Maxum ODBC 3.11

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The purpose of this document is to give examples of different ways to use ODBC with the Maxum. Many different vendors offer ODBC connectivity from within their products. We only give a small number of examples for products that most customers will have available. It is assumed that the ODBC driver will work with other products. To use ODBC, a knowledge of relational database structure and the Maxum's database is required.

ODBC means Open Database Connectivity. It allows Windows applications to access a variety of different databases using a common interface. In order to use ODBC, the database vendor, Polyhedra in our case, must provide an ODBC driver that is then installed and configured on the local workstation.

Installing the Polyhedra ODBC driver

For Windows 98 SE, Windows 2000, Windows Millennium, and Windows NT, ODBC should be available under the Control Panel. If it is not, Run the DataAcc.exe from the Advance System Manager\Odbc\samples\ODBCsamples. Go to Advance System Manager\Odbc\odbc directory and execute the Setup. Once the driver is installed, Data Sources must be defined. The method for doing this differs based on the type of Windows application to be used. Follow the instructions under the following topics to proceed. Go to Control Panel>ODBC Data Sources or 32 ODBC to view and add ODBC drivers and data sources.

Using ODBC with the Maxum Database

To use the ODBC driver to access data from the Maxum Database, it is necessary to have a working knowledge of the Maxum tables. Consult the Maxum Tables document for a complete listing of these tables and a short description of the data contained in each table. Pay particular attention to the fact that the Maxum database is object-oriented – each table contains a script, portions of which may be executed when values change in the database. Care must be taken when modifying values in the database. Depending on which tool uses ODBC, a knowledge of Structured Query Language(SQL) may be required. Try this site for an SQL tutorial: <u>http://www.sqlcourse.com/</u>. Note that the Maxum's SQL is not a full version, i.e., not all commands work.

Microsoft Access 2000 Example

Open Access. Create a new blank Database.

Microsoft Access ?X
Create a new database using
Blank Access database
• Access database wizards, pages, and projects
O Open an existing file
More Files
db1 Northwind Sample Database Contacts Sample Database Address Sample Database
OK Cancel

Select New and import or link table:

뒐 db2 : Database	
🛱 Open 🕍 Design 🌾	
Objects Image: Constraint of the const	Create table in Design view Create table by using wizard Create table by entering dat This wizard creates tables in the current database that are linked to tables in an external file. OK Cancel

Select ODBC:

Link										?×
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web Folders	Files of <u>type</u> :	Microsoft /	Access (*.mdb	;*.adp;*	.mdw;*	°.mda;*	*.mde; *	.ad 🗸		Cancel
		Exchange(HTML Docu Outlook() Paradox (* Text Files ODBC Data) iments (*.htm [:] .db) '*.txt;*.csv;* ibases ()	l;*.htm) .tab;*.as	ic)			× •		

Machine Data Source Polyhedra. Then ok.

FoxPro Files - Word MS Access 97 Database MS Access Database	User User User User	Description	
My Spare Syscon Offline Anlz Polyhedra SurC TestNoService Vjsual FoxPro Database	User User User User User User	Polyhedra 32-bit Driver Diana's other Syscon	
A Machine Data Source is s "User" data sources are spe	pecific to t	nis machine, and cannot be shar ser on this machine. "System" d	<u>N</u> ew ed. ata

Enter ip address, user id, and password:

Select Polyhedra Data Service	×
<u>S</u> ervice:	ОК
161.218.54.141:8001	
<u>U</u> ser:	Cancel
super	Help
Password:	<u> </u>

Select tables and be sure to save password:

ink Tables	? >
Tables	
adh_panel adhbasicconnection adhconnection adhreaderconnection	OK Cancel
adhserver alarm_log alarmhandler	
analyzer app_detector app_hardware	Select <u>All</u>
app_pressctl app_tempctl	☑ Save password

Double click on table to display:



Access Example (Prior to 2000):

1	💊 Mi	icrosoft Access		
	Eile	<u>E</u> dit <u>V</u> iew <u>I</u> nsert	<u>T</u> ools <u>W</u> indow	/ Help
đ		New Database	Ctrl+N	1 ダ い 瓶・品・2 注 田 蕭 独 宮 唱 物・3
Г	È	Open Database	Ctrl+O	
		Get External <u>D</u> ata	۲	🖞 Import
		⊆lose		♦ I Link Tables
		Save	Ctrl+S	
		Save <u>A</u> s/Export		Qpen
		Save As <u>H</u> TML		Design
		Page Selun		New
	Tà.	Print Preview		
	6	Brint	Ctrl+P	
	·	Send		
		Database Properties		
		<u>1</u> db4		
		2 002 3 db3		
		4 C:\WINNT\CatBoot		
	-			
	6	E <u>x</u> it	1	

To read from the Maxum tables, select Import. To read and write, select Link Tables.

S Microsoft Access	_ []
Eile Edit View Insert Iools Window Help	
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Import	? ×
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_ 🔁 db1.mdb	Import
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₩ db3.mdb	
	<u>Advanced</u>
Find files that match these search criteria:	
File name: Text or property:	<u> </u>
Files of type: Microsoft Access	▼ Ne <u>w</u> Search
Microsoft FoxPro 3.0	Demous Data Assess
Change Optid Lotus 1-2-3 the Office 97 ValuPack.	Remove, Data Attess,
Paradox Text Files	
4 file(s) foun ODBC Databases	

Select ODBC Databases for Files of type.

Select the Polyhedra datasource. Click OK.

Data Source Name FoxPro Files - Word	Type User	Description	<u> </u>
MS Access 97 Database MS Access Database	User User		
My Spare Syscon	User		
Utfline Aniz Rolubodro	User	Polubadra 22 bit Driver	
SurC	User	Diana's other Suscon	
TestNoService	User		
Visual FoxPro Database	llser		∑
·			
			<u>N</u> ew
A Machine Data Source is s "User" data sources are spe sources can be used by all u	pecific to th ecific to a u: users on thi:	is machine, and cannot be shar ser on this machine. "System" c s machine, or by a system-wide s	ed. lata service.

Type in the ip address, user, and password. Click OK.

	[
elect Polyhedra Data Service	×
<u>S</u> ervice:	OK
172.16.9.134:8001	
<u>U</u> ser:	Cancel
super	Help
Passworc	<u> </u>

Select table(s) that are to be read. Click OK.

Import Objects	2 2
Tables	
alarmhandler Alanalyzer	OK tule:
app_detector	Cancel Dper
app_pressctl	esia
app_tempcti appai	Select <u>A</u> ll
appao appdi	Deselect All
application	

By opening each table, you will be able to read the attributes:

	appai : Table						_ 🗆 ×
	application_id	id	name	io_status	enable	hrdwr_id	uni 🔺
	100	100	TCD L1 Meas	-1	0	11:4-6.1-2.1.1	Volts
	100	101	TCD L1 BalSig	-1	0	11:4-6.1-2.1.145	%
	100	110	TCD U1 Meas	-1	0	11:4-6.1-2.1.17	Volts
	100	111	TCD U1 BalSig	-1	0	11:4-6.1-2.1.161	%
	100	120	TCD L2 Meas	-1	0	11:4-6.1-3.1.1	Volts 🚽
	100	121	TCD L2 BalSig	-1	0	11:4-6.1-3.1.145	%
	100	130	TCD U2 Meas	-1	0	11:4-6.1-3.1.17	Volts
	100	131	TCD U2 BalSig	-1	0	11:4-6.1-3.1.161	%
	100	140	TCD L3 Meas	-1	0	11:4-6.1-4.1.1	Volts
	100	141	TCD L3 BalSig	-1	0	11:4-6.1-4.1.145	%
	100	150	TCD U3 Meas	-1	0	11:4-6.1-4.1.17	Volts
	100	151	TCD U3 BalSig	-1	0	11:4-6.1-4.1.161	%
	101	100	FID Meas	-1	0	11:4-5.2-2.1.1	Volts
	101	101	FID BalSig	-1	0	11:4-5.2-2.1.145	%
	101	110	FIL Meas	-1	0	11:4-5.2-2.1.17	Volts
	101	111	FIL BalSig	-1	0	11:4-5.2-2.1.161	%
	102	100	TCD L1 Meas	-1	0	11:4-6.3-2.1.1	Volts
	102	101	TCD L1 BalSig	-1	0	11:4-6.3-2.1.145	%
	102	110	TCD U1 Meas	-1	0	11:4-6.3-2.1.17	Volts
Re	cord: 100	60 F FI F	* of 60	4		11.4 0 0 0 1 101	

Although you can change data value here, this will NOT change the database. A linked table will allow editing.

Request that external data be linked:

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ų,		File	<u>E</u> dit <u>V</u> iew	v <u>I</u> nsert <u>T</u> o	ols <u>W</u> indow <u>H</u> elp
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ork.	L				

Select Tables(be sure to save the password): File Edit View Insert Tools Window Help

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alarm_log		
alarmhandler		
analyzer	Select <u>A</u> ll	L
app_detector		
app_hardware	D <u>e</u> select All	
app_pressctl		
app_tempctl		

Tables are now linked to the database. Double click on the table to view the contents:

🗐 db6 : Database							
🛱 Open 🔛 Design 🌇 New 🗙 🖭 📰 🏢							
Objec	cts	2	Create table in Design view				
🎞 Tat	bles	2	Create table by using wizard				
📰 Qu	eries	2	Create table by entering data				
👪 For	rms	•	app_detector				
🔳 Rep	ports	• 🌚	app_hardware				
🔠 Pag	ges						
🗖 Mai	cros						
🤹 Mo	dules						
Group	ps						

By selecting the application table, I can both read and write into that table.

Write values to the database by entering values and then exiting the record. To add a new record, click on the * at the bottom and enter values.

ſ		application : Tab	le					_ 🗆 ×
		application_id	application_na	mode	sne_mode	active_app	juen	paused_
		100	Six TCDs	7	0			
		101	FID/TCD	0	5			
		102	More TCDs	0	5			
	J	103	my new app					
	*							

To delete a record, right click on the entry that is to be deleted.

applic	ation_id	application_	na	mode
	100	Six TCDs		
	101	FID/TCD		
	102	More TCDs		
🗰 Delete	<u>R</u> ecord		1	
Delete	<u>R</u> ecord	-		
δ Cu <u>t</u>				
lei ⊂opy				
- Paste				

Note that as you modify values, your view of the table is not dynamic, i.e, indirect changes will not be apparent. To refresh the table view:



Simple Microsoft Excel Example Excel 97/2000 uses MS Query to extract data using ODBC. Make an Excel Spreadsheet and select :

<u>E</u> dit ⊻iew Insert F <u>o</u> rmat <u>T</u> ools	Data Window Help	
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Select Data Source:

Databases Queries OLAP Cubes	OK
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SurC*	<u> </u>
syscon134	Delete
TestNoService*	
	-

Enter the ip address, user id, and password:

Select Polyhedra Data Service	×
<u>S</u> ervice:	ОК
161.218.54.141:8001	
<u>U</u> ser:	Cancel
super	<u>H</u> elp
Hassword:	

Select the table and attributes:

Query Wizard - Choose Columns	×
What columns of data do you want to include in your query?	
Available tables and columns: <u>C</u> olumns in your query:	
	A F
Preview of data in selected column:	
·	
Preview Now Options < Back Next >	Cancel

fill out the filter, sort. Return data to Excel:

Query Wizard - Finish			×
Query Wizard - Finish What would you like to do next? Image: Comparison of the state of		[Save Query
	< <u>B</u> ack	Finish	Cancel

If you don't use the query wizard, you will see the Microsoft Query screens:

	Sector Strategy America		<u>.</u>
	<u>File E</u> dit ⊻iew Forma <u>t</u> Ta <u>b</u> le <u>C</u> rite	Add Tables	? ×
_	BBB 1	<u>T</u> able:	Add
	₽ _₪ Query 1 from myexcelpoly	adh panel adhbasicconnection adhconnection adhreaderconnection adhserver adhserver alarm_log alarmhandler analyzer app_detector	<u>C</u> lose
_		<u>O</u> wner:	_
_		Database:	
			2019 2019
-			
-			

As you select tables they will appear in your query:

🆀 Microsoft Query		
<u>File Edit View Format Table Criteria Records</u>	Add Tables	? ×
	Table	
Transform The American Structure Str	_app_pressctl	<u>A</u> dd
	app_tempcti	<u>C</u> lose
	appai appao	
active_app 🔤 application_id	appdi	
active_sequent enable	appdo application	
application_id hrdwr id	archive break point	
autocal I hrdwrapp I		Options
	0_wner:	
	Database:	<u></u>
-		

You can now select the attributes of interest. Note that if you select attributes from two different tables, you must perform a join to make sense of the relationship between the tables. Criteria can also be added to qualify you search. It is also possible to use simple SQL. MS Query is an excellent tool for extraction of read-only information from the Maxum. A more complicated example:

🔓 Microsoft Query		
<u>F</u> ile <u>E</u> dit <u>V</u> iew Forr	ma <u>t</u> Ta <u>b</u> le <u>C</u> rite	eria <u>R</u> ecords <u>W</u> indow <u>H</u> elp
6669 1	u 888	
Query 1 from my	excelpoly	
application * active_app active_sequent application_id application_nar autocal		appai * application_id enable fullscale hrdwr_id hrdwrapp ▼
Criteria Field: applicat Value: 100 or:	ion_id	
application_id	id	
100	100	
100	101	
100	110	
100	120	
100	120	
100	130	
100	131	
Record: 1		

Select File Return Data to Microsoft Excel to return data to client application

Once the proper query has been defined, export to Excel:

옮 M	icros	oft Qu	ery							
<u>F</u> ile	<u>E</u> dit	⊻iew	Forma <u>t</u>	Ta <u>b</u> le	<u>C</u> riteria	Ē				
<u>N</u> e	:w									
<u>O</u> p	en					,				
<u>C</u> lo	ose									
<u> <u>S</u>a</u>	ve									
Sa	ive <u>A</u> s.									
Ţa	ible De	finition.				_				
Execute SQL										
Ca	incel a	nd Reti	um to Mic	rosoft E;	<u>x</u> cel					
<u> </u>	eturn D	ata to I	dicrosoft l	Excel						

To refresh the query from Excel:

X	licrosoft	Excel - Bo	ook1					
	<u>F</u> ile <u>E</u> dit	<u>V</u> iew <u>I</u> ns	sert F <u>o</u> r	mat	<u>T</u> ools	Data	<u>W</u> indow	<u>H</u> elp
	🖻 🔒	<i>a</i> .	нвс У		a	2 ↓	<u>5</u> ort	:
	A1	-		: ap	plicat	<u> </u>	Eilter	
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14				100		160		
115				1001		170		

The external data toolbar can be used as a shortcut:



Microsoft Excel Example with VBA functions

Visual Basic functions that translate the database codified data into user-readable form have been delivered in a the VBAfunctions.bas file. This file can be included in a worksheet to provide more readable output. This example also shows how to do a timed requery of the database.



Connect to the database, save password, as in the previous example. Select the appdo table.

Query Wizard - Choose Columns	
What columns of data do you want to include in your qu	Jery?
Available tables and columns:	<u>C</u> olumns in your d
appdo application_id id ezid name io_status enable ✓	
Preview of data in selected column:	
Preview Now Options	<u>B</u> ack <u>N</u> e

Query Wizard - Choose Columns What columns of data do you want to include i	in your query?	×
Available tables and columns: limitapp limitref hrdwrapp hrdwrref auto_offtime timerref IT _ application	Columns in your query: > application_id < io_status < hrdwr_id value value	
Preview of data in selected column:		_
Preview Now Options	< <u>B</u> ack. <u>N</u> ext > Cancel	

Return data to Excel:

Query Wizard - Finish			×
What would you like to do next?			
Return Data to Microsoft Excel			<u>S</u> ave Query
\bigcirc $\underline{\lor}$ iew data or edit query in Microsoft Query			
C Create an OLAP Cube from this query			
2	< <u>B</u> ack	Finish	Cancel

Data in the io_status and hrdwr_id columns are not useful in this form:

ľ	🔀 M	licrosof	t Excel	- Book1										
4	8	<u>Eile E</u> di	t <u>V</u> iew	<u>I</u> nsert F <u>o</u> rmat	<u>T</u> ools	Data	a <u>W</u> ind	٥Ŵ	v <u>H</u> elp					
		🗅 😂 🔚 🚑 🖨 🛍 🛍 🗠 🗸 🍓 Σ ≉ 🛃 🛍 100% 🕞 😰 😤 Aria											ial	
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	1	appd	appdo.	.name	appd	o.io	_status	S	appdo.l	hrdwr <u>,</u>	_id	appd	o.vali	ue
	2	1	C_FID I	Man Ignite			-	3	11:4-5.2	-2.4.16	50			1
I	3	1	C_FID I	Disable Bias			-	3	11:4-5.2	-2.4.1	59			0
I	4	1	C_FID I	Invert Signal			-	3	11:4-5.2	-2.36.2	257			0
I	5	1 0	с_тср	Invert Signal			-	3	11:4-5.2	-2.36.2	273			0
	6	1 l	L_FID N	vlan Ignite			-	3	11:4-5.1	-2.4.16	50			1
I	7	1 l	L_FID D	Disable Bias			-	3	11:4-5.1	-2.4.18	59			1
I	8	1 l	L_FID I	nvert Signal			-	3	11:4-5.1	-2.36.2	257			0
I	9	1 l	L_TCD	Invert Signal				3	11:4-5.1	-2.36.2	273			0
1	10	1	ROven	Run				3	11:4-4.2	-1.4.18	51			1
1	11	1 0	CAR_L	1 P Run				3	11:2-2.2	-1.4.14	45			1
	12	1	FUEL_I	L P Run			-	3	11:2-2.2	-1.4.16	51			1
	13	1 0	CAR_C	1 P Run			-	3	11:2-2.3	-1.4.14	45			1
	14	1	FUEL_	C P Run			-	3	11:2-2.3	-1.4.16	51			1
	15	1	FID_C_	AIR			-	3	11:1-1.1	-1.4.8				0
	16	10	CC1				-	3	11:1-1.1	-1.4.7				1

Start the Visual Basic Editor:

ľ	X M	licroso	ft Excel - Book1		
4		<u>File E</u> o	dit <u>V</u> iew <u>I</u> nsert F <u>o</u> rmat	Tools Data Window Help	
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I	3	1	C_FID Disable Bias	Macro Macros Alt+F8	
I	4	1	C_FID Invert Signal	Add-Ins Record New Macro	
I	5	1	C_TCD Invert Signal	Customize Security	
=	6	1	L FID Man Ignite		
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Insert the VBA functions module by selecting Import File under the File Menu:

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VBAfuncti	ons.bas				
File <u>n</u> ame:	VBAfunctions.bas				<u>O</u> pen
Files of type:	VB Files (*.frm;*.bas;*.cls)		•		Cancel
					Help
				_	

Close the VB editor and return to the spreadsheet. Select An empty cell outside the data area:

	🔀 Microsoft Excel - Book1												
	Eile Edit View Insert Format Tools Data Window Help												
	🗋 😅 🔚 🚑 🔮 🖺 🛍 🗠 τ 🍓 Σ 🏂 🛃 🛍 100% τ 😰 🐥 Arial												
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		Α	В	С	D	E	F						
	1	appde	appdo.name	appdo.io_status	appdo.hrdwr_id	appdo.value							
	2	1	C_FID Man Ignite	-3	11:4-5.2-2.4.160	1							
	3	1	C_FID Disable Bias	-3	11:4-5.2-2.4.159	0							
	4	1	C_FID Invert Signal	-3	11:4-5.2-2.36.257	0							
	5	1	C_TCD Invert Signal	-3	11:4-5.2-2.36.273	0							
	6	1	L_FID Man Ignite	-3	11:4-5.1-2.4.160	1							
	7	1	L_FID Disable Bias	-3	11:4-5.1-2.4.159	1							
	8	1	L_FID Invert Signal	-3	11:4-5.1-2.36.257	0							
	9	1	L_TCD Invert Signal	-3	11:4-5.1-2.36.273	0							
I	40	4	DO	2	11.4 4 0 4 4 404	4							

Insert a function:

Microsoft Excel - Book1											
	<u>File E</u> d	lit <u>V</u> iew	Insert	F <u>o</u> rmat	<u>T</u> ools	<u>D</u> ata j					
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7	1	L_FID D		×							

Select User Defined Functions/GetHrdwrDesc:

Paste Function	?×
Function category:	Function <u>n</u> ame:
All Financial Date & Time Math & Trig Statistical Lookup & Reference Database Text Logical Information User Defined Financial Control of the Data State State State State State State State Stat	BintoAsc checkhrdwr count_char GetCanDesc GetIOStatus GetIOStatus GetMod GetPQtype GetProgDay v
Choose the Help button for help	on this function and its arguments.
	OK Cancel

Select the first hrdwr_id cell:

	licroso	ft Excel - Book1					
	<u>File</u>	dit <u>V</u> iew <u>I</u> nsert F <u>o</u> rmat	<u>T</u> ools <u>D</u> ata <u>W</u> indow	w <u>H</u> elp			
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	SIN	<u>·</u> X √ = =G	etHrdwrDesc(D2)				
	Α	В	С	D	E	F	G
1	appd	appdo.name	appdo.io_status	appdo.hrdwr_id	appdo.value		
2	1	C_FID Man Ignite	-3	11:4-5.2-2.4.160	1	esc(D2)	1
3	1	C_FID Disable Bias	-3	11:4-5.2-2.4.159	0		
4	1	C_FID Invert Signal	-3	11:4-5.2-2.36.257	0		
5	1	C_TCD Invert Signal	-3	11:4-5.2-2.36.273	0		
6	1	L_FID Man Ignite	-3	11:4-5.1-2.4.160	1		
7	1	L_FID Disable Bias	-3	11:4-5.1-2.4.159	1		
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11				= "5	NE 11 DPM EID Mo	id/Pic	
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D	E	F	
appdo.hrdwr_id	appdo.value		
11:4-5.2-2.4.160	1	SNE 11 DPM FID Mod/Pic: 2/2 DO Chan 160	
11:4-5.2-2.4.159	0	SNE 11 DPM FID Mod/Pic: 2/2 DO Chan 159	
11:4-5.2-2.36.257	0	SNE 11 DPM FID Mod/Pic: 2/2 DO Chan 257	
11:4-5.2-2.36.273	0	SNE 11 DPM FID Mod/Pic: 2/2 DO Chan 273	
11:4-5.1-2.4.160	1	SNE 11 DPM FID Mod/Pic: 1/2 DO Chan 160	
11:4-5.1-2.4.159	1	SNE 11 DPM FID Mod/Pic: 1/2 DO Chan 159	
11:4-5.1-2.36.257	0	SNE 11 DPM FID Mod/Pic: 1/2 DO Chan 257	
11:4-5.1-2.36.273	0	SNE 11 DPM FID Mod/Pic: 1/2 DO Chan 273	
11:4-4.2-1.4.161	1	SNE 11 DPM Temperature Mod/Pic: 2/1 DO Chan 161	
11:2-2.2-1.4.145	1	SNE 11 EPC Pressure Mod/Pic: 2/1 DO Chan 145	
11:2-2.2-1.4.161	1	SNE 11 EPC Pressure Mod/Pic: 2/1 DO Chan 161	
11:2-2.3-1.4.145	1	SNE 11 EPC Pressure Mod/Pic: 3/1 DO Chan 145	
11:2-2.3-1.4.161	1	SNE 11 EPC Pressure Mod/Pic: 3/1 DO Chan 161	
11:1-1.1-1.4.8	0	SNE 11 SVCM 8 Valve Mod/Pic: 1/1 EEPROM Chan 8	
11:1-1.1-1.4.7	1	SNE 11 SVCM 8 Valve Mod/Pic: 1/1 EEPROM Chan 7	
11:1-1.1-1.4.2	0	SNE 11 SVCM 8 Valve Mod/Pic: 1/1 DO Chan 2	
11:1-1.1-1.4.1	0	SNE 11 SVCM 8 Valve Mod/Pic: 1/1 DO Chan 1	
11:1-1.2-1.4.8	0	SNE 11 SVCM 8 Valve Mod/Pic: 2/1 EEPROM Chan 8	
11:1-1.2-1.4.7	1	SNE 11 SVCM 8 Valve Mod/Pic: 2/1 EEPROM Chan 7	
11:1-1.2-1.4.6	1	SNE 11 SVCM 8 Valve Mod/Pic: 2/1 EEPROM Chan 6	
11:1-1.2-1.4.2	0	SNE 11 SVCM 8 Valve Mod/Pic: 2/1 DO Chan 2	
11:1-1.2-1.4.1	1	SNE 11 SVCM 8 Valve Mod/Pic: 2/1 DO Chan 1	
11:4-5.2-2.4.147	0	SNE 11 DPM FID Mod/Pic: 2/2 DO Chan 147	
11:4-5.2-2.4.163	0	SNE 11 DPM FID Mod/Pic: 2/2 DO Chan 163	
· · · - · - · · · -	_		i E

The same is done with the io_status column and function GetIOStatus:

To set up an automatic refresh, select Data Range Properties on the External Data toolbar:

🗢 External Data	×
- 😏 🖆 👘 🚦 💥 😭 🤅	•
Data Range Properties	

External [)ata Range Prop	oerties		?×
<u>N</u> ame:	Query from Unit?	37		
Query defi	nition			
Save	guery definition password			-
Refresh co	ntrol e <u>b</u> ackground refre	sh		
	sh every	📑 minute	s	
□ Rene	move external data	a from worksh	eet before savin	g
Data forma	atting and layout — Je fi <u>el</u> d names	Preserv	e co <u>l</u> umn sort/fill	:er/layout
□ Inclua ▼ <u>A</u> djus	le row n <u>u</u> mbers t column width	☑ Pre <u>s</u> erv	e cell formatting	-
If the nu If the nu	mber of rows in the sert cells for new d	data range ch ata, delete un	hanges upon refi used cells	resh:
C In: C Ox	sert entire ro <u>w</u> s for envirite existing ce	new data, cle Ils with new da	ar unused cells ita, clear unused	t cells
⊂ <u>⊆</u> Eill do	wn formulas in colu	mns adjacent	to data	
			ОК	Cancel

Set up a one minute refresh. Excel will requery the database every minute.

Microsoft Visual Basic 6.0 Example

Visual Basic provides a simple, but powerful interface to the Maxum analyzer. Static reads and writes can be accomplished with very little effort. The simple example requires no Visual Basic code to be written. The more complicated examples require a knowledge of Visual Basic 6 programming. Recommended reading: Gary Cornell's *Visual Basic 6 From the Ground Up* and John Connell's *Visual Basic 6 Database Programming*. Note that he Maxum's ODBC driver is not fully functional. For a VB6 tutorial, try this site: http://www.vbinformation.com/tutor.htm.

Follow this example to set up a simple application:

1. Setup a new standard.exe VB project.

New Project					? ×
New Existing	Micros Vis	oft ual B	asi	c	$\langle \rangle$
Standard EXE	ActiveX EXE	ActiveX DLL	ActiveX Control	VB Application Wizard	-
VB Wizard Manager	ActiveX Document Dll	Activex Document Exe	Addin	Data Project	
	P	~		<u>O</u> pen Cancel <u>H</u> elp	
Don't show this	s dialog in the f <u>u</u>	lture			

2. Select Project References



3. Select MS ActiveX Data Objects 2.1 Library and MS ActiveX Data Objects Recordset 2.0 Library

m) _	References - Project1	×
	Available References:	ОК
	MAPIForm object Type Library MaxumCom 1.0 Type Library Microsoft Access 9.0 Object Library	Cancel
	Microsoft Active Server Pages Object Library Microsoft ActiveMovie Control Microsoft ActiveMovie Control	Browse
	Microsoft ActiveX Data Objects (Multi-dimensional) 1. Microsoft ActiveX Data Objects 2.0 Library Microsoft ActiveX Data Objects 2.1 Library Priority	Lucia I
	Microsoft ActiveX Data Objects Recordset 2.0 Library Microsoft ActiveX Plugin Microsoft Add-In Designer	
	Microsoft ADO Ext. 2.1 for DDL and Security	
	Microsoft ActiveX Data Objects Recordset 2.0 Library	
	Location: D:\Program Files\Common Files\system\ado\MSAD Language: Standard	OR15.DLL

4. Under Project/Components, select MS ADO Data Control 6.0 (OLEDB)



5. Select the Adodc from the Control toolbar



It should be the bottom control.

6. Place the control on the form and select ADODC Properties (right click on the control)



7. Select Build for Connection String

eneral Authen	tication RecordSource	Color Font	1
Source of Cor	nection		
O Use Data J	₌ink File		
			Browse
	Data Source Name		
		7	Ne <u>w</u>
💿 Use <u>C</u> onne	ction String		
			B <u>u</u> ild
Other <u>A</u> ttributes:			

8. Select Microsoft OLE DB Provider for ODBC Drivers, then click Next.

	Data Link Properties × Provider Connection Advanced All	
ror G	Select the data you want to connect to: OLE DB Provider(s) Microsoft Jet 3.51 OLE DB Provider Microsoft OLE DB Provider for Internet Publishing Microsoft OLE DB Provider for ODBC Drivers Microsoft OLE DB Provider for OLAP Services Microsoft OLE DB Provider for SQL Server Microsoft OLE DB Simple Provider MS Remote MSDataShape OLE DB Provider for Microsoft Directory Services	×
	<u>N</u> ext >>	╞
	OK Cancel Help	

9. Select the Polyhedra datasource:



10. Enter a user and password and allow saving of the password. It's a good idea to test the connection then click OK.

—[🖫 Data Link Properties 🛛 🔀	
	Provider Connection Advanced All	I
Proj G	Specify the following to connect to ODBC data: 1. Specify the source of data: C Use data source name polyhedra3.02 Use connection string Connection string:	
	Build 2. Enter information to log on to the server User <u>n</u> ame: super	
	Password: *** Blank password Allow saving password	
I	3. Enter the initial catalog to use:	
		I
	OK Cancel Help	

11. Select the Recordsource tab and Command Type 2- adCmdTable

Property Pages	×
General Authentication RecordSource Color Font	
RecordSource Command Type	
8 - adCmdUnknown	
8 - adCmdUnknown 1 - adCmdText	
2 - adCmdTable 4 - adCmdStoredProc	
Command Text (SQL)	
OK Cancel Apply Help	

12. Select the table of interest under Table or Stored Procedure and click OK. (Use adCmdText to use and SQL statement)

roperty Pages			
General Authentication	RecordSource	Color Font	
RecordSource		-	
Command Type			
2 - adCmdTable		-	
Table or Stored Press	duro Nomo		
Table of Stoled Flock	suure mante		
		_	
Command Text (SQL)			
			1
OK	. Canc	el <u>A</u> pply	Help

13. Place a text box on the form. Select the Ado control as the DataSource for the text box.

	Properties - Text1	×
	Text1 TextBox	•
• • • • • • • • • • • • • • • • • • •	Alphabetic Cate	gorized
	(Name) Alignment Appearance BackColor BorderStyle CausesValidation	Text1 0 - Left Justify 1 1 - 3D 8/H80000005& 1 - Fixed Single 1 True 1
Adodc1	DataField DataFormat DataMember DataSource	Adada1
<u></u>	DragMode Enabled	0 - Manual True
	Font ForeColor Height	MS Sans Serif &H80000008& 285
	HelpContextID HideSelection	0 True
	DataSource Sets a value that s the current control	pecifies the Data control through which I is bound to a database.

14. Under DataField, select a column from the table(this is the table that was selected in the ADO data control's recordsource).

	Properties - Text1	×
	Text1 TextBox	
<u> </u>	Alphabetic Cate	gorized
*	(Name) Alignment Appearance BackColor BorderStyle CausesValidation	Text1 0 - Left Justify 1 - 3D &H80000005& 1 - Fixed Single True
H	DataField DataFormat DataMember DataSource DragIcon DragMode Enabled	application_id id ezid name io_status enable hrdwr_id value
	ForeColor Height HelpContextID HideSelection	&H80000008& 285 0 True
	DataField Returns/sets a val current record.	ue that binds a control to a field in the

15. Test the form with Run, or the **button**



16. It should look like this (with name displayed in the text box)

🐃 Form1		_ 🗆 ×
	R0ven Run	
	novennan	
	Adodc1	

17. Use the arrow controls to navigate through the recordset

Buttons indicate: If goes to first record of recordset goes back one record goes forward one record goes to the last record of the recordset

- 18. Change the name in the appdo table by typing over a name and then going to a different record.
- 19. Add more fields to the form. Note that Boolean values should be used with a check box. Binary fields should be avoided. Datetimes are stored in GMT and there is no automatic conversion. Here is a finished form to display the appdo table. No Visual Basic code is used, but could now be added customize this form.

🖨 Form1			_			Ŀ	×
id Label1				•			:
name Text1	_						:
i ⊡ enable ⊡ value			:	:			•
Hardware id Text4						:	:
	: :	: :	:	:	: :	: :	:
H Adodc1 FH		: :	:	:			:
	: :	: :	:	:	: :		:

Which results in this:

💐 Form1		×
id	752	
name	BAL_CL3_TCD	
🔽 enable	🔲 value	
Hardware id	11:4-6.2-4.4.147	
I Adodc	1 🕨 📕	

A More Complicated Microsoft Visual Basic 6.0 Example

In the ODBC directory, a sample application called MaxumExtract is available. This program can be used as is, or the project source can be used as a template to develop another application. The files are:

- fmCriteria.frm
 fmCriteria.frm
 fmCriteria.frx
 MaxumExtract.exe
- MaxumExtract.vbp
- MaxumExtract.vbw
- 😽 Module1.bas
- 🖏 QueryGrid.frm
- SelectQuery.frm
- 🛋 SelectQuery.frx

The project includes four forms. Its purpose is to select data from a Maxum database and allow it to be viewed, printed, and extracted to a comma-separated file(suitable for MS Excel). It does not allow editing of the data. The MaxumExtract.exe is only usable on systems that have the Visual Basic files installed, so it is not suitable for distribution. These required files may be installed by other applications, like Internet Explorer.

The entry form, SelectQuery, requires designation of a predefined datasource and table of interest:

🛢. Maxum Table Extract	Utility		
Select Data Source	•	Select Table Name	•
Attributes		Selected Attributes	
	Select >		
	All>>		Select Criteria
	≺ Remove		Perfrom Query
	<< Remove All		
			Exit

onee the table is selected	, select the attribut	tes(data meres) or meres	
🛢 Maxum Table Extrac	t Utility		<u>_ ×</u>
DianaH Attributes ezid name io_status enable hrdwr_id value readback text0 text1 limitapp limitref hrdwrapp hrdwrref auto_offtime timerref	▼ Select > All >> Remove	Selected Attributes *application_id *id	▼ Select Criteria Perfrom Query
			Exit

Once the table is selected, select the attributes(data fields) of interest:

The primary key fields, in this case, application_id and id are always required.

🛢 Maxum Table Extract	Utility		<u>-0×</u>
Maxum Table Extract DianaH Attributes ezid io_status readback text0 text1 limitapp limitref hrdwrapp hrdwrref timerref	Utility Utility Select > Select All >> K Remove All	appdo Selected Attributes *application_id *id name enable hrdwr_id value auto_offtime	■■× Select Criteria Perfrom Query
			Exit

The Select Criteria button activates the fmCriteria form, which allows selection of a "where" clause.

🛢 Query Criteria	
Select Attribute Select Operator Value to Use Criteria may be built by selecting attributes, operators, and values or may be typed freehand. An Ord may be added manually. The Maxum version of SQL does not allow the use of OR in the where clau WHERE	Add to Criteria er by clause ise.
Clear Criteria	Done

A where clause can be keyed in , or built with the three upper boxes:

🛢 Query Criteria 📃	
application_id = 100 Add to Criteria Criteria may be built by selecting attributes, operators, and values or may be typed freehand. An Order by clause may be added manually. The Maxum version of SQL does not allow the use of OR in the where clause. WHERE application_id = 100	9
Clear Criteria Done	e

Multiple items can be selected, and an "order by" clause can be typed in to sort the items.

🛢 Query Criteria	
id Image: Im	Add to Criteria er by clause ise.
Clear Criteria	Done

Select Done, then Perform Query on the SelectQuery form. The QueryGrid form is displayed.

pplication_	id	name	enable	hrdwr_id	value	auto_offtime	
100	2	SV2	False	0.1-1.1-1.4.2	False		
100	10	Stream	False	0:1-1.1-1.4.3	False	0	
100	103	TCD L1	True	5.1-2.36.257	False	0	
100	113	TCD U1	True	5.1-2.36.273	False	0	
100	123	TCD L2	True	5.1-3.36.257	False	0	
100	133	TCD U2	True	5.1-3.36.273	False	0	
100	143	TCD L3	True	5.1-4.36.257	False	0	
100	153	TCD U3	True	5.1-4.36.273	False	0	
100	300	Oven1 Run	True	-4.1-1.4.145	True	0	
100	310	Oven2 Run	True	-4.1-1.4.161	True	0	
100	400	EPC1 P	True	:-2.1-1.4.145	False	0	
100	410	EPC2 P	True	:-2.1-1.4.161	False	0	

Print will print the grid to the default printer. Printing format is limited. Extract to File will print the grid to a comma-separated file that can be viewed in Excel or Notepad or loaded into Access. Return closes the form.

The MaxumExtract application does a snapshot query of the Maxum, with not ability to edit the values. The .vbp file will allow you to load the project and view the source code.

Editing Maxum tables with Visual Basic 6.0

In the ODBC directory, a sample application called AppMonitor is available. This program is an imcomplete application that demonstrates the ability to poll the database with timers and update tables with the ADOConnection.Execute method. This method only is available in the Maxum 3.1 release. The files are:

Siemens Applied Automation 11/26/03 9:57 PM

AOfrm.frm
 Appmon.frm
 Appmon.frx
 AppMonitor.exe
 AppMonitor.vbp
 DOfrm.frm
 IOfrm.frm
 Module2.bas
 AppMonitor.vbw

It is left to the user to view the code and use it as a template for developing applications. Note that the forms use timers to requery the database periodically. Requerying the database frequently can seriously degrade the performance of the analyzer. The ODBC driver does not have the ability to make dynamic connections to the database.

VB6 Code Sample for building connection string

This code comes from a form that has a text1 text box for entering the IP address. Count_char is a function in the VB function library(VBAFunctions.bas) that is delivered with the 3.11 release.

Dim connectString As String Dim i As Integer

If count_char(Text1.Text, ".") <> 3 Then MsgBox "Invalid ip address" Text1.SetFocus Exit Sub End If If Right(Text1.Text, 5) <> ":8001" Then Text1.Text = Text1.Text + ":8001" Set Records = New ADODB.Recordset 'a data source was selected connectString = "Provider=MSDASQL.1;Password=555;Persist Security Info=True;User ID=super;" connectString = connectString & "Extended Properties=""DSN=Polyhedra;SERVICE=" + Text1.Text + ";UID= super;""" If adoConnection.State = adStateOpen Then adoConnection.Close adoConnection.Open connectString