Visual I/O ^{V7}

SCADA,
Man Machine Interface,
And your Applications for

Zero-cost

Rapid Development
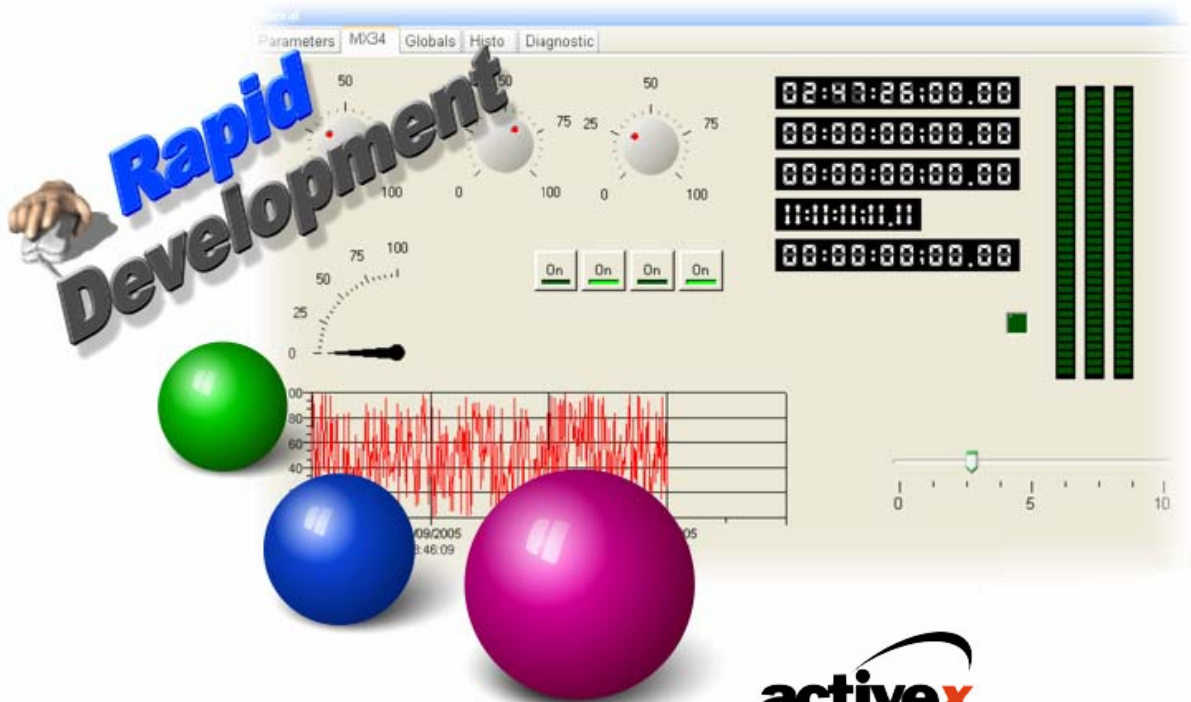
Unlimited Tags

activex

Use all components
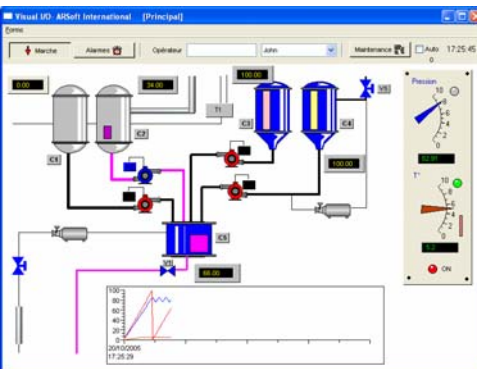on the market

OPC

Connections
to all PLCs

MySQL
The world's most
popular open source
database

Develop applications up to 10 times faster.

ALL IS INTEGRATED AND IS STANDARD
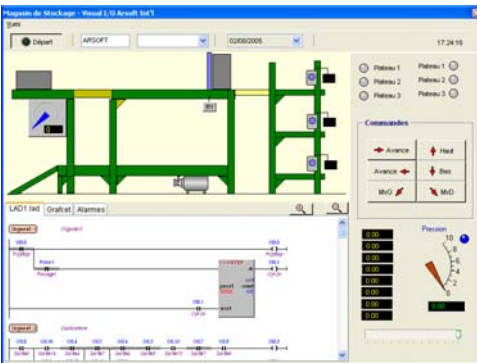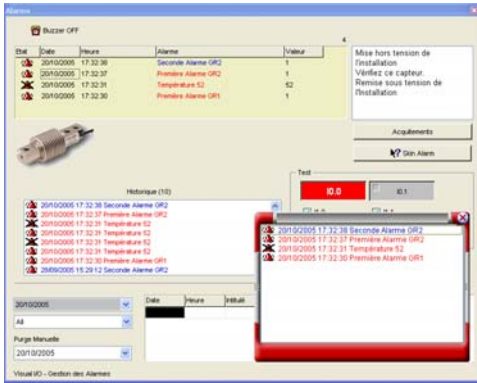
- Your teams are productive in one week.

- Your applications powered by Visual I/O compiler.

- Plethora of software components simplifies your life.

- Popular PLC Protocols in the market are included and free.

- Developments of optimized applications with professional quality, from your first versions.

- With Visual I/O become a super developer.

- Only 1 tool to acquire and Reduced overall cost.

- Build professional applications.

- A free technical support.
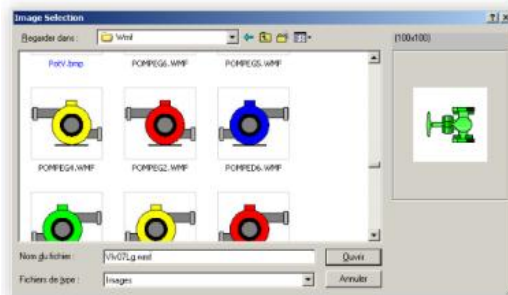
Optimized developments and superior-quality applications.
Produce a professional looking appearance.
Creates a single executable file (Myappli.EXE).
Visual I/O variables are directly shareable with Visual PLC.

All is included.

# Frequently asked questions about Visual I/O

Is it necessary to pay for each generated application?	No, you buy the product only once and all the applications generated will be entirely free.
Who can use Visual I/O?	It is for all the developers who want to create Windows © Industrial applications.
What type of applications can I develop?	All. HMI enabling users to visualize and control industrial processes. Database, SCADA. Finally, no limit.
What do I need to know?	You need to have programmed at least once in your life (or in school!). It is of a disconcerning facility.
How much time will it take me to come up to speed on Visual I/O ?	2 to 3 days. The handbook guides you step by step in the creation of your application. Many reusable examples are provided.
Do all the modules come standard with the product?	Yes, everything is included, from conception to maintenance. Visual I/O has no variables (tags) limitations.
Does Visual I/O create <<EXE>>	Yes. You can distribute them freely, without paying any royalties. All is included in only one file generally less than 1 Mbytes because Visual I/O is a real compiler.
Is it necessary to create a installation disc?	No, Visual I/O is not a product requiring many file. Your application can be saved only on a floppy disk.
Can I build Client/Server applications using Visual I/O	Yes, of course, using any of the industry databases.
Can I freely distribute the integrated database?	Yes, Visual I/O has a native access to MySQL an open source database. Visual I/O can also interface the BDE from Borland ©
How powerful is the Visual I/O language?	The language used is the Pascal language, which is simple and very powerful at the same time. You will use procedures and high-level functions. You can also program directly in assembler. With the product, all the sources of libraries are supplied.
I already have an application. Will I be able to use it with Visual IO?	Yes, most certainly, Visual I/O supports all the industry standards and the Windows API.
Which are the features ?	Writing code is good, but do not write, it is often better. Visual I/O includes all necessary components delivered with their source code.
How can I communicate with PLC?	Visual I/O includes configuration setup to communicate through different protocol with the reputed PLCs in the market (Siemens, Schneider, Omron ...) on the serial com port and thats free. You can also use the OPC Server to communicate with other PLCs.
My applications will work in network?	Yes, the same application can be launched on several PC connected in network. These applications will share the same global variables. When an application modify a value, the others applications will be automatically updated.

CREATE FABULOUS INTERFACES!

The user interface generator provided with Visual I/O is certainly the most powerful and easiest to use, than available SCADA/MMI in the market. You will easily create great custom applications. No knowledge of Windows is required. User Interfaces are built visually (WYSIWYG), using the mouse!

All Windows objects.

- Edit box.
- Tabs.
- List box.
- Combo box.
- Image.
- Scrollers.
- Graphic button.
- Simple and toggle buttons.
- Check box.
- Selector.
- Array
- Graphical List.
- Report.
- Icons List.
- Tree-View.
- ActiveX
- click areas.
- Slider.
- Splitter.
- Status Bar.
- WebCam
- And more....
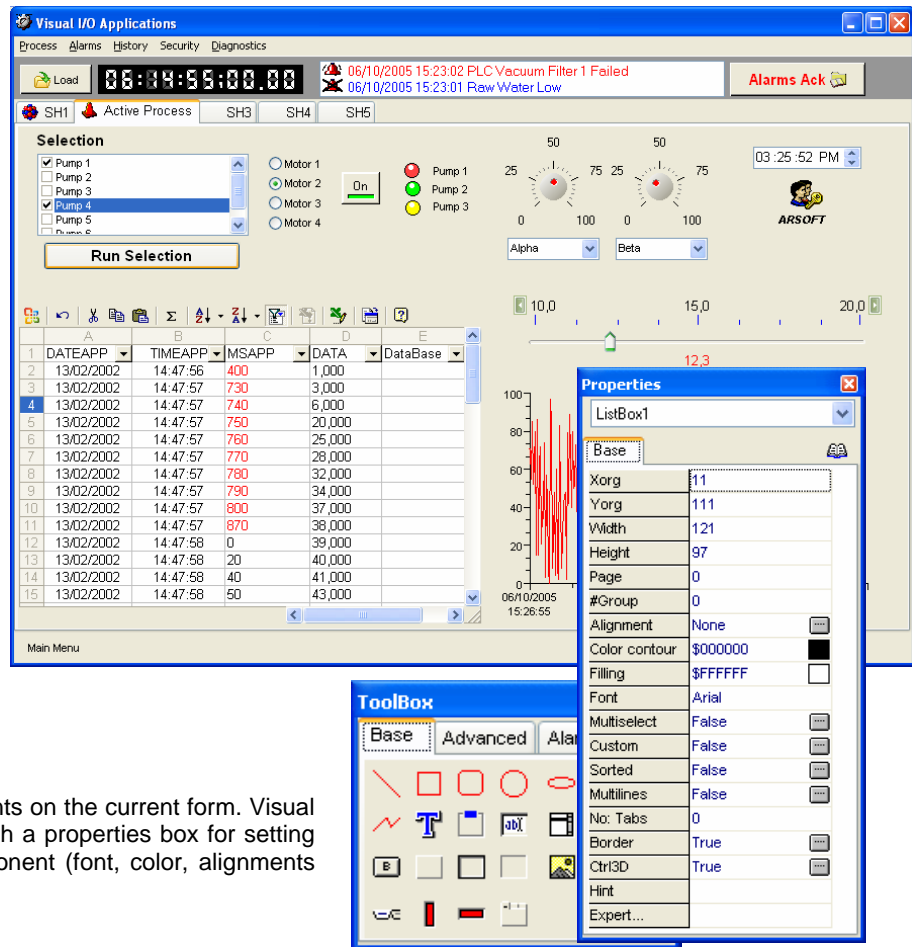
THE TOOLBOX
The toolbox lets you place components on the current form. Visual I/O has all the development tools with a properties box for setting the graphical attributes of the component (font, color, alignments etc.).
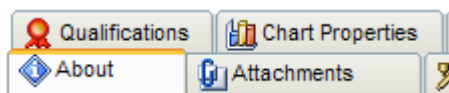
MENU GENERATOR
The menu editor is extremely simple to use: just type the option labels directly where you want them.
The menu is created directly in front of your eyes.
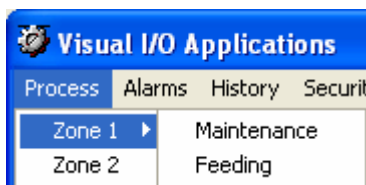
TABS MADE EASY
Visual I/O lets you easily create windows with tabs.

GRAPHICAL ANIMATIONS IN REAL TIME
Visual I/O enables moving enlarging objects without flicking. Display in a Bargraph, a numerical value simply by specifying the variable name associated.

WINDOWS WITH NON-RECTANGULAR SHAPE AND TRANSPARENT
Visual I/O lets you automatically create windows of any shape, or transparent.

USER RESIZABLE WINDOWS
If you authorize it, the end user can resize windows at run time. You decide which controls you want to anchor and the percentage by which they are moved and enlarged. Of course, no line of code is required.

DRAG & DROP
You can easily implement the use of drag-and-drop operations in your applications. Accessing file from the windows explorer is also possible.

APPLICATIONS : NO MOUSE
Visual I/O lets you easily create applications that do not require the use of a mouse.

USE ALL COMPONENT IN THE MARKET
Thanks to the total incorporation of ActiveX components, Visual I/O has only the limits of your imagination. The ActiveX technology is totally implemented with exploitation of the methods and with graphic properties boxes associated. Integrate for example : graphics, tabler, bar codes, complex reports and others instrumentation objects.
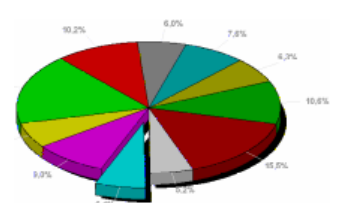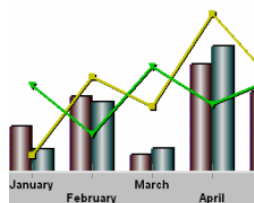
THE CLASSICS OF THE SUPERVISION

ALARMS

Handle any bit or Numerical value as an alarm. An alarm maybe associated to an image and one to a text, to be allocated to a group and a zone to facilitate its sorting. It can also activate a sending of email. A set of components is available to manage the data base of alarms (sorting, searching for by date or by name, purge, export towards Excel). The purge can be also automatic. The storage of alarms is made in a DBase file compatible directly with Excel.
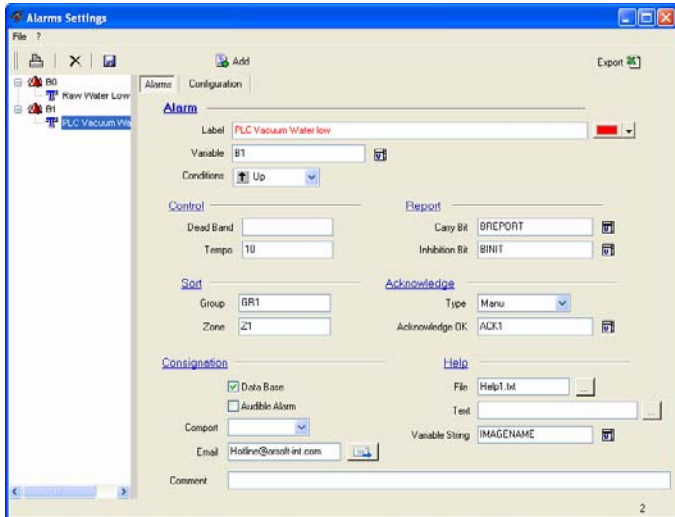
HISTORICALS

Allows you to recording past task numerical values or binary states. Delivered with specialized components allowing to show them in the form of curves or grid of datas. The database of history is exportable directly into Excel or in other database system.
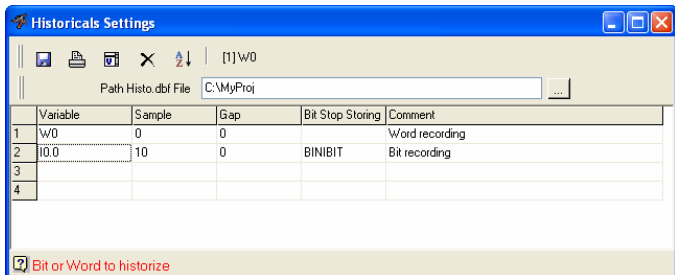
RECIPES

Recipies define the list of the variables which are beings affected during the process. Recipes contain ingredients, which will be stored in disk and to be restored at any time. Visual I/O contains a tab for creating a form generating a recipe. These components ready-to-use allow the saving and the downloading of pre-established recipes.
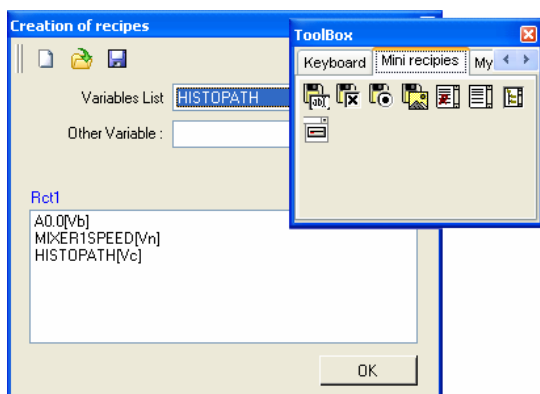
EVENTS

The events are comparable to alarms. However, an event can generate a simple or complex action. Visualisation of Event as the alarms in a special component is simple to achive. Thanks to the events, all the changes of states can be shown in your application. The purge is indeed automatic and customizable.
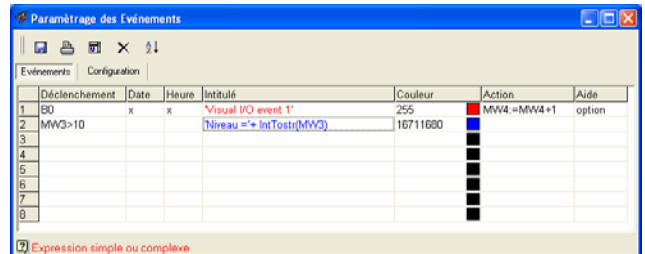
REPORTS

The generator of report of Visual I/O lets you create printable pages. To integrate, for example a value into a report nothing more easy place the object value, adjust its graphic attributes font, size etc. then affect the variable. Besides the classic graphs (texts, images, lines) reports allow to integrate curves. A preview is possible.
Printing is done with the **PrintReport** instruction.
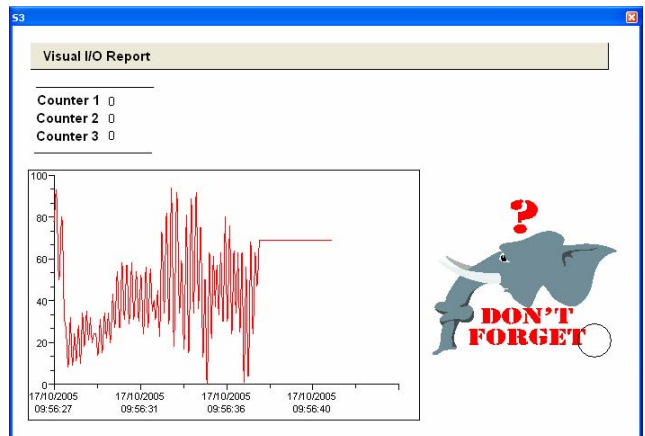
COMMUNICATION WITH PLC

Delivered with standard protocols : PROFIBUS DP (card needs), Modbus, Omron SysmacWay, Siemens MPI, Schneider Unitelway, ICP, advantech on the serial comport completely free. Visual I/O is a server as well as an OPC client, enabling you to connect to all the communication servers in the market (up to 40 protocols in certain suppliers).

A REAL TIME ENGINE

The treatment of the Alarms, History, Events and Communications is made as high priority in a back task on your application. Therefore, no data will be lost.
Indeed, you can also develop programs that will run in this real-time engine. Multithreading programming is also possible in Visual I/O.

USE PROFESSIONAL COMPONENTS, IT'S EASY!

For years, development teams have been looking for ways to reuse their legacy code instead of reinventing the wheel with each new subroutine. Visual I/O provides many components with theirs source code *customizable*. A "component" is simply a piece of code with its own variables and its properties.
Factory component included.
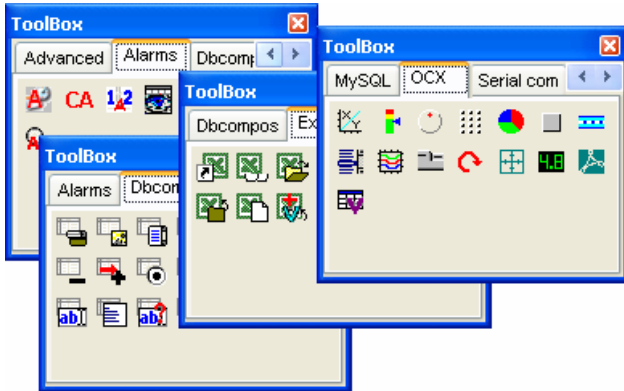
SECURE YOUR DEVELOPMENTS

A component is a black box, created by a developer who can then reuse it; a component is also available to other developers. The developer using it knows only the entry points and the type of information returned. Once a component has been tested, each program that uses it benefits from its reliability. Without any additional work the quality of your applications automatically improves.

COMPONENT : A REUSABLE PROGRAM

A component may be very simple or very sophisticated. A component can use procedures and functions from Visual I/O libraries call VPU. To be easier this component has a properties box usable at design time. A component **inherits** the traits of their basic shape ancestors.
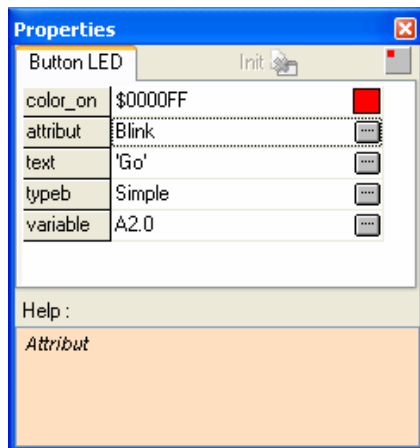

To create a component is also to give it a graphic aspect by the choice of options and by allocating it variables of the application.

CREATE A COMPONENT, THEN REUSE IT ENDLESSLY

A component can be used simultaneously by several applications.
An application can use several different components.
The components that you create are secure, meaning that nobody can see or copy their source code, their analysis, etc. This is useful for commercial software

AUTOMATIC OFFICE LINK

Thanks to Excel components import and export easily your data. The alarms, the history and the events are already compatible directly with Excel.
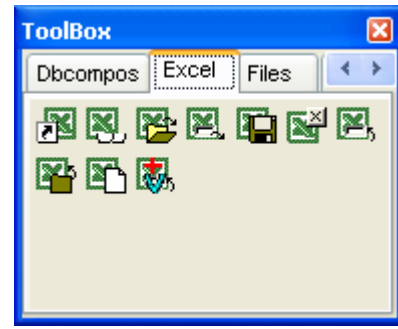
USE THE AVAILABLE COMPONENTS IN THE MARKET - ACTIVEX

In Visual I/O, you can integrate all ActiveX control on your form. You can make use of Event, Method and Properties function to modify the objects properties.
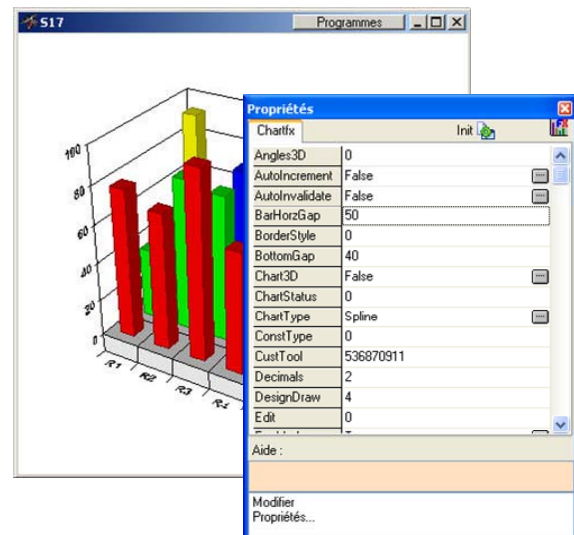
Behind this ActiveX in the column program you go to be able to use the procedures and the methods which are appropriate for it. The VPU library attached to every ActiveX allows controlling it altogether. Thanks to the compiler of Visual I/O you will handle all the types of data of the simplest Boolean, whole until the structures and variants.

Use ActiveX to present your data under forms of graphs, print bar codes, integrate a spreadsheet into your applications.

TEMPLATES

Visual I/O lets us defines the general look of a window with its code and saved it in a model reusable under other applications. Create then standard and reusable dashboards in all your applications.

CAPITALIZE !

DON'T REINVENT THE WHEEL

A POWERFUL LANGUAGE, SIMPLE AND INTUITIVE

Visual I/O contrary to the other tools of development is a procedural language. To develop your application, you will use procedures and functions written in Pascal language. . For example to colour inside of a circle, you will use the procedure SetFillColor by passing it new colour. To know the current colour you will use the GetFillColor function. Visual I/O standardized the interface for its graphic objects. Therefore, the procedure SetFillColor works as well on a circle, a Listbox or a datagrid.

EXPERTS

Every graphic basic object of Visual I/O is associated with an expert. Using an expert on every graphic Object of Visual I/O is optional but extremely practical for the fast screens design. It allows user to associate variables and basic features to each object.
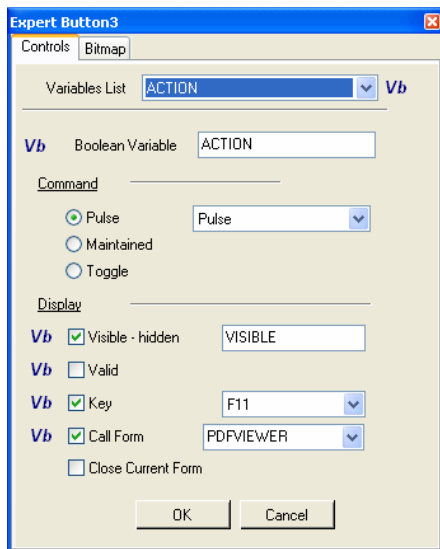

For example, a button can be simple or toggle, associated to a function key to call the other form etc...

Every object or component can have an associated code. This code adds supplementary features in the case the expert does not allow them.

A POWERFUL CODE EDITOR

Visual I/O does not adopt the programming on event where the code is spread everywhere and it becomes quickly illegible. For every graphic object, the code is grouped in a program zone that is appropriate for it called SmallObject. This object contains its own protected local variables.
Here all the code concerning the button " Button1 " is grouped together in the same in this legible place
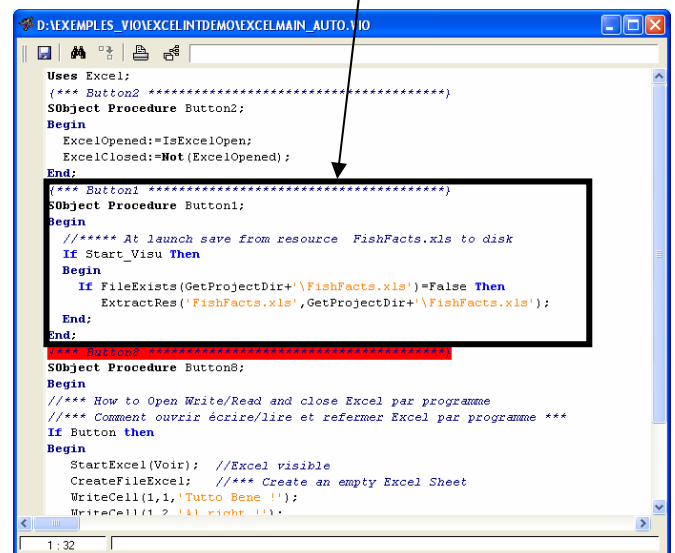
Example of program behind a form. The directive Uses EXCEL on the first line, makes use of all the procedures and the functions of the Excel library...

Delivered with hundreds of functions and procedures of the simplest in the most evolved manner, Visual I/O delivers you all its source code. The high-level language will allow you to manipulate any sorts of types: Boolean, Integer, Word, Byte, Real, Double, Single, Strings, Variants, array of type, Structures and pointers.

A STANDARD LANGUAGE.
You program in Pascal language a true language and not an invented language.
You will find programmers' community as well as sources on internet.

ENTERING CODE.
Syntax coloration and auto-complete code feature is powerful for entering commands.

DATABASE ACCESS.
The **BDE** library lets you access to the Borland database engine and the **MYSQL** library enables access to MySQL Database.

COMPLEX CALCULATIONS.
Visual I/O use extended, singles doubles integers, words and bytes types as numerical variables.
The extended has a range 1, 9x10^{-4951} to 1,1x10^{4932}

A OPENED PRODUCT.
Visual I/O is not based on a big DLL that embarks all the possible procedures, so deploying application software with several megabytes. Visual I/O is a real compiler creating its final EXE with the only necessary functions within one megabyte (a floppy disk is enough for deploying your applications).

POSSIBLE EVOLUTIONS.
Visual I/O lets you interfacing external DLLs and the Windows API. In Visual I/O you can also program in assembler.
Visual I/O manages several types of passage of parameters.

A MANAGEMENT OF CHARACTER STRINGS SOPHISTICATED.
A library of functions enables simple and intuitive manipulation of strings.

MULTITHREAD.
Visual I/O enables the multi-threading (several programs simultaneously). The library is providing with source code.

SOCKETS.
The Winsock library (provided with source code) lets you manage the TCP/IP connection.

YOUR APPLICATION IN ONLY ONE FILE
INSTALLATION AND UPDATING ARE ULTRA SIMPLIFIED.

CROSS REFERENCES.

The cross references tool is an effective manner to draw immediately the use of variables in all the application. This tool indicates variables used as well as those declared but not used. So permitting to clean the application.

DEVELOP INTERNATIONAL APPLICATIONS
Multilingual support is automatic for your applications.

Translate your applications into many languages; distribute them all over the world!

Direct input in various languages

Can it be any easier!
Input is done directly in each language (Russian, Chinese, etc.). Visual I/O editor brings out automatically texts used in your application. You do not have more than to translate them.

INTEGRATED ASSEMBLER

```
//**** Retrieve double in Memory - Byte mapping *********
Function GetDouble( Var BaseAdr; Index : Integer ) : Double;
Begin
   Asm
      MOV EBX,[EAX]
      MOV EAX,Index
      MOV EDX,08
      MUL EDX
      ADD EBX,EAX
```

To adapt itself to all the situations. Visual I/O allows the programming in assembler.
The debugger will allow you to show all the processor and the arithmetical coprocessor registers.

AN INTERACTIVE DEBUGGER

The Visual I/O debugger use debugging with break points and single-stepping your program. You can also check the value of variables with the mouse.

```
Begin
   TB:=SocketOpenConnection('192.168.0.1',80,DSocket);
   TB = True etSendBuf ( DSocket , Buf, Sizeof(Buf));
   I:=SocketReceiveLength ( DSocket);
   SocketCloseConnection (DSocket);
```

CREATE INSTALLATION CD-ROM

Install Builder

Thanks to install Builder delivery with Visual I/O freely, you go to create installations in the professional look.
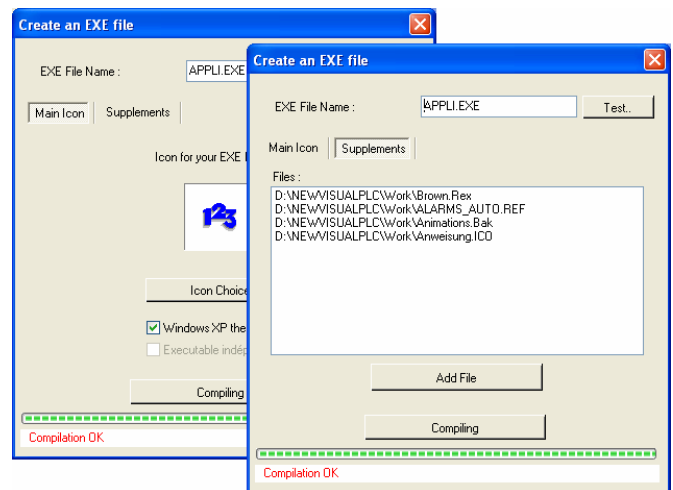Single installations file Setup.exe. Multilanguage, Installation of ActiveX, Billboards and more..

PLC REMOTE CONTROL

Allows you to use or monitor any distant PC via Serial COM, TCP/IP or Dial-Up
- Files Transfer.
- Launching programs.
- Stopping programs.
- Reboot remote machines.
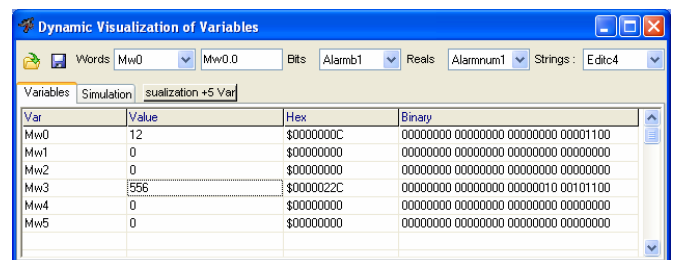..

CREATING EXECUTABLE FILES

You will create executable files including compiled programs, images, forms and menus.
Thanks to the second tab, you can integrate files or images, which will be extracted at launching time of your application.

Only one file < 1 Mbytes containing all your application.

DISPLAY ALL THE VARIABLES

Display a list of variables with the possibility to force them.

YOUR APPLICATION RUNS IN NETWORK

Thanks to PLC REMOTE CONTROL, several PC will share the same global variables. Your applications can be launched several times on different PC. Also, create different applications working on the same context (variables, files and communications).

PLC Remote Control

The first quality of Visual I/O is its POWER. Its second quality is its RELIABILITY

DATA BASE, FREE, UNLIMITED

USE THE MOST POPULAR DATABASE

Visual I/O uses the Database engine of MySQL - 3rd position presently worldwide and is completely free.
With Visual I/O deliver a library with its sources for interfacing MySQL.
MySQL (http://www.mysql.com) provides database products to meet the needs of ISV/OEM, Enterprise, and Community Users. MySQL database products are recognized for superior ease of use, performance, and reliability

MySQL is a Relational Database Management System. A relational database adds speed and flexibility, by storing data in separate tables rather than putting all the data in one area. These tables are linked by defined relations making it possible to combine data from several tables upon request.

SIMPLE AND
POWERFUL PROGRAMMING

The MYSQL.PAS library lets us open, read and write record by record in MySQL tables.
BDE.PAS lets you interface with the same functionalities the Borland © Database engine named BDE.

These two libraries let us directly interface to the tables of your database.
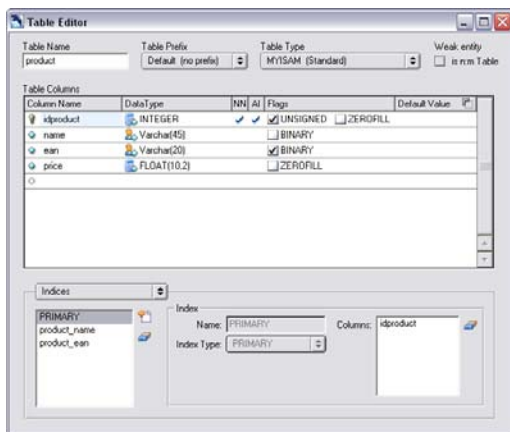
A table editor enables to create the structure of each table of your database.

CREATE RELATIONS BETWEEN TABLES
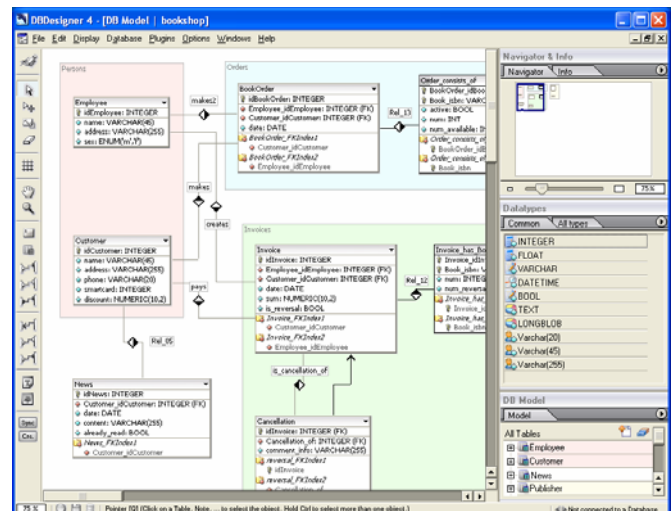
Tables can be connected by a one-to-one or many-to-many

USER INTERFACE.

Has been based on industry standard layouting software. This makes creating your database models very easy.

Modelling

The database model is created by placing several objects on the canvas, specify their attributes and relations.

Query Editor

SQL selects can be easily build by drag 'n' drop commands.

List of features

- Design Mode / Query Mode
- Reverse engineering MySQL, Oracle, MSSQL and and ODBC databases
- User defined schema-generation
- Model-To-Database synchronisation
- Index support
- Automatic foreign key placement
- Weak entity support
- Standard Inserts storing and sync
- Full documentation capabilities
- Advanced model printing
- Output as image
- All MySQL datatypes with all options
- User defined datatypes
- Database storage, ability to save model within database
- SQL Query Builder
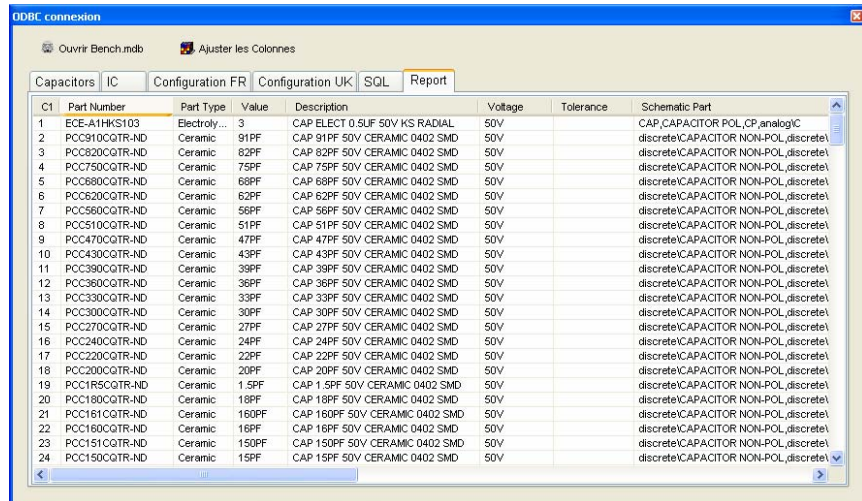- SQL Command History
- SQL Command storage within model
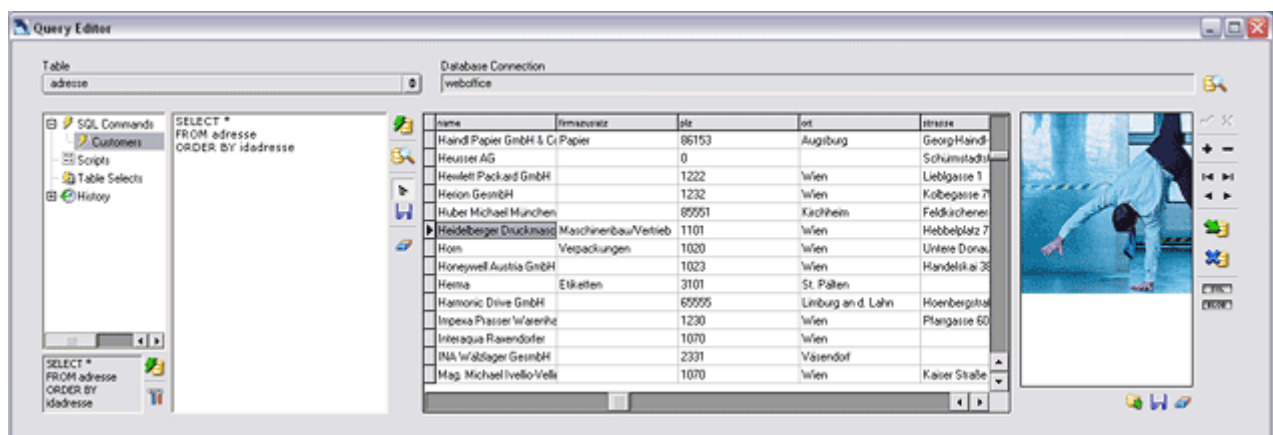
EASY IMPORT / EXPORT OF DATA

ODBC – CONNECT TO ALL DATABASE
Thanks to ODBC that is totally managed in Visual I/O, you will easily connect to all the market databases.
ODBC means *Open Database Connectivity,* a standard method of sharing data between databases and other programs API drivers developed by Microsoft to allow access to most Database Management Systems. For example, instead of including code for every possible database, a program could use ODBC to connect to whichever database your system is using.

An example provided allowing reading two Microsoft Access tables then the execution of a SQL query on these same tables. The principle remains the same one on other types of tables.

HISTORICAL, ALARMS AND EVENTS ARE IN DBASE FORMAT
All the historical data in Visual I/O are stored in the DBase format, accessible directly in MS Excel.
The DBase format is universal and will let you make treatments like sorting, purges etc...

Here the historical file is directly opened under Excel without any manipulation or program scripting.

*Concerning the Alarm and Event file, the possibility is same.*


COMPONENTS MANAGING YOUR DATA
Historical Data can be displayed in your applications in the form of curves or grids. Thanks to the historic components that is ready to use, and simply manipulate your data. A library delivered with its source code allows research actions, purge and visualization of the data in an express mode.
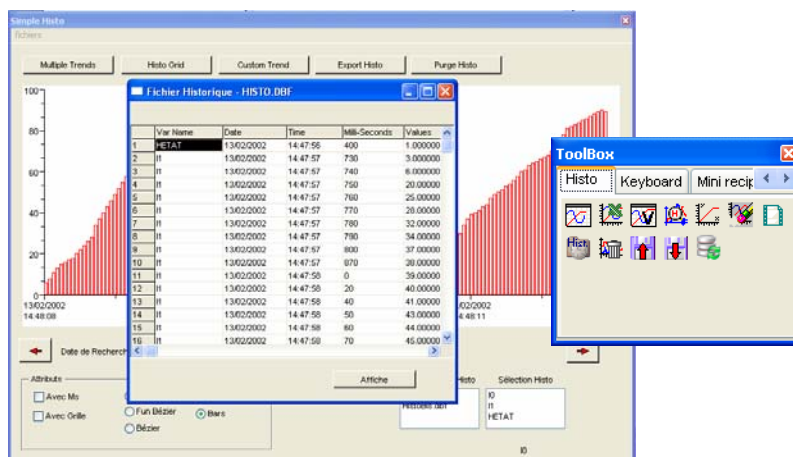
VISUAL I/O plain common sense

HOW TO LEARN QUICKLY TO VISUAL I/O
Manuel of the programmer is delivered including 250 pages in colour and allowing starting from the origin including graphic illustrations, copies of screen and numerous examples.
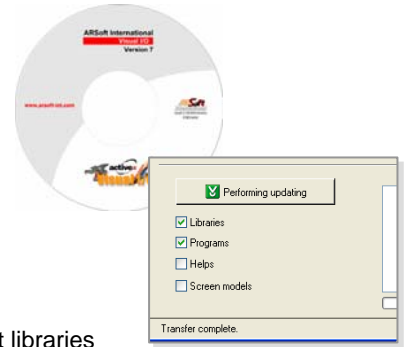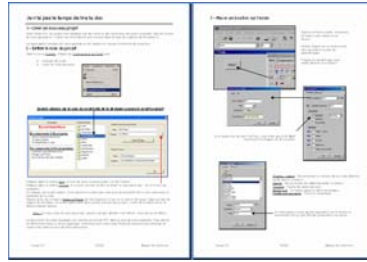
FREE UPDATING
Thanks to the WEB connection from the Visual I/O editor, you will download at once the last libraries and utilities available on the ARSOFT Web server.

FREE HOT LINE
Development tools, more than any other type of software, require that qualified technical support be available. A simple e-mail or phone call can save you hours or days! We are so confident about our products that we offer free support: Yes, it is free.
Free support is accessible by the Internet, telephone and fax. Note that the hot lines of most of our competitors are more expensive than the cost of Visual I/O itself.

VISUAL I/O

1	Your clients are in a hurry: they demand short project cycles	Develop faster with VISUAL I/O. You'll meet all your and your clients deadlines.
2	You're not part of an experimental lab: your projects must come to an end	Use the RAD tool, the components and the experts to bring your entire projects requirement to completion.
3	Power comes from simplicity	Visual I/O is easy to use. Your teams will be successful with Visual I/O
4	Developers should concentrate on their application, not on the tool.	The time of the techies that can only produce code by the mile is over. Respond to your users' needs.
5	You should be able to deploy without any constraints	Freely & easily deploy your application because the size of your applications will be reduced to a simple floppy disk.
6	It is necessary to be able to evolve and find information about the last techniques.	Visual I/O in Pascal language allows the access to a world community of developers. Find articles or sources on internet.

VISUAL I/O OFFERS A SET OF RICH FEATURES WELL SUITED FOR COMPLEX PROJECTS.

Some examples of possible applications

■INTERFACE WITH SCHNEIDER PLC ON SERIAL COMPORT & TCP/IP

This interface is completely free using a serial or the Ethernet connection of your computer.
Management of the alarms, Curves and history, Sending of parameters in the machine and manual commands.

Com1

TCP/IP

- Alarms Management
- Historical management.
- setting Parameters
- Manuals commands

No line of code, use simply specialized Visual I/O components.

Alarms

Buttons, EditBox etc.

Recipes

Historic

■INTERFACE WITH SIEMENS PLC ON THE SERIAL COMPORT & TCP/IP

This interface is completely free using a serial connection and your MPI adapter or the Ethernet connection of your computer directly connected to the CPU.
Management of the Alarms, History and trending curves, setting of parameters in the machine and manual commands.

Com1

MPI Adapter

TCP/IP

- Start cycle.
- Acquisition of Values.
- Drawing Curves in X/Y.
- Saving values.
- Creating an Excel sheet.

Buttons, Gauges

Data grids

Drawing in X/Y

EXCEL Interfaces

Files management

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