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Pro-Server Data Saving to SQL via Microsoft Access with Proface LT3300S screen.

PURPOSE:

This document will show you how to set up the features to create a Pro-Server project to save data to Microsoft SQL Server 2008 R2 via Microsoft Access based upon a screen button & constant cycle (the address could also be a trigger from a PLC). You will see within the Trigger Condition there are other numerous ways such as a given time.

REQUIRED EQUIPMENT:

1.	S8VS-03024	Omron 24VDC Power Supply
2.	LT3300-S1-D24-K	Proface LT HMI Touch Screen
3.	EKI-2528-AE	Advantech 8-Port Ethernet Switch

REQUIRED SOFTWARE:

1.	GP-Pro EX v3.10.000	Proface Screen Programming Software
2.	Pro-Server EX v1.31.001	Pro-Server Programming Software
3.	Microsoft Access 2010	Microsoft Office Software
4.	Microsoft SQL Server 2008 R2	Microsoft SQL Server

REQUIRED CABLES:

1.	CA3-USBCB-01	USB HMI Programming Cable
2.	Ethernet Cables (quantity of 2)	

FILES:

• ProServerDataSaving.doc	The file you are reading
• ProServerDataSaving.prx	LT HMI Program
• ProServerDataSaving.npx	Pro-Server Program
• ProServerDataSaving.mdb	Microsoft Access file
• ProServerDataSaving_SQL.bak	Microsoft SQL Server Database backup

HELPFUL MANUALS:

- GP-Pro EX Reference Manual
- Pro-Server EX Reference Manual

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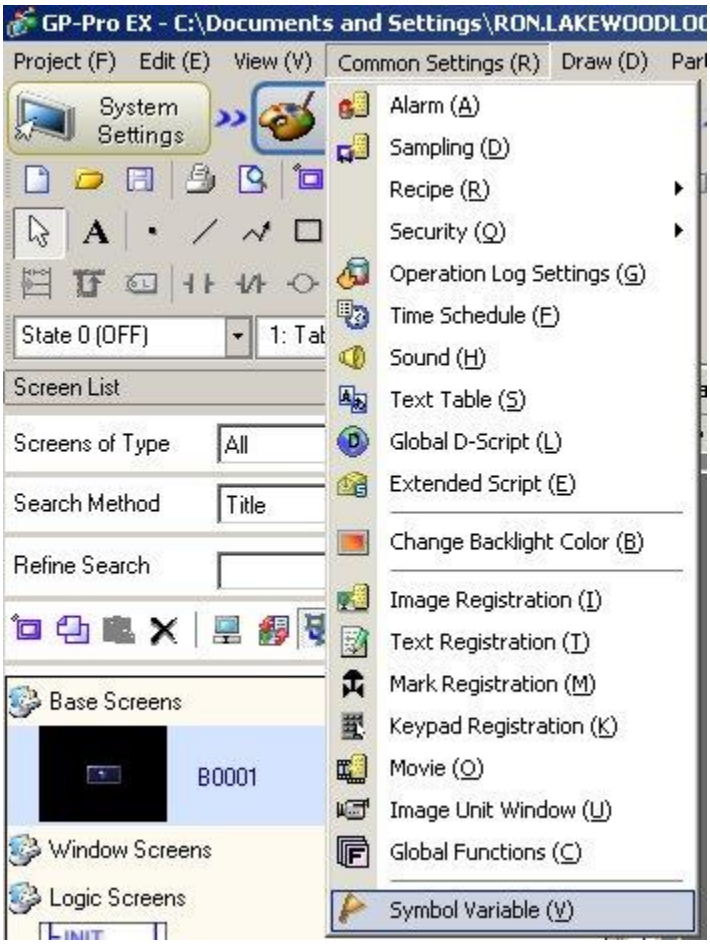
INSTRUCTIONS:

1. Connect all equipment & power-up everything. Connect all Ethernet cables. Connect 120VAC to the input of the 24VDC power supply. Connect 24VDC to Proface screen and Advantech switch.

2. Make the following changes in the GP-Pro EX software. This sets the screen type, which matches the part number used within this project.

3. Make the following changes in the GP-Pro EX software. This sets the Device/PLC type to nothing (since the data will come directly from the Proface screen).

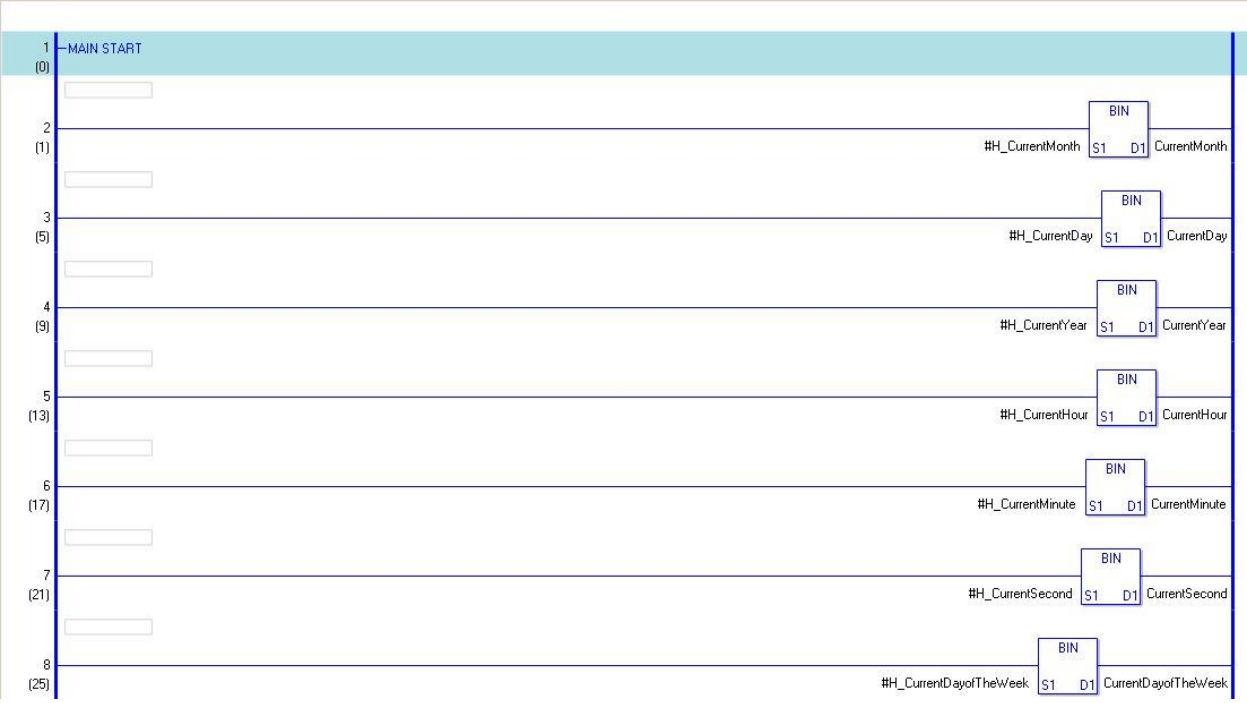
4. Make the following changes in the GP-Pro EX software. This will create the Symbol Tags used throughout the rest of the project (this will also save time by uploading the tags into the Pro-Server file). As you see, all Symbols have been created as "Word Address" or "Bit Address". A physical address (whether internal to the Proface screen or PLC) must be used for Pro-Server to work.



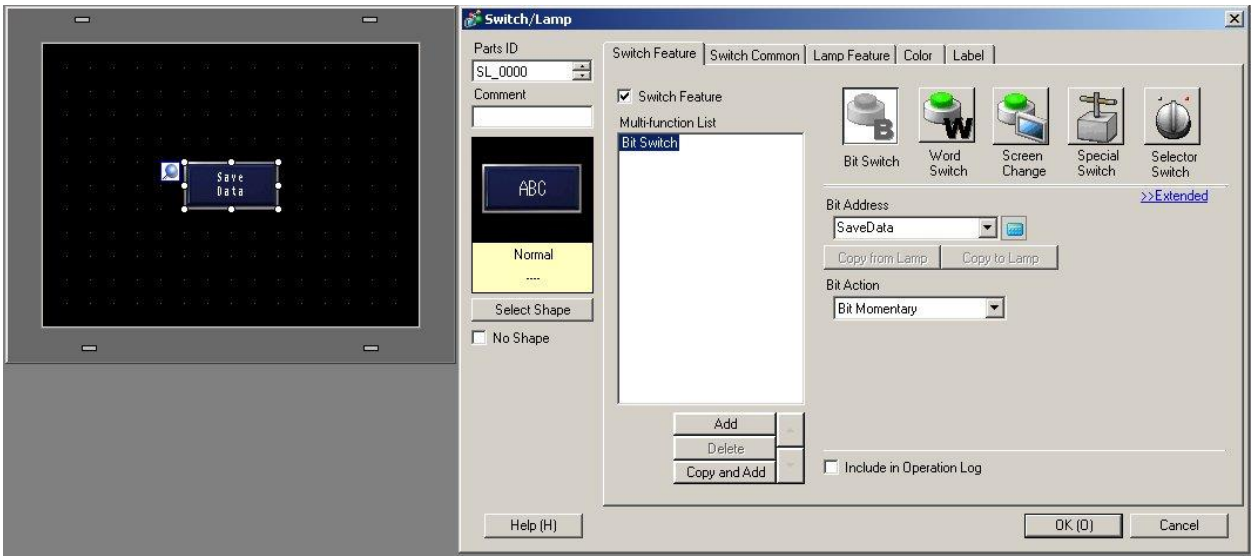
Edit Symbol Variables

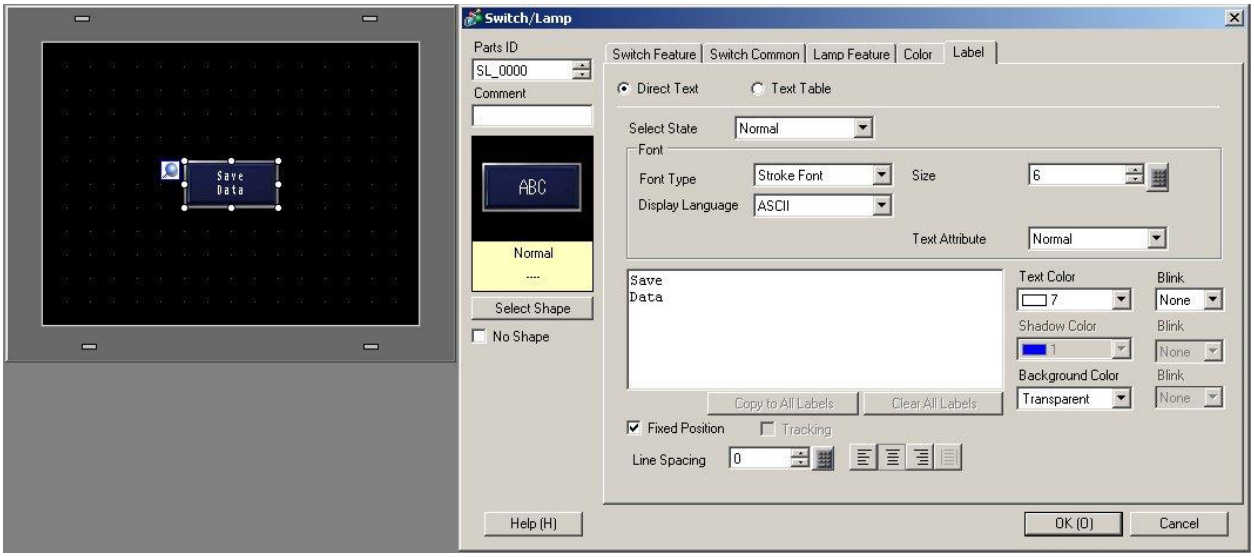
	Name	Type	Array	Count	Address	Retentive	Comment
1	CurrentDay	Word Address	☐		[#INTERNAL]USR00000		
2	CurrentDayOfTheWeek	Word Address	☐		[#INTERNAL]USR00001		
3	CurrentHour	Word Address	☐		[#INTERNAL]USR00002		
4	CurrentMinute	Word Address	☐		[#INTERNAL]USR00003		
5	CurrentMonth	Word Address	☐		[#INTERNAL]USR00004		
6	CurrentSecond	Word Address	☐		[#INTERNAL]USR00005		
7	CurrentYear	Word Address	☐		[#INTERNAL]USR00006		
8	SaveData	Bit Address	☐		[#INTERNAL]USR0010000		
*							

5. Make the following changes in the GP-Pro EX software. The logic will take the current time & date from the within the screen and convert it from BCD to Decimal into Symbol Tags.



6. Make the following changes in the GP-Pro EX software. This creates the button on the screen to trigger a save of data to the Excel file. The tag is created in the Symbol variable table.

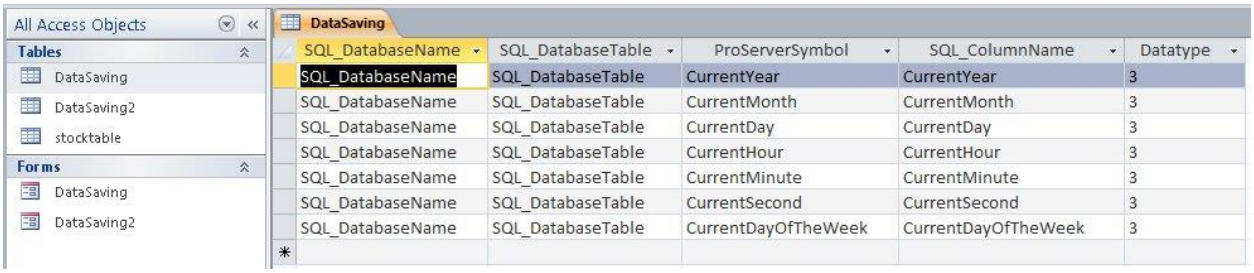




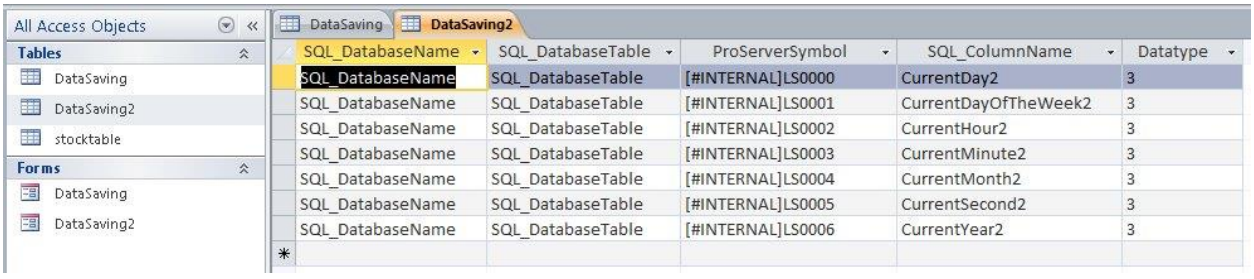
7. Save the Proface screen file. Go Offline with the screen & change the IP address to 192.168.2.71. Download the Proface screen file. GP-Pro EX software is now done & can be closed after the software is done downloading.

8. Open up Microsoft Access. Create the following database(s). DataSaving table is being used for the ScreenButton trigger & DataSaving2 table is being used for the "CycleTrigger" (both explained later in this document). Here are some notes for each columns heading.

   - SQL_DatabaseName is the name of the database created within Microsoft SQL Server 2008 R2.
   - SQL_DatabaseTable is the name of the table created within Microsoft SQL Server 2008 R2.
   - ProServerSymbol is the name of the symbols used within Pro-Server.
   - SQL_ColumnName is the name for each column used within Microsoft SQL Server 2008 R2.
   - Datatype pertains to the type of data being used within the project.



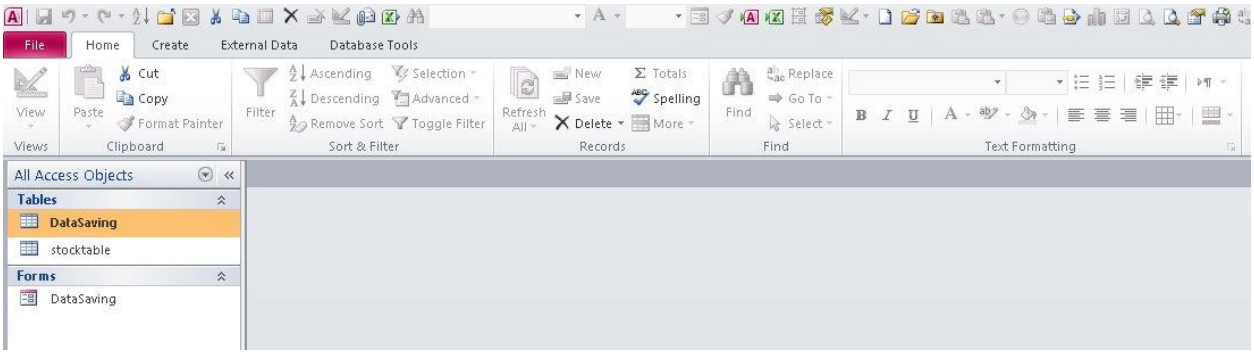
SQL_DatabaseName	SQL_DatabaseTable	ProServerSymbol	SQL_ColumnName	Datatype
SQL_DatabaseName	SQL_DatabaseTable	CurrentYear	CurrentYear	3
SQL_DatabaseName	SQL_DatabaseTable	CurrentMonth	CurrentMonth	3
SQL_DatabaseName	SQL_DatabaseTable	CurrentDay	CurrentDay	3
SQL_DatabaseName	SQL_DatabaseTable	CurrentHour	CurrentHour	3
SQL_DatabaseName	SQL_DatabaseTable	CurrentMinute	CurrentMinute	3
SQL_DatabaseName	SQL_DatabaseTable	CurrentSecond	CurrentSecond	3
SQL_DatabaseName	SQL_DatabaseTable	CurrentDayOfTheWeek	CurrentDayOfTheWeek	3



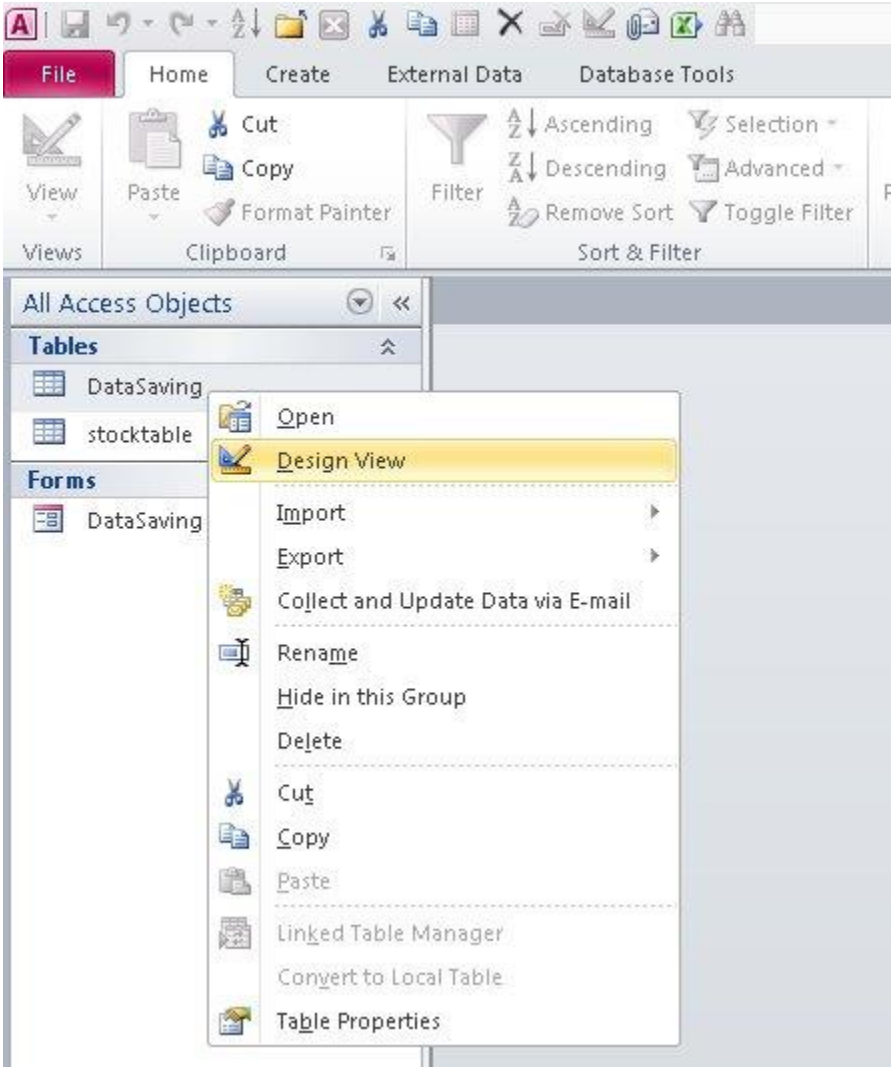
SQL_DatabaseName	SQL_DatabaseTable	ProServerSymbol	SQL_ColumnName	Datatype
SQL_DatabaseName	SQL_DatabaseTable	[#INTERNAL]LS0000	CurrentDay2	3
SQL_DatabaseName	SQL_DatabaseTable	[#INTERNAL]LS0001	CurrentDayOfTheWeek2	3
SQL_DatabaseName	SQL_DatabaseTable	[#INTERNAL]LS0002	CurrentHour2	3
SQL_DatabaseName	SQL_DatabaseTable	[#INTERNAL]LS0003	CurrentMinute2	3
SQL_DatabaseName	SQL_DatabaseTable	[#INTERNAL]LS0004	CurrentMonth2	3
SQL_DatabaseName	SQL_DatabaseTable	[#INTERNAL]LS0005	CurrentSecond2	3
SQL_DatabaseName	SQL_DatabaseTable	[#INTERNAL]LS0006	CurrentYear2	3

Value	Data type	Value	Data type
1	Bit	7	32 bits without decimal code
2	16 bits with decimal code	8	Hexadecimal 32 bits
3	16 bits without decimal code	9	BCD 32 bits
4	Hexadecimal 16 bits	10	Single precision floating point
5	BCD 16 bits	11	Double-precision floating point
6	32 bits with decimal code	12	Character string

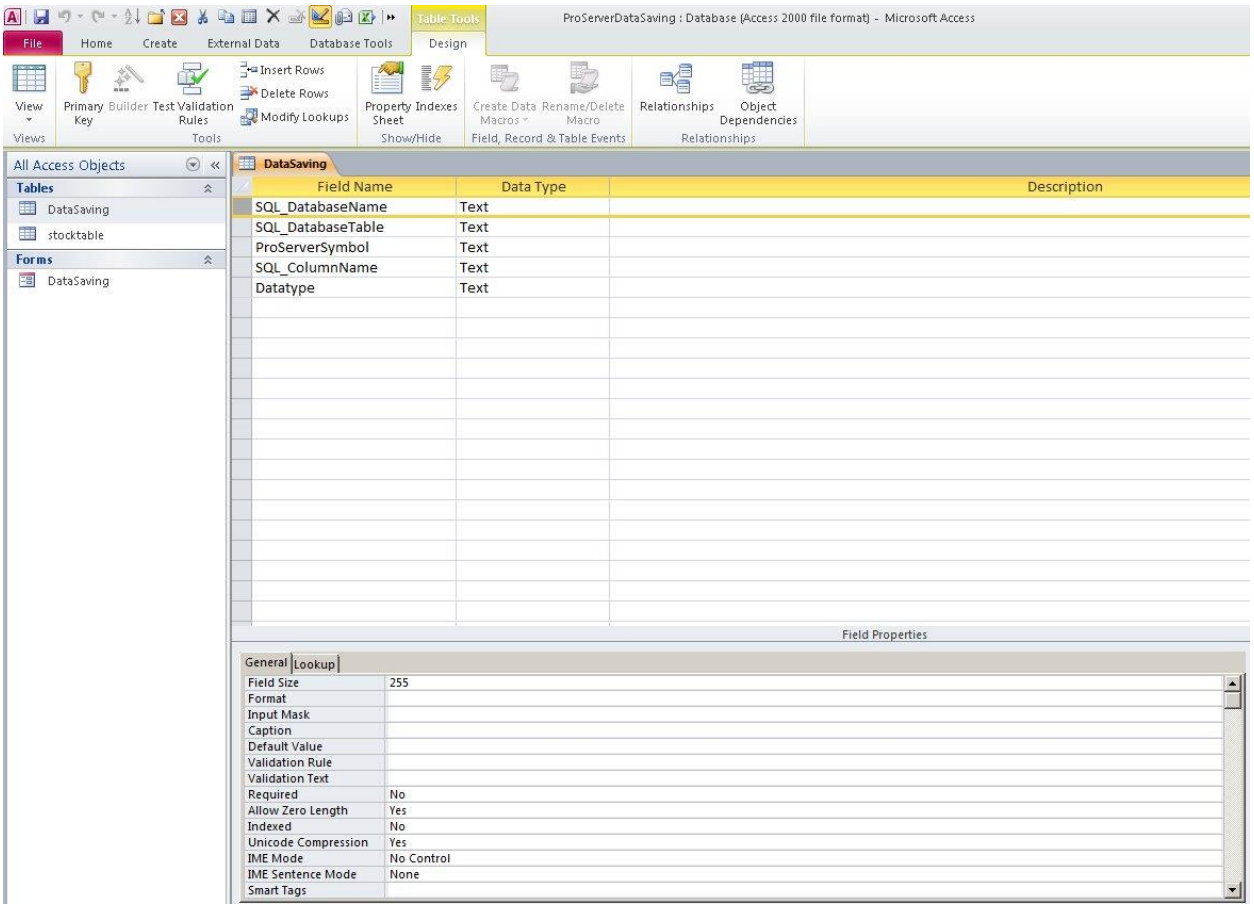
9. Close the DataSaving & DataSaving2 tables.



10. Right-click on DataSaving. Select Design View.

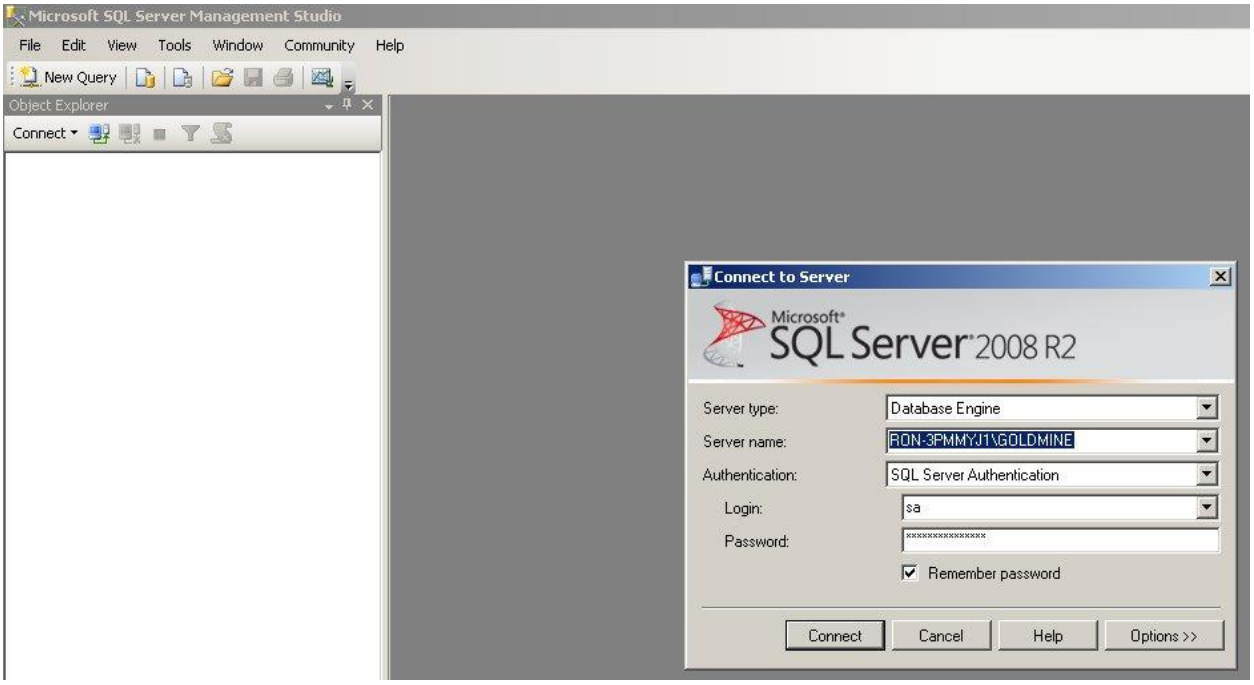


11. Make the table as shown. Delete all unused rows (only the items show shall remain). Change Indexed to "No" for all items. Make sure this is done for the table DataSaving2 as well. Save the file.

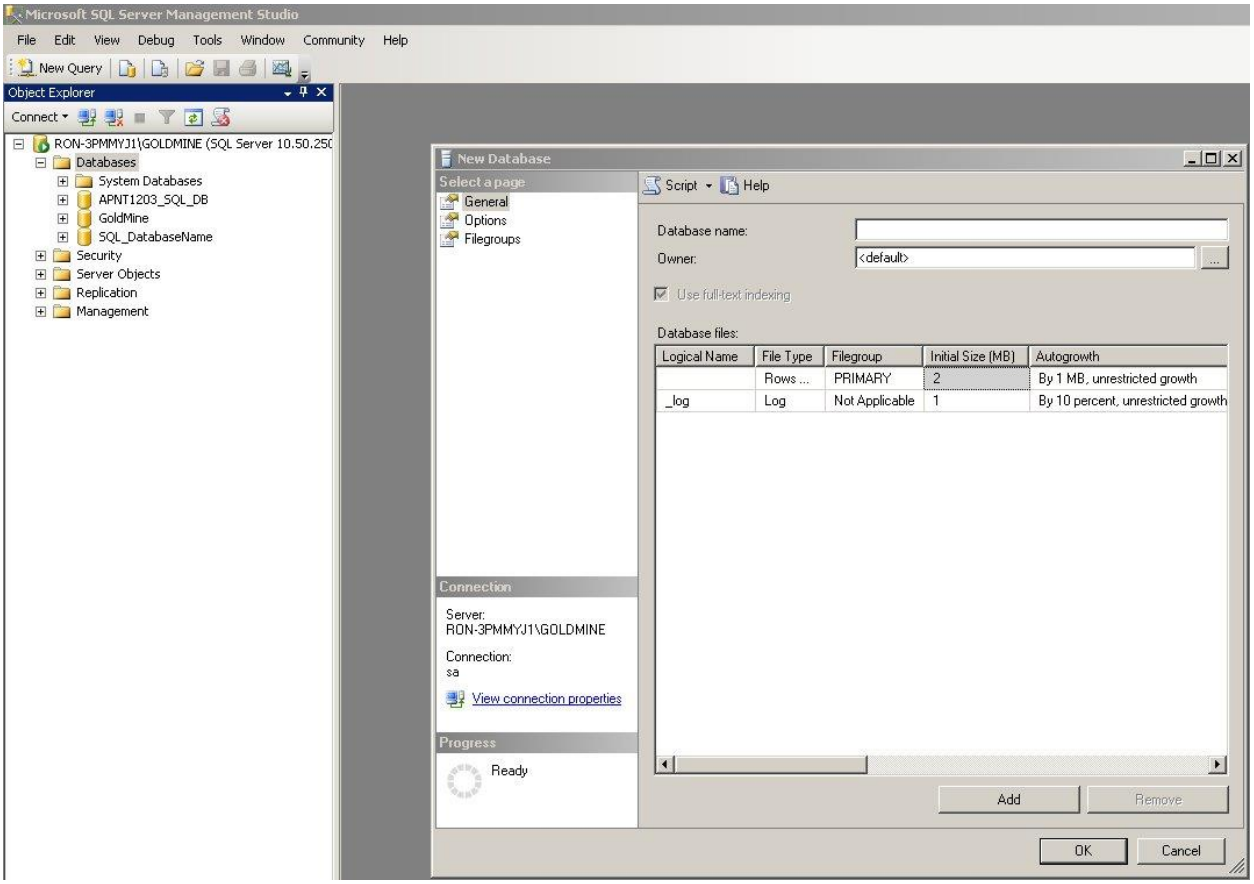


12. Microsoft Access is done. You may close & exit the software.

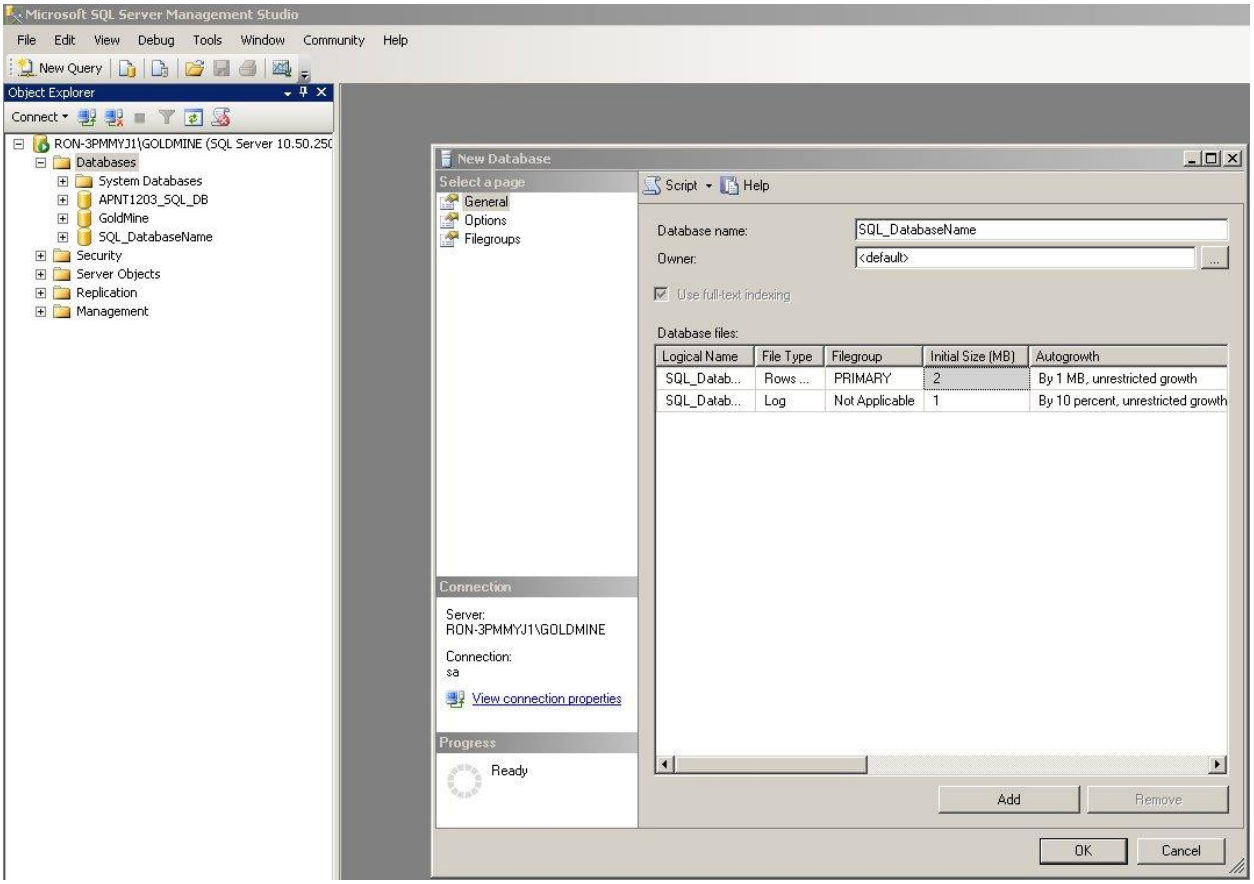
13. Open up Microsoft SQL Server 2008 R2. Login to your database.



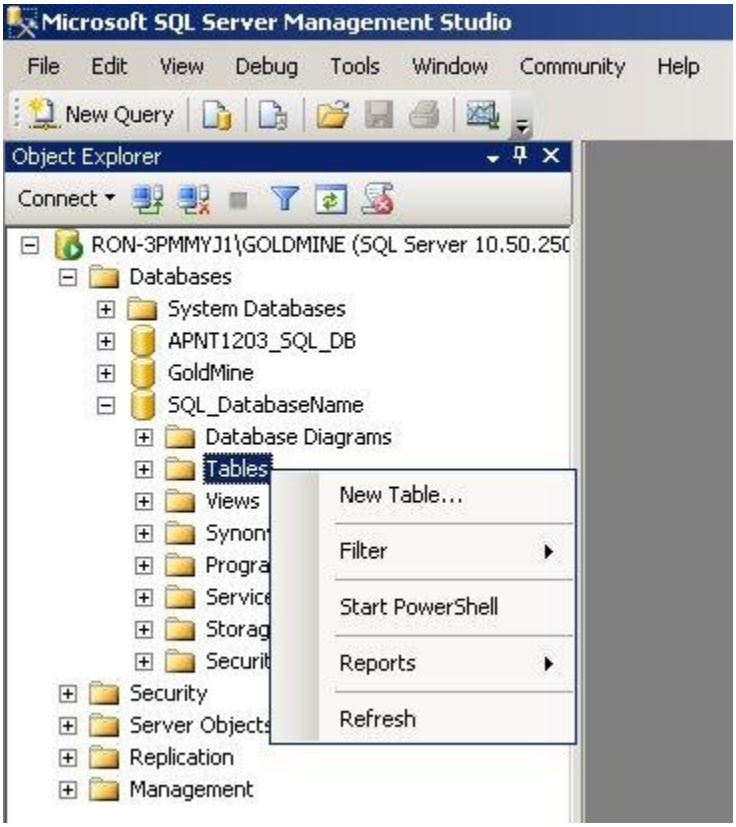
14. Right-click on Databases & select New Database.



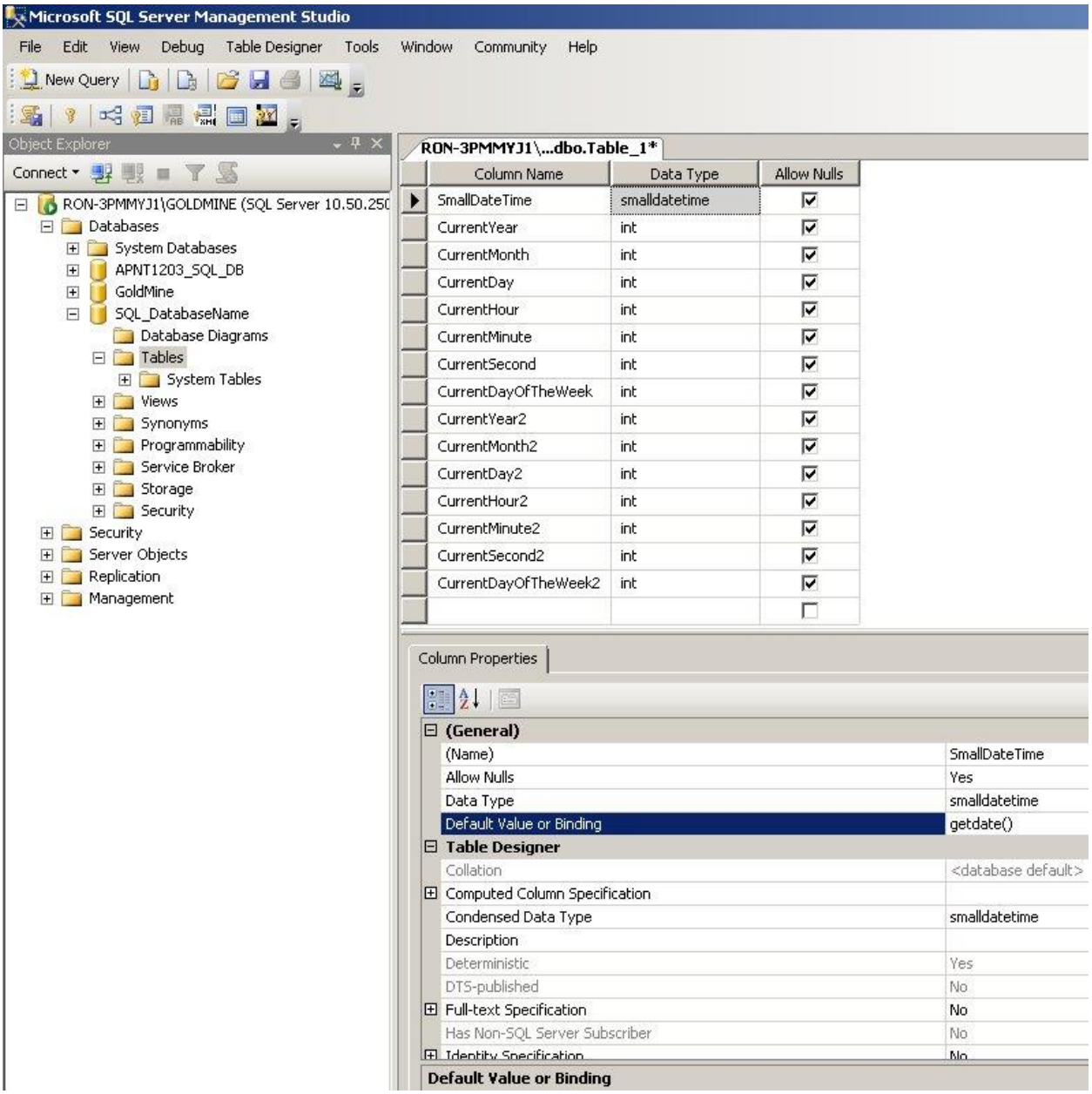
15. Give the database a name (SQL_DatabaseName from step #8). Select OK.



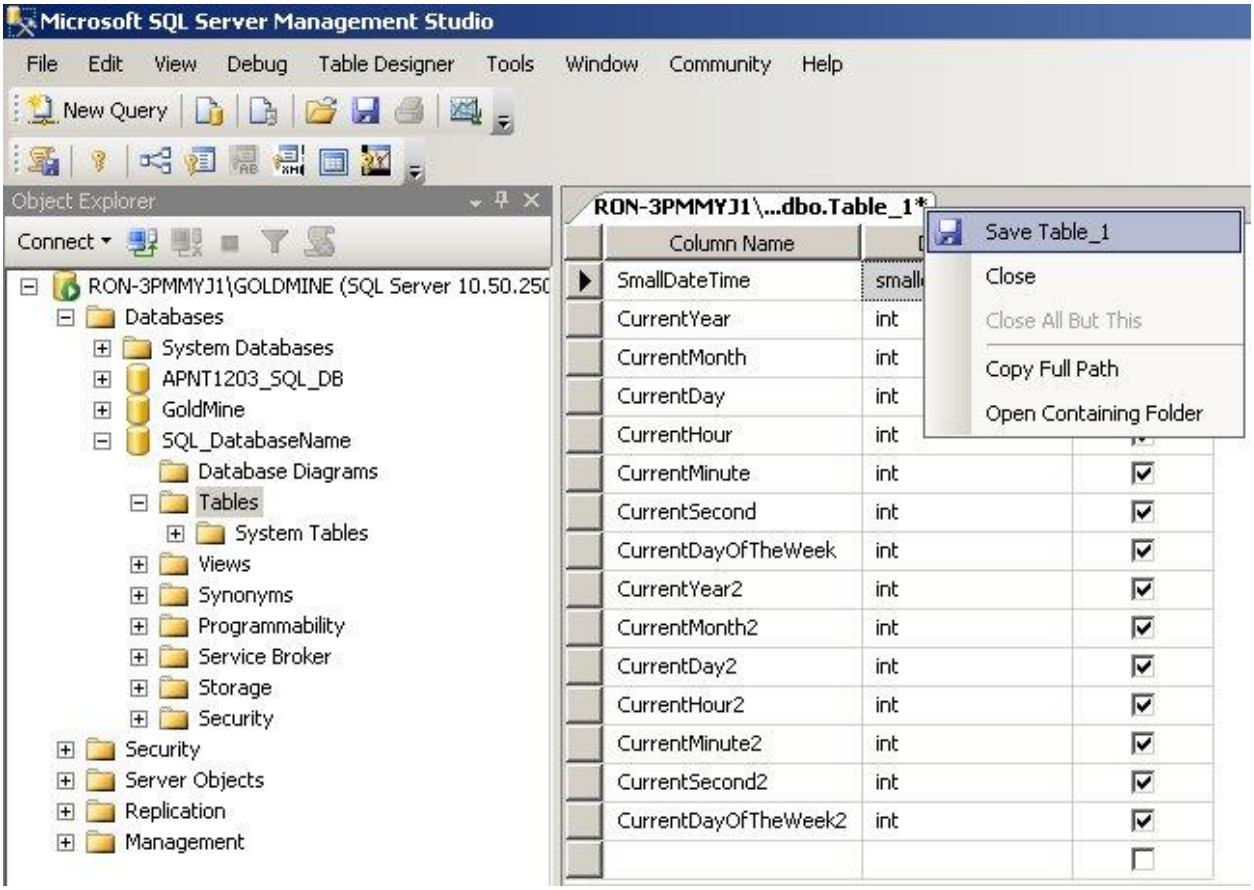
16. Branch open SQL_DatabaseName. Right-click on Tables & select New Table…



17. Create the following table. Refer to Step #8 for the SQL_ColumnName for each item. For the Column Name SmallDateTime, change the value in "Default Value or Binding" to getdate( ) as shown (this will give you a time & date stamp to search for data).



18. Right-click at the top (tab above cell Column Name) & select Save Table_1. <u>Don't be so quick to select OK.</u>



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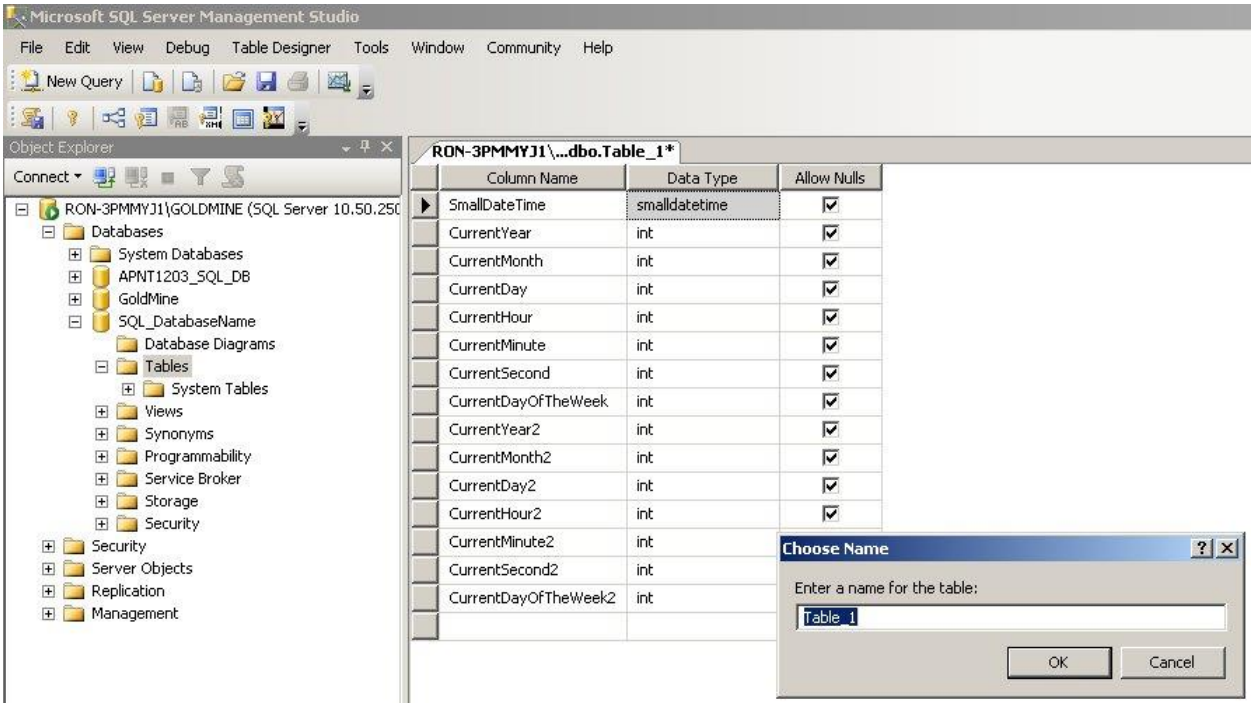

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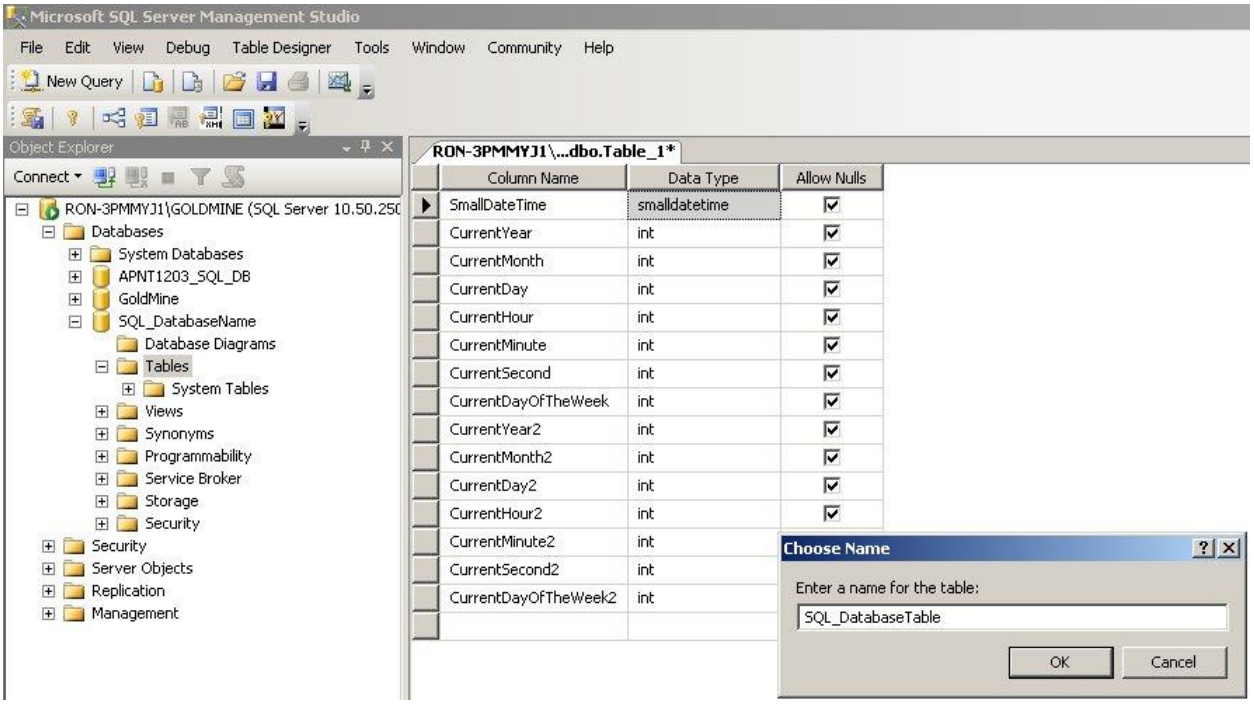
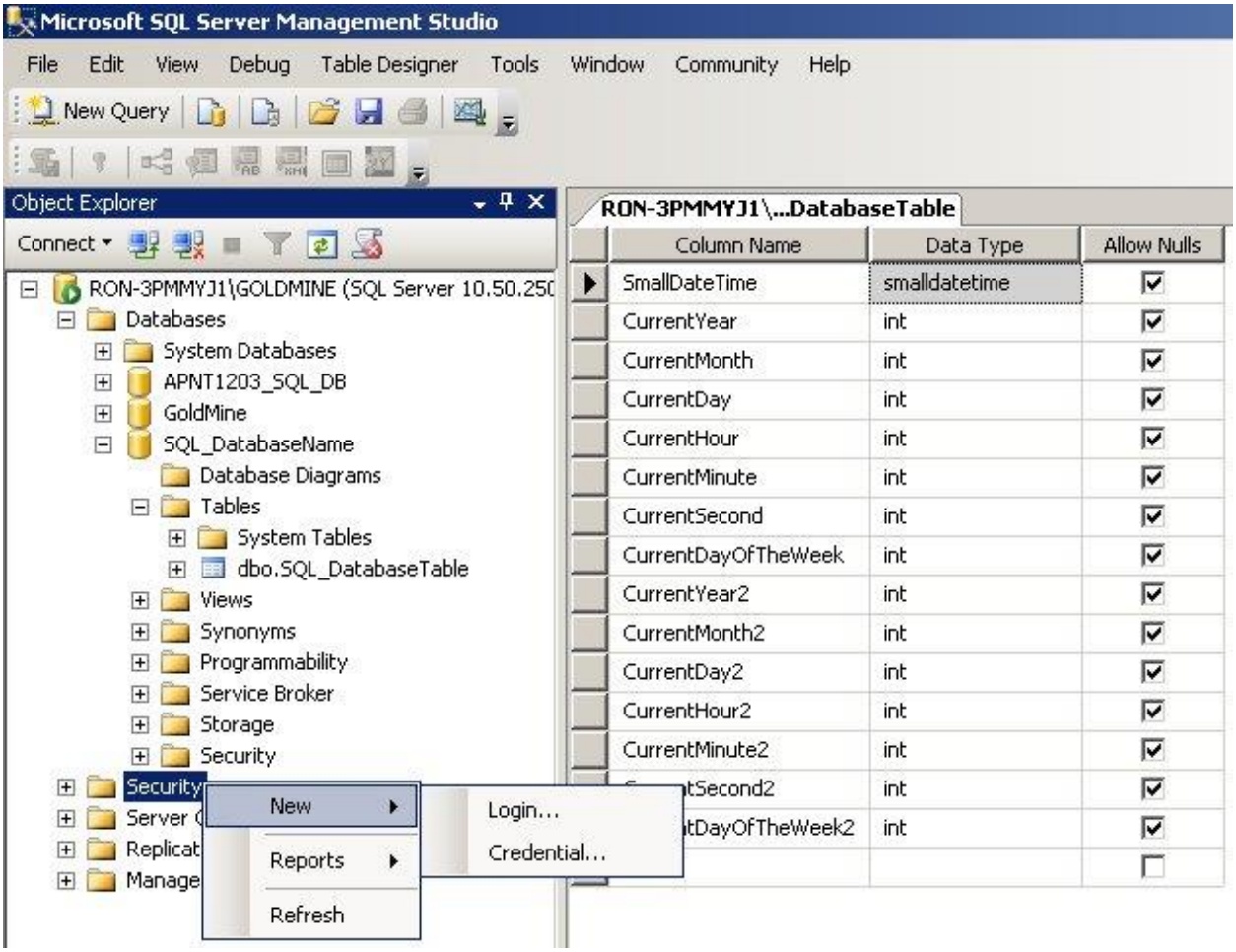
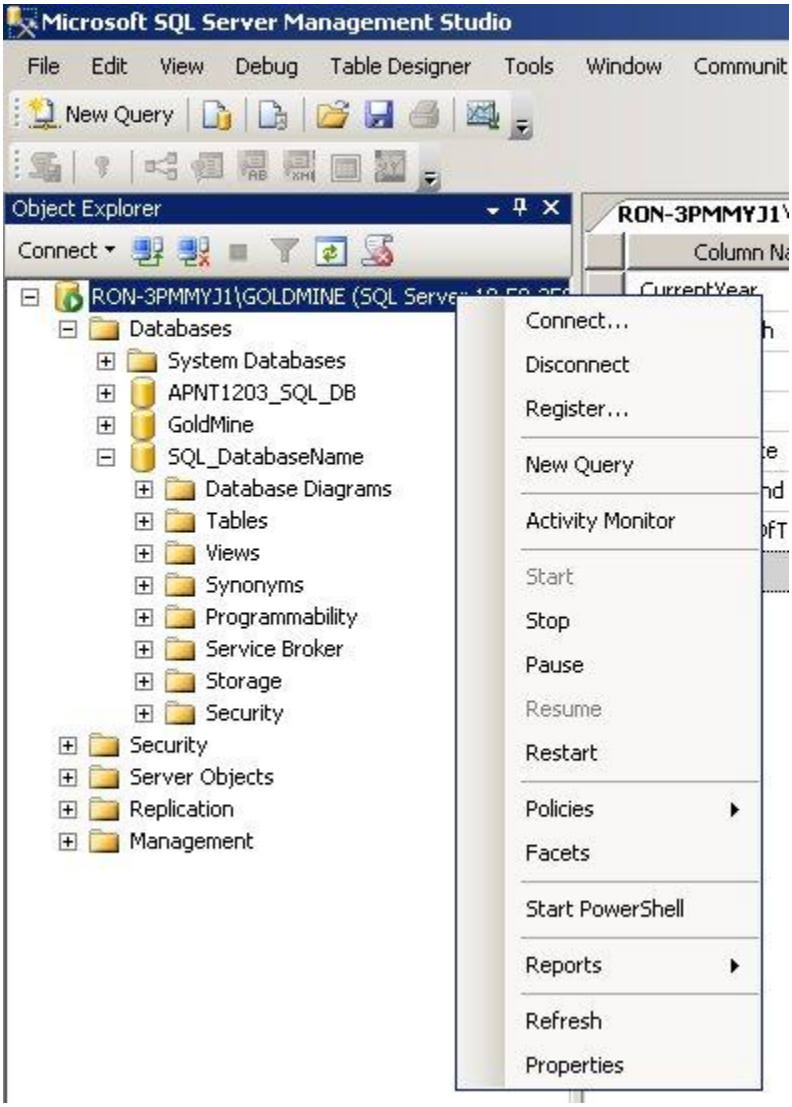
19. Change the name to SQL_DatabaseTable (from Step #8). Select OK.



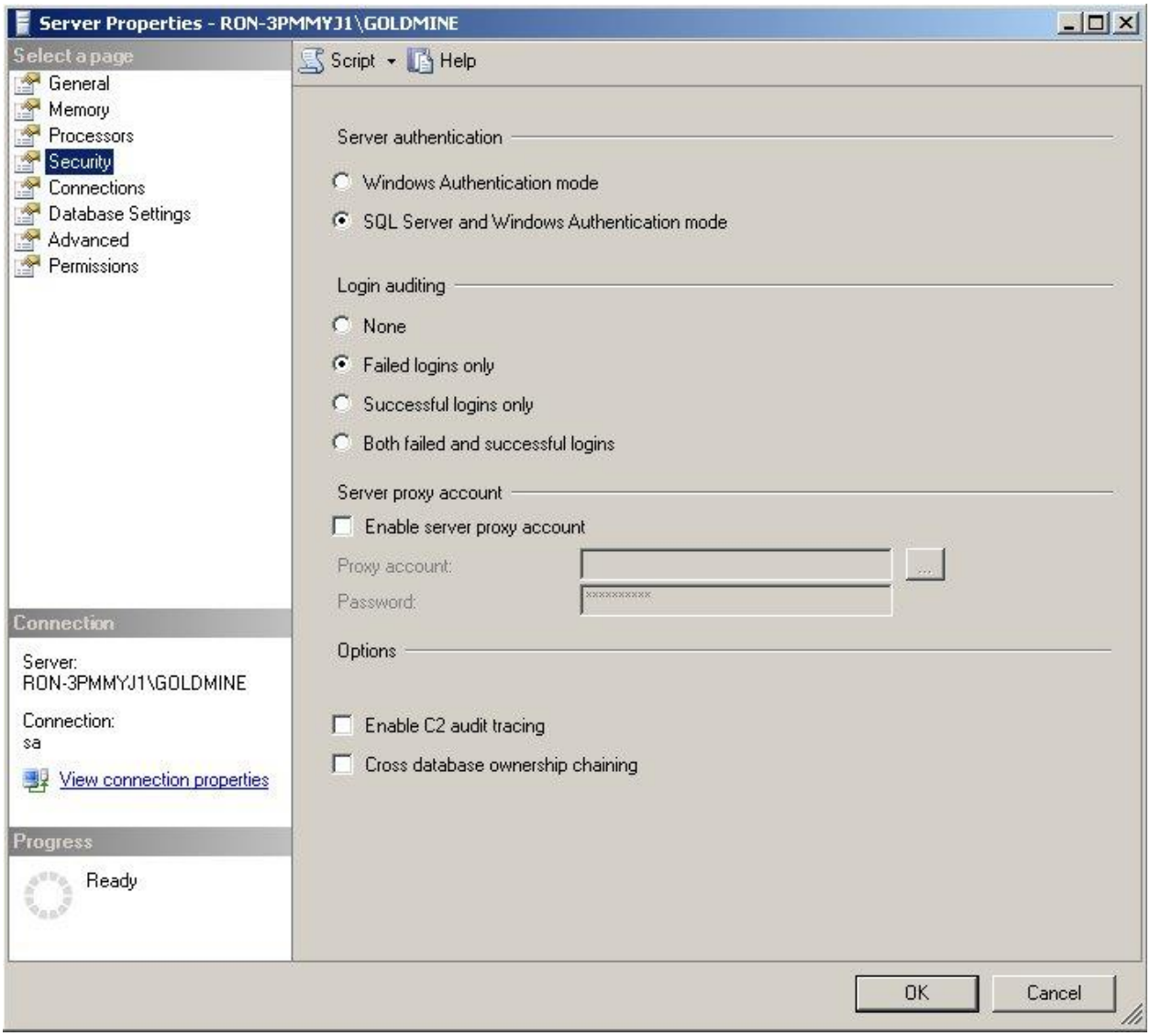
20. Right-click on Security. Select New, then Login…



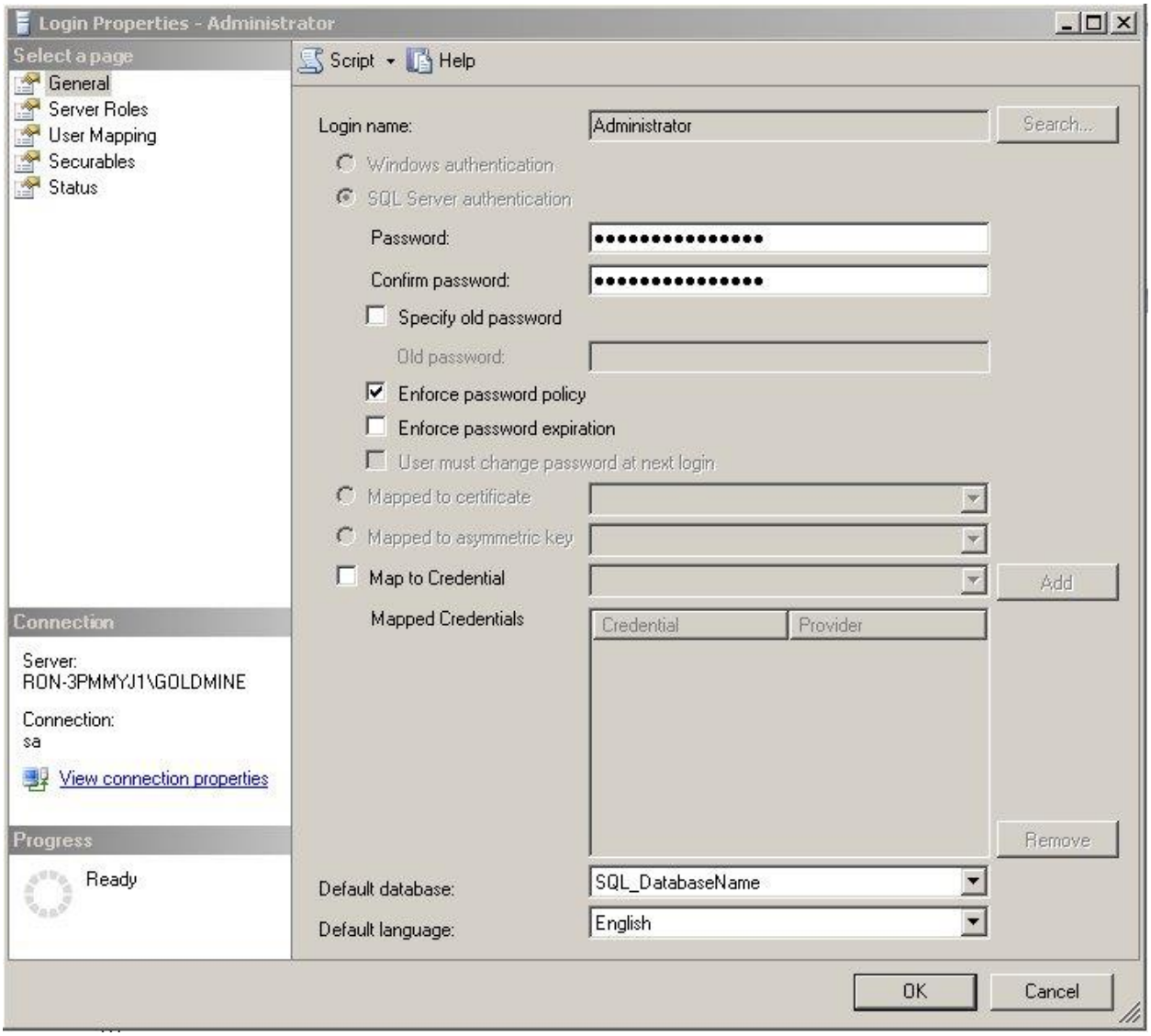
21. Right-click on “RON-3PMMYJ1\GOLDMINE” (or whatever your SQL Server is called). Select Properties.



22. Select Security. Make the changes shown. Select OK.



23. Make the following changes for the new login name. Password being used is “password” without the “ “ quotes. There are four total pictures. Select OK.



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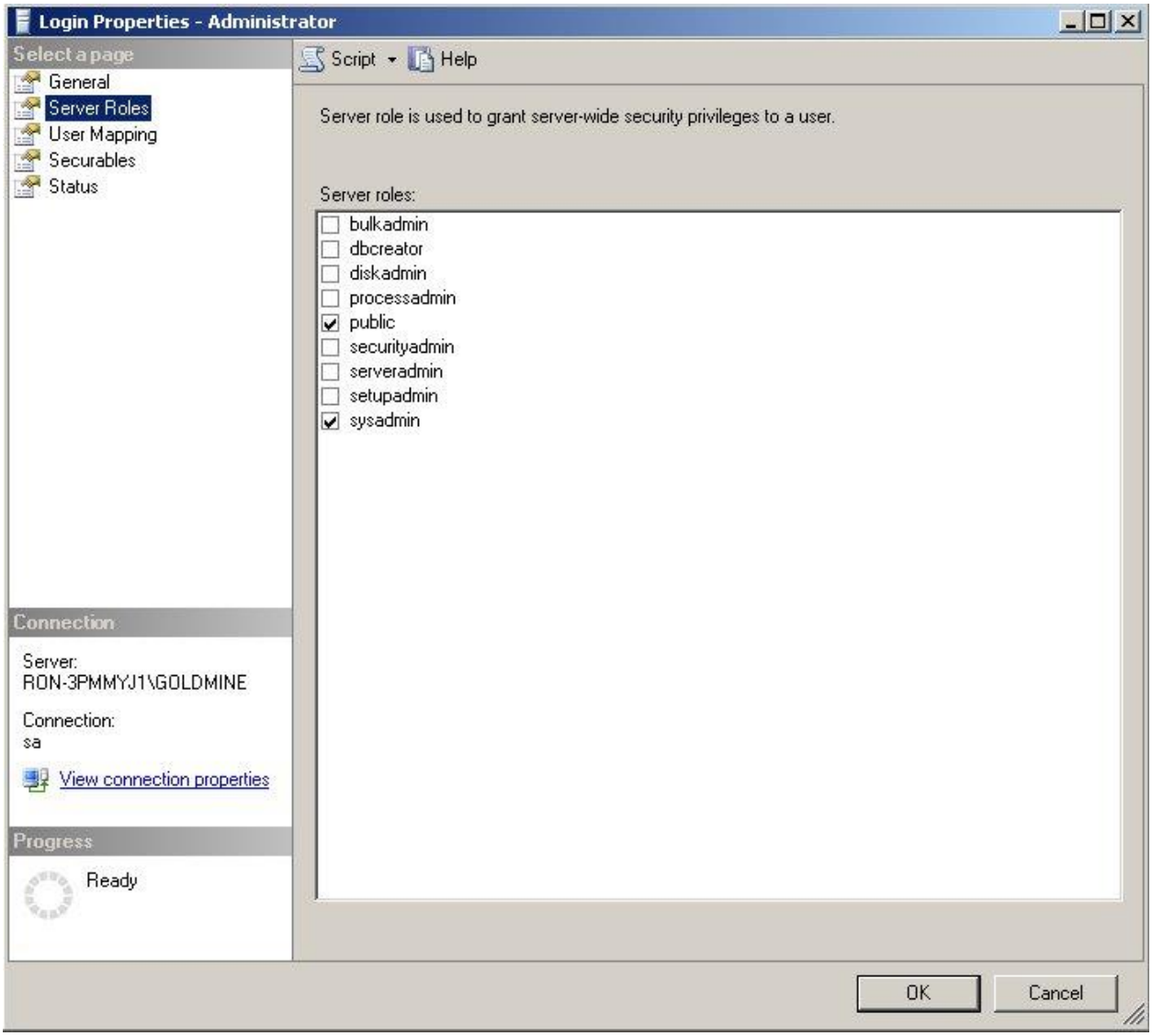

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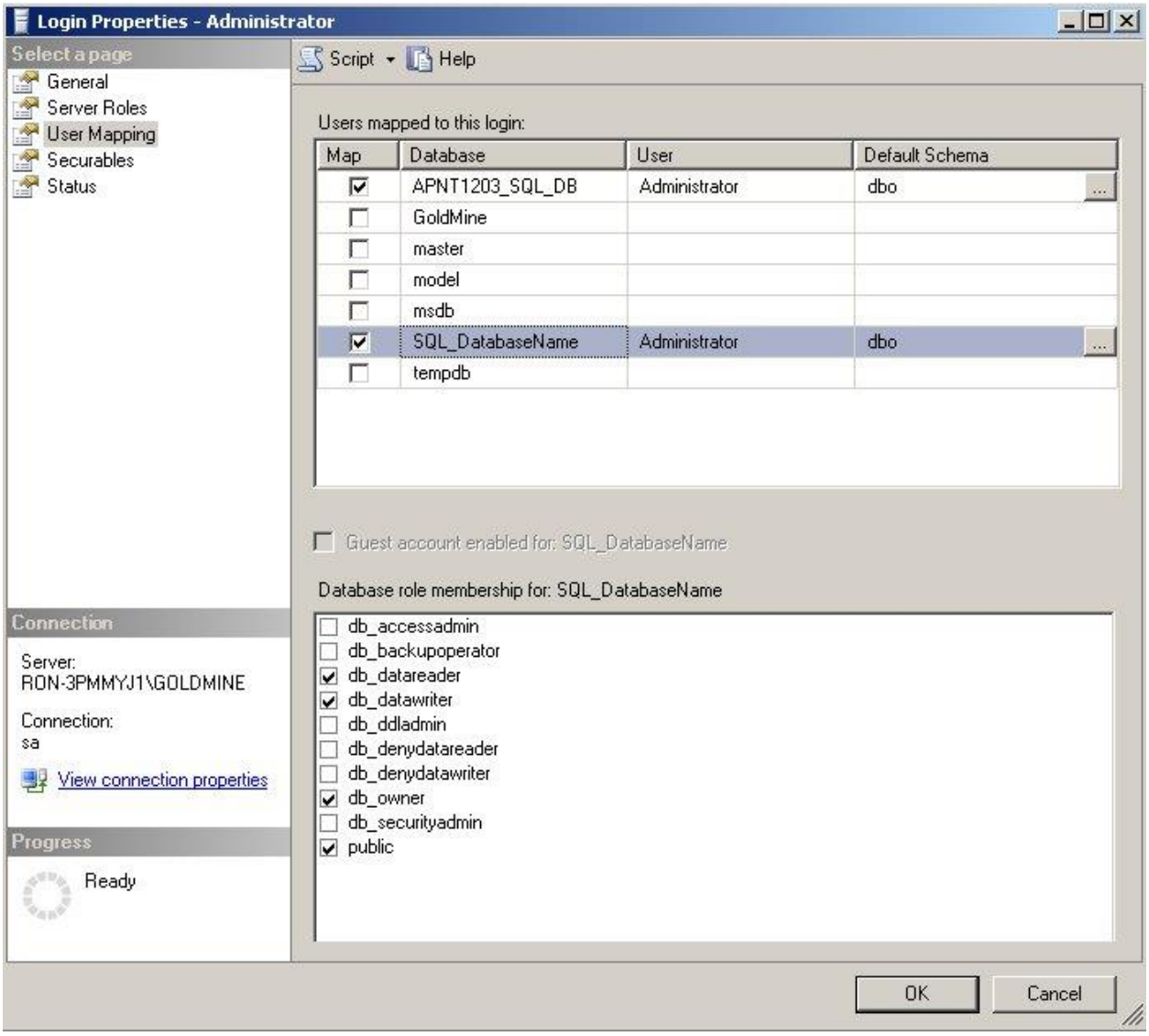

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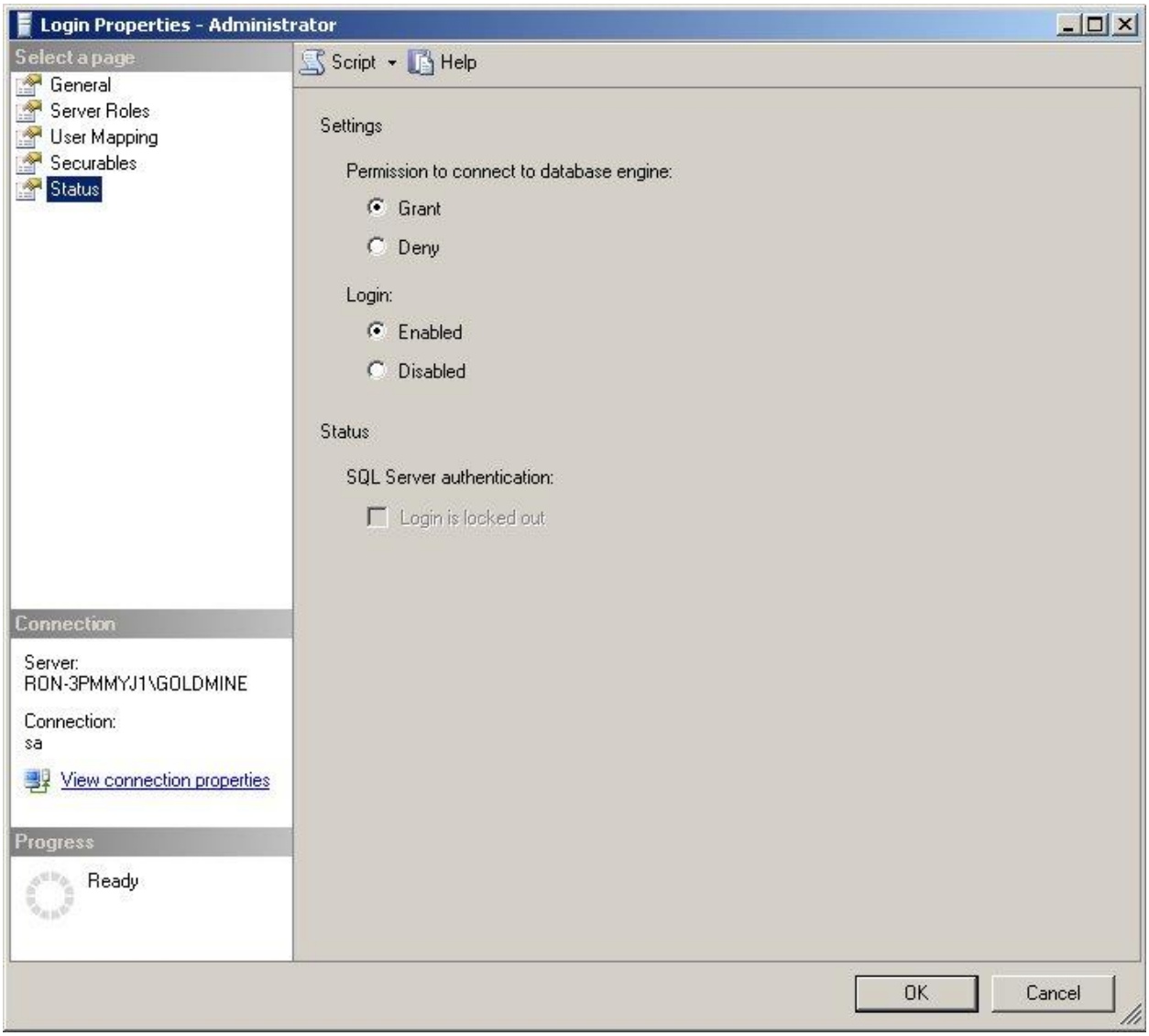
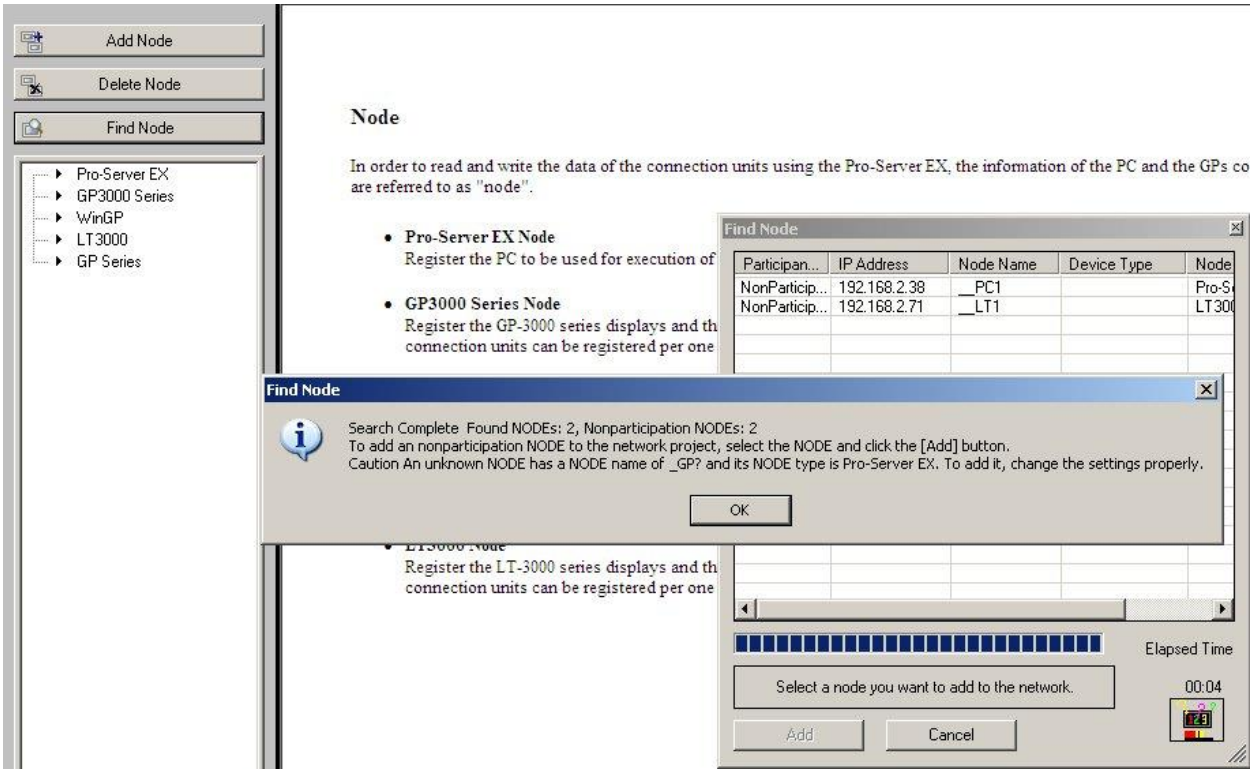


24. Design within Microsoft SQL Server 2008 R2 is done, but don't exit out of the software (it will be used later to see the data being populated).

25. Open up Pro-Server EX Pro-Studio EX. Make the following changes in the Pro-Server EX software (create a new file). Select the Find Node button along the left side tree. Select OK from the first picture. In my example, it found the node of my personal computer of 192.168.2.38 & LT screen of 192.168.2.71. Highlight both items & select Add. A warning message will come up asking "Do you want to also import the Symbol info of the LT3000 Node?" – select Yes (this is the time savings portion of using the Symbol Table from the GP-Pro EX software). Select OK after the Symbols have been imported. You will now see the tree along the left side has both the computer & LT screen.



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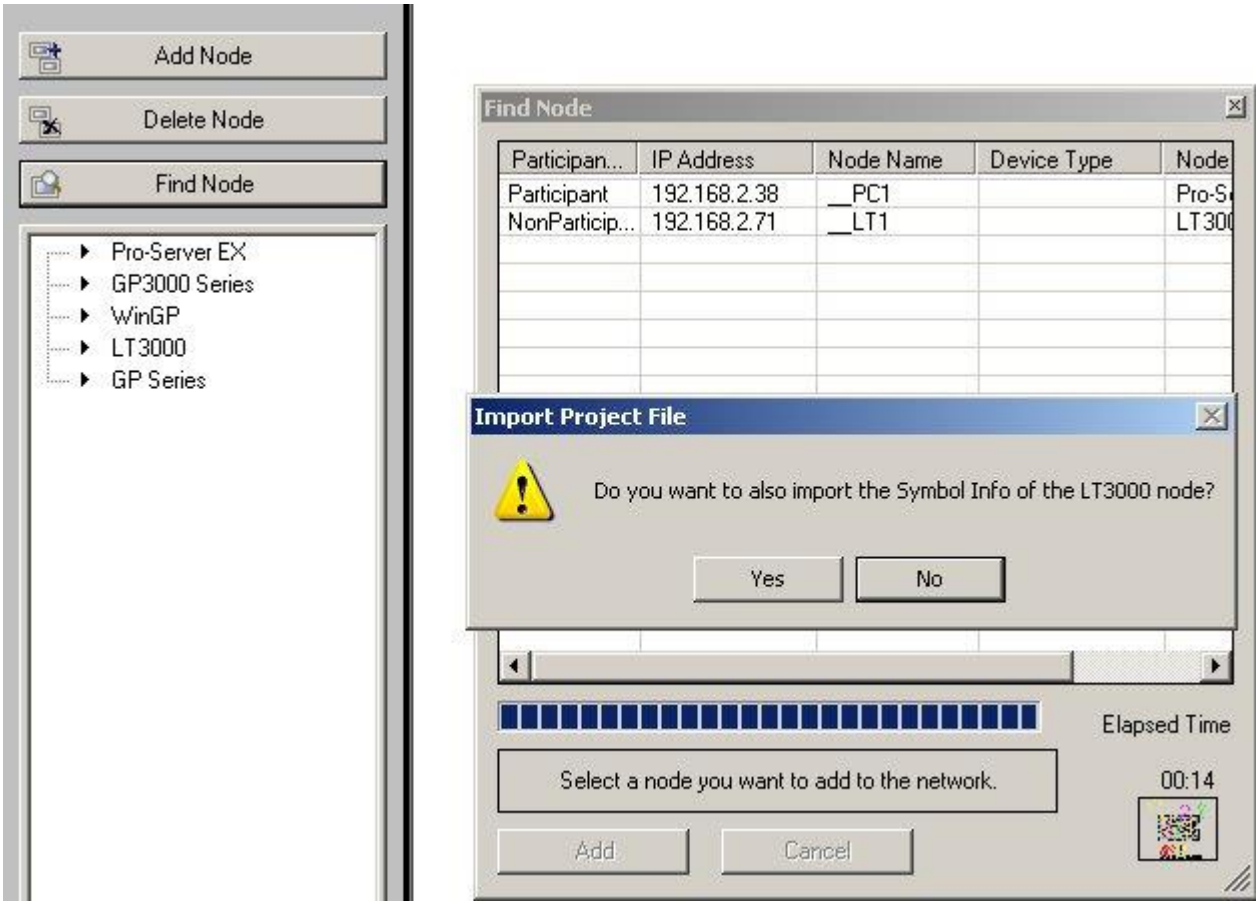

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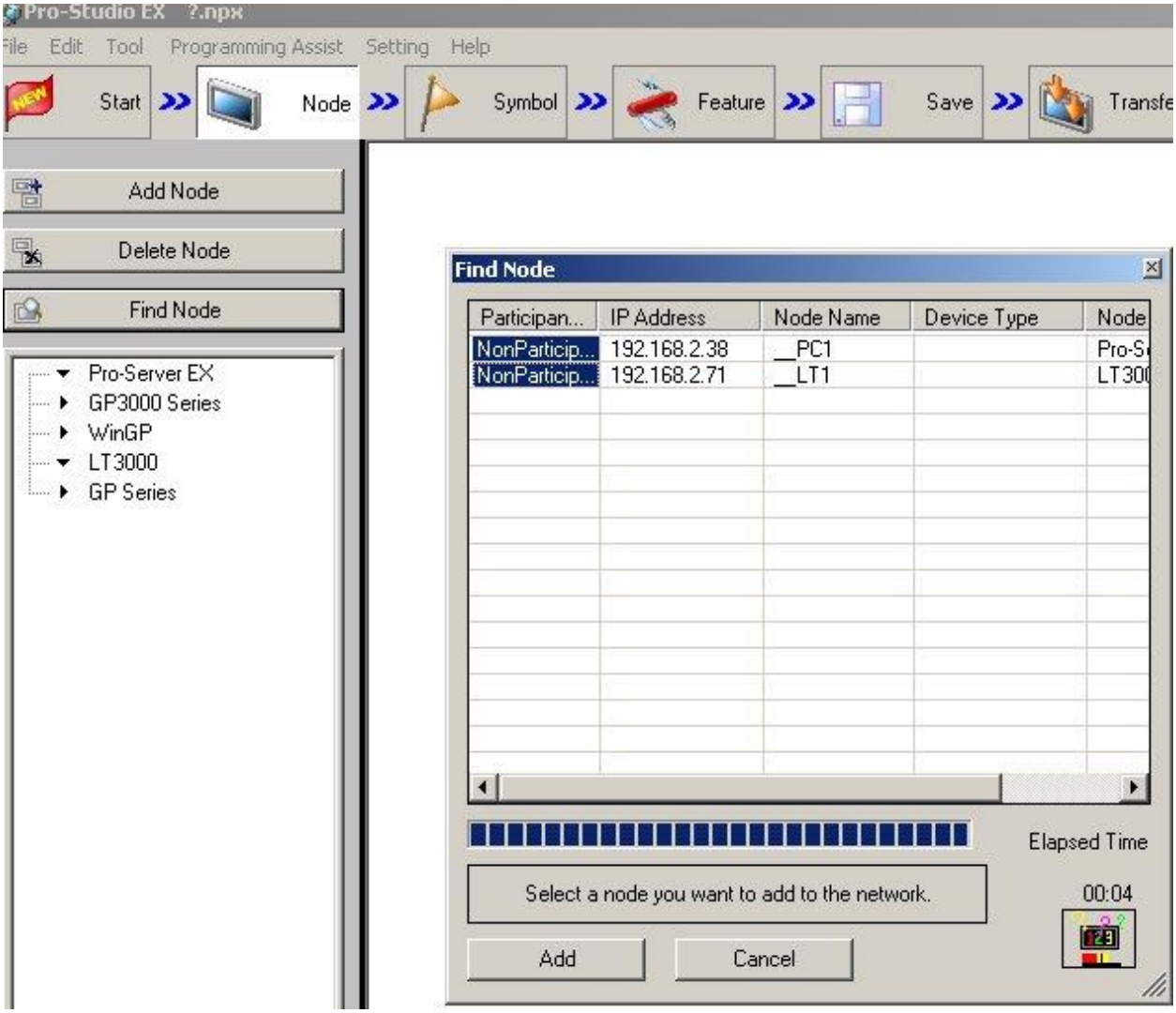

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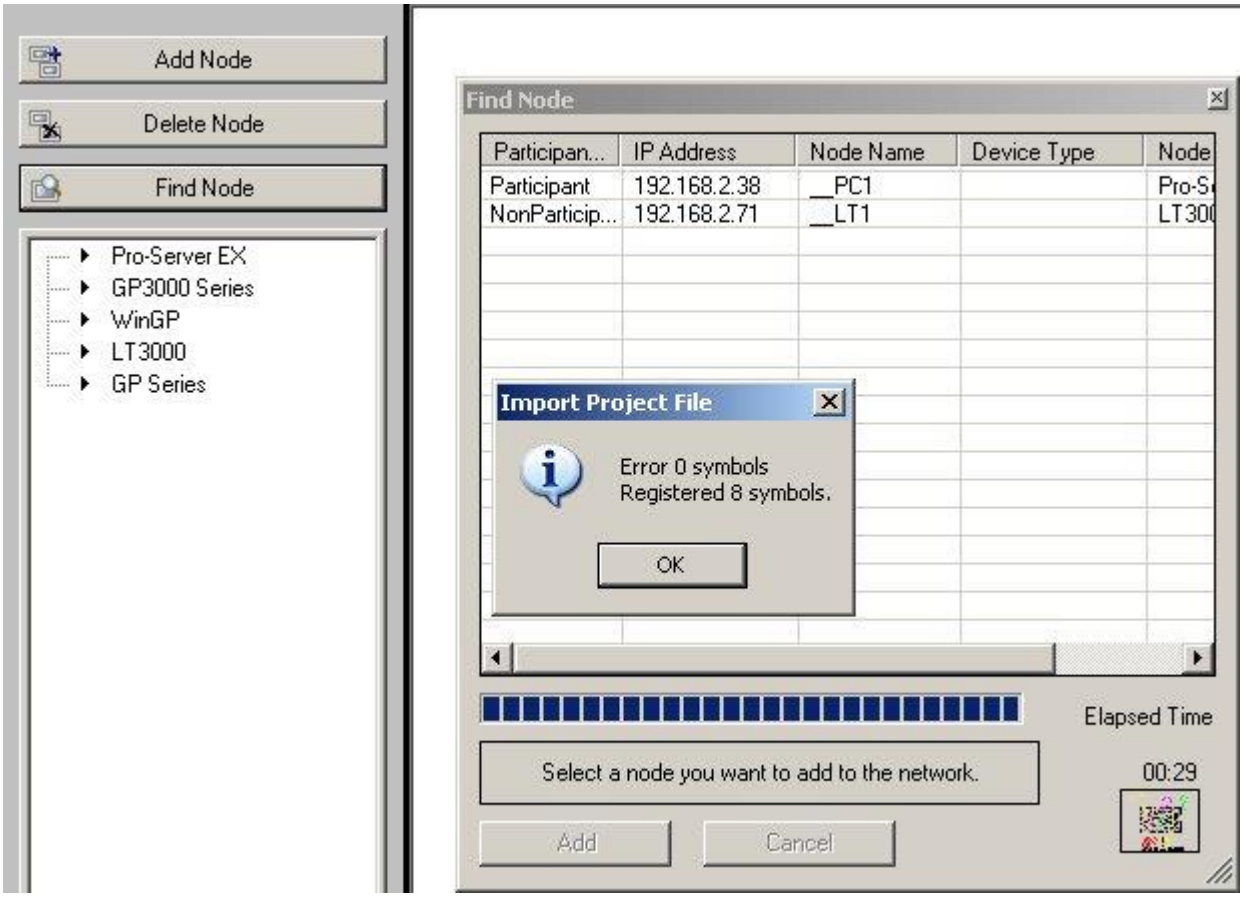

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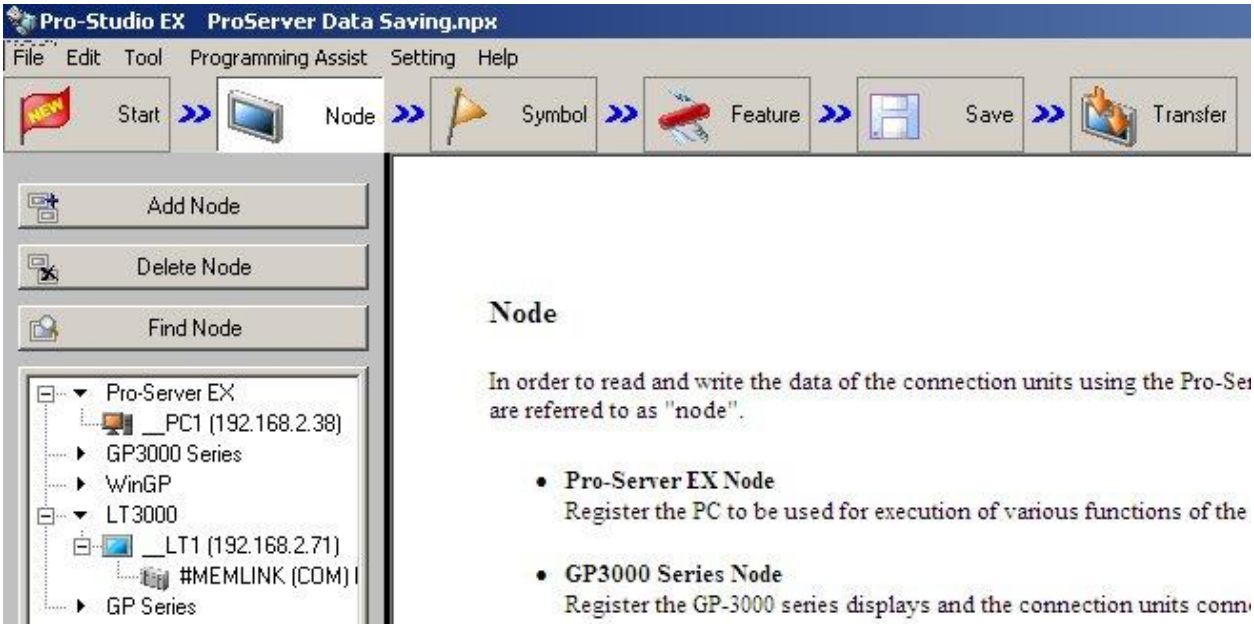

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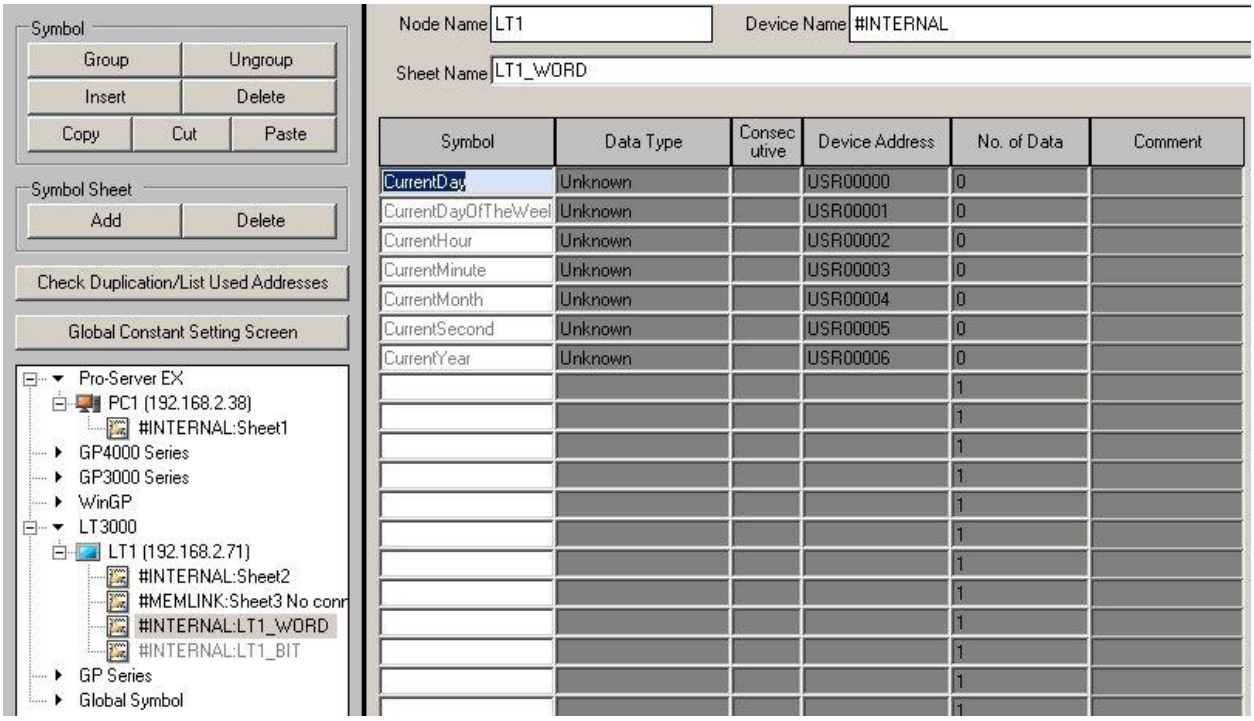
26. Make the following changes in the Pro-Server EX software. You will now see all symbols have been imported into the Pro-Server EX software.



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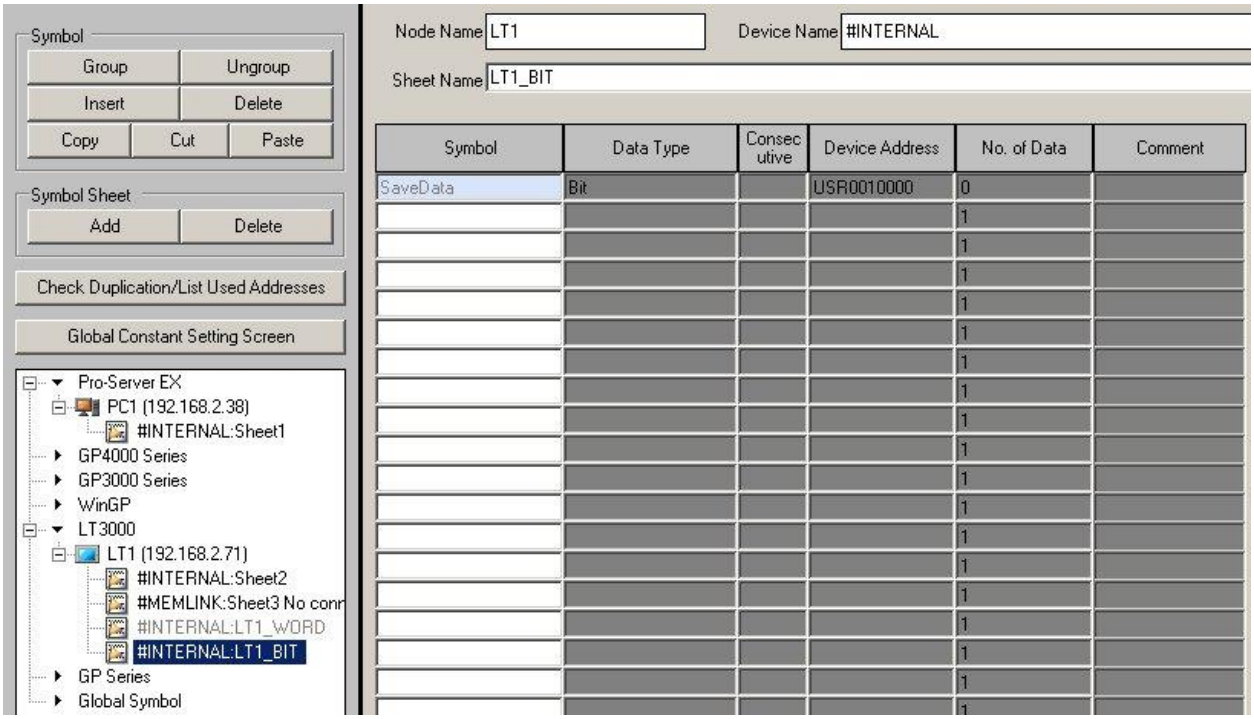

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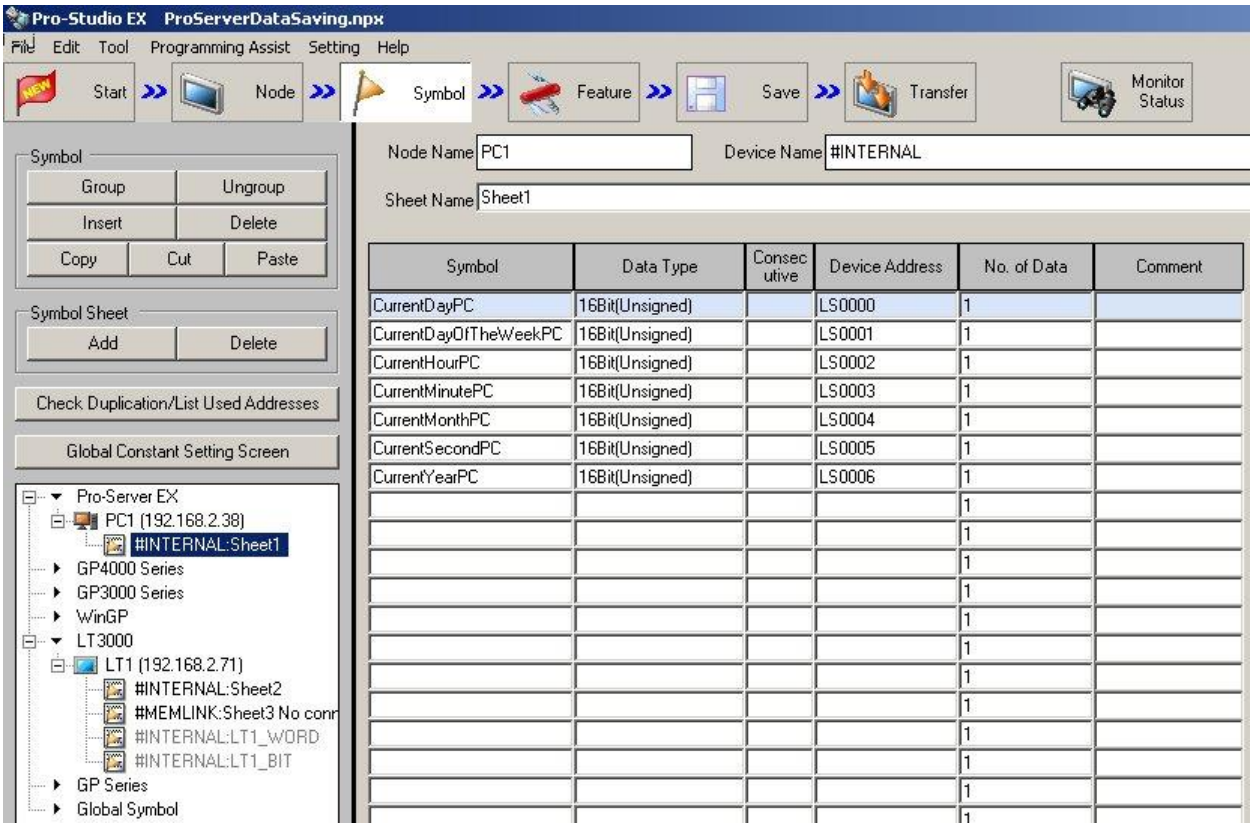
27. Create the following tags within Pro-Server EX software for the computer. These will be the tags used within the Microsoft Access database. This is required when the trigger is time based via a computer (such as constant cycle every x seconds or a specific time). The reason for this is Pro-Server must "push" the data & the trigger and data must be on the same device.



Symbol	Data Type	Consecutive	Device Address	No. of Data	Comment
CurrentDayPC	16Bit(Unsigned)		LS0000	1	
CurrentDayOfTheWeekPC	16Bit(Unsigned)		LS0001	1	
CurrentHourPC	16Bit(Unsigned)		LS0002	1	
CurrentMinutePC	16Bit(Unsigned)		LS0003	1	
CurrentMonthPC	16Bit(Unsigned)		LS0004	1	
CurrentSecondPC	16Bit(Unsigned)		LS0005	1	
CurrentYearPC	16Bit(Unsigned)		LS0006	1	

28. Make the following changes in the Pro-Server EX software. We will create the Trigger Condition for the item used within the Access file (please note the Node Name within each Trigger Condition – very critical). The Add button along the left side tree will be used for each action (click on the Trigger Condition first). The trigger name is changed from the default of Trigger1 to Cycle, CycleTrigger, and ScreenButton for the three triggers.

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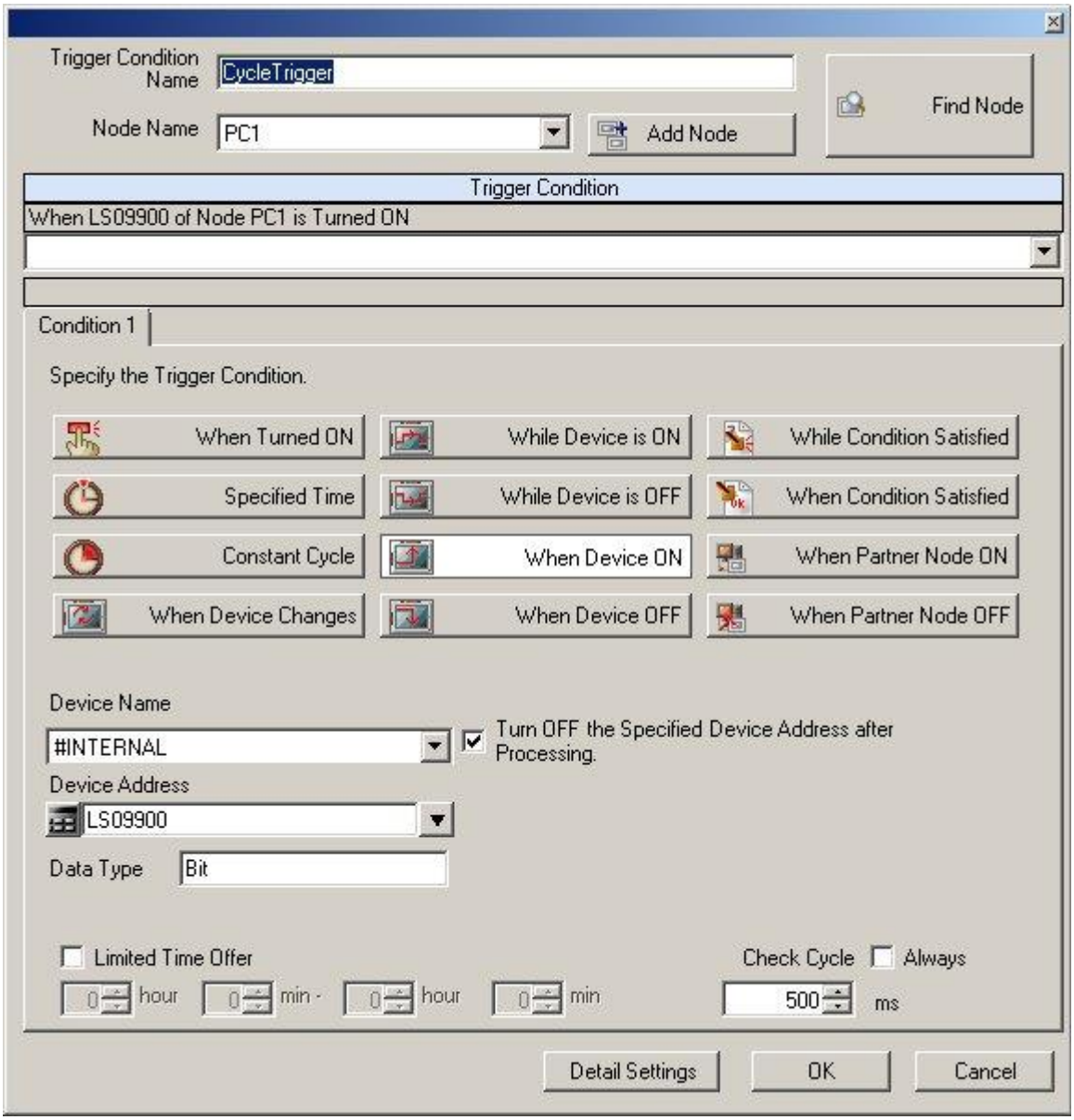

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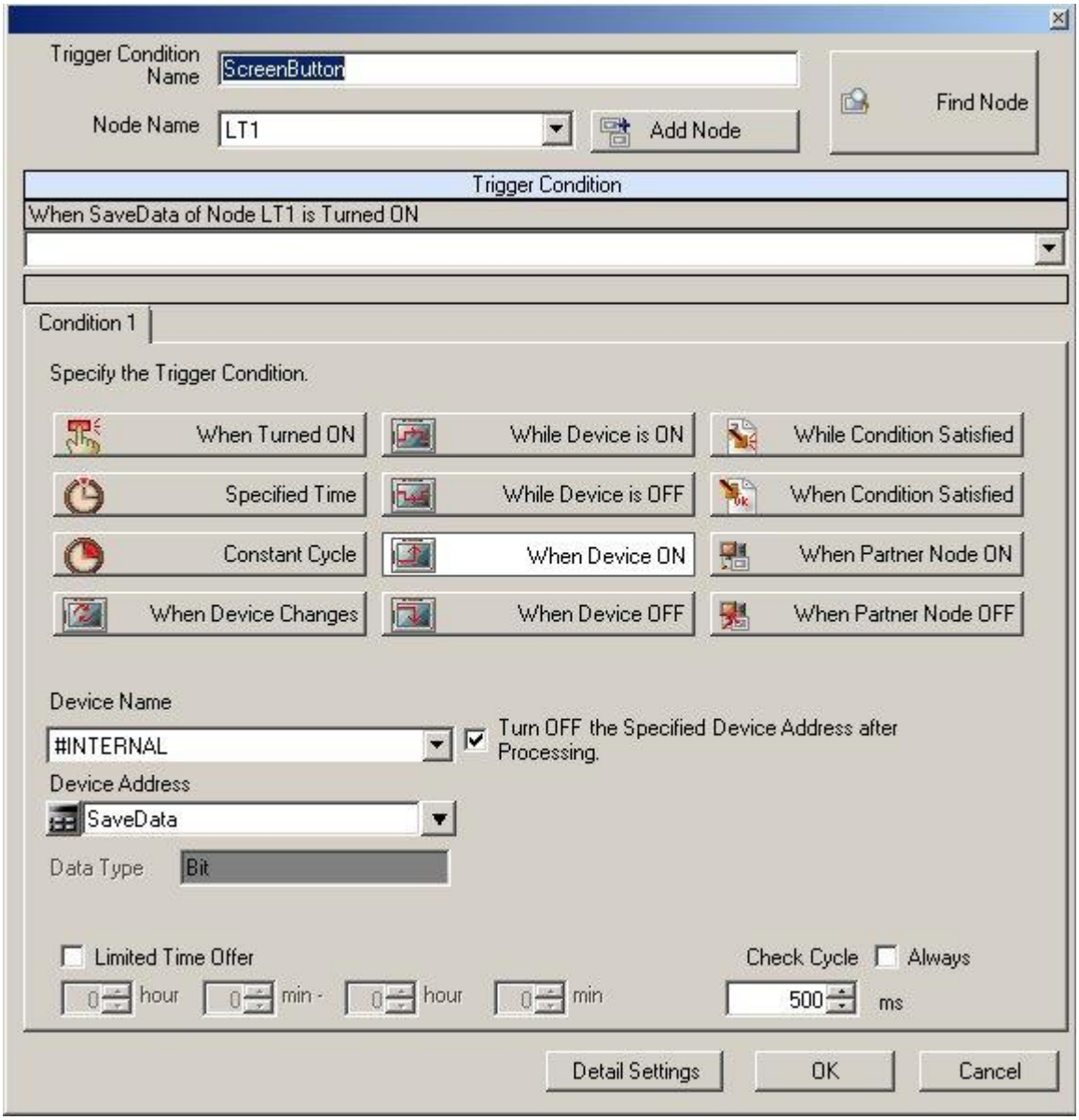

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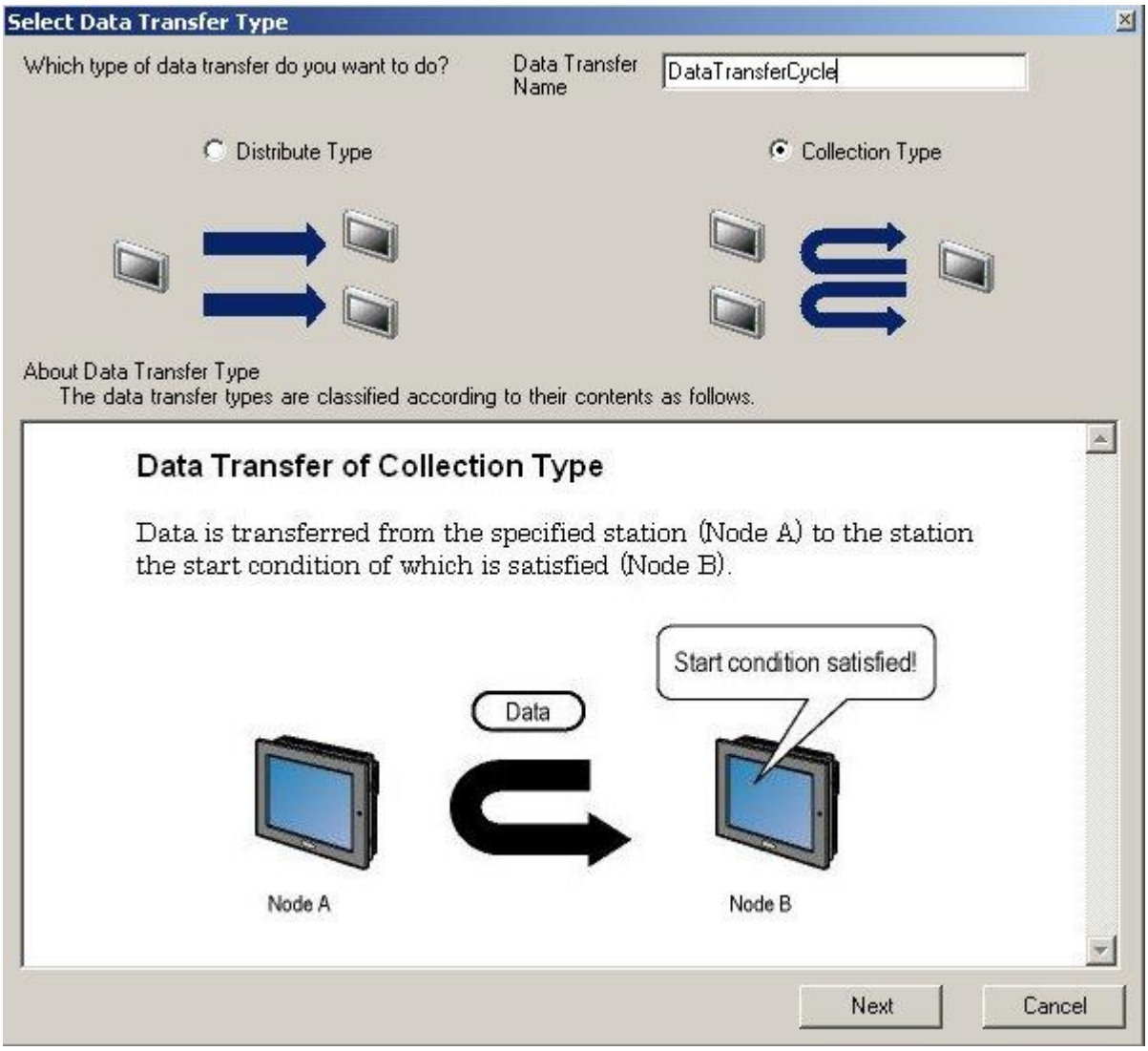
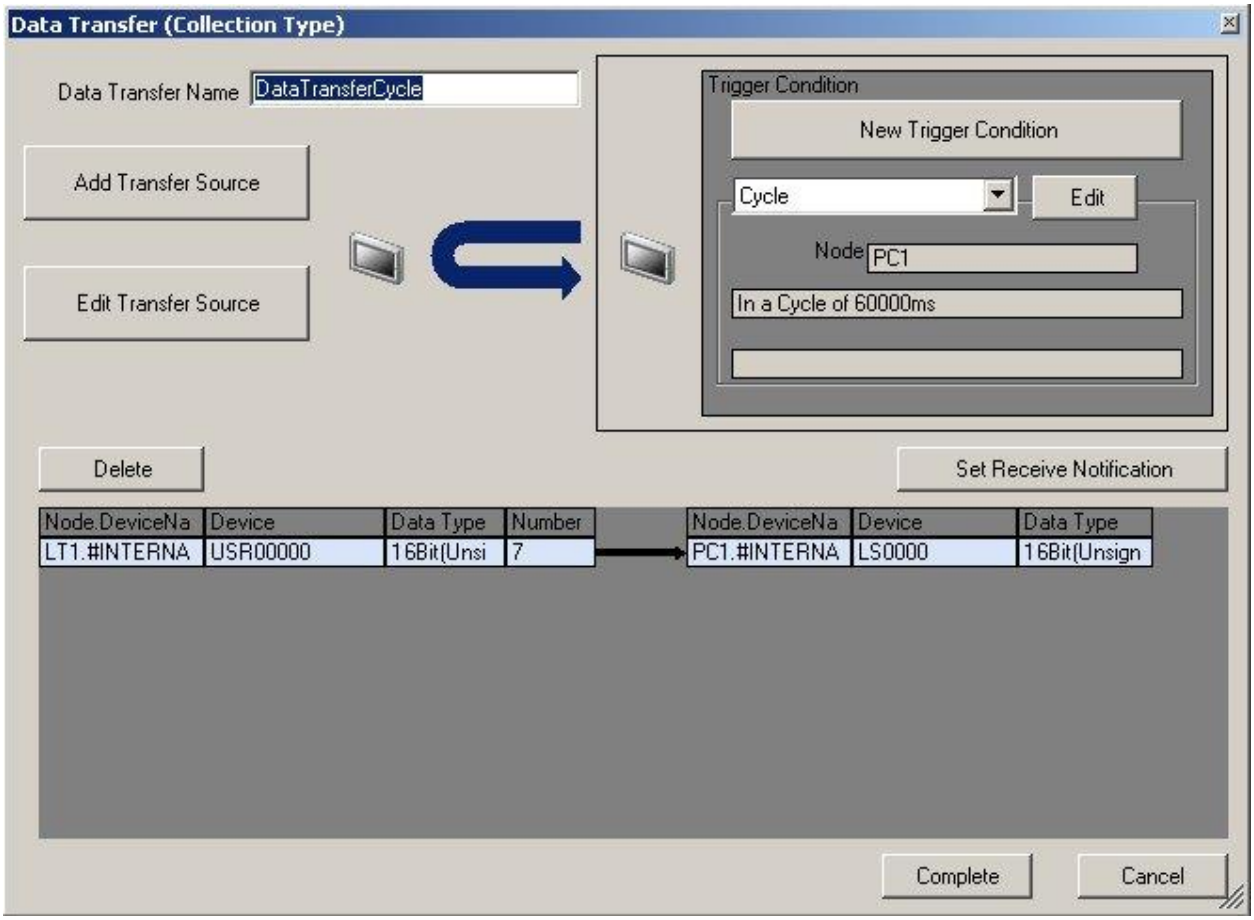
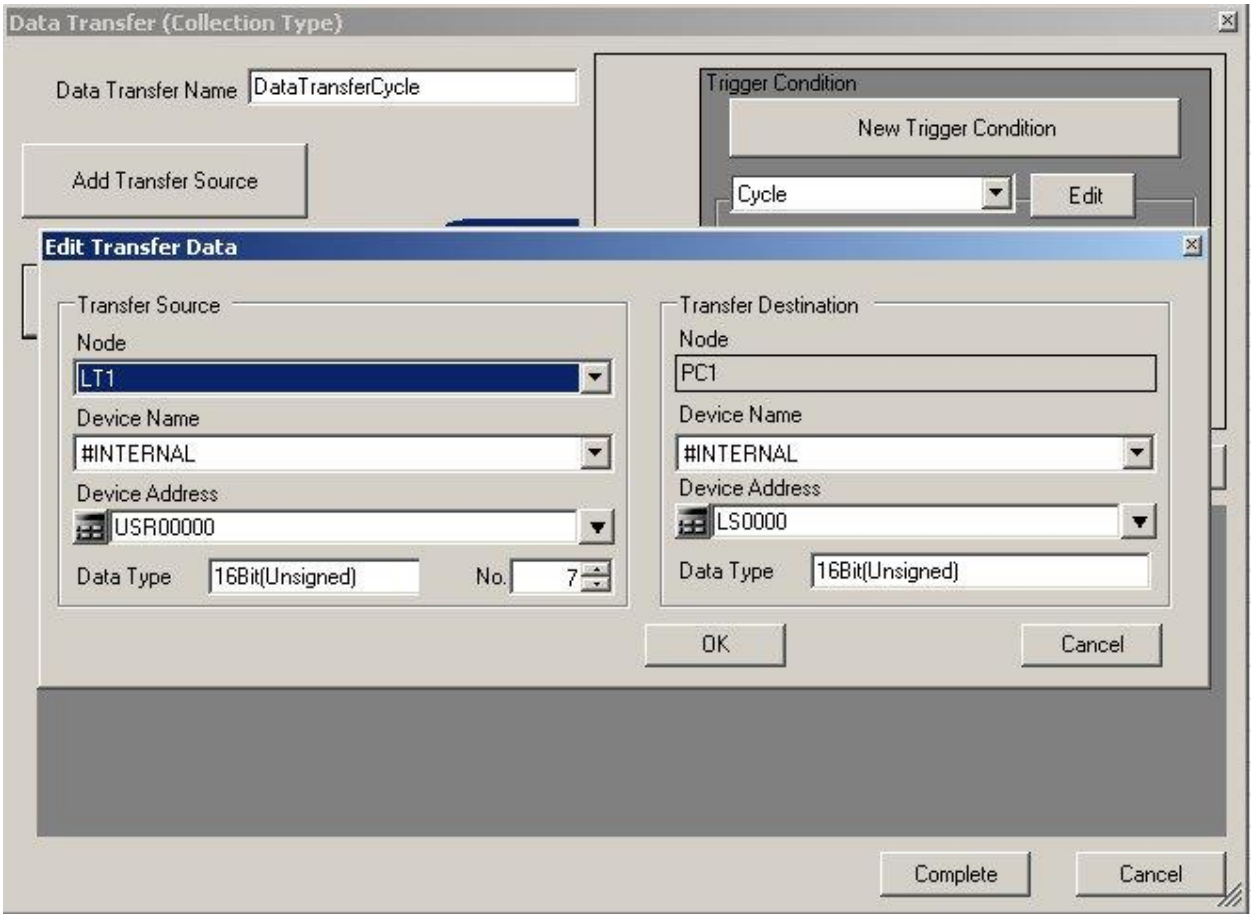
29. We will now create the Data Transfer to "push" the memory from the LT screen to Pro-Server EX. This is required when the trigger is time based via a computer (such as constant cycle every x seconds or a specific time). The reason for this is Pro-Server must "push" the data & the trigger and data must be on the same device. Right-click on Device Transfer along the left side of the screen & select Add. Change the Data Transfer Name if desired. Press Next.



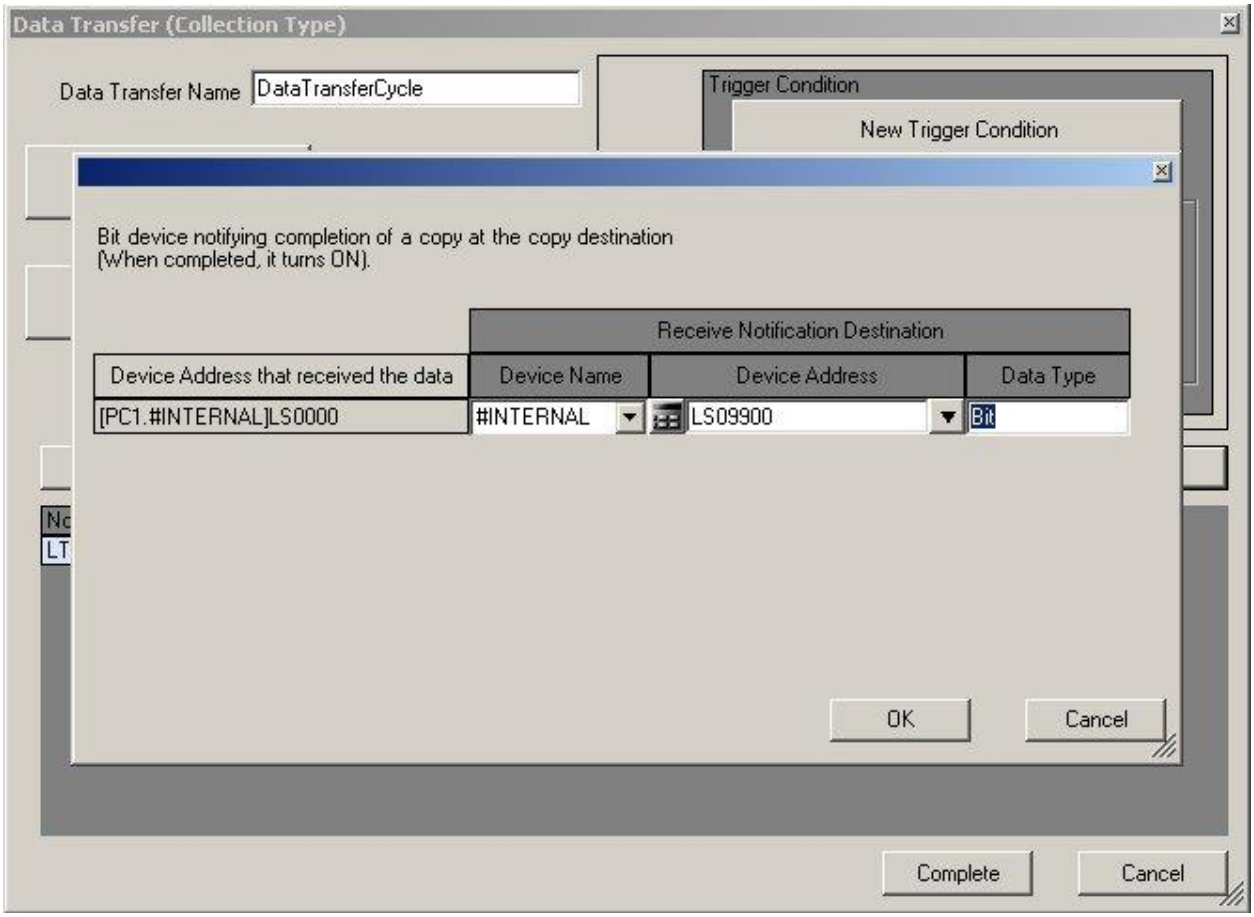
30. Press Add Transfer Source.



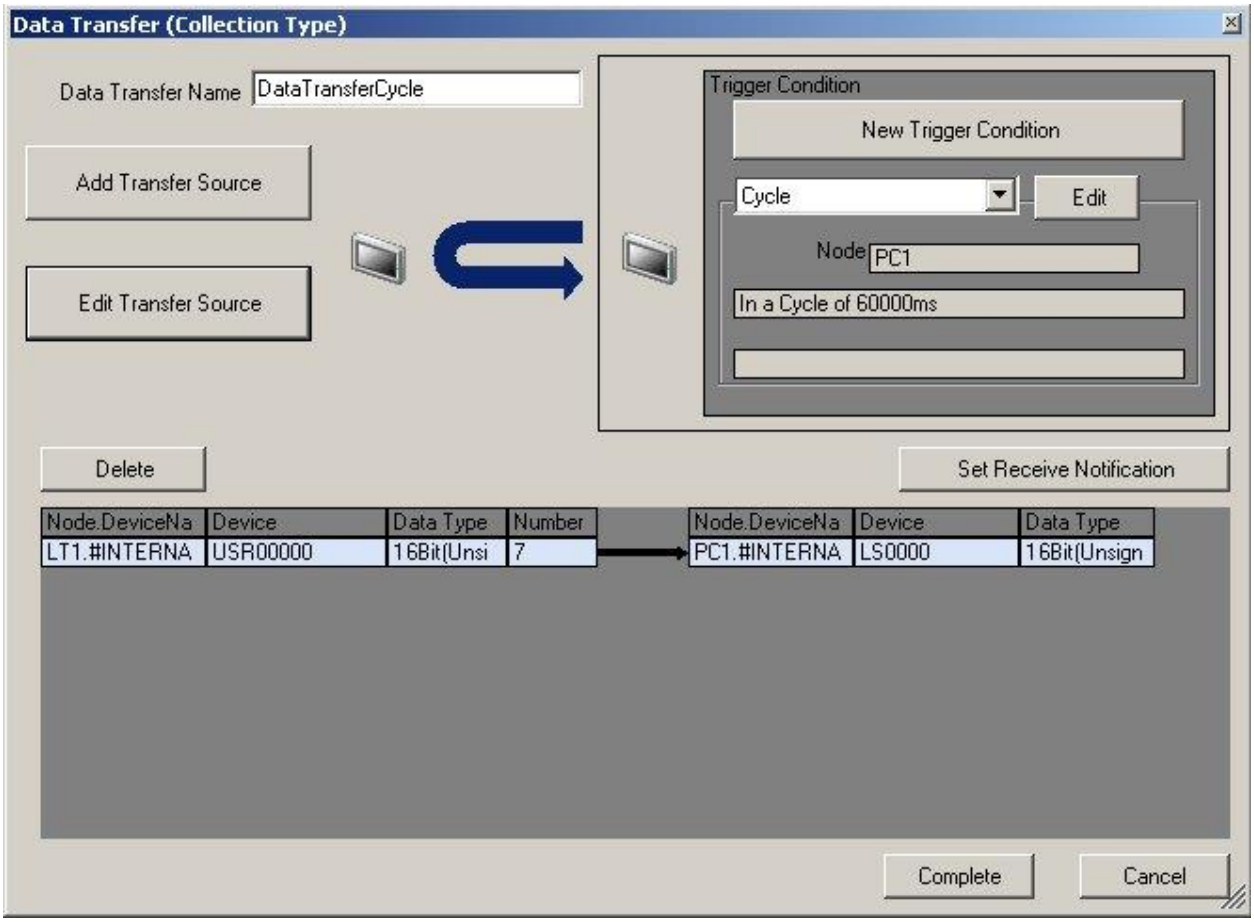
31. Make the changes shown. This copies the data from the screen into the memory of the computer. Press OK.



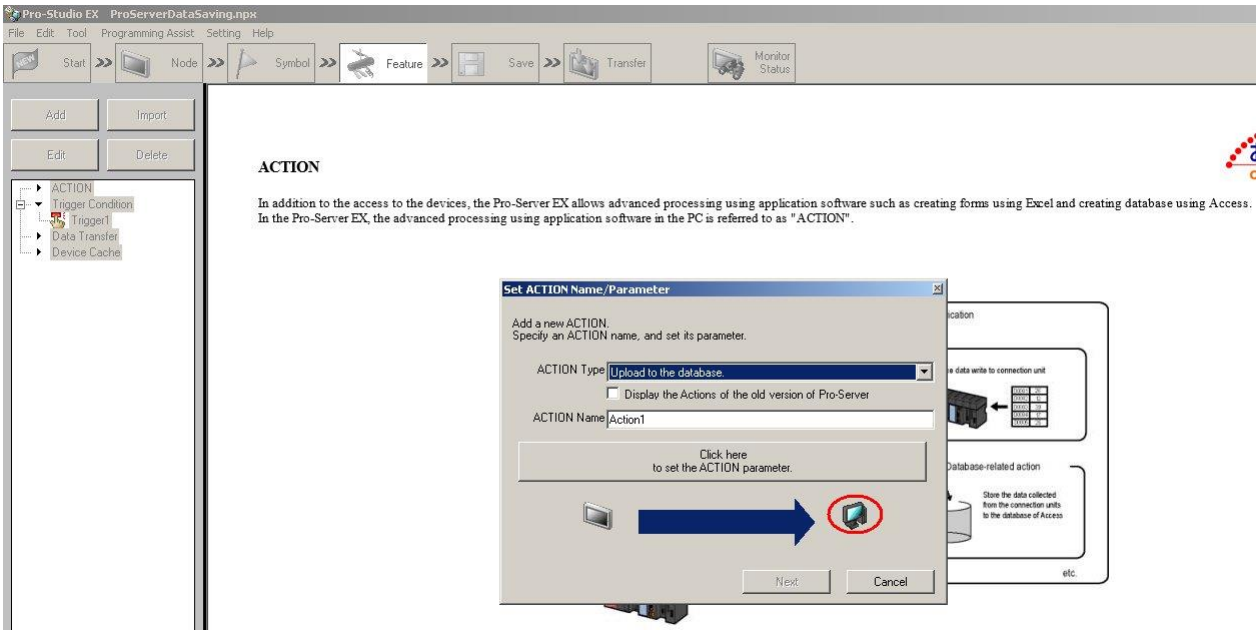
32. Press Set Receive Notification. Make the changes shown. This will create the trigger bit used within the CycleTrigger trigger. Press OK.



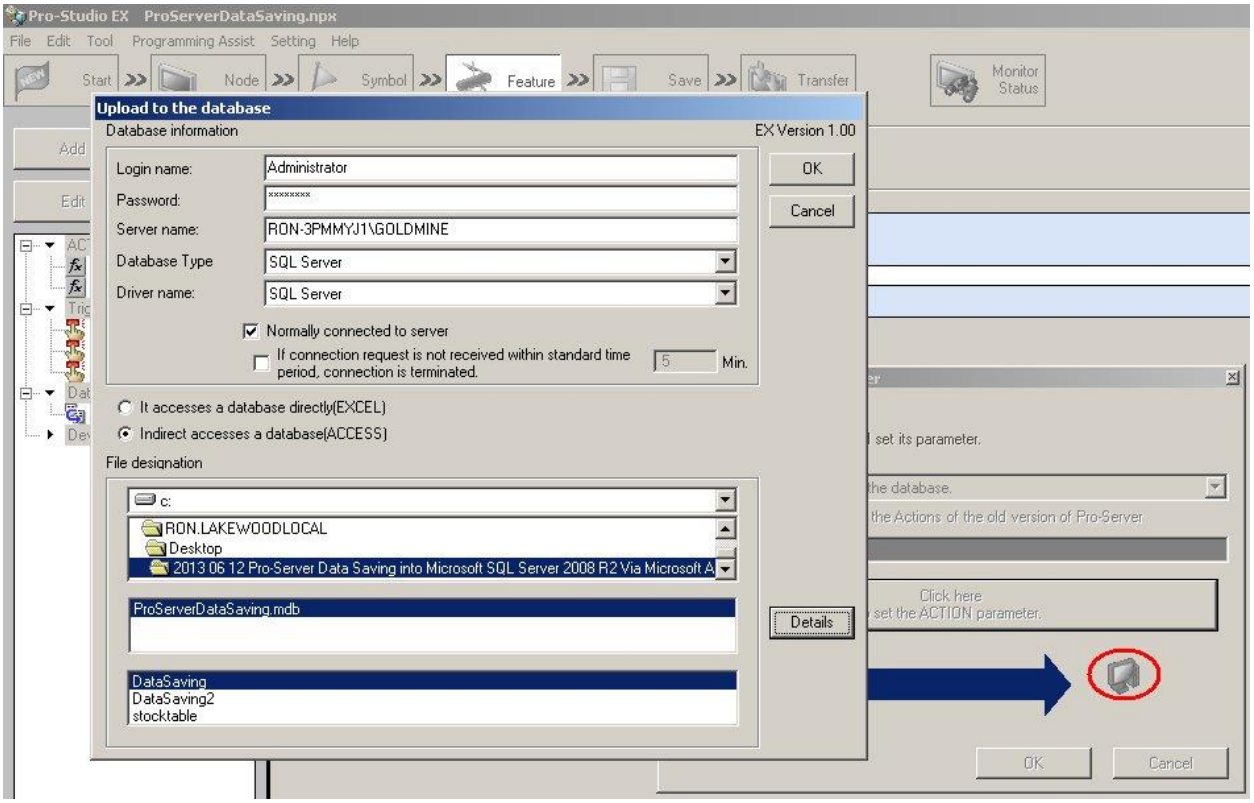
33. Press Complete.



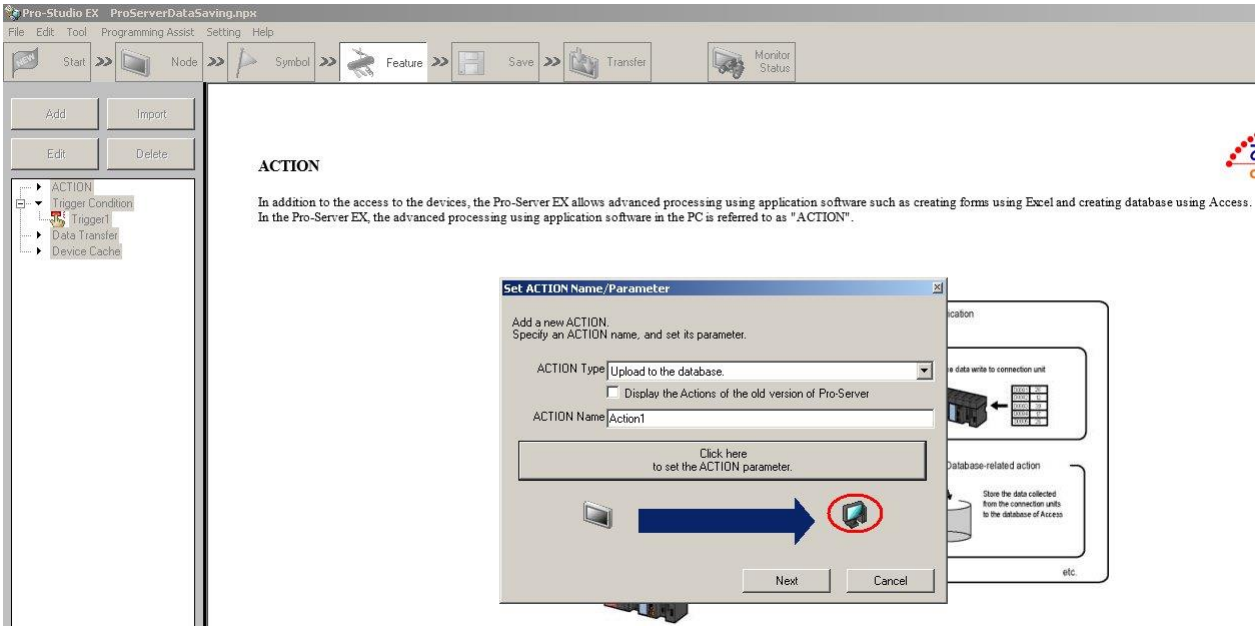
34. We will now create the action specified at the beginning of the document (saving via a button). The Add button along the left side tree will be used for each action (click on the ACTION first). The Access file created will be used as well. Along the left side tree, right-click on Action & select Add. In the ACTION Type, scroll down & select "Upload to the database."



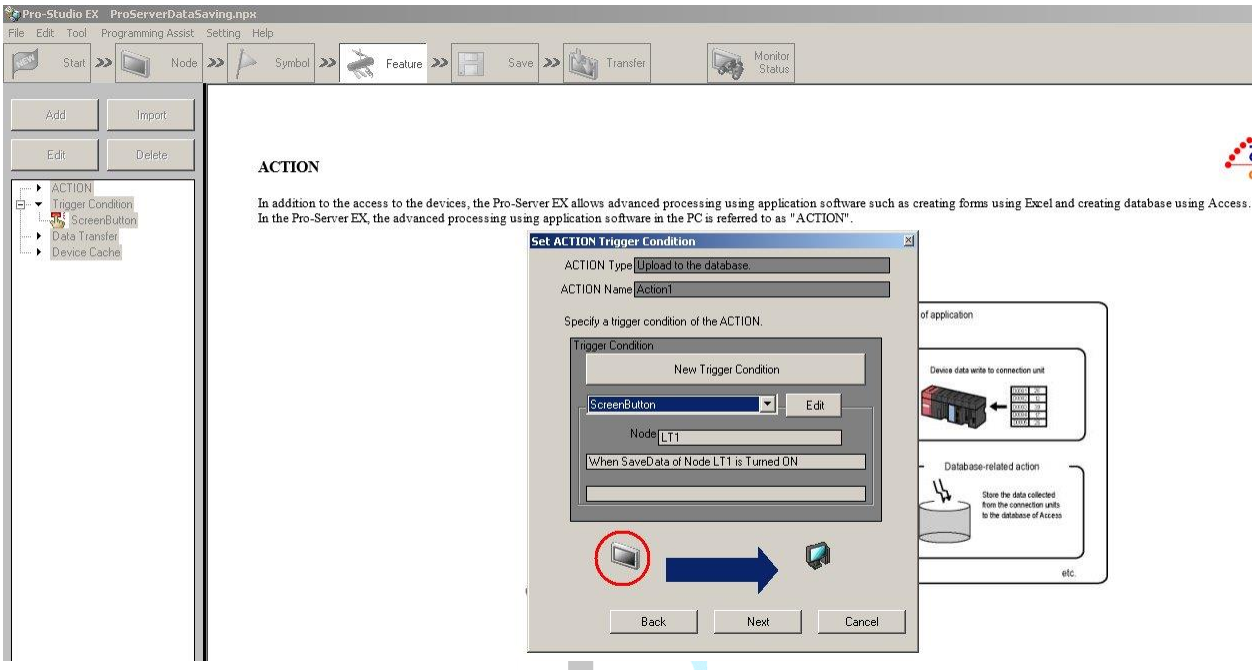
35. Select "Click here to set the ACTION parameter." Fill in the information as shown. Please note, the Login name "Administrator", Password "password", and Server name "RON-3PMMYJ1\GOLDMINE" comes from the setup of the Microsoft SQL Server 2008 R2 when you login to SQL server (this information may be different per your computer). Select "Normally connected to server", and "Indirect accesses a database(Access)". Select the File designation as shown for the Access database file location (this information may be different per your computer). Make sure DataSaving is selected for the Table as shown. Press OK.



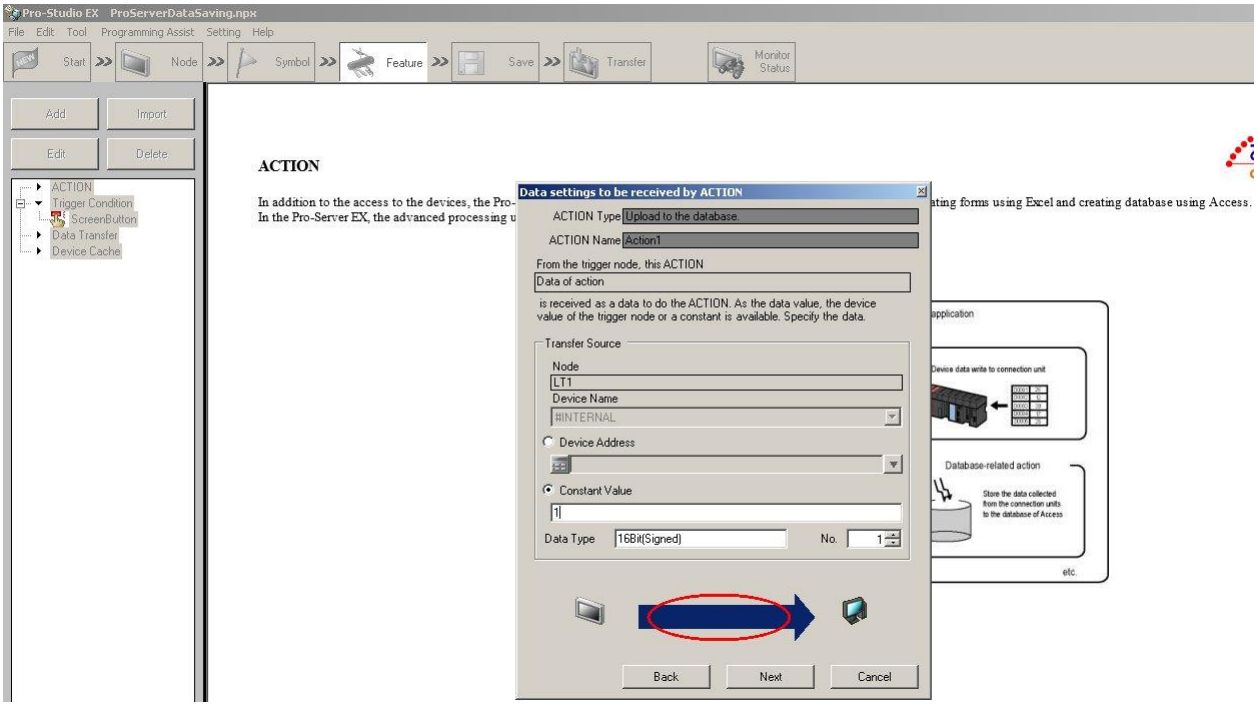
36. Press Next.



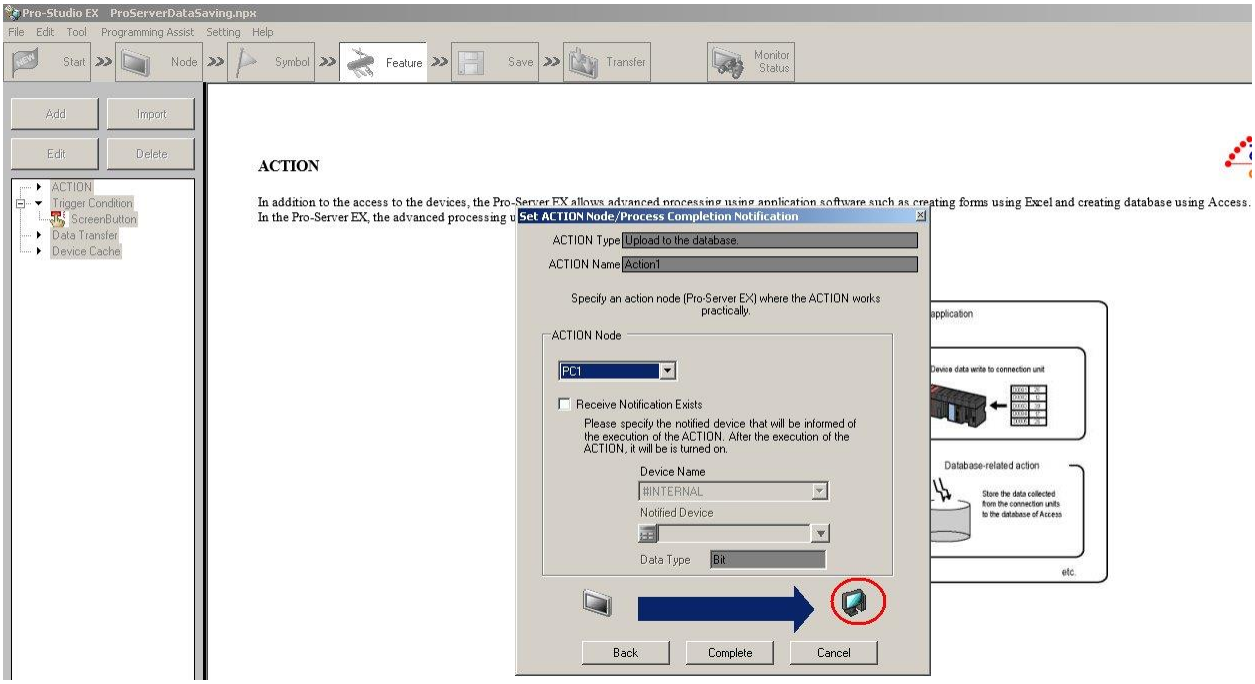
37. Select the trigger "ScreenButton" created. Select Next.

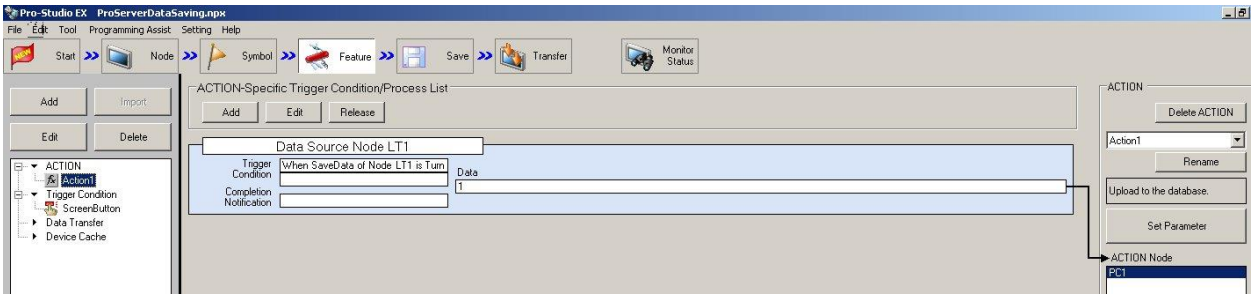


38. Select Constant Value. Input a value of 1. Select Next.

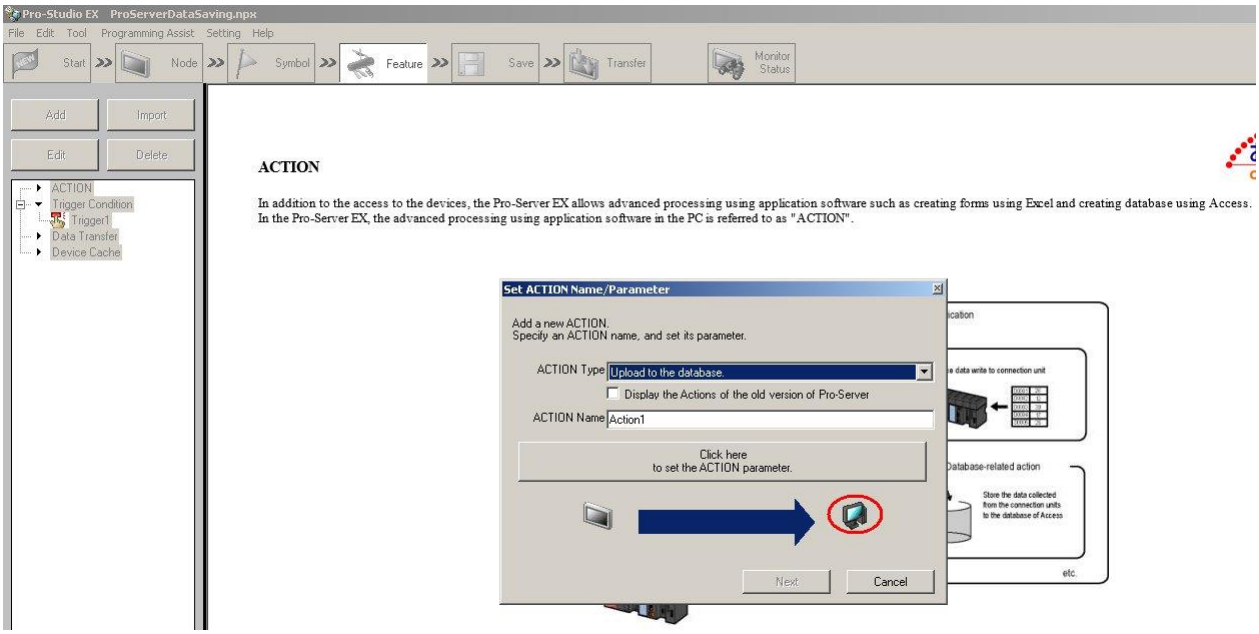


39. Select Complete.

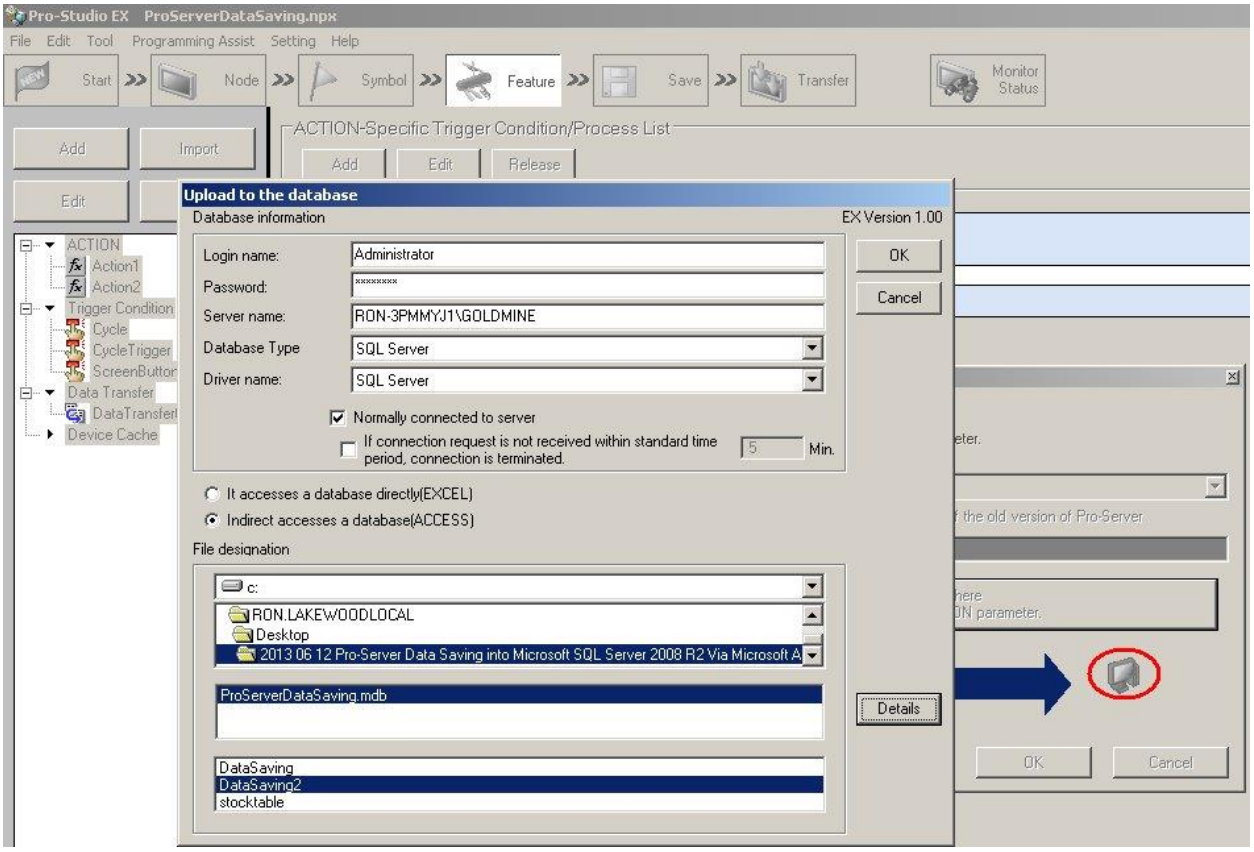




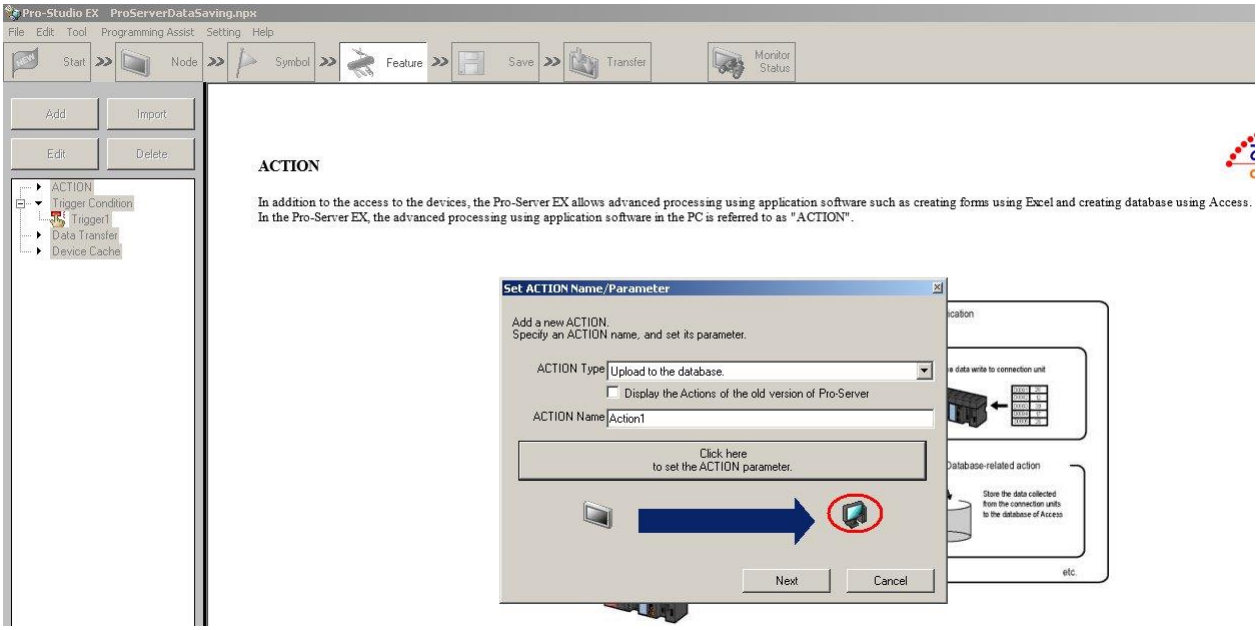
40. We will now create the action specified at the beginning of the document (timed constant cycle). The Add button along the left side tree will be used for each action (click on the ACTION first). The Access file created will be used as well. Along the left side tree, right-click on Action & select Add. In the ACTION Type, scroll down & select "Upload to the database."



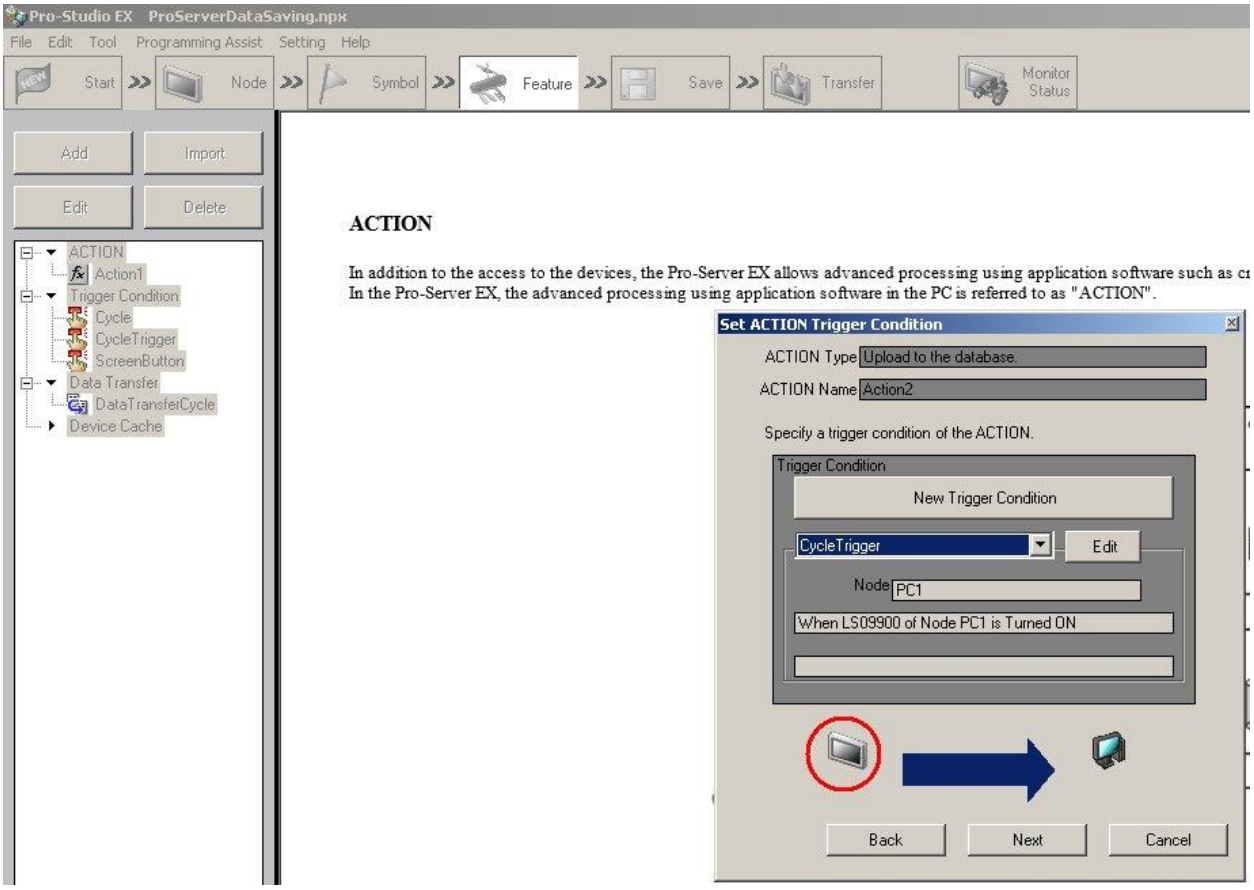
41. Select "Click here to set the ACTION parameter." Fill in the information as shown. Please note, the Login name "Administrator", Password "password", and Server name "RON-3PMMYJ1\GOLDMINE" comes from the setup of the Microsoft SQL Server 2008 R2 when you login to SQL server (this information may be different per your computer). Select "Normally connected to server", and "Indirect accesses a database(Access)". Select the File designation as shown for the Access database file location (this information may be different per your computer). Make sure DataSaving2 is selected for the Table as shown. Press OK.



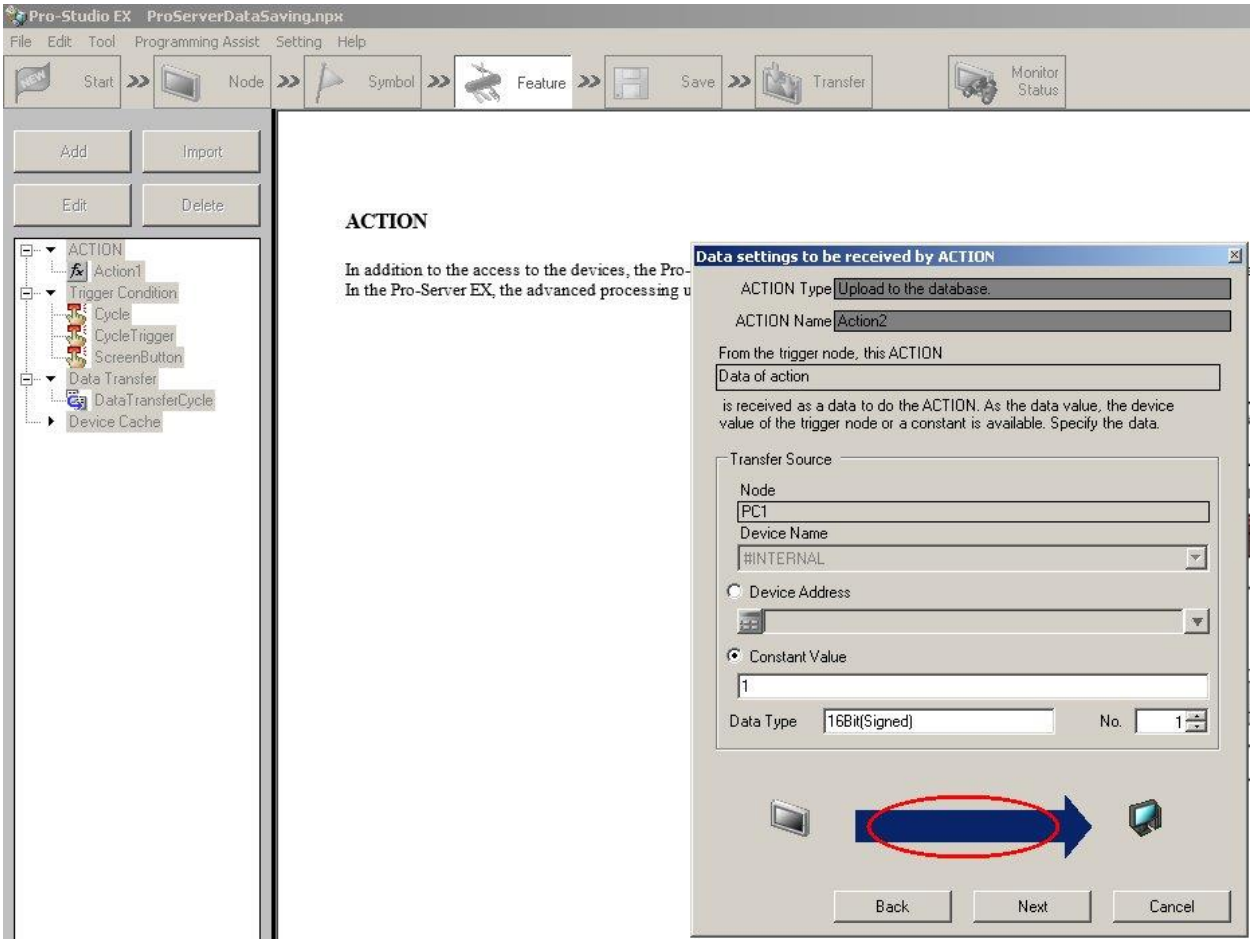
42. Select Next.



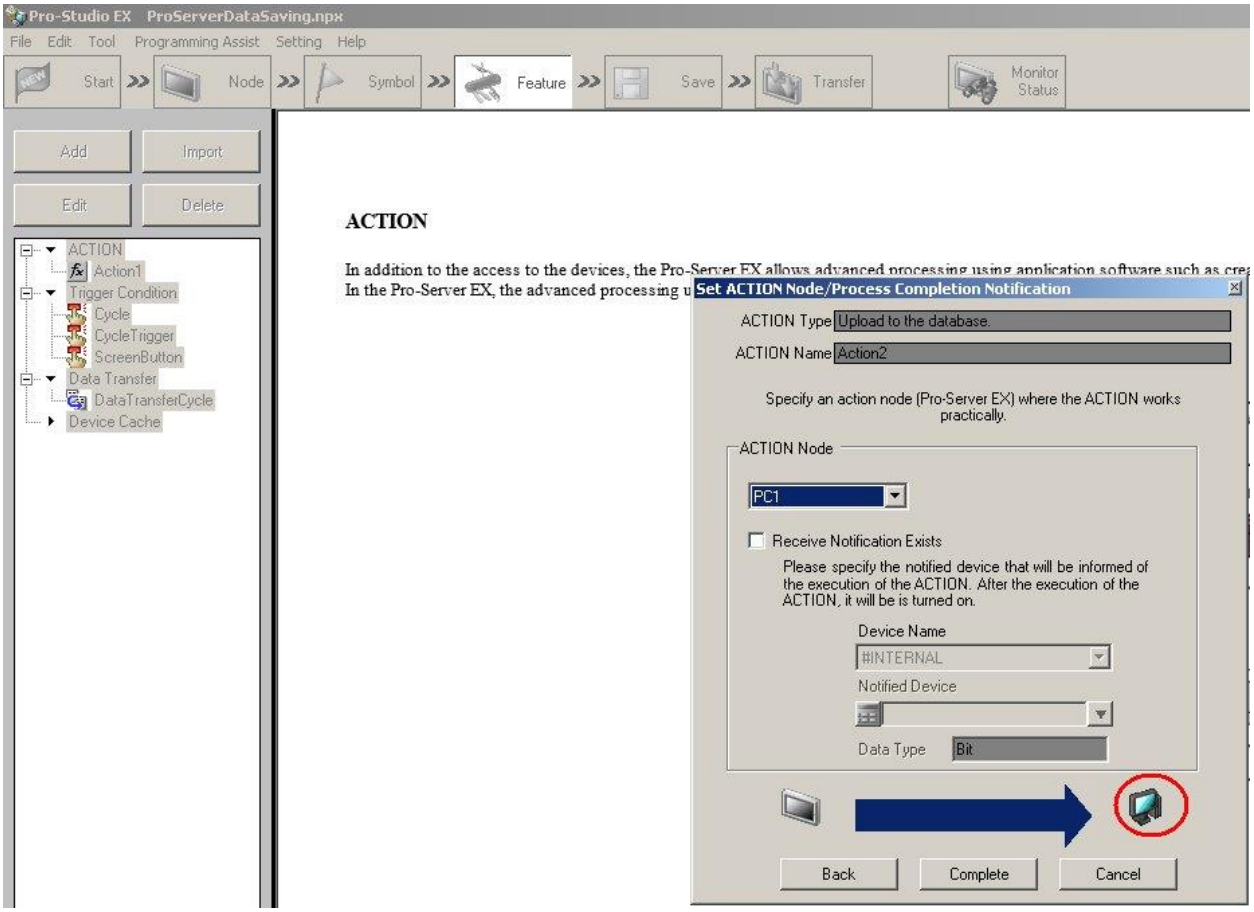
43. Select the trigger “CycleTrigger” created. Select Next.

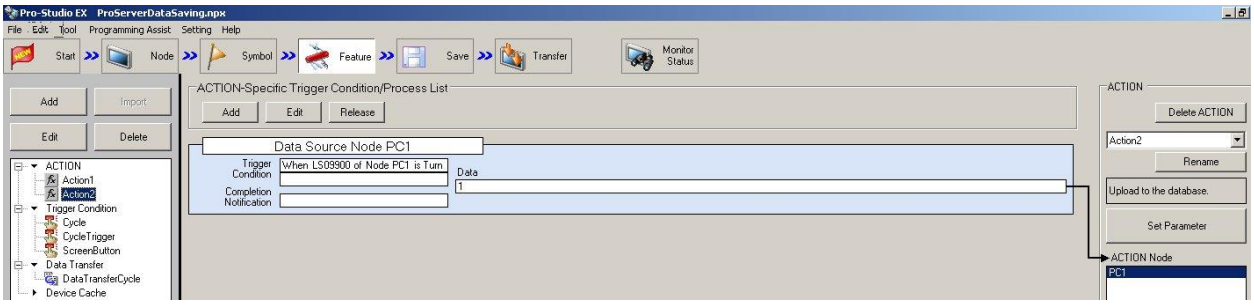


44. Select Constant Value. Input a value of 1. Select Next.

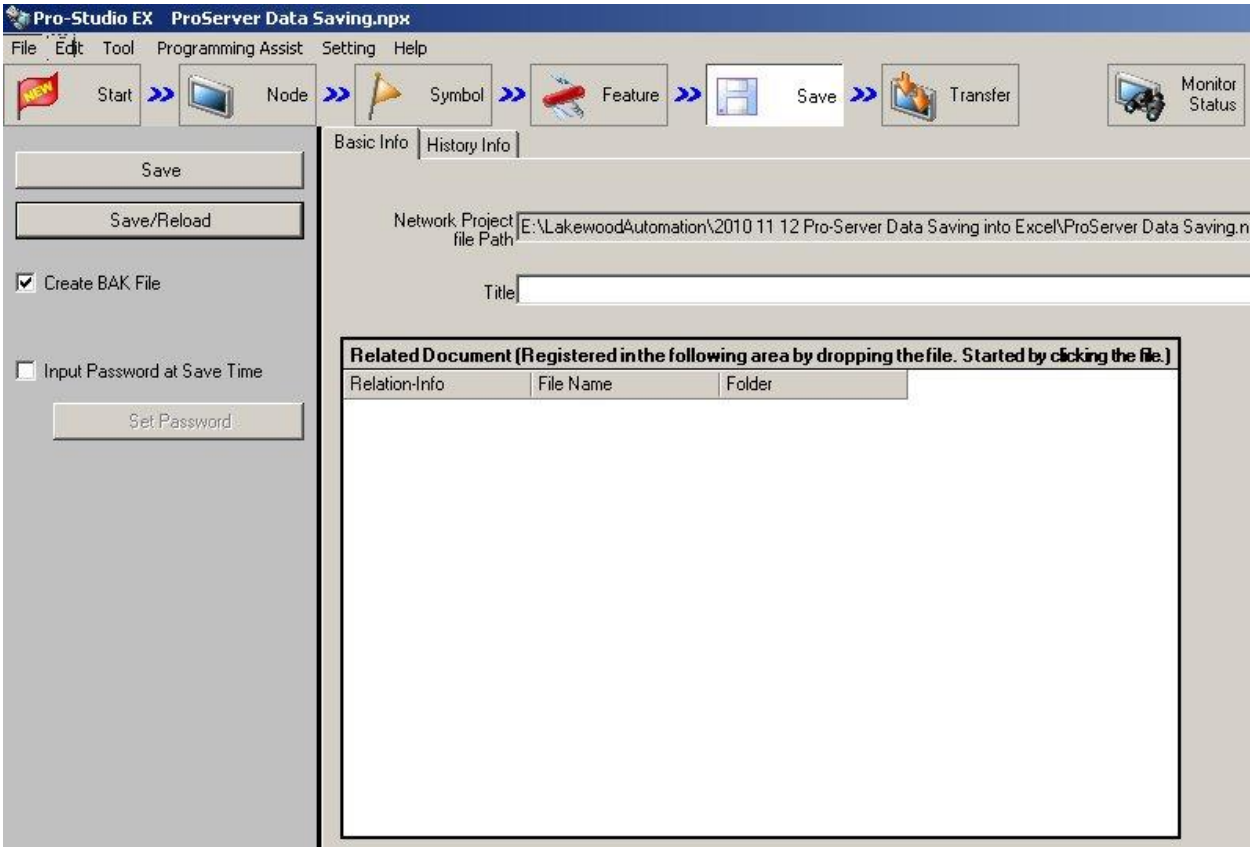


45. Select Complete.

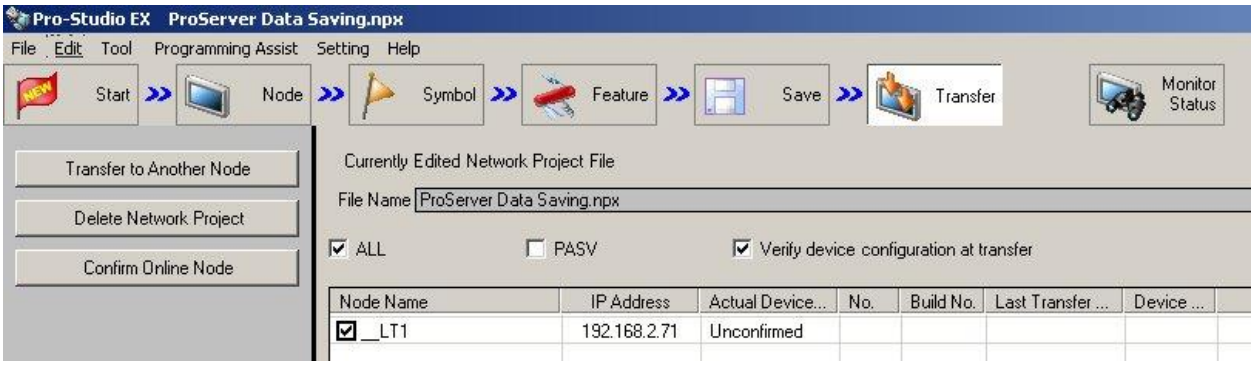




46. Select Save/Reload the Pro-Server file. This will startup Pro-Server EX in the Task Bar near the computer clock.

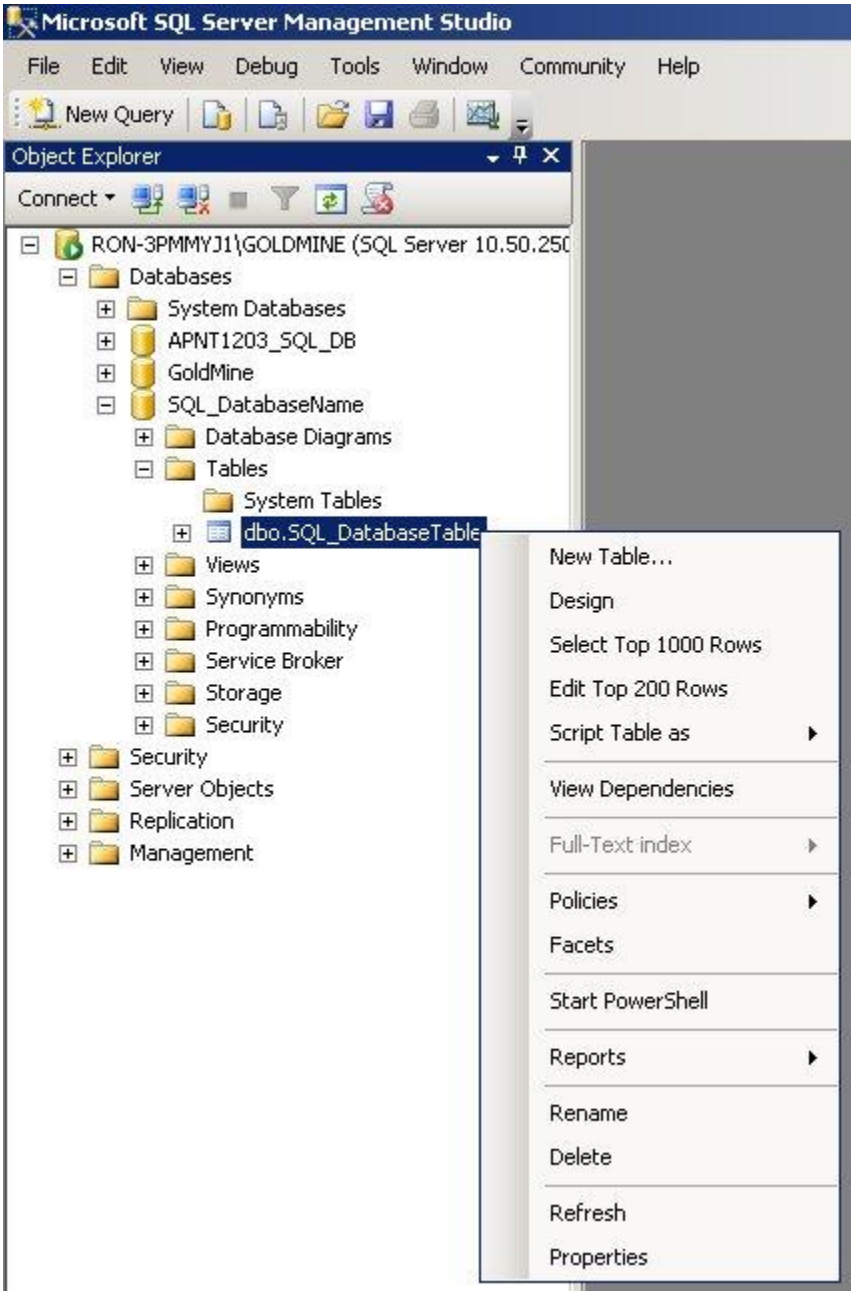


47. Download the file. Select Transfer to Another Node. Select Yes in the confirmation pop-up window. Please note – if your data collection is being done via the current time OR cycling every x seconds, you don't have to download to the screen (you may skip this step).



48. Try everything out. Press the button on the screen. Wait for five minutes. You will see data automatically logged into Microsoft SQL Server 2008 R2. You will need to right-click on the dbo.SQL_DatabaseTable & scroll to "Select top 1000 Rows" (newest data will appear at the bottom of the sheet). You will need to redo and "Select top 1000 Rows" each time the data is changed. Scroll left / right to see all data.

Lakewood Automation
27911 Clemens Road Westlake, Ohio 44145



www.lakewoodautomation.com
(440)808-4820 440.899.0493

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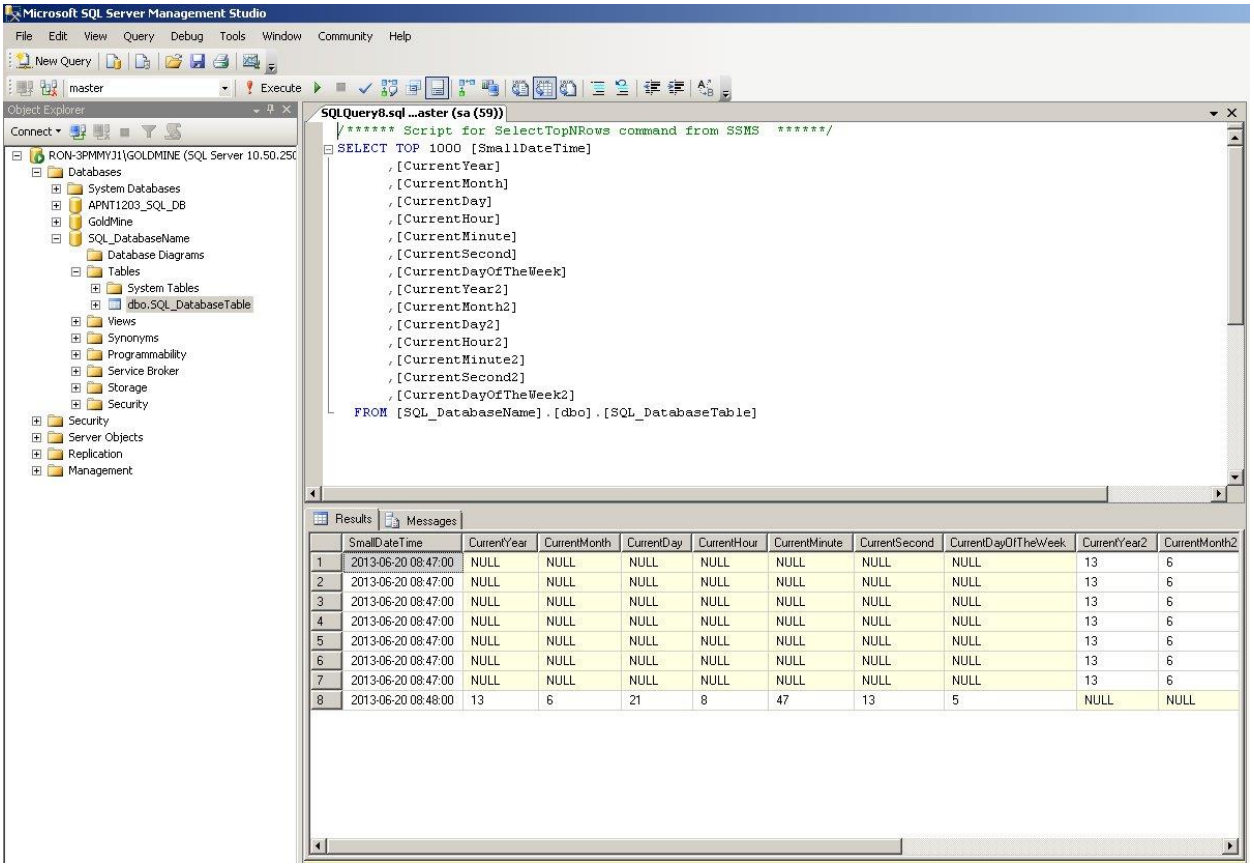

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