CODEPAINTER attractions

Abstract: this section describes the main attractions of CodePainter that can be especially appreciated by Software Developers. CodePainter is as easy as this! Images taken directly from the tool will prove it to you!

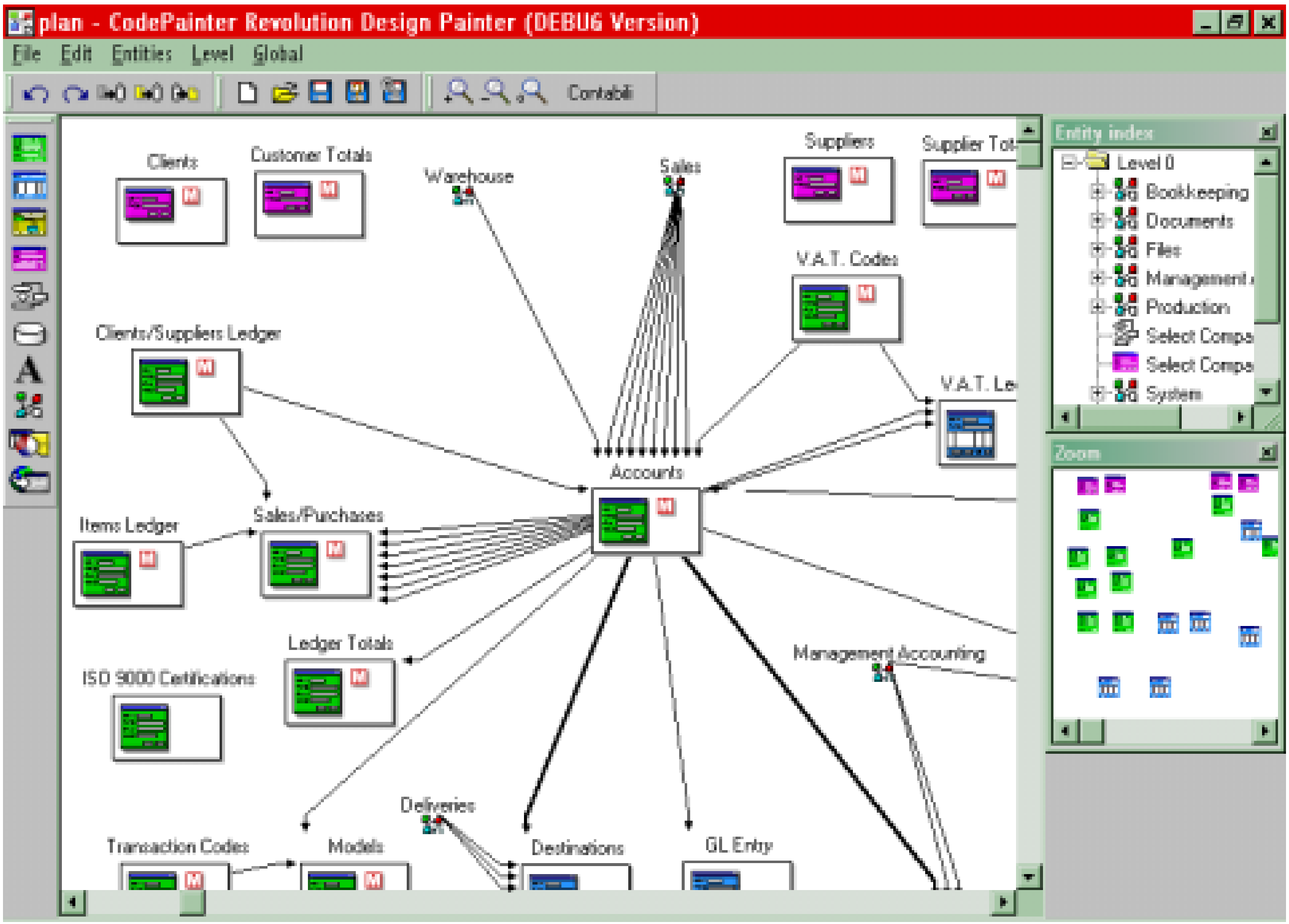
Object-Oriented Domain Analysis for Business Applications

CodePainter is a C.A.S.E. tool specialized in generating Business Applications. When you want to develop a software application you usually go through a domain analysis of the problem. Being specialized in Business Applications, CodePainter does the job for you through a set of predefined entities:

➢ Master File Entity	➢ Master/Detail Entity
➢ Detail File Entity	➢ Routine Entity

Design Through Predefined Entities

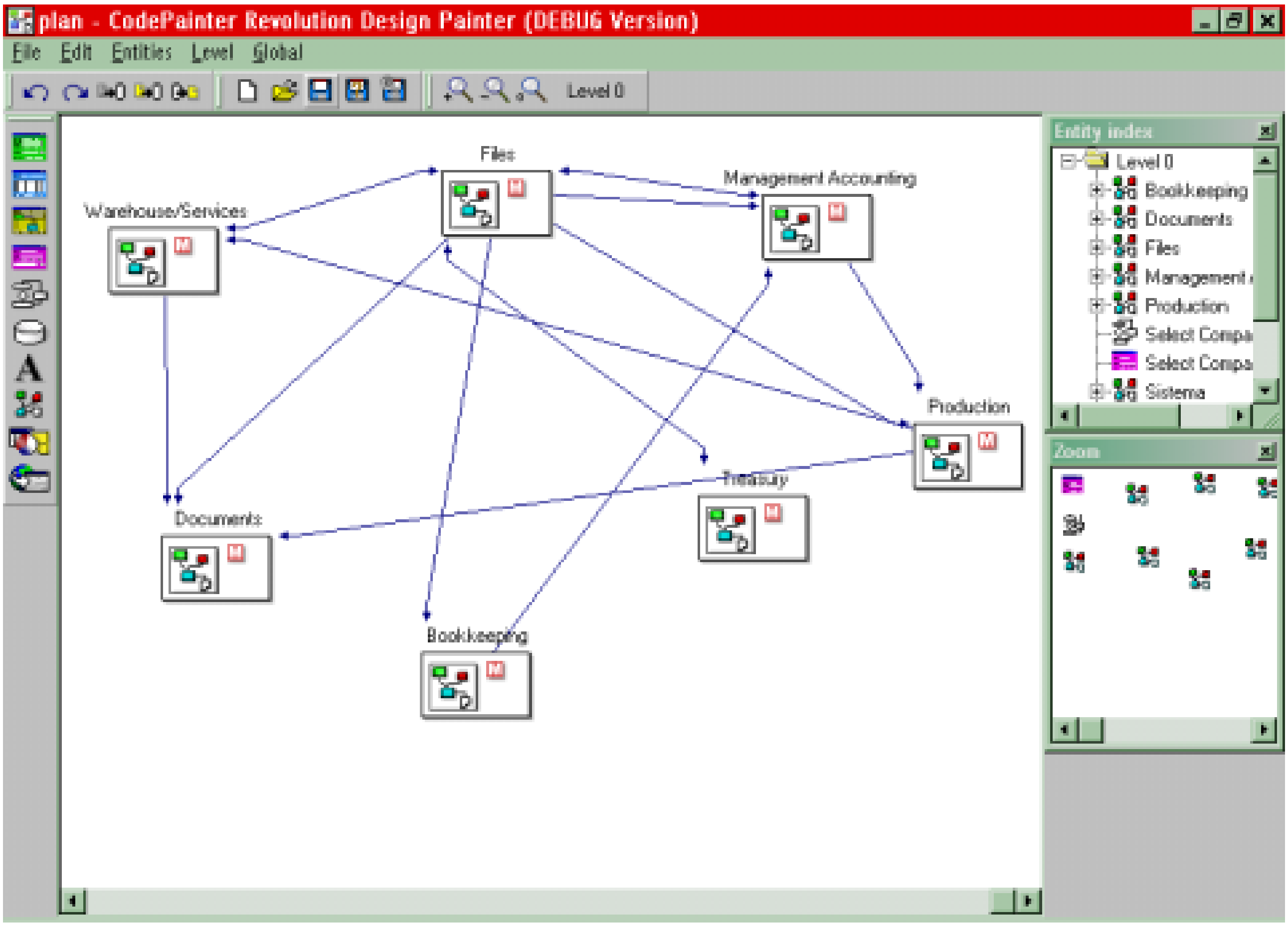
The project is 'painted' using advanced graphical tools.



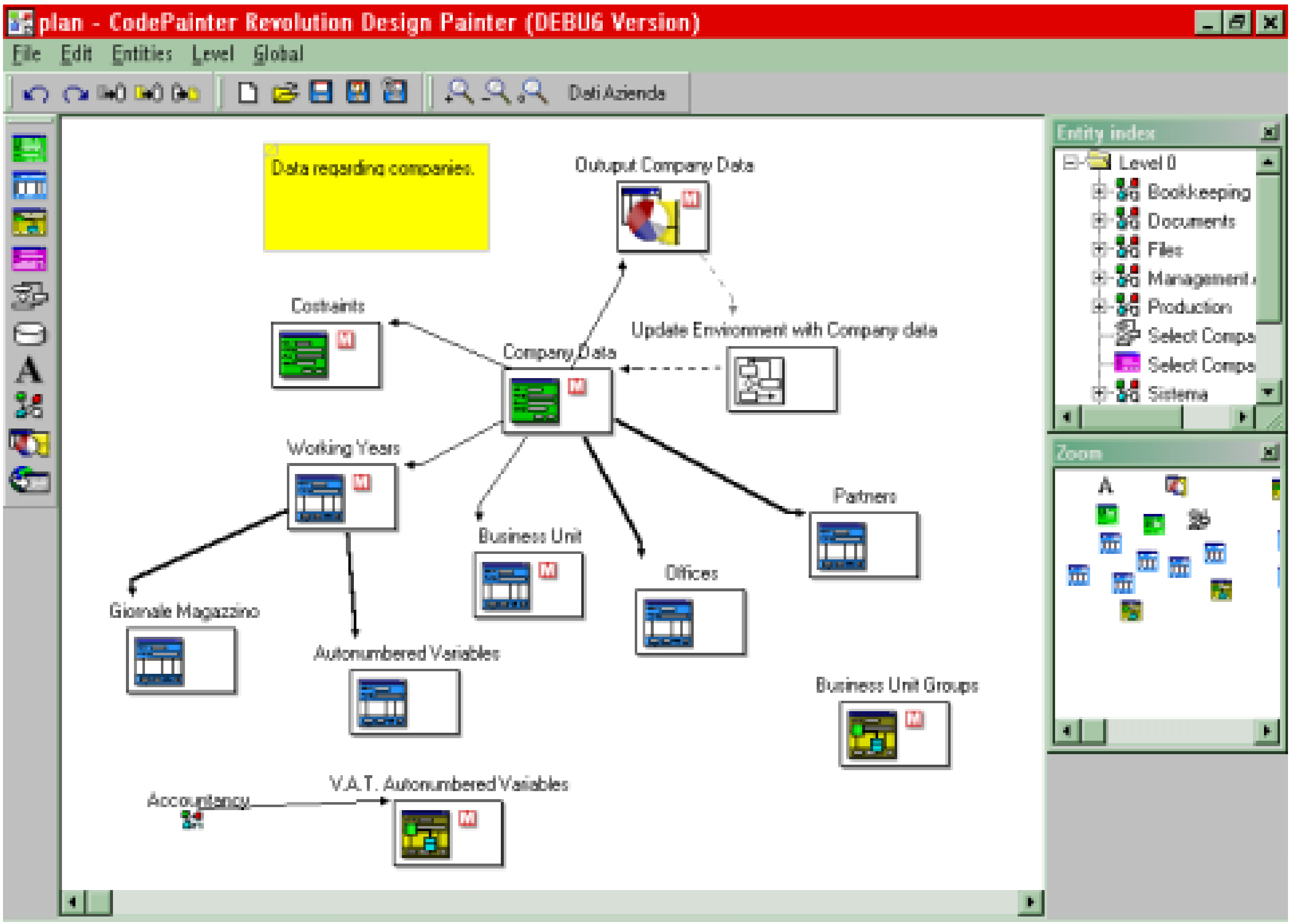
First of all you place the predefined entities on your design plan reflecting your project structure. You then simply draw the links between entities to define complex properties such as cardinalities and referential integrities.

As the project becomes larger you can improve design organization introducing:

- Group objects
- Visibility links



You can also introduce *String* objects and *Output* entities to enhance plan documentation.

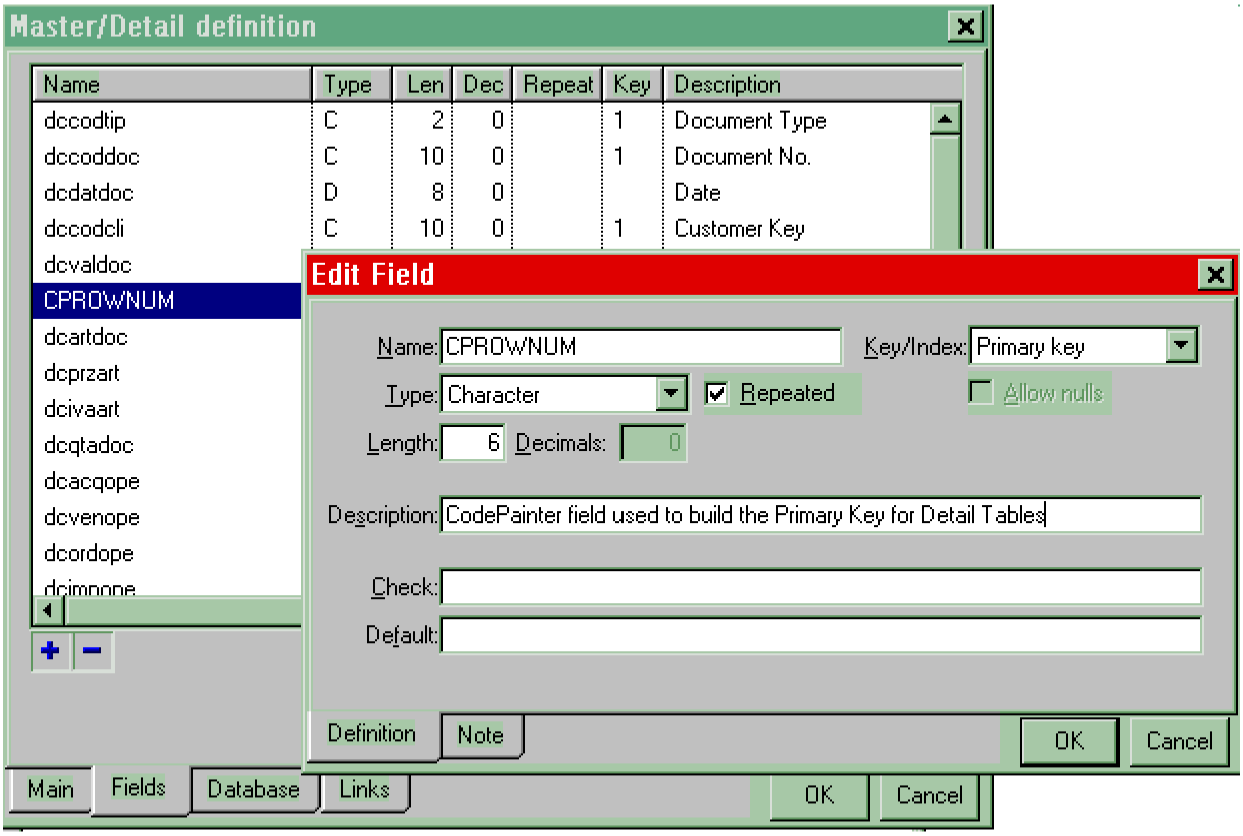


CodePainter supports team working through External entities and multiple design plans, i.e. an entity defined in plan 1 by user A can be linked to another entity defined in plan 2 by user B.

Data Definition Independent from Target Database Servers

Once your project plan is completed, you start defining Entities' properties:

- Entity Name (also used for the Standard Menu generation),
- Database Fields &
- Relationships between linked fields.



Name	Type	Len	Dec	Repeat	Key	Description
dccodtip	C	2	0		1	Document Type
dccoddoc	C	10	0		1	Document No.
dcdatdoc	D	8	0			Date
dccodcli	C	10	0		1	Customer Key
dcvaldoc						
CPROWNUM						
dcartdoc						
dcprzart						
dcivaart						
dcqtadoc						
dcacqope						
dcvenope						
dcordope						
dcimpope						

Name: CPROWNUM

Key/Index: Primary key

Type: Character

☑ Repeated

□ Allow nulls

Length: 6

Decimals: 0

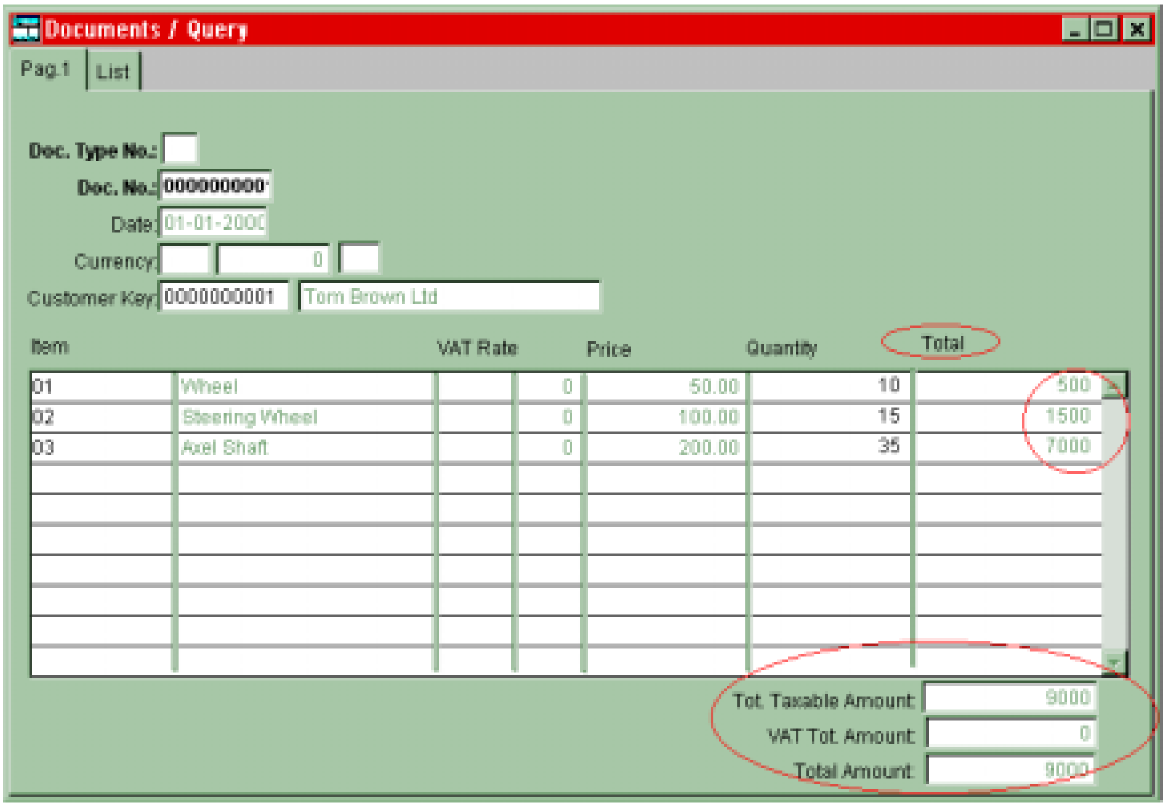
Description: CodePainter field used to build the Primary Key for Detail Tables

Check:

Default:

The database definition is totally independent from the target database server. Various database servers are supported, such as SQL Server, Oracle, IBM DB2 and coming soon Informix.

The generated database scheme is normalized and you can add run-time computed variables directly on the application saving database memory space and without increasing database complexity. This is useful for example to add totals.



Doc. Type No.:

Doc. No.: 000000000

Date: 01-01-2000

Currency: 0

Customer Key: 0000000001 Tom Brown Ltd

Item		VAT Rate	Price	Quantity	Total
01	Wheel	0	50.00	10	500
02	Steering Wheel	0	100.00	15	1500
03	Axel Shaft	0	200.00	35	7000

Tot. Taxable Amount: 9000

VAT Tot. Amount: 0

Total Amount: 9000

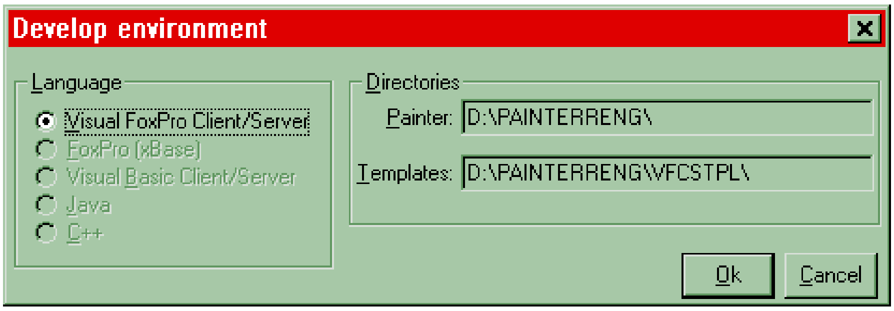
On one hand, normalized databases imply:

- reduced disk space usage
- consistency
- robustness.

On the other hand, it is difficult to manage normalized databases. CodePainter produces normalized databases but gives you the framework required to effectively deal with them.

Application Source Code: Automatically Generated in Standard Common Programming Languages

CodePainter supports different programming languages, such as Visual Fox Pro. The support for other programming languages can be bought separately.

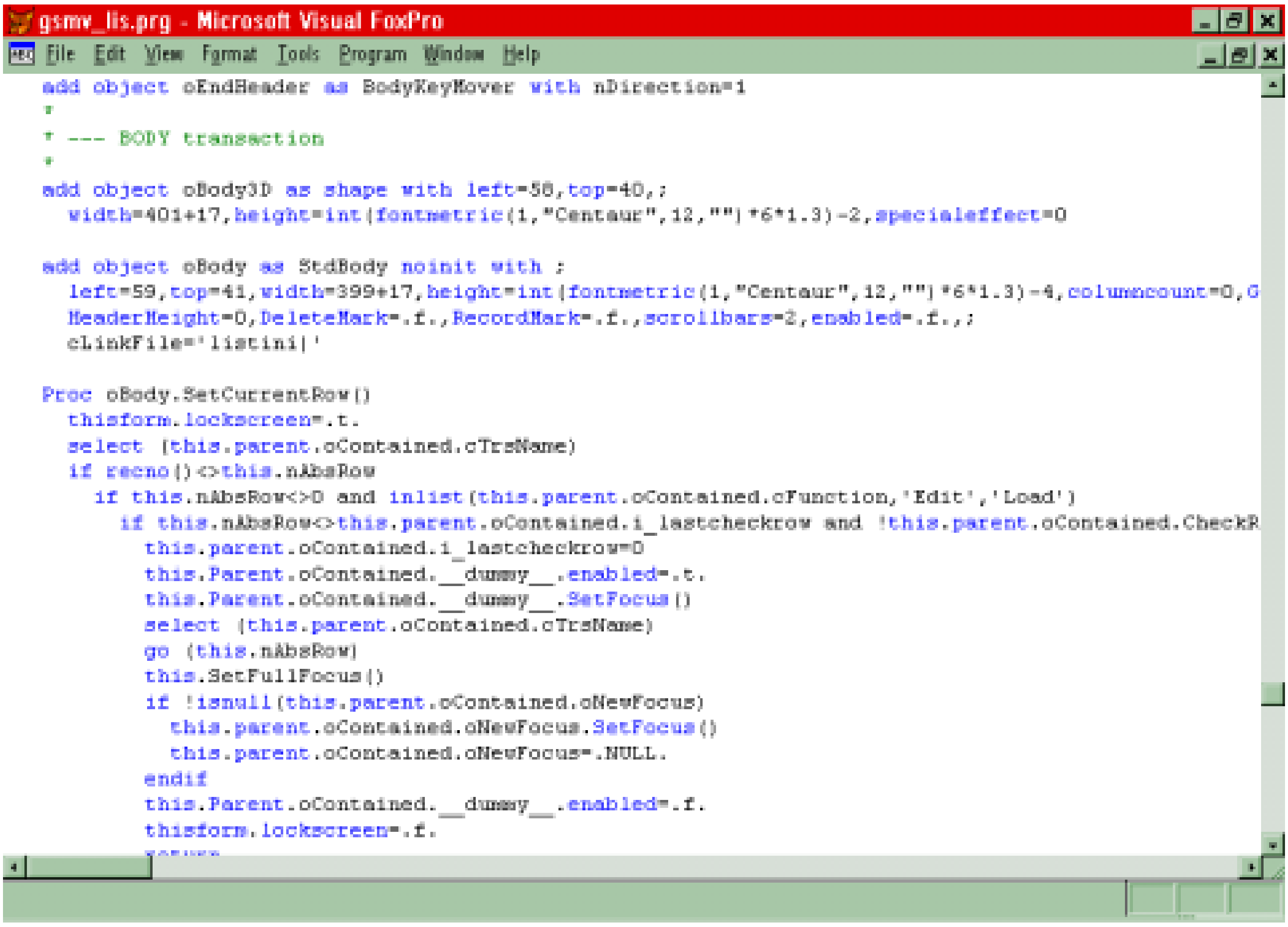


Language
- ● Visual FoxPro Client/Server
- ○ FoxPro (xBase)
- ○ Visual Basic Client/Server
- ○ Java
- ○ C++

Directories
- Painter: D:\PAINTERRENG\
- Templates: D:\PAINTERRENG\VFCSTPL\

After having completed your design plan, you can generate an application prototype simply by pressing the Design Generation button.

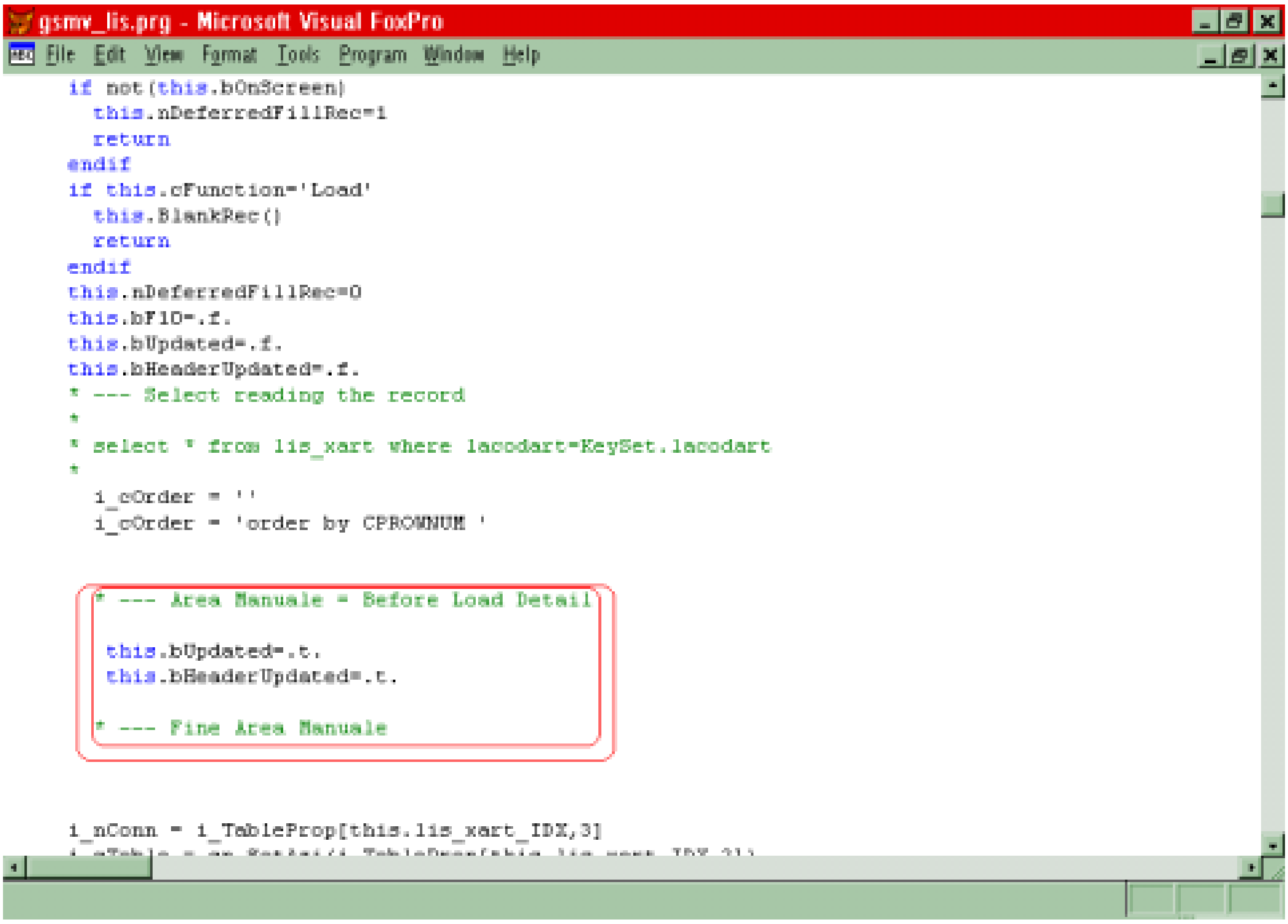
An example of the generated code is shown in the following picture:



gsmv_lis.prg - Microsoft Visual FoxPro
File Edit View Format Tools Program Window Help

```
add object oEndHeader as BodyKeyMover with nDirection=1
*
* --- BODY transaction
*
add object oBody3D as shape with left=58,top=40,;
  width=401+17,height=int(fontmetric(1,"Centaur",12,"")*6*1.3)-2,specialeffect=0

add object oBody as StdBody noinit with ;
  left=59,top=41,width=399+17,height=int(fontmetric(1,"Centaur",12,"")*6*1.3)-4,columncount=0,G
  HeaderHeight=0,DeleteMark=.f.,RecordMark=.f.,scrollbars=2,enabled=.f.,;
  cLinkFile='listini|'

Proc oBody.SetCurrentRow()
  thisform.lockscreen=.t.
  select (this.parent.oContained.cTrsName)
  if recno()<>this.nAbsRow
    if this.nAbsRow<>0 and inlist(this.parent.oContained.cFunction,'Edit','Load')
      if this.nAbsRow<>this.parent.oContained.i_lastcheckrow and !this.parent.oContained.CheckR
        this.parent.oContained.i_lastcheckrow=0
        this.Parent.oContained.__dummy__.enabled=.t.
        this.Parent.oContained.__dummy__.SetFocus()
        select (this.parent.oContained.cTrsName)
        go (this.nAbsRow)
        this.SetFullFocus()
        if !isnull(this.parent.oContained.oNewFocus)
          this.parent.oContained.oNewFocus.SetFocus()
          this.parent.oContained.oNewFocus=.NULL.
        endif
        this.Parent.oContained.__dummy__.enabled=.f.
        thisform.lockscreen=.f.
```

In addition you can integrate the automatically generated source code writing line codes in dedicated Manual Blocks. These blocks are not overwritten even if the source code is regenerated.



gsmv_lis.prg - Microsoft Visual FoxPro
File Edit View Format Tools Program Window Help

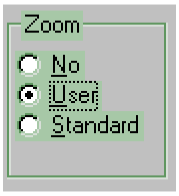
```
if not(this.bOnScreen)
  this.nDeferredFillRec=1
  return
endif
if this.cFunction='Load'
  this.BlankRec()
  return
endif
this.nDeferredFillRec=0
this.bF10=.f.
this.bUpdated=.f.
this.bHeaderUpdated=.f.
* --- Select reading the record
*
* select * from lis_xart where lacodart=KeySet.lacodart
*
  i_cOrder = ''
  i_cOrder = 'order by CPROWNUM '


 * --- Area Manuale = Before Load Detail

  this.bUpdated=.t.
  this.bHeaderUpdated=.t.

 * --- Fine Area Manuale


i_nConn = i_TableProp[this.lis_xart_IDX,3]
```

Release Cost Free: No Royalties Due

You can freely distribute the generated source code, as well as the application in executable format. All you need to do so is the license for the programming language, in order to compile you source code.

Maintenance Fully Supported By The Tool

You can easily maintain your applications, indeed you can go back to any stage of the production cycle, e.g. you can reengineer the Design plan any time and CodePainter will automatically generate the required up-dates. Thanks to Visual Tools you can easily add Queries, Zooms, and Reports.



Zoom
○ No
● User
○ Standard

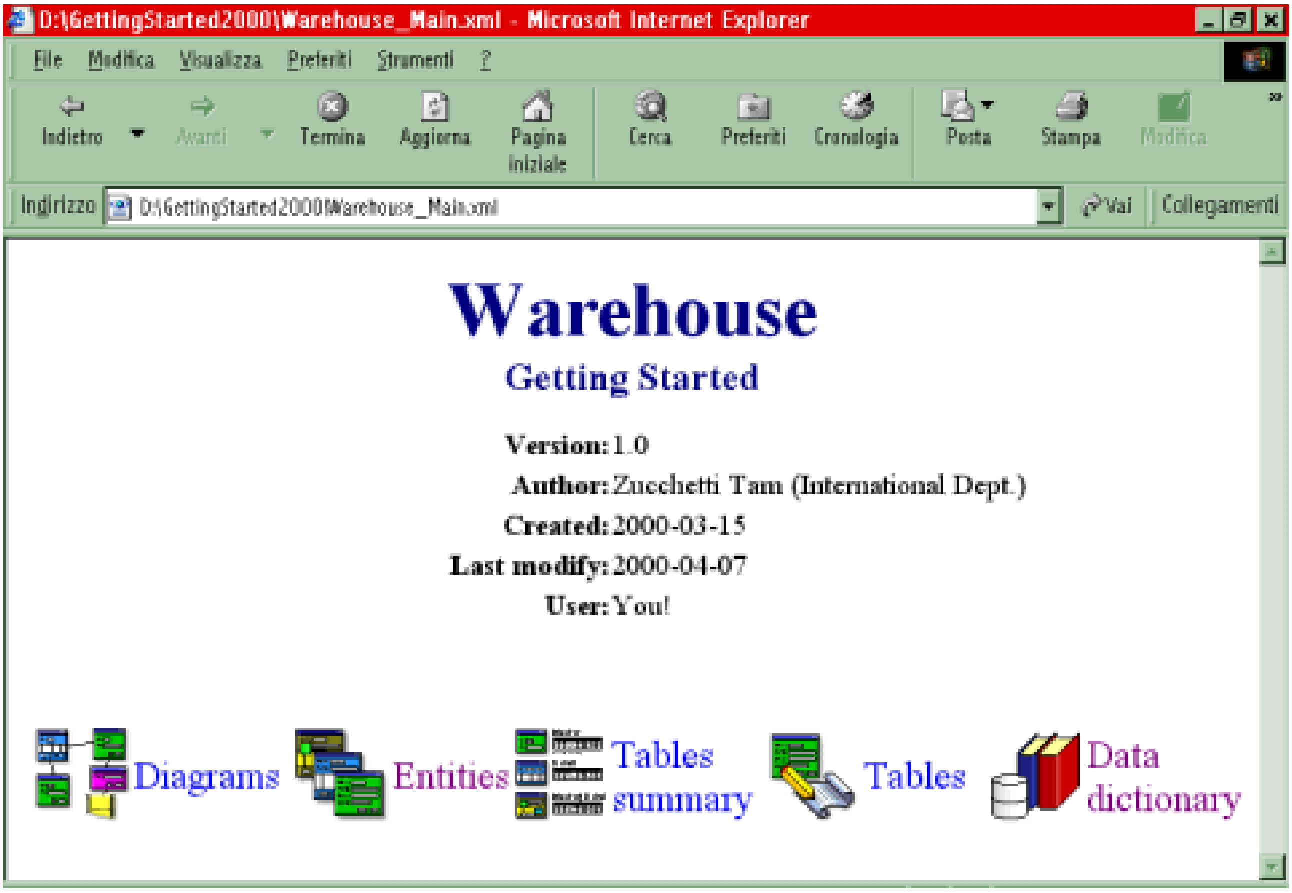
Application spoken language: customizable

CodePainter default languages are English and Italian, but you can create applications in different languages, simply translating the file containing system message Macros.

User Reference & Technical Documentation: automatically generated

Just write your documentation notes for your project elements using the dedicated ‘Note’ tabstrip. These notes will be included in the Documentation, which is generated automatically simply clicking:

Documentation files are generated in XML format and can be browsed with Microsoft Internet Explorer.


D:\GettingStarted2000\Warehouse_Main.xml - Microsoft Internet Explorer
File Modifica Visualizza Preferiti Strumenti ?
Indietro
Avanti
Termina
Aggiorna
Pagina iniziale
Cerca
Preferiti
Cronologia
Posta
Stampa
Modifica
Indirizzo D:\GettingStarted2000\Warehouse_Main.xml
Vai
Collegamenti
Diagrams
Entities
Tables summary
Tables
Data dictionary

Warehouse

Getting Started

Version: 1.0

Author: Zucchetti Tam (International Dept.)

Created: 2000-03-15

Last modify: 2000-04-07

User: You!

CODEPAINTER's applications framework

Abstract: this section describes the common features of Applications generated with CodePainter. These can be mostly appreciated by End-Users. Applications are window based and thus can be easily used. With outstanding difference from other C.A.S.E. tools, CodePainter provides all generated applications with a framework where a set of utilities suitable to efficiently support business activities are made available. These utilities are useful for both programmers and End-Users, to customize their applications even further! The generated application and CodePainter deliver a unique development framework.

Client Server transactional environment

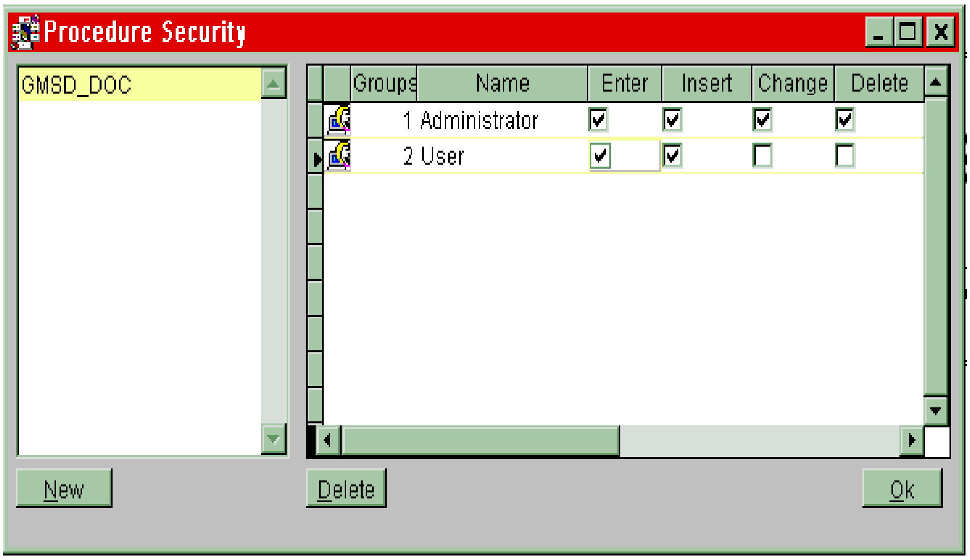
Applications created with CodePainter are Client/Server and all queries are executed by the Database Server. Business rules ensure ACID operations: transactionality and atomicity are well supported and the programmer is effectively driven by CodePainter.

CodePainter can use different kinds of relational databases, such as SQL Server, Oracle, etc.

Security Control Tools

Security controls can be defined for each single application function and set for each user group. Possible access levels are:

- Enter
- Insert
- Modify
- Delete



Groups	Name	Enter	Insert	Change	Delete
1	Administrator	☑	☑	☑	☑
2	User	☑	☑	□	□

Database Administration

This tool allows connecting to different database servers and generates proper SQL sentences required to create & update database tables. The ‘Database Administration’ tool is automatically executed the first time you run your application or when you run it after having regenerated the design plan.

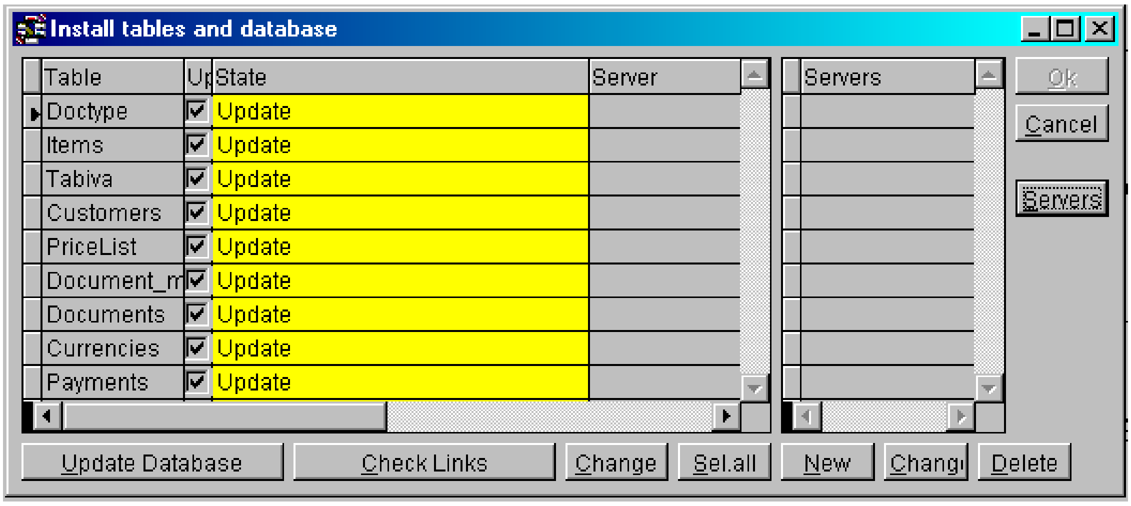
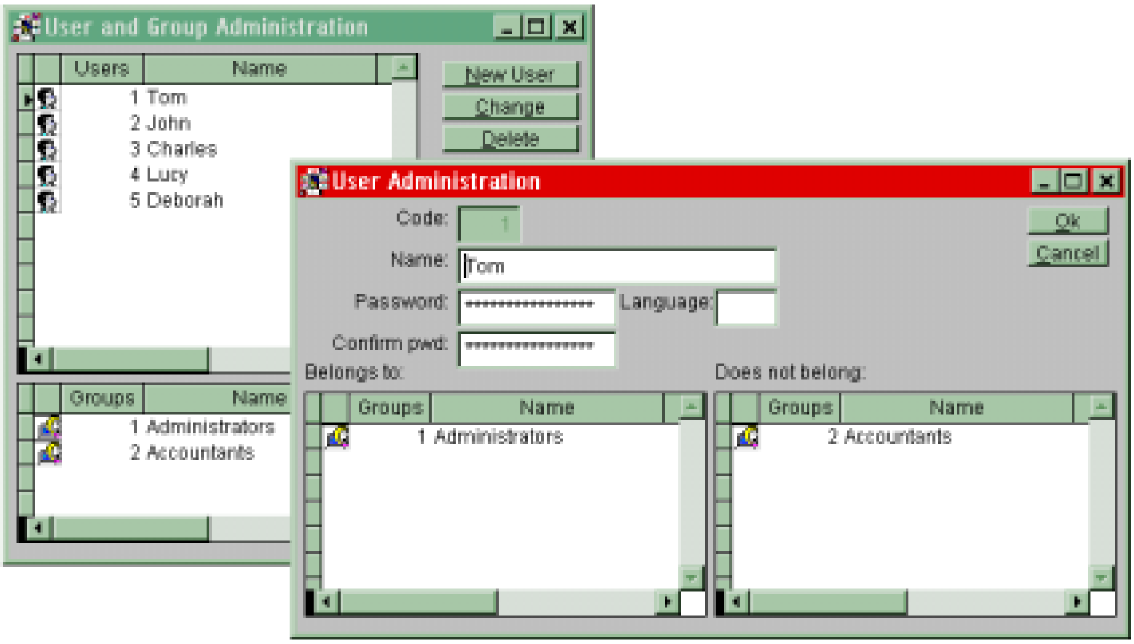


Table	Up	State	Server
Doctype	☑	Update	
Items	☑	Update	
Tabiva	☑	Update	
Customers	☑	Update	
PriceList	☑	Update	
Document_m	☑	Update	
Documents	☑	Update	
Currencies	☑	Update	
Payments	☑	Update	

Servers

User & Group Administration

You can create & modify users and groups. The same user can belong to more groups. It is possible to define a different password for each user.



Users	Name
1	Tom
2	John
3	Charles
4	Lucy
5	Deborah

Groups	Name
1	Administrators
2	Accountants

Code: 1

Name: Tom

Password: ****************

Language:

Confirm pwd: ****************

Belongs to:

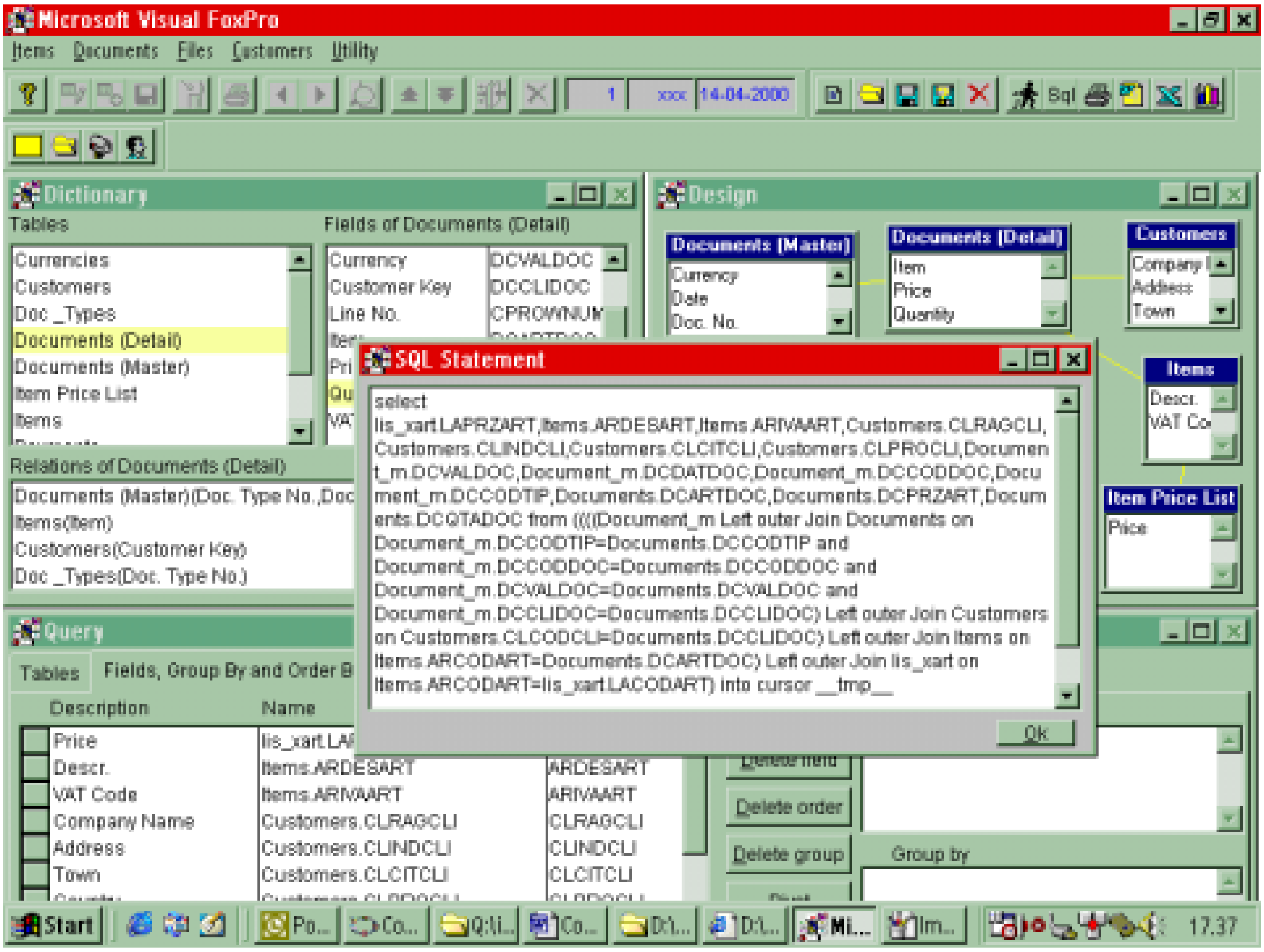
Groups	Name
1	Administrators

Does not belong:

Groups	Name
2	Accountants

Visual Query & Visual Zoom

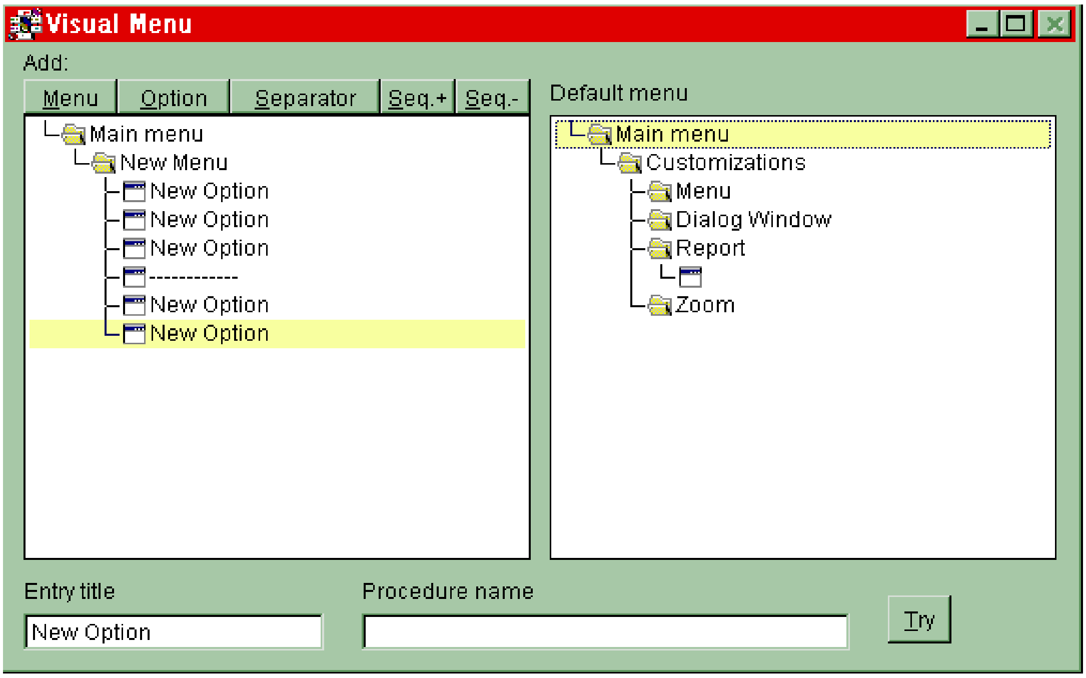
With Visual Tools it is possible to 'paint' SQL sentences easily. Queries can be used to build customized displays of database data (Zoom) or to pass on data to the Visual Fox Report Editor. In addition you can default Zooms for users or groups.



```
select
lis_xart.LAPRZART,Items.ARDESART,Items.ARIVAART,Customers.CLRAGCLI,
Customers.CLINDCLI,Customers.CLCITCLI,Customers.CLPROCLI,Documen
t_m.DCVALDOC,Document_m.DCDATDOC,Document_m.DCCODDOC,Docu
ment_m.DCCODTIP,Documents.DCARTDOC,Documents.DCPRZART,Docum
ents.DCQTADOC from ((((Document_m Left outer Join Documents on
Document_m.DCCODTIP=Documents.DCCODTIP and
Document_m.DCCODDOC=Documents.DCCODDOC and
Document_m.DCVALDOC=Documents.DCVALDOC and
Document_m.DCCLIDOC=Documents.DCCLIDOC) Left outer Join Customers
on Customers.CLCODCLI=Documents.DCCLIDOC) Left outer Join Items on
Items.ARCODART=Documents.DCARTDOC) Left outer Join lis_xart on
Items.ARCODART=lis_xart.LACODART) into cursor __tmp__
```

Visual Menu

The Visual Menu tool allows creating different application standard menus for both, users and groups.

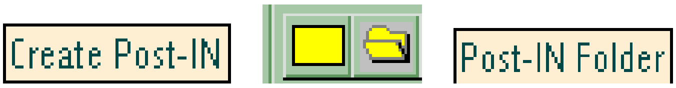


Entry title: New Option

Procedure name:

Post-In

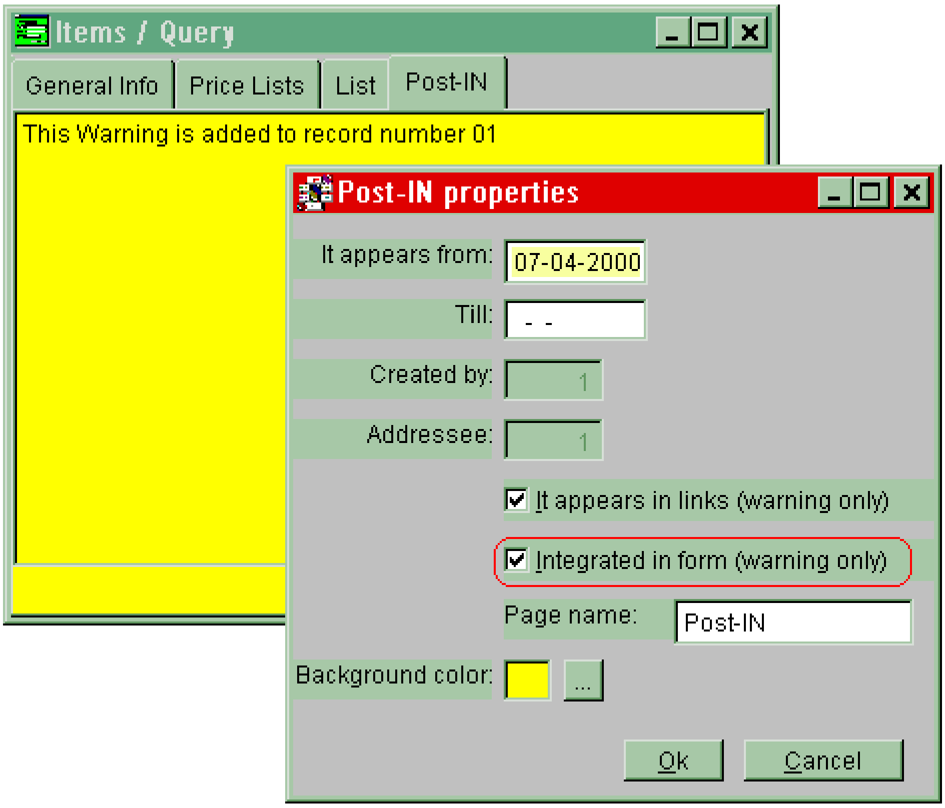
This feature allows you to stick “electronic memos” on the application desktop, in order to take notes. These memos are saved in a dedicated database table and restored on the screen when the application is run. All Post-Ins can be accessed and maintained through the Post-IN Folder on the application toolbar:



An expiry date can be defined for each Post-In.

Post-In as Warning

Warnings are used to temporary extend information on records: simply drag & drop a Post-In on a selected record. The Warning can be integrated in the record as a new window sheet.



This Warning is added to record number 01

It appears from: 07-04-2000

Till: - -

Created by: 1

Addressee: 1

☑ It appears in links (warning only)

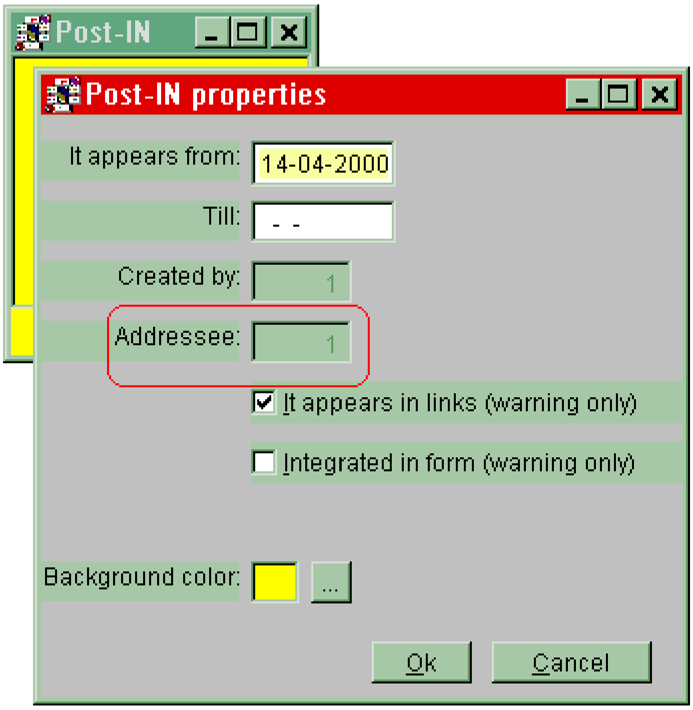
☑ Integrated in form (warning only)

Page name: Post-IN

Background color: 🟨 ...

Post-In as Instant Messaging

Post-Ins can be used to send messages between users. The message will be displayed on the addressee’s desktop.



It appears from: 14-04-2000

Till: - -

Created by: 1

Addressee: 1

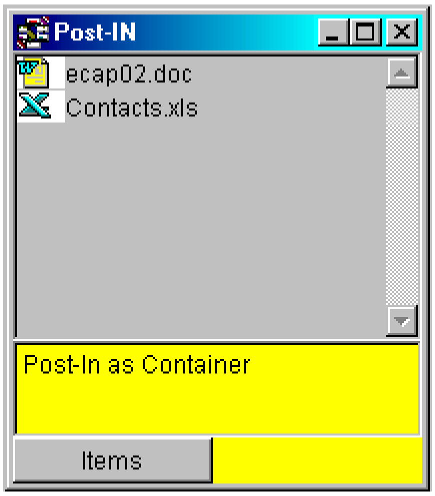
☑ It appears in links (warning only)

□ Integrated in form (warning only)

Background color: 🟨 ...

Post-In as Container

Post-Ins can contain plain text or MS Word Documents, MS Excel Sheets and MS Graphs can be attached. Moreover, Post-Ins can contain a button linked to an application function.

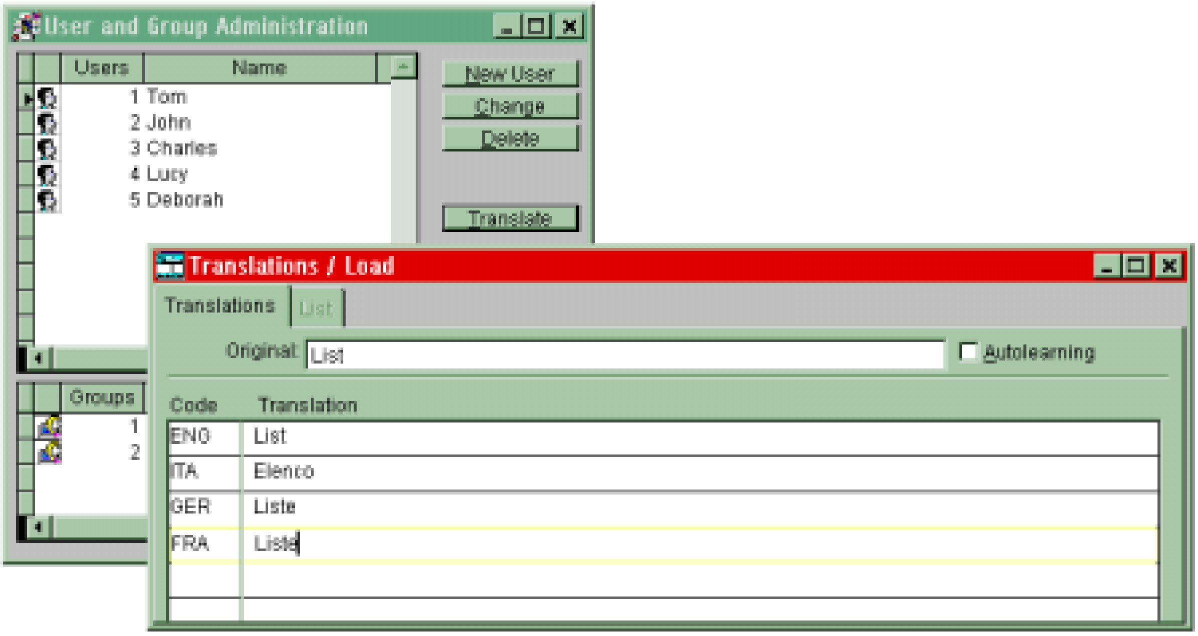


ecap02.doc
Contacts.xls

Post-In as Container

On Line User Translations

It is possible to translate menu items and application window options on-line. Each user potentially can have a different application language. The translation tool has the extraordinary ‘Autolearning’ Option that fills the languages database while browsing in the application.



Users	Name
1	Tom
2	John
3	Charles
4	Lucy
5	Deborah

Groups
1
2

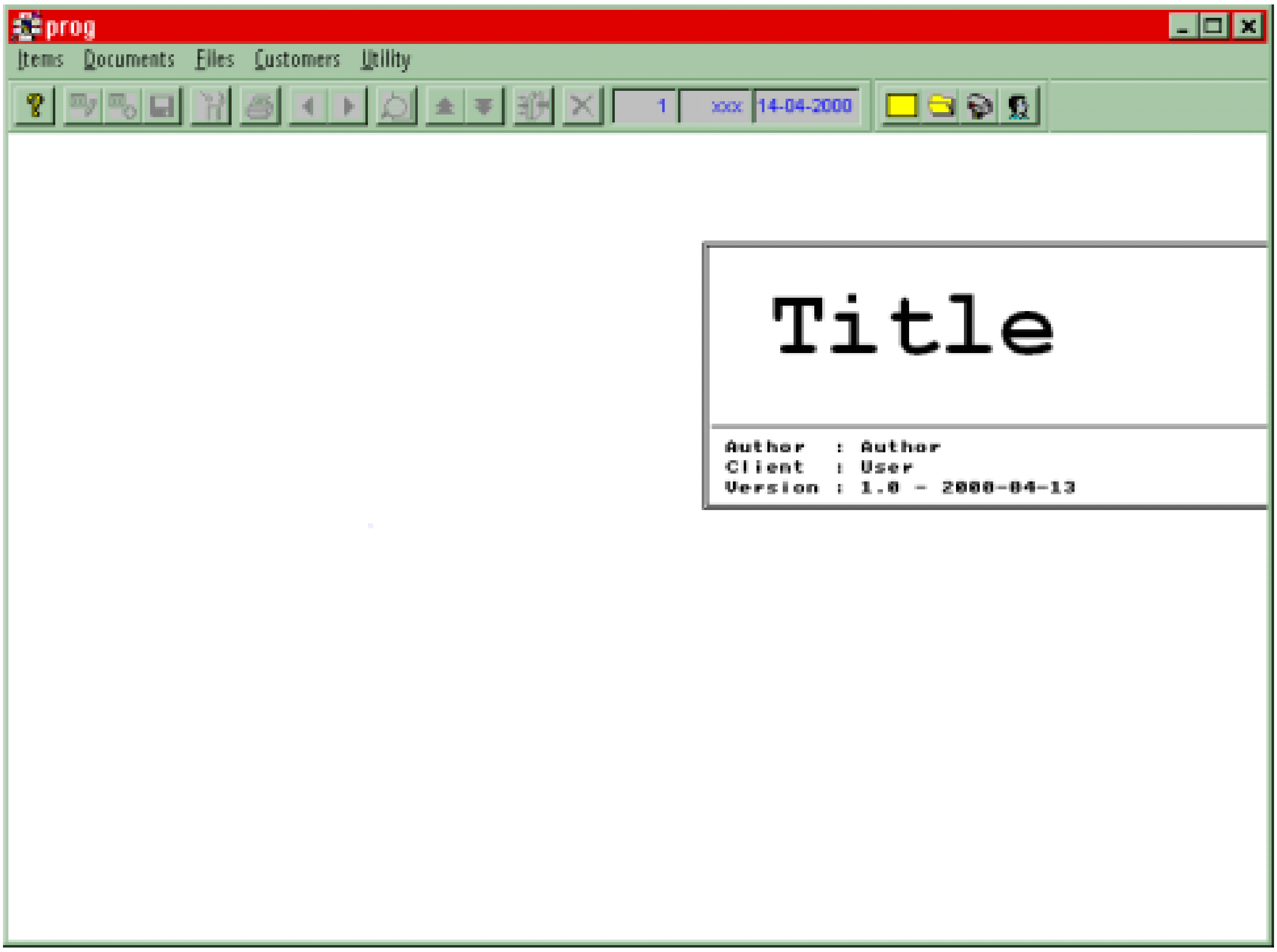
Original: List ☐ Autolearning

Code	Translation
ENG	List
ITA	Elenco
GER	Liste
FRA	Liste

CODEPAINTER's generated application

Abstract: this section shows how a small Business Application designed with CodePainter works. Both, Software Developers and End Users will appreciate how Master Files, Detail Files and Master/ Details become a fully functioning Application. Finally you will see an automatically generated CodePainter Zoom showing all data base fields of an entity. As you will notice, all the application framework presented below is fully integrated in generated source code.

When the Design and the Codify phases are terminated, CodePainter generates the final application source code. Compile and run it and you will get the first application window, as shown in the following examples:

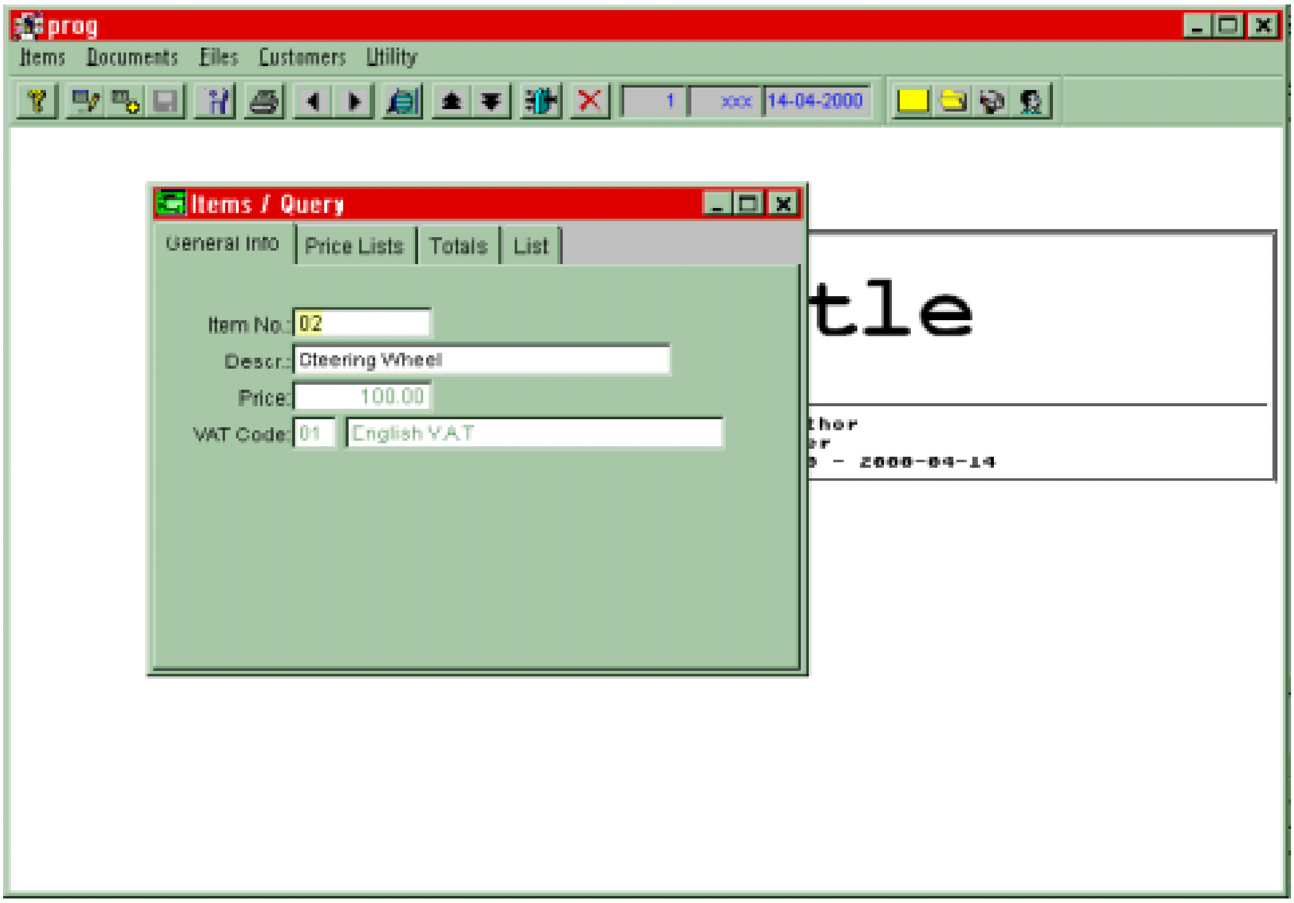


Title

Author : Author
Client : User
Version : 1.0 - 2000-04-13

Each application has standard toolbars and function keys. The menu is automatically generated and can also be customized. Examples of how entities are displayed in the application follow:

- Master File Entity



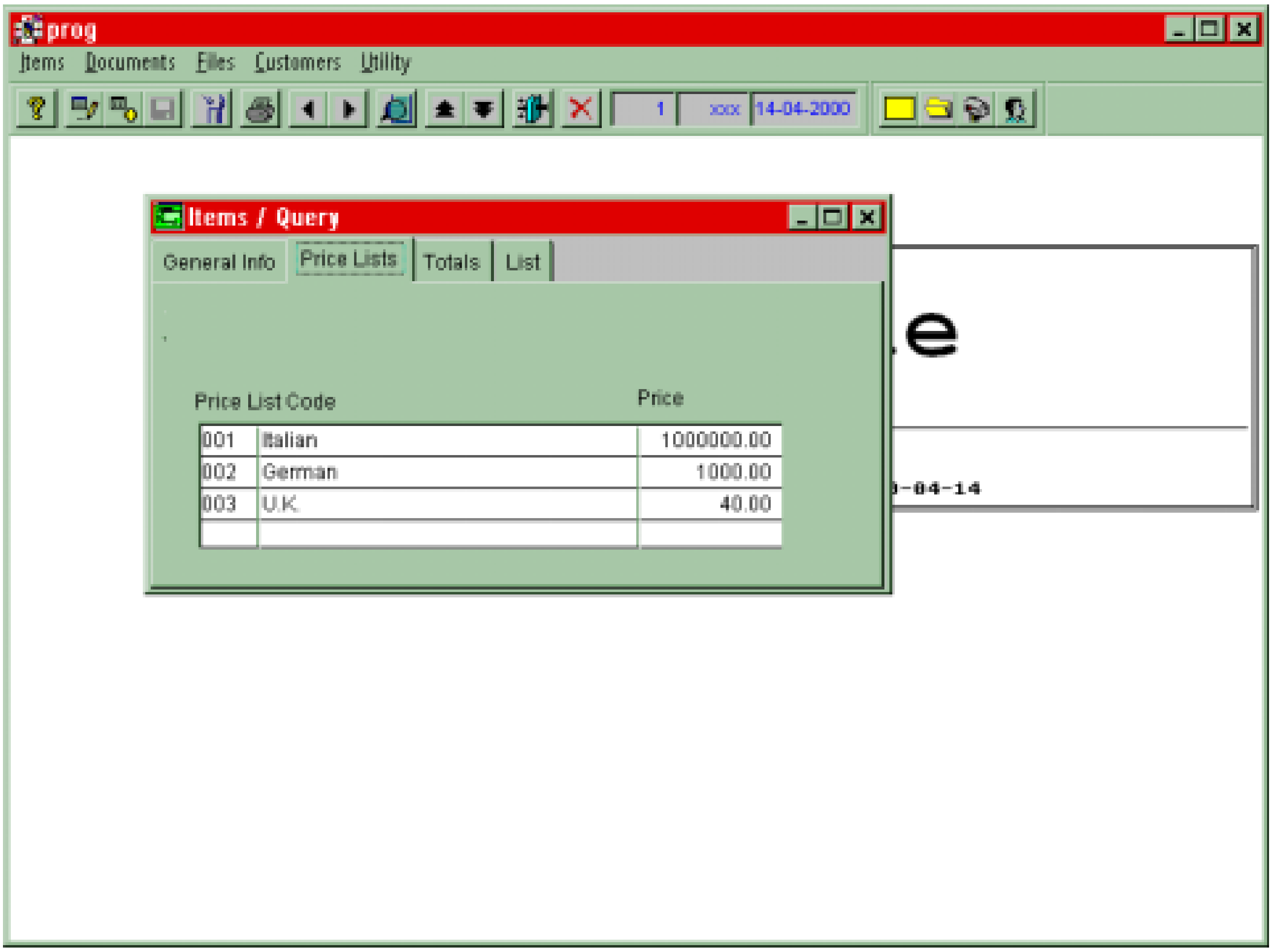
Item No.: 02

Descr.: Steering Wheel

Price: 100.00

VAT Code: 01 English V.A.T

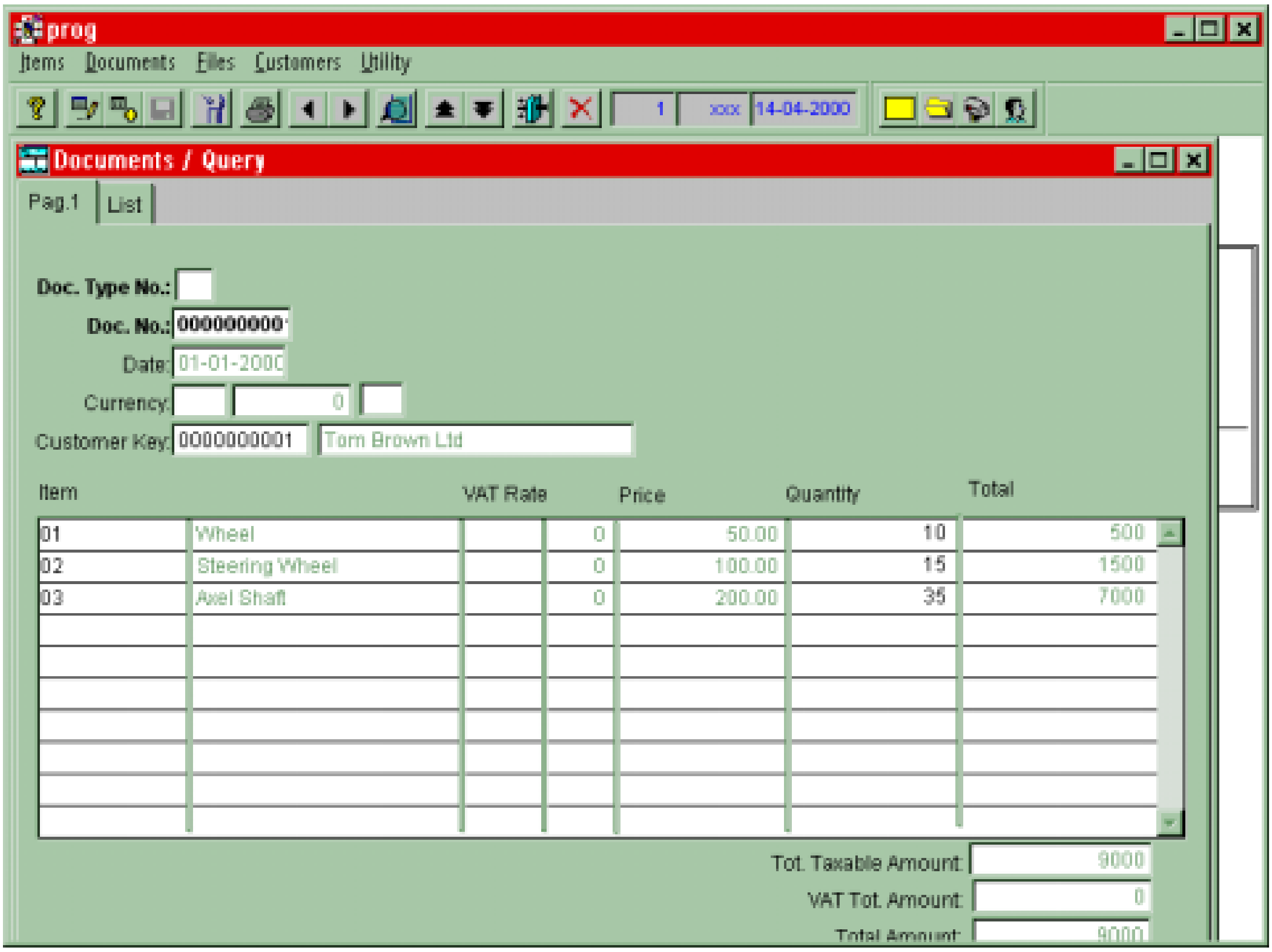
- Detail File Entity



Price List Code		Price
001	Italian	1000000.00
002	German	1000.00
003	U.K.	40.00

This detail file entity is integrated in the Master File.

➢ Master/Detail Entity



Doc. Type No.:

Doc. No.: 000000000'

Date: 01-01-200C

Currency: 0

Customer Key: 0000000001 Tom Brown Ltd

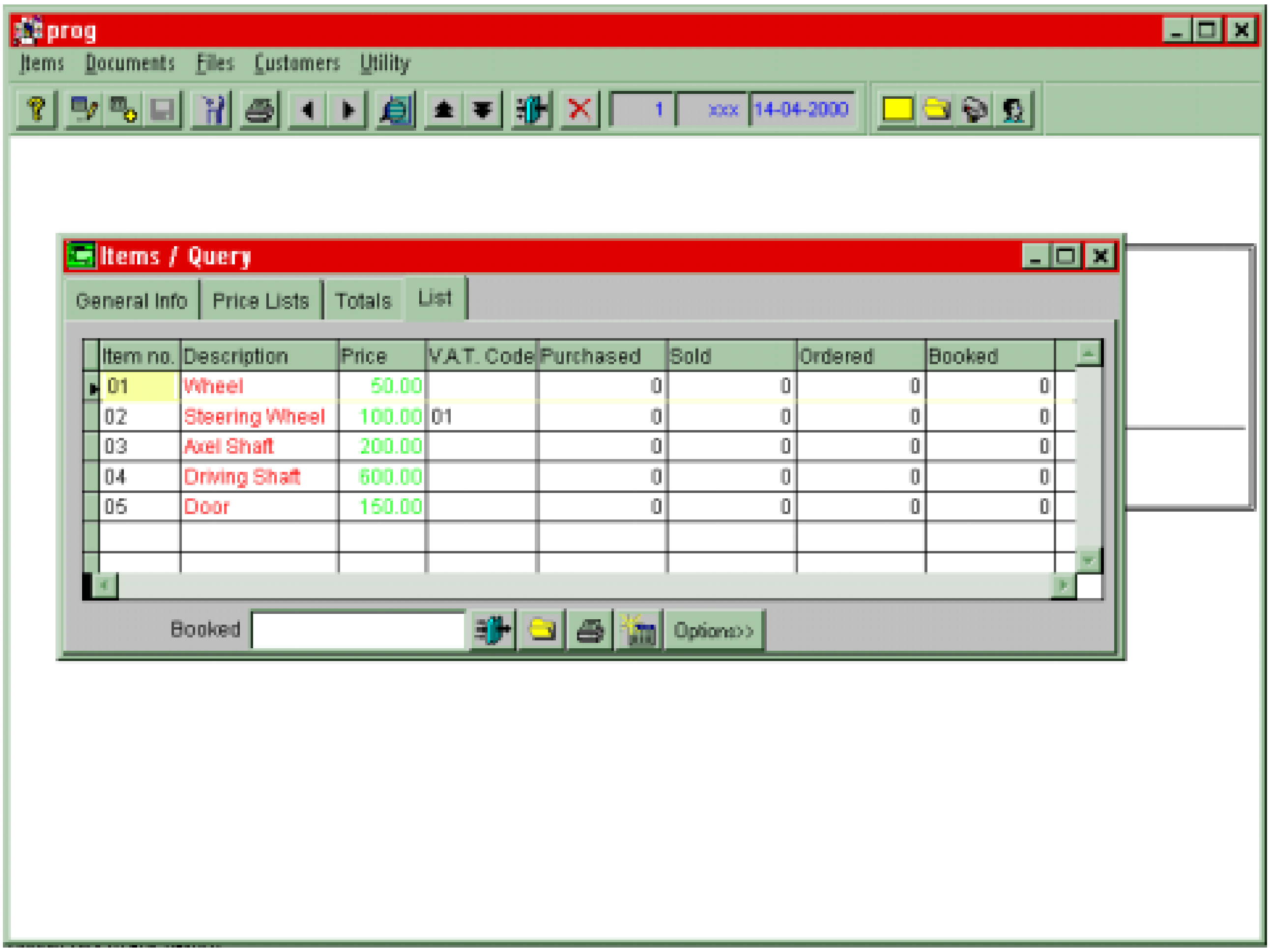
Item		VAT Rate	Price	Quantity	Total
01	Wheel	0	50.00	10	500
02	Steering Wheel	0	100.00	15	1500
03	Axel Shaft	0	200.00	35	7000

Tot. Taxable Amount: 9000

VAT Tot. Amount: 0

Total Amount: 9000

Standard Zooms are always displayed in the ‘List’ tabstrip. Below you see the ‘Item List’ as an example:



Item no.	Description	Price	V.A.T. Code	Purchased	Sold	Ordered	Booked
01	Wheel	50.00		0	0	0	0
02	Steering Wheel	100.00	01	0	0	0	0
03	Axel Shaft	200.00		0	0	0	0
04	Driving Shaft	600.00		0	0	0	0
05	Door	150.00		0	0	0	0

All application framework functionalities described in the previous section can be found under the ‘Utility’ menu and in the standard toolbar.