Basic Setup for SQL Server Database for use with Insight Pro

One of the options for the spectral database in the Insight Pro software is to use SQL Server. While the setup of the SQL Server database falls upon the customer to complete, they may occasionally ask Technical Support for help or may have setup the database incorrectly. This document is meant to be a basic guide for the steps needed to create and configure a SQL Server database for use with the Insight Pro program.

- 1. Open the SQL Server Management Studio program.
- 2. In the Object Explorer window, right click on the Databases item and choose "New Database" from the popup menu.

Object Explorer		→ ‡ ×
Connect 🕶 🍟 🎬 🦄	T C +	
 □ Generation □ USMAD-3Q9JFX1\ □ Databases □ Databases □ Security □ Server Obje □ Replication □ PolyBase □ Manageme □ XEvent Pro 	SQLEXPRESS (SQL Server 13.0.5026 - A New Database Attach Restore Database Restore Files and Filegroups Deploy Data-tier Application Import Data-tier Application Start PowerShell Reports Refresh	AMER\kurt.knuth)

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3. A dialog box will open for setting up the new database. Enter a Database Name, select an Owner if desired (if <default> is selected, the currently logged in user will be the owner), and in the table enter an initial size for the database on the first line. Our recommended initial size for this database is 50 GB (50,000 MB), but it can be whatever the customer desires. Note: If the customer is using SQL Server Express, the maximum size limit set by Microsoft for a database will be 10 GB (10,000 MB). Click Ok when done.

This step of the process will create a new database on the SQL Server that will later be specified from the Configure Database option in the Insight Pro software.

Select a page							
General	于 Script 👻 😮	Help					
✗ Options							
👂 Filegroups	Database name	· 🔍	Insight Pro	0			
	Owner:		<pre></pre> default>				
	Use tuil-text	ndeeng					
	Database files:						
	Logical Name	File Type	Filegroup	Initial Size (MB)	Autogrowth / M	axsize	
	Insight Pro	ROWS	PRIMARY	10,000	By 64 MB, Unli	nited	
	Insight Pro	LOG	Not Applicable	8	By 64 MB, Unli	nited	14.2
Connection				U			
Server:							
FS03\SQLEXPRESS							
Connection:							
LABDS\ADMINDS							
View connection properties							
Progress							
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					OK		ancel

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4. When connecting to a SQL Server database, the Insight Pro software requires the use of the SQL native user accounts. Therefore, the next step is to setup a native user account within the SQL Server.

Click on the "+" next to the Security folder and then right click on the Logins folder and choose the New Login command.

Object Explorer			- ∓ ∓ ×
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 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □	SQLEXPRESS (SQ	L Server 13.0.5026	- AMER\kurt.knuth)
E Server	New Login		
🗄 🛑 Creden	Filter	•	
⊕	Start PowerSh	ell	
🕀 📁 Server Obj	Reports		
⊕	Refresh		
	6		

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5. In the Login-New dialog box, enter a login name that will be used to connect to the Insight Pro database. Select the option for "SQL Server authentication" and create a password in the Password and Confirm Password boxes. Be sure to uncheck the box for "Enforce password expiration" so that the password for this account never expires. **NOTE:** If the password is allowed to expire, the connection from Insight Pro to the database would be lost when the password changes and the login information would need to be updated in Insight Pro before the connection could be reestablished.

Login - New						X
Selectapage A General	🖵 Script 🔻 😮 Help					
 Server Roles User Mapping Securables Status 	Login name: Viindows authentication SQL Server authentication Password: Confirm password: Specify old password Old password: Enforce password policy	InsightDB			Search	
Connection	Enforce password expira User must change passw Mapped to certificate Mapped to asymmetric key	tion vord at next login		~		
Server	Mapped to destimite the Key					_
FS03\SQLEXPRESS Connection: LABDS\ADMINDS	Mapped Credentials	Credential	Provider		Add	
Progress				ſ	Remove	
Ready	Default database:	master		~		
		-				

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6. Now select the User Mapping item on the left side of the Login-New dialog box. This option will allow the newly created user to be granted access to a specific database and with a specific set of permissions. In the upper box (Users mapped to this login), check the box next to the newly created database for the Insight Pro software. In the lower box (Database role membership for), check the box next to "db_owner", which will give this account the proper permissions for the database selected. Now click OK to close this dialog box.

6 General	🖵 Script	👻 🕜 Help			
Server Boles	-				
User Mapping	Users ma	apped to this login:			
👂 Securables	Мар	Database	User	Default Schema	
👂 Status		Insight Pro	DSService		
		master			Laurant
		model			
		msdb			
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Connection					
Connection	Guest	account enabled for:)	nsight Pro		
Connection Server: FS03\SQLEXPRESS	Guest	t account enabled for: I	nsight Pro nsight Pro		
Connection Server: FS03\SQLEXPRESS Connection:	Guest	t account enabled for: I e role membership for: I	nsight Pro nsight Pro		
Connection Server: FS03\SQLEXPRESS Connection: LABDS\ADMINDS	Guest	t account enabled for: l e role membership for: li ccessadmin ackupoperator	nsight Pro nsight Pro		
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Connection Server: FS03\SQLEXPRESS Connection: LABDS\ADMINDS Y View connection propertie	Guest Database db_a db_b db_b db_d db_d db_d db_d db_d	account enabled for: In e role membership for: In ccessadmin ackupoperator atareader atawriter dladmin enydatareader enydatareader enydatawriter	nsight Pro nsight Pro		
Connection Server: FS03\SQLEXPRESS Connection: LABDS\ADMINDS Y# View connection propertie	Cuest Database (db_a) (db_b) (db_d, db_d, (db_d, (db_d) (db_d) (db_d) (db_d) (db_d)	t account enabled for: I e role membership for: I ccessadmin ackupoperator atareader atawriter dladmin enydatareader enydatareader enydatawriter wner	nsight Pro nsight Pro		
Connection Server: FS03\SQLEXPRESS Connection: LABDS\ADMINDS VI Mew connection propertie Viogress Ready Ready	Cuest Database □ db_a □ db_d □ db	account enabled for: I e role membership for: I ccessadmin ackupoperator atareader atawriter dladmin enydatareader enydatawriter wner ecurityadmin c	nsight Pro nsight Pro		

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7. If the SQL Server is installed on a Network Server and/or needs to be accessed from remote computers, then the remote connection also needs to be enabled. This is also the time to verify the correct server authentication mode is selected. Right click on the SQL Server item at the top of the window and select the Properties command in the drop-down menu.



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In the Server Properties dialog box, select the Connections item in the list in the upper left, and make sure the box for "Allow remote connections to this server" is checked.

Select a name	A CONTRACTOR OF		
General	I Script ▼ 🕜 Help		
 Memory Processors Security Connections Database Settings Advanced Permissions 	Connections Maximum number of concurrent connections (0 = unlimited): 0		
Connection	implicit transactions cursor close on commit ansi wamings ansi padding ANSI NULLS arithmetic abort		^
Connection			*
USMAD-3Q9JFX1\SQLEXPRESS	Remote server connections	 	
Connection:	Allow remote connections to this server		
AMER/kurt.knuth	Remote query timeout (in seconds, 0 = no timeout):		
View connection properties	600 🚖		
	Require distributed transactions for server-to-server communication		
Progress			
O Ready	Configured values O Running values		

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In the same dialog box, select the Security item on the left side. Under the Server Authentication mode box, select the option for "SQL Server and Windows Authentication mode". Then click Ok to close the dialog box.

Select a name	and the second							
Select a page	🖵 Script 🔻 🕜 Help							
Memory Processors Security Connections Database Settings	Server authentication	tion mode						
Advanced	SQL Server and Wir	dows Authentication mode						
	Login auditing							
	O None							
	Failed logins only							
	O Successful logins only							
	O Both failed and succ	essful logins						
	Server proxy account							
Connection	Enable server proxy	account						
Server: USMAD-3Q9JFX1\SQLEXPRESS	Proxy account: Password:	********						
Connection: AMER\kurt.knuth	Options	tio.						
View connection properties	Enable C2 audit trac	ing						
	Cross database own	ership chaining						
Progress								
C) Ready								
			ок	Car	ncel			

After making these changes, a message will be displayed explaining that you will need to restart the SQL Server for the configuration changes to take effect. Just click Ok to this message. The server will be restarted in a later step.

Microsoft SQL Server Management Studio	×
Some of your configuration changes will not take effect until SQL Server is restarted.	
Copy message	ОК

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- 8. Open the SQL Server Configuration Manager program.
- 9. Open the item in the list in the left pane called SQL Server Network Connection and then select the sub item "Protocols for SQLEXPRESS". In the right hand pane, Right-click on the TCP/IP item and choose the "Enable" command from the popup menu. Click Ok to the confirmation message about restarting the SQL Server.



A TCP port for this connection also needs to be opened. Again, right-click on the TCP/IP item and choose the Properties item. In the dialog box, select the IP Addresses tab, scroll down the list to the "IPAII" section and enter the preferred port number in the TCP Port item. Then clear out the value for the TCP Dynamic Port item. Click Apply and then Ok. The SQL Configuration Manager program can now be closed.

TOTOCOL			
TCP	Dynamic Ports	0	^
TCP	Port		
E 1P3			
Actin	/e	Yes	
Enal	bled	No	
IP A	ddress	::1	
TCP	Dynamic Ports	0	
TCP	Port		
E IP4			
Actin	/e	Yes	
Enal	oled	No	
IP A	ddress	127.0.0.1	
TCP	Dynamic Ports	0	
TCP	Port		
E IPAI		~	
TCP	Dynamic Ports		
TCP	Port	1433	~
Active			
Indicat	es whether the select	ed IP Address is active.	



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10. Go back to the SQL Server Management Studio window, right click on the SQL Server and choose the Restart option in the drop down to restart the SQL server. If the SQL Server is used by other databases and users, make sure the restart does not cause them problems. If others are currently using the database, restart the SQL Server at a later convenient time.

Object Explorer	* 1
Connect 🕶 🍟 🗏 🝸 🖒 🔸	
 □ WSMAD-3Q9JFX1\SQLEXPRESS (SQL Server 13 □ Databases □ Databases □ Security □ Server Objects □ Replication □ PolyBase □ Management □ XEvent Profiler 	Connect Disconnect Register New Query Activity Monitor Start Stop Pause Resume
	Restart Policies Facets
	Start PowerShell Azure Data Studio 🔶
	Reports Refresh Properties

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11. The port entered for use by the remote connection of the SQL Server must also be opened in the Windows Firewall to allow any remote computers to connect to the database. Open the Windows Firewall applet, Click the Advanced Settings option, then select Inbound Rules and create a new rule.

Windows Firewall with Advanced	d Security				
File Action View Help					
🗢 🌩 🙋 🖬 🔒 📓 🖬	/				
Windows Firewall with Advance	Inbound Rules			Actions	
Inbound Rules	Name	Group	*	Inbound Rules	*
Connection Security Rules	🕖 Dropbox			🧱 New Rule	
Monitoring	O Dropbox		=	Filter by Profile	×
			1	🕎 Filter by State	•
	Ø ITCM1			Filter by Group	•
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	McAfee Framework Service				
	McAfee Framework Service				
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Choose the Port option and click Next.

🔗 New Inbound Rule Wiza	rd X
Rule Type	
Select the type of firewall rule to	create.
Steps: Rule Type Protocol and Ports Action Profile Name	What type of rule would you like to create? Program Rule that controls connections for a program. Prodefined: Alloyn Router Rule that controls connections for a Windows experience. Custom Custom rule.
	< Back Next > Cancel

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Choose the TCP port and Specific local ports options and enter the port number that was entered in Step 11.

Protocol and Ports		
Specify the protocols and ports	to which this rule applies.	
Steps: Rule Type Protocol and Ports Action Profile Name	Does this rule apply to TCP or UDP?	

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Choose the option to "Allow the Connection".

	New Inbound Rule Wi	zard	×
Spe	ecify the action to be taker	when a connection matches the conditions specified in the rule.	
Spe	ecify the action to be taken ps: Rule Type Protocol and Ports Action Profile Name	 when a connection matches the conditions specified in the rule. What action should be taken when a connection matches the specified conditions? • Alow the connection This includes connections that are protected with IPsec as well as those are not. • Alow the connection if it is secure This includes only connections that have been authenticated by using IPsec. Connections shull be secured using the settings in IPsec properties and rules in the Connection Security Rule node. • Curtomize • Block the connection	
		< Back Next > Cancel	

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Check the appropriate profiles for which this rule should apply. In many cases it may be desirable to uncheck the Public option.

🔗 New Inbound Rule Wiza	ard	×
Profile		
Specify the profiles for which th	is rule applies.	
Steps:		
Rule Type	When does this rule apply?	
Protocol and Ports		
Action	🗹 Domain	
Profile	Applies when a computer is connected to its corporate domain.	
Name	Private	
	Applies when a computer is connected to a private network location, such as a home or work place.	
	✓ Public	
	Applies when a computer is connected to a public network location.	
	< Back Next > Cancel	

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Give the new rule a name. This name will now show up in the list of Inbound Rules.

P New Inbound Rule Wizard		×
Name		
Specify the name and description of t	his rule.	
Steps:		
 Rule Type Protocol and Ports Action 		
Profile	Name:	
Name	Insight Proj	
	< Back Finish	Cancel

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12. This completes the basic setup of the SQL Server database for use with the Insight Pro software for the data storage.

Based on the example shown in this document, the database configuration dialog box presented during the Insight Pro database configuration would be completed as shown below. Ensure that the Insight Pro software is in Desktop mode. Then click the Configure menu and the Database command from the drop-down menu. This will open the Database Configuration dialog box.

Select "Microsoft SQL Server" from the Database dropdown and choose the correct version of SQL Server being used. The Database Name is the name given to the database in Step 3. The Port is the number that was entered in Step 9 above. The Server address or URL is typically listed in the SQL Server Management Studio program. Finally click the Edit Credentials button and enter the username and password for the account created within the SQL Server (Step 5).

After entering this information click the Test Connection button. If the connection succeeds, there will be no message displayed and when the dialog box is closed with the Ok button, the Insight Pro program will restart. If the connection fails for some reason, an error message will be displayed. Below are some example errors that may occur with a possible reason why. **NOTE:** In Insight Pro versions later than v1.6, there may be a message stating that the connection succeeded.

Туре		Database	
Remote Database		SQLServer	
Version		Port	
SQL Server 2019		1433	
Database Name			
nsight pro			
User Name			
nsightDB			
Password			
••••			
Server Address			
S03\SQLEXPRESS		Test Conne	ction
🔥 Choosing a new databa	ise needs res	tart the application manuall	y



Possible Error Messages after clicking the Test Connection Button.

The SQL Server database could not be contacted. There are several reasons why this may happen.

- The database has not been created
- The port entered is incorrect (see Step 9)
- The Server Address or URL is not correct (verify the correct address with Database Admin).
- The Firewall on the server is not allowing connection (see Step 11)
- The SQL Server settings are not allowing remote connection (see Step 7)

Туре	Database	
Remote Database	SQLServer	
Version	Port	
Connection Test Fa	ils! Connection Timeout Expired. The timeou	t.
Connection Test Fa period elapsed whil handshake acknow handshake failed or The duration spent [Pre-Login] initializa	ils! Connection Timeout Expired. The timeou e attempting to consume the pre-login ledgement. This could be because the pre-lo the server was unable to respond back in tir while attempting to connect to this server wa tion=20; handshake=4;	t gin ne. ıs -

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This message occurs when the Server Authentication mode is set incorrectly. See Step 7, Page 8 for proper setting to allow SQL Server Authentication. This error can also be caused by a invalid password.

	Database	
Remote Database	SQLServer	
Version	Port	
Server Address	Continue	
Server Address FS03\SQLEXPRESS	Continue	Connection

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