Inductive Automation Connectors

Ignition Real-time values

This connector is used to get real time data from Ignition using the Ignition OPC UA server.

Prerequisites

Verify OPC-UA Module

Ignition settings are available through a web browser. Open a web browser and navigate to:

localhost:8088

Log in to Ignition.



On the left, select Config, then under OPC UA select Server Settings.

Endpoint Config	uration
Bind Port	62541 (default: 62,541)
Bind Addresses	111.111.1.11 (default: localhost)
Endpoint Addresses	111.111.1.11, <hostname>,<localhost> (default: <hostname>, <localhost>)</localhost></hostname></localhost></hostname>
Security Policies	None (default: Basic256Sha256)
Authentication	
Anonymous Access Allowed	(default: false)
User Source	opcua-module 🔻

• Set the Bind Address to the IP address of the machine where the OPC UA server resides.

- Enter the same IP address as the first entry in the Endpoint Address field.
- Set Security Policies to those you wish to support.
- Click Save Changes.



On the left, select Config. Under OPC CLIENT select OPC Connections.

Config > Opc > OPC Connections						
	Name	Туре	Description	Read Only	Status	
	Ignition OPC UA Server		 A "loopback" connection to the Ignition OPC UA server running on this gateway. 	false	Connected	More 👻 edit
	→ Create new OPC Connecti	on				endpoint
	Note: For details about a conne	ction's stati	us, see the OPC Connection Status page.			delete

Next to the **Ignition OPC UA Server**, expand the **More** drop-down list and select **endpoint**. If the **Endpoint URL** contains *localhost* replace it with the IP address of the machine where the OPC UA server resides.

- Click Next three times.
- Click Finish.
- Click Save Changes.



On the left, select **Config**, then under **SYSTEM** select **Modules**.

Inductive Automation

View Certificate					
Name	Version	Description	License	State	
Alarm Notification	5.0.7 (b2019122014)	Provides alarm notifications via email	Trial	Running	More 🔻 restart
Allen-Bradley Driver	5.0.7 (b2019122014)	Allen-Bradley driver suite for the OPC UA module.	Trial	Running	More 🔻 restart
DNP3 Driver	3.0.7 (b2019122014)	A driver supporting DNP3 (Distributed Network Protocol) device.	Trial	Running	More 🔻 restart
Enterprise Administration	3.0.7 (b2019122014)	A remote Gateway administration system, allowing you to manage Gateways and automate tasks from a single controller.	Trial	Running	More 🔻 restart
Logix Driver	4.0.7 (b2019122014)	A driver for communicating with Allen-Bradley Logix5000 series PLCs, and includes firmware version 21 support	Trial	Running	More 🔻 restart
Modbus Driver	6.0.7 (b2019122014)	A driver for communicating with devices via Modbus-TCP.	Trial	Running	More 🔻 restart
Omron Driver	3.0.7 (b2019122014)	A driver for Omron NJ series PLCs.	Trial	Running	More 🔻 restart
OPC-UA	8.0.7 (b2019122014)	Provides Ignition's OPC UA client and server functionality.	Trial	Running	More 🔻 🔽 restart
OpcCom	5.0.7 (b2019122014)	Bridge that exposes COM based OPC-DA servers to the system.	Trial	Running	More 🔻 restart
Perspective	1.0.7 (b2019122014)	A module that provides modern, responsive html based graphical interfaces for Ignition projects.	Trial	Running	More 🔻 restart
Reporting	5.0.7 (b2019122014)	Adds reporting capability.	Trial	Running	More 🔻 restart
SFC	4.0.7 (b2019122014)	Sequential Function Charts are customizable logic execution environments.	Trial	Running	More 🔻 restart

Make sure the State for the OPC-UA module is Running. If it is not, click the button to Start.

Remote Communication

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

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

If the components are not installed, they are provided in the tools folder of the installation or from www.opcfoundation.org.

Connector

To configure the connector to the Ignition OPC UA server, from the **Project Explorer** select **Data**, **Connectors**.

- Click Add
- Select Inductive Automation, Ignition Real-time values
- Click OK

OPC UA Settings	-		×
Connector Name Ignition_UA_1			
Server Connection			
Endpoint Filter Host Name		Port	
opc.tcp ~ 111.111.1.11		62541	
Servers at Host			
Ignition OPC UA Server	~	Find	
User Identity			
user		Select.	
Security Profile			
None Best Available Specific			
opc.tcp://111.111.1.11:62541 [SignAndEncrypt:Basic256Sha256:Bina	ry]	Select.	
Description Value			
		Connec	ot
	Apply	Clo	se

Under the Server tab, for **Host Name**, select or enter the name or IP address of the machine where the server is running. For **Port** specify the **Bind Port** as configured in the **Ignition OPC UA Settings**. This is typically either 4096 or 62541.

For Servers at Host click Find and then choose Ignition OPC UA Server.

If no servers populate or this times out, append */discovery* to the end of the **Port** number and click **Find** again. After selecting *Ignition OPC UA Server*, remove */discovery* from the port number field.

For User Identity click Select to specify.

Authenticate Se	rver		×
Connection Settin Server URL	igs Ignition OPC U	A Server	
Authentication Set	tings		
 User Name 	User Name Password	opcuauser	
🔿 X509 (Dir)	Certificate		
() X509 (Store)	Store Path Certificate		
Apply	Close		

For Ignition this can be either *Anonymous* or *User Name*. Anonymous can be used if the **Anonymous Access Allowed** setting is enabled in the **Ignition OPC UA Settings**.

Security Profile defines the endpoint to connect to for the Ignition OPC UA Server. Select the profile that matches the **Security Policies** set in the **Ignition OPC UA Settings**. To use a specific endpoint, select Specific and click the Select button.

Click **Get Endpoints** to get the list of available endpoints, select the one that best fits with the server settings and click **OK**.

Click **Connect** to ensure connectivity. This may require an exchange of certificates between the client and the server. If prompted to exchange, click **Yes**. This action requires Windows administrator rights.

If the **Connect** fails, be sure that the client certificate is trusted by the server and then attempt to **Connect** again. For more information, see the Trusted Clients section below.

Under the **Connection** tab are **Certificate** options and general **Settings**.

OPC UA Setting	js		_		×
Connector Name	Ignition_UA_1				
Server Conne	ection				
Certific	ates				
	Cre	ate Client Certificate			
	Tru	ist Server Certificate			
Setting					
Re	quest timeout (sec)	20			
W	ait before request (sec)	0			
Re	quest retries before fail	2			
Re	quest retry interval (msec)	100			
			Apply	Clo	ose

The Client Certificate is automatically created on installation. If required, to recreate the certificate select **Create Client Certificate**. For most OPC UA servers, the default settings will be sufficient, but if the server requires more advanced certificate settings you can specify them with the **Advanced** button.

Trusted Clients

In some cases, the client must be accepted by the server to make requests. From within Ignition, select **Config, OPC UA, Security**.

Under the Server tab, in Quarantined Certificates, accept the client certificate listed.

Verify Data Communication

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

- Click Add
- Choose the Ignition OPC-UA Connector from the dropdown list
- Click the pushbutton ([...]) next to Items to open the Tag Browser window.
- Select one or more tags, click **OK**
- Click **Start** to verify the communication

Ignition Historical values

This connector is used to get historical data from the Ignition Historical Tag Provider database.

Set up Historical Value Log

Ignition settings are available through a web browser. Open a web browser and navigate to: localhost:8088

Log in to Ignition.



On the left, select Config, then under Databases select Connections.

🔽 lg	nition-Ignition - Ignition Gatew 🗙	+						- 🗆 ×
< →	C (i) localhost:8088/we	eb/config/database.connectio	ons?26					☆ \varTheta :
3 Ig	nition-Ignition							≗SyTech Sign Out →
lgni	tion						Help 😮	Get Designer
♠	SYSTEM	Config > Database > Da	tabase Connections					
Home	Overview	Trial Mode 1:45:36 We'r	e glad you're test driving our sol	tware. Have fun.				Activate Ignition
du	Backup/Restore							
Status	Ignition Exchange Licensing	✓ Successfully u	pdated Database Connect	ion "SQLServer"				
Config	Modules	Name	Description	JDBC Driver	Translator	Status		
	Projects							delete edit
	Redundancy Gateway Settings	SQLServer	DB	Microsoft SQLServer	MSSQL	Valid		delete
		→ Create new Data	abase Connection					
	NETWORKING	Notes For details of		ee the Database Connection Status page.				
	Web Server Gateway Network	Note: For details ab	out a connection's status, si	e the Database Connection Status page.				
	Email Settings							
	SECURITY							
	Auditing							
	Users, Roles							
	Service Security Identity Providers							
	Security Levels							
	Security Zones							
	DATABASES							
	Drivers							
0	Store and Forward							
	Q Search							
	4 Search							-

• Click Create new Database Connection...

💋 Ignition-Ignition - Igi	nition Gatew × +			-	
→ C 🛈 lo	calhost:8088/web/config/c	database.connect	ions?27	\$	0
Ignition-Ignition				≗SyTech	Sign Ou
gnition			Help 🛛	Get De:	signer
SYSTEM	Config	g > Database > D	atabase Connections		
e Overview	Trial Mo	ode 1:43:41 We	re glad you're test driving our software. Have fun.	Activa	te Igniti
Backup/Res	tore				
Ignition Excl	hange				
Licensing	l i i i i i i i i i i i i i i i i i i i	Main Properties			
Modules					
Projects		Vame	SQLServer Warning: Changing the name of a database connection is risky. Any projects that refer to this connection by name (instead of refering to their p	roject default	
Redundancy Gateway Sel	y	vallie	will start causing errors trying to connect to a connection that no longer exists. Please verify that no projects refer to this connection by name, a ones that do.	and update th	e
Gateway Set	tungs		ones unacido.		
NETWORKING			DB		
Web Server	C	Description			
Gateway Ne	twork		h h		
Email Settin	lgs				_
SECURITY		IDBC Driver	Microsoft SQLServer v		
Auditing			The JDBC driver dictates the type of database that this connection can connect to. It cannot be changed once created.		
Users, Roles					-
Service Secu	urity		jdbc:sqlserver://SY020\SQLServer16 The Connect URL is JDBC-driver specific. It usually contains the address of the machine that the database is running on.		
Identity Prov			The format of the SQL Server connect URL is:		
Security Lev			jdbc:sqlserver:// host\instanceName[:port] With the three parameters (in bold)		
Security Zor	nes (Connect URL	host: The host name or IP address of the database server.		
DATABASES			instanceName: (optional) the instance to connect to on the host. If not specified, a connection to the default instance is made. port: (optional) the port to connect to. The default is 1433. If you are using the default, you can omit the port and the preceding ':'.		
Connection	IS				
Drivers			For SQL Server, you specify the database name to connect to using the databaseName property in the Extra Connection Properties.		
Store and Fo		Jsername	sa		
Q Search.		Change	Check this box to change the existing password.		

Make the connection to an available database like MySQL or Microsoft SQL Server/SQL Server Express.

Under the **Configure** tab, on the left, click **Tags**, **History** and create a new **Historical Tag Provider**.

	3/web/config/tags.history?60		<u>۲</u>
ition		Help 🕲 🛛 🕞	esig
SYSTEM	Config > Tags > Histo	ry	
Overview	Trial Mode 8:56:59 We	Yre glad you're test driving our software. Have fun.	rate Ig
Backup/Restore			
Ignition Exchange			
Licensing	Main		
Modules			
Projects Redundancy	Provider Name	SQLServer	
Gateway Settings	Enabled		
NETWORKING		(default true)	
Web Server			
Gateway Network	Description		
Email Settings		li li	
SECURITY			
Auditing	Data Partitionin	ng sa	
Users, Roles		The built-in partitioning system breaks up data into separate tables of a specified time frame. This can improve performance and make certain mainten	ince
Service Security	Enable Partitioning	tasks easier.	nec
Identity Providers Security Levels		(default: true)	
Security Zones		1	
Control Loneo	Partition Length	A How big a data partition should be (in time, with the units below)	
DATABASES		(default: 1)	
Connections	Partition Units	Months v	
Drivers	Partition Units		
	Partition Units	(default: MONTH)	

Inductive Automation recommends enabling **Partitioning** to make data retrieval faster. This is supported by **XLReporter** at any **Unit** and **Length** available.

Enable Tag History

Select the **Design Launcher** from the program group and launch the project.

Sylech - Ignition-Ignition - Ignition Designer			
File Edit View Project Component	Alignment Shape		
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Project Browser	e -	×	1200
Q- Filter	Project Properties		
Q. Fiber Image: Separation of response <	Project Properties J		
All Providers Rename Delete	Delete	~ 	
Vision Property Editor	Ctrl+X B ¹ =	×	
E 24 m · Cut	Ctrl+C	-	
E Common			
Name	Ctrl+V	GD 7.	*
Border Copy Tag Path	- D (e é	
E Appearance V New Tag	•		
Background Co 💯 Multi-instance Wizard	i 🗸 🖌 🖉	60	
C+ Export		Ť	
-D Import Tags		6	
Restart Tag			
C Refresh Providers		-	
Le manean Providers		🔘 Welcome 🛅 Main Window 🗡	x
Container 'Root Container'			

Under the Tag Browser panel select each tag to log historically, right click and select Edit Tag.

 History 		
History Enabled	true	*
Storage Provider		SQLServer 🔻
Deadband Style	Auto	-
Deadband Mode	Absolute	-
Historical Deadband		0.01
Sample Mode	On Change	-
Min Time Between Samples		1
Min Time Units	Seconds	•
Max Time Between Samples		0 ~

- Select the **History** category on the left
- Set **History Enabled** to true.
- Set Storage Provider to the database connection configured. Click Apply when finished.

Prerequisites

Verify Database

Open the database configured as the database connector using the tool provided by the database vendor. If the database is Microsoft SQL Server or SQL Server Express, the **SQL Server Management Studio** is provided. If the database is **MySQL**, the **MySQL Workbench** is provided. Open the application and connect to the database.

ile Edit View Project Debug Tools Window		SQL Server Ma	nagement stu	uio			Quick Launch (Ctrl+			
🌀 - 💿 🏠 - 'n - 🖕 💾 🔐 😫 New Query 📗	à 📸 📸	🌇 🕹 🖓	19-9	- 🔛				- 🗐 Gener	ic Debugge	r = 🚆
字 战 Ignition - I ? Execute De	ebug 🔳	V 17 🗗 🔒	1 1 1 1	080		-€ ≥+ A3				
bject Explorer 🔹 👎		uery1.sql - SY0	6.lgnition (sa	(56)) ÷¤ ×						
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□ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □	-	⊟SELECT	TOP (10	00) [tag	gid]					
Database Diagrams			[intval	ue]						
Tables			[floatv	aluel						
🗉 🚞 System Tables			[string							
FileTables			[dateva	-						
External Tables			[datein		1					
dbo.sqlt_data_1_2020_01 dbo.sqlth_drv					1					
 Idbo.sqlth_drv dbo.sqlth partitions 			[t_stam	-						
dbo.sqth_products		FROM	[lgniti	on].[dbo	o].[sq1	t_data_1	_2020_01]			
🗉 🧾 dbo.sqlth_scinfo										
🗉 🧾 dbo.sqlth_te										
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	11									
 Wiews External Resources Synonyms 										
	133 9									1
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Wiews Jessenal Resources Jessenal Resources Programmability Jessenice Broker Jessenice Broker Jessenal	1 2 3 4 5 6 7 8	Results Image: Metal introduct 1 2 2 23 3 5 4 24 4 25 4 26 4 27 4 28	e floatvalue NULL NULL NULL NULL NULL NULL NULL NUL	NULL NULL NULL NULL NULL NULL NULL	NULL NULL NULL NULL NULL	192 192 192 192 192 192 192 192 192 192	1579816539416 1579818255264 1579818255264 1579818287469 1579818287469 1579818360567 1579818360567 1579818420629 1579818480797			1
Wiews Jessenal Resources Jessenal Resources Programmability Jessenice Broker Jessenice Broker Jessenal	1 2 3 4 5 6 7	Results Image: Mean of the second secon	e floatvalue NULL NULL NULL NULL NULL NULL NULL	NULL NULL NULL NULL NULL NULL	NULL NULL NULL NULL NULL NULL NULL	192 192 192 192 192 192 192 192 192	1579816539416 1579818255264 1579818271784 1579818287469 1579818300479 1579818360567 1579818420629			
Wiews Jessenal Resources Jessenal Resources Programmability Jessenice Broker Jessenice Broker Jessenal	1 2 3 4 5 6 7 8 9	Results Image: Metal introduct 1 2 2 23 3 5 4 24 4 25 4 26 4 27 4 28 4 29	e floatvalue NULL NULL NULL NULL NULL NULL NULL NUL	NULL NULL NULL NULL NULL NULL NULL NULL	NULL NULL NULL NULL NULL NULL NULL NULL	192 192 192 192 192 192 192 192 192 192	1579816539416 1579818255264 15798182571784 1579818287459 1579818300479 1579818300567 1579818420629 1573818420629 1573818420737)
Wiews Jessenal Resources Jessenal Resources Programmability Jessenice Broker Jessenice Broker Jessenal	1 2 3 4 5 6 7 8 9 10	Results Image: Marcology of the second	e floatvalue NULL NULL NULL NULL NULL NULL NULL NUL	NULL NULL NULL NULL NULL NULL NULL NULL	NULL NULL NULL NULL NULL NULL NULL NULL	192 192 192 192 192 192 192 192 192 192 192 192 192 192 192 192 192 192 192 192	1579816539416 1579818255264 1579818255264 1579818287459 1579818287459 1579818300479 1579818420629 1579818420629 1579818420737 1579818540392 1579818540392)
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Expand the Database configured for the history logs, then expand **Tables**. Right-click the *sqlth_te* and *sqlt_data* table with the most recent date on it and choose **Select Top 1000 Rows**.

If no data is returned contact Inductive Automation technical support and correct these issues.

SQLite Considerations

XLReporter does not support connections to Ignition History when it is configured to log to SQLite. Inductive Automation does <u>not</u> recommend SQLite for production systems as a historian database.

Connector

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

- Click Add
- Select Inductive Automation, Ignition Historical Values
- Click OK

Ignition Historical val	ues		
Connector Name	Ignition_History_1		
Description			
Primary Server			
Name	192.168.9.45\sqlserv	ver16	
User	sa		
Secondary Serve	r		
Name			
User			
			Settings
		OK	Cancel

Primary Server

This defines a connection to the database where Ignition is logging historical data. A browse button [...] is provided to define.

Secondary Server

These settings define the (optional) secondary Ignition 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)	50 🔹
Table/Column Delimiter Start [[]	End]
Date/Time Delimiter Start ['	End [
Date/Time Storage	
Local Date and	Time V
Date form	at 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 **Ignition Historical Values** connector.

Group Types

📄 Select Group Type 🛛 🗙
Summary Values from Server
 Summary Values from XLReporter use raw values
◯ Raw Values
◯ Raw Text
◯ Sampled Values
O Live Values
O Custom Values
Base on
<pre></pre>
OK Cancel

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 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

с L	dit Previ	ew					
etun	Columne	Time Period	Filtere				
	Coldinina	Time renou	Theory				
			Descr	iption			
			Retrie	aval			
			Retrie	eval Retrieval Mode	Raw Values	v	
			Retrie	Retrieval Mode		y	
			Retrie		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 Ignition only *Raw Values* are available.

• Lead Time

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

Verify the Data Connector

From the XLReporter Project Explorer select, Tools, Connector Groups.

Select the Ignition historical 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).

		Selected Items	
₽·· Variables		Name	
i⊡ Ignition_History		sys_second	
er-Catalog ⊟-Online		sys_minute	
		sys_hour	
+- Float		sys_day	
+ String		sys_month	
. DateTime		sys_year	
isplay Name \vee	>		
Isplay Name ~			
isplay Name ~ Name system_second	2		
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Isplay Name v Anne second ys_day ys_hour			
isplay Name V Iame Vame Vame Vame Vame Vame Vame Vame V	<		
isplay Name Vame Vame system_second sys_four sys_four sys_month	<		
Isplay Name Vame Vame second sys_day sys_four sys_minute sys_minute sys_month sys_second	~		
Isplay Name Vame Vame second sys_day sys_four sys_minute sys_minute sys_month sys_second	~		
ams isplay Name Name system_second sys_faur sys_four sys_month sys_second sys_year	~		

Select Preview, pick a Start date and click Refresh.

Ignition Transaction Group values

This connector is used to get historical data from an Ignition Transaction Group.

Set up Historical Value Log

Ignition settings are available through a web browser. Open a web browser and navigate to:

localhost:8088

Log in to Ignition.



On the left, select Config, then under Databases select Connections.

/ Ignit	tion-Ignition - Ignition Gate \sim X	+					- U
\rightarrow	C localhost:8088/w	eb/config/database.connectio	ns?26				\$ 8
lgni	tion-Ignition						💄 SyTech Sign Ou
nit	ion						Help 🚱 Get Designer
		Config > Database > Da	tabase Connections				
	SYSTEM	Trial Mode 1:45:36 We're		ftware. Have fun.			Activate Ignit
	Overview Backup/Restore	That mode Thorson in	- 				
s	Ignition Exchange						
	Licensing	 Successfully u 	pdated Database Connect	ion "SQLServer"			
z	Modules	Name	Description	JDBC Driver	Translator	Status	
	Projects						
	Redundancy	SQLServer	DB	Microsoft SQLServer	MSSQL	Valid	delete edit
	Gateway Settings						
	NETWORKING	→ Create new Data	abase Connection				
	Web Server	Note: For details abo	out a connection's status, s	ee the Database Connection Status page.			
	Gateway Network						
	Email Settings						
	SECURITY						
	Auditing						
	Users, Roles						
	Service Security						
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	Security Zones						
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• Click Create new Database Connection...

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inition		Help 🚱	Get Designer
SYSTEM	Config > Database >	Database Connections	
ne Overview	Trial Mode 1:43:41 V	ie're glad you're test driving our software. Have fun.	Activate Igniti
Backup/Restore			
Licensing	Main Propertie	15	
fig Modules Projects Redundancy Gateway Settings	Name	SQLServer Warning: Changing the name of a database connection is risky. Any projects that refer to this connection by name (instead of refering to their pr will start: causing errors trying to connect to a connection that no longer exists. Please verify that no projects refer to this connection by name, a ones that do.	oject default) nd update the
NETWORKING Web Server Gateway Network Email Settings	Description	DB .	
SECURITY	JDBC Driver	Microsoft SQLServer • The JDBC driver dictates the type of database that this connection can connect to. It cannot be changed once created.	
Users, Roles Service Security Identity Providers Security Levels Security Zones DATABASES Connections	Connect URL	Jdbc:sqlserver://SY020/SQLServer16 The Connect URL is JDBC-driver specific. It usually contains the address of the machine that the database is running on. The format of the SQL Server connect URL is jdbc:sqlserver://hostYintercelame[ipert]) With the three parameters (inbold) host: The host name or IP address of the database server. instanceName: (optional) the instance to connect to on the host. If not specified, a connection to the default instance is made. port: (optional) the port to connect to. The default is 1433. If you are using the default, you can omit the port and the preceding ½.	
Drivers Store and Forward	Username	For SQL Server, you specify the database name to connect to using the databasekane property in the Extra Connection Properties.	

Make the connection to an available database like MySQL or Microsoft SQL Server/SQL Server Express.

Set up Transaction Group

Select the Design Launcher from the program group and launch the project.



Under the **Project Browser** panel, right click **Transaction Groups** and select **New Transaction Group**, **New Historical Group**.

- Enter a Name.
- Click Create Group.

Project Browser Q~ Filter	-	_ × /3	New Group			Þ E	nabled 📄 Disal	bled Pause
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To add tags to the **Transaction Group**, drag and drop the tags from the **Tag Browser** panel of the **Ignition Designer**.

Under the **Action** tab on the right,

Action	💋 Trigger 🛛 🗐	Options
Execution S	cheduling:	
🔾 Timer	Schedule	
1	second(s)	-
Data sourc	e:	
SQLServer	r	
Table name	2:	
group_tab	le	
Automa	tically create table	
Use cus	tom index column:	group_table_ndx
🗹 Store tir	mestamp to:	t_stamp
Store qu	uality code to:	quality_code
Delete i	records older than:	
1 0	lay(s) 🔻	
<	1111010	>

- Set **Execution Scheduling** to the rate at which data should be collected for the group.
- Set **Data source** to the database connection configured.
- Set **Table name** to the name of the table to log to in the database.
- If the table specified does not exist, check **Automatically create table** to ensure it is created in the database.
- Check **Start** timestamp to and leave the setting as *t_stamp*.

Click **Enabled** when finished.

Prerequisites

Verify Data Log

Select the **Design Launcher** from the program group and launch the project. Under the **Project Browser** panel, open the transaction group.

Under **Table name**, click the browse database option $\boxed{10}$.

atabase Query Brow							Execute
<	0: 1000 rows			1			<u>></u>
💋 Resultset 1						<	SQLServer 🔹 🕻
group_tabl	Sys_Second	Sys_Minute	Sys_Hour	Sys_Day	Sys_Month	>	Schema 🗟 History
1	24	35	9	24		~	
2	25	35	9	24		=	group_table
3	26	35	9	24			sqlt_data_1_2020_01
4	27	35	9	24		٦.	sqlth_drv
5	28	35	9	24			sqlth_partitions
6	29	35	9	24			sqlth_sce
7	30	35	9	24		-	sqith_scinto
8	31	35	9	24			sqlth_te
9	32	35	9	24			
10	33	35	9	24			
11	34	35	9	24			
10	25	25	0	24		~	
286 rows fetched	in 0.184s		🛞 Auto Refresh	🥖 Edit √ App	ly 🗶 Discard	I	

- Enter a simple query to test like: *SELECT * FROM GroupTable* Where *GroupTable* is the Table name as set under the **Action** tab of the group.
- Select **Execute** for the on the transaction table.

If no data is returned contact Inductive Automation technical support and correct these issues.

Connector

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

- Click Add
- Select Inductive Automation, Ignition Transaction Group values
- Click OK

Ignition Transaction G	oup values	×
Connector Name	Ignition_Transaction_1	
Description		
Primary Database		
Туре	Microsoft SQL Server	
Data Source	192.168.9.45\sqlserver16	
Table/Column		
Table	group_table	~
Date Column	t_stamp	\sim
	Date includes Time	
Time Column		\sim
		C
		Settings
		OK Cancel

Primary Database

These settings define the connection to the database where the Ignition Transaction Group is configured to log data. Use the browse button [...] to define.

Table/Column

Once the Primary Database is configured, set **Table** to the database table containing the Transaction Group data.

Date Column should always be set to *t_stamp* with **Date includes Time** checked.

Settings

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

Settings	x
Settings	
Client Wait Time (sec) 60	
Table/Column Delimiter Start [End]	
Date/Time Delimiter Start * End *	
Date/Time Storage	
	1
	Ξ.

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 **Ignition Historical Values** connector.

Group Types

📄 Select Group Type	×
O Summary Values from Server	
 Summary Values from XLReporter use raw values 	
◯ Raw Values	
◯ Raw Text	
Sampled Values	
C Live Values	
O Custom Values	
Base on	
 dlank> ~	
OK Can	cel

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 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		
	Description		
	Description		
	Database		
	Definition	Specific v	
	Table/View	Tables Views	
		group_table ~	
	Date Column	t_stamp ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	
		Date includes Time	
	Time Column	~	1
	Retrieval		
	Retrieval Mode	Raw Values 🗸	1
	Rate (secs)	30	1
	Lead Time (secs) 30	

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 Ignition only *Raw Values* are available.

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

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 the Data Connector

From the XLReporter Project Explorer select, Tools, Connector Groups.

Select the Ignition Transaction Group 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).

ag Browser - Ignition_Transaction	9	alacted Rome	
 Parables Igrafication Catage Online @ group_table 	S	Name Name Sys_Second Sys_Minute Sys_Hour Sys_Dey Sys_North Sys_Ver	Î
tens Displey Name ✓ Name ✓ group_Isble_ndx Sys_Second	>		
Sys_Minute Sys_Hour Sys_Day	>>		
Sys_Month Sys_Year Value2	<<		
Filter · · · Apply			OK Cancel

Select Preview, pick a Start date and click Refresh.

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