## Operating instructions for the TRAKKER 3.0.22 Data Acquisition and Control system.

#### "Smart board", "HOUND", & "OWL"

The TRAKKER system is comprised of three major parts:

- 1) Computer operating platform (software that allows a computer to control the smart boards Hound and OWL)
- Smart-boards Hound (16 analogue signals in, 16 digital signals in, 20 ea 485 vibration sensors in
   OWL (16 analogue signals in, 16 digital signals in, 20 ea 485 vibration sensors in, 16 digital outputs and 16 analogue outputs)
- 3) Sensors: Temperature Humidity Vibration/temperature Light lumens Flow - water/oil/hydraulic fluid, etc. Pressure/vacuum Current consumption (Voltage x Amps - expressed in KW) Ammonia 0 to 30 ppm or 50ppm to 500 ppm Noise pН Conductivity Oxygen NOX Weight Others

Getting started:



The TRAKKER operating system will be delivered on a thumb drive or downloaded from drop box or a compatible delivery system



When the software is received the file will be as shown above. There will be three files that can be downloaded or transferred from the thumb-drive.



Open the TRAKKER Executable File and right click on the application file and choose Create Shortcut

erExecutable 3.0.22			•
der			
Name	Date modified	Туре	Size
SchilkatDotNet4.dll	5/27/2011 8:09 AM	Application extens	5,903 KB
Microsoft.VisualBasic.PowerPacks.Vs.dll	3/18/2010 8:15 PM	Application extens	254 KB
TrakkerNET	7/24/2012 5:21 PM	Application	820 KB

When the TrakkerNet - Shortcut appears, left click on the Shortcut file and move to the desktop

rakkerExecutable 3.0.22				•
der		/		
Name	Date modified	Туре	Size	
ChilkatDotNet4.dll	5/27/2011 8:09 AM	Application extens	5,903 KB	
Microsoft.VisualBasic.PowerPacks.Vs.dll	3/18/2010 8:15 PM	opplication extens	254 KB	
TrakkerNET	7/24/2012 5:21 PM	Application	820 KB	
TrakkerNET - Shortcut	8/1/2012 10:26 AM	Shortcut	1 KB	

Double click the Desktop TRAKKER Icon and the following screen appears

The pull down should be viewed in two major sections, **the first** of which is **Formulas** and that is all located, along with **Networks**, in the top left of the drop down.

🖳 TrakkerNET	
	Communications:



The first item under Networks is Network. The operator may choose to run several Networks simultaneously. Each Network should be given a distinctive Network "Name". If there are multiple Networks, then each network needs to be described so that the engineering staff and the Maintenance Personnel can be on the "Same Page".

When each paarticular Network is being named, the operator needs to determine the network type, i.e. serial or ethernet, and it the network is to communicate through a serial port then the Baud Rate needs to be set (9600 is the default Baud Rate at this time). Last, the Com Port needs to be identified. If there are multiple Networks, then each Network will be on a separate Comport



Under each Network there will be Nodes (IT term for the cards or smart boards).

Each of the Nodes will have a **minimum** of 13 analog inputs, 3 Digital Inputs, and 13 Digital Outputs. Click on each Node and the following menu will appear



- TrakkerNET		
Communications: 🝃		
Node 2     Properties     Logging     VIB ISO Transfer Pump 4104N     Alams     Hi/Low Config     Properties	Analog Input Number: 885 Analog Input Name: VIB ISO Transfer Pump 4104N Analog Input Description: Analog Input 1 Description	Minimum Scaled Value: 0.0000 Maximum Scaled Value: 1.7000
TEMP ISO Transfer Pump 4104N     VIB ISO Trans pump Metor 4104N     TEMP ISO Trans pump Motor 4104     System Pressure ISO 4104N     VIB ISO Transfer Pump 4104S     TEMP ISO Transfer Pump 4104S     VIB ISO Transfer Pump Motor 4104S     VIB ISO Transfer Pump Motor 4104S	Save Cance	

Tag names are very important and have to be handled in the following manner:

When the TRAKKER program is being set up the information that is entered in the Tag Name box is transferred to the Access Mdb file that is created in the TRAKKER file which is in the "Root" of the "C" drive. Once the name has been determined the program logs the analog data, the digital input and/or digital output data in the cloumn which is termed by the data entered in the ag Name box.

If, for any reason, the **Tag NAME is changed** the node data file in the TRAKKER file must be discarded and the TRAKKER program - when the communications are begun again – will create a new Data file with the changes in the Tag Names duly noted.

If you do not follow this procedure and attempt to run the program without creating a new Data File – the program will run but it will not LOG

-
🕙 Ammonia Enthalphy Table
Excel worksheet for 3.04
FormulaLog_2011
FormulaLog_2011A
FormulaLog_2012
FormulaLog_2012
🔟 Node 2_2012
🕘 Node 2_2012
🖲 Rev 3.0.14 table data for algorithms
ITT TEMPERATURE VS dc VOLTAGE CH
RTD temp-resistance chart
TrakkerData

The "Properties" drop down menu is very important. First, the computer program is going to set the "Node Description" and whatever that description is – it should not be changed. Second, the "Node Name" is set by the operator – the "Node Name" is determined by the IC on each "Smart Board", i.e. 2, 3, 4, 5, etc.. the "Node Network ID" number must be the same as the "Node Name" #



The balance of the pull down is dedicated to communications. In the event that the TRAKKER operating system determines that a "Node" is not responding to requests for information or control the system will send an "Alert" that there has been a communication failure. In order for that Alert to be activated, the following data must be completed.



**First,** check the "Send Alerts on Node failures" box

**Second,** complete the information request in the Email Address blank

**Third,** give the notification a subject that will give the party to be notified, a clear understanding of where the communication

failure is.

**Fourth,** there should be a Time delay defined in the "Wait Time" blank. All environments that generate analog data also generate inductive currents that will from time to time cause the data transmission from a Node or a Node Point

to time out or suffer some distortion. The TRAKKER system is polling the Nodes every 200ms to 250ms, so a delay of 60 seconds would dictate that the communication failure would have to continue through four or five polls (1000/200 or 1000/250).

**Fifth,** the "Repeat Emails" box must be checked and a time determined for each repeat. The nature of a node and how critical the analog data is should determine the Repeat time.

The TRAKKER system also has a feature that provides notification in the event that an Analog Input point is no longer communicating with the Node (Smart Board). The system gives the operator the opportunity to determine that all of the analog communication points will provoke a failure notice or some selected number of analog points.

Once again, the operator must enter the appropriate data to engage the system

Send Alerts on Analog Input Failures	For the following inputs:
Email Address:	🔲 Input 1 🔲 Input 5 🔲 Input 9 🔲 Input :
	🗌 Input 2 📄 Input 6 📄 Input 10 📄 Input
Email Subject:	🔲 Input 3 📄 Input 7 📄 Input 11 📄 Input
	🗌 Input 4 🔲 Input 8 🔲 Input 12 🔲 Input
Wait Time (Seconds):	Repeat Emails Every (Minutes):

Last, the operator must always click the "Save" button in order to engage any change that is made.

## NOTE: the changes to the system need to be made while the program is not communicating with the Smart Boards.

The "Properties" drop down for an Analog point is shown below. The Minimum and Maximum Scaled Values must be entered in order for the analog data to record

SJ I rakker			
Communications:			
Properties     Properties	Analog Input Number: 0 Analog Input Name: Vibration Fan #3	Minimum Scaled Value:	0.0000
Properties 	Analog Input Description: Analog Input 1	Maximum Scaled Value:	16385.0000
Properties ⊡		Save Cancel	

Last, the operator must always click the "Save" button in order to engage any change that is made.

The "Properties" drop down for a Digital Input or a Digital Output is shown below:

igital Input Nu igital Input Na igital Input 3 igital Input De igital Input 3	mber: 2 me: scription:	Digita Digita Digita Digita Digita	al Output Num al Output Nam al Output 4 al Output Des al Output 4	ber: 3 e: cription:	
	Save Cancel		Sav	re Cano	cel
e High/Lo Enable Set Ou Network:	Dw Configure option offers the for Time delay: 240 seconds tput ON above high limit, OFF below low limit tput OFF above high limit, ON below low limit Main Network	Use fo Output	control fun or Digital t Control 44.92	ctions	- 200.0 - 175.0 - 150.0
Output:	Node 2  Heater Reload South Time delay: 240 seconds	High Limit:	47.07 or Digital		- 125.0 100.0
<ul> <li>Set Ou</li> <li>Set Ou</li> <li>Network:</li> <li>Node:</li> <li>Output:</li> </ul>	tput ON above high limit, OFF below low limit tput OFF above high limit, ON below low limit Main Network Node 2 Heater Reload, South	Low Limit: High Limit:	40.04 41.99		75.0 50.0
Enable Set Ou Set Ou	Time delay: 240 seconds tput ON above high limit, OFF below low limit tput OFF above high limit, ON below low limit	Use fo Output	r Digital t Control	53	- 25.0 - 0.0
Network: Node: Outout:	Main Network  Node 2  Heater Peload South	Low Limit: High Limit:	32.03 34.96		

If the "Use for Digital Output Control" option is chosen, then the set points which are set for any of the analog inputs can be used to control the Node and Point chosen in the Analog Config menu

The operator needs to give each Digital Input or digital Output a descriptive Tagname so that each point can be easily identified. When there is only one smart board and just a few sensors, it is fairly easy to remember what each point is doing and where the various sensors are located. However, when the number jumps up to five or six boards and 70 or 80 sensors, it is very

important that each Node and point is accurately labeled with a tag-name that is easily recognized by both engineering and maintenance personnel.

A typical Hi/Low Config drop down for vibration alarms is shown above:

Shown below is a configuration that sets an output to turn **on** below 44.92 and **off** above 47.07

Enable	Time delay:	240	seconds	Use fo	r Digital
Set Out	put ON above high I	imit, OFF b	elow low limit	Cutput	Control
Set Out	put OFF above high	limit, ON b	elow low limit		
Maturadu	Main Network		-	Low Limit	44.92
Network:	main Network		•	LOW LINE.	11.02
Node:	Node 2		•	High Limit:	47.07

Set point 2 is set to turn on below 34.96 and off above 40.04

- Chable	Time delay: 240 seconds	Use fo	or Digita
🔘 Set Ou	tput ON above high limit, OFF below low limit	Cutpu	t Contro
Set Out	tput OFF above high limit, ON below low limit		
Network:	Main Network 👻	Low Limit:	34.96
Node:	Node 2	High Limit:	40.04
Output:	Heater Reload South		
Enable	Time delay: 240 seconds	Use for	r Digital
<ul> <li>Enable</li> <li>Set Out</li> <li>Set Out</li> </ul>	Time delay: 240 seconds put ON above high limit, OFF below low limit put OFF above high limit, ON below low limit	Use for Output	r Digital Control
<ul> <li>Enable</li> <li>Set Out</li> <li>Set Out</li> <li>Network:</li> </ul>	Time delay: 240 seconds put ON above high limit, OFF below low limit put OFF above high limit, ON below low limit Main Network	Use for Output	r Digital Control 32.03
Enable Set Out Set Out Set Out Network: Node:	Time delay: 240 seconds put ON above high limit, OFF below low limit put OFF above high limit, ON below low limit Main Network • Node 2 •	Use for Output Low Limit: High Limit:	T Digital Control 32.03 33.98

The operator must always click the "Save" button in order to engage any change.

The Hi/Low Configuration allows the operator to set controls for devices (turn things on or off) when the High or Low set points are breached. The operator can select any of the Networks and any Node within that Network and any Digital Output on the chosen Node. The system is

connected across all of the platforms and Node #2 can control Outputs on Node #100 or Node #200 off

The graph below shows each Hi/Low Config pull down and shows each of the set points.



**Note:** one of two events are fairly easy to remember, but when the grid grows to 80 sensors (the Hound system will accommodate 4000 individual sensors of digital inputs), then with the Hi/Low events are factored in there can easily be 160 alarm events or more (in excess of 8000 alarms)

Enable Mess	aging Alarm	Time delay for not	ifications: 60	seconds	1.00
C Send alarm if	value falls belo	w indicated value	Alarm Value:	.465	- 0.88
Send alarm if	value rises abo	ve indicated value	Deadband:	.045	- 0.75
Email Address:	cbfoster@tro	ycable.net			
Email Subject:	the vibration s	signal for F¦an #3 is ov	er the set point		- 0.63
Enable Mess	aging Alarm	Time delay for not	ifications:	seconds	S1 🔽 🗕 — 0.50

Shown above is an Alarm message that has a time delay of 60 seconds and an alarm set point of .465 with a Deadband of .045

The purpose of the "Deadband" feature is to take the bounce out of device controls. In the first event below it is a warning that a motor is beginning to heat up.

Shown below is an enable alarm with a delay of 120 sec and an alarm value of  $108^{0}$ F and a Deadband of 2.



In the second example the oil temperature in Cooker # 4 has dropped below  $375^{0}$ F, with a Deadband of  $5^{0}$ F. The alarm feature can be tied to a device and the device in this situation would be a burner that needs to be turned on when the oil drops below the desired level.

Enable Mess	aging Alarm	Time delay for not	ifications: 240	seconds		
Send alarm if	value falls belo	ow indicated value	Alarm Value:	375.00		- 18
C Send alarm if	value rises ab	ove indicated value	Deadband:	4.90		<b>—</b> 12
Email Address:	cbfoster@tr	oycable.net			51	- 62
Email Subject:	The #4 cook	er bath has dropped be	elow 375F			
Enable Mess	aging Alarm	Time delay for not	ifications: 240	seconds		0.1
C Send alarm if	value falls belo	w indicated value	Alarm Value:	384.75		
Send alarm if	value rises ab	ove indicated value	Deadband:	11.25		
Email Address:	cbfoster@tr	oycable.net			Ň	
Email Subject:	The #4 cook	er bath hasrisen above	9375F		N I	
		500	(			
alid scaled val	ues from 0 to	500	Save	Cancel		

In the third example the cooking oil in the #4 cooker is beginning to rise above the desired product level and the device controller would turn one of the burners off. In either event, it is not desirable for the burner to cycle on and off and on and off continuously, therefore the Deadband (in the "if the event falls below…") determines that the burner will be turned on until the temperature rises to  $379.9^{\circ}F(375^{\circ}F + 4.9^{\circ}F)$  and in the second example ("if the values rises above…") the burner will be turned off until the value reaches  $373^{\circ}F(384.57^{\circ}F - 11.25^{\circ}F)$ 

The operator must always click the "Save" button in order to engage any change.

The hooks (Output Triggers) for a digital Input alarm are very similar to the analog Hi/Low Config pull down with the exception that there is something that turns on or off and that is the trigger event rather than a number such as  $108^{0}$ F

🔲 Enable 🛛 Tim	e delay: secor	nds 🛛 🗖 Enable	Time delay: seconds
C Set Output ON whe	n Input ON, OFF when Input O	DFF 🕺 🔿 Set Outpu	t ON when Input ON, OFF when Input OFF
C Set Output OFF who	n Input ON, ON when Input C	DFF 🕴 🔿 Set Outpu	t OFF when Input ON, ON when Input OFF
Network:		Network:	-
Node:		Node:	-
Output:		Output:	-

In the same vane, the Digital Input "Alarm" is very similar to the analog alarm.

I▼ Endole messag	ging Alarm	Time delay for notifications:	10	seconds
Send alarm if Ir	nput turns on	C Send alarm if Input turn	soff	
Email Address:	cbfoster#troycable.net			

· · · · · · · · · · · · · · · · ·
🗄 🖃 Temperature Fan #5
🗄 🔤 Vibration Fan #6
🗄 🗄 🚾 Temperature Fan #6
🖮 🏧 Vibration Fan #7
🗛 Alarms
🔤 🔄 Hi/Low Config
🥬 Properties
🗄 🐨 🖾 Temperature Fan #7
🗄 🔤 Vibration Fan #8
🗄 🖃 Temperature Fan #8
🗄 🔤 Analog Input 13
🗄 🔫 Digital Input 1
🗄 🛁 Digital Input 2
🗄 🛁 Digital Input 3
🖻 խ Digital Output 1
🔤 🐺 Digital Control
🥟 🔎 Properties
🗄 խ Digital Output 2
🗄 խ Digital Output 3
吏 խ Digital Output 4
吏 📂 Digital Output 5
吏 📂 Digital Output 6
吏 📂 Digital Output 7
吏 խ Digital Output 8
🗄 📂 Digital Output 9
🖻 📂 Digital Output 10
🗄 📂 Digital Output 11
🗄 📂 Digital Output 12
💼 📂 Digital Output 13

Moving on to the digital Outputs; The properties section of that function is an opportunity to set or define the "Tagname" of the output point and to describe the device if there is more than one device that is being controlled in a particular area

The description can be most helpful in circumstances where an engineer set the program up and a maintenance person is solving a problem



"same page"

The operator must always click the "Save" button in order to engage any change.



When one clicks on the Digital Control button on the tree at the left we see the following if we choose a "Recurring Event" that is a weekly event that has an Analog set point that is built into the Digital control of a particular output.

In the event the operator desires a "Recurring Event" then the procedure will be as follows:

	Add Edit Delete
event Name: on-off	
Continuous Cycle Eve	nt   Recurring Event Save Cancel
Recurring Event Properti	es
Recurrence Type	Weekly Recurrence
Daily	Recur every 1 week(s) on:
Weekly	🔲 Sunday 🔽 Monday 🕼 Tuesday 🕼 Wednesday
Monthly	🕼 Thursday 🕼 Friday 📄 Saturday
Yearly	
Turn On time: 40.04	.42 A

When the save button is clicked the data moves to the top of the pull-down as seen below

	Add Edit Delete
ent Name:	
Continuous Cycle Ev	ent Recurring Event Save Cancel
ecurring Event Proper	ties
- Recurrence Type	Weekly Recurrence
Daily	Recur every week(s) on:
Weekly	Sunday Monday Tuesday Wednesday
Monthly	Thursday Friday Saturday
Yearly	
Turo On time: 12:0	0.00 A Turn Off time: 12:00:00 A

If we choose a "Recurring Event that is Daily, Monthly or Yearly the screen shots are as follows:

	Add Edit Delet
vent Name:	
Continuous Cycle E	vent   Recurring Event  Save  Cancel
Recurring Event Prope	rties
Recurrence Type	Daily Recurrence
O Daily	Every day(s)
Weekly	Every Weekday
Monthly	
Yearly	
0	

	Add Edit Delete
vent Name:	
) Continuous Cycle Event	Recurring Event     Save     Cancel
Recurring Event Properties	3
Recurrence Type	Monthly Recurrence
Daily	Day of every month(s)
Weekly	The
Monthly	of every month(s)
Yearly	
Turn On time: 12:00:0	00 🚔 Turn Off time: 12:00:00 🚔
Also Use Analog Contro	ol Item: dy, Every 1 week(s) on Mon Tue Wed Thu Fri From 16:01:13 To 16:0
Also Use Analog Contro aved Events on-off: Recur, Type: Week	il Item: ily, Every 1 week(s) on Mon Tue Wed Thu Fri From 16:01:13 To 16:0
Also Use Analog Contro aved Events on-off: Recur, Type: Week	Add Edit Delete
Also Use Analog Contro	ol Item: dy, Every 1 week(s) on Mon Tue Wed Thu Fri From 16:01:13 To 16:0 Add Edit Delete
Also Use Analog Contro aved Events on-off: Recur, Type: Week vent Name:	t Cancel
Also Use Analog Contro aved Events on-off: Recur, Type: Week vent Name: Continuous Cycle Even Recurring Event Propertie:	t © Recurring Event Save Cancel
Also Use Analog Contro	t Recurring Event Save Cancel
Also Use Analog Contro	Add Edit Delete Add Edit Delete K Save Cancel S Yearly Recurrence Every
Also Use Analog Contro	Add Edit Delete Add Edit Delete  Vearly Recurring Event Save Cancel  Yearly Recurrence  Every  The F
Also Use Analog Contro	Add Edit Delete Add Edit Delete K Vearly Recurring Event Save Cancel S Vearly Recurrence Every The of The of
Also Use Analog Contro	Add Edit Delete Add Edit Delete  K © Recurring Event Save Cancel  Yearly Recurrence  The  of  The

Add Edit Event Name: On-off Continuous Cycle Event © Recurring Event Save	Delete
Event Name: On-off Ocontinuous Cycle Event © Recurring Event Save	
Continuous Cycle Event	
	Cancel
Continuous Cycle Properties	
Start cycle 240 seconds	<b>)</b> .

The next option is to "Click" either Continuous Cycle Event or Recurring Event.

We are then directed to describe the Event by designating it's name. then the next step is to decide that it will be (in the example below) a "Continuous Cycle Event and then the operator will be directed to enter the following:

- 1) Start Cycle time
- 2) Cycle On time
- 3) Cycle Off time.

When the **save** Button is clicked the Continuous Cycle Event will be recorded in the programs registry and it will appear as shown below to any individual that clicks on the "Digital Control button for that particular Digital Output

0n-off: Cont., Offset: 240 sec	, On Time: 10 min, Off Time: 20 min
	Add Edit Delete
Event Name:	
Continuous Cycle Event	Recurring Event     Save     Cancel
Continuous Cycle Properties	
Start cycle	
Cycle On Time:	Cycle Of Time:

The last item in the set up or control of events with this TRAKKER system is to utilize the data that is acquired to predict certain events.

When you click on the formula in the drop down the following appears: Logging and the various formulas that have been created. There is no practical limit to the number of algorithms that can be operating while the program is running. When the program is running the values will be displayed to the right of the drop down screen.

To add a new algorithm – right click the "Formula" button and it offers the operator the opportunity to add a new formula.

Left click the Formula tab and you then will have three more choices:

- 1) Alarms,
- 2) Hi/Low Config, and
- 3) Properties



Click on the Alarms tab and you see the following:

Enable Messa	ging Alarm	Time delay for noti	fications:	60	seconds
C Send alarm if	value falls below in	ndicated value	Alarm V	alue:	0.14560
Send alarm if	value rises above i	indicated value	Deadbar	nd:	0.00100
Email Address:	cbfoster@troyca	able.net			
Email Subject:	the algoriothm fo	rhas d	etermined a	critica	l deviation

Examine this pull down closely, because it will appear a number of times throughout the program. It virtually the same as the Alarm function and set up for the Analog Inputs and the digital Inputs.

This Alarm function is a vital part of the definition of the operating parameters

Continuing on to the Hi/Low Config function for the Formulas one will notice that the functions and the set up is the same as the Hi/Low Config function for the Analog Inputs

Enable	Time delay:	seconds		
C Set Output	ON above high limit, C	OFF below low limit		
C Set Output	OFF above high limit,	ON below low limit		
Network:		•	Low Limit:	
Node:		•	High Limit:	
Output:		•		

See the Analog set up instructions on page \_\_\_\_\_.

The next item we come to is the Properties function. This is the section where we begin to devise algorithms that will allow for the real time analysis of the data that is collected and logged. Click on the Properties button and we see the following:

Trakkar				
Networks	Formula Name:	Formula:		
	Formula 2	L Variablas:		
⊡ ⊕ Node 2	Formula Description:	variables.		
terreiter Node 3 terreiter terreiter terreite	New Formula 2	۷:		E UK
⊡ 🖶 Node 5		W:		Edit
	Type in a formula in standard algebraic format.	X:		Edit
Eugging ⊡  Ammonia Test Formula	You may use up to five variables (V, VV, X, Y and Z) in your formula.	Y:		Edit
Formula 2	Click the "Edit" button next to a formula variable (V, W, X, Y or Z) to specify a constant value for	Z:		E dit
Hi/Low Config	the variable, or to use another analog input value for the variable, or to use a database or			
	spreadsheet lookup to determine the variable value.	Save	Cancel	

Don't panic. This will eventually be your favorite part of the system. The TRAKKER system is going to employee the formulas and algorithms that you devise and while you are at lunch, on break, at home with your wife and children, or on vacation, it is going to acquire data (24 hours a

Formula Name:	
Formula 2	
Formula Description:	
New Formula 2	
I	

- day, 7 days a week, 12 months out of the year) and examine that data and report to all who are interested those things that you deem important.

As we begin, the first order of business is to accurately name the function and identify the function

Type in a formula in standard algebraic format. You may use up to five variables (V, W, X, Y and Z) in your formula.

Click the "Edit..." button next to a formula variable (V, W, X, Y or Z) to specify a constant value for the variable, or to use another analog input value for the variable, or to use a database or spreadsheet lookup to determine the variable value.

The instructions are fairly simple for folks who understand what a "standard algebraic format" looks like.

For every one else, this may as well be written in Swahili.

However, let's take a stab at this business because it

Formula: Variables: Edit ... ٧: Edit ... W: X: Edit ... Y: Edit ... **7**: Edit ...

. My oldest (who has a math degree) always joked about the fact that algebra and calculus would be easy if they would quit changing what X =. He would quip yesterday X was 2, this morning X is 18.5, who can guess what it will be tomorrow.

The easiest way to start is to have a fairly easy formula and work up to

may be a lot easier than most folks think

something that might give us a migraine.

Let's begin with: V + W + X = something If V = 2, W = 4, and X = 10, then we would have 2 + 4 + 10 = 16We could move on to: V + W - X = something else If V = 2, W = 4, and X = 3, then we would have 2 + 4 - 3 = 3How about the following: V\*W + X = something entirely different

If V = 40, W = 1.8, and X = 32 then we would have 40 \* 1.8 + 32 = 104

The formula  $V^*W + X$  is the conversion equation for converting Centigrade to Fahrenheit. We generally saw the formula in high school as C \* 9/5 + 32 = something, but what we have is the same.

Now what we need the TRAKKER program to do is to convert C to F on a continuing basis.

Variables:	,	
V:	Scaled Analog Input Value	Edit
w:	1.8	Edit
х:	32	Edit
Y:		Edit
Z:		Edit

Lets implement the formula V\*W + X = something.

We have begun by entering the formula V \* W + X = something.

However, the computer program knows about the = something part sop we don't have to enter that as part of our setup.

We have assigned static values to W and X and we are dependent on the computer to give us V.

Let's take a look

We select Network 1, Node 3, and Analog Input 1 and the pull down displays Network 1, Node 3, and Temp of the # 1 Freezer in Celsius.

The TRAKKER program automatically defaults to the "Tag Name" of the analog point

💳 Formula Variable Definit	ion	Sec. 1
C Constant Value:		
Scaled Analog Input Value	e:	
Select Desired Analog Inpu	t	
Network:	Node:	Analog Input:
Network 1	Node 3	▼ Temp of the #1 Freezer in Celsius ▼

Now, on to W. We told the program that we were selecting a static number 1.8 and it knows that is the case because we check the Constant Value box.

= Formula Variable Definition				
Constant Value:	1.8			
C Scaled Analog Inp	out Value:			

And last we have X. Once again we have chosen a constant value which is 32

= Formula Variable Definition		
	32	
C Scaled Analog Inp	out Value:	

With this formula set in the TRAKKER program, the program is going to poll the sensor every 200ms and receive a value in Celsius and the computer is going to compute the Fahrenheit value and log both the Celsius and the Fahrenheit values.

The process becomes somewhat more complicated when one begins to use the formula setup to capture analog data and then use that data to extract corresponding data from a data file. Example: TRAKKER has an Access table titled "Ammonia Enthalpy Table".

This table is utilized by the TRAKKER program to determine the number of "Tons" of Ammonia refrigeration a system is producing at any give moment. Since there is no device that actually measures the operating tonnage, the answer is derived from acquiring several data points, simultaneously, and calculating the resultant tonnage.

	P Microsoft Access						
÷	<u>F</u> ile	e <u>E</u> dit <u>V</u> iew <u>I</u> r	nsert F <u>o</u> rmat <u>R</u>	ecords <u>T</u> ools <u>W</u>	/indow <u>H</u> elp		
-	2	-   🛃 😫   🖪	🛕 💖   X 🗈	B 9 8 2	↓ X ↓   🌾 🌆 🕚	7   🐴   🕨 🔭   🛅	⁄ -   🕐 🖕
ſ		Ammonia Enthalp	y Table : Table				
		ID	Analog Data	Temperature F	Pressure	Liquid Enthalpy	Vapor Enthalpy
	►	2	0.02833	-40	10.38	0.645	597.068
		3	0.049163	-39	10.69	1.051	597.062
		4	0.069996	-38	11.01	2.103	597.438
		5	0.090829	-37	11.34	3.156	597.812
		6	0.111662	-36	11.67	4.209	598.184
		7	0.132495	-35	12.01	5.263	598.555
		-	0.450000		10.07	0.017	F00.005

So we collect either the suction temperature or suction pressure (when the ammonia is in a liquid state) and select the corresponding "liquid enthalpy" number. In the example above we have chosen either  $-37^{0}$ F or 11.34psi both of which correspond to the Liquid Enthalpy number 3.156.

Ammonia Enthalpy Table					е		
ID	Analog Data	Temperatu	ire F	Pressure	Liqu	uid Enthalpy	Vapor Enthalpy
234	4.861586		192	723		239.5	🖌 620.114
235	4.882419		193	731.385		239.5	620.114
236	4.903252		194	739.77		240,615	619.268
237	4.924085		1∮5	748.3	T	240.615	619.268
238	4.944918		196	756.83		241.73	618.384
239	4.965751		197	765.51		241.73	618.384
240	4.986584		198	774.19		242.845	617.462
241	4.993292		199	783.02		263.026	611.981
242	5		200	791.85		283.207	606.5

Next we collect the discharge temperature or the discharge pressure and since the ammonia will be in a vapor state select the Vapor enthalpy number which is 620.114

According to the formula [(W-V)\*X = ] we subtract 3.156 from 620.114 and then multiply that result times the flow of ammonia in pounds (Lbs) which gives us total BTUs and we then divide that number by 15,000 the number of BTUs in a Ton or refrigeration.

So here is how we setup the TRAKKER algorithm:



To set up V we click "Value from Database Lookup". We direct the program to the appropriate Data Base. And tell the program to use the Analog Data (temp or pressure number) to select the "Liquid Enthalpy Value" that is "closest".

Last we identify the source of the Analog Data by Network, Node, and Point

The procedure is the same for the discharge value of "W" except we use the Vapor Enthalpy instead of the "Suction" Entalphy

Value from Database Lookup:			
Select Database and Search Crit	eria		
Database Path and Filename:	C:\Hound Source 2.26\Am	nonia Enthalpy Table.mdb	Browse Search
Use Value from Table named:	Ammonia Enthalpy Table	and Field named: Analog	) Data 💌
Where the value in Field named:	Vapor Enthalpy	💽 Is: 🔿 Next Highest 🤇	🖱 Next Lowest 💿 Closest
To the scaled value for the follo	wing analog input:		
Network:	Node:	Analog In	put:
Network 1	Vode 3	💌 ammonia	discharge temperature

Now all we need is the flow. We select Scaled Analog Input Value

-Select Desired Analog Inp	ut	
Network:	Node:	Analog Input:
Network 1	Node 3	▼ liquid ammonia flow in Lbs

The last consideration is the number of BTUs per ton of refrigeration which is completed as shown below:

Formula Name:	Formula:	(w-v)*x/15000	
Ammonia Test Formula	Variables:	,	
Testing for Butch	V:	Database Lookup	Edit
	<b>W</b> :	Database Lookup	Edit
Type in a formula in standard algebraic format.	X:	Scaled Analog Input Value	Edit
Z) in your formula.	Y:		Edit
Click the "Edit" button next to a formula variable (V, W, X, Y or Z) to specify a constant value for the variable, or to use another analog input value for the variable, or to use a database or spreadsheet look in to determine the variable	Z:		E dit
value.	Save	Cancel	

We could make the formula more complicated by changing it to read (W-V) \* X/Y and we could then assign Y to = 15,000.

= Formula Variable Definition		
Constant Value:	15000	
C Scaled Analog Inp	out Value:	

ormula:	(W-V)*X/Y	
ariables:		
V:	Database Lookup	Edit
w:	Database Lookup	Edit
<b>X:</b>	Scaled Analog Input Value	Edit
Y:	15000	Edit
Z:		Edit

The formula would then look like the one to the left:

The operator must always click the "Save" button in order to engage any change.

Save

Cancel

How to set up an Excel import file to transfer data from the Access Mdb files that the TRAKKER system creates and populates to an Excel file. These instructions are applicable for Windows XP and Office 2003

Open Excel

Click the "Data" tab

<b>X</b>	hicros	soft Ex	kcel - I	Book	1							
1	Eile	<u>E</u> dit	⊻iew	Inse	rt F <u>o</u> rm	at <u>T</u>	ools	<u>D</u> ata	<u>W</u> indov	∾ <u>H</u> elp		
	6			8	👌 💙	Ц.	¥ 🗈	1	- 💞 🛛	5-0-	😣 Σ	- 1
	A1		•	j	£.							
	P	۹.	В		С		D		E	F	G	
1												
2												
3												

Under the "Data" pull down click "Import External Data" tab

Under the Import External Data" pull down click "Import Data" and the following file opens



If the desired file (by month, or type i.e. Formula, Data, etc.) then click one of the "Node Log" files above. The example above only has one choice, in reality during complex operations there might be a dozen choices – read carefully before choosing.

If the data file has not been used before – i.ei setting up the file for August at the end of July. Then right click the START button /

Recycle Bin				
🎒 start	Inbox - Microsoft Out	TRAKKER Operating i	work Pics - Microsoft	Microsoft Excel - Book1

The following choices will appear on the screen – click "Explore"

Open	_
Explore	
Search	
Properties	
Open all Users	
Explore All Users	

Documents and Settings	Depending on the number of
File Edit View Favorites Tools Help	the following pull down will
🚱 Back 🝷 🕥 🕤 🏂 🔎 Search 📂 Folders 🛄 🔹	appear
Address 🛅 C:\Documents and Settings 💽 💽	click on the "Programs file"
Folders ×	
Desktop All Users	
🗎 My Documents	
😼 My Computer	
🖃 🥯 Local Disk (C:) Butch Foster	
🗉 🛅 Documents and Settings	
🗉 🛅 National Instruments Downlo?	
🗄 🛅 Program Files 🖌 🦳	
🗉 🛅 WINDOWS	
🗉 👙 CD Drive (D:)	
🗉 🥝 CD-RW Drive (E:)	
🗄 🥯 Local Disk (F:)	
🗄 🥯 New Volume (G:)	
표 🝧 Removable Disk (H:)	
🗷 🕐 U3 System (I:)	
🗄 🛫 Removable Disk (J:)	
🗄 👺 Control Panel	
E C Shared Documents	
🗄 🧰 Butch Foster's Documents	
My Network Places	
🦉 Recycle Bin	



The following files will open



Click on the "FormulaLog" or on the "NodeLog" file and continue with the "Import" set-up

Under complex or extended operations there may be several logs of each type – perhaps one for April, May, June, July, etc

In the alternative one can manipulate previous pull down by clicking the arrow to the right of the "My Data Sources" and get the following pull down and then click "Local Drive C" and then go to "Program Files "and continue as shown above





Select Data So	urce		? 🛛
Look jn:	🚞 Program Files	🔽 🚱 💐 🖏 🗙 🔛 ד	ools <del>*</del>
My Recent Documents	Adobe Ahead CCleaner Common Files	Microsoft Office	PentaLogix Reference Ass Trakker
Desktop	ComPlus Applications Google Hewlett-Packard	C Movie Maker MSBuild MSECache MSN	Windows Media Windows Media Windows NT
My Documents	HP	MSN Gaming Zone	Tahoo!
My Computer	Messenger Microchip Microsoft ActiveSync microsoft frontpage	National Instruments     NetMeeting     Online Services     Outlook Express	
My Network Places	File name:     Image: Ima	New Source	Open Cancel

Select Data So	urce								?×
Look jn:	🛅 Trakker		~	🕲 <b>-</b> 🔰	0	× 🖆	🎫 🔻 Te	ools <del>-</del>	
My Recent Documents	FormulaLog NodeLog20	20100719) 100701 a							
Desktop									
My Documents									
My Computer									
	File parroy								
My Network					<u> </u>	lew <u>S</u> ourd	:e		en
Places	Files of <u>t</u> ype:	All Data Sources			×			Can	icel

Once the Log file has been chosen, then the following pull down will appear

Import Data	Click on Edit Query and proceed
Where do you want to put the data?    Existing worksheet:     Existing worksheet     New worksheet     Properties    Properties   Edit Q	ok ancel
Edit OLE DB Query Connection:	

<u>Connection:</u> Provider=Microsoft.Jet.OLEDB.4.0;Password="";User ID=Admin;Data Source=C:\Program Files\Trakker\NodeLog20100701.mdb;Mode=Share Deny Write;Extended Properties="";Jet OLEDB:System database="";Jet OLEDB:Registry Path="";Jet OLEDB:Database Password="";Jet OLEDB:Engine Type=S;Jet OLEDB:Database Locking Mode=0;Jet OLEDB:Global Partial Bulk	<
Command Type:	
Table	~
Command T <u>e</u> xt:	
NodeData	~
OK Cancel	

Use the following procedures

Version 2.27

Under Edit OLE DB Query connection you should see:

Provider=Microsoft.Jet.OLEDB.4.0;User ID=Admin;Data Source=C:\Program Files\Trakker\TrakkerLoggingData.mdb;Mode=Share Deny None;Extended Properties="";Jet OLEDB:System database="";Jet OLEDB:Registry Path="";Jet OLEDB:Engine Type=5;Jet OLEDB:Database Locking Mode=1;Jet OLEDB:Global Partial Bulk Ops=2;Jet OLEDB:Global Bulk Transactions=1;Jet OLEDB:New

make sure the command states **"Source =C:\Program Files\Trakker\TrakkerLoggingData, mdb"**.

SELECT ItemNumber, TimeStamp, AnalogInput1 as **"Tagname1"**, AnalogInput2 as **"Tagname2"**, AnalogInput3 as **"Tagname3"**, AnalogInput4 as **"Tagname4"**, AnalogInput5 as **"Tagname5"**, AnalogInput6 as **"Tagname6"**, AnalogInput7 as

"Tagname7", AnalogInput8 as "Tagname8", AnalogInput9 as "Tagname9", AnalogInput10 as "Tagname10", AnalogInput11 as "Tagname11", AnalogInput12 as "Tagname12", AnalogInput13 as "Tagname13", DigitalInput1 as "Tagname21", DigitalInput2 as "Tagname22", DigitalInput3 as "Tagname23", DigitalOutput1 as "Tagname31", DigitalOutput2 as "Tagname32", DigitalOutput3 as "Tagname33", DigitalOutput4 as "Tagname34", DigitalOutput5 as "Tagname35", DigitalOutput6 as "Tagname36", DigitalOutput7 as "Tagname37", DigitalOutput8 as "Tagname38", DigitalOutput9 as "Tagname39", DigitalOutput10 as "Tagname40", DigitalOutput11 as "Tagname41", DigitalOutput12 as "Tagname42", DigitalOutput13 as "Tagname43"

An example is as follows:

#### **UPS Montgomery**

SELECT ItemNumber, TimeStamp, AnalogInput1 as "VibPF2", AnalogInput2 as "TempPF2", AnalogInput3 as "VibPF2Gear", AnalogInput4 as "TempPF2Gear", AnalogInput5 as "Vib6APD3", AnalogInput6 as "Temp6APD3", AnalogInput7 as "VibPD3Gear6A", AnalogInput8 as "TempPD3Gear6A", AnalogInput9 as "Vib4PD5", AnalogInput10 as "TempVib4PD5", AnalogInput11 as "VibPD5Gear4", AnalogInput12 as "TempPD5Gear4" FROM NodeData WHERE NodeNum = 02 ORDER BY ItemNumber Asc

SELECT ItemNumber, TimeStamp, AnalogInput1 as "ServerHumidity", AnalogInput2 as "ServerTemp", AnalogInput3 as "PD3DriveHumidity", AnalogInput4 as "PD3DriveTemp", AnalogInput5 as "PF2DriveHumidity", AnalogInput6 as "PF2DriveTemp FROM NodeData WHERE NodeNum = 03 ORDER BY ItemNumber Asc In Office 2010 there are two major ways to import data into an Excel worksheet from an Access MDB file In both cases the beginning point is to open an Excel worksheet and click on the Data tab in the tools ribbon at the top of the worksheet

	<b>- 19</b> -	₽ -   -								B	ook1 - Micro	osoft Excel						
Fil	e H	ome	Insert	Page	Layout	Formulas	Data Re	view	Viev	v Tea	im							
*		×	¥ Þ				Connections Properties	<mark>A</mark> ↓	AZA	Y	K Clear	*	· · · · · · · · · · · · · · · · · · ·	<b>_</b>		<b>£</b> ?	*	*
From	n From ss Web	From Text	From O Source	ther s ▼ Co	Existing	Refresh All 🛪 🧉	🕫 Edit Links	Ă↓	Sort	Filter	My Advance	ed Colum	o Remove ns Duplicate	Data s Validation	Consolidate	What-If Analysis *	Group	Ungro *
		Get Ex	ternal Da	ita		Cor	nnections			Sort & Fil	ter			Data Too	ls			
	A13		(	•	$f_{x}$													
	А	В		С	D	E	F	G		Н	1	J	К	L	М	N	0	
1																		
2																		
3																		
4																		
5																		
0																		
/																		

### **First Import Path:**

Click on the Access Tab on the far left of the ribbon



When this menu appears click on the Local Disk icon at the bottom left of the Select Data Source pull-down



Click on the TRAKKER folder (5<sup>th</sup> choice in this example)

📕 Downloads	<ul> <li>Name</li> </ul>	Date modified	Туре
Recent Places	FormulaLog_2012	1/23/2012 5:40 AM	Microsoft Access
E Librarian	Node 2_2012	1/23/2012 5:40 AM	Microsoft Access
<ul> <li>Libraries</li> <li>Documents</li> <li>Music</li> <li>Pictures</li> <li>Videos</li> </ul>	<ul> <li>in Node 3_2012</li> <li>in Node 4_2012</li> <li>in TrakkerData</li> </ul>	Type: Microsoft Access Database Size: 64.4 MB Date modified: 1/23/2012 5:40 AM 10:21 AM	Microsoft Access Microsoft Access Microsoft Access

Then click on the first MDB file to be imported – Node 2\_2012 has been highlighted in this example



Make sure that the Table view is clicked and then click the properties choice at the bottom left of the pull-down

Connection Properties	The pull-down
Connection name: Node 2_2012 Description:	several control choices. We are interested in the
Usage Definition  Refresh control  Last Refreshed:  P Enable background refresh Refresh every 60  minutes Refresh data when gpening the file Remove data from the external data range before saving the workbook  OLAP Server Formatting Retrieve the following formats from the server when using this connection: Number Format Fill Color Font Style Text Color  OLAP Drill Through Maximum number of records to retrieve:  Language Retrieve data and errors in the Office display language when available	refresh opportunities that are presented. Click on the "Refresh every button and se the refresh rate as desired.
OK Cancel	
Remean comu or Last Refreshed:	
Enable background refresh	
Refresh every 1 🚔 minutes	
Defresh data when opening the file	
Remove data from the external data range workbook	before saving the
OLAP Server Formatting	

In this example the refresh time is set for 1 minute

Next click on the "Definition Tab at the top left of the pull-down and the pull-down to the

Connection Properti	es ? X				
Connection <u>n</u> ame:	Node 2_2012				
Description:					
Usage Definitio	n]				
Connection type:	Microsoft Access Database				
Connection file:	C:\Trakker\Node 2_2012.mdb				
	Always use connection file				
Connection string:	Provider =Microsoft.ACE.OLEDB.12.0;Password = ""; User ID = Admin;Data Source = C:\Trakker\Node 2_ 2012.mdb;Mode = Share Deny Write;Extended Properties = ""; Jet OLEDB:System database = ""; Jet				
	Save password				
Command type:	Table				
Command text:	NodeData				
Excel Services:	Authentication Settings				
Edit Query	Parameters,				
	OK Cancel				

left will appear. The Connection string shown below in its entirety must be changed.

The connection string that Excel 2010 defaults to has the Mode set as follows

## Mode=Share Deny Write

The Mode instructions must be changed to read:

#### **Mode=Share Deny None**

The complete Connection string is shown below with the default language and with the required change

Provider=Microsoft.ACE.OLEDB.12.0;Password="";User ID=Admin;Data Source=C:\Trakker\Node 2\_2012.mdb;**Mode=Share Deny Write**;Extended Properties="";Jet OLEDB:System database="";Jet OLEDB:Registry Path="";Jet OLEDB:Database Password="";Jet OLEDB:Engine Type=5;Jet OLEDB:Database Locking Mode=0;Jet OLEDB:Global Partial Bulk Ops=2;Jet OLEDB:Global Bulk Transactions=1;Jet OLEDB:New Database Password="";Jet OLEDB:Create System Database=False;Jet OLEDB:Encrypt Database=False;Jet OLEDB:Don't Copy Locale on Compact=False;Jet OLEDB:Compact Without Replica Repair=False;Jet OLEDB:SFP=False;Jet OLEDB:Support Complex Data=False;Jet OLEDB:Bypass UserInfo Validation=False

```
Provider=Microsoft.ACE.OLEDB.12.0;Password="";User ID=Admin;Data
Source=C:\Trakker\Node 2_2012.mdb;Mode=Share Deny None;Extended
Properties="";Jet OLEDB:System database="";Jet OLEDB:Registry Path="";Jet
OLEDB:Database Password="";Jet OLEDB:Engine Type=5;Jet OLEDB:Database Locking
Mode=0;Jet OLEDB:Global Partial Bulk Ops=2;Jet OLEDB:Global Bulk Transactions=1;Jet
OLEDB:New Database Password="";Jet OLEDB:Create System Database=False;Jet
OLEDB:Encrypt Database=False;Jet OLEDB:Don't Copy Locale on Compact=False;Jet
OLEDB:Compact Without Replica Repair=False;Jet OLEDB:SFP=False;Jet
OLEDB:Support Complex Data=False;Jet OLEDB:Bypass UserInfo Validation=False
```

# This change is necessary to permit the TRAKKER program to continuously log new data to the MDB file while the Excel program continues to update.

The next step is to change the "Command type:" to SQL as shown below:

Usage Definitio	n	
Connection type:	Microsoft Access Database	
Connection file:	C:\Trakker\Node 2_2012.mdb	Browse
	Always use connection file	
Connection string:	string: Provider = Microsoft.ACE.OLEDB. 12.0;Password User ID = Admin;Data Source = C: \Trakker \Node 2012.mdb;Mode = Share Deny Write;Extended Properties = "";Jet OLEDB:System database = "";	
	Save pass <u>w</u> ord	
Command type:	SQL	<b>•</b>
Command text:	NodeData	

Now we get to the hard part, we must style the "Command text:" which is referred to as the "SELECT" statement. The SELECT statement must follow the form set out below:

SELECT NodeData.ItemNumber,

NodeData.LogTime,

NodeData. `Analog Input 1`,

NodeData.`Analog Input 2`,

NodeData. `Analog Input 3`,

NodeData.`Analog Input 4`,

NodeData. `Analog Input 5`,

NodeData. `Analog Input 6`,

NodeData.`Analog Input 7`,

NodeData.`Analog Input 8`,

NodeData.`Analog Input 9`,

NodeData. `Analog Input 10`,

NodeData. `Analog Input 11`,

NodeData. `Analog Input 12`,

NodeData. `Analog Input 13`

FROM `C:\Trakker\**Node 2\_2012.mdb**`.NodeData NodeData

#### Or: SELECT NodeData.ltemNumber, NodeData.LogTime NodeData.`Vib ISO Trans Pump 4104N`, NodeData.`Temp ISO Trans Pump 4104N`, NodeData.`Vib ISO Trans Motor 4104N`, NodeData.`Temp ISO Trans Motor 4104N`, NodeData.`Vib ISO Trans 4104S`, NodeData.`Temp ISO Trans 4104S`, NodeData.`Temp ISO Trans Motor 4104S`, NodeData.`Temp ISO Trans Motor 4104S`, NodeData.`Temp ISO Trans Motor 4104S` FROM `C:\Trakker\**Node 2\_2012.mdb**`.NodeData NodeData

 The Node designation has to be identical in both the "Connection string" and the "SELECT" statement. The Connection string path is set for the import function when you go to the "C" drive and choose the MDB file. Therefore the SELECT statement should be styled with identical

syntax.

			Syntax.
<u>Command type</u> :	Table	•	
Command text:	NodeData		<ul><li>When the Select statement</li><li>has been composed, click</li><li>OK at the bottom of the</li></ul>
Excel Services:	Authentication Settings Parameters Export Connection File		pull-down and you will return to
	OK	Cancel	
Import Data	? ×		
Select how you wa	ant to view this data in your workbook Table Report Chart and PivotTable Report Create Connection	r. You "Im app imp	will return to the original port Data" Screen and when that ears click OK again for the data ort function to complete
Where do you war © Existing wo =\$A\$13 © New works Properties	nt to put the data? wksheet: heet OK Cancel		

#### **Second Import Path:** Click **"From Other Sources"**

X   🔒	17 - 1	≥ -  +								Boo	k1 - Microsoft	Excel
File	Ho	me	Insert	Page Lay	out	Formulas	Data	Revie	w Vie	w Te	am	
From Access	From Web	From Text Get Ex	From Oth Sources	ner Exis	ting	Refresh All + Con	Connecti Propertie Edit Link nections	ons s	Ž↓ AZA ZA Sort	Filter Sort & Fi	Clear Reapply Advanced	Text to R Columns Du
	A1		• (=	f,								
1	А	В		C	D	E	F		G	Н	1	J

### The following pull-down appears and you should choose "From Microsoft Query"



from the "Choose Data Source" choose

### **MS** Access Database

Choose Data Source	×	]
Databases       Queries       OLAP Cubes <new data="" source="">       dBASE Files*         dBASE Files*       Excel Files*         MS Access Database*       Visio Database Samples*         Visio Database Samples*       Use the Query Wizard to create/edit queries</new>	OK Cancel Browse Options Delete	Double click that choice and the following screen appears

Once again click Local Disk (C) and a new screen appears that includes the TRAKKER file folder

Select Database		×
Database Name [*.mdb;*.accdb	Directories: c:\\documents	ОК
Ammonia Enthalpy Tabl NodeLog20100401.mdl NodeLog20100501.mdl NodeLog20100601.mdl NodeLog20100701.mdl NodeLog20100801.mdl NodeLog20100901.mdl NodeLog20101091.mdl ▼	C:\ Users Butch Foster Documents NET compiler in DealRunner	Help Read Only Exclusive
List Files of Type: Access Databases (*.m.	Drives:	Network
	teres and the second	
Select Database		×
Select Database Database Name [*.mdb;*.accdb	Directories: c:\	OK Cancel
Select Database Database Name *.mdb;*.accdb	Directories: c:\ b97b2e674cb06ab DELL Firefox Intel LOGOS20	OK Cancel Help Read Only Exclusive

Scroll down until the TRAKKER folder is visible and double click that folder

Select Database		x
Database Name *.mdb;*.accdb	Directories: c:\ Program Files Trakker TRAKKER 3.0.16 TrakkerHound 3.0.	OK Cancel Help Read Only Exclusive
⊾     List Files of Type:     Access Databases (*.m. ▼	Drives:	Network

Select Database		×
Database N <u>a</u> me Node 2_2012.mdb FomulaLog_2012.mdb Node 2_2012.mdb Node 3_2012.mdb Node 4_2012.mdb TrakkerData.mdb	Directories: c:\trakker Image: c:\ Image: marker Directories: Image: c:\ Image: c:\ Ima	OK Cancel <u>H</u> elp <u>R</u> ead Only Exclusive
List Files of <u>T</u> ype: Access Databases (*.m.	Dri <u>v</u> es:	▼ <u>N</u> etwork

A new screen appears – click the plus symbol to the left of "NodeData and the following choices are available

Query Wizard - Choose Columns	click the
What columns of data do you want to include in your query?	items vou
Available tables and columns:	wish to
NodeData	import and
	click the >
	in the
	middle of
	the pull-
	down to add
Preview of data in selected column:	each item to
	the import
	list
	be sure to
	scroll down
Preview Now Options < Back Next> Cancel	to get to the
	analog Input
Owner Winned Change Columns	choices
Query Wizard - Choose Columns	
What columns of data do you want to include in your query?	
Available tables and columns: Columns in your query:	when you
□ NodeData	baya all of
	the desired
Digital Input 1	import
Digital Input 2	columns in
Digital Input 3	vour query -
Preview of data in selected column:	click Next>

Query Wizard - Filter Data Filter the data to specify which If you don't want to filter the dat Column to filter:	rows to include in your query. :a, click Next. Only include rows where:		when scree appe simp
ItemNumber LogTime Vib_Poly_Trans_Pump_41 Analog Input 2 Analog Input 3 Analog Input 4		<b>v</b>	(unle are a Exce
2	And C Or Seck Next >	Cancel	

this S click s you eal pro)

Query Wizard - Sort Order Specify how you want your data sorted. If you don't want to sort the data, click Next.		when this screen appears, scroll down
Sort by ItemNumber	Ascending     O Descending	to
Then by	C Ascending C Descending	
Then by	C Ascending C Descending	<b>.</b>
2	< Back Next > Cancel	

ItemNumber and click either Ascending or Descending and then click Next>

Query Wizard - Finish	
What would you like to do next?	
Return Data to Microsoft Excel     Save Query	
C View data or edit query in Microsoft Query	
	click Save
	Query and
	Excel
	import
	data to
	"My Docs"
2 Park Finish Canad	2005
	Then click
	🕶 Finish



Go to properties and then click the Definition tab

The definition page has the "SELECT" statement completed for you and the Connection string is much shorter but the following statement must be inserted in the statement:

DSN=MS Access; Database;DBQ=C:\Trakker\Node 3\_2012.mdb;**Mode=Share Deny None;**DefaultDir=C:\Trakker;DriverId=25;FIL=MS Access;MaxBufferSize=2048;PageTimeout=5

Connection Propert	ies ? X	
Connection <u>n</u> ame:	Query from MS Access Database	
Description:		
[ 		
Usage <u>D</u> efinition		im
Connection type:	Database Query	
Connection file:	Browse	
	Always use connection file	
Connection <u>s</u> tring:	DSN=MS Access Database;DBQ=C:\Trakker\Node 2_ 2012.mdb;DefaultDir=C:\Trakker;DriverId=25;FIL=MS Access;MaxBufferSize=2048;PageTimeout=5;	
	Save pass <u>w</u> ord	
Command type:	SQL 💌	
Command text:	SELECT NodeData.ItemNumber, NodeData.LogTime, NodeData.Vib_Poly_Trans_Pump_4104N, NodeData. `Analog Input 2`, NodeData.`Analog Input 3`, NodeData.`Analog Input 4`	
Excel Services:	Authentication Settings	
Edit Query	Parameters Export Connection File	
	OK Cancel	

Click OK and click OK on the next screen and the import will begin

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