Table of Contents

List of Tables

1. Introduction

The ***MacroView*** system is a Supervisory Control Package designed for the Process Control and SCADA type market. ***MacroView*** provides:

- An easy-to-use graphical interface to multiple users in the operating, supervisory, technical and managerial levels.
- An integrating framework for multiple sources of data.
- A historical storage facility.
- A number of facilities to perform control, logging and reporting functions and
- The interfacing tools to link into third party packages and third party computer systems.

The majority of tasks performed by ***MacroView*** on site can be configured using a simple fill-in-the-blanks configuration procedure. This manual describes how you can take a raw off-the-shelf ***MacroView*** system and configure it to perform the tasks required on your site.

1.1 About this Manual

Who Should Read This Manual

You should read this manual if you want to:

i. **Configure** the ***MacroView*** system.
ii. Maintain ***MacroView*** system or **add** new facilities to an existing system or
iii. **Investigate** in detail the structure and functions of the ***MacroView*** product.

Note: It is highly recommended that anyone using this system should attend one of the standard training courses offered by your distributor. Details of the courses can be found in the Maintenance Chapter of this manual. This manual is designed to complement your training course, not replace it.

1.2 UNIX and Windows Operating System Considerations

This manual has been designed for use in the implementation of the ***MacroView*** system whether it is used with the UNIX or Windows NT operating system. As each operating system has its own conventions for path names, file names, syntax and the method in which programs are processed, the examples and descriptions will include both formats where required. Table 1, below, lists some of the important points to remember, however, it is assumed that the person configuring the system will have some knowledge of the operating system they are using. Details on the starting of the ***MacroView*** processes for each system are covered where appropriate, however, the next section in this Chapter makes mention of the starting of ***MacroView*** processes.

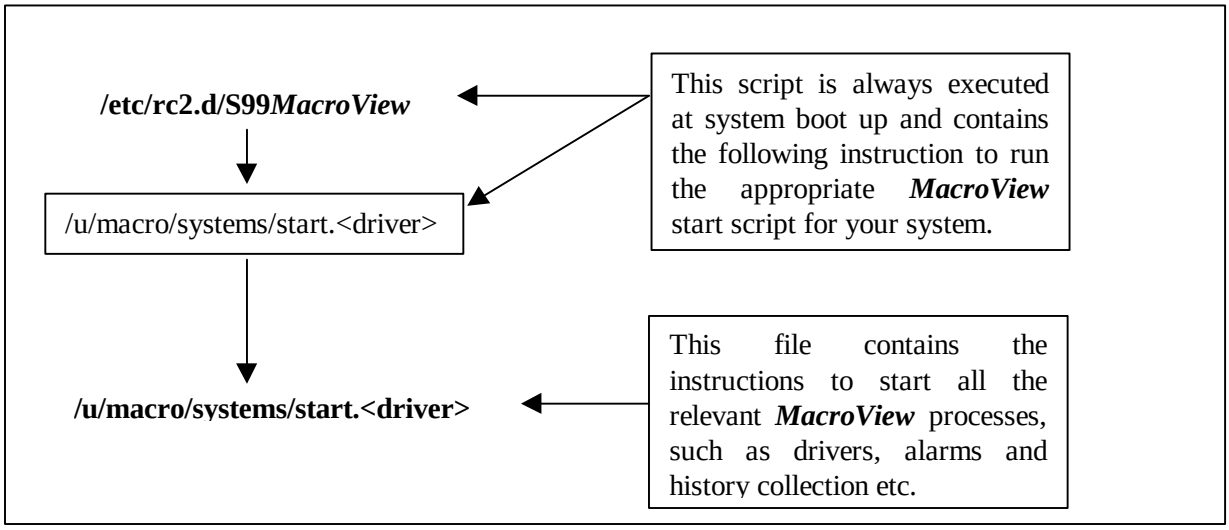
Table 1: Comparison of UNIX and NT Pathnaming and File structure.

Description	Remarks	UNIX	Windows NT
Environment Variables		$PATH $MACRODIR	%PATH% %MACRODIR%
HOME Directory		/u/macro (SCO UNIX) /users/usr/macro (SOLARIS)	C:\Users\Macro
Executable files	***MacroView*** operations program	xops3	winops.exe

1.3 Starting *MacroView* Processes

UNIX System

The ***MacroView*** start file is executed at UNIX boot up time.

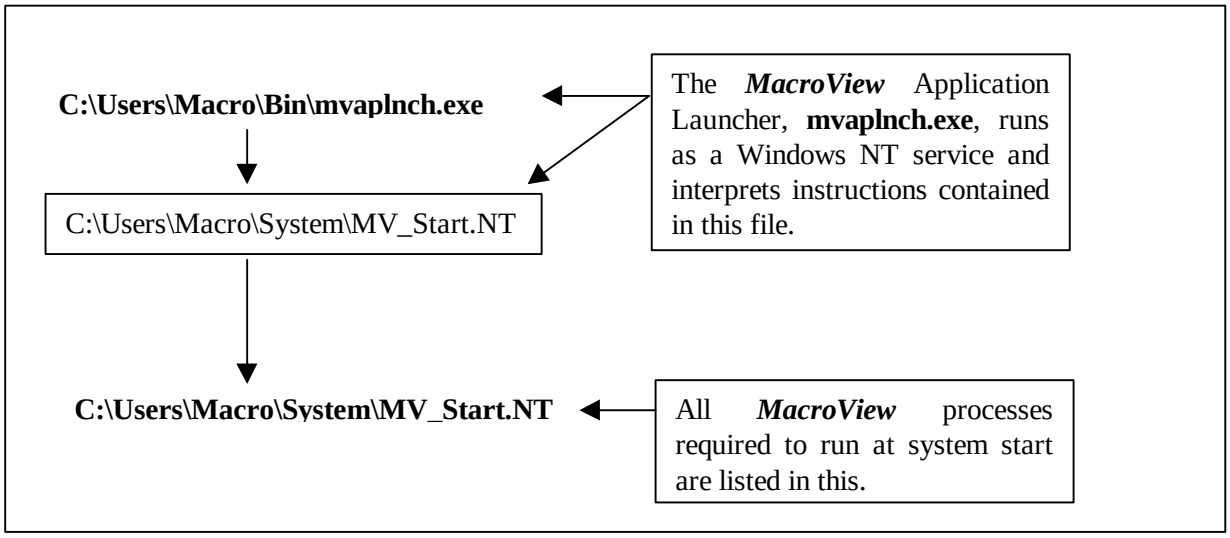


1.4 Starting *MacroView* Processes

Windows NT System

In an NT system, background processes (known as daemons in a UNIX system) are run as Windows NT services. The ***MacroView*** Application Launcher, **mvaplnch.exe**, runs as a Windows NT service and is controlled through the Service Control Manager (SCM).

The file %HOME%\System\MV_Start.NT provides the processes to be started, and is interpreted by the ***MacroView*** Application Launcher. This file contains the instructions to start such processes as the History Manager, Alarms Manager and drivers etc. The diagram below explains the concept and more detailed information can be found in the Server Installation Manual for Windows NT, (document number **IM-NTS-310**).



Other Documentation of Interest

The table shows other documents you could refer to depending on your current requirements. All these documents are available from your distributor.

Table 2: Other Documentation

If You Want To Get -	Consult the Document	Documentation Number
A summary of specifications	General Specifications	G-GS
Detailed information on one of the ***MacroView*** options (e.g. Lotus Interface)	User Manual	U –XXXX where XXXX is the description code.
Detailed technical programmer level data on the system	Man Documents e.g. `getval(c)`	<name>(C) <name>(F) <name>(S)

Note: Further documents are listed in the Appendices.

Structure of the Manual

The sections in the documentation essentially follow the order in which you are likely to enter the configuration.

In other words, if you follow the order of this manual, you will be entering the configuration in the correct order i.e. first entities, then additional sources (if necessary) etc.

Each chapter is basically broken up into:

i. **A Table of Contents** for that chapter. If you are looking for information on Alarms (for example), first turn to the chapter on Alarms, then look at the Alarms Table of Contents which is the first part of that chapter.

ii. **An "All About"** section, which will help you understand the reasons for the configuration. For example, the "All About Entities" section describes what entities are, how the system uses them and how they are useful to you.

iii. An **"Understanding the Configurator"** section, which simply describes the tools you can call up from the configurator for that section.

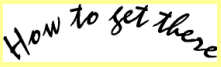
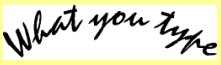
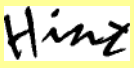
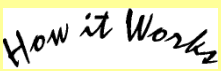
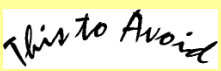
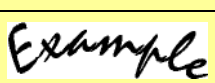
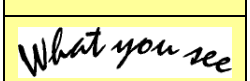
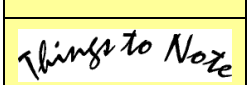
iv. A **"Configuring"** section, which describes the configuration proper - how to actually enter the data.

v. A **"Checking Out"** section, which suggests ways in which you can check out the configuration you have just entered.

Icons

Icons have been used to help you find your way around the document and to describe the requirements for the configuration of each of the databases. The diagram below summarises the icons that are used throughout this manual.

Summary of Commonly Used Notes and Icons

	The description next to the icon explains what keys you need to press to get to a particular display.
	This describes what information needs to be typed in at this point.
	This information comes from our engineers who are experienced using ***MacroView***. These hints will help you make the most of ***MacroView***.
	This gives you some background information on how ***MacroView*** uses the information.
	This describes possible problems and how to avoid them.
	Very often, examples are the best way to explain a concept
	What you see on the screen.
	Focus attention. Special points to be aware of

1.5 Overview of Configuration Tasks

To configure your system, essentially follow the sequence of the chapters in this manual. The table summarises the tasks involved in configuring a system.

Table 3: Configuration Tasks Overview

Chapter	Configuration Tasks	Comments
Entities	Add the entities (i.e. tags) to your system. You may want to check out the entities with the Detail displays and Operating Groups (See the Groups Chapter).	You may want to configure your own entity types (See the Types Chapter).
Sources	Add any additional data sources (drivers) to the system and set up their environments (i.e. which registers are to be transferred, how often, etc.)	Your system comes with one pre-installed source. You will need to come back to this chapter whenever you add a new source.
History	Set up the Historical structure to suit your environment and specify which entities are to be historized.	
Groups	Configure Operating groups and Trend groups.	
Alarms	Set up the Alarm structure and configure the individual alarms.	
Graphics	Create the free-form graphics using the CAD package.	You can also create any required group and detail faceplates.
Security	Set up the security system so that only authorised personnel can make changes to the process.	
Types	Add your own entity types - this is how you define the structure or grouping of attributes to a single type or block.	
Meta scripts	Add any high level functions for reports, logs, models, special graphics, control etc.	You will find the meta script language is an ideal tool for most process control applications.
Programs	Add any special purpose programs for interfaces to foreign computers etc.	There are more detailed documents on some of the packages - (e.g. Lotus, dBase, SPC, etc.).

1.6 Before You Start

Before you start configuring the system, you need to have:

i. An installed ***MacroView*** system complete with the Engineering Configurator.

ii. A login name (and password) to enable you to start up the configurator. This can be obtained from your system administrator.

iii. As a pre-requisite, you also need to have the following skills or knowledge:

- A good idea of the capabilities of the ***MacroView*** system.
- (You can get this from the General Specification document G-GEN3-01)
- A good knowledge of the process that you will be monitoring and controlling.
- A good knowledge of the DCS or PLC system you intend to use as the front end to the ***MacroView*** system.

It is **highly recommended** that you attend an Engineering Training Course offered by your distributor. These training courses are extremely practical by nature and not only include all the information in this manual but also specifically address side issues such as:

- Unix and the Unix platforms
- Networking
- dBase

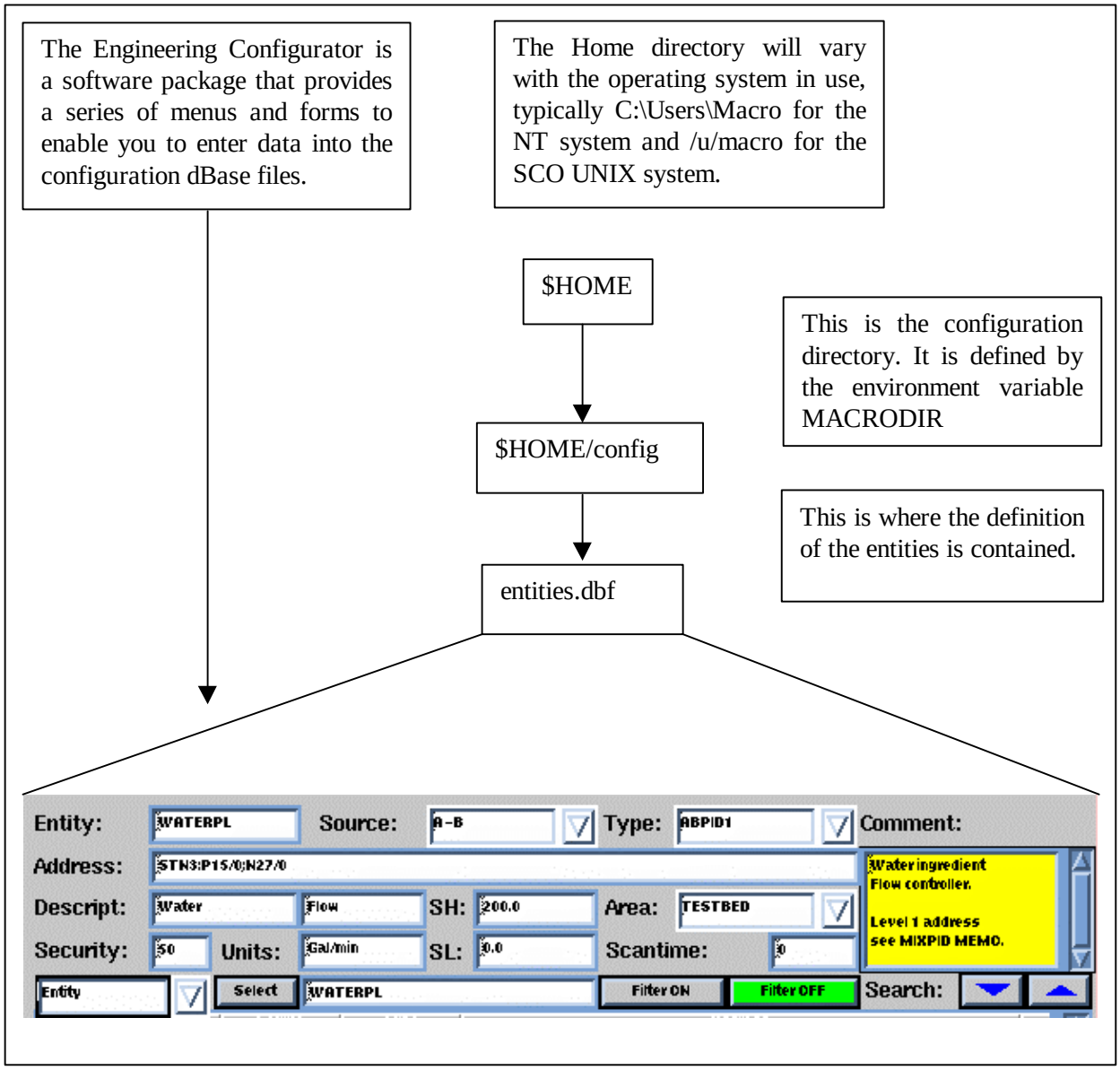
Training course summary information and timetables can be obtained through your local ***MacroView*** distributor.

1.7 Engineering Configurator

Virtually all configuration of the ***MacroView*** system is “fill-in-the-blanks” by nature.

- This data entry is done through the Engineering Configurator, which is essentially a set of menus and preformatted screens designed to assist you in setting up the ***MacroView*** database.
- The "database" itself is a series of dBase compatible files that are stored in your configuration directory.
- Each database file specifies a different aspect of the configuration.
- For example, the Alarms specification is held in a dBase file called: `almspec.dbf`
- The diagram below shows the relationship between the Engineering Configurator and these dBase files.

Engineering Configurator Relationship with dBase Files



Configuration Database Files

- The configuration database files (with the exception of Navigator *application* database files) are located in your configuration directory.
- Navigator application database files (such as Groups and Trend Groups) are located in the application directories. Please see the Navigator user manual for more details.
- The configuration directory has the default name `config` but you can rename it if desired.
- The system will always look for the configuration information in this directory.
- Because of its importance, the configuration directory (defined by the environment variable MACRODIR) is automatically set on start up. In UNIX systems it is set in the

`~/system/start` program and when you log in (by the `.login` file). In NT systems it is specified as a system-wide variable when installing the macro user and will be set when the ***MacroView*** services start-up. You can change the MACRODIR environment variable from within the Configurator.

- Each of the databases is discussed in more detail in the relevant sections.

The table below summarises the functions of each of the configuration database files:

Table 4: *MacroView* Configuration Databases

Database file	Each record contains	Chapter or Document
almspec.dbf	An alarm condition.	Alarms
areas.dbf	An area of the process.	Security
consoles.dbf	The access code and alarm managing facilities of a console.	Security
entities.dbf	An entity and its data dictionary information.	Entities
exproc.dbf	A calculation to be performed	Programs
gateway.dbf	A gateway and its characteristics.	Sources
group.dbf	The entities in an operating group.	Groups
help.dbf	A graphic file name for a page of the help screens.	Graphics
hlist.dbf	An attribute and entity to be historized.	History
hspec.dbf	A historical file system. E.g. Hourly averages files.	History
overview.dbf	The graphic file name for a page of the overview screens.	Graphics
plc.dbf	A mnemonic to be associated with a PLC system.	Sources
plcaddr.dbf	A block of registers to be read into the system.	Sources
plcreg.dbf	A block of gateway registers to be read into the system.	Sources
plcstn.dbf	A mnemonic to be associated with a gateway PLC system.	Sources
schemat.dbf	A graphic file name for a page of the schematic screens.	Graphics
sources.dbf	A data source and its characteristics.	Sources
trndgrp.dbf	The attributes and entities to be trended in a group.	Groups
typeattr.dbf	An attribute associated with a type.	Types
types.dbf	An entity type name.	Types
users.dbf	A user and the associated access code.	Security

Starting the Configurator

The method of how you start the Engineering Configurator will depend on which type of system you are using and how your system administrator has set up your system. The table below summarises the steps you must take to start up the Configurator.

Table 5: Starting the Configurator

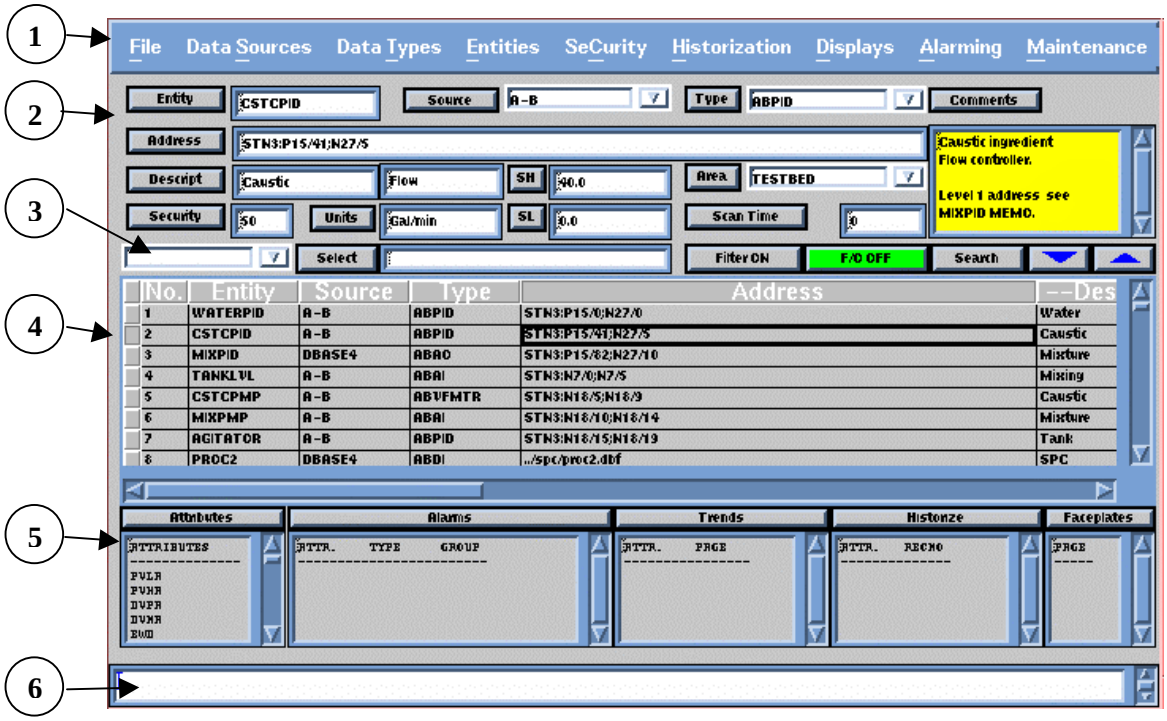
System	Method
UNIX	Login to the ***MacroView*** system as **macro** and, from within a graphics environment, type in the command **eng3**
NT	Login to the system as the macro user and either double click on the Configurator icon or, from a dos prompt, type in the following : "D:\Program Files***MacroView***\Client\Bin\winops.exe" -application Configurator –host TRNG4 -file ..\Eng\EngDir\Dgt\v3eng.dgt Ensuring that the correct drive letter and host name is used.
Xterminal emulator	Double click on the Configurator icon which your system administrator has set up for you.

In all cases, the engineering configuration screen shown below will appear and you can start configuring your system.

1.8 The Configurator Screen Format

The diagram shows the layout of a typical Configurator screen.

Typical Screen Layout



Screen Layout Components

1. **Menu:** The menu can be used to get to every configuration screen in the system. There are also additional options such as getting to Help displays etc.
2. b The detail area shows the various items of the selected record in the database. This is the area where you may edit the various items. This area can also be used to control the order of the Browse widget. By clicking on the Labels, the Browse widget will be re-sorted with the selected label as the sort criteria.
3. **Filter and Search Area:** The Browse widget can be filtered to show only those records that satisfy a certain condition. Alternatively, you may search through the database for records satisfying that condition.
4. **Browse Area:** This shows a window of multiple database records. You may scroll through the records and examine details about a selected record simply by clicking on the record of interest. You may also use the Browse widget to branch to other configuration screens. Simply double click on the column of interest.
5. **Additional Information windows:** These windows show information that is related to the selected record but that is in other databases. You may also click on the label areas of these windows to get to the other configuration screens.
6. **Message Area:** Suggestion, help and error messages are sent to this area to assist you in your configuration

1.9 Moving Around the Configurator

There are two ways to get to a particular configuration screen.

i. By selecting the relevant menu option and

ii. By clicking on one of the pop-up points within the Configurator screen.

Using the Menu System

The menu structure is arranged so that you can easily select the database to be configured. The table below summarises the main menu options.

Table 6: Main Configurator Options

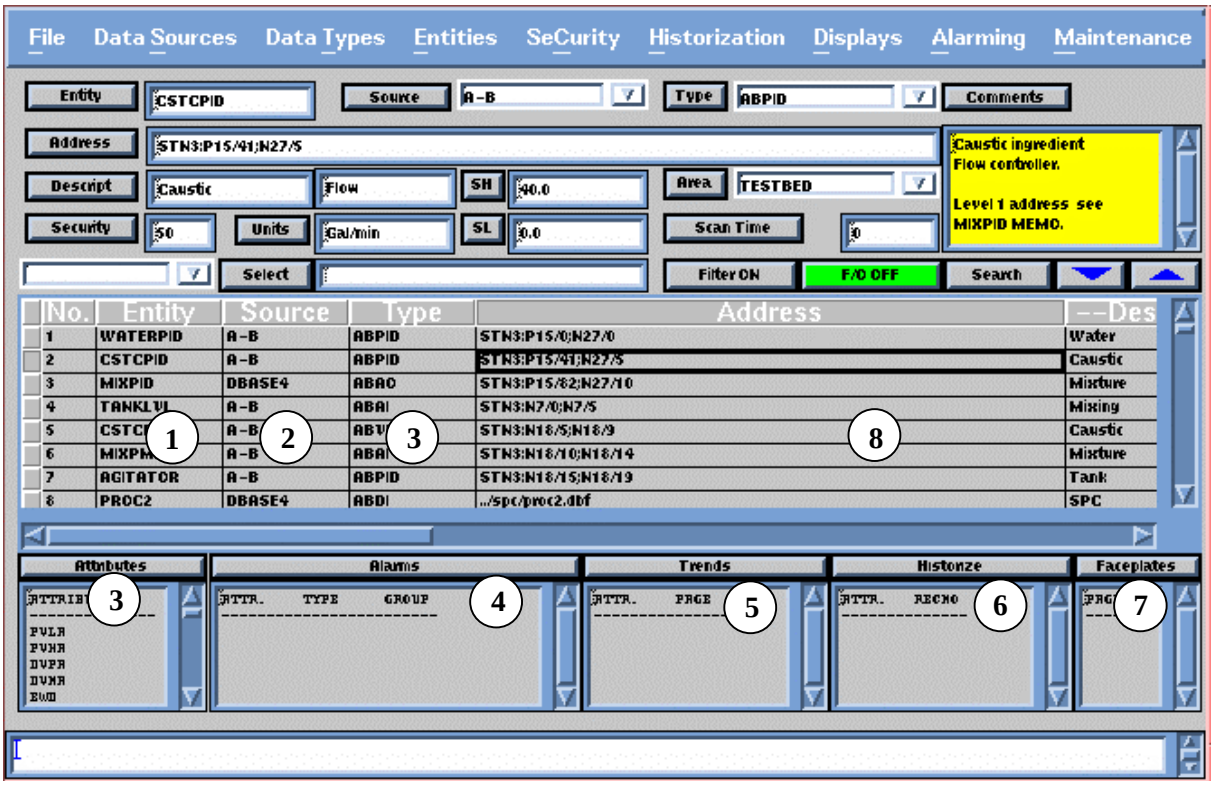
Option	Description
File	Used to set various preferences (such as the MACRODIR) and also to get help and exit the Configurator.
Data Sources	Used to configure the various sources of information for the Data Dictionary. These are typically DCS sources, PLC sources, dBase sources etc. Additionally, you can configure the Gateway or Front End processors in this menu item.
Data Types	This menu option is used to set up the types or data structures that enable individual points to be grouped together. For example, you could add a PID type and define all the attributes such as PV, SV, etc. with this menu option.
Entities	Configure the basic tags or entities in the system. These points are used as the fundamental means of identifying the live data. There are special features for cloning existing entities so as to speed up the configuration process.
Historization	This menu option is concerned with the two main components of Historization. (i) Defining the historical storage structure and (ii) Defining which entity.attributes are to be historized.
Displays	Here the graphic displays are allocated page numbers so as to simplify the process of moving through large numbers of graphics. Additionally, you can specify the tags in operating and trend groups with this option.
Alarming	This menu option is selected when you set up the alarms in the system.

Using the Branching Points in the Configurator

There are various points within each configuration screen that will allow you to branch to screens that hold related information. For example, by double clicking on the type column in the entities database, a pop-up describing the structure of the type will appear.

As an example, the diagram below shows the branching points on the entities screen.

Branching Point Example



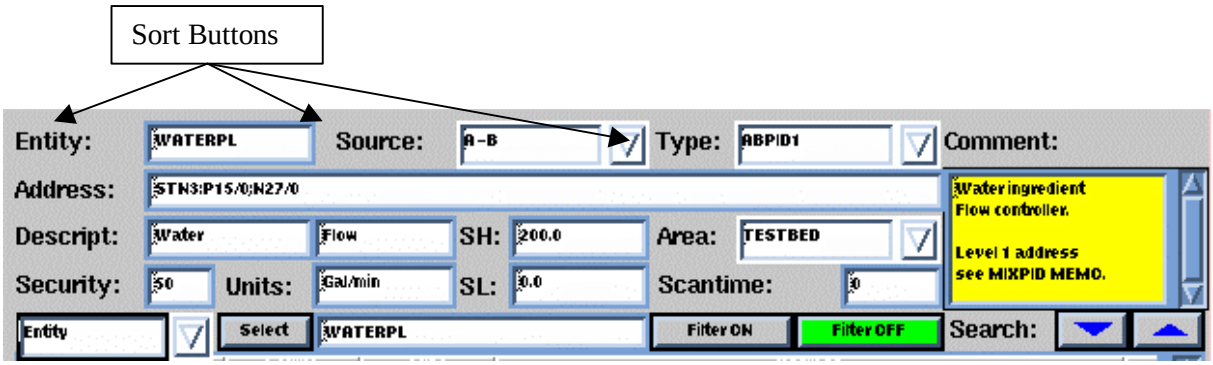
Branch Point Action

1. Clicking in this area selects the entity and displays it in the detail Area.
2. Sources Configuration.
3. Attribute Configuration. Branch from either the Types or the Attributes.
4. Alarm Configuration.
5. Trend Group Configuration.
6. Historical Configuration
7. Operating Group Configuration
8. PLC Register Detail Configuration

Using the "Sort By" Areas in the Configurator

There are various points within each configuration screen that will allow you to re-arrange the order of the Browse widgets. As an example, the diagram below shows the "Sort By" points on the entities screen.

"Sorting by" functions



"Sort By" Points

Clicking in these areas causes the browse widget to re-sort itself according to the item you click on.

For example, clicking on the **Entity** word, will cause the browse widget to re-order so that the **entities** are alphabetically arranged.

Quitting the Configurator

To quit from the Configurator, just select the File menu option and click on the Exit option.

Summary of Controls

The table below shows how you achieve the various Engineering Configurator tasks.

Table 7: Summary of Controls

If You Want To…	You do the Following
Start the Engineering Configurator.	Refer to the table in "Starting the Configurator". Typically, you type eng3 at the UNIX prompt.
Select a configuration screen from the menu	Just pull the menu option down and if necessary, pull right until your cursor is over the desired option and release the mouse button. Alternatively, you may use the keyboard and click on the relevant "fast key". E.g. to exit the Configurator, Press Alt F to select the file menu and, Press E to exit the Configurator.
Select a configuration screen from within a configuration screen	Click on the relevant branching point. The branching point may be in a particular column of a browse widget or it may be the label of a Browse widget.
Quit the Configurator.	Select the File menu option and click on the Exit option. Confirm you want to exit the Configurator by clicking on the Yes button.

The "How You Get Here" Descriptions

In the detailed configuration sections of this chapter, you will see an icon of a compass. This is called the "How You Get Here" icon and it is placed next to the instructions on how you get to a particular screen. The diagram below shows how this is used:

An Example of the "How You Get Here" Icon