeout, increase the Client Wait Time.

The delimiter and timestamp settings are typically filled in automatically for the database and can be modified for other databases.

The **Date/Time Storage** settings define how timestamps are stored in the database. Using this setting the timestamps are manipulated when data is retrieved so that local timestamps are submitted in and returned.

Many databases require the Date format to be **YYYY-MM-DD** so that no interpretation needs to occur based on the Region settings of the Windows Operating System. It is recommended to always have this option checked.

# Data Group

The following describes the historical data group settings specific to the **iFIX Alarms** connector. **Group Types** 

📄 Select Group Type	×
O Summary Values from Server	
Summary Values from XLReporter	
Raw Values	
◯ Raw Text	
O Sampled Values	
O Live Values	
O Custom Values	
Base on	1
<pre></pre>	
OK Cance	ł

For **iFIX Alarms** the following group types are available:

#### **Raw Values**

This group retrieves every value logged to the alarms database between the start and end time specified.

#### **Custom Values**

This option opens the Database Group builder where a query can be configured to retrieve data from any table available in the database connected to by the connector.

# **Group Settings**

Filters Tab

up Columns Time Period Filters				
Name	Criteria	Or	Or	Or
•				
Alam Type Any Any ALARM HARDWARE NETWORK	~			

If the **Perform by Server** option is checked, any filter configured in this tab is put into the *WHERE* clause of the query sent to the database to retrieve data for the group. Otherwise, the configured filtering is performed by the reporting engine after the values are returned. It is recommended to leave this setting checked as the performance is much better.

The **Alarm Type** setting is used to retrieve either a specific type of alarm or *Any* to retrieve every time of alarm. For more information on alarm types, see the iFIX documentation.

# **Verify Data Communication**

To verify communication, open the **Project Explorer** and select the **Tools** tab. Open **Connector Groups**. Select the *GE iFIX Alarms* connector and then select **Add**.

• Set the Group Type to *Raw Values* and click OK.

Under the Columns tab:

Raw Values (iFIX_Alarms) File Edit Preview			×
File Edit Preview Setup Columns Time Period Filters			
Selected Columns			
Name	Scaling	Heading	^
ALM TAGNAME		ALM TAGNAME	
ALM TAGDESC	_	ALM_TAGDESC	
ALM_MSGTYPE		ALM_MSGTYPE	
ALM_DESCR		ALM_DESCR	
ALM_ALMSTATUS		ALM_ALMSTATUS	
ALM_ALMPRIORITY		ALM_ALMPRIORITY	
			~
Output Options			
Timestamp on first column	~	Transpose	
	1 0	Include Heading	
Empty rows between re-	cords o		

• Select the first row under the Name column and click the browse pushbutton ([...]).

	 Sel	ected Items	
Variables		Name	
iFIX_Alams		ALM_TAGNAME	
in Catalog		ALM TAGDESC	
FIXALARMS		ALM MSGTYPE	
		ALM_DESCR	
		ALM_ALMSTATUS	
		ALM_ALMPRIORITY	
isplay Name ~	 >		
isplay Name ~			
isplay Name $\vee$	>		
isplay Name ~ Jame ALM_DESCR ALM_ALMSTATUS			
isplay Name  Vame ALM_DESCR ALM_ALMSTATUS ALM_ALMPRIORITY			
isplay Name  Vame ALM_DESCR	<		
isplay Name  Vame ALM_DESCR ALM_DESCR ALM_ALMSTATUS ALM_ALMPRIORITY ALM_ALMAREA	<		
Isplay Name  Vame ALM_DESCR ALM_ALMSTATUS ALM_ALMPRIORITY ALM_ALMAREA ALM_ALMEXTFLD1	< >>		
Isplay Name  Vame ALM_DESCR ALM_ALMSTATUS ALM_ALMPRIORITY ALM_ALMAREA ALM_ALMEXTFLD1 ALM_ALMEXTFLD1 ALM_ALMEXTFLD2	< >>		
Isplay Name  Vame Vame ALM_DESCR ALM_ALMSTATUS ALM_ALMPRIORITY ALM_ALMPRIORITY ALM_ALMEXTFLD1 ALM_ALMEXTFLD2 ALM_OPNAME	< >>		

- In the Tag Browser expand **Online, FIXALARMS** and add **Items** from the lower left.
- Click **OK** to add these to the group.
- To retrieve data, select **Preview**.

Preview						
🔁 Refresh 💿 Stop	~	Date	ALM_TAGNAME	ALM_MSGTYPE	ALM_DESCR	
A Date		1/23/2020 11:21:17 AM	RAMP	ALARM	RAMP BLOCK FOR PAINTSHOP	
Start 23 Jan 2020		1/23/2020 11:21:17 AM	OUTP3	ALARM	OUTLET	
End 24 Jan 2020		1/23/2020 11:21:17 AM	OUTP1	ALARM	OUTLET	
0, 0, 🔺 Þ	- • •	1/23/2020 11:21:17 AM	INP3	ALARM	INLET	
		1/23/2020 11:21:17 AM	INP1	ALARM	INLET	
		1/23/2020 11:21:17 AM		TEXT	[SYTECH ] IFIX1_BATCH_RECLAIMFLOW	
		1/23/2020 11:21:17 AM		TEXT	[SYTECH ] IFIX1_BATCH_TANK1FLOW	
		1/23/2020 11:21:17 AM		TEXT	[SYTECH ] IFIX1_BATCH_TANK2FLOW	
		1/23/2020 11:21:17 AM		TEXT	[SYTECH ] IFIX1_H2O_NAOH_FQ	
		1/23/2020 11:21:17 AM		TEXT	[SYTECH ] IFIX1_BATCH_TANK3FLOW	
		1/23/2020 11:21:17 AM		TEXT	[SYTECH ] IFIX1_BATCH_MIXOUTFLOW	
		1/23/2020 11:21:17 AM		TEXT	[SYTECH ] NOZ1DI	

In the **Preview** window, use the date picker to select a date and time where alarms are recorded in the database. Click **Refresh** to view the data. The first 60 alarms starting at the date and time specified should be displayed.

# **Scheduler Startup**

The **XLReporter Scheduler** is used to process reports automatically in the background. The scheduler can be configured to start from an iFIX task so it starts when the HMI is started.

To configure, open the **System Configuration** (SCU) from the **iFIX** program group. Select **Configure, Tasks**.

Task Configuration       Filename:     C:VXLReporterV       Command Line:		ule.exe		⊖ Mir ● No	> Ip Mode nimized rmal ckground
Command Line: Configured Tasks: Configured Tasks: CONFIGERAM FILES (X86)\GE		ule.exe		⊖ Mir ● No	nimized rmal
Configured Tasks: % C:\PROGRAM FILES (X86)\GE					
% C:\PROGRAM FILES (X86)\GE					
				0	citgroand
% C:\PROGRAM FILES (X86)\GE C:\PROGRAM FILES (X86)\GE % C:\PROGRAM FILES (X86)\GE	ENFIXNSUM NFIXNWOR	iqdel.e× KSPACE.I	KE -DO5:00 EXE		Add
% C:\PROGRAM FILES (X86)\GE C:\XLREPORTER XLRSCHEDI	EVIEIXVIHIEI				Chang
					Delete

- For **Filename** browse and select **XLRschedule.exe** from the **XLReporter** installation folder (*C:\XLReporter* by default).
- Set **Start Up Mode** to *Normal*.
- Click Add.
- Use the down arrow to move this to the bottom of the **Configured Tasks** list.
- Click **OK**.

Save and close the SCU. The next time iFIX is started, XLReporter's Scheduler will start with it.

# Historian

This connector is used to get historical data from the GE Historian (formerly Proficy Historian) using the Historian OLEDB Provider. This can be configured both locally on the Historian machine and from a remote machine.

# Set up Historian

### **Client Tools**

On the machine where **XLReporter** is installed, the Historian Client Tools must also be installed. These are available on the Historian installation media.

#### From the Historian Installation Program, select Install Client Tools.

At minimum, the **OLE DB Driver** must be selected to install. Selecting this forces the **Historian Client Tools** to be selected as well.

Proficy Historian Setup Maintenance		×
Select Features Select the features setup will install.		
Check new components you want to install or ur Proficy Historian Client Tools CLE DB CLE DB Drive CLE DB Samples CLE DB Samples CLE DB Samples CLE DB Samples CLE DB Samples CLE DB Drive CLE DRI	Description     Allows you	want to remove. to access the th an OLE DB
InstallShield[	< <u>B</u> ack <u>N</u> ext	> Cancel

# Prerequisites

# Verify Driver

To verify the OLE DB Provider exists on the machine,

- On the Windows desktop, create a new text document.
- Rename the text document to *Test.udl*.
- Double click the file to open.

🗊 Data	Link Properti	es			×
Provider	Connection	Advanced	All		
Select t	he data you w	ant to conne	ect to:		
OLE	DB Provider(	s)			
	orian OLE DB				
	osoft OLE DB			Invers	
	osoft OLE DB			rver	
Micr	osoft OLE DB	Simple Prov	ider		
	DataShape		Distant	<b>C</b>	
ULE	DB Provider	for inicrosoft	Director	y Services	
					<u>N</u> ext >>
		ОК	(	Cancel	Help

• On the **Provider** tab, verify that the *iHistorian OLE DB Provider* is listed.

#### Verify Data Storage

From the GE Historian program group, select Historian Administrator.

- At the top click the **Tags** link.
- Click Search Historian Tag Database.
- Leave the Search window blank and click **OK**. All the available tags are now listed.

Proficy* H	Tag Maintenance	<u>%ы</u>	ain	₩ <u>Taqs</u>
Contemporary Search Historia Tag Database	an BCopy/Renam Tag	ie_	V Add Man	Tag (
ags (99)			Тас	g: GE-1.:
Tag Name		~	Ge	neral Collec
GE-1.IOP.static.U		_	ac	nordir   Collec
* GE-1.IOP.static.U			r	Description
GE-1.IOP.static.U			-	
<ul> <li>GE-1.IOP.static.U GE-1.IOP.static.U</li> </ul>			0	Description
* GE-1.IOP.static.U			F	GU Descript
GE-1.IOP.static.U	INT			
GE-1.maths.auton	natic angle change		0	Comment
	natic change period			
GE-1.maths.cos GE-1.maths.sin				
GE-1.maths.tan				
GE-1.special.???				
GE-1.special.???			9	StepValue
* GE-1.time.GMT.ar GE-1.time.GMT.br	ray			
GE-1.time.GI 🗸	View By Tagname			`are Confi
GE-1.time.GI	View By Description			are 1
GE-1.time.GI * GE-1.time.lor	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			are 2
GE-1 time lo	View Tagname and Desc	ription		
GE-1.time.lo	Select All			are 3
GE-1.time.lo				are 4
GE-1.time.lo	Unselect All			_
GE-1.time.tin GE-1.time.tin	Trend			are 5
GE-1 time tin				
GE-1.time.tin	Show Previous Tagname	s		
* Rename Of (	Last 10 Values			
<ul> <li>Hename Uri</li> </ul>				

• Right click a tag in the list and choose Last 10 Values.

This displays the last 10 values logged to the historian for the selected tag.

#### Verify Data Retrieval

The **Historian Interactive SQL** application can be used to verify data retrieval. To open, from the GE Historian program group select Historian Interactive SQL.

• Connect to the historian.

_	istorian Interactive SQL - [GE-1]				-	
	ile <u>E</u> dit <u>V</u> iew <u>W</u> indow <u>H</u> elp					- 5
	) 🗲 🖬 🎒 👗 🖻 💼 🎹					
ELEC	CT *					
ROM	ih Tags					
_	tagname	description	engunits	comment	datatype	fixedstri
1	GE-1.increment.BOOL	increment.BOOL	Unquinto	Common	Boolean	modoti
2	GE-1.increment.BOOL array	increment.BOOL array			Boolean	
3	GE-1.increment.BSTR	increment.BSTR			VariableString	
4	GE-1.increment.BSTR array	increment.BSTR array			VariableString	
5	GE-1.increment.l1	increment.11			Byte	
6	GE-1.increment.l1 array	increment.11 array			Byte	
7	GE-1.increment.12	increment.12			SingleInteger	
8	GE-1.increment.12 array	increment.12 array			SingleInteger	
9	GE-1.increment.14	increment.14			DoubleInteger	
10	GE-1.increment.14 array	increment.14 array			DoubleInteger	
11	GE-1.increment.18	increment.18			QuadInteger	
12	GE-1.increment.18 array	increment.18 array			QuadInteger	
13	GE-1.increment.INT	increment.INT			DoubleInteger	
14	GE-1.increment.R4	increment.R4			SingleFloat	
15	GE-1.increment.R4 array	increment.R4 array			SingleFloat	
16	GE-1.increment.R8	increment.R8			DoubleFloat	
17	GE-1.increment.R8 array	increment.R8 array			DoubleFloat	
18	GE-1.increment.UI1	increment.UI1			SingleInteger	
19	GE-1.increment.UI1 array	increment.UI1 array			SingleInteger	
20	GE-1.increment.UI2	increment.UI2			USingleInteger	
21	GE-1.increment.UI2 array	increment.UI2 array			USingleInteger	
22	GE-1.increment.UI4	increment.UI4			UDoubleInteger	
23	GE-1.increment.UI4 array	increment.UI4 array			UDoubleInteger	
24	GE-1.increment.UI8	increment.UI8			UQuadInteger	
25	GE-1.increment.UI8 array	increment.UI8 array			UQuadInteger	
26	GE-1.increment.UINT	increment.UINT			DoubleInteger	
27	GE-1.10P.dynamic.BOOL	10P.dynamic.BOOL			Boolean	
28	GE-1.10P.dynamic.BOOL array	IOP.dynamic.BOOL array			Boolean	
29	GE-1.10P.dynamic.BSTR	IOP.dynamic.BSTR			VariableString	
30	GE-1.10P.dynamic.BSTR array	IOP.dynamic.BSTR array			VariableString	
31	GE-1.10P.dynamic.11	IOP.dynamic.11			Byte	
32	GE-1.10P.dynamic.11 array	IOP.dynamic.11 array			Byte	
33	GE-1.10P.dynamic.12	IOP.dynamic.12			SingleInteger	

• Queries can be entered at the top of the window. Enter the following query:

#### SELECT \*FROM ihTags

• Click the  $\swarrow$  button to execute the query

This should list all tags configured in the historian.

# Connector

To configure the connector to Historian, from the Project Explorer select Data, Connectors.

- Click Add
- Select GE Digital, Historian.
- Click **OK**

Historian		x
Connector Name	GE_Historian_1	
Description	GEIFIX6HIST7-1	
Primary Server	L	
Name	GEIFIX6HIST7-1	
User	sytech	
Secondary Serve	r	
User		
		Settings
		OK Cancel

#### **Primary Server**

This defines the connection to the GE Historian. The browse button [...] is provided to define.

The **Server Name** can be the physical name of the machine where the historian runs, the IP address of the machine or left blank to use the default historian defined in the Historian Interactive SQL application.

The User Name and Password settings are provided is required to connect to the GE Historian.

#### **Secondary Server**

These settings define the (optional) secondary GE Historian server to connect to if a connection to the **Primary Server** fails.

#### Settings

The **Settings** button opens the **Settings** dialog that defines characteristics of the database that are used to retrieve data.

Settings	x
Client Wait Time (sec) 60	
Table/Column Delimiter End ['	-
Date/Time Delimiter End *	-
Date/Time Storage Local Date and Time	-
OK Cancel	

Typically, these settings are defaulted correctly based on GE Historian.

If queries timeout, increase the Client Wait Time.

The delimiter and timestamp settings are typically filled in automatically for the database and can be modified for other databases.

Many databases require the Date format to be **YYYY-MM-DD** so that no interpretation needs to occur based on the Region settings of the Windows Operating System. It is recommended to always have this option checked.

#### Data Group

The following describes the historical data group settings specific to the **GE Historian** connector. **Group Types** 

📄 Select Group Type	×
Summary Values from Server	
Summary Values from XLReporter	
◯ Raw Values	
◯ Raw Text	
◯ Sampled Values	
O Live Values	
◯ Custom Values	
Base on	
<pre></pre>	
OK Cance	ł

For **GE Historian** the following group types are available:

#### **Summary Values from Server**

This group type retrieves summary calculations directly from the historian. For GE Historian, the following calculations are available:

- Average
- Maximum
- Time of Maximum
- Minimum
- Time of Minimum
- Count
- Total
- Standard Deviation
- Interpolated
- Raw Average
- Raw Standard Deviation
- Raw Total
- Time Good
- First Raw Value
- First Raw Time
- Last Raw Value
- Last Raw Time
- State Count
- State Time

#### Summary Values from XLReporter

This group type retrieves sampled values from the historian and performs calculations on those samples for reporting.

By default, summary values are calculated time weighted and values are propagated based on the last known value. However, to change this so that summary values are calculated strictly on the data returned check **use raw values**.

#### **Raw Values**

This group retrieves values logged to the historian between the start and end time specified.

#### **Sampled Values**

This group retrieves lab sample values from the historian between the start, end and interval specified.

#### Live Values

This group retrieves the last recorded values in the historian for every selected tag.

#### **Custom Values**

This option opens the Database Group builder where a query can be configured to retrieve data from any table available in the database connected to by the connector.

#### **Group Settings**

Setup Tab (Summary Values for XLReporter)

sum	nmary valu	ies XLR (GE_H	listorian	LD						>
File E	dit Previ	iew								
Setup	Columns	Time Period	Filters							
			r	Description						
				vesenpuori						
			-1	Retrieval						
				Ret	rieval Mode	Sampled Value	\$	~		
				Ret	rieval Mode e (secs)	Sampled Value 30	\$	~		
				Rel Ral			ş	~		

The **Retrieval** settings define how data is retrieved for the calculations selected for the group. The following settings are available:

Retrieval Mode

This setting defines how data is retrieved from the historian. For GE Historian *Sampled Values* and *Raw Values* are available.

Sampled Values use the Lab Sample retrieval mode.

• Rate

The interval (in seconds) that sampled values are retrieved from the historian.

• Lead Time

The amount of time (in seconds) to retrieve data before the start time.

#### Time Period Tab (Raw Values)

up Columns Time Period Filters Order		
Period	Interval	Raw Data Retrieval
Type Relative ~	<ul> <li>Count</li> </ul>	By time V
Duration: Current V	60	By record forward By record backward
day ~		Start Time $\lor$
Start At:	) Al	
Day 1 🗸		
Time 00:00:00	O Every	
	hour V	

For Raw Values, the **Raw Data Retrieval** defines the time period for the group. The following options are available:

• By time

Using this option, raw data is retrieved between the **Start** and **End** configured.

- By record forward Using this option, raw data is retrieved from the **Start** going forward for the number of samples defined in the **Interval Count** setting. The **End** is ignored.
- By record backward

Using this option, raw data is retrieved from the **Start** going backwards for the number of samples defined in the **Interval Count** setting. The **End** is ignored.

	Name THISNODE.SPEED.F_CV	Criteria >= 25	Or	Or	Or
-					
Filte	r Mode		Advanced 0		
	After Time	$\sim$	#ONLYC	GOOD	
	Before Time After Time				
	Before and After Time Exact Time				

All filtering is performed on the Historian server.

#### Filter Mode

The Filter Mode determines how values are interpolated when the filtering is applied.

- *Exact Time* means that data is retrieved for the exact times when the filter condition(s) are true.
- *Before Time* means that data is retrieved from the time of the last false filter condition(s) up until the time of the true condition for each filter.
- *After Time* means that data is retrieved from the time of the true filter condition(s) up until the time of the next false condition for each filter.
- *Before and After Time* means that data is retrieved from the time of the last false filter condition(s) up until the time of the next false condition for each filter. For more information, see the GE Historian documentation.

#### Advanced Criteria

Advanced Criteria provides specific, server-based criteria which can be applied to the data returned from Historian. For more information, see **criteriastring** in the GE Historian documentation.

#### Order By Tab (Raw Values)

For **Raw Values**, the **Order By** tab is provided to order by the *Timestamp* as well as any other selected column on the **Columns** tab.

#### Verify the Data Connector

XLReporter retrieves data from the Data Connector using a History Group. From the **Project Explorer** select, **Tools, Connector Groups** 

Select the GE Historian connector and then select Add.

• Set the Type Raw Values and click OK.

On the **Columns** tab of the group, select the tag Name(s).

tup	Columns Time Period Filters Order			
Sele	cted Columns			
	Name	Scaling	Heading	
	GE-1 increment. 11		GE-1 increment. I1	
	GE-1.increment.12		GE-1.increment.I2	
	GE-1.increment.14		GE-1.increment.14	
	GE-1.increment.18		GE-1.increment.18	
	GE-1.increment.R4		GE-1.increment.R4	
	GE-1.increment.R8		GE-1.increment.R8	
	GE-1.increment.UI1		GE-1.increment.UI1	
	GE-1.increment.UI2		GE-1.increment.UI2	
-				

Select Preview, pick a Start date and click Refresh.

🈏 Refresh 🛯 👜 Stop	~	Date	GE-1.increment.I1	GE-1.increment.l2	GE-1.increment.14	GE-1.increment.
<ul> <li>Date</li> </ul>		1/20/2020 4:44:40 PM	2	2	2	2
Start 📶 Jan 2020		1/20/2020 4:44:41 PM	3	3	3	3
End 21 Jan 2020		1/20/2020 4:44:42 PM	4	4	4	4
Q Q ┥ 🕨	- м	1/20/2020 4:44:43 PM	5	5	5	5
		1/20/2020 4:44:44 PM	6	6	6	6
		1/20/2020 4:44:45 PM	7	7	7	7
		1/20/2020 4:44:46 PM	8	8	8	8
		1/20/2020 4:44:47 PM	9	9	9	9
		1/20/2020 4:44:48 PM	10	10	10	10
		1/20/2020 4:44:49 PM	11	11	11	11
		1/20/2020 4:44:50 PM	12	12	12	12
		1/20/2020 4:44:51 PM	13	13	13	13
		1/20/2020 4:44:52 PM	14	14	14	14
		1/20/2020 4:44:53 PM	15	15	15	15
		1/20/2020 4:44:54 PM	16	16	16	16
		1/20/2020 4:44:55 PM	17	17	17	17
		1/20/2020 4:44:56 PM	18	18	18	18
		1/20/2020 4:44:57 PM	19	19	19	19
		1/20/2020 4:44:58 PM	20	20	20	20
		1/20/2020 4:44:59 PM	21	21	21	21
		1/20/2020 4:45:00 PM	22	22	22	22
		1/20/2020 4:45:01 PM	23	23	23	23
		1/20/2020 4:45:02 PM	24	24	24	24
		* 00 0000 + 15 00 0H	25	05	25	

# Limitations

When retrieving data from the Historian, the request can time out if it takes too long to get the data. By default, the timeout setting is *60 seconds*. To change this setting, in the **Historian Administrator** click the **Data Stores** link at the top. Under the **Global Options** tab, in the **Data Queries** section, change **Maximum Query Time (seconds)**. Click **Update** when finished.

#### **Calculated and Sampled Values**

When retrieving calculated or sampled values from Historian there is a limit to the amount of values that can be returned. By default, this is *100,000*. To change this setting, in the **Historian Administrator** click the **Data Stores** link at the top. Under the **Global Options** tab, in the **Data Queries** section, change **Maximum Query Intervals**. Click **Update** when finished.

Note that this is a value count and not a row count. For example, to retrieve 1 second values for 2 tags, 172,800 values are retrieved (86,400 \* 2) so just for this request; the default limit would have to be increased.

# **Historian Plus**

This connector is used to get historical data from the GE Historian (formerly Proficy Historian) using the *ihUser* interface. This connector can only be configured locally on the Historian machine. There is no remote access.

This connector should be used when a large amount of data is required from the GE Historian. It is designed to retrieve large amounts of raw data without timing out.

This connector requires GE Historian 5.5 or above.

# Set up Historian

#### **Client Tools**

On the machine where **XLReporter** is installed, the Historian Client Tools must also be installed. These are available on the Historian installation media.

#### From the Historian Installation Program, select Install Client Tools.

The **OLE DB Driver** must be selected to install. Selecting this forces the **Historian Client Tools** to be selected as well.

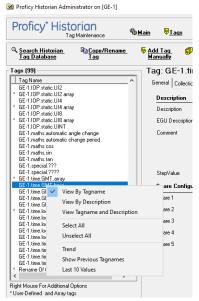
Proficy Historian Setup Maintenance		×
Select Features Select the features setup will install.		Z
Check new components you want to install or un	Check components you want to rem Description Allows you to access th Historian with an OLE C client.	ie
0.00 MB of space required on the C drive 32557.18 MB of space available on the C drive InstallShield	< <u>B</u> ack <u>N</u> ext>	Cancel

# Prerequisites

#### Verify Data Storage

From the GE Historian program group, select Historian Administrator.

- At the top click the **Tags** link.
- Click Search Historian Tag Database.
- Leave the Search window blank and click OK. All the available tags are now listed.



• Right click a tag in the list and choose Last 10 Values.

This displays the last 10 values logged to the historian for the selected tag.

### Connector

To configure the connector to Historian Plus, from the Project Explorer select Data, Connectors.

- Click Add
- Select GE Digital, Historian Plus.
- Click **OK**

Connector Name	GE_Historian_2	
Description	GEIFIX6HIST7-1	
Primary Server		
Name	GEIFIX6HIST7-1	
User	sytech	
Secondary Serve		
User		0
		Settings

#### **Primary Server**

This defines the connection to the GE Historian. The browse button [...] is provided to define.

The **Server Name** can be the physical name of the machine where the historian runs, the IP address of the machine or left blank to use the default historian defined in the Historian Interactive SQL application.

The User Name and Password settings are provided is required to connect to the GE Historian.

#### **Secondary Server**

These settings define the (optional) secondary GE Historian server to connect to if a connection to the **Primary Server** fails.

#### Settings

The **Settings** button opens the **Settings** dialog that defines characteristics of the database that are used to retrieve data.

Settings ×
Client Wait Time (sec) 60
Table/Column Delimiter Start [* End [*
Date/Time Delimiter Start [* End [*]
Date/Time Storage
Local Date and Time $$
Date format is YYYY-MM-DD
OK Cancel

Typically, these settings are defaulted correctly based on GE Historian.

If queries timeout, increase the Client Wait Time.

The delimiter and timestamp settings are typically filled in automatically for the database and can be modified for other databases.

Many databases require the Date format to be **YYYY-MM-DD** so that no interpretation needs to occur based on the Region settings of the Windows Operating System. It is recommended to always have this option checked.

# **Data Group**

The following describes the historical data group settings specific to the **GE Historian** connector. **Group Types** 

📄 Select Group Type	×
Summary Values from Server	
Summary Values from XLReporter	
◯ Raw Values	
◯ Raw Text	
◯ Sampled Values	
O Live Values	
◯ Custom Values	
Base on	
<pre> dlank&gt; </pre>	
OK Car	ncel

For **GE Historian** the following group types are available:

#### **Summary Values from Server**

This group type retrieves summary calculations directly from the historian. For GE Historian, the following calculations are available:

- Average
- Maximum
- Minimum
- Count
- Total

- Standard Deviation
- Interpolated
- Raw Average
- Raw Standard Deviation
- Raw Total
- Time Good
- First Raw Value
- Last Raw Value
- State Count
- State Time

#### Summary Values from XLReporter

This group type retrieves sampled values from the historian and performs calculations on those samples for reporting.

By default, summary values are calculated time weighted and values are propagated based on the last known value. However, to change this so that summary values are calculated strictly on the data returned check **use raw values**.

#### **Raw Values**

This group retrieves values logged to the historian between the start and end time specified.

#### **Sampled Values**

This group retrieves lab sample values from the historian between the start, end and interval specified.

#### Live Values

This group retrieves the last recorded values in the historian for every selected tag.

#### **Custom Values**

This option opens the Database Group builder where a query can be configured to retrieve data from any table available in the database connected to by the connector.

#### **Group Settings**

#### Setup Tab (Summary Values for XLReporter)

Setup Co	olumns Time	Period Filters					
		L	lescription				
		ł	Retrieval				
		F	Retrieval Retrieval Mod	Sampled	Values	~	
		f		Sampled	Values	v	

The **Retrieval** settings define how data is retrieved for the calculations selected for the group. The following settings are available:

Retrieval Mode

This setting defines how data is retrieved from the historian. For GE Historian *Sampled Values* and *Raw Values* are available.

Sampled Values use the Lab Sample retrieval mode.

- Rate
  - The interval (in seconds) that sampled values are retrieved from the historian.
- Lead Time

The amount of time (in seconds) to retrieve data before the start time.

#### Time Period Tab (Raw Values)

Setup Columns Time P	eriod Filters Order		
Period		Interval	Raw Data Retrieval
Туре	Relative $\vee$	Count	By time 🗸 🗸
		60	By time By record forward By record backward
Duration:	Current ~		Start Time
	day 🗸		
Start A			
Day	1 ~		
Time	00:00:00	Every	
		hour	

For **Raw Values**, the **Raw Data Retrieval** defines the time period for the group. The following options are available:

• By time

Using this option, raw data is retrieved between the Start and End configured.

- By record forward Using this option, raw data is retrieved from the **Start** going forward for the number of samples defined in the **Interval Count** setting. The **End** is ignored.
- By record backward

Using this option, raw data is retrieved from the **Start** going backwards for the number of samples defined in the **Interval Count** setting. The **End** is ignored.

#### **Filters Tab**

	Name	Criteria	Or	0r	Or	Τ
•	THISNODE.SPEED.F_CV	>= 25				
-	er Mode		Advanced C	riteria		
	After Time	$\sim$	#ONLYG	IOOD		

All filtering is performed on the Historian server.

# Verify the Data Connector

XLReporter retrieves data from the Data Connector using a History Group.

From the Project Explorer select, Tools, Connector Groups

Select the GE Historian connector and then select Add.

• Set the Type Raw Values and click OK.

On the **Columns** tab of the group, select the tag Name(s).

	Columns Time Period Filters Order			
Sele	ected Columns			
	Name	Scaling	Heading	
•	GE-1.increment.I1		GE-1 increment. I1	
	GE-1.increment.l2		GE-1 increment.12	
	GE-1.increment.l4		GE-1.increment.14	
	GE-1.increment.18		GE-1.increment.18	
	GE-1.increment.R4		GE-1.increment.R4	
	GE-1.increment.R8		GE-1.increment.R8	
	GE-1.increment.UI1		GE-1.increment.UI1	
	GE-1.increment.UI2		GE-1.increment.UI2	
-				
	Output Options			
	Timestamp on first column	~	Transpose	

Select **Preview**, pick a *Start* date and click **Refresh**.

ጛ Refresh 💿 Stop	~	Date	GE-1.increment.l1	GE-1.increment.l2	GE-1.increment.14	GE-1.increment
Date		1/20/2020 4:44:40 PM	2	2	2	2
Start 📶 Jan 2020		1/20/2020 4:44:41 PM	3	3	3	3
End 21 Jan 2020		1/20/2020 4:44:42 PM	4	4	4	4
0, 0, ┥ 🕨	- 🕨	1/20/2020 4:44:43 PM	5	5	5	5
		1/20/2020 4:44:44 PM	6	6	6	6
		1/20/2020 4:44:45 PM	7	7	7	7
		1/20/2020 4:44:46 PM	8	8	8	8
		1/20/2020 4:44:47 PM	9	9	9	9
		1/20/2020 4:44:48 PM	10	10	10	10
		1/20/2020 4:44:49 PM	11	11	11	11
		1/20/2020 4:44:50 PM	12	12	12	12
		1/20/2020 4:44:51 PM	13	13	13	13
		1/20/2020 4:44:52 PM	14	14	14	14
		1/20/2020 4:44:53 PM	15	15	15	15
		1/20/2020 4:44:54 PM	16	16	16	16
		1/20/2020 4:44:55 PM	17	17	17	17
		1/20/2020 4:44:56 PM	18	18	18	18
		1/20/2020 4:44:57 PM	19	19	19	19
		1/20/2020 4:44:58 PM	20	20	20	20
		1/20/2020 4:44:59 PM	21	21	21	21
		1/20/2020 4:45:00 PM	22	22	22	22
		1/20/2020 4:45:01 PM	23	23	23	23
		1/20/2020 4:45:02 PM	24	24	24	24
		<	05	05	20	~ >

#### Filter Mode

The Filter Mode determines how values are interpolated when the filtering is applied.

- *Exact Time* means that data is retrieved for the exact times when the filter condition(s) are true.
- *Before Time* means that data is retrieved from the time of the last false filter condition(s) up until the time of the true condition for each filter.
- *After Time* means that data is retrieved from the time of the true filter condition(s) up until the time of the next false condition for each filter.
- *Before and After Time* means that data is retrieved from the time of the last false filter condition(s) up until the time of the next false condition for each filter.

For more information, see the GE Historian documentation.

#### **Advanced Criteria**

Advanced Criteria provides specific, server-based criteria which can be applied to the data returned from Historian. For more information, see criteriastring in the GE Historian documentation.

# **Historian Alarms**

This connector is used to get alarms from the GE Historian (formerly Proficy Historian) using the Historian OLEDB Provider. This can be configured both locally on the Historian machine and from a remote machine.

# Set up Alarm Logging

Historian collects alarm and event data from an OPC Alarm & Event compliant server, and stores it alongside Historian process data.

#### Installation

To install, run **InstallLauncher.exe** as an **Run as Administrator**.



Select the **Install Alarm and Events** option in the historian installation wizard to install the **Historian Alarm Archiver** service.

Proficy Historian Setup M	aintenance	×
Alarm and Event Arch		
The Alarm and Event arch	ver require access to SQL Server.	
Server Name	GE-1\SQLEXPRESS	
Database Name	AEDatabase	
Use Windows Au	thentication	
Admin User	Password	
InstallShield		
	< <u>B</u> ack <u>N</u> ext >	<u>E</u> xit

During the Maintenance step of the installation,

- Set Server Name to the SQL Server instance where the alarms will be logged.
- Set **Database Name** to the name of the database in the SQL Server instanace for alarms. If this database does not exist, it will be created along with the tables needed.
- Check the box for Use Windows Authentication to connect to SQL Server. The Windows user you are logged in as should have *sysadmin* permissions to the SQL server in order to create the database and the reqired tables.

#### **Alarm Configuration**

In order for Historian to log the alarms to the newly created database, a **Collector** must be pointed to the Alarm and Events **OPC Server PROGID.** 

Open the Historian Administrator from the GE Historian program group.

• Select **Collectors** at the top of the **Historian Administrator**.

Description		
Description	GE-1_AlarmAndEventsOPCserver	
Collector Type	OPC -	]
Resources		
Computer Name	GE-1	
Memory Buffer Size (MB)	20	
Minimum Free Space (MB)	150	

• Configure the settings on the General, Configuration, Advanced, and Redundancy tabs to commence alarm logging

# Verify the Alarm Data

To check that alarms are logging, open the **Historian Interactive SQL** utility from the Historian program group.

• Log into the Historian.

	<u>F</u> ile <u>E</u> dit <u>V</u> ] <mark>⊯ ∏</mark>	ractive SQL - [GE-1] (iew <u>W</u> indow <u>H</u> elp () <u>K</u> () ()			_	_ & ×
SELE FROM	M ihAlarms			1		
	alarmid	itemid	source	datasource	tagname	alarmtype 🔺
1		FIX.RAMP.F_CV	FIX.BAMP	GE-1_iFIX		Alarms
2		FIX.OUTP3.F_CV	FIX.OUTP3	GE-1_iFIX		Alarms
3		FIX.OUTP1.F_CV	FIX.OUTP1	GE-1_iFIX		Alarms
4		FIX.INP3.F_CV	FIX.INP3	GE-1_iFIX		Alarms
5	10	FIX.INP1.F_CV	FIX.INP1	GE-1_iFIX		Alarms
4						-
	. Conseleted in	0		1,221	/2020	10:27 AM
Query	Completed in	U seconas		1/21	/2020	10:27 AM //

• At the top, enter the following query:

SELECT \* FROM ihAlarms

• Click the *button to execute the query* 

The query should return any records logged to the ihAlarms table in the SQL Server database.

# Connector

To configure the connector to iFIX, from the Project Explorer select Data, Connectors.

- Click Add
- Select GE Digital, Historian Alarms.
- Click **OK**

Historian Alarms		x
Connector Name Description	GE_Alams_1	
Description		
Primary Database		
Туре	GE Historian	
Data Source	GEIFIX6HIST7-1	
Table/Column		
Table	ihAlams	~
Date Column	Timestamp	~
	Date includes Time	
Time Column		$\sim$
		Settings
		OK Cancel

#### **Primary Database**

This defines the connection to the GE Historian. The browse button [...] is provided to define.

The **Server Name** can be the physical name of the machine where the historian runs, the IP address of the machine or left blank to use the default historian defined in the Historian Interactive SQL application.

The User Name and Password settings are provided is required to connect to the GE Historian.

#### Table/Column

Once the **Primary Database** is configured, set **Table** to the table where the alarms are being logged. This should be *ihAlarms*.

Set the **Date Column** to *Timestamp* and check **Date includes Time**.

#### Settings

The **Settings** button opens the **Settings** dialog that defines characteristics of the database that are used to retrieve data.

Settings ×
Client Wait Time (sec) 60
Table/Column Delimiter Start [ End ]]
Date/Time Delimiter Start End _'
Date/Time Storage
Local Date and Time $\checkmark$
Date format is YYYY-MM-DD
OK Cancel

Typically, these settings are defaulted correctly for the GE Historian.

If queries timeout, increase the **Client Wait Time**.

The delimiter and timestamp settings are typically filled in automatically for the database and can be modified for other databases.

Many databases require the Date format to be **YYYY-MM-DD** so that no interpretation needs to occur based on the Region settings of the Windows Operating System. It is recommended to always have this option checked.

# Data Group

The following describes the historical data group settings specific to the **GE Historian Alarms** connector.

**Group Types** 

📄 Select Group Type	×
O Summary Values from Server	
<ul> <li>Summary Values from XLReporter</li> <li>use raw values</li> </ul>	
Raw Values	
◯ Raw Text	
O Sampled Values	
◯ Live Values	
O Custom Values	
Base on	
 dlank> ~	
OK Cance	el

For GE Historian Alarms the following group types are available:

#### **Raw Values**

This group retrieves every value logged to the alarms database between the start and end time specified.

#### **Custom Values**

This option opens the Database Group builder where a query can be configured to retrieve data from any table available in the database connected to by the connector.

# Verify Data Communication

To verify communication with the Alarms and Events Server, open the Project Explorer and select the Tools tab.

- Open Connector Groups
- Select the GE Alarms connector and then select Add.
- Set the **Group Type** to *Raw Values* and click **OK**.

Under the Columns tab:

elected Columns				
Name		Scaling	Heading	
AlarmID		-	AlamID	
ItemID	bu		ItemID	
Source			Source	
DataSource			DataSource	
Tagname			Tagname	
EventCateg	ory		EventCategory	
Condition			Condition	
SubConditio	n		SubCondition	
StartTime			StartTime	
EndTime			EndTime	
AckTime			AckTime	
Message			Message	
Acked			Acked	
Severity			Severity	
Actor			Actor	
Quality			Quality	
RowCount			RowCount	

- Select the first row under the **Name** column
- Click the browse pushbutton ([...]).
- In the Tag Browser expand **Online**, **ihAlarms** and add **Items** from the lower left.
- Click **OK** to add these to the group.

To retrieve data, select **Preview.** In the **Preview** window, use the data picker to select a date and time where alarms are recorded in the database. Click **Refresh** to view data. The first 60 alarms starting at the date and time specified should be displayed.

# Group Settings



Name			Criteria	Or	Or	Or
•						
✓ Perform	by Server					
Alarm Type	•					
	History	~				
Alam	History					
Alam Events	Data					

If the **Perform by Server** option is checked, any filter configured in this tab is put into the *WHERE* clause of the query sent to the database to retrieve data for the group. Otherwise, the configured filtering is performed by the reporting engine after the values are returned. It is recommended to leave this setting checked as the performance is much better.

The Alarm Type defines how the alarms are returned from the Proficy Historian.

- *Alarms* returns an entire alarm life cycle as a single record.
- Alarm History returns separate records for every alarm transition.
- *Events* returns the simple and tracking events.

For more information, see ihAlarms in the Proficy Historian documentation.

# **Cimplicity Real-time values**

This connector is used to get real time values from Cimplicity via the Cimplicity OPC server.

# **Setup Cimplicity**

#### Verify the Project

In order for XLReporter to connect to the Cimplicity OPC Server, the Cimplicity project must be running. To do so,

- From the Windows Start menu, open Cimplicity Options
- Under the **Projects** tab, verify the project is listed in the running projects list.

# Add the Project to the OPC Server

To add the project to the CIMPLICITY OPC server, do the following:

- From the Windows Start menu, open **OPC Server** within the **Proficy HMI/SCADA CIMPLICITY** program group.
- Select Edit, Server Configuration....
- In **OPC Server Configuration**, click **Add** to add the project.
- In **Project Properties**, select the **Project name** from the drop-down list.
- Specify the CIMPLICITY **User name** and **Password** to be used for the OPC Server. This is recommended to be a highly privileged user who has access to all the points (e.g., Administrator)
- Back in **OPC Server Configuration**, select the newly added entry and click **Show this name space**.
- Make sure the **Reconcile Cache** check box is checked.
- Click **OK**.

# Prerequisites

#### Verify Communication

Communication between the OPC server and an OPC client must be verified. If an OPC client is not provided with the server, **XLReporter** provides an independent OPC client to verify connectivity and data retrieval from any OPC DA server. This client is found on **XLReporter's** product CD under **Tools, OPC\_DA**. It can also be downloaded from <u>www.SmartSights.com</u>.

To run, double-click **SampleClientDA.exe**.

To connect to an OPC server, select **Edit**, **New Server Connection** to open the **Server Properties window**.

Expand the **OPC Data Access Servers Version 2.0**, select *CIMPLICITY.HMI.OPCServer.1* and click **OK**.

From the Edit menu select New Group.

Specify Name and click OK.

Click on the group name created, and select Edit, New Item.

This opens the **Add Items** window. In the browsing section, drill into the tree and select **Leaf** items on the right. To select a leaf, highlight and click the **Add Leaves** button. Click **OK** when selection is complete.

All of the selected tags appear along with their real time values, type, quality, and timestamp.

If at any point you experience an issue with this client, contact GE Digital technical support to troubleshoot and correct these issues.

# **Remote Communication**

If XLReporter is not installed on the machine where Cimplicity is installed, the workstation must also have the OPC core components installed. To determine if the core components are installed verify the following file exists:

- C:\Windows\SysWow64\OPCEnum.exe (64-bit OS)
- C:\Windows\system32\OPCEnum.exe (32-bit OS)

If the components are not installed then they are provided in the XLReporter installation folder under *\_repairtools\OPC*. Alternatively, these can be downloaded from <u>www.opcfoundation.org</u>.

# **Server Settings**

In order to connect to Cimplicity remotely both the machine where the server is running and the machine where the client is running must have matching Windows user accounts and the client must be logged in with a matching account.

In addition, on the machine with Cimplicity, certain DCOM settings must be enabled. For details on what DCOM settings to enable, see <u>OPC and DCOM: 5 Things You Need to Know.</u>

# Windows Firewall

If the Windows Firewall is enabled on the machine where Cimplicity is running TCP Port 135 must be opened in order for remote clients to connect.

# Connector

To configure the connector to Cimplicity, from the Project Explorer select Data, Connectors.

- Click Add
- Select GE Digital, Cimplicity Real-time values.
- Click **OK**

Cimplicity Real-time	values	
Connector Name	Cimplicity_DA_1	
Description		
Primary Server		
Name	CIMPLICITY.HMI.OPCServer.1	
Node		🗹 local
		Test Connection
Secondary Serve	CIMPLICITY.HMI.OPCServer.1	
Node		🗹 local
		Test Connection
		Settings
	r	OK Cancel

#### **Primary Server**

These settings define the **Name** and **Node** of the OPC DA server. Typically, the **Name** is defaulted correctly. If the Cimplicity server is on the local machine, leave **local** checked, otherwise uncheck and specify either the name or IP address of the machine where Cimplicity is running.

Use the **Test Connection** button to verify a connection to the server.

#### **Secondary Server**

These settings define the (optional) secondary Cimplicity to connect to if a connection to the **Primary** Server fails.

#### Settings

For information on the specific settings, see the **DATA CONNECTIVITY, OPC** document.

# Verify Data Communication

To verify communication, open the **Project Explorer** and select the **Tools** tab. Launch the **System Check** application.

- Click Add
- Select the Cimplicity connector from the dropdown list.
- Click the pushbutton ([...]) next to Items to open the Tag Browser window.

			Selected Item	IS	
🚊 Online		^	Name		
👜 - Mixer			MIXED	ZONE1_TEMP	
Extruder				ZONE2_TEMP	
Reactor				_SPEED	
Water Stations				RAMPRESSURE	
Production			MINEN	_NAME NESSONE	
⊞- Wave Simulation					
Date Values					
Text Values     Jeer Defined					
● User Defined 中 把出網					
⊞-зешиж ⊞-Экструдер					
⊞-экструдер					
- 12 LU II		¥			
ems Display Name v	~				
	Description Mixer zone 1 temperature Mixer zone 2 temperature Mixer speed (RPM)				
Name Name MIXER_ZONE1_TEMP MIXER_ZONE2_TEMP	Description Mixer zone 1 temperature Mixer zone 2 temperature				
Name Name MIXER_ZONE1_TEMP MIXER_ZONE2_TEMP MIXER_SPEED	Description Mixer zone 1 temperature Mixer zone 2 temperature Mixer speed (RPM)	Þ			
Name Name MIXER_ZONE1_TEMP MIXER_ZONE2_TEMP MIXER_SPEED	Description Mixer zone 1 temperature Mixer zone 2 temperature Mixer speed (RPM)	Þ	2		
Name Name Numer ZONE1_TEMP MIXER_ZONE1_TEMP MIXER_SPEED MIXER_RAMPRESSURE	Description Mixer zone 1 temperature Mixer zone 2 temperature Mixer speed (RPM)	>	2		
Name Name MIXER_ZONE1_TEMP MIXER_ZONE2_TEMP MIXER_SPEED	Description Mixer zone 1 temperature Mixer zone 2 temperature Mixer speed (RPM)	Þ	2		

- Select one or more tags, click **OK**
- Click **Start** to verify the communication.

System Check			×
File Edit Tools			
Connector General			
🗄 🖶 Add 🖉 Modify 📎	🕻 Delete 🛛 🔛 Clear 🛛 🎯 Start		
Connector	Source	Description	Value
Cimplicity_DA	MIXER_ZONE1_TEMP	Mixer zone 1 temperature	66.63631
Cimplicity_DA	MIXER_ZONE2_TEMP	Mixer zone 2 temperature	68.38348
Cimplicity_DA	MIXER_SPEED	Mixer speed (RPM)	59.32098
Cimplicity_DA	MIXER_RAMPRESSURE	Mixer ram pressure	81.69901
<			>
Clear			
		Initialise Server and I Open Server and iter Read Server items (n Update display (ms) :	n s (m s) : 36 n s) : 0

#### **Primary Server**

These settings define the **Name** and **Node** of the OPC DA server. Typically, the **Name** is defaulted correctly. If the Cimplicity server is on the local machine, leave **local** checked, otherwise uncheck and specify either the name or IP address of the machine where Cimplicity is running.

Use the **Test Connection** button to verify a connection to the server.

#### Secondary Server

These settings define the (optional) secondary Cimplicity to connect to if a connection to the **Primary Server** fails.

#### Settings

For information on the specific settings, see the DATA CONNECTIVITY, OPC document.

# **Cimplicity Historical values**

This connector is used to get historical values from the Cimplicity Database Logger.

# Set up Cimplicity

To set up data logging in Cimplicity, from the **CIMPLICITY Workbench**, double-click **Database Logger**.

To determine what database the historical data is logged to select Edit, Logging Properties.

Under the **Default Point Connection** tab, choose an existing **ODBC data source**. If there is not one there that fits your needs, you can create a new ODBC data source from **XLReporter's Project Explorer**, under the **Tools** tab by selecting **Database**, **DSN Settings**.

There are 2 methods of historical data logging, **Point Data** logging and **Group Point** logging. With **Point Data** logging every configured point is logged as a separate record. With **Group Point** logging every configured point is logged as a single record at the same time.

Cimplicity has provided a default table for both **Point Data** logging (*DATA\_LOG*) and Group Point logging (*GROUP\_LOG*). You can either add points to these tables or create your own by selecting **File, New Table**.

To add points to a table, right-click the table and select Add Points.

### Connector

To configure the connector to Cimplicity, from the Project Explorer select Data, Connectors.

- Click Add
- Select GE Digital, Cimplicity Historical values.
- Click **OK**

Cimplicity Historical val	ues		x
Connector Name Description	Cimplicity_History_1		
Primary Database	-		
Туре	Microsoft SQL Server	-	
Data Source	192.168.9.45\sqlserv	er16	
Table			
Name	DATA_LOG		$\sim$
Туре	Point Data	O Group Point	
			Settings
		ОК	Cancel

#### **Primary Database**

This defines the connection to the database where the Cimplicity Data Logger is logging. The browse button [...] is provided to define.

#### Table

Once the connection is made, under Table, specify the Name of the table containing the logged data.

The default Table for Point Data is DATA\_LOG. The default table for Group Point is GROUP\_LOG.

As stated above, **Point Data**, causes every configured point to be logged as a separate record (also known as a *Narrow Table*) and **Group Point** causes every configured point to be logged as a single record (also known as a *Wide Table*). For more information, see the **Cimplicity** documentation.

#### Settings

The **Settings** button opens the **Settings** dialog that defines characteristics of the database that are used to retrieve data.

Settings	x
Client Wait Time (sec) 60	
Table/Column Delimiter End ]	
Date/Time Delimiter End ['	ŗ
Date/Time Storage	
Local Date and Time $\sim$	
Date format is YYYY-MM-DD	
OK Cancel	

Typically, these settings are defaulted correctly for the Primary Database.

If queries timeout, increase the **Client Wait Time**.

The delimiter and timestamp settings are typically filled in automatically for the database and can be modified for other databases.

The **Date/Time Storage** settings define how timestamps are stored in the database. Using this setting the timestamps are manipulated when data is retrieved so that local timestamps are submitted in and returned.

Many databases require the Date format to be **YYYY-MM-DD** so that no interpretation needs to occur based on the Region settings of the Windows Operating System. It is recommended to always have this option checked.

# **Data Group**

The following describes the historical data group settings specific to the **Cimplicity Historical Values** connector.

**Group Types** 

🚞 Select Group Type	$\times$
O Summary Values from Server	
<ul> <li>Summary Values from XLReporter</li> <li>use raw values</li> </ul>	
◯ Raw Values	
O Raw Text	
◯ Sampled Values	
◯ Live Values	
O Custom Values	
Base on	
 dolank>   	
OK Cance	əl

For Cimplicity Historical Values the following group types are available:

#### Summary Values from XLReporter

This group type retrieves sampled values from the database and performs calculations on those samples for reporting.

By default, summary values are calculated time weighted and values are propagated based on the last known value. However, to change this so that summary values are calculated strictly on the data returned check **use raw values**.

#### Raw Values

This group retrieves every numeric value logged to the database between the start and end time specified.

#### **Custom Values**

This option opens the Database Group builder where a query can be configured to retrieve data from any table in the database.

#### **Group Settings**

#### Setup Tab

Setup	Columns	Time Period	Filters						
	Columna	Time Fenda	TILCIO						
			D	escription					
			F	letrieval					
			F		ieval Mode	Raw Values	~		
			F	Retr	ieval Mode	Raw Values	v		

#### **Retrieval (Summary Values for XLReporter Group)**

The **Retrieval** settings define how data is retrieved for the calculations selected for the group. The following settings are available:

• Retrieval Mode

This setting defines how data is retrieved from the historian. For Cimplicity only *Raw Values* are available.

Lead Time

The amount of time (in seconds) to retrieve data before the start time.

#### Verify the Data Connector

**XLReporter** retrieves data from the **Data Connector** using a **History Group**. To verify communication, open the **Project Explorer** and select the **Tools** tab and open **Connector Groups** Select the **Cimplicity Historical values** connector and then select Add.

Set the Type **Raw Values** and click OK.

On the **Columns** tab of the group, select the tag Name(s) using the ([...]) pushbutton. Select **Preview**, pick a Start date and click **Refresh**.

# **Cimplicity Alarms**

This connector is used to get alarms from Cimplicity when they are logged to a relational database.

# Set up Cimplicity

To add points to the Cimplicity alarm log you can do so either through the **Point Properties** dialog box or by adding to the *ALARM\_LOG* table in the **Database Logger**.

### Connector

To configure the connector to **Cimplicity Alarms**, from the **Project Explorer** select **Data**, **Connectors**.

- Click Add
- Select GE Digital, Cimplicity Alarms.
- Click OK

Cimplicity Alarms		x
Connector Name	Cimplicity_Alarms_1	
Description		
Primary Database		
Туре	Microsoft SQL Server	
Data Source	192.168.9.45\sqlserver16	
Table/Column		
Table	ALARM_LOG	~
Date Column	timestamp	~
	Date includes Time	
Time Column		$\sim$
		Settings
		OK Cancel

#### **Primary Database**

This defines the connection to the database where the Cimplicity alarms are logging. The browse button [...] is provided to define.

#### Table/Column

Once the connection is made, under **Table**, specify the **Name** of the table containing the alarms. This is *ALARM\_LOG*. Set **Date Column** to *timestamp* and check **Date includes time**.

#### Settings

The **Settings** button opens the **Settings** dialog that defines characteristics of the database that are used to retrieve data.

Settings					x
Client Wait Time	(sec)	60	* *		
Table/Column D Start [	)elimiter —— [	]	End ]		-
Date/Time Delim Start [	·	]	End 1		*
Date/Time Stora	age				~
1	Local Date an	d Time	$\sim$		
	Date for	nat is YYYY-	MM-DD		
			ОК	Cancel	

Typically, these settings are defaulted correctly for the **Primary Database**.

If queries timeout, increase the Client Wait Time.

The delimiter and timestamp settings are typically filled in automatically for the database and can be modified for other databases.

The **Date/Time Storage** settings define how timestamps are stored in the database. Using this setting the timestamps are manipulated when data is retrieved so that local timestamps are submitted in and returned.

Many databases require the Date format to be **YYYY-MM-DD** so that no interpretation needs to occur based on the Region settings of the Windows Operating System. It is recommended to always have this option checked.

# Data Group

The following describes the historical data group settings specific to the **Cimplicity Alarms** connector. **Group Types** 

Select Group Type	×
O Summary Values from Server	
<ul> <li>Summary Values from XLReporter</li> <li>use raw values</li> </ul>	
Raw Values	
◯ Raw Text	
O Sampled Values	
O Live Values	
O Custom Values	
Base on	
 dlank>   	
OK Cance	el

For **Cimplicity Alarms** the following group types are available:

#### **Raw Values**

This group retrieves every value logged to the alarms database between the start and end time specified.

#### **Custom Values**

This option opens the Database Group builder where a query can be configured to retrieve data from any table available in the database connected to by the connector.

#### **Group Settings:**

#### **Filters** Tab

If the **Perform by Server** option is checked, any filter configured in this tab is put into the *WHERE* clause of the query sent to the database to retrieve data for the group. Otherwise, the configured filtering is performed by the reporting engine after the values are returned. It is recommended to leave this setting checked as the performance is much better.

# **Verify Data Communication**

To verify communication with the Alarms and Events Server, open the Project Explorer and select the Tools tab. Open Connector Groups.

- Select the Cimplicity Alarms connector and then select Add.
- Set the Group Type to Raw Values and click OK.
- Under the **Columns** tab:

📄 Raw	Values (GE_Alarms)			×
File Ed	lit Preview			
Setup	Columns Time Period Filters			
Sele	cted Columns			
	Name	Scaling	Heading	^
	AlamID	5	AlamID	
	ItemID		ItemID	
	Source		Source	
	DataSource		DataSource	
	Tagname		Tagname	
	EventCategory		EventCategory	
	Condition		Condition	
	SubCondition		SubCondition	
	Start Time		StartTime	
	EndTime		EndTime	
	AckTime		AckTime	
	Message		Message	
	Acked		Acked	
	Severity		Severity	
	Actor		Actor	
	Quality		Quality	
	RowCount		RowCount	<b>~</b>
	Output Options			
			7	
	Timestamp on first column	~	Transpose	
	Empty rows between records	s 0	Include Heading	

- Select the first row under the Name column
- Click the browse pushbutton ([...]).
- In the Tag Browser expand Online, ALARM\_LOG and add Items from the lower left.
- Click **OK** to add these to the group.

To retrieve data, select **Preview**. In the Preview window, use the data picker to select a date and time where alarms are recorded in the database. Click **Refresh** to view data. The first 60 alarms starting at the date and time specified should be displayed.

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