

# MetaEdit 1.0 manual

Please note that this is the **unregistered shareware** version of the documentation. The **registered** Standard version includes an indexed printed manual and separate manuals for the software development methods in the package. This manual may not be distributed without the other parts of this shareware package. See disclaimer for details of copyright.

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## Disclaimer

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Commercial users of MetaEdit must register and pay for their copies of MetaEdit within 30 days of first use or their license is withdrawn. Site-License arrangements may be made by contacting MetaCase Consulting. The file "register.wri" contains the order form.

Anyone distributing MetaEdit for any kind of remuneration must first contact MetaCase Consulting at the address below for authorization. This authorization will be automatically granted to distributors recognized by the (ASP) as adhering to its guidelines for shareware distributors, and such distributors may begin offering MetaEdit immediately (However MetaCase Consulting must still be advised so that the distributor can be kept up-to-date with the latest version of MetaEdit.).

You are encouraged to pass a copy of MetaEdit along to your friends for evaluation. Please encourage them to register their copy if they find that they can use it. All registered users will receive a copy of the latest version of the MetaEdit system, printed manual and manuals for the methods that are in this package.

## Preface

Thank you for purchasing MetaEdit™, the simple but powerful graphical CASE tool! MetaCase Consulting sincerely hopes that this tool will help you in your work.

MetaEdit comes in three versions:

- MetaEdit™ Standard
- MetaEdit™ Professional
- MetaEdit™ Professional with Method Workbench

The **standard** version of MetaEdit is fully functional as a modelling tool but offers no customisability. It cannot use models created with other versions of MetaEdit. This is the documentation of the Standard version, modified for shareware purposes. To receive the standard version with additional methods, please fill in the ordering form.

**MetaEdit Professional** can be ordered with as many methods available in MetaCase Consulting's method base as you want. If this is not enough, MetaCase Consulting will provide — for a separate fee — your very own method support for this version. MetaEdit Professional can use models created with any version of MetaEdit, including the user-defined methods made using the Method Workbench.

**MetaEdit Professional with Method Workbench** offers you full customisability. In addition

to the basic functionality of the Professional version, you can define and use your own methods and reports within the limits of the general MetaEdit architecture. MetaEdit Consulting will be happy to teach you how to do this.

This manual describes the features of MetaEdit Standard. It has four chapters: the first one introduces you to CASE and CASE tools and lists the differences between MetaEdit and most existing CASE tools. The second chapter lists the requirements for a successful installation of MetaEdit and guides you through the installation process. The third chapter explains how you create and manipulate models in MetaEdit. The fourth chapter is a brief reference of all standard menus of MetaEdit.

# 1. MetaEdit - The CASE tool with a difference

## Customisability

MetaEdit is a CASE shell. That is, it is a CASE tool that can be extensively modified (customised) to fit with different development methods, their graphical representations, and desired reports. These features are fully functional in the Method Workbench of MetaEdit. Since we at MetaCase Consulting believe that the average user is not interested in continuously making changes, we offer the alternative of purchasing an already customised Professional version to suit the user's specific needs. The Standard version is even more straightforward and is intended for those users who are confident with using a few standard methods that are delivered with the tool.

MetaEdit professional can be customised in the following ways:

- Available methods
- Graphical representations
- Reports
- Appearance

Most common information system development **methods** can be supported by MetaEdit Professional. With MetaEdit Professional with Method Workbench, you can even make your own methods and use them instead of or in addition to predefined ones. There are few other CASE tools that can do this, and none does it as easily as MetaEdit.

**Report customisation** or use of user-defined reports is also possible with MetaEdit Professional with Method Workbench. You can choose which parts of your design data you want to have written out and in which format, save the report definition, and produce reports according to this format from your various design models.

## Method independence

Since MetaEdit is a CASE shell we can make use of various methods in it (Professional version only). Those features of MetaEdit that are not directly dependent on a specific method will remain the same throughout. Thus MetaEdit can replace several method-specific CASE tools and ease the learning curve since you need not learn the usage of several tools from different vendors.

## Overview of MetaEdit's features

**Easy usage:** the user-friendly Windows™ graphical interface eases your learning curve, especially if you already use other Windows-based programs.

**Easy data transfer:** in the Windows environment you can cut pictures or text from MetaEdit and easily paste it into other programs such as a word processor or graphics package.

**Easy customisation:** the Professional versions essentially let you use your own in-house methods along with pre-defined common methods. With the Method Workbench you can easily design your own methods using a readily understandable graphical notation.

**Automatic consistency checking:** models that violate the method in use are impossible to make.

**Easy viewing:** selected parts of the model can be hidden to highlight relevant aspects of your design data. Comprehensive zooming and scrolling facilities.

**Moderate requirements:** if your machine runs Windows properly, it will also run MetaEdit.

## Supported methods

Due to the powerful customisation features of MetaEdit, it can support numerous methods. This unlicensed version of MetaEdit Standard has support for the following methods:

- Structured Systems Analysis, SSA (Gane-Sarson)
- Entity Relationship Diagrams, ERA
- Class Diagrams (Booch)

But by purchasing the registered version of the MetaEdit Standard you can get more methods of your choice. See the "register.wri" file for details.

## 2. Installation

### Contents of MetaEdit package

The file contents.lst contains a list of files in the package. Contact the source you received the files from or MetaCase Consulting if it does not match with what you have.

## Hardware requirements

MetaEdit will run on a PC with at least a fast 286 processor and 3 Mb main memory, an EGA graphics adapter and display (VGA or better recommended), a mouse or some other pointing device and 2 Mb free mass storage for the software. Remember, however, to allocate some disk space for the models you create as well.

If you **must** use MetaEdit on a machine with only 2 Mb memory, contact MetaCase Consulting for a "light" version of MetaEdit. We strongly recommend upgrading your hardware instead, if at all possible, since performance will suffer dramatically and large models may no longer be usable. No version of MetaEdit can be run with less than 2 Mb main memory.

## Software requirements

MetaEdit requires Microsoft® Windows™ version 3.0 or later in Standard or 386 Enhanced mode and working drivers for your mouse, display adapter and printer (optional). Please see your Windows manual for installing and configuring these, and the basic use of Windows. This manual assumes throughout that you are familiar with working in Windows and with basic Windows terms and operations such as "clicking" and "dragging".

## Limitations

During the run time, MetaEdit stores all the design data (including all pictures) in the current model in a special memory location called dynamic memory. This makes the memory management very efficient: the data retrieval and store are fast. However, this causes also some limitations because the size of the dynamic memory is fixed. The theoretical maximum size of a model is the size of the dynamic memory. In practice the maximum size is slightly smaller because the user interface also uses some dynamic memory.

The default size of the dynamic memory is optimised to 512 kb. It is no real limitation if the models do not contain long texts in text fields. If you need larger models, a version of MetaEdit with dynamic memory up to 1Mb can be ordered from MetaCase Consulting. The amount of free dynamic memory can be seen by selecting Help | About MetaEdit... from the Main Window.

The other limitation of MetaEdit is the number of objects. When allocating new objects and relationships, MetaEdit uses up a pointer from the object pointer reserve. Each object and relationship also consumes some pointers depending on the properties it has. Object pointer

reserve has room for about 20000 pointers. From Help | About MetaEdit... you can find the number of items in the current model. Items include objects, relationships, their properties, pictures and spatial information. Because each object and relationship consumes many pointers, the maximum size of a model is less than 20000 items. In practice, the maximum usable size of a model is about 5000 items. That should be enough for most purposes.

You should also notice that an open picture consumes more pointers than a closed one. So if you have a big model with several pictures, do not keep all the pictures open or iconised. Instead, close the ones that you do not need - the object pointers are then freed.

## **Instructions for installation**

Installing MetaEdit is very easy. In the following, we describe how to do this using Windows 3.1 File Manager. First, create a directory for the software and the method definition (.MOF) files using Windows File Manager or a similar tool, or the DOS md command. For example, the directory could be named C:\WINDOWS\METAEDIT. Then copy all the files that come on the distribution disk to this directory. At least the following files should be in this directory:

METAEDIT.EXE  
METAEDIT.IMA  
BOOCH\_CL.MOF  
ERA.MOF  
SSA.MOF

Start Windows, if you did the previous tasks in DOS. Create a group for MetaEdit using Windows Program Manager (click File, New, Program Group). As the description, enter MetaEdit and as group name metaedit.grp. Then choose the new group and add the MetaEdit program itself (click File, New, Program item.) For description, enter MetaEdit (or whatever you want to call the program). As the command line, give the path of the MetaEdit executable, e.g. c:\windows\metaedit\metaedit.exe (you can also browse for the executable). Choose the MetaEdit icon you like by clicking the change icon button. As the working directory, enter the directory you just created and into which you copied the files, e.g. c:\windows\metaedit. Assign a shortcut key if you wish, and click OK. The MetaEdit icon will now appear in the newly-created MetaEdit group.

If you are not using Program Manager, see the manual of your shell program on how to install new software.

## **Testing your installation**

After you have completed the installation, double-click on the MetaEdit icon. The MetaEdit Main Window should appear with the MetaEdit logo. Click the logo once to get rid of it. You should now be through the installation and ready to start working with MetaEdit.

If something goes wrong, first check that the path and working directory are defined correctly (in Program manager select File, Properties). Change these if necessary and retry. Check also that all the files on the installation diskette have been copied to the directory (see above for the minimal list). Check that your Windows installation is configured to make full use of the memory installed on your machine, and that Windows is running in either Standard or 386 Enhanced mode. If you have other Windows applications loaded, try closing down a few of them and restarting MetaEdit.

## 3. Using MetaEdit

In this chapter, we show how various tasks are done using MetaEdit. These tasks include creating new pictures, manipulating pictures, printing, and transferring pictures created using MetaEdit to other programs. Most importantly, we show how MetaEdit can be used to support various design and modelling tasks.

We use data flow diagrams (DFDs) from Structured Systems Analysis (Gane and Sarson 1979) as the example method. You should do these things with MetaEdit to get an idea of tasks.

### Creating new pictures

By double-clicking on the MetaEdit icon in your Windows Program Manager the MetaEdit Main Window appears. The Main Window provides all the tools used to manipulate the pictures.

To create new pictures position the cursor over and click once on the **File** menu, and select **New Model**. This opens a dialog which allows you to select any method contained in your version of MetaEdit.

The Select Method dialog contains two scrollable lists: the one on the left contains all the method definition files while the one on the right shows your directory structure. All the method definition files have the ".mof" extension. To select a method position the cursor on one of files and double-click the file name, or enter the file name and select **OK**. We have selected the Data Flow diagrams from Structured Systems Analysis (Gane and Sarson 1979). The Select Method dialog also includes a "Cancel" option to return to the Main Window.

After a method has been selected, the Main Window reappears with the picture list containing the text "[Structured Systems Analysis]" which shows the name of the selected method. After a method is selected the "New" button is highlighted to indicate that you can now create new pictures.

To create a new picture click the **New** push button. Positioning the cursor on the button also

has an effect on the help bar at the bottom of the Main Window. The help bar contains a short note to explain the capabilities of each function you position the cursor on. Positioning the cursor on the button "New" causes the help bar to show the text "Create a new picture".

The selection "New" opens a dialog which allows you to enter a name for the picture. We have given the name "Order system" for the picture. The name must be unique so that it can be differentiated from other pictures. To ensure this, MetaEdit prevents you from entering names which conflict.

After you have entered a name for the picture, click the **OK** button. If you do not want to create the picture after all, select **Cancel** instead. After you have accepted the picture name, a Draw Window opens, allowing you to draw pictures according to the selected method. In the next section we clarify how the Draw Window supports your design tasks.

## Drawing pictures

All the drawing tasks included in a selected method are done in MetaEdit's Draw Window. The title bar of the Draw Window contains the name of the picture and the name of the selected method. The drawing tasks supported by the Draw Window are:

- adding objects
- adding relationships
- updating objects and relationships
- deleting objects and relationships

In the following subsections we explain in detail each function mentioned above.

### Adding objects

All the object types included in the selected method are collected in the Model menu. Thus, the content of the menu is dependent on the selected method. Look at "Draw"-menu. As you can see, the Model menu includes the following object types: "External", "Process" and "Store". The mark on the left side of "External" denotes that it has been selected. If you want to draw objects of another type just click once on that object type's name.

To draw a process select **Model | Process**. This function allows you to draw as the next step a process. Also the cursor type change illustrates that you are now in object drawing mode. To add a process, position the cursor anywhere inside the Draw Window and click. This operation opens a dialog allowing you to enter a number and a name for the process. You can also add some extended information about the process in the Description field.

The first property in the dialog is also an identifier for the process, and thus it must be unique. However, if there already exists another process that has '1' as its identifier, the "Rename" push button in the dialog changes to a "Duplicate" button allowing you to enter another process with the same name and properties.

After entering the properties of the process, select **OK** in the dialog. The process is then

inserted into the selected place in the Draw Window. If you are not satisfied with the position of the object, you can move the object in the drawing area. To do this click the object once. Four small black boxes appear showing that it is now selected.

To move the object, simply drag it to the place where you want it to be. A dashed line box shows the place where the object is moved to.

To create objects of other types available in the selected method just select **Model** and the type of the object you need to create. If you want to draw another "process" you can add it straight into the drawing area, but for other objects, like "External" or "Store", you need to select them first from the Model menu. In other words, the most recently added object's type stays as the default until you select a new one from the Model menu.

## Adding relationships

After you have created some objects, you may want to show how all the objects drawn are related to each other. To do that select **Model | Change mode**. By doing this you can change the operation mode from adding objects to adding relationships and vice versa. The other way to change the mode is to push **the right mouse button** (This manual assumes you are using your mouse right-handedly. If you have inverted the mouse buttons for left-handed use, just mentally reverse left and right in the descriptions henceforth). The selected operation mode is also reflected by the shape of the cursor.

MetaEdit offers two ways to choose the relationships. The easier one, which we recommend is to select **Model | Relationships | Automatic** which lets MetaEdit select the correct relationship type. In other words, based on the chosen method and selected objects, MetaEdit can select the one possible type of relationship from the available ones. When it is possible to create more than one type of relationship between two objects, a dialog appears asking which one of the possible relationships you want to draw. This automatic function is extremely useful because it reduces routine work and speeds the design and modelling work.

The alternative is to choose relationships manually, and this can be done by selecting first **Model | Relationships** and then from the menu the particular relationship which you want to draw. The manual relationship selection is useful in cases where you want to draw only one type of relationship but there are other applicable relationship types to choose from. For example, in object-oriented methods we might be interested in only drawing class hierarchies between classes, and want to forget for a while about all the other possible relationship types, such as messages or instantiations.

To draw the relationship between two objects, select first the object from which the relationship starts and then the object where the relationship ends. The question mark '?' in the cursor shows which one of the two objects should be selected:

- When the question mark is in the left side in the cursor, the tool expects that the starting point of the relationship will be selected next.
- When the question mark has moved to the right the tool expects that the ending point of the

relationship will be selected.

If you want to cancel relationship drawing during the task just click the right mouse button and a dialog pops up to inform you that the creation has been cancelled. After the two objects participating in the relationship have been selected, a dialog opens for entering the properties of the relationship. The dialog allows you to enter a number and a name for the flow. The help bar at the bottom of the dialog offers direct help for you when entering the properties. After you have entered the properties of the flow select **OK**. This operation inserts the relationship between the two selected objects.

The default for drawing a relationship between two objects is to draw one straight line. It is also possible, however, to move the place of the relationship by adding a break point to the line that represents the relationship. This can be done in two ways. The first one is done as in the case of moving objects by selecting the relationship (i.e. click the small square in the middle of the relationship) by clicking the left mouse button and holding it down. Then move the cursor to the place through which you want to draw the relationship line.

If you are not satisfied with one break point in the relationship line, you can add an arbitrary number of them. To do this click the left mouse button at an empty place in the drawing area after you have chosen the first object in the relationship. This operation draws the relationship line from the first selected object to the cursor. Repeat clicking the left mouse button in the drawing area where you want the break points to appear, and finally click the object where the relationship ends. As a result of connecting the second object, the relationship properties dialog appears.

If you want to move the break points in the relationship line, just move parts of the relationship line by selecting and dragging the small squares in the relationship line. For reducing a relationship to a straight line, select the relationship by clicking it once and select **Edit | Straighten Line** (CTRL-S).

## Updating objects and relationships

During design tasks you often need to update and change the pictures created with MetaEdit. To update the objects or relationships you have created previously, first select the one you need to update by positioning the cursor (in object mode) on it, and either double-click it or, after selecting the item by clicking it once, choose **Edit | Show Properties** (CTRL-P). In both cases the property dialog for the object or relationship pops up allowing you to update the properties.

The property dialog for objects differs from the relationship dialog in one way. That is the possibility of renaming the object by changing its unique name. This can be done by selecting **Rename** in the object property dialog.

## Deleting objects and relationships

Deleting an item from the Draw Window can be done in two ways. First select the object or relationship (in the case of relationship click the small box in the middle of a relationship line). Then either press the keyboard delete key or select **Edit | Delete** from the menu.

The deletion operation does **not** ask for confirmation of the operation, and thus removes the selected object or relationship straight away. **N.B. if you delete an object, all the relationships connected to that object are also removed!**

## Viewing objects and relationships

The View menu in the Draw Window offers a useful function to handle and present complex pictures. In other words, the Draw Window shows either all the drawn objects and their relationships, or allows you to filter the view. By filtering we mean a function that allows you to select only those object and relationship types from the picture that interest you, and hide the rest.

To view objects or relationships select **View | Selected**. This operation opens a dialog for selecting those object and relationship types you want to see in the Draw Window. The dialog contains all the same method-specific object types as the Model menu. To select object or relationship types, click them, which causes them become highlighted. The dialog contains also three options for showing relationships. These options are:

- **Complete orphan relationships**, which shows also those hidden objects that are involved in one of the selected relationship types.
- **Show all instances of selected types**, to show only the selected object and relationship types.
- **Hide orphan relationships**, to hide the relationships that are incomplete (one or both of the objects at the end of the relationship line are hidden).

In the case of data flow diagrams in Structured Systems Analysis, one useful way to view objects is to concentrate only on the processes and data stores and hide the external objects. To view all possible objects and relationships you can either mark both 'all' selections in the View dialog or select **View | All**.

## Decomposing objects to pictures

Some diagramming methods make use of a decomposing feature which allows you to examine the modelled system at different levels of detail. Thus, as a result of decomposition a hierarchy of pictures is created. In MetaEdit this decomposition from objects to pictures is called **explosion**. Each exploded picture can be also seen in the picture list of the Main Window.

To explode objects, select first the object by clicking it once. Then select **Edit | Explode To Picture** (or press CTRL - E). This operation opens a new Draw Window allowing you to specify the system in more detail.

## **Saving models**

To save the models drawn in the Draw Window, select **File | Save** from the Main Window. If the model has not been saved already (there is no path or file name in the title bar of the Main Window), a dialog appears to prompt for the name of the file. If the model has been saved at least once, and thus a file name has been assigned to it, MetaEdit saves the model to the file shown in the title bar of the Main Window.

The dialog asks for the appropriate path and file name as well as a default extension. In the case of Structured Systems Analysis this extension is ".SSA". Enter a file name (which must be no more than eight characters long) and select **OK**. We recommend that you create special directories for your MetaEdit models. This will help you to handle and organise them.

The File menu also includes the Save As function which allows you to save a model to a file with another name.

## **Opening existing models**

To open models previously saved with MetaEdit, select **File | Open Model**. This operation opens a dialog for selecting the model files which contain the pictures.

The Open Model dialog has a default file extension "SSA" to select all the models in the current directory that are based on Structured Systems Analysis. The file extension can be replaced with any other extension to see models based on other methods or by "\*.\*)" so that all the files in the directory are shown.

To open the model file containing the appropriate pictures enter the file name, choose from the file list and click the **OK** button, or double click the file name in the list. As a result MetaEdit loads the model file and lists all the pictures included in the file in the picture list of the Main Window.

## **Deleting and renaming pictures**

Picture deletion and rename functions are available from MetaEdit's Main Window. To delete or rename a picture, first select it from the picture list. As a result the row containing the picture name will be highlighted. To delete a picture click the Delete push button. A dialog appears to ensure that you really want to delete the picture. If you now select **OK**, the picture disappears from the picture list.

To rename a picture, select the file as in the case of deletion and click the Rename button. A dialog appears asking for a new name for the picture. Enter the new name and select **OK** to rename, or select **Cancel** if you do not want to change the name after all. As a result of renaming, a new picture name replaces the old one in the picture list.

## Printing

To print pictures you can either select the picture from the Main Window's picture list and click the **Print** push button or print the picture from the Draw Window menu **Picture | Print**.

However, if you want to change the size of the printout you should go through the Draw Window where you can scale the size of the pictures. To select the appropriate size, you can scale the picture between 25 and 200 percent of its original size. The size of the paper as chosen in Windows printer setup can be seen as a dotted line in the drawing area.

To optimise the printing scale you can simply choose **Zoom | Fit To Page** which automatically scales the picture to optimally fit on the current page size. After scaling select the normal printing function **Picture | Print** to actually send the picture to your printer.

**N.B. The current version of MetaEdit does not allow printing larger pictures than fit on one page.**

## Transferring pictures to other programs

MetaEdit allows you to transfer pictures to other programs through Windows Clipboard. The picture formats supported are Windows Metafile and bitmap. In order to transfer the pictures select **Picture | Copy To Clipboard** (CTRL-C) in the Draw Window. Then go to the other program (such as Paintbrush) and paste the copied picture there.

## Reporting

Like all CASE tools, MetaEdit offers reporting functions to check, review or document the design results. In MetaEdit the reports come in three different types:

- Standard reports, which can be used independently of the method used
- Method dependent reports, which are designed especially to complement the selected method
- User-defined reports, which are fully customised by the users. These can only be created by the Method Workbench together with MetaEdit Professional, or purchased from MetaCase Consulting.

All the reports available are selected from the **Reports** menu. The menu displays each report

type available as a row of the pulldown menu. In the following, we shall briefly discuss each of the report types.

## Standard reports

MetaEdit comes with a set of standard reports which can be used to study the design results independently of the method in use. These standard reports are:

- **ObjectList** to describe all the objects included in the pictures
- **PropertyList** to describe all the properties of the objects
- **RepositoryContents** to describe all the contents of the loaded model file

## Method dependent reports

Each method has some characteristics that make it different from others. MetaEdit does not take a stand on which method is the best in each situation. Instead it supports every method available to it by custom reports. The method dependent reports are especially designed to support the method in use. For example, in object-oriented methods reports to check the class hierarchy are very useful, but they would not make much sense for data flow diagrams or ER diagrams.

The method dependent reports are loaded at the same time that a method is selected or a model is loaded. Please see the method manuals (delivered with registered Standard version only) for more detailed information on the reports available with the methods you have chosen to use in MetaEdit.

# 4. Reference: the functions of MetaEdit

In this chapter, the windows, menus and other functions of MetaEdit are briefly described in a hierarchical order.

## Main Window

The Main Window has three menus, five push buttons, a list of loaded pictures, and a small help bar with brief explanations of the various functions. Double clicking on a picture in the list will invoke the Draw Window for that picture.

## The File menu

This menu has six menu items which are briefly described below.

**New Model** brings up a method selection dialog, where you can choose which method definition (which .mof file) you want to use. You can then start creating a model using the chosen method.

**Open Model** lets you choose which already existing model you want to work with.

**Save Model** writes the current model back to the disk.

**Save Model As** does the same but lets you change the name of the model.

**Upgrade Method Definition** (only available in Professional versions) lets you upgrade the method of an existing model.

**Exit MetaEdit** quits the session and returns you to Windows.

## The Reports menu

This menu shows you the reports that are defined for the method you are using. Its contents depend on the method. For the report you choose, necessary parameters will be asked for and the report will be written to the Report Output Window for further processing. The actual contents of this menu depend on the method in use. First come the three standard reports described in section 3.10.1 above. Then the method specific reports are listed. Selecting any of these causes the report parameters to be asked and the report processed. These menuitems appear only when a method has been selected.

**Design new report** (only available with Method Workbench) lets you define custom reports. See the separate manual on how to do this.

## The Help menu

This menu allows you to see some current statistics about the program and system.

**About MetaEdit** shows the MetaEdit logo, MetaEdit version and some statistics about memory usage.

## The Push buttons

The push buttons are used to manipulate the pictures of a model.

**New** opens a Draw Window for creating a new picture.

**Edit** opens a picture selected from the list, like double clicking a list item.

**Rename** allows you to change the name of the picture.

**Delete** removes the selected picture.

**Print** sends the selected picture to your default printer.

## Draw Window

Here we briefly describe the various functions of the Draw Window in the order they appear in the menus.

## The Picture menu

This menu allows you to print a picture or transfer it through Windows clipboard to other programs.

**Print** sends the picture in the Draw Window to your default printer sized according to the definitions selected from the Zoom menu.

**Copy To Clipboard** copies the picture in the Draw Window to the clipboard from where it can be pasted to other programs.

## The Edit menu

All the functions collected in the Edit menu expects that one of the object or relationship is selected. The effects of a selection can be seen as highlighted menuitems in the menu.

**Show Properties** shows the properties of a selected object or relationship in a property dialog.

**Explode To Picture** decomposes the selected object into a new picture for further modeling.

**Straighten Line** changes the selected relationship from curved line to a straight one.

**Delete** removes the selected object with its relationships or the selected relationship from the picture.

## The Model menu

The Model menu includes all the functions needed for adding objects and relationships into the picture. The contents of this menu depend of the selected method and thus always differ from method to method.

**Change Mode** changes the mode of the Draw Window from object drawing to relationship drawing and vice versa. Corresponding function can be found by pushing the right mouse button.

A collection of objects depending on the selected method in a alphabetical order. For example, in the case of data flow diagrams those objects are External, Process and Store.

**Relationships menuitem** is a hierarchial menu for selecting the mode for choosing relationship types. The mode can be either automatic or manual. In the first case the tool can select the appropriate relationship using its "knowledge" of the method. The manual mode of relationship selection contains a list of all possible relationships in the method and allows you to select one of them at a time.

## The View menu

The View menu includes two menuitems for selecting those objects and relationships which you are interested in examining in the Draw Window.

**All** shows all the objects and relationships drawn in the Draw Window.

**Selected** opens a dialog for selecting those objects and relationships which you interested in to be shown in the Draw Window.

## The Zoom menu

The Zoom menu contains the facilities for scaling the picture presented in the Draw Window. The menu includes seven different percentages for scaling as well as two options for optimising the scaling factor to fit the size of the current Draw Window or the selected paper size and orientation.

Scaling factors are show as seven different percentages from 25 to 200.

**Fit To Window** optimises the size of the picture to fit the selected size of Draw Window.

**Fit To Page** optimises the size of the picture to fit with the selected orientation and size of the paper.

## The Refresh! function

The Refresh function redraws the picture in the Draw Window.

## Report Output Window

The Report Output Window is an editor for viewing and editing the reports produced from the pictures. Here we briefly describe the functions of the Report Output Window in the order they appear in the menus.

## The File menu

This menu has four menu items which are briefly described below.

**Insert File** lets you select and insert an existing file into the Window.

**Save** writes the current report output to a file.

**Save As** does the same but lets you change the name of the file.

**Print** allows you to print the report on the selected printer.

## The Edit menu

This menu has five menuitems allowing you to edit the text of the report or transfer it to other programs. Below we briefly describe these functions.

**Cut** removes the selected part of the text to the clipboard.

**Copy** function makes a duplicate of the text to the clipboard.

**Paste** attach the text from the clipboard to the text in The Report Output Window.

**Clear** deletes the selected text block.

**Select All** selects all the text in the Report Output Window to be either removed or copied to other programs.

## The Search menu

This menu contains three menuitems allowing you to either find or replace parts of the text.

**Find** allows you to search for any string.

**Find Next** places the cursor to the next place where the string selected with the Find function is found.

**Replace** allows you to replace part of the text with other text.

## Bibliography

Gane, Chris and Sarson, T, "Structured Systems Analysis: Tools and Techniques", Prentice-Hall, Englewood Cliffs, New Jersey, 1979.