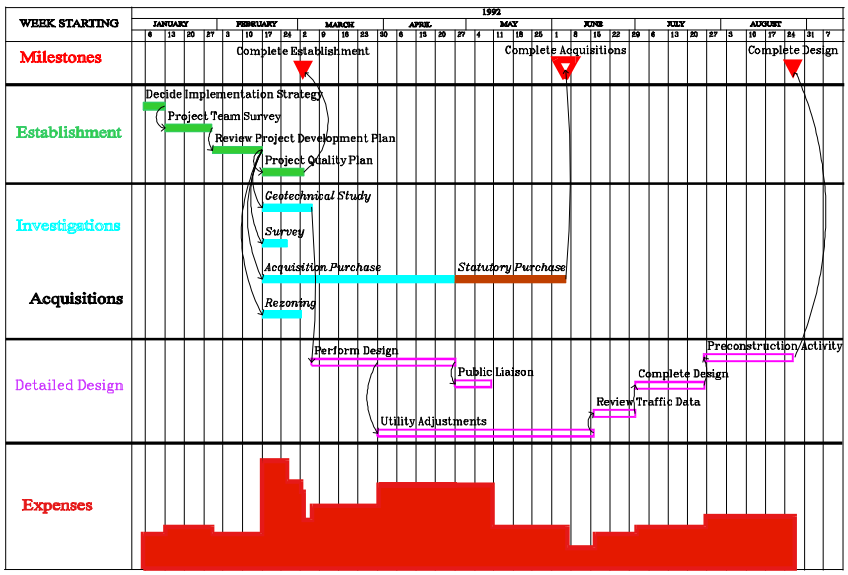

Project Scheduling System
Quick Start Guide

McLachlan Software

ivan

Quick Start Guide

Project Management Software

McLachlan Software

McLachlan Software

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ivan

Table of Contents

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Chapter 1
Getting Started

About this material

Welcome to the **ivan** Quick-Start manual. This manual is designed to help you start working with **ivan**. See the **ivan** User Manual for a comprehensive description of **ivan** functions.

What to read first

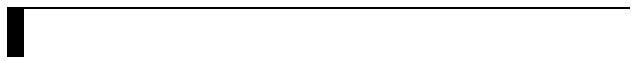
If you are new to computerised programming, you will find it most useful to begin here and continue consecutively through the manual. If you have some experience, you may decide to skip the general introductory material, skim through the description of **ivan**'s tools and working environment and go directly to Chapter 3 - "Tutorial", for hands-on experience. Chapter 4 - "**ivan** Style Guide" contains several examples of **ivan** programmes for different work environments.

You can quickly find the relevant chapter in the contents and then flick through to the page you want, using the chapter/page references at the top and bottom of each page.

Conventions and Definitions

Throughout this manual, the following conventions will be observed:

- General comments and tips, not necessarily directly related to the ongoing discussion, are shown as follows:



- **Click** means press and quickly release the left-most mouse button.
- **ClickRight** means press and quickly release the right-most mouse button.
- **ESC** means press and release the keyboard's escape key.
- **Select** - means the selection of an object in the workspace using one of the selection methods described in Chapter 3, page 14. An object

is selected when it is grey. Selected objects are shown in the manual as follows.

- **Choose** - means to move the mouse cursor over a tool, tool-option or an item from a menu and click the left button of the mouse.
- Italics are used to denote text read from the **ivan** screen i.e. menu items, button and field names in dialogue boxes and the names of projects, programmes and activities e.g. *Open Selected Programmes*.
- Numbered lists indicate a step by step procedure you should carry out e.g.

  1) Do this first

  2) Do this second.

- Anything you should type on the keyboard is denoted by a typeface that looks **like this.**
- The names of tools and tool-options begin with a capital letter to distinguish them from ordinary text e.g. the Pen, the Box.

- Menu, tool and tool-option icons are shown in the left margin of the page, like the Pen icon shown here.

- **Programme** - means a network of activities, drawn as horizontal lines on a time-scale grid, which are linked together by dependencies in a manner which represents the sequence of the activities. See example Chapter 3, page 12. (Represented in **ivan** by the icon shown in the left margin).

- **Project** - means a collection of Programmes associated with a particular project. These programmes may be associated in a hierarchical sub-programme group or be independent. (Represented in **ivan** by the icon shown in the left margin).

ivan

Chapter 2
About ivan

Overview - What is ivan

ivan is a computer software package which is used to design, draw, analyse, monitor, plan, control, re-plan and present management programmes for complex projects.

ivan allows the user to:

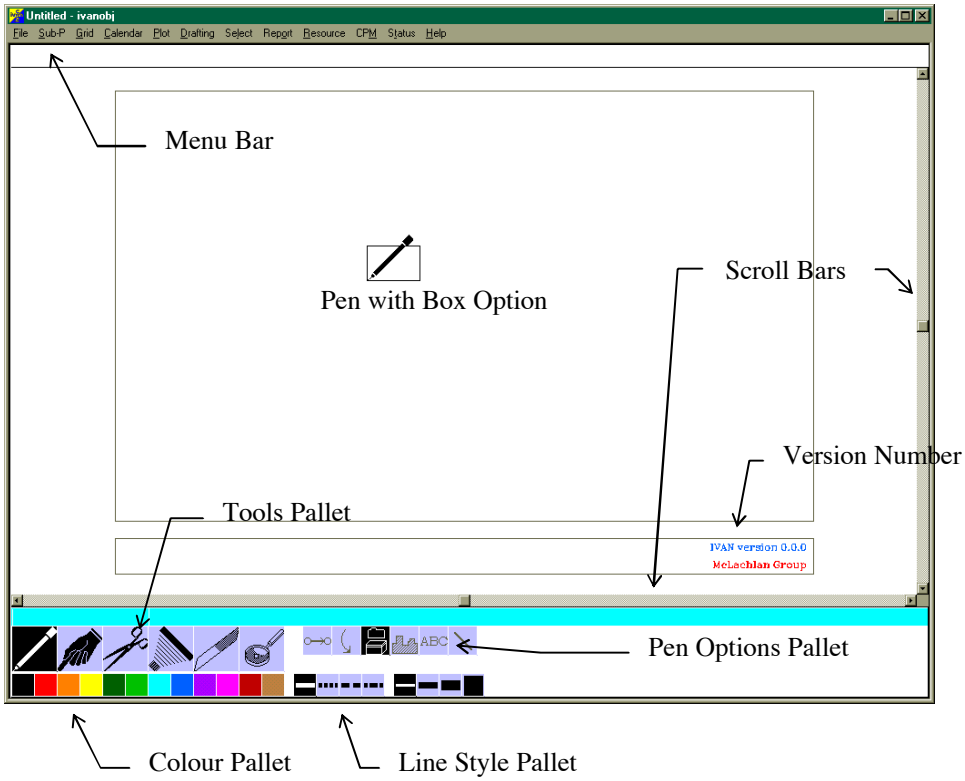
- Draw programmes or schedules
- Create dependencies between activities and milestones on programmes
- Perform Critical Path Analysis
- Allocate resources to activities and view these graphically
- Monitor progress against schedules
- Create hierarchies of linked programmes

ivan is easy to learn and yet allows very complex and sophisticated programmes to be quickly and accurately created and updated.

ivan programmes are drawn on screen using computer tools that emulate the natural drawing process with pen and paper.

The ivan Screen

The following page shows a sample of the **ivan** screen.



The **ivan** screen is divided into three areas. Each of these areas has clearly defined functions as explained below.

Top

The top of the **ivan** screen has:

- The menu-bar - pull-down menu that allows the user to invoke all functions not directly available via the tools (see below). This includes exiting from **ivan**, plotting setting options and running processes such as Critical Path analysis.

Middle

The middle section of the screen is referred to as the Workspace. Depending on the current View (see page 8 in this chapter), this area shows either:

- Projects stored within the **ivan** database.
- Programmes stored within a particular Project and the hierarchical links between them.

- The contents of a particular Programme; a time-scaled network of activities and dependencies, lines and text.

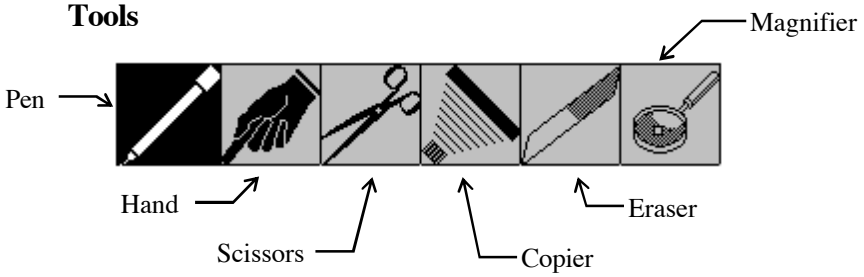
Bottom

At the bottom of the **ivan** screen, the tools, pen options and style pallets are found with:

- The date and duration display showing the current date position of the tool. When drawing or stretching an activity the duration of the activity is also displayed here.

Tools, Pen Options and Pallets

Tools



The tools act like their counterparts in the real world, allowing you to create and manipulate objects simply. When you choose (click on) one of the tools (pictured above), the cursor, moved by the mouse on screen, changes to represent the active tool. These different cursors are pictured next to the explanations below.

The Pen is for drawing objects, projects, programs, activities, lines or text depending on the Pen option chosen. (See below).

The Scissors are for moving and stretching objects. (See Tutorial Chapter 3, page 24).

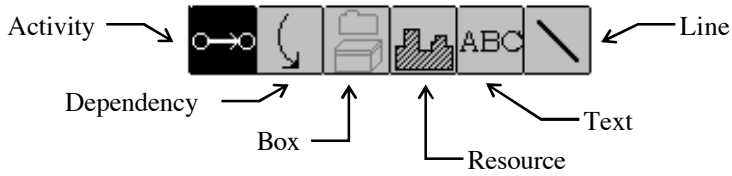
The Copier is for making copies of existing objects. (See Tutorial Chapter 3, page 23).

The Eraser is for erasing objects. (See Tutorial Chapter 3, page 26).

The Hand is for changing the attributes of objects. (See Tutorial Chapter 3, page 19).

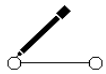
The Magnifier is for enlarging and shrinking the view of areas of the Workspace. (See Tutorial Chapter 3, page 28).

Pen Options



The Pen options are for use when the Pen tool is active. The option selected defines the type of object that will be created when using the Pen tool.

When an option is chosen it is represented by a template which follows the Pen cursor. These are pictured next to the explanations below.



The Activity for drawing activities. (See Tutorial Chapter 3, page 17).

The Dependency for creating dependency links between activities. (See Tutorial Chapter 3, page 27).

The Box is for creating projects or programs. (See Tutorial Chapter 3, page 13).

The Text option for typing text, explanations and headings. (See Tutorial Chapter 3, page 36).

The Line option for drawing lines on the Programme. (See Tutorial Chapter 3, page 34).

Palettes

The colour and line style palettes allow the user to quickly and easily set or change the colour, thickness or line style of objects. (See Tutorial Chapter 3, page 20 & 21).

Communicating with ivan

The Mouse

Most interaction with **ivan** is with the computer mouse. Used in combination with the different tools the mouse allows you to draw directly onto the computer screen. Its buttons are used consistently throughout **ivan**:

- The left button is **ivan**'s choose button. It initiates actions in **ivan**, for example, choosing points on a programme, menus, tools, pallets and options.
- The right button is the select button, used to select objects for subsequent processing or actions.

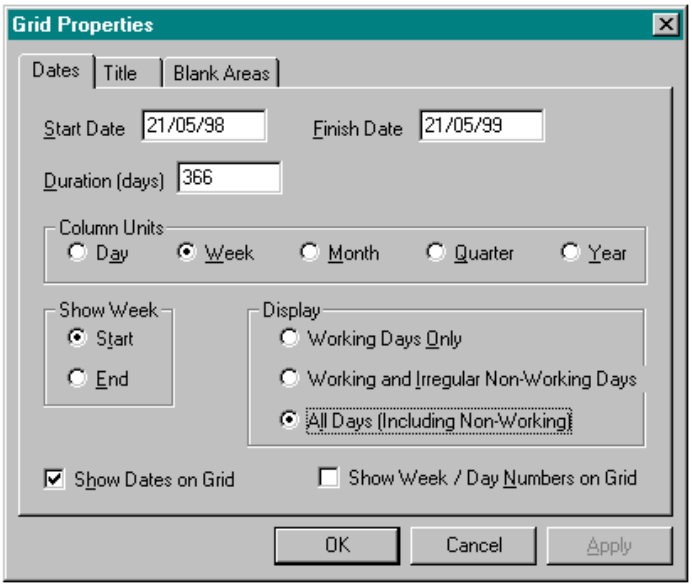
The Keyboard

The Keyboard is used for entering text and numbers in **ivan** and for some functions using special key combinations.

- The **ESC** key is used to cancel an action. Use it for any action you wish to discontinue.

Dialogue Boxes

ivan presents the user with a variety of dialogue boxes. These are used for the entry of text and numbers and to present the user with information on different elements of the Programme. An example is presented below:



Dialogue boxes require one or more of the following:

- Text or number entry into a dialogue box field.
- Choosing an option via a radio-button.
- Choosing an option via a check-box.
- Clicking on a button to perform an action.

If an error or some form of inappropriate user action occurs, an alert box will appear with an explanation, for example:

The alert message will disappear when you click on 

or if you press **ESC**.

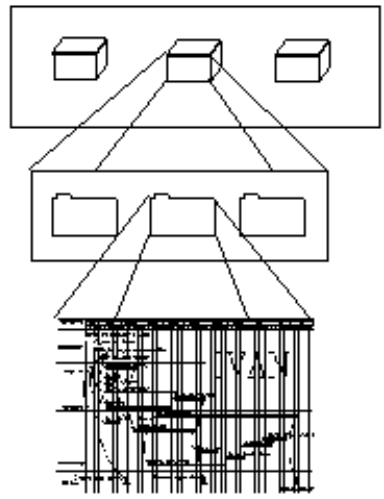
ivan Organisation

There are three levels of workspace hierarchy in **ivan**.

Project View

Hierarchy View

Programme View



Project View

The Project View is where you can create and modify the Projects that are stored in the **ivan** database. It is the workspace you first see when you start **ivan**. Each Project contains all the programmes belonging to that Project. The Project View may contain as many Projects as you like (limited only by available disk space.)

When you open a Project, you enter the Hierarchy View.

Hierarchy View

This is where Programmes and their hierarchical relationships are seen. The Hierarchy View may contain as many Programmes as you like (limited only by available disk space) and shows the parent-child relationships between programmes where these exist.

When you open a Programme, you enter the Programme View.

Programme View

This is where the actual Programme is created and displayed. The programme is the time-scaled network of activities and dependencies.

ivan

Chapter 3
Tutorial

About the Tutorial

The Tutorial provides a quick introduction to **ivan**. Most of the important features of **ivan** will be demonstrated as we construct the programme shown on the next page.

The tutorial does not describe project planning theory or method and the more complex features of **ivan** are not covered here. See your User Manual for these functions.

For a first-time user, it is recommended that the sections be followed in the order presented. However, to assist users already familiar with **ivan**, the tutorial is divided according to functionality, enabling quick reference to relevant **ivan** functions.

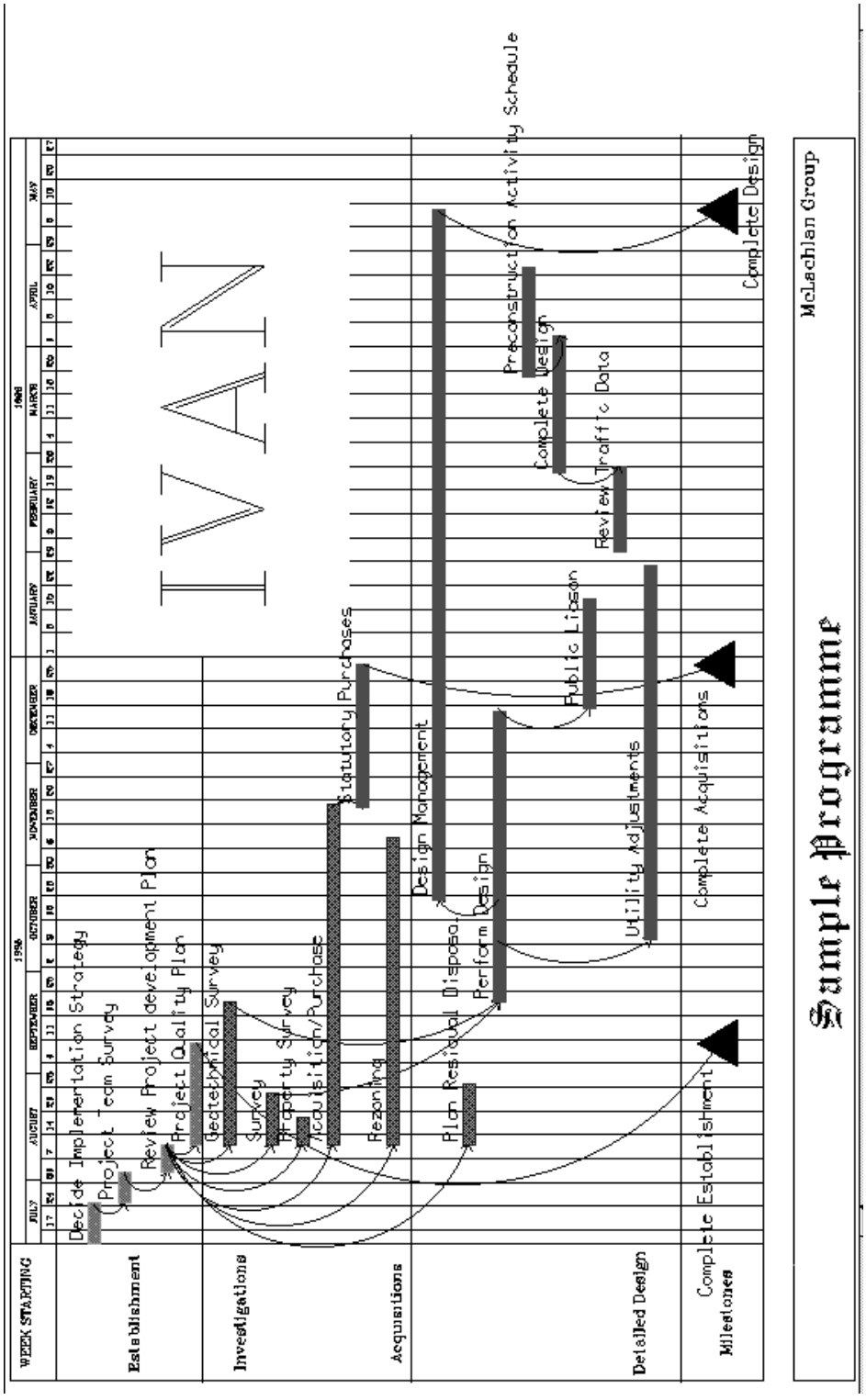
You may find it useful to use the procedures outlined here to construct your own programme. The tutorial has been written so that you can interpret its contents and apply them to your own programme.

Starting ivan

Starting **ivan** will be slightly different for different computing environments. Consult your User Manual to find the methods required on your computer environment.

Starting **ivan** may take a few seconds; while this is happening, an hour-glass icon appears. This icon will appear whenever **ivan** is engaged in some operation that takes time.

When the hour-glass disappears, you will see **ivan** in Project View. (See Chapter 2, page 8 for an explanation of Views). Along the top of the screen are menu icons and along the bottom of the screen are the tools and other palettes. (See Chapter 2, page 4 for an illustration).


IVAN
Sample Programme
McLachlan Group
Establishment
Investigations
Acquisitions
Detailed Design
Milestones
Decide Implementation Strategy
Project Team Survey
Review Project development Plan
Project Quality Plan
Geotechnical Survey
Survey
Property Survey
Acquisition/Purchase
Rezoning
Statutory Purchases
Design Management
Plan Residual Disposa
Perform Design
Public Liason
Utility Adjustments
Complete Acquisitions
Preconstruction Activity Schedule
Complete Design
Review Traffic Data
Complete Establishment

In the centre of the screen is the workspace. If you are starting **ivan** for the first time, this space will be blank.

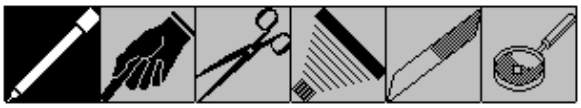
Otherwise there may be one or more Projects visible in the workspace.

> If at any time you wish to discontinue the tutorial, see Closing the Programme on page 41 to leave **ivan** running, or Exiting from **ivan** **ivan** on page 41 to shut down **ivan**.

Creating a new Project

1) Move the mouse and notice that the active tool is the Pen and the active Pen option, represented by the rectangle attached to the Pen, which is the Box.

The Pen is the left most tool on the tool pallet, and is "highlighted" (shown in white on black) to show that it is active. The Box is the third Pen option and is also highlighted.



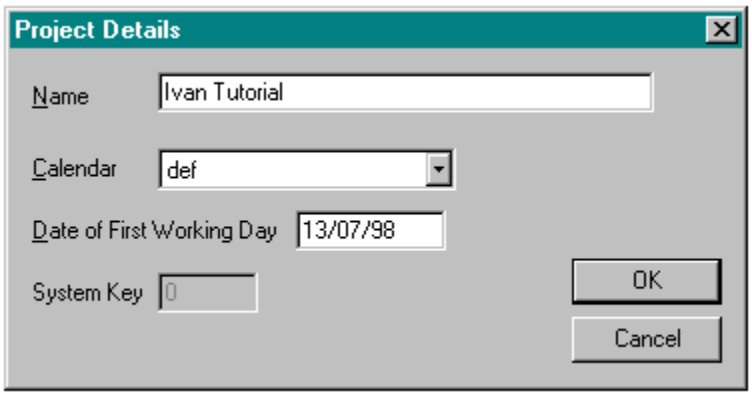
Tools Pallet

Pen Options Pallet

> Pen options that appear grey are not available in the current View.

2) Click anywhere in the workspace.

The *PROJECT DETAILS* dialogue box appears.



3) Click in the field named *Name* and type **Ivan Tutorial**.

If you make an error typing you can use the delete or backspace keys on the keyboard to delete and then re-type the name.

Set the Project Calendar

It is possible to create special purpose calendars for use in **ivan**. See the **ivan** manual for more detail. For now we will use the pre-defined default calendar in which every day is a working day.

Using the default calender should require no action on your part. Check that the drop down menu next to the words *Calendar* looks like:

4) Click on 

A new Project appears in the workspace bearing the name *Ivan Tutorial*.

> If you click on 
>
> , you will be returned to the workspace and no changes will be made. This is consistent in all **ivan** dialogue boxes.

Selecting Objects

Select this new Project:

Method One - Clicking

1) Move the Pen over the Project.
2) Click Right.

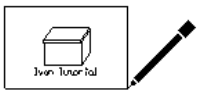
Notice the Project turns grey. This indicates a selected object.

Now de-select the Project by repeating the steps above i.e.

1) Move the Pen over the Project.
2) Click Right

The Project returns to its own colour.

Method Two - Selection Rectangle



To select the Project again, use the alternative method.

1) Move the Pen above and to the left of the Project.
2) Click Right
3) Move the Pen to below the bottom-right of the Project.

A selection rectangle is drawn completely surrounding the Project.

4) Click Right again to select the Project.

This alternative method of selecting objects will be useful later when selecting more than one object at once.

For a method of de-selecting all selected objects at once, see "Refreshing the Screen" on page 19 in this chapter.

Open the Project

Now that the Project has been selected;

1) Move the Pen to the *Sub-P* menu.

2) Click and move the Pen down the menu to *Open Selected Programmes*.

Notice that the menu item becomes highlighted as you move the Pen over it.

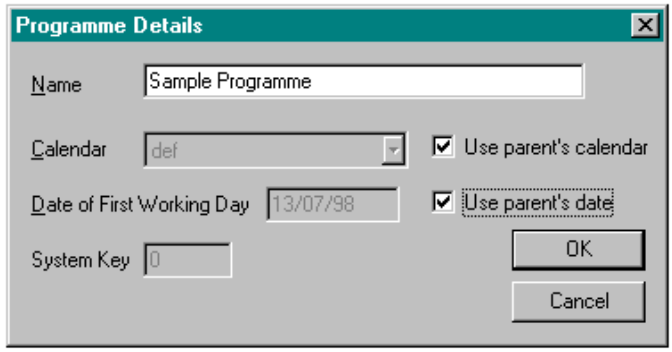
3) Click.

Another blank workspace appears. This is the Hierarchy View, where Programmes contained within the Project *Ivan Tutorial* will reside.

Create a new Programme

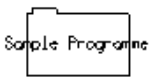
1) Click anywhere in the Hierarchy View workspace.

The *Programme Details* dialogue box appears.



2) Click in the field labelled *Name* and type the new programme name, Sample Programme.

3) Click on 

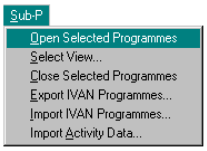


A new programme icon appears.

Open the Programme

1) Select the programme using the same method as you used to select the Project above (see page 14 in this chapter).

Note that the object turns to grey to indicate it is selected.



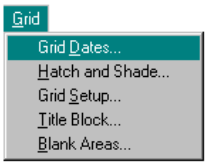
2) Open the programme using *Open Selected Programmes* from the Sub-P menu as before.

A new programme appears. As before, there is a workspace between the menu icons above and the pallets below. The programme grid appears in this workspace.

Setting the Programme Grid and Time Scale

When a programme is first created the grid begins at today's date. You will change this to set the programme up for the whole of the year 1998. Notice that the top of the workspace displays monthly columns by default.

You will change this also to show the months and weeks of the year.



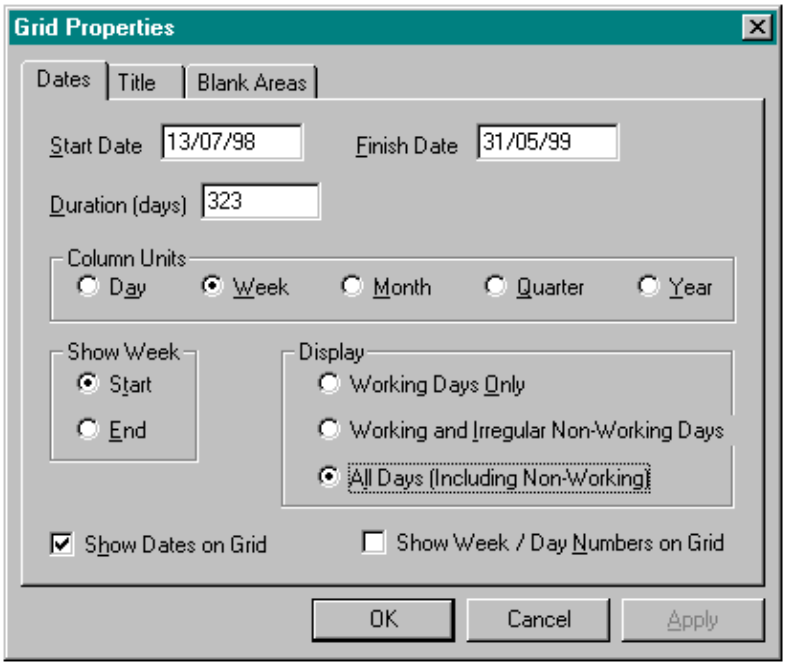
1) Click on the *Grid* menu.

2) Move the Pen to the first menu item, *Grid Dates*.

Notice that the item is highlighted.

3) Click.

The *Grid Properties* Dialogue Box appears.



Change the Start and Finish Dates

1) The field next to *Start Date* should contain **13/07/1998**.

2) Click in the field next to the *Finish Date* and type **31/05/1999**.

Use the arrow keys and the delete or backspace key to correct any mistakes.

Change the Width of the Displayed Columns

3) Click on the open circle (radio button), 

.

Notice that it becomes filled with a black dot to show that it has been chosen, 

. Note also that 

is chosen to ensure the dates displayed are for the start of the week.

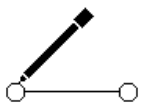
4) Click on 

.

The workspace calender and grid should now look as follows:

You are now ready to draw your first activity.

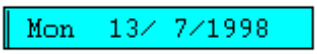
Drawing Activities



Notice that the Pen option has changed to represent the Activity.

The Date indicator is above the tool icons at the bottom left of the screen. This indicates the exact date at the position of the Pen and changes as you move the Pen across the workspace.

> As activities are easily moved in **ivan**, don't be too concerned with exact placement.



1) Move the Pen to Mon 13/07/1998 on the grid, near the top of the workspace. (See the illustration on page 4 in this chapter for an indication of where this should be).

2) Click

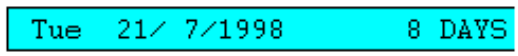
3) Move the Pen to the right.

A line will follow the Pen, connecting it to the point it was at when you clicked it. We call this a "rubber-band" line since it stretches to follow the Pen.

If at this point you wish to discontinue drawing an activity, press **ESC** on the keyboard to return to the step before.

Next to the date is shown the duration, in days, of the activity you are currently drawing.

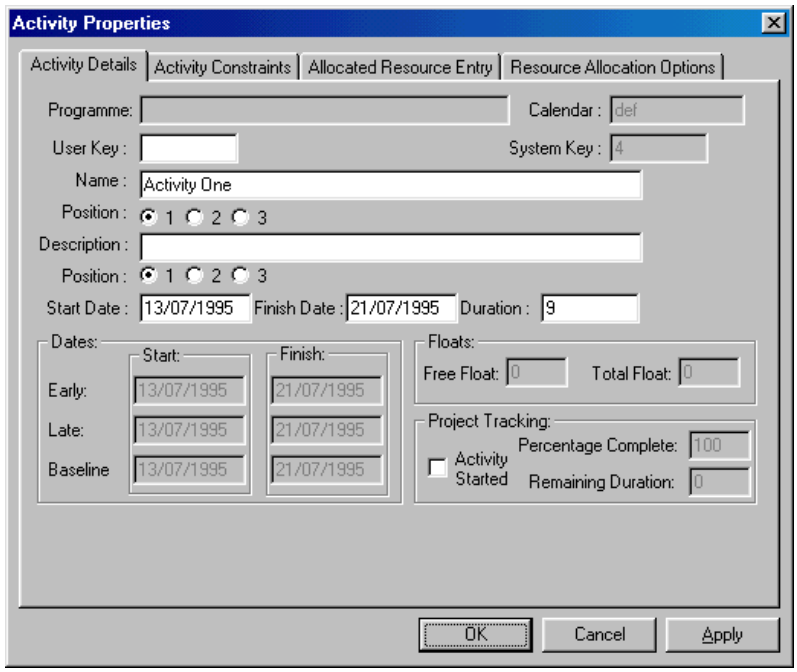
4) Continue to move the Pen until this duration is 8 days.



Since activities are always drawn horizontal by **ivan**, it does not matter if the rubber-band is not horizontal.

5) Click.

The *ACTIVITY DETAILS* dialogue box appears. This displays information about the activity and allows you to enter information that should be associated with the Activity (see page 19).



For the time being, we only want to enter the activity's description.

1) Click in the *Name* field of the dialogue box

2) Type in the activity's description. For the time being, call it **Activity One**.

3) The Position radio buttons can be used to place the activity description close to the activity line (radio button one) or further away from the activity line (radio button three)

4) Click 

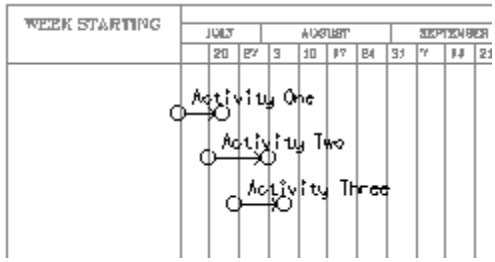
The activity will be drawn horizontally with the description written above it.

ivan will automatically begin new activities on the beginning of the chosen day and end activities on the end of the chosen day.

Create Two more Activities

1) Draw two more short activities under the first, calling them **Activity Two** and **Activity Three**.

Your programme should now look roughly like the one below.



Refreshing the Screen

Occasionally it is useful to have the screen re-drawn by the computer. This will re-display the workspace, remove extraneous lines and reform objects. This will also de-select any selected objects in the workspace.

1) Hold down the Ctrl key on the keyboard while you press the D key (Ctrl+D).

> For old time **ivan** users, you can achieve the same effect by holding down the shift key on the keyboard while you press the **ESC** key..
>
> You can also achieve the same effect without de-selecting objects by holding down the control key (Ctrl) on the keyboard and pressing the "R" key (Ctrl+R). This will also re-draw the menu, tool and Pen option icons.

Changing Activity Attributes

Once you have drawn a series of activities, it is a simple matter to change them.

Details

To change the activity details, you must first choose the Hand tool.

1) Click on the Hand tool icon.

Notice that the Pen option icons all become grey, showing that they are not available with this tool and no Pen option follows the Hand.

2) Click on ***Activity One***.

The *Activity Attributes* menu pops-up.

3) Choose *Activity Attributes* from the menu.

The *Activity Details* dialogue box appears, the same one you used to create the activities (see page 18 in this chapter).

4) Click in *Name* and, using the arrow keys and the delete (or backspace) key, delete the words *Activity One*.

5) Type **Decide Implementation Strategy**.

6) Click on 

7) Do the same for the other two activities, renaming them: **Project Team Survey** and **Review Project Development Plan** respectively.

Colour

To distinguish the current activities from those you will be drawing later, we will colour these ones light green.

Below the Tool pallet is the Colour pallet.

1) Using the Hand tool, select all three activities. (Use the selection rectangle, as this is easier, see page 14 in this chapter. Note that the rectangle must surround all of the activities and their names).

2) Click on the light green square on the Colour pallet.

3) De-select the activities.

The selected activities turn green.

Any object may be coloured in this fashion using the Hand Tool.

To draw a new green activity

1) Choose the Pen tool.

2) Click on the green square, as before.

3) Draw a new activity beginning under the end of ***Review Project Development Team*** and with a duration of 30 days. Name it **Project Quality Plan**.

Line Style and Thickness

To further distinguish activities from one another, it is possible to change the line to a dashed line and to change the line thickness.

Below the Pen option pallet is the Line Style pallet.

1) De-select all selected activities by holding down the shift key and pressing **ESC**.

2) Select the last activity you drew and with the Hand tool, click on the dotted line in the Line Style pallet.

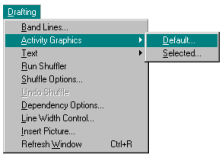
The activity changes to a dotted line. Four different line styles are available and four different line thicknesses. To change line thickness use the Hand to click on the desired thickness.

3) As we will be further adjusting the graphic style of the activities next, return the selected activity to its former attributes. Click on the smallest thickness line and on the un-dotted line.

> When drawing new activities, use the Pen to select the line style you want first. The same as you did to select a different colour for new activities.

Changing Activity Graphics

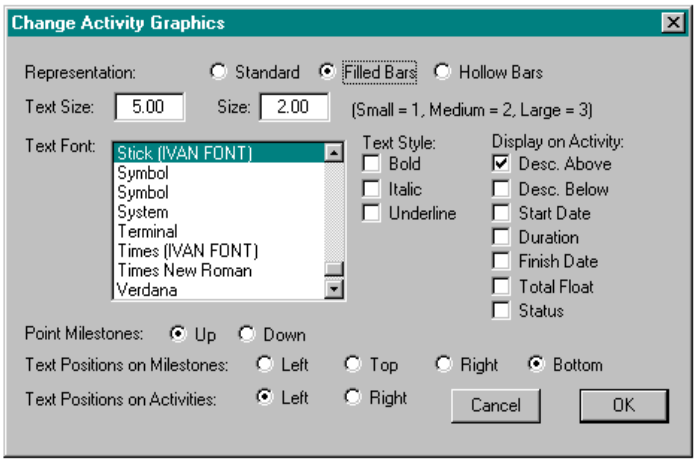
1) Click on the *Drafting* menu and move the Hand over *Activity Graphics*.



Notice that a sub-menu pops-up, allowing you to choose between *Default* and *Selected*. If you change the default values for the activity graphics, then each new activity you draw will have those default characteristics. If you change the selected values, only those activities you have selected will be changed.

2) Choose *Activity Graphics - Default*.

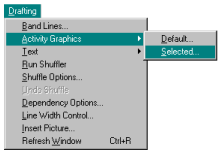
The *Change Activity Graphics* dialogue box appears.



3) Set the values as shown above.

> Standard activities may be dashed and have their thickness changed using the Line Style pallet as described on page 21 in this chapter. Filled and Hollow Bar activities are always solid and their thickness is determined by the Size option in the *Change Activity Graphics* dialogue box above.

4) Click on OK.



The activities in the workspace do not change as setting the default only affects new activities. To change the existing activities:

1) Select all the activities in the workspace with a selection rectangle.

2) Choose *Activity Graphics - Selected* from the *Drafting* menu.

The *Change Activity Graphics* dialogue box re-appears.

Notice that the values of the various options are the same as the values of the selected activities.

> Choosing the *Activity Graphics Attributes* dialogue in this way provides a simple method of checking the current attribute settings of a particular activity.

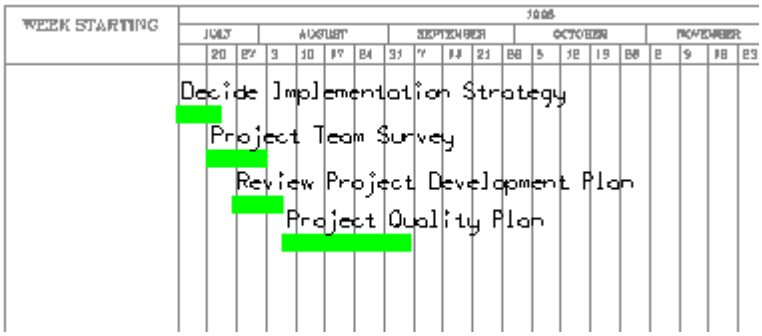
3) Click on OK.

The selected activities are changed to the new style.

> You may wish at this point to experiment with the different options available from the *Change Activity Graphics* dialogue box. Do so by choosing the *Selected* sub-menu, changing the options and clicking

OK to see the changes. Repeat steps 1 to 3 above to carry on with the tutorial.

Your programme should now look like the one below.



Manipulating Objects

Copying

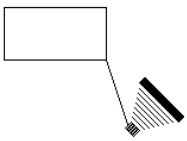
Objects in **ivan** are copied using the Copier tool.

1) Choose the Copier tool.

Notice that two new icons appear on the right side of the screen under the Pen options pallet. These are the Free and Constrained (cross) options. The Free option is currently chosen (high-lighted). This means you can copy or move objects to anywhere in the workspace.

2) Select all of the activities in the workspace.

3) Click anywhere in the workspace and move the Copier a little.



A box, representing the activities to be copied appears and moves corresponding to the movement of the Copier. Notice also, that a rubber-band line follows the copier.

4) Press **ESC**

The copy box and rubber-band line disappear, you have cancelled the copy operation.

1) Choose (click on) the Constrained option.

2) Click in the workspace again and move the Copier.

Notice the movement is now constrained to vertical and horizontal movement. This allows you to either maintain the current dates of the moved objects or to maintain their vertical positions.

3) Move the copy box to below the existing activities and click.

The activities are copied to the new location.

Before moving on to the next step, de-select all the activities in the workspace (see page 19 in this chapter) and re-colour the newly created activities blue (see page 20 in this chapter).

Moving

Moving objects in **ivan** is done with the Scissors tool.

1) Choose the Scissors tool.

The icon is highlighted and the sub-menu 

appears underneath it.

2) Ensure that the 

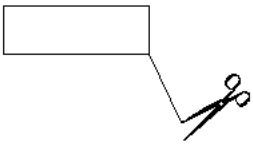
sub-menu is high-lighted.

3) Check that the blue activities are still all selected in the workspace.

Notice that the Constrained option is still chosen (highlighted).

4) Move the Scissors to the beginning of the grid, 13/07/1998 on the date indicator.

5) Click.

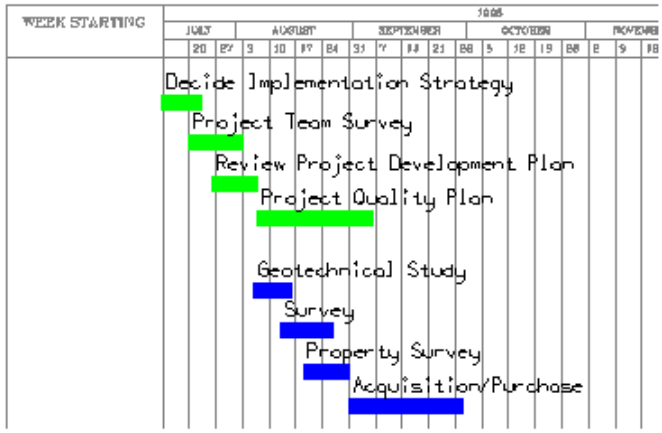


A box appears surrounding the activities to be moved. As for the Copier, a rubber-band line follows the Scissors in the workspace.

6) Move the activities until they begin on the 7th August, as seen on the date indicator and click.

> Accurate placement is not important here, as the activities will be re-aligned when you run the Critical Path Method analysis (see page 32 in this chapter).

1) Rename the blue activities as shown below. Refer to page 19 in this chapter if necessary.



Stretching

Activities may be directly lengthened or shortened using the Scissors in stretch mode.

1) Choose the Scissors tool.

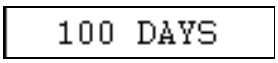
2) Click on the 

sub-menu.

3) Click on the activity ***Acquisition/Purchase***.

A rubber-band line appears, similar to when you were drawing new activities. Note that if you click on the first half of the activity the rubber-band line will extend to the left (backward in time); if you click on the second half, the line extends to the right (forward in time).

4) If the rubber-band line is extending backwards in time, press **ESC** and click in the second half of the activity.



5) Stretch the activity until its duration (see the date and duration indicator underneath the workspace) is 100 days.

6) Click

> You can also change an activity's duration via a dialogue box using the Hand tool (see page 19 in this chapter).

The activity reappears with the new length.

1) Now stretch the other activities as follows:

   Geotechnical Survey - 42 days.

   Survey 15 days.

Property Survey - 8 days.

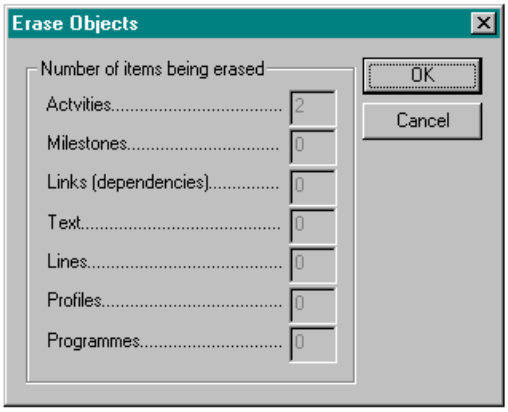
2) Make a copy of all the blue activities, and using the Constrained option, position them below the existing activities. (See page 23 in this chapter if necessary).

Erasing

Objects are erased in **ivan** with the Eraser tool.

1) De-select all the activities in the workspace.
2) Choose the Eraser tool.
3) Select the last two activities i.e. the duplicate ***Property Survey*** and ***Acquisition/Purchase***.
4) Click anywhere in the workspace.

The *Erase Objects* dialogue box appears.



The dialogue box shows a count of all the objects which are to be erased.

> If only one object is selected in the workspace when you click the Eraser, this dialogue box will not appear. The object will simply be erased.

5) Ensure that the dialogue box shows only two activities are to be erased.

This is a safety measure to ensure you only erase what you intend to. **You cannot restore erased objects.**

If the dialogue box shows items you don't want to erase, click Cancel and de-select those objects before proceeding.

6) Click OK.

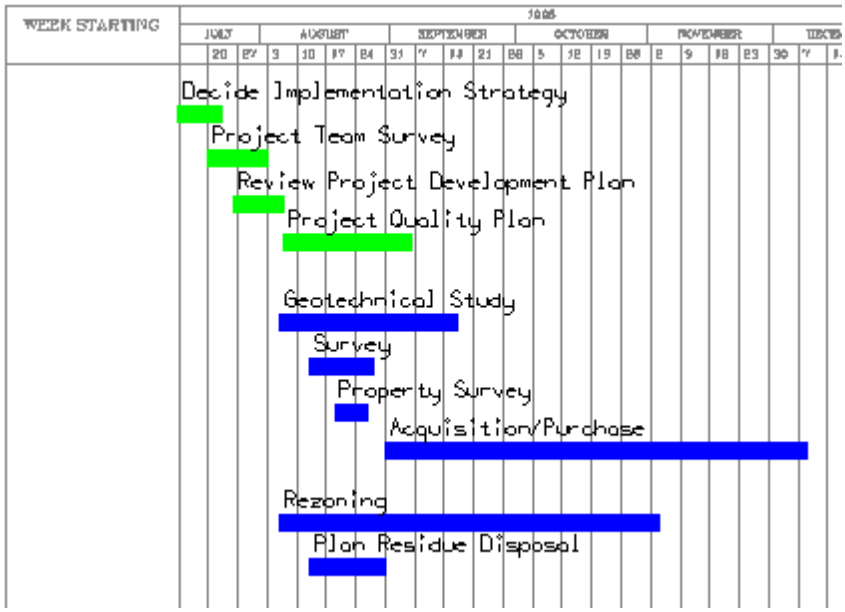
The selected activities disappear.

> This method can be used to erase any **ivan** object.

1) Re-name the last two activities **Rezoning** and **Plan Residue Disposal**.

2) Stretch ***Rezoning*** to a duration of 90 days and ***Plan Residue Disposal*** to a duration of 18 days.

Your programme should now look roughly like the one below.



Linking Activities with Dependencies

Dependencies between activities are created in **ivan** with the Pen and Dependency option. Dependencies ensure that the relationships between activities are maintained when the activities are adjusted and moved, and they are an integral part of the Critical Path Method analysis.

1) Choose the Pen tool and then the Dependency Pen option.

The Activity Pen option is de-selected when the Dependency Pen option is chosen.

2) Move the Pen into the workspace. The Dependency now follows the Pen as the Activity did before.

3) Move the Pen to the right-hand end of the third activity, ***Review Project Development Plan***.

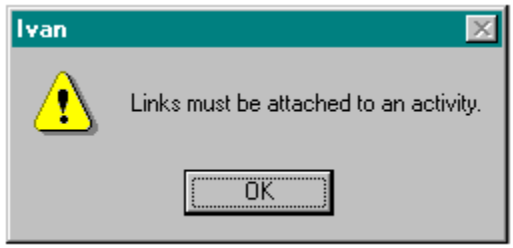
4) Click when the tip of the Pen is over the end of the activity.

A rubber-band line will follow the Pen in the same way it did when you were drawing activities.

5) Move the Pen to the start of the last activity, ***Plan Residue Disposal*** and click.

A rubber-band arc connects the activities. Moving the Pen changes the size of the arc.

If you miss the end of the activity, a dialogue box appears.



Click  or press **ESC** and try again.

It is easier to control the size of the arc if you move the Pen to the centre of the arc and adjust the size from there.

6) Adjust the arc so that it curves to the left. When you are happy with the size of the arc, click again.

The dependency will be drawn connecting the two activities.

Note that activities can have dependencies beginning and ending at any point along their length. The dependency you have just drawn should attach right at the ends of the activities. It is easier to see this if you enlarge the view of the programme.

Zooming In and Out

Enlarging the view of the programme on screen is done with the Magnifier tool.

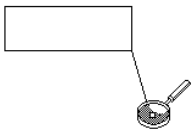
1) Choose the Magnifier tool.

The cursor changes to the Magnifier and a sub-menu appears below the Magnifier icon.

2) Move the Magnifier to above and to the left of the first activity on the programme.

3) Click.

4) Move the Magnifier to below and to the right of the last activity.



A box is drawn surrounding the activities. This shows the area to be magnified.

> The rectangle that is drawn as you move the mouse shows the area that will be displayed on the screen - not just the items you wish to enlarge.

5) Click.

An enlarged view of the activity appears.

To return to the full programme view:

1) Press **ESC** or click the  sub-menu.

Notice that the other four sub-menu choices,  , enlarge the four quarters of the **ivan** screen.

2) Enlarge the view again using one of these choices.

3) Now click on the  sub-menu.

The view reduces again.

Dependency Details

Check now that the dependency you drew attaches at the very beginning and very end of the relevant activities. If this is not so , or you are unsure:

1) Choose the Hand tool.

2) Click on the dependency.

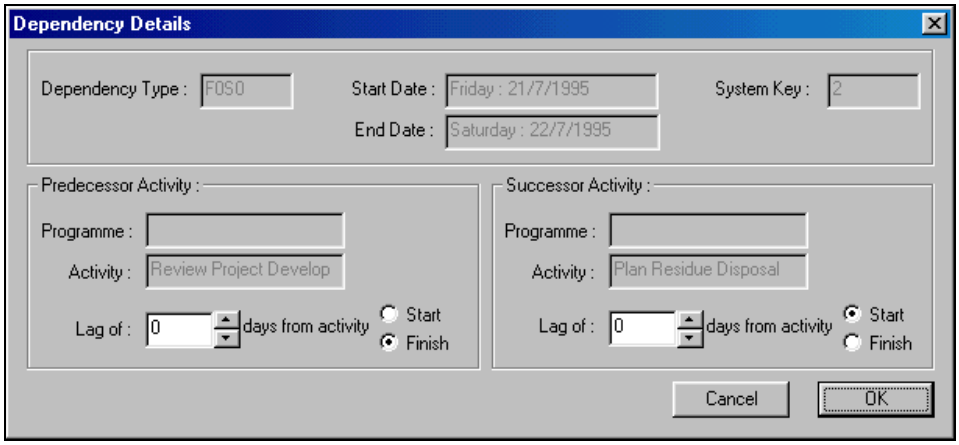
The *Dependency Details* dialogue box appears. (See page 30).

Predecessor Activity and *Successor Activity* should show a lag of 0 days from activity finish and activity start respectively, as in the illustration below.

3) If this is not so, click in the appropriate box and change the number to 0.

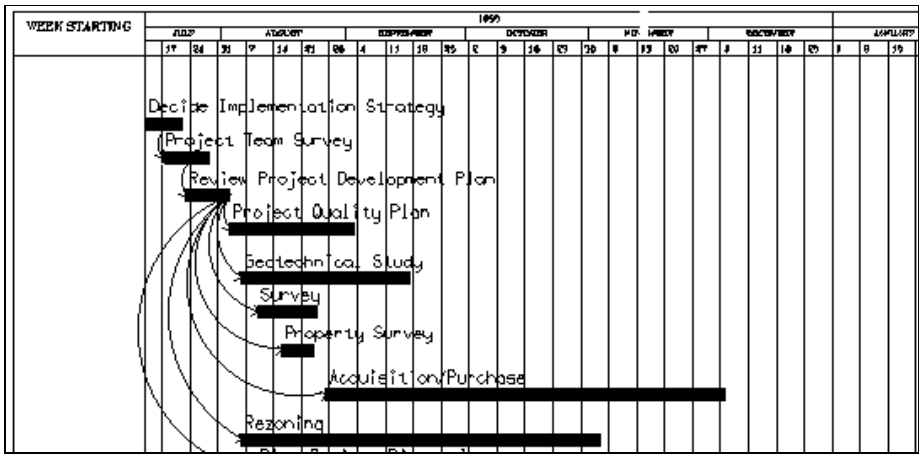
4) Click 

.



The dependency now begins and ends at the very ends of the relevant activities.

1) Using the Pen and Dependency option, draw dependencies connecting the remaining activities as shown below.



Automatically Linked Activities

Activities drawn end-to-end will be automatically linked.

1) Choose the Pen and the Activity option.
2) Click on the red square in the colour pallet in order to produce a red activity.
3) Click on the very end of the activity ***Acquisition/Purchase***.

If you clicked inside the activity a message box appears. Click 

or press **ESC** and try again.

4) Draw the activity with a duration of 46 days and name it **Statutory Purchases.**

The activity is drawn linked to ***Acquisition/Purchase***. Although the dependency is not visible, if at some later stage either activity is moved away, the dependency will be maintained.

1) Draw a red activity with a duration of 85 days below and to the right of ***Plan Residue Disposal***. Name it **Perform Design.**

2) Draw a dependency from the end of ***Geotechnical Study*** to the beginning of ***Perform Design***.

3) Draw another dependency from the end of ***Survey*** to the beginning of ***Perform Design***.

As you see, multiple dependencies can be drawn to a single activity.

1) Draw another red activity beginning next to ***Plan Residue Disposal*** (around the 9th of October) and with a duration of 202 days. Name it **Design Management.**

Mid-Activity Dependencies

1) Draw a dependency from mid-way along ***Perform Design***, to the beginning of ***Design Management***.

2) Choose the Hand tool and click on the dependency.

The *Dependency Details* dialogue box appears (see page 30 in this chapter for illustration).

3) Change the *Predecessor Activity* lag to 30 days from activity start and check that the *Successor Activity* lag is 0.

4) Click 

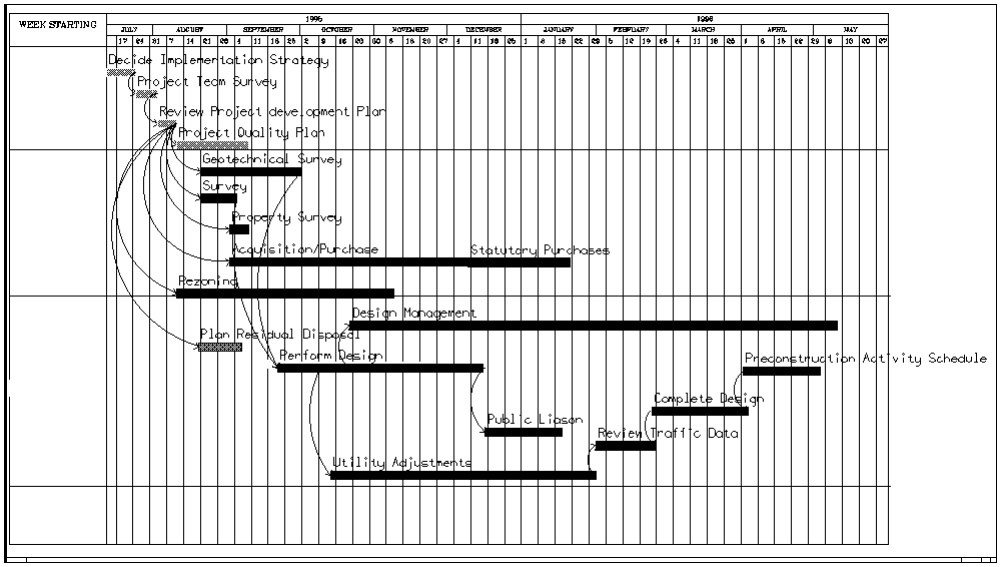
.

The dependency is moved to begin 30 days along ***Perform Design***.

There are another five activities and dependencies to be drawn on the sample programme. See below.

1) Draw them now as red activities with duration as follows:

Public Liaison	32 days
Utility Adjustments	110 days
Review Traffic Data	25 days
Complete Design	40 days
Preconstruction Activity Schedule	32 days



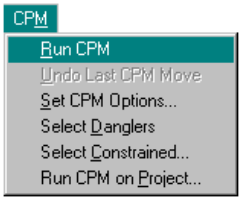
Tidying up the Programme

Your programme is now beginning to be a little more complex and has become a touch untidy. **ivan** has two ways of automatically tidying up activities and dependencies, in addition to manual adjustments you can make.

Critical Path Method (CPM)

Critical Path Method is a sophisticated facility we will not be covering in detail here. Many options are available within **ivan** for CPM analysis, these are covered in detail in your user manual. However the CPM is a useful tool, even at this stage in our programme, for moving each activity to its earliest start date according to the dependencies you have drawn.

When you run the CPM, **ivan** will adjust the position of activities according to their earliest possible start and finish dates. These are defined when you attach dependencies to the activities. By default, any activity without a predecessor dependency is treated as though it has a start-no-earlier-than constraint by the CPM. Activities with predecessors will be moved to reduce the total float to zero, if possible. See your User Manual for a further explanation of the above.



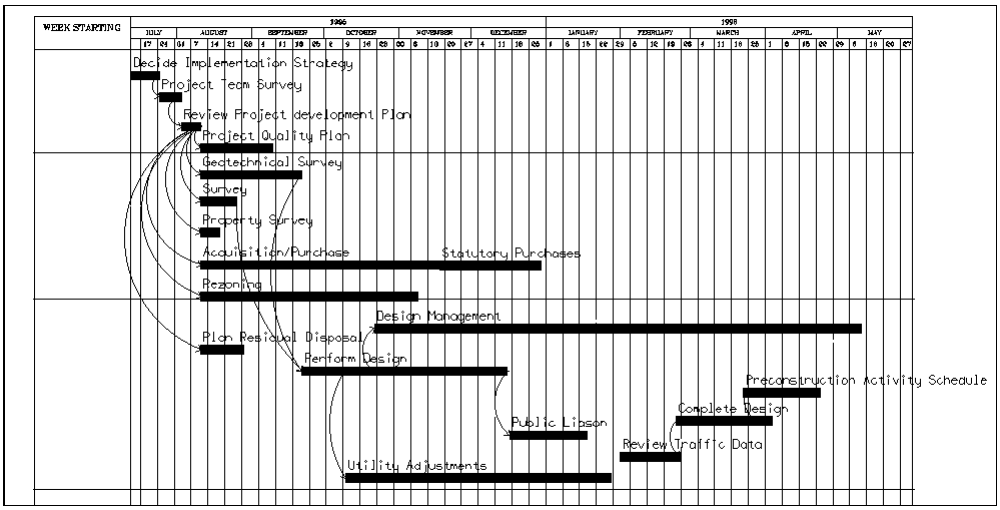
1) Choose the *CPM* menu.

The *CPM* menu choices appear.

2) Choose *Run CPM* from the menu.

The activities in the programme move to their earliest start dates.

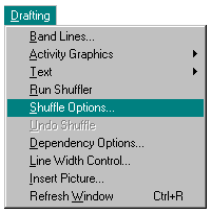
If necessary, redraw the screen by holding down the shift key and press **ESC**.



If one or more activities has not ended up as shown, check the *Dependency Details* dialogue box of the relevant dependency. The options in the dialogue box should read the same as those pictured on page 30 in this chapter.

Change the options if necessary and run the CPM again.

This has moved the activities to their earliest start and finish dates. Now you need to realign the vertical spacing. To do this you will use the *Shuffler*.

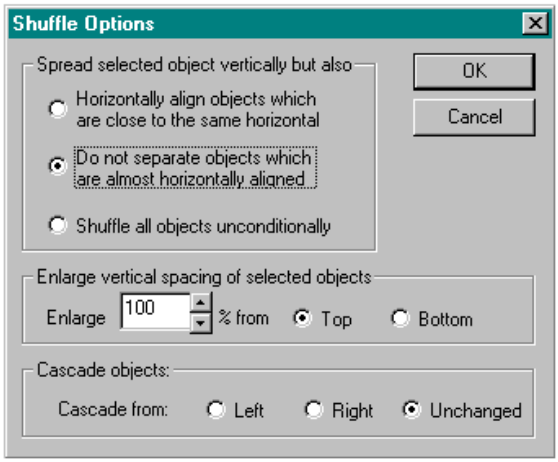


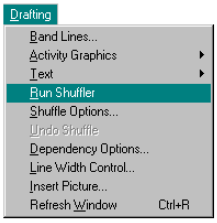
Shuffle

1) Select all the activities in the programme using the selection rectangle.

2) Click on the *Drafting* menu and choose *Shuffle Options* from the menu.

The *Shuffle Options* dialogue box appears. For now you will leave the options set as they are.





3) Click OK

4) Click on the *Drafting* menu and choose *Run Shuffler* from the menu.

The activities in the programme are re-aligned evenly spaced.

Several of the dependencies you have drawn from ***Review Project Development Plan*** may overlap, or otherwise need adjusting for neatness. It may be convenient to enlarge the view using the Magnifier while adjusting dependencies.

Reshaping Dependencies

Dependencies are reshaped using the scissors.

1) Choose the Scissors tool, with the STRE sub-menu.

2) Click on one of the dependencies to be adjusted.

3) Move the dependency until its shape is acceptable.

4) Click.

Dependencies can be adjusted in this way so that they do not overlap and so that their curves are all approximately the same dimension. (See last example programme above).

Drawing Lines

Lines can be drawn to divide the programme into sections for easier comprehension.

1) Choose the Pen and the Line Pen option.

2) Choose the Constrained option.

A rubber-band line (crossed lines) follows the Pen in the workspace.

1) Click on the left-most edge of the programme between the green and blue activities.

2) Draw a line across the Programme to the far right-hand edge.

A rubber-band line indicates where the line will be drawn.

3) Click.

The line is drawn onto the Programme.

4) Draw two more lines, one under ***Rezoning*** and the other under ***Utility Adjustments***.

This should leave some empty space along the bottom of the programme for Milestones. See the next example programme below.

Drawing Milestones

Milestones represent the end of a programme, or a significant point in the programme. They are created by making activities with duration of zero days.

1) Choose the Pen with the Activity Pen option.

2) Click on the black square on the colour pallet.

3) Click in the space at the bottom of the programme, roughly under the end of ***Project Quality Plan***.

4) Without moving the Pen (or move the Pen to the left - backwards in time), click again.

The *Activity Details* dialogue box appears as before.

5) Check that the number shown in the *Activity Duration* is 0. If it is not (if you moved the pen slightly to the right between clicks), click in the box and change it to 0.

6) Click in the *Name* field and type **Complete Establishment**.

7) Click 

to exit from the dialogue box.

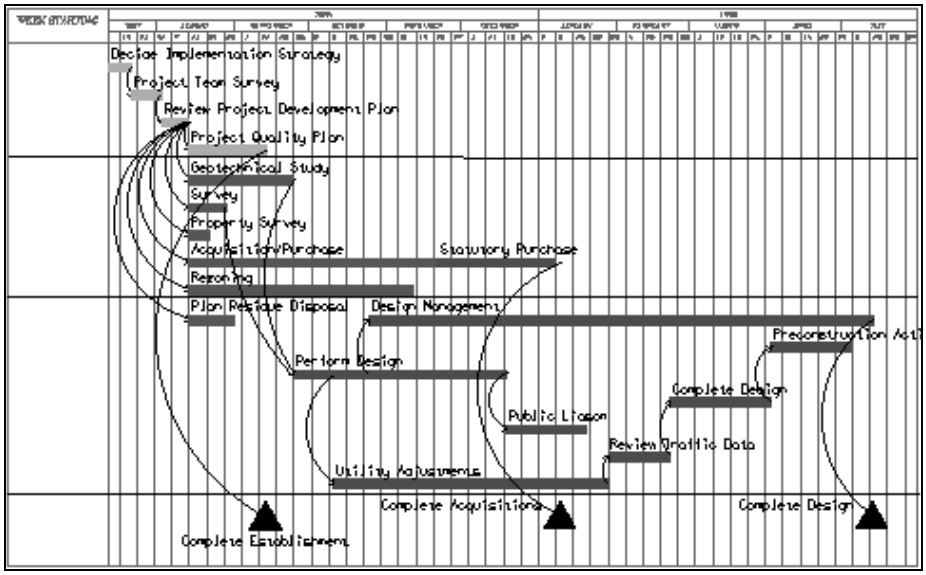
The milestone appears.

> You set the default characteristics for Milestones in the *Change Activity Graphics* dialogue box (see page 22 in this chapter).

1) Draw a dependency from the end of ***Project Quality Plan*** to the centre of the milestone.

2) Draw another two milestones at the bottom of the Programme, linked to ***Statutory Purchases*** and ***Design Management*** respectively and named **Complete Acquisitions** and **Complete Design**.

3) Now tidy up again by running the CPM and Shuffler and by moving the lines if necessary. (See "Moving" on page 24 in this chapter)

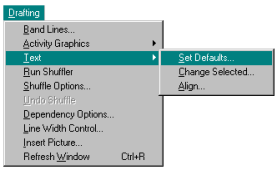


Adding Text

First you will change the default text attributes.

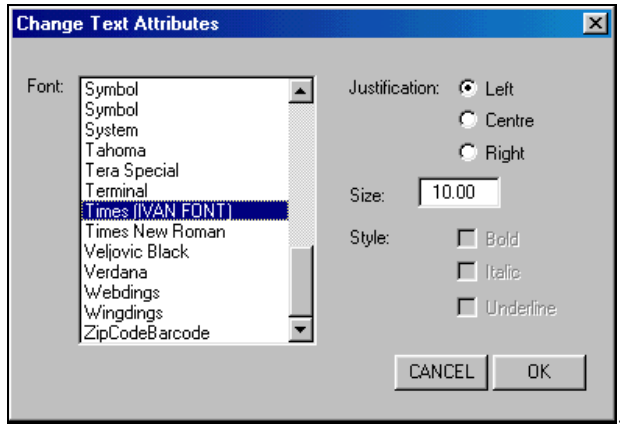
1) Choose *Set Defaults* from the *Text* menu.

The *Change Text Attributes* Dialogue Box appears.



2) Set the options as shown below and click 

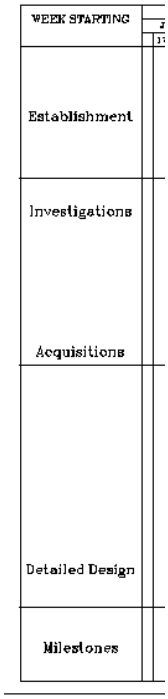
.



3) Choose the Pen and then the Text option.

4) Click in the left margin of the programme, next to the green activities.

5) Type **Establishment**.



If you make an error typing, use the delete key to delete the mistake and retype the text.

6) To finish typing, click again.

The word as typed probably needs to be moved to be in the correct position.

1) Choose the Scissors and the 

sub-menu.

2) Select the word *Establishment* and move it to the centre of the margin space.

3) Repeat the above process to add four more headings in the margin:

Investigations

Acquisitions

Detailed Design

Milestones.

Editing Text

To re-edit the text you have just typed:

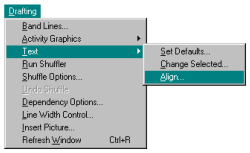
1) Choose the Pen and Text option.

2) Move the Pen over the text you wish to edit and click.

3) Use the delete key to delete unwanted text and type the new text in place.

If you should miss the text you wish to edit, simply press **ESC** and continue.

Now that you have four titles in place you can align them with each other.

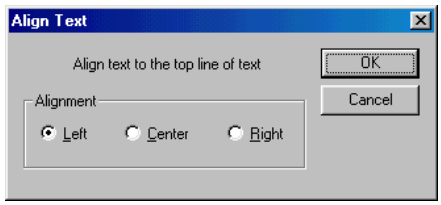


Aligning Text

1) Select all four titles that you just typed.

2) Choose *Align* from the *Text* menu.

The *Align Text To The Top Line Of Text* dialogue box appears.



3) Choose *Centre* and click OK .

The text is moved into alignment.

Changing the Text Size

1) Type **Sample Programme** in the title box at the bottom of the programme.

2) Select the text.

3) Choose *Change Selected* from the text menu.

The *Change Text Attributes* dialogue box appears, see page 36 in this chapter.

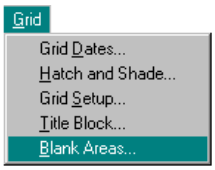
4) Set the font to *Gothic* and the size to **15**

5) Click OK.

The text style changes.

6) Move the title to a central position in the title bar using the scissors.

> Text colour can be changed using the hand tool as for other **ivan** objects. (See page 19 in this chapter).



Blank Spaces

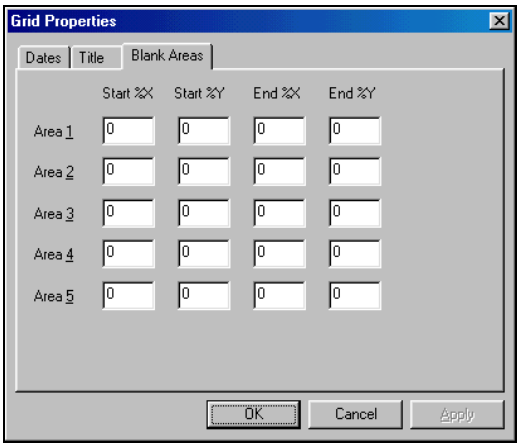
To add a blank area on the programme grid for explanatory text or a legend:

1) Choose *Blank Areas* from the *Grid* menu.

The *Calender Blank Areas* dialogue box appears.

2) Click in the first box (Area 1, Start %X) and type **60**.

This will cause the blank area to begin 60% along the X-axis.



3) Type **55** in the *Area 1, Start %Y* box

4) Type **95** in the *Area 1, End %X* box

5) Type **92** in the *Area 1, End %Y* box.

6) Click OK.

The blank area appears in the programme grid. Notice that only the grid is blanked out and thus line you drew earlier still passes through this area.

1) Shorten the band line using the Scissors and STRE sub-menu to the edge of the blank area.

2) Type **IVAN** in the blank area using the Pen and Text option.

3) Select the text **IVAN** and use *Change Selected* from the *Text* menu to change it to Times font, size **60.**

4) Using the Scissors, move the text **IVAN** to the centre of the blank area.

Further Text Editing

The Scissor tool can be used to stretch text on the screen and also to rotate it. Try it out with the **IVAN** title.

1) Choose the Scissors and the STRE sub-menu.

2) Click on the text **IVAN**

A box appears showing the size of the text and it's angle of rotation.

3) Move the mouse until you are happy with the position and size.

4) Click

The text can still be edited by selecting it and then

choosing the item *Change Selected* from the *Text* menu.

Congratulations, this completes the sample **ivan** Programme. See page 12 in this chapter for the final programme.

Printing the Programme

ivan programmes are usually printed on a plotter.

1) Zoom to the full programme view (See page 28).

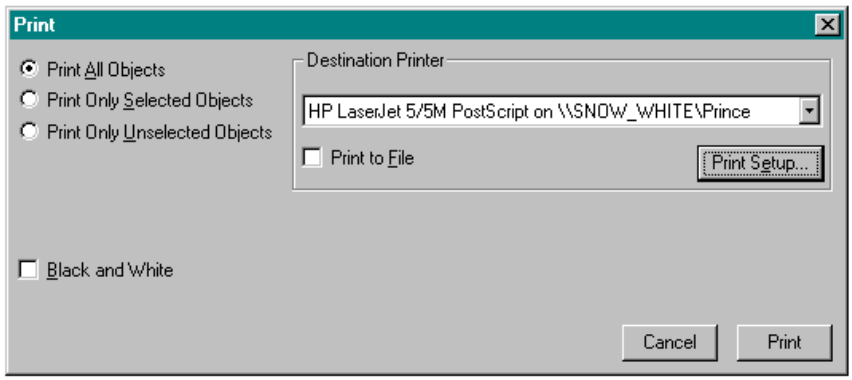
ivan plots on the printer what is currently visible on the screen.

2) Click on the Plot menu.

The Plot menu appears.

3) Choose *Plot Programme* from the *Plot* menu

The *Print* dialogue box appears.



This dialogue box allows you to customise the plotted output. For the time being, we will accept the default settings.

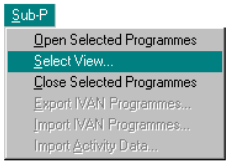
4) Click 

.

If the plotter does not respond or the image is incomplete, see your system supervisor.

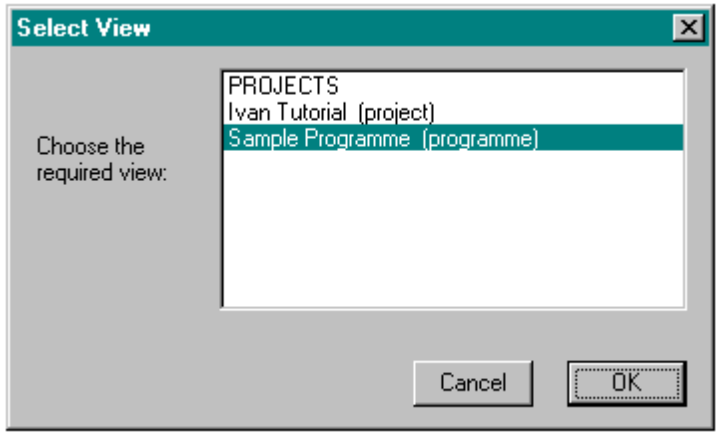
Moving between Views

Once you have opened one or more Projects and Programmes you can move between the Project View, the Hierarchy View and the Programme View by using the *Select View* option from the menu.



1) Choose *Select View* from the *Sub-P* menu.

The *Select View* dialogue box appears. All currently open Programmes, Hierarchy Views and the Project View are shown.



See **ivan** Organisation, Chapter 2, page 8, for an explanation of these different Views.

1) Choose *Projects*.

2) Click 

.

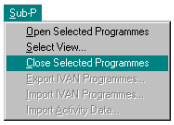
You are now returned to the Project View.

> Note that opened projects in the Project View are seen as open boxes, and opened programmes in the Hierarchy View are seen as open folders. To view already opened Projects or Programmes use *Select View* from the *Sub-P* menu.

Closing the Programme

Notice the Project *Ivan Tutorial* is shown as an open box.

1) Select the Project.



2) Choose *Close Selected Programmes* from the *Sub-P* menu.

The box closes.

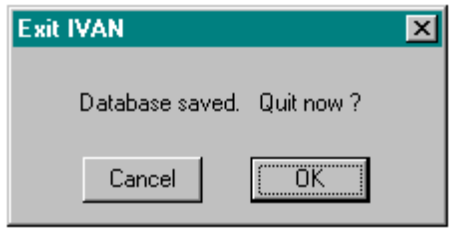
Exiting from ivan

To finish this session:

1) Click on the *Exit* menu in the top-left corner of the screen.

2) Choose *Exit* from the menu.

The *Exit IVAN* dialogue box appears.



There is no need to save your work when using **ivan**. **ivan** saves changes to your programmes as they are made. The dialogue box above is just letting you know that your data is already saved and confirming that you want to leave the application.

1) Click  to exit from **ivan.**

Click  to return to **ivan.**

You can exit from **ivan** from within any View. All opened Programmes and Projects will automatically be closed before **ivan** exits.

ivan

Chapter 4
ivan Style Guide

Presentation style is a critical part of any programming endeavour. The nature of a particular programme will depend on several factors:

- Who or what the programme is for; for example, a programme for use by a sub-contractor will have different requirements to one intended for an arbitration case or higher management.
- In what way each programme is related to other programmes.
- The personal style requirements of the programmer.

ivan has been designed so the user can present each programme in the way that is most appropriate to the requirements of the job at hand.

Example Programmes

The following pages contain examples of different **ivan** programmes designed for varying uses and with different design elements and ideas. You can use elements of these programmes to assist in the development of your own programmes.