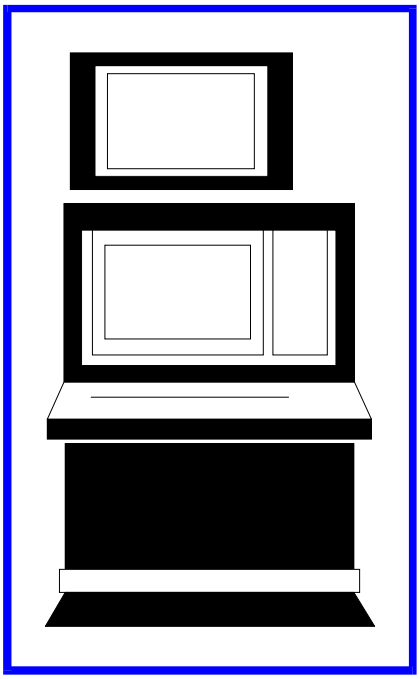
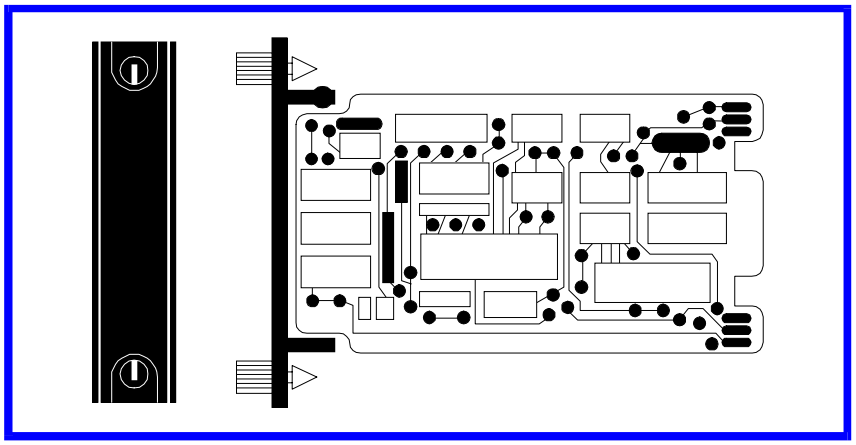
Bailey® infi 90®

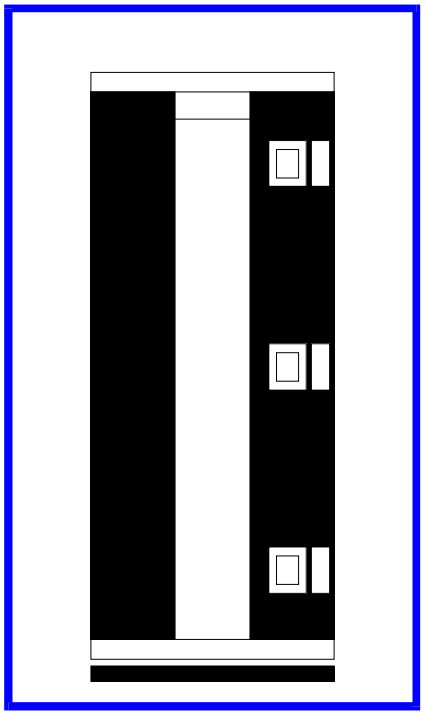
WLDG01

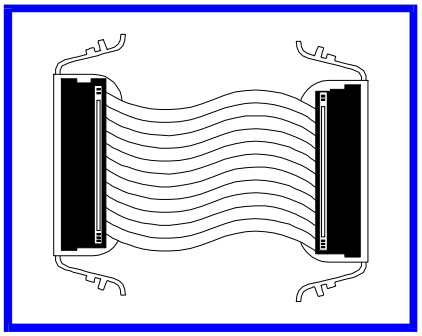
Instruction

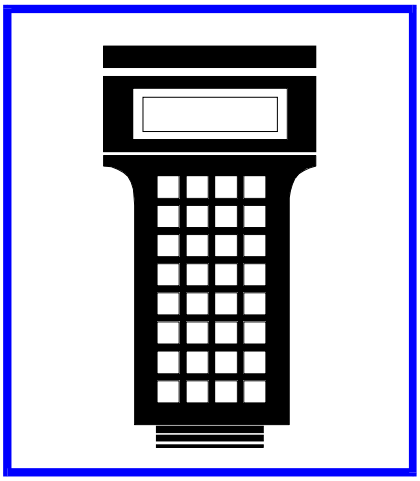
Console Configuration Tools
(Release 2.0)

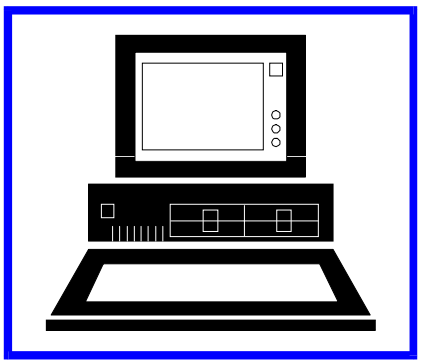












Bailey Process Control and Automation Solutions from Elsag Bailey Group

WARNING notices as used in this instruction apply to hazards or unsafe practices that could result in personal injury or death.

CAUTION notices apply to hazards or unsafe practices that could result in property damage.

NOTES highlight procedures and contain information that assists the operator in understanding the information contained in this instruction.

WARNING

INSTRUCTION MANUALS

DO NOT INSTALL, MAINTAIN, OR OPERATE THIS EQUIPMENT WITHOUT READING, UNDERSTANDING, AND FOLLOWING THE PROPER **Elsag Bailey** INSTRUCTIONS AND MANUALS; OTHERWISE, INJURY OR DAMAGE MAY RESULT.

RADIO FREQUENCY INTERFERENCE

MOST ELECTRONIC EQUIPMENT IS INFLUENCED BY RADIO FREQUENCY INTERFERENCE (RFI). CAUTION SHOULD BE EXERCISED WITH REGARD TO THE USE OF PORTABLE COMMUNICATIONS EQUIPMENT IN THE AREA AROUND SUCH EQUIPMENT. PRUDENT PRACTICE DICTATES THAT SIGNS SHOULD BE POSTED IN THE VICINITY OF THE EQUIPMENT CAUTIONING AGAINST THE USE OF PORTABLE COMMUNICATIONS EQUIPMENT.

POSSIBLE PROCESS UPSETS

MAINTENANCE MUST BE PERFORMED ONLY BY QUALIFIED PERSONNEL AND ONLY AFTER SECURING EQUIPMENT CONTROLLED BY THIS PRODUCT. ADJUSTING OR REMOVING THIS PRODUCT WHILE IT IS IN THE SYSTEM MAY UPSET THE PROCESS BEING CONTROLLED. SOME PROCESS UPSETS MAY CAUSE INJURY OR DAMAGE.

NOTICE

The information contained in this document is subject to change without notice.

Elsag Bailey, its affiliates, employees, and agents, and the authors and contributors to this publication specifically disclaim all liabilities and warranties, express and implied (including warranties of merchantability and fitness for a particular purpose), for the accuracy, currency, completeness, and/or reliability of the information contained herein and/or for the fitness for any particular use and/or for the performance of any material and/or equipment selected in whole or part with the user of/or in reliance upon information contained herein. Selection of materials and/or equipment is at the sole risk of the user of this publication.

This document contains proprietary information of Elsag Bailey, Elsag Bailey Process Automation, and is issued in strict confidence. Its use, or reproduction for use, for the reverse engineering, development or manufacture of hardware or software described herein is prohibited. No part of this document may be photocopied or reproduced without the prior written consent of Elsag Bailey.

Preface

This instruction describes the utilities provided with the WLDG01 2.0 release Console Configuration Tools. These tools provide the user with the ability to configure:

- Tag, trend, and report point lists.
- Displays and symbols.
- Logs.
- Keyboards.

The console tools user is required to have a thorough familiarity with personal computer operation and formal training in configuring control strategies. This product release maintains the functionality of the WLDG01 1.1 release Console Configuration Tools and provides the following enhancements:

- Certified to run under Microsoft® Windows NT® as well as Windows® 3.1 and Windows 95.

- New console support.

- CLIF tag and display element configuration support.

- Custom trend, push button, and other new console display element support.

- New software license management.

NOTE: The terms IMMFP05 controller and BRC Harmony Bridge Controller refer to the same product. The term IMMFP05 is used in this instruction. References to the IMMFP05 controller also apply to the BRC Harmony Bridge Controller.

List of Effective Pages

Total number of pages in this instruction is 306, consisting of the following:

Page No.	Change Date
Preface	Original
List of Effective Pages	Original
iii through xiv	Original
1-1 through 1-8	Original
2-1 through 2-11	Original
3-1 through 3-24	Original
4-1 through 4-11	Original
5-1 through 5-58	Original
6-1 through 6-85	Original
7-1 through 7-16	Original
8-1 through 8-9	Original
9-1 through 9-3	Original
10-1 through 10-12	Original
11-1 through 11-20	Original
12-1 through 12-18	Original
A-1 through A-2	Original
B-1 through B-4	Original
C-1 through C-5	Original
D-1 through D-2	Original
Index-1 through Index-4	Original

When an update is received, insert the latest changed pages and dispose of the superseded pages.

NOTE: On an update page, the changed text or table is indicated by a vertical bar in the outer margin of the page adjacent to the changed area. A changed figure is indicated by a vertical bar in the outer margin next to the figure caption. The date the update was prepared will appear beside the page number.

Table of Contents

Page

SECTION 1 - INTRODUCTION 1-1
- OVERVIEW 1-1
- INTENDED USER 1-1
- FEATURES 1-2
- TOOLS 1-3
- INSTRUCTION CONTENT 1-4
- HOW TO USE THIS INSTRUCTION 1-5
- DOCUMENT CONVENTIONS 1-5
- GLOSSARY OF TERMS AND ABBREVIATIONS 1-5
- REFERENCE DOCUMENTS 1-6
- SUPPORTED PRODUCTS 1-7
- COMPATIBILITY 1-8

SECTION 2 - INSTALLATION 2-1
- INTRODUCTION 2-1
- HARDWARE REQUIREMENTS 2-1
- SOFTWARE REQUIREMENTS 2-2
- SOFTWARE INSTALLATION 2-2
- SOFTWARE RELEASE INFORMATION 2-4
- SOFTWARE REGISTRATION 2-5
  - SentinelSuperPro Parallel Port Key Installation 2-6
  - Parallel Port Driver Installation 2-6
  - Installing the Software License 2-7
  - Software Product Operation 2-8
- SOFTWARE LICENSING MANAGEMENT 2-9

SECTION 3 - USING THE CONSOLE TOOLS 3-1
- INTRODUCTION 3-1
- CONFIGURING A CONSOLE 3-1
- APPLICATION LAUNCHER 3-2
- CONSOLE TOOLS EXECUTIVE 3-2
  - Starting the Console Tools Executive 3-3
  - Opening a Project 3-4
  - Parts of the Console Tools Executive Screen 3-5
  - Using the Project Tree 3-6
  - Project Tree Structure 3-7
  - Console Tools Executive Menus 3-9
    - File Menu 3-10
    - Project Menu 3-10
    - Utilities Menu 3-10
    - Help Menu 3-11
    - Loop Menu 3-11
    - Console Menu 3-11
    - Display Menu 3-12
    - Symbol Menu 3-12
    - Log Menu 3-13
    - Keyboard Menu 3-13
    - DT Menu 3-14
    - Global Menu 3-14
- ON-LINE HELP 3-15
- TAG LINKING AND PROJECT CONFIGURATION 3-15
- CONSOLE CONFIGURATION OVERVIEW 3-18

Table of Contents (continued)

Page

SECTION 3 - USING THE CONSOLE TOOLS *(continued)*

SUPPLEMENTAL CONFIGURATION UTILITIES 3-22
Supplemental Utilities 3-22
Supplemental DOS Utilities 3-22
WINDOWS CONVENTIONS 3-23
GENERAL EDIT SYSTEM CONVENTIONS 3-24

SECTION 4 - MANAGING PROJECTS 4-1

INTRODUCTION 4-1
PROJECT DIRECTORY STRUCTURE 4-1
PROJECT OPERATIONS 4-1
Defining 4-2
Opening 4-3
Closing 4-4
Upgrading the Project TDT Database 4-4
EDITING PROJECT INFORMATION 4-5
DEFINING THE PROJECT STRUCTURE 4-5
Adding Loops 4-5
Adding Consoles 4-6
Adding a Display Group 4-7
Adding a Symbol Group 4-7
Adding a Keyboard Group 4-8
Adding a Log Group 4-9
Adding a Global Console Group 4-9
DELETING LOOPS, CONSOLES, AND GROUPS 4-9
DELETING FILES 4-10
COPYING DISPLAYS AND SYMBOLS 4-10
EDITING CONSOLE INFORMATION 4-11

SECTION 5 - TAG DATABASE CONFIGURATION 5-1

INTRODUCTION 5-1
TAG DATA TABLES OVERVIEW 5-1
USING THE BROWSERS 5-6
Starting a Browser 5-6
Browser Application Window 5-8
Menu Items 5-10
On-Line Help 5-11
Opening a List 5-11
Creating a New List 5-11
Working in the Document Window 5-12
Partitioning the Browse Window 5-12
Table View and List View 5-13
Changing Fonts 5-14
Sizing a Field 5-14
Moving a Field 5-14
Printing 5-14
Saving 5-15
Merging Data 5-15
Viewing Records 5-16
Viewing Fields 5-17
Using a Template 5-17
Creating and Editing Templates 5-20

Table of Contents (continued)

Page

SECTION 5 - TAG DATABASE CONFIGURATION *(continued)*

Editing Records 5-22
Marking Records 5-22
Marking Records for Deletion 5-23
Unmarking Records for Deletion 5-24
Replacing Records 5-25
Adding a New Record 5-26
Locating a Record 5-26
Sorting Records 5-27
Copying Tags 5-27
Editing Fields 5-28
Data Validation 5-28
Moving to a Field 5-28
Moving within a Field 5-29
Selecting a Field 5-29
Locating a Field 5-29
Cutting, Copying, and Pasting 5-30
Clearing 5-31
Changing Contents 5-31
Generating Reports 5-31
TAG LIST CONFIGURATION 5-32
TREND LIST CONFIGURATION 5-48
ENGINEERING UNIT DESCRIPTOR CONFIGURATION 5-51
LOGIC STATE DESCRIPTOR CONFIGURATION 5-53
ALARM COMMENT CONFIGURATION 5-54
REPORT POINT CONFIGURATION 5-56

SECTION 6 - DISPLAY CONFIGURATION 6-1

INTRODUCTION 6-1
GDC APPLICATION FEATURES 6-2
DISPLAY DEVELOPMENT OVERVIEW 6-2
General Procedure 6-3
General Notes 6-3
Display Development Guidelines 6-4
Document Types 6-5
Displays and Tag Linking 6-5
Configuring Displays with Tag Linking 6-6
Adding Tags to the Console List from the GDC 6-7
Synchronizing Tag Data and Displays 6-7
Project Tag Data Tables Unavailable 6-8
STARTING THE GDC APPLICATION 6-8
CLOSING THE GDC APPLICATION 6-9
GDC APPLICATION WINDOW 6-10
Parts of the GDC Application Window 6-10
Menu Items 6-11
On-Line Help 6-12
DOCUMENT OPERATIONS 6-12
Opening a Document 6-13
Saving a Document 6-14
Printing a Document 6-15
Closing a Document 6-16
Changing the Document Type 6-16
Adding Tags from a Display to the Console Tag List 6-16

Table of Contents (continued)

Page

SECTION 6 - DISPLAY CONFIGURATION (continued)

Listing Symbol Usage ... 6-17
DOCUMENT WINDOWS ... 6-17
Working with Multiple Document Windows ... 6-18
Sizing, Moving, and Arranging Document Windows ... 6-18
WORKING IN THE DOCUMENT WORK SPACE ... 6-19
Choosing Commands ... 6-20
Using the Tool Bar ... 6-21
Magnifying, Panning, and Refreshing the View ... 6-22
Magnifying ... 6-22
Panning ... 6-22
Refreshing the View ... 6-23
Using the Cursor ... 6-23
Using the Grid ... 6-23
Measuring Distance ... 6-25
Environment ... 6-25
Entity Default Attributes ... 6-26
DISPLAY COMPONENTS ... 6-27
PLACING AND DRAWING ENTITIES ... 6-28
ALARM SUMMARY ... 6-29
ARC ... 6-30
CIRCLE ... 6-31
CLIP RECTANGLE ... 6-31
CONSOLE DISPLAY ATTRIBUTES ... 6-31
CUSTOM TREND ... 6-32
DEFAULT SYMBOLS ... 6-34
ESCAPE ... 6-34
FACEPLATE ... 6-36
INTERACTIVES ... 6-37
@aGlance/IT User Task Activation ... 6-38
Control Select ... 6-40
Control Window ... 6-43
Display Select ... 6-44
Faceplate Select ... 6-45
Multiwindow Display ... 6-46
Push Button ... 6-47
Soft Key - Block Details ... 6-49
Soft Key - Log by Name ... 6-50
Soft Key - Module Problem Report ... 6-50
Soft Key - Tuning ... 6-51
UTI User Task Activation ... 6-52
XY Plot Select ... 6-53
LINE ... 6-54
POLYGON ... 6-54
RECTANGLE ... 6-55
SYMBOLS ... 6-55
TEXT ... 6-56
TREND ... 6-56
XY PLOT ... 6-58
LOCATING AND SELECTING ENTITIES ... 6-60
Locating Entities ... 6-60
Selecting Entities ... 6-60
EDITING ENTITIES ... 6-61
Changing Tag Name or Tag Index ... 6-62

Table of Contents (continued)

Page

SECTION 6 - DISPLAY CONFIGURATION (continued)
Cutting, Copying, and Pasting Entities 6-62
Deleting Entities 6-63
Exploding Symbols 6-63
Manipulating Grouped Entities 6-63
Modifying Attributes 6-64
Moving Entities 6-64
Ordering Entities 6-65
Rotating Entities 6-65
Scaling Entities 6-66
Stretching Entities 6-66
Undeleting 6-67
USING SYMBOLS 6-67
Symbol Types 6-67
Search Paths for Symbols 6-68
Symbol Color Characteristics 6-69
Symbol Display Characteristics 6-69
Listing Symbols Used in a Display 6-70
CONFIGURING SYMBOLS 6-70
Creating Symbols 6-71
Deleting Symbols 6-71
Symbol Color Requirements 6-71
Custom Trend Template Symbol 6-72
Faceplate Symbols 6-77
XY Plot Data Symbols 6-77
Default Symbols 6-79
Purpose of Default Symbols 6-79
Creating a Default Symbol 6-80
Translating a Default Symbol 6-80
Default Symbols Constraints 6-81
Handling a Mismatch in Escape Interactives 6-82
CONFIGURING REMOTE MOTOR CONTROL BLOCKS 6-83
Text Display Elements 6-83
Dynamic Symbol Display Element 6-83
RMCB Faceplate 6-83
CONFIGURING STATUS DISPLAYS 6-84
N90STAT1 Display 6-84
NODSTANN Display 6-84

SECTION 7 - LOG CONFIGURATION 7-1
INTRODUCTION 7-1
LOG CONFIGURATION START-UP 7-1
CREATING A NEW LOG 7-3
EDITING AN EXISTING LOG 7-4
Editing the Log Configuration Header 7-4
Repeat Collection Cycle 7-7
Analog Collection Trigger Conditions 7-9
Analog Print Trigger Conditions 7-9
Editing Cells 7-9
ASCII Text 7-11
Trend Value 7-12
Configuration Data 7-13
Tag Value 7-13

Table of Contents (continued)

Page

SECTION 7 - LOG CONFIGURATION *(continued)*

Alarm/Quality 7-13
Formula 7-14
OIS Time and Date 7-14
Offset Time 7-15
Constant Value 7-15
Compressing ASCII Space 7-16
SAVING A LOG 7-16

SECTION 8 - KEYBOARD CONFIGURATION 8-1

INTRODUCTION 8-1
ANNUNCIATOR DISPLAY PANEL KEYS 8-1
FUNCTION KEYS 8-3
ALARM TONES 8-5
ALARM RELAYS 8-7

SECTION 9 - TRANSLATE CONFIGURATIONS 9-1

INTRODUCTION 9-1
TRANSLATING DISPLAYS AND SYMBOLS 9-1
Translating Selected Console Displays and Symbols 9-1
Translating Selected Global Displays and Symbols 9-1
Translating All Console and Global Displays and Symbols 9-2
Translating Standard Symbols 9-3

SECTION 10 - TRANSFER CONFIGURATIONS 10-1

INTRODUCTION 10-1
GENERAL INFORMATION 10-1
40 SERIES, OAS, IIOIS12, AND PCV 5.0 AND 5.1 TAG LISTS 10-2
MCS, MCS PLUS, IIOIS20, AND IIOIS25 TAG LISTS 10-3
PCV 4.3 TAG LISTS 10-4
40 SERIES, OAS, IIOIS12, AND PCV 5.0 AND 5.1 TREND LISTS 10-4
MCS, MCS PLUS, IIOIS20, AND IIOIS25 TREND LISTS 10-5
PCV 4.3 TREND LISTS 10-5
REPORT POINT LISTS 10-6
DISPLAYS AND SYMBOLS 10-6
LOGS 10-7
KEYBOARD CONFIGURATIONS 10-8
RETRIEVING TAG, TREND, AND REPORT POINT CONFIGURATIONS 10-8
RETRIEVING KEYBOARD CONFIGURATIONS 10-9
MCS FLOPPY DISK UTILITIES 10-10
BROADCASTING TAG LISTS 10-10
BROADCASTING DISPLAYS AND SYMBOLS 10-10

SECTION 11 - SUPPLEMENTAL CONFIGURATION UTILITIES 11-1

INTRODUCTION 11-1
TAG SYNCHRONIZATION 11-1
TAG UTILITIES 11-3
Tag Utilities Menus 11-3
Converting File Formats 11-3
MCS UNTREND 11-3
TTG/TTR/TRP to DBF 11-4

Table of Contents (continued)

Page

SECTION 11 - SUPPLEMENTAL CONFIGURATION UTILITIES (continued)
- Importing Lists ... 11-4
  - Importing a Tag List ... 11-5
  - Importing a Trend List ... 11-6
  - Importing a Report Point List ... 11-8
- Exporting Lists ... 11-9
  - Exporting a Tag List ... 11-9
  - Exporting a Trend List ... 11-10
  - Exporting a Report Point List ... 11-11
- Copying Lists ... 11-11
- Packing Lists ... 11-12
- Reassigning Tag and Trend Indices ... 11-12
- Editing the User Field Structure ... 11-13

PRINTING GDC DISPLAYS ... 11-14
- Defining a Printer Configuration File ... 11-14
- Printing Displays ... 11-16

VIEWING LOG FILES ... 11-16
CONFIGURING THE GES USER INTERFACE ... 11-17
- Changing Colors ... 11-17
- Foreground Highlight and Sound Toggle ... 11-18

CONFIGURING WINTOOLS COMMUNICATIONS ... 11-18

SECTION 12 - DOS UTILITIES ... 12-1
INTRODUCTION ... 12-1
DISPLAY UTILITIES ... 12-1
- Color Change Features ... 12-3
- Cross Reference Features ... 12-5
  - List of Displays in which a Tag Appears ... 12-5
  - List of Tags in a Display File ... 12-6
  - List of Trends in a Display File ... 12-7
- Index Number Change Features ... 12-8
  - Change Tag Index Number ... 12-8
  - Change Trend Index Number ... 12-8
- Convert Interactive Control Statements to Pop-Up Style Control ... 12-9
- Text Substitution ... 12-10
- Add Primary Display Name to Tag List ... 12-10
- Add ADP Address to Tag List ... 12-11
- Enable/Disable Display Control ... 12-11

AUTOMATIC DISPLAY AND POP-UP ... 12-11
- Configuring Automatic Display and Pop-Up ... 12-12
- Transferring ADAP Configurations ... 12-15

PCV 4.3 TAG BUILDER ... 12-15
TRANSFER ... 12-17

APPENDIX A - FILE NAME EXTENSIONS ... A-1
EXTENSIONS ... A-1

APPENDIX B - STANDARD SYMBOLS ... B-1
SYMBOLS ... B-1

Table of Contents (continued)

Page

APPENDIX C - GENERAL EDIT SYSTEM C-1
INTRODUCTION C-1
STANDARD COLORS C-1
DEFAULT COLORS C-1
DATA STATES C-2
INPUTTING DATA C-2
STANDARD FUNCTIONS C-3
KEY FUNCTIONS C-3

APPENDIX D - FEATURE SUPPORT D-1
INTRODUCTION D-1

List of Figures

No.	Title	Page
1-1.	Console Tools	1-2
2-1.	Example License Installation Screen	2-7
3-1.	Configuration Process Overview	3-1
3-2.	Application Launcher	3-2
3-3.	Bailey WinTools Group	3-3
3-4.	Console Tools Executive	3-5
3-5.	Tag Data	3-16
3-6.	Configuration Flow	3-19
4-1.	Project Directory Structure	4-2
5-1.	Tag Data Tables Structure	5-3
5-2.	Browser Open Dialog Box	5-7
5-3.	Browser Application Window	5-9
5-4.	Filter Dialog Box	5-16
5-5.	Template Dialog Box	5-18
6-1.	GDC Application Window	6-10
6-2.	Tool Bar	6-21
6-3.	Faceplate Template	6-37
6-4.	Default Symbol Example	6-80
7-1.	Log Configuration Opening Screen	7-2
7-2.	Log Configuration Main Menu	7-2
7-3.	Log Configuration Header Screen	7-3
7-4.	Edit Cell Screen	7-10
8-1.	OIS ADP Key Configuration Utility	8-2
8-2.	OIS Function Key Configuration Utility	8-4
8-3.	Tones Configuration Screen	8-6
8-4.	Relays Configuration Screen	8-8
11-1.	Printer Configuration Screen	11-15
11-2.	Off-Line Package Color Option Configuration	11-17
12-1.	Display Utilities Main Menu	12-2
12-2.	Tag Cross-Reference (List of Displays)	12-5
12-3.	Tag Cross-Reference (List of Tag Numbers)	12-6
12-4.	Trend Cross-Reference (List of Trend Numbers)	12-7
12-5.	ADAP Configuration Screen	12-13

List of Figures (continued)

No.	Title	Page
12-6.	ADAP Configuration Screen (1 of 7)	12-13
12-7.	ADAP Configuration Screen (2 through 7)	12-14
B-1.	Standard Tank, Pump and Valve Symbols	B-1
B-2.	Standard Symbols (Page 1)	B-2
B-3.	Standard Symbols (Page 2)	B-2
B-4.	Faceplate Symbol Names (Page 1)	B-3
B-5.	Faceplate Symbol Names (Page 2)	B-3

List of Tables

No.	Title	Page
1-1.	Glossary of Terms and Abbreviations	1-6
1-2.	Reference Documents	1-6
1-3.	Supported Products	1-7
3-1.	Windows Actions	3-23
3-2.	Windows Dialog Box Buttons	3-23
3-3.	General Edit System Functions	3-24
4-1.	Console Information Dialog Box	4-6
5-1.	Browser List Display and Edit Options	5-7
5-2.	Select Types Dialog Box	5-16
5-3.	Template Dialog Box Elements	5-18
5-4.	Template Editor Dialog Box	5-20
5-5.	Mark Dialog Box	5-22
5-6.	Replace Dialog Box	5-25
5-7.	Find Dialog Box Options	5-29
5-8.	Tag Types	5-36
5-9.	Required Fields	5-38
5-10.	Tag Browser Fields	5-39
5-11.	Choices for ALARMTYPE Field	5-46
5-12.	Choices for ALMINHST Field	5-46
5-13.	N90STA Tag MODTYPE Field Choices	5-46
5-14.	Choices for DEV_TYPE, DEV_NUM, and DEVSUBTYPE Fields	5-48
5-15.	Trend List Field Descriptions	5-50
5-16.	Report Point Field Descriptions	5-57
6-1.	Default Entity Attributes	6-27
6-2.	Invalid Entities	6-28
6-3.	Alarm Summary Attributes	6-29
6-4.	Valid Standard Format Combinations	6-30
6-5.	OIS Display Attribute Fields	6-32
6-6.	Custom Trend General Page	6-33
6-7.	Interactive Key and Touch Select Fields	6-38
6-8.	@aGlance/IT Interactive Fields	6-39
6-9.	Control Select Interactive Fields	6-40
6-10.	Control Select Push Button Fields	6-42
6-11.	Control Window Interactive Fields	6-44
6-12.	Faceplate Interactive Fields	6-45
6-13.	Multiwindow Display Interactive Fields	6-47

List of Tables (continued)

No.	Title	Page
6-14.	Push Button Interactive Fields	6-47
6-15.	Soft Key - Block Details Fields	6-49
6-16.	Soft Key - Log by Name Fields	6-50
6-17.	Soft Key - Module Problem Report Fields	6-51
6-18.	Soft Key - Tuning Fields	6-52
6-19.	UTI Interactive Fields	6-52
6-20.	Trend Attributes	6-57
6-21.	XY Plot Configuration	6-59
6-22.	Custom Trend General Page	6-73
6-23.	Custom Trend Trace Page	6-74
6-24.	Trend Symbols	6-75
6-25.	Trace Direction Options	6-75
6-26.	Time Options	6-76
6-27.	Pan/Zoom Options	6-76
6-28.	Other Options	6-76
7-1.	Log Definition Fields	7-5
7-2.	Printer Escape Sequences	7-11
7-3.	Color Escape Sequences	7-12
7-4.	Trend Value Cell Fields	7-12
7-5.	Time and Date Formats	7-14
7-6.	Offset Time Formats	7-15
8-1.	ADP Key Fields	8-2
8-2.	Function Key Fields	8-4
8-3.	Tones Configuration Fields	8-6
8-4.	Relays Configuration Fields	8-9
10-1.	Transfer Configuration Floppy Disk Labels	10-2
10-2.	PCV 4.3 Tag List Export Information	10-4
10-3.	PCV 4.3 Trend List Export Information	10-6
11-1.	Tag List Import Dialog Box	11-5
11-2.	Trend List Import Dialog Box	11-7
11-3.	Report Point List Import Dialog Box	11-8
11-4.	Tag List Export Dialog Box	11-10
11-5.	Trend List Export Dialog Box	11-10
11-6.	User Field Structure Editor Fields	11-14
11-7.	Printer Configuration Fields	11-15
11-8.	Color Option Description	11-18
11-9.	Communication Support	11-19
12-1.	Color Change Parameters	12-4
12-2.	Console Colors	12-4
12-3.	Displays in Which a Tag Appears Fields	12-6
12-4.	Change Tag Index Number Fields	12-8
12-5.	Change Trend Index Number Fields	12-9
12-6.	Convert Control Statement to Up Fields	12-9
12-7.	ADAP Configuration Screen 1	12-14
12-8.	ADAP Configuration Screens 2 through 7	12-15
A-1.	File Extension Description	A-1
B-1.	Symbols and Faceplates	B-3
C-1.	Standard Colors	C-1
C-2.	Default Colors	C-2
C-3.	Data States	C-2
C-4.	Standard Functions	C-3
C-5.	Special Key Functions	C-3

List of Tables (continued)

No.	Title	Page
D-1.	Supported Consoles	D-1
D-2.	TDT Database Configuration	D-1
D-3.	Display Configuration	D-1
D-4.	Log Configuration	D-2
D-5.	Keyboard Configuration	D-2

Trademarks and Registrations

Registrations and trademarks used in this document include:

™ @aGlance/IT	Trademark of Intuitive Technology Corporation.
™ Digital	Trademark of Digital Equipment Corporation.
® FoxPro	Registered trademark of Microsoft Corporation.
® HP	Registered trademark of Hewlett-Packard Company.
® INFI 90 OPEN	Registered trademark of Elsag Bailey Process Automation
® INFI-NET	Registered trademark of Elsag Bailey Process Automation
® Microsoft	Registered trademark of Microsoft Corporation.
® MS-DOS	Registered trademark of Microsoft Corporation.
® PCV	Registered trademark of Elsag Bailey Process Automation
® Pentium	Registered trademark of Intel Corporation.
™ SentinelSuperPro	Trademark of Rainbow Technologies.
® Windows	Registered trademark of Microsoft Corporation.
® Windows NT	Registered trademark of Microsoft Corporation.

SECTION 1 - INTRODUCTION

OVERVIEW

The WLDG01 Console Configuration Tools are used to configure Elsag Bailey's operator interface stations (OIS) and management command systems (MCS) off-line without disturbing the system control functions. The tools facilitate configuring and editing:

- Tag, trend, and report point lists.
- Displays and symbols.
- Custom logs.
- Keyboards.

Tools are also included to translate the configurations to console format (if needed) and to transfer the configurations to the target console.

The tools are installed on an engineering work station and accessed from an application called the console tools executive running under the Microsoft Windows operating environment. The console tools executive is included with the software release. This instruction discusses operation of the console tools executive and operation of each of the console tools. Operation of each tool is described in separate sections following Section 2.

Figure 1-1 shows the console tools primary functions in relation to an INFI-NET® network and the module configuration tools. The network interface unit allows the work station to communicate with any console and across multiple loops of the network.

INTENDED USER

The user of the console tools should have proficiency with personal computer use and operation (MS-DOS® and Windows) and formal INFI 90® OPEN Strategic Enterprise Management System configuration training.

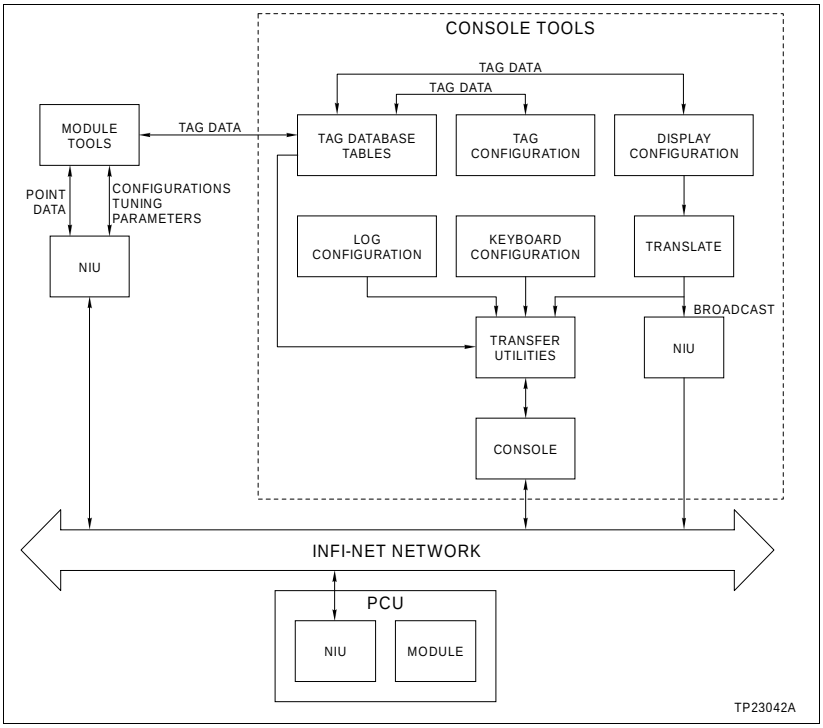


Figure 1-1. Console Tools

FEATURES

Features of the console tools include:

- Windowed graphical user interface for executive, tag list configuration, and display configuration.
- Tag database table method of storing common and console specific tag information increases productivity, reduces errors, and reduces disk space requirements.
- Single point tag data entry within the tools.
- Graphically configure console displays from an engineering work station (EWS) or a personal computer (PC).
- Provides standard symbols and faceplates and supports user created symbol for console displays.
- Supports network interface unit (NIU) communications with the INFI-NET network for broadcasting displays.
- Prints display configurations.
- Provides on-line help for tools running under the Windows operating environment.

TOOLS

The following paragraphs provide a brief description of the tools included with the console tools software release.

Executive — Defines and selects projects for configuration and provides a mouse driven menu system for the console tools. It also provides tools to manage projects.

Browsers — Configures and manages the console tag lists, trend lists, the engineering unit descriptor list, the logic state descriptor list, the alarm comment list, and report point lists. Supports single point tag data entry.

Graphical Display Configurator — Graphically configures console displays and symbols. Provides system and user defined symbol support. Supports single point tag data entry.

OIS Log Configuration — Creates custom trend, trip, and snapshot logs for operator consoles.

OIS Keyboard Configuration — Assigns displays, application processor programs, and key macros to the MCS, MCS PLUS, IIOIS20, and IIOIS25 console ADP keys and function keys. It also provides the alarm tones and alarm relays configurations for the same consoles.

Display and Symbol Translation — Converts GDC format display files (***DR*** and ***DY***) to console format display files (***DT***).

Tag Utilities — Import and export tag lists in console and ***DBF*** formats.

Transfer Configuration — Transfers configurations between the engineering work station and the console.

Broadcast Display — Sends displays and symbols (***DT*** format) from an engineering work station to a console over the INFI-NET network.

TDT Synchronization — Updates tag data in the tag data tables from the GDC displays or updates tag data in the GDC displays from the tag data tables.

Print — Prints ***DR*** and ***DY*** display files.

Log File Viewer — Displays and prints log files generated by the tools.

DOS Interface Setup — Allows the user to change color and toggle the sound on or off for most DOS-based tools.

DOS Utilities — Supplemental utilities that must be run from the DOS prompt. Includes automatic display and pop-up configuration, display tools to globally change certain features of or extract information from one or more OIS display files (***DT***), and tag list builder and transfer utility for certain consoles.

INSTRUCTION CONTENT

This instruction contains information to operate the console tools. It includes a Table of Contents, List of Figures, List of Tables, and Index giving several options to locate specific information quickly. Sections in this instruction are:

Introduction — Provides a general overview of the console tools and this instruction.

Installation — Describes requirements, how to install the console tools, and software copy protection.

Using the Console Tools — Describes the operation of the console tools, preparing the tools for operation, and a general procedure for using the tools. It also describes the console tools executive operation.

Managing Projects — Provides information on defining and opening projects and adding loops, consoles, and configuration groups to a project.

Tag Database Configuration — Provides an overview of the tag data tables structure, how to use the browsers, and detailed information on configuring tag, trend, report point, engineering unit descriptor, logic state descriptor, and alarm comment lists.

Display Configuration — Provides information on configuring console displays using the graphical module configuration utility.

Log Configuration — Describes how to configure custom logs.

Keyboard Configuration — Describes how to configure annunciator display panel keys, function keys, alarm tones, and alarm relays.

Translate Configurations — Provides information on translating displays and symbols to console format.

Transfer Configurations — Describes how to transfer configurations from EWS to floppy disk for transfer to the console and how to broadcast displays to the console.

Supplemental Configuration Utilities — Describes the print, log viewer, GES interface configuration, tag utilities, and tag synchronization utilities.

DOS Utilities — Covers operation of supplemental DOS-based utilities.

Appendices — Appendices provide supplementary information on:

- File type descriptions.
- Standard symbols and faceplates in the system library.
- The general edit system user interface.
- Feature support by console and software revision level.

HOW TO USE THIS INSTRUCTION

Read Section 1 for an overview of the console tools and this instruction. Proceed to Section 2 for system requirements and procedures for installation. Refer to Section 3 for general information on using the console tools and the console tools executive. Refer to Section 4 to create and define the project structure. Refer to the remaining sections for detailed operation of each utility. Refer to Appendix D for configuration features specific to console revision levels. Refer to the Windows documentation for information on using the Windows operating environment and graphical user interface.

DOCUMENT CONVENTIONS

This document uses standard text conventions to represent keys, display items, file names, and user input.

Key	Identifies a keyboard key.
Example:	Press Enter.
Key-Key	Means to press and hold the first key, then press the second key.
Example:	Press Ctrl-F8.
Key Key	Means to press and release the first key, then press the second key.
Example:	Press F S.
Display item	Any item that displays on the screen appears as italic text.
Example:	*Configure Display*
File name	File names and file extensions appear as bold-italic text.
Example:	***EUDSCP.CF***
BOLD	User input that must be entered exactly as shown.
italic	User input that is a variable parameter; user supplies actual term or value.
Example:	**ADAP -c***path***CONSOLE.CFG**

GLOSSARY OF TERMS AND ABBREVIATIONS

Table 1-1 provides a glossary of terms and abbreviations used in this instruction. It contains those terms and abbreviations

that are unique to Elsag Bailey or have a definition that is different from standard industry usage.

NOTE: Windows specific terms are used in the description of the Windows based tools. Refer to the Windows documentation for Windows terminology.

Table 1-1. Glossary of Terms and Abbreviations

Term	Definition
Display element	A discrete element used in creating a process display; station faceplate, annunciator, trend, and deviation overview are display element examples.
Entity	A drawing object.
EUD	Engineering unit descriptor.
EWS	Engineering work station.
INFI-NET	Advanced data communication highway.
MCS	Management command system. Integrated operator console with data acquisition and reporting capabilities. It provides digital access into the process for control and monitoring.
OIS	Operator interface station. Integrated operator console with data acquisition and reporting capabilities. It provides a digital access into the process for flexible control and monitoring.
semAPI	Strategic Enterprise Management Application Programming Interface.
Symbol	A drawing element. Using symbols for commonly used drawing elements eliminates redrawing.
Tag	An analog or digital process value defined in the console or PCV® as a control or monitor point.

REFERENCE DOCUMENTS

Table 1-2 lists reference documents.

Table 1-2. Reference Documents

Number	Title
I-E93-901-21	Operation and Configuration Manual (MCS)
I-E96-100	Operation and Configuration Manual (IIOIS20)
I-E96-101	Operation and Configuration Manual (IIOIS40)
I-E96-102	Operation and Configuration Manual (IIOIS10)
I-E96-191-1	Operation (IIOIS41 and IIOIS40 PLUS)
I-E96-191-2	Configuration (IIOIS41 and IIOIS40 PLUS)
I-E96-191-3	File Utilities (IIOIS41 and IIOIS40 PLUS)
I-E96-192-1	Operation (IS42 and IIOIS42)
I-E96-192-2	Configuration (IS42 and IIOIS42)
I-E96-192-3	File Utilities (IS42 and IIOIS42)
I-E96-196-1	Operation (MCS PLUS)
I-E96-196-2	Configuration (MCS PLUS)
I-E96-196-3	File Utilities (MCS PLUS)

Table 1-2. Reference Documents (continued)

Number	Title
I-E96-197	Display Builder Reference
I-E96-199-90	Configured Logic Interface Function
I-E96-610	INFI-NET to Computer Interfaces (INICI01 and INICI03)
I-E96-630	Open System Manager (INOSM01)
I-E96-711	Process Control View (PCV)
I-E96-825	Global Database Manager (SGDM)
WBPEEUI220756A0	Operation (IIOIS43)
WBPEEUI220757A0	Configuration (IIOIS43)
WBPEEUI220758A0	File Utilities (IIOIS43)
I-E96-729-01	Open Data Server (LIODS01)
WBPEEUI350254A0	Application Programming Interface (semAPI) NT
WBPEEUI220755A0	PWC90 Operation
WBPEEUI220762A0	PWC90 Configuration
WBPEEUI310013B0	Module Configuration Tools (WCAD01)

SUPPORTED PRODUCTS

Console tools configuration supports the products listed in Table 1-3.

Table 1-3. Supported Products

Type	Product
Consoles	MCS S.3 MCS PLUS R.2, S.2, V.2, and X.1 IIOIS12 5.1 IIOIS20 E.2 IIOIS25 E.2, G.2, and J.1 IIOIS40 E.1 IIOIS40 Plus E.1, F.1, and G.3 IIOIS41 E.1, F.1, and G.3 IIOIS42 F.1, G.1, G.2, G.3, H.2, and J.1 IIOIS43 J.1 OAS E.1 and F.1 PCV 4.3, 5.0, and 5.1 IS12P 5.1 IS42X F.1, G.2, G.3, H.2, and J.1 PWC90 1.0[1]
Interfaces (for display broadcasting only)	INICI01 INFI-NET to Computer Interface[2] INICI03 INFI-NET to Computer Interface (serial port) INICI03 INFI-NET to Computer Interface (SCSI port)[3] INOSM01 Open System Manager[3]

NOTES:

1. Tag and trend configuration only.
2. Communications not using semAPI library functions only.
3. Communications using semAPI library functions only.

Tag lists used by consoles running BCS L.3 and R.3 software can be imported and used by the console tools. However, these consoles cannot be defined for configuration purposes within the console tools.

COMPATIBILITY

Console tools WLDG01 release 1.0/1.1 configurations can be upgraded for use with the console tools WLDG01 release 2.0. Existing SLDG02 release 5.x configurations can be imported into WLDG01 release 2.0. In addition, tools are provided to import and export tag lists in ***DBF*** format (refer to ***TAG UTILITIES*** in Section 11).

NOTES:

1. The structure of the TDT database is release dependent, reflecting changes needed, for example, as tag types and fields are added. The TDT database must be of the same revision level as the configuration tools used. After installing WLDG01 release 2.0 and prior to using it for configuration, a TDT database from an existing project must be upgraded for use with release 2.0. This can be done from within WLDG01 release 2.0 or WCAD01 release 2.0.

2. Furthermore, to preserve database compatibility, the console and module tools must be of the same revision level for use with any given project. WLDG01 release 1.0/1.1 and WCAD01 release 1.0/1.1 must be used together or WLDG 01 release 2.0 and WCAD01 release 2.0 must be used together.

SECTION 2 - INSTALLATION

INTRODUCTION

This section provides the following installation procedures:

- Installing the console configuration tools WLDG01.
- Installing the product license registration.

NOTE: Integral to the project scheme of configurations maintained by the console and module configuration tools is the project TDT database (described in Section 5). It contains tag data intended to be used and maintained by both the console tools and the module tools. The structure of the TDT database is release dependent, reflecting changes needed, for example, as tag types and fields are added. This has the following consequences:

1. The configuration tools used to configure consoles and modules within a project must be of the same release revision. WLDG01 release 1.0/1.1 and WCAD01 release 1.0/1.1 are used together and WLDG01 release 2.0 and WCAD01 release 2.0 are used together. They cannot be intermixed for use within the same project.

2. The TDT database must be of the same revision level as the configuration tools used. After installing WLDG01 release 2.0 and prior to using it for configuration, a TDT database from an existing project must be upgraded for use with release 2.0. This can be done from within WLDG01 release 2.0 or WCAD01 release 2.0. Once the TDT database is upgraded it can no longer be used with the earlier release configuration tools.

HARDWARE REQUIREMENTS

The following hardware is required to run the software:

- A certified computer system or one meeting the minimum configuration requirements.
- A SentinelSuperPro™ parallel port key (included with the software product).
- In order to batch print configurations from the console tools executive, one of the following printers is required:

  HP® LaserJet III (minimum of one megabyte added memory).
  HP LaserJet 4 (minimum of one megabyte added memory).
  HP XL-300.

- In order to print display and symbol files from within the graphical display configuration application, a Windows compatible printer is required.

- In order to transfer configurations to a console, a floppy disk drive compatible with the target console is required.

- In order to broadcast displays and symbols, the engineering work station must be connected to a network interface unit. This typically requires a dedicated serial port on the computer. Refer to ***CONFIGURING WINTOOLS COMMUNICATIONS*** in Section 11 for information.

Certified Computer Systems

Computer systems certified for use with WinTools are:

- Digital™ Celebris 486 (66 MHz 80486).
- Digital Celebris 590 (90 MHz Pentium®).
- Digital Venturis 5100 (100 MHz Pentium).
- Digital Venturis FX Pentium Pro 200.

Minimum System Configuration

System performance is directly dependent on the hardware configuration. Increasing the amount of memory, using an advanced processor, and using a graphics accelerator will increase system performance. Computer systems not certified must meet the following minimum configuration:

- 80486 processor (math coprocessor required).
- 16 megabytes memory.
- 100 megabyte hard disk.
- 3.5-inch high density floppy disk drive.
- 640×480, 64 color graphics display and adapter board.
- Windows-compatible mouse or other pointing device.
- One parallel printer port.

SOFTWARE REQUIREMENTS

One of the following software configurations is required in order to install and run the software:

- MS-DOS 5.x or later and one of the following versions of Windows: Windows 3.1, Windows 3.11, or Windows for Workgroups 3.11.

- Windows 95.

- Windows NT 3.51 or 4.0.

SOFTWARE INSTALLATION

This procedure installs the tools software. The installation directory is C:\EWS.

NOTES:

1. The installation process deletes files from an existing C:\EWS directory. If there are any user files in an existing C:\EWS directory that need to be saved, back them up before continuing.

2. This version of the tools uses a new software licensing and copy protection system. If installing this version over a previous version (release 1.0 or 1.1) of the tools, the software key for the previous version should be removed before continuing. This must be done if the release 1.0 or 1.1 software key is to be saved. Use the original installation disk 1 from the previous version and refer to the previous version instruction for the software key removal procedure.

3. After software installation, software registration must be completed to properly run the configuration tools. Refer to ***SOFTWARE REGISTRATION*** for information.

1. Insert disk 1 into the appropriate floppy disk drive.

2. Using any available Windows method, run the installation program ***install.exe*** located on disk 1.

3. An installation dialog box appears with installation options. Choose *Install WLDG 2.0*. The installation process begins; as it proceeds, the percentage completed is displayed by the installation program.

4. Follow the directions to insert each installation disk when requested. Other messages may appear on the screen.

5. After the software has been installed, a dialog box appears with options to change the engineering work station configuration as needed for the tools. Choose one of the following options to continue:

Go ahead and modify - for Windows 3.1 and Windows 95, modifies the ***autoexec.bat*** and ***config.sys*** files. For Windows NT, modifies the registry.

Create example files - for Windows 3.1 and Windows 95, writes example files to the root directory (***autoexec.exm*** and ***config.exm***). These files can be examined and the appropriate changes made to the ***autoexec.bat*** and ***config.sys*** files manually as needed. For Windows NT, writes the file ***WLDG.REG*** to the C:\EWS directory. This file can be used to update the registry by using the ***regedit.exe*** utility.

Bypass - continues without making any changes.

NOTE: If the configurations files are not modified correctly, problems running the utilities could result.

6. At the next dialog box, choose an option to install the tools icons:

Install icon into existing group - for Windows 3.1/NT 3.51, installs the tools icons into an existing group. When installed, the icon can be double clicked to launch the application. For Windows 95/NT 4.0, the tools programs are installed into an existing menu and folder.

Install icon into Bailey WinTools group - for Windows 3.1/NT 3.51, installs the tools icons into the *Bailey WinTools* group. When installed, the icon can be double clicked to launch the application. For Windows 95/NT 4.0, the tools programs are installed into a *Bailey WinTools* menu and folder.

Skip this part - continues without making any changes. The tools icons must be installed manually or the tools run manually (e.g., from file manager or explorer).

7. A message appears noting that the license installation utility must be run and that parallel port drivers for the SentinelSuperPro parallel port key may need installed. This material is covered in ***SOFTWARE REGISTRATION***. Click on *OK* to continue.

8. The installation dialog box appears. Choose *Exit* to continue.

9. If changes have been made to the configuration files, exit Windows and reboot the computer.

10. After restarting Windows, examine the ***WLDG.WRI*** file for release notes. If the tools icons were installed as in Step 6, double click on the *WLDG Readme* icon in the *Bailey WinTools* group (Windows 3.1/NT 3.51) or select *WLDG Readme* from the *Bailey WinTools* menu (Windows 95/NT 4.0) to open the file.

SOFTWARE RELEASE INFORMATION

The following information applies to this software release:

Compatible WCAD Release

For a given project, the module configuration tools WCAD01 release 2.0 must be used with this release of the console tools.

Registration

The software must be registered for proper operation. Refer to ***SOFTWARE REGISTRATION***.

Project Definition

Projects defined in WLDG01 release 1.0/1.1 are compatible with WLDG01 release 2.0.

TDT Database

A WLDG01 release 1.0/1.1 TDT database must be upgraded. Refer to ***Upgrading the Project TDT Database*** in Section 4.

Displays and Symbols

Displays and symbols configured in WLDG01 release 1.0/1.1 are compatible with WLDG01 release 2.0.

Logs

Log configurations configured in WLDG01 release 1.0/1.1 are compatible with WLDG01 release 2.0.

Keyboards

Keyboard configurations configured in WLDG01 release 1.0/1.1 are compatible with WLDG01 release 2.0.

Communications Configuration

The engineering work station can communicate over the INFI-NET network to broadcast displays to the consoles. Refer to ***CONFIGURING WINTOOLS COMMUNICATIONS*** in Section 11 to set up communications parameters for display broadcasting.

SOFTWARE REGISTRATION

For proper operation of protected features or products, the software must be registered. This section describes how to register a single license for use on a single engineering work station.

1. Read this procedure completely and the information given in ***SOFTWARE LICENSING MANAGEMENT***.

2. Locate and have available the following:

- The registration number of the software license to be registered. This is located on the registration form shipped with the software product.

- The instructions for obtaining a software license code. These instructions came with the software registration form.

- The SentinelSuperPro parallel port key to be used with this software license. This can be the SentinelSuperPro parallel port key included with this or any Elsag Bailey software product.

  The parallel port key provides a machine identifier that is required in order to obtain the software license code. The machine identifier is printed on the parallel port key and is displayed in the license installation dialog box.

  NOTE: Although a parallel port key is shipped with each software product, only one parallel port key is required for each engineering work station. That is, a single parallel port key can be used to register more than one software product. Other configurations are supported; refer to ***SOFTWARE LICENSING MANAGEMENT*** for more information.

3. Obtain the software license code. Refer to the registration form instructions that came with the software product.

4. Install the SentinelSuperPro parallel port key. Refer to ***SentinelSuperPro Parallel Port Key Installation***.

5. Install the parallel port drivers if needed. Refer to ***Parallel Port Driver Installation***.

6. Install the software license. Refer to ***Installing the Software License***.

SentinelSuperPro Parallel Port Key Installation

1. Shut down the computer and turn off power.

2. Locate the computer's LPT1 parallel port and disconnect any existing parallel port cable.

> **NOTE:** It is possible to have more than one parallel port key installed on LPT1 to support other products. They can be installed in any order.

3. Install the SentinelSuperPro parallel port key onto LPT1.

4. The parallel port key is a feed through device. Reconnect any cable removed in Step 2 to the parallel port key.

5. Restart the computer.

Parallel Port Driver Installation

During software installation, drivers for the SentinelSuperPro parallel port key are copied into the WinTools product directory structure. These drivers may need to be installed, depending on the computer operating system and configuration.

1. Determine if the drivers need to be installed:

Windows 3.1/3.11 or Windows 95

Installation of these drivers is optional and need to be installed only if conflicts occur between the SentinelSuperPro key and any additional parallel port device connected through this key.

Windows NT 3.51/4.0

Installation of these drivers is required. If these drivers were previously installed (e.g., as part of another product/revision installation), then installation at this time is not required. The installation must be performed from an administration authorized account on the NT work station computer.

2. Locate the drivers and readme file in the appropriate directory:

C:\EWS\RAINBOW\WIN_31

C:\EWS\RAINBOW\WIN_95

C:\EWS\RAINBOW\WIN_NT

3. Follow the instructions given in the readme file.

4. After installing the drivers, reboot the computer.

Installing the Software License

1. Start the license registration procedure by doing one of the following:

- Choose *License Install* from the Windows 95/NT 4.0 *Bailey WinTools* menu.

- Click on the license installation registration icon in the Windows 3.1/3.11 or Windows NT 3.51 *Bailey WinTools* group.

The license registration program executable is ***licinst.exe*** and is located in the C:\EWS directory.

2. The *Bailey Controls License Installation* dialog box appears as shown in Figure 2-1.

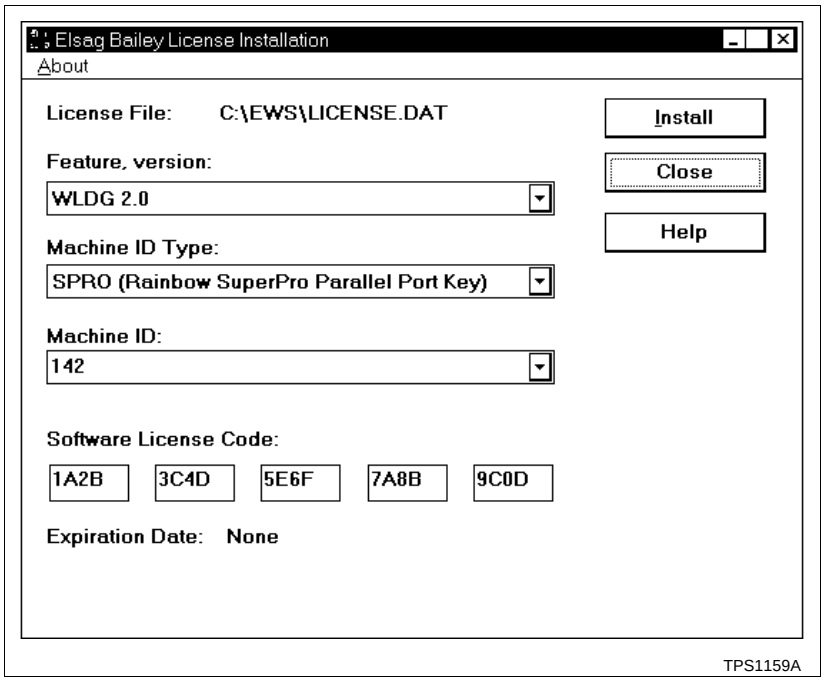


Figure 2-1. Example License Installation Screen

3. Insure that the product being registered appears in the *Feature, version* text box (e.g., ***WLDG 2.0*** or ***WCAD 2.0***). If not, select it from the list. This list shows all installed products that require license installation. The list is updated when a product is installed during the software installation procedure.

4. Insure that the *Machine ID Type* text box displays *SPRO (Rainbow SuperPro Parallel Port Key)*. If not, select this option from the drop down list box.

There are three *Machine ID Type* options:

SPRO Normal license installation.

DEMO Use of the DEMO option is coordinated through the appropriate Elsag Bailey Sales/Marketing organization. This type of machine identifier license has an expiration date that must be entered.

MAINTENANCE SPRO Use of the MAINTENANCE SPRO option is coordinated through the Elsag Bailey Technical Services organization. This type of machine identifier license also has an expiration date that must be entered.

5. Insure that the machine identifier appears in the *Machine ID* text box. This should be the same machine identifier that is printed on the parallel port key that is to be used to register the software.

NOTES:

1. Normally, a machine will have a single parallel port key installed at any given time. However, if there is more than one parallel port key installed, insure the correct machine identifier appears in the *Machine ID* text box. If not, type it in or select it from the drop down list box.

2. If the parallel port key to be used is not installed at the time of registration, it can still be registered by typing in the corresponding machine identifier in the *Machine ID* text box.

6. Type the software license code into the software license text box as shown and tab out of the box. Refer to Step 3 of ***SOFTWARE REGISTRATION***.

7. If all information is entered correctly, the *Install* button is enabled. Click on *Install* to install the software registration. A message box appears indicating the registration is successfully installed.

8. Record the software product, software registration number, machine identifier, and software license code for future reference.

Software Product Operation

This section describes the behavior of the software product protected by the license manager.

Normal Operation If the license is successfully installed, then the user will see no interaction with the license manager.

Unlicensed Operation

If the software product is unlicensed or the license cannot be validated and depending on the feature, one of the following occurs:

- A message box appears informing the user that the product license cannot be validated. However, after clicking on *OK*, the feature will operate normally.
- A message box appears informing the user that the product license cannot be validated. After clicking on *OK*, the feature will terminate.

SOFTWARE LICENSING MANAGEMENT

The license management system limits the use of a unique software license to a single instance at any given time. It also allows a great deal of flexibility for users in how this is implemented. When a license is registered, the machine identifier (provided by the parallel port key) and the software license code become a matched pair for that license. Both must reside on the engineering work station at the same time to enable the associated software license. A software license allows the protected software product to be used. Software licensing management has the following components:

License Manager

A product that controls the usage of features, applications, or products by enforcing software license agreements. It uses a license file to track those machine identifiers that have the right to use certain features by storing software license codes paired to the machine identifiers. When a protected software product is run, it reads the machine identifier (from the parallel port key) and runs through the list of software license codes in the license file to find a match. If found, the software product is enabled.

Parallel Port Key

The SentinelSuperPro parallel port key is a device that plugs into the computer's parallel port. A single parallel port key per engineering work station may be used with one or more products (e.g., WCAD01 and WLDG01).

Typically, a single parallel port key is used per engineering work station for all EWS products. The license installation program can access additional keys on the parallel port if necessary.

Machine Identifier

The parallel port key has a unique machine identifier code as displayed in the *License Installation* dialog box. The user provides this machine identifier code as part of the registration process. The machine identifier code is paired with a software license code during registration. When the software licensing

management system sees a matched machine identifier and software license code on the engineering work station, it enables the associated software license.

Software License Code

The software license code is a unique code returned to the customer by Elsag Bailey Process Automation. It is entered by the customer into the *License Installation* dialog box during registration. It is a function of the registration number and the machine identifier code. The software license code is paired with the machine identifier. When the software licensing management system sees a matched machine identifier and software license code on the engineering work station, it enables the associated software license.

Registration Number

The registration number is a unique number provided with each purchased product. The user provides this number to Elsag Bailey Process Automation when registering a product in order to receive a software license code paired to the machine identifier for that product.

Post-Registration

Once a license is registered:

- The software license code entered into the *License Installation* dialog box and the machine identifier provided by the parallel port key installed on the engineering work station must be a registered pair in order to run the protected software. This limits the use of a license to a single instance at any given time.

- A single copy of the software can be installed on multiple engineering work stations. After registering and receiving the software license code, enter the software license code into the *License Installation* box of each copy. To use the protected software at a particular engineering work station, move the parallel port key providing the machine identifier paired with that software license code to the engineering work station on which the protected software is to be used.

- More than one registration can be performed on a single copy of the software provided there are a sufficient number of purchased licenses and associated parallel port keys. This would be useful in the following circumstance: that configuration personnel are assigned a parallel port key to be kept with them. If multiple licenses are purchased and each of several engineering work stations has one or more registrations, then configuration personnel could run the configuration tools on any machine having the software license code paired with the machine identifier provided by their parallel port key by moving the parallel port key to that engineering work station. A copy of the software on an engineering work station can be registered more than once by running the *License Installation* application and entering the software license code paired with the appropriate machine identifier provided by the parallel port key.

License Manager Files

The following files are used by the license manager and can be viewed by the user. They reside in the C:\EWS directory.

license.dat - a list of installed Elsag Bailey products.

license.err - a list of messages displayed by the license manager.

SECTION 3 - USING THE CONSOLE TOOLS

INTRODUCTION

This section describes how to use the console tools. It contains the following information:

- An overview of the configuration process.
- A description of the application launcher.
- Operation of the console tools executive showing how the utilities are accessed.
- The significance of the tag linking features when performing project configuration.
- A general procedure for performing console configuration.
- A description of the conventions used in Windows and the general edit system (GES).

CONFIGURING A CONSOLE

Figure 3-1 shows an overview of the configuration process which is described in the following paragraphs. The console tools are involved throughout the process. Refer to ***CONSOLE CONFIGURATION OVERVIEW*** for a general procedure for configuring consoles.

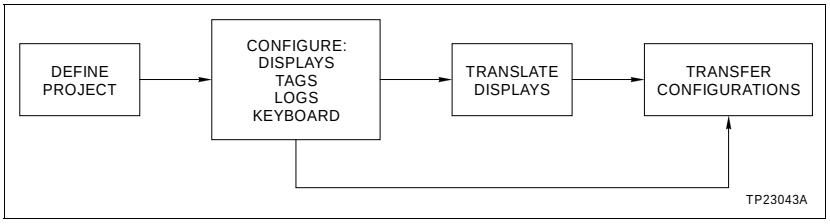


Figure 3-1. Configuration Process Overview

Define Project Identifies and organizes the loops and consoles within the project using the console tools executive.

Configure Configures tag, trend, and report point lists using menu driven mouse-based database editors called browsers. Generates console display configurations by graphically dropping and drawing console display elements in the graphical display configurator (GDC). Configure logs and keyboards from a DOS window.

Translate Prepares the console display configuration for transfer to the console by converting the EWS files (***DR*** and ***DY***) to console format (***DT***).

Transfer Transfers configurations to floppy disk for loading onto the console. Some configurations can also be transferred back to the engineering work station from the console. Communicates with consoles in order to broadcast display configurations. The engineering work station needs to be connected to a network interface unit to communicate with a console.

APPLICATION LAUNCHER

The application launcher provides the capability of launching applications that do not necessarily need to be launched through an executive. For the console tools, this includes the console tools executive itself, the graphical display configurator, and the error log viewer. Figure 3-2 shows the application launcher window. Its appearance and menu contents depend on the installed utilities.

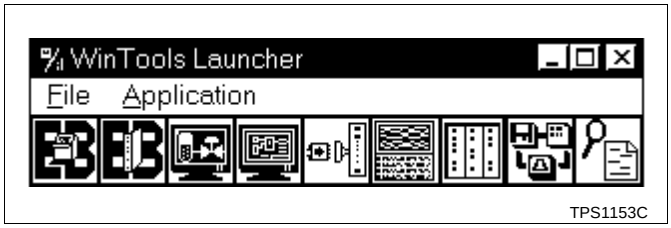


Figure 3-2. Application Launcher

To start the application launcher from Windows 3.1/NT, double click on its icon in the *Bailey WinTools* program group. To start it from Windows 95, click on *Start* and choose *Toolset* from the *Bailey WinTools* menu under the *Programs* menu.

To make the application launcher stay on top of other applications, choose *Always On Top* from the *File* menu (Alt F A).

To exit the application launcher, choose *Exit* from the *File* menu (Alt F X).

Applications can be launched either by clicking on the appropriate button or choosing the application from the *Application* menu. The always-on-top state and location are saved between sessions.

CONSOLE TOOLS EXECUTIVE

The console tools executive is a Windows application that serves as a launching point for the console configuration tools. The console tools executive also performs project management functions including opening and defining projects and defining

the project structure. The project management functions are described in Section 4.

Starting the Console Tools Executive

The console tools executive can be started by any of the available methods of the Windows operating environment. The following describes common methods. Refer to the Windows documentation for other methods. Only one copy of the console tools executive can be running at a time.

From the Windows Program Manager

To start the console tools executive from the Windows program manager (Windows 3.1 or Windows NT 3.51):

1. Open the *Bailey WinTools* group.

2. Double click on the console tools executive icon. Refer to Figure 3-3.

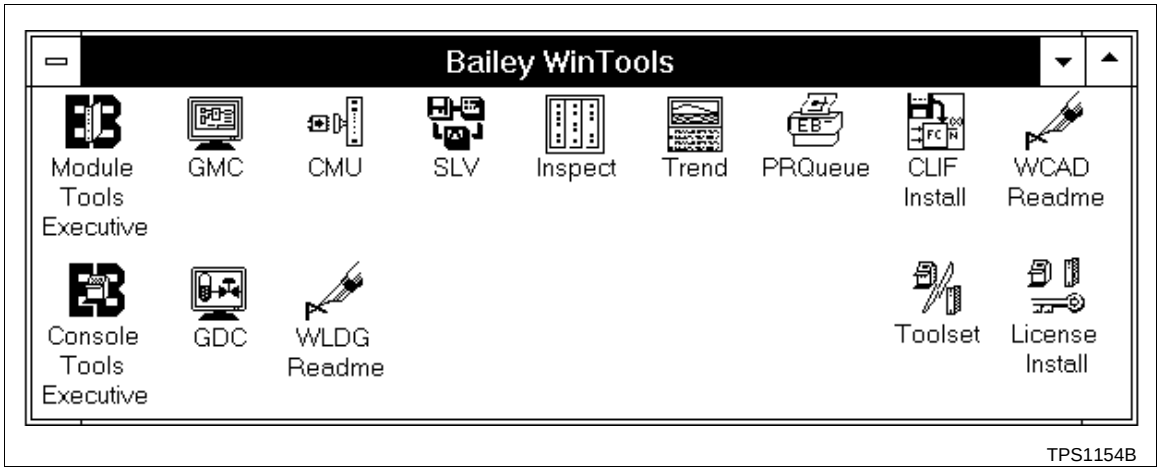


Figure 3-3. Bailey WinTools Group

From the Windows Start Menu

To start the console tools executive from the start menu (Windows 95 or Windows NT 4.0):

1. Click on *Start* and point to the *Programs* menu.

2. Locate the *Bailey WinTools* menu and choose *Console Tools Executive*.

From the Application Launcher

If the application launcher is running, the console tools executive can be started by clicking on the console tools button or choosing *Console Tools* from the *Application* menu.

The console tools executive application window appears after launching it. Its size, location, and state of the project tree from the last session are restored. Refer to ***Opening a Project*** in order to open a project. After a project is opened, configuration

tools can be chosen from the console tools executive menus. Refer to ***Console Tools Executive Menus***.

Before a project is opened, only the *File* and *Help* menus are accessible. After a project is opened, the *Project* and *Utilities* menus are available as well and the project tree appears. As loops, consoles, groups, or other items are selected from the project tree, appropriate menus dynamically appear and are enabled or disabled.

The console tools appear as items in their respective menu. Items are selected from the menus in the standard Windows fashion. Use of the mouse, menu keys, and shortcut keys are supported.

Context menus accessed from the secondary mouse button are also supported and can be used as alternative to the menu bar menus. Data groups have context menu support in the file selection window. Other project tree items have context menu support in the project tree window. Refer to ***Console Tools Executive Menus*** for information on the menu items.

Dialog boxes are also used and their operation conforms to standard windows conventions. In general, only one method of operating a dialog box is described; however, any available method can be used.

Opening a Project

This procedure assumes that a project has been defined. Only one project can be opened at a time. To open a project:

1. Choose *Open* from the *File* menu. The *Open Project* dialog box appears. This is a standard Windows file open dialog box. The last opened project name appears in the *File Name* box.

2. Select or type the name of a project in the *File Name* box. Project files have a ***PRJ*** extension. If necessary, change the drive and directory.

3. Click on *OK* to continue.

The menu bar shows the *Project* and *Utilities* menu. The project description appears beside the Elsag Bailey logo at the top of the project tree.

NOTES:
1. If *Auto Open on Start-Up* from the *File* menu is toggled on, the last opened project is automatically opened when the console tools executive is launched.

2. If the project TDT database revision does not match the revision expected for the software release, a message appears indicating the TDT database needs upgraded. Refer to ***Upgrading the Project TDT Database*** in Section 4 for information.

Parts of the Console Tools Executive Screen

Figure 3-4 shows a typical console tools executive application window. In the figure, some of the loops and consoles have been opened. The *Displays* group is currently selected as indicated by the highlighting.

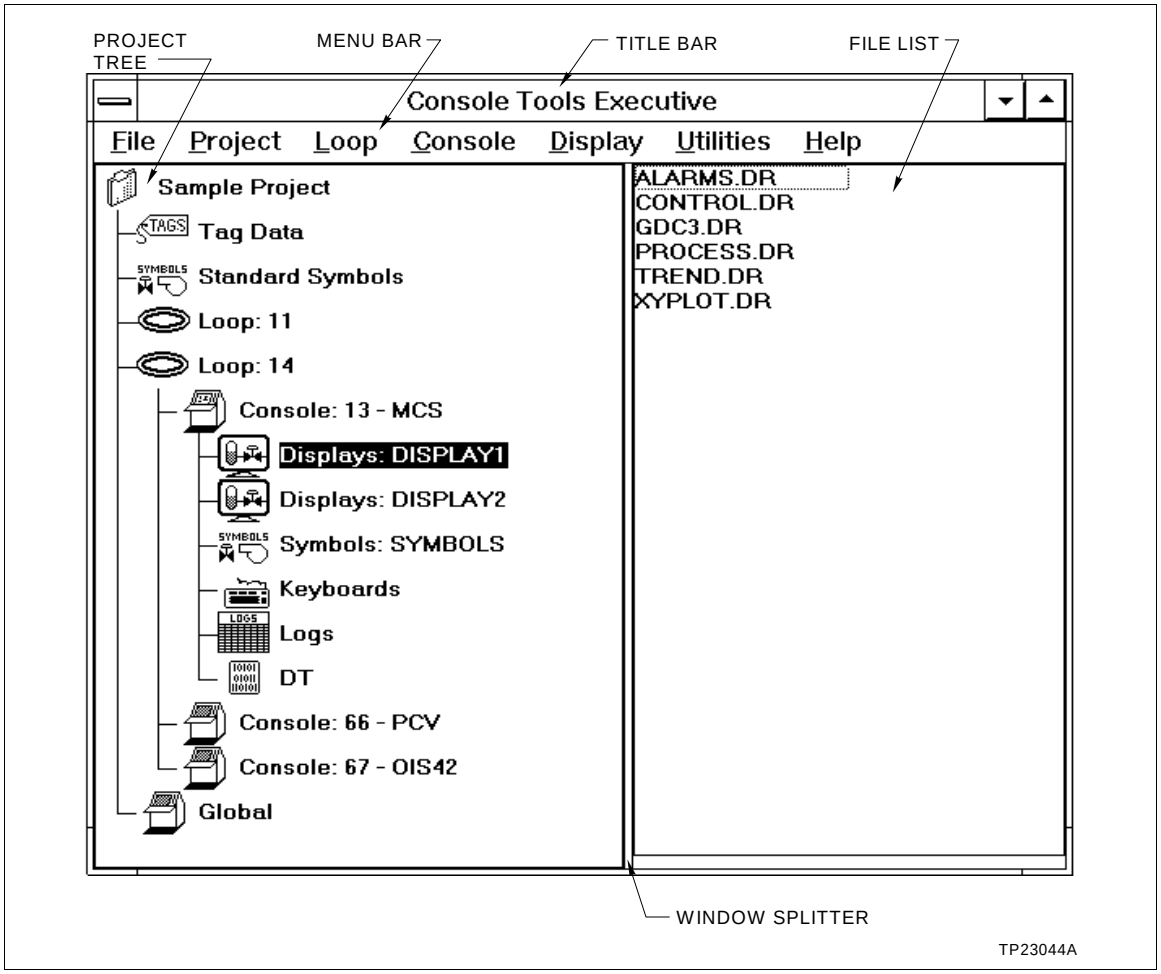


Figure 3-4. Console Tools Executive

The application window consists of the following parts:

Title Bar The title bar is a standard Windows title bar showing the application title and containing a control menu and the maximize and restore buttons.

Menu Bar Before a project is opened, the menu bar has only the *File* and *Help* menus enabled. Other menus appear or are enabled after a project, loop, or console is opened and depending on the branch of the project tree selected. For example, a *Log* menu appears when a log group is selected. Utilities are launched by opening a menu and choosing the item of interest.

Project Tree The project tree graphically shows the project structure. If a loop or console is open, then its contents are visible. The menu bar items dynamically reflect the selection from the tree. The project structure is described in ***Project Tree Structure***. Operation of the project tree is described in ***Using the Project Tree***.

File List The file list displays a list of the configuration files from the currently selected group. Before running most utilities from a data group menu, files need to be selected. One or more files can be selected using standard Windows operations.

Window Splitter The window splitter can be used to adjust the partitioning of the window between the project tree and the file list.

Scroll bars are provided to facilitate viewing and accessing parts of the tree not currently in the window. Refer to the following sections for information on using the project tree.

Using the Project Tree

The project tree displays a hierarchical view of the project structure (refer to Figure 3-4). The topmost element in the tree is the project indicated by the project description. The project contains the tag data, loops, the SODGSYM symbol group, and global console data. Loop branches contain the consoles. Console branches can contain display, symbol, log, keyboard, and translated display (***DT***) groups. Global console data contains global display and symbol groups.

Each branch has an icon identifying the type of branch. Loop branches include the loop address. Console branches include the console address and description. Display and symbol groups include the group name which is the same as the directory name in which the files are stored.

The project tree serves three purposes: 1) By defining the project and adding branches, it organizes the project. 2) By opening loops and consoles associated with each branch, it gives access to the branch contents. 3) By selecting a branch, it makes utilities appropriate to the branch available (from the dynamic menu bar or context menus).

The loop and console icons show the current state of the branch: If the icon appears gray, the branch contents are not visible; if the icon appears with a color, the branch contents are

visible in the tree. The consoles and groups can be viewed by opening the respective loop or console branch.

To open a branch, double click on the respective closed icon.

To close a branch, double click on the respective opened icon.

A selected branch appears highlighted. To select a branch of the project tree, click anywhere on the branch of interest: project, loop, console, or group. The branch highlights and the menu bar reflects the branch type selected.

Refer to the ***Console Tools Executive Menus*** for menu descriptions. The menu item that appears when a branch is selected has the same title as the branch selected.

Project Tree Structure

The console tools executive and the console tools have been designed to facilitate a project oriented approach in configuring consoles. Consoles and their configurations can be organized and maintained from a common interface (the console tools executive) and structure (the project tree). A typical structure for a console configuration is shown in the project tree of Figure 3-4. The contents of each branch and file is described in the following paragraphs.

Project Contains the loops, tag data, and global displays and symbols. The project also maintains a number of files including the project file (***PRJ***). The project file contains the project description and location of the tag data tables. The project name and location is defined by the user when the project is created.

Tag Data Contains the tag data tables for all consoles in a project. These tables are automatically created when a project is defined and are used by the module and console tools. Tag data in the ***CAD*** sheets and console displays can be used to update the tables and tag data in the tables can be used to update the ***CAD*** sheets and console displays.

Standard Symbols The standard symbols group contains the standard symbols provided with the software release and located in C:\EWS\SODGSYM.

Loop Loops contain the consoles. The loop address is entered by the user when the loop is added to the project. It is shown next to the loop icon. When a loop is added to the project, a corresponding directory is created underneath the project directory. The loop directory is designated by Lnnn, where nnn is the loop address.

Consoles Consoles contain the displays, symbols, keyboards, logs, and translated display configuration groups. The console tag list

configuration is defined in the console information but does not appear under the console branch in the project tree. The console address and description are shown next to each console icon in the project tree. When a console is added to the project, a corresponding directory is created underneath the loop directory. The console directory is designated by CONSnnn, where nnn is the console address.

Displays The display groups contain console displays. If a group is under a console, then the displays are specific to the console; if a group is under the global console icon, then the displays are global displays. The display group name is entered by the user when the group is added to the console. A corresponding directory is created underneath the console directory and using the specified group name with a ***DRS*** extension. More than one display group can be added to a console. If the group is selected, all display files in the group directory are listed in the files window.

Symbols The symbol groups contain console symbols. If a group is under a console, then the symbols are specific to the console; if a group is under the global console icon, then the symbols are global symbols. The symbol group name is entered by the user when the group is added to the console. A corresponding directory is created underneath the console directory and using the specified group name with a ***DYS*** extension. More than one symbol group can be added to a console. If the group is selected, all symbol files in the group directory are listed in the files window.

Logs The logs group contains the logs for a console. When a log group is added to a console, a corresponding directory designated LOG is created under the console directory. If the group is selected, all log files in the group directory are listed in the files window. Log groups are not valid for all console types and can only be created and displayed for consoles that are supported by the log configuration tool.

Keyboards The keyboards group contains the keyboard configurations for a console. When a keyboard group is added to a console, a corresponding directory designated KEYBOARD is created under the console directory. If the group is selected, all keyboard files in the group directory are listed in the file window. Keyboard groups are not valid for all console types and can only be created and displayed for consoles that are supported by the keyboard configuration tool.

Global The global branch contains global display and symbol groups. When the global console branch is added, a corresponding directory designated GLOBAL is created under the project directory.

The project structure and a corresponding directory structure is automatically created by the console tools executive in the process of defining the project. The location of configuration files is tracked by the project and presented to the user via the project tree. In operation, current project information is made available to the utilities. For example, the selected console is passed to the transfer utilities.

> **NOTE:** It is important to not relocate, rename, delete, or otherwise modify any files that are maintained or used by the project. Extreme care should be used when modifying any files or directories using DOS or Windows utilities. An entire project tree can be moved as long as all data is maintained in its location in the tree.

The file list updates to reflect a selection made in the project tree. It displays a list of files in the configuration for the selection. For example, if a display group is selected, all displays in the group appear in the file list. The file list can be used to select files for processing by the utilities. Refer to the specific utility description for information on how the file list is used for that utility.

The file list does not update dynamically if another application adds or removes files from the directory. Click on the appropriate branch to refresh the file list.

Console Tools Executive Menus

Each console configuration menu item is briefly described in the following subsections. For a complete description of a particular utility, refer to the appropriate section of the instruction. On-line help is also available for the Windows utilities.

> **NOTES:**
> 1. Unless otherwise referenced, operation and use of a particular menu item is discussed in Section 4.
>
> 2. The same menu item may appear on more than one menu; however, its operation may be somewhat different depending on the menu from which it is chosen. Refer to each menu item description for differences in operation.
>
> 3. Only one copy of a DOS application can be running. If an attempt is made to launch another copy, focus returns to the currently running copy.

As a convenience, context menus are also available by clicking the secondary mouse button. If the utility operates on a file (for example, translation), select the group, position the mouse pointer in the file window, and click the secondary mouse button. Otherwise, click the secondary mouse button while in the project tree window. A menu similar to the menu bar menu appears in either case.

FILE MENU

The *File* menu contains project selection and definition items.

New Defines a new project.

Open Provides a file open dialog box and defaults to the last project opened.

Auto Open on Start-Up A toggle that can be used to automatically load the last opened project when the console tools executive is launched. It is toggled on when a check mark appears beside this menu item.

Close Closes the current project.

Exit Closes the console tools executive application.

PROJECT MENU

The *Project* menu contains project related items.

Add Loop Adds a loop to the current project.

Add Global Data Group Adds a global data group for symbols and displays.

Browse Tag Data Displays a submenu for launching the tag, trend, EUD, LSD, AC, and report point browsers. Refer to ***USING THE BROWSERS*** in Section 5 for information on using the browsers.

Tag Utilities Launches the tag utilities application. Tag utilities can be used to import, export, copy, and pack lists, reassign list indices, and convert formats. Refer to ***TAG UTILITIES*** in Section 11 for complete information.

Upgrade TDT Upgrades the TDT format. Refer to ***Upgrading the Project TDT Database*** in Section 4.

Edit Project Info Permits editing the project description.

UTILITIES MENU

The *Utilities* menu contains these items.

INFI 90 Communications Setup Configures the communication port for display broadcasting. Refer to ***CONFIGURING WINTOOLS COMMUNICATIONS*** in Section 11 for complete information.

DOS Interface Setup Configures color and sound options for the general edit system (GES) used by the DOS-based utilities. Refer to ***CONFIGURING THE GES USER INTERFACE*** in Section 11.

View Error Log Launches the log viewer application. Refer to ***VIEWING LOG FILES*** in Section 11 for complete information.

HELP MENU

The *Help* menu contains help and related items.

Contents — Activates help and provides a table of contents for the console tools executive help.

Search for Help on — Activates the help search function.

How to Use Help — Displays standard Windows information on using Windows help.

About — Provides information about the WLDG product.

LOOP MENU

The *Loop* menu contains loop related items.

Add Console — Adds a console to the project under the current loop.

Delete Loop — Deletes the selected loop and all consoles and files below it from the project. Associated files and directories are also deleted from disk.

CONSOLE MENU

The *Console* menu contains console configuration items. The specific items available depend on the console type and revision entered in the console information dialog box.

Add Display Group — Adds a display group to the console.

Add Symbol Group — Adds a symbol group to the console.

Add Keyboard Group — Adds a keyboard group to the console.

Add Log Group — Adds a log group to the console.

Synchronize Tags — Provides options to add tags to the console tag list from the display configurations and to update tag data in the display configurations from the tag data tables. Refer to ***TAG SYNCHRONIZATION*** in Section 11 for complete information.

Translate Displays/ Symbols — Translates displays and symbols from EWS format (***DR*** and ***DY***) to console format (***DT***). Refer to Section 9 for complete information.

Transfer Tag Info TO Console — Writes tag lists to floppy disk for transfer to consoles. Refer to Section 10 for complete information.

MCS Floppy Utilities — Formats MCS floppy disks and displays MCS floppy disk directories. Refer to Section 10 for complete information.

Delete Console — Deletes the selected console and all its subordinate groups from the project tree and deletes the associated directories and files from disk.

Edit Console Info — Edits console information including description, console revision and type, and associated tag, trend, and report point lists.

DISPLAY MENU

The *Display* menu contains the display configuration items.

Configure Display — Launches the graphical display configurator after selecting a display from the file window. Refer to Section 6 for complete information.

Copy Display — Copies existing displays into a console display group and updates the tag data as appropriate.

Print — Launches the batch print display utility running in a DOS window. Refer to ***PRINTING GDC DISPLAYS*** in Section 11 for complete information.

Synchronize Tags — Provides options to update console tag lists from the display configurations and to update tag data in the display configurations from the tag data tables. Refer to ***TAG SYNCHRONIZATION*** in Section 11 for complete information.

Translate — Translates displays from EWS format (***DR***) to console format (***DT***). Refer to Section 9 for complete information. Appears only for consoles that use ***DT*** files.

Transfer TO Console — Writes display (***DR***) files to floppy disk for transfer to the console. Refer to ***DISPLAYS AND SYMBOLS*** in Section 10 for complete information. Appears only for consoles that use ***DR*** and ***DY*** files.

Add File — Launches the graphical display configurator (GDC) to create a new display in the selected display group. Refer to Section 6 for complete information.

Delete File(s) — Deletes display files.

Delete Group — Deletes the display group from the project tree and deletes the associated directory and files from disk.

SYMBOL MENU

The *Symbol* menu contains the symbol configuration items.

Configure Symbol — Launches the graphical display configurator after selecting a display from the file window. Refer to Section 6 for complete information.

Copy Symbol Copies existing symbols into a console symbol group and updates the tag data as appropriate.

Print Launches the batch print display utility running in a DOS window. Refer to ***PRINTING GDC DISPLAYS*** in Section 11 for complete information.

Translate Translates symbols from EWS format (***DY***) to console format (***DT***). Refer to Section 9 for complete information. Appears only for consoles that use ***DT*** files.

Transfer TO Console Writes symbol (***DY***) files to floppy disk for transfer to the console. Refer to ***DISPLAYS AND SYMBOLS*** in Section 10 for complete information. Appears only for consoles that use ***DR*** and ***DY*** files.

Add File Launches the graphical display configurator (GDC) to create a new symbol in the selected symbol group. Refer to Section 6 for complete information.

Delete File(s) Deletes symbol files.

Delete Group Deletes the symbol group from the project tree and deletes the associated directory and files from disk.

LOG MENU

The *Log* menu contains log configuration items. The log configuration utility runs in a DOS window. Log configuration is not supported for all console types and revisions.

Configure Log Launches the log configuration utility running in a DOS window. Refer to Section 7 for complete information.

Transfer TO Console Writes log configurations to floppy disk for transfer to the console. Refer to ***LOGS*** in Section 10 for complete information.

Delete File(s) Deletes log files.

Delete Group Deletes the log group from the project tree and deletes the associated directory and files from disk.

KEYBOARD MENU

The *Keyboard* menu contains the keyboard configuration items. The keyboard configuration utilities all run in a DOS window. Keyboard configuration is not supported for all console types and revisions.

Configure ADP Launches the annunciator display panel configuration utility. Refer to ***ANNUNCIATOR DISPLAY PANEL KEYS*** in Section 8 for complete information.

Configure Alarm Tones — Launches the alarm tones configuration utility. Refer to ***ALARM TONES*** in Section 8 for complete information.

Configure Alarm Relays — Launches the alarm relays configuration utility. Refer to ***ALARM RELAYS*** in Section 8 for complete information.

Configure OIS Function Keys — Launches the function key configuration utility. Refer to ***FUNCTION KEYS*** in Section 8 for complete information.

Transfer TO Console — Writes keyboard configurations to floppy disk for transfer to the console. Refer to ***KEYBOARD CONFIGURATIONS*** in Section 10 for complete information.

Load FROM Console — Reads keyboard configurations from floppy disk for transfer from the console. Refer to ***RETRIEVING KEYBOARD CONFIGURATIONS*** in Section 10 for complete information.

Delete File(s) — Deletes keyboard configuration files.

Delete Group — Deletes the keyboard group from the project and deletes the associated directory and files from disk.

DT MENU

The *DT* menu contains translated display and symbol items and MCS, IIOIS20, and IIOIS25 tag and trend list items.

Broadcast Displays — Broadcasts displays to a console over the INFI-NET network. Refer to ***BROADCASTING DISPLAYS AND SYMBOLS*** in Section 10 for complete information.

Transfer TO Console — Writes translated display (***DT***) configurations and MCS tag and trend lists to floppy disk for transfer to the console. Refer to ***DISPLAYS AND SYMBOLS*** in Section 10, ***MCS, MCS PLUS, IIOIS20, AND IIOIS25 TAG LISTS*** in Section 10, and ***MCS, MCS PLUS, IIOIS20, AND IIOIS25 TREND LISTS*** in Section 10 for complete information.

Delete File(s) — Deletes a translated display or symbol configuration file or MCS tag or trend list file.

GLOBAL MENU

The *Global* menu contains global display and symbol items.

Add Display Group — Adds a display group to the global console data.

Add Symbol Group — Adds a symbol group to the global console data.

Synchronize Tags — Provides options to update the global tag data from the display configurations and to update tag data in the display configurations from the global tag data table. Refer to ***TAG SYNCHRONIZATION*** in Section 11 for complete information.

Delete Console Deletes the global console data from the project and deletes the associated directories and files from disk.

ON-LINE HELP

On-line help is available for the Windows utilities and provides procedures and reference material similar to that found in the instruction. The on-line help can be used for convenient and quick access to the configuration utility operating procedures. The help system conforms to the standard Windows convention for on-line help. Help can be accessed by the following methods:

F1 Press F1 to bring up the help *Contents* screen for the currently active utility.

Help Menu Select *Contents* from the *Help* menu to bring up the help *Contents* screen for the currently active utility.

TAG LINKING AND PROJECT CONFIGURATION

The tag linking feature of the console tools and Module Configuration Tools (WCAD) enables global tag data to be shared among the utilities. The module tools and the console tools can share a common project tag database, called the tag data tables (TDT). In the tag data tables, the tag list is split into a global tag table containing all common fields of all defined tags and another table containing the console specific fields of each tag for each console list. A tag identifier links the occurrence of a tag throughout the module configuration sheets, the tag database, and the display configurations. For more information on the tag data tables, refer to ***TAG DATA TABLES OVERVIEW*** in Section 5. Table 5-10 lists the tag fields as common or console specific.

The use of tag linking has several consequences: 1) Tag data defined in one configuration is available for use in other configurations; 2) Changes made to tag data in one configuration are reflected in another configuration (either automatically or by using one of the synchronization utilities); 3) The method and procedures used in configuring a project must take into account the tag linking capabilities of the configuration tools. Used properly, the tag linking capabilities reduce data input and prevent input of invalid data due to single point tag data entry.

The following examples are intended to describe tag data flow only and are not complete procedures for configuring a console. Figure 3-5 shows the paths taken by the tag data with respect to where it is used and manipulated.

Example 1 Starting a new project: This assumes that the Module Configuration Tools (WCAD) is available and that the project

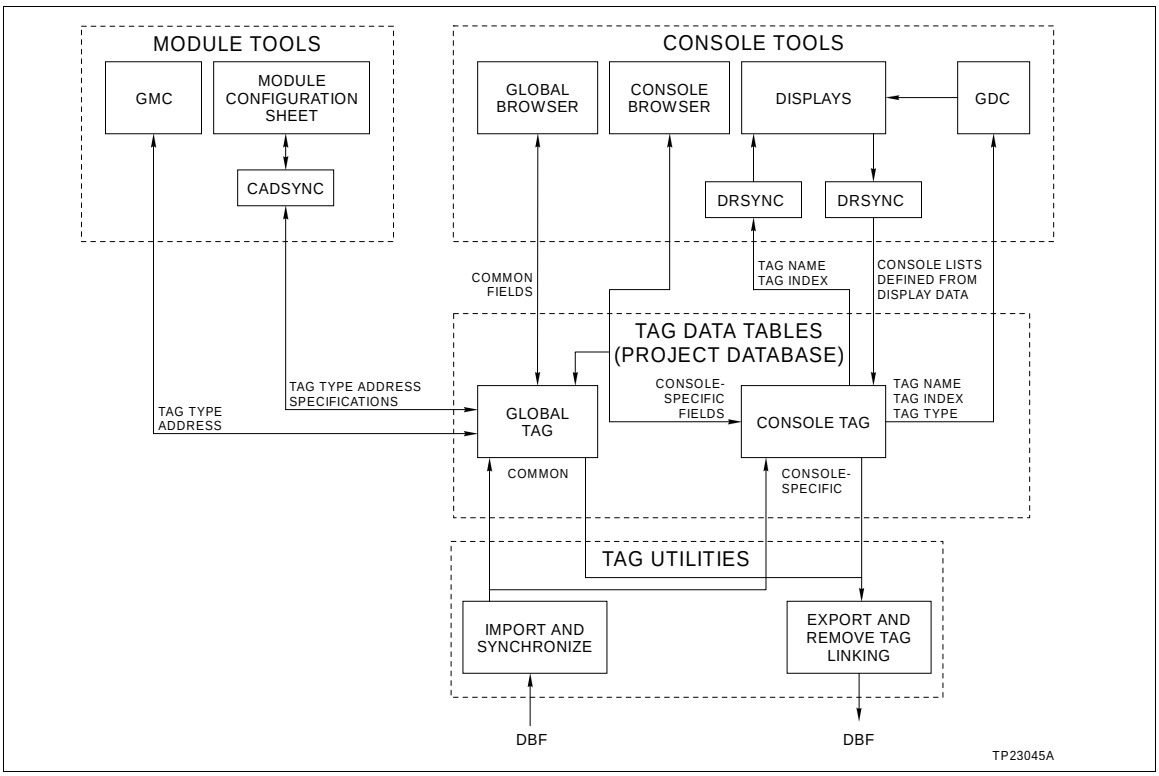


Figure 3-5. Tag Data

configuration is started without any existing configuration database information.

1. A project is created using the console tools executive and module tools executive. The console and module portion of the project must use the same project directory. New, empty tag data tables are added to the project directory when the project is defined.

2. Loops, consoles, and groups are added to the console configuration project tree using the console tools executive. Loops, PCUs, and modules are added to the module configuration project tree using the module tools executive.

3. During module configuration, exception reporting function codes are defined. This action places tag data (tag name and address) into the global tag list and common tag data is available to the other tools.

4. The tag browser is used to edit the global tag list and enter all other common information for each tag.

5. Consoles are assigned tag lists.

6. The console displays are configured and tag names are picked from the global list to be used in the dynamic elements (escapes).

7. The tag synchronization utility is run and updates or generates a console tag list based on the tags found in the console displays.

8. The tag browser can be used to create console tag lists as needed. The tag browser is used to edit the console tag list and enter any remaining console specific information.

9. CADSYNC and DRSYNC are run to update configurations after any editing is performed after the initial configuration.

10. The configurations are transferred to the console.

Example 2

Importing a pre-WLDG project: This assumes that an existing project is being imported from an earlier version of the configuration tools not having tag linking capability.

1. The console configuration portion of the project is defined using the console tools executive. New, empty tag data tables are added to the project directory. Add loops, consoles, and groups to reflect the existing project configuration.

2. Import existing tag, trend, and report point lists using the import utility. As the tag lists are imported, common data is filtered out and put into the global tag table. Console specific data is put into the appropriate console tag list in the console tag table.

3. Assign tag lists to consoles.

4. Use *Copy Display* and *Copy Symbol* from the console tools executive *Display* and *Symbol* menus to copy existing displays to their respective console groups. Use the module import function of the module tools executive to import modules into the project. When copied, the display and module configuration files are updated to include tag linking capability.

Example 3

Copying a project or portion of a project to use as a basis for another project: This can be done by copying the entire or selected directory structure of the project to a new location. The entire tag database (all TDT files) must be copied together. The project can be renamed by renaming the project file (***PRJ***). If changes are made to displays which are to be exchanged among the projects, care must be taken when changing tag information or to run tag synchronization on the copied displays or to use the import function which automatically synchronizes them.

CONSOLE CONFIGURATION OVERVIEW

This section describes steps or activities to be performed when configuring consoles. It assumes a certain amount of design work has been done on paper; for example, determining how many loops and consoles are needed, console types, and the types of displays needed and that the module configuration has been performed to the point that the global tag data has been generated from the function code definitions (requires WCAD). In a very general sense, the following steps outline the console configuration procedure:

1. Define or open a project.

2. Define the project structure (add loops, consoles, and data groups).

3. Perform the configurations.

4. Assign tag lists to consoles if not already done and insure that all synchronization has been performed so that the configurations are up-to-date.

5. Translate configurations as needed.

6. Transfer the configurations.

There are prerequisites for each configuration and alternate methods of doing some configurations. Figure 3-6 shows the flow of activities involved in configuring consoles. Each activity is described in the following sections.

Define Project

Start the console tools executive and use the *File* menu to define or open a project. This automatically shows a tag data branch on the tree. If tag data exists (from module configuration), this reflects the existing TDT; otherwise, a new, empty TDT is created (containing only the default EUD and LSD lists). Refer to ***PROJECT OPERATIONS*** in Section 4 for complete information.

Project Structure Definition

Add global data groups, and define loops, and consoles as required for the project. Refer to ***DEFINING THE PROJECT STRUCTURE*** in Section 4 for information on adding items to the project. When consoles are added, console information can be entered such as console type and revision. The console tag list can be assigned now or after the tag lists are created.

Global Tag Configuration

Once the project is defined, the global tag browser can be used to enter new tags and fill in common tag fields (edit global tags). If the module tools are available, they should be used to fill in any fields whose source is the module configuration. This is done automatically if the global list is created by the module

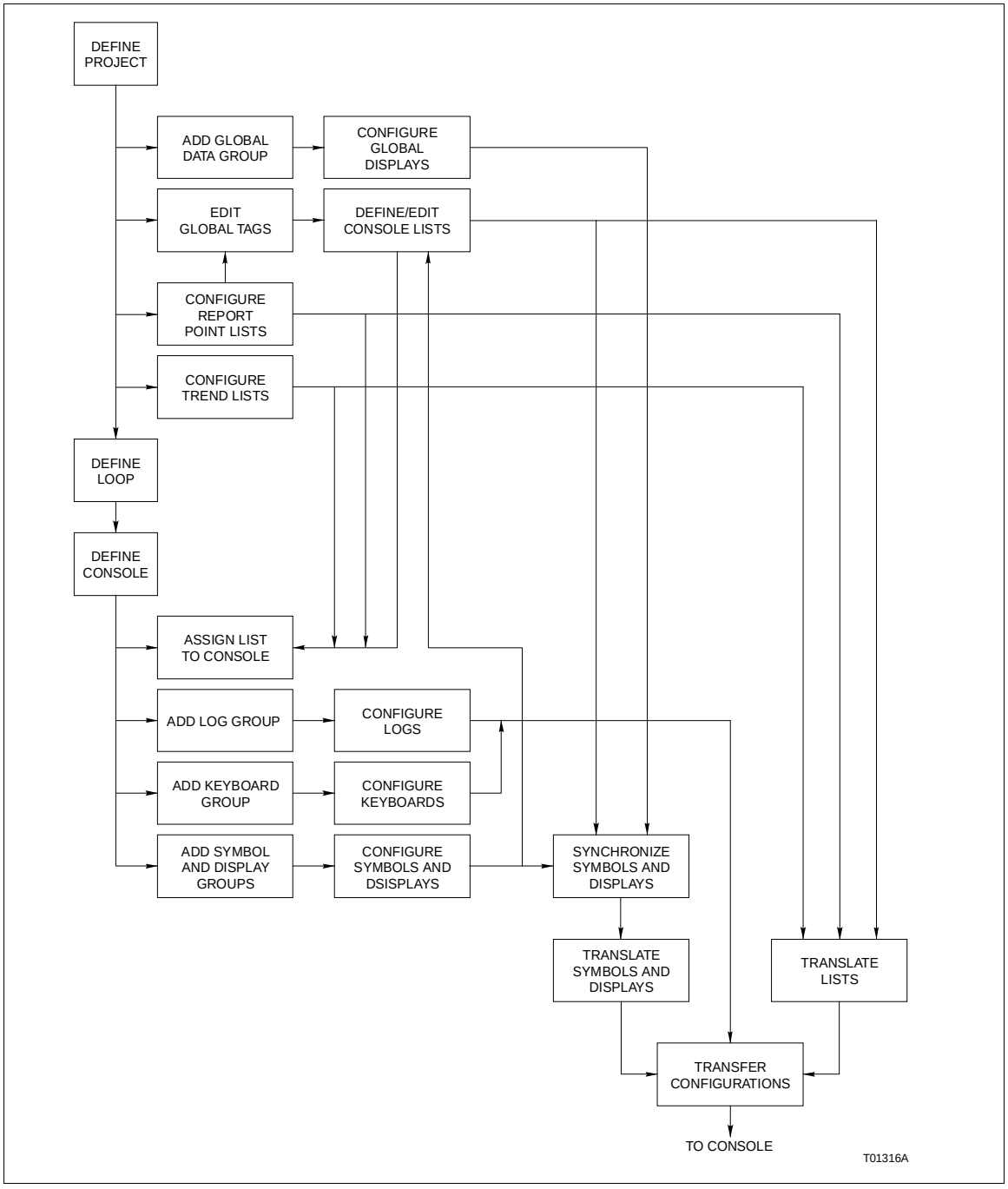


Figure 3-6. Configuration Flow

tools or can be done later using the module tools tag synchronization utility.

Global Display Configuration

Use the graphical display configuration (GDC) utility to perform global display and symbol configuration. The dynamic tag linking feature of the GDC utility allows tag names to be picked from the tag data tables for use in escapes. Refer to Section 6 for complete information. The global displays can be

configured anytime after the project is defined. When the global displays are translated, the console tag list assigned to the target console is used to assign indices to the translated display (***DT***) file.

Trend Configuration

Trend configuration can be performed anytime after the project is defined. Refer to ***TREND LIST CONFIGURATION*** in Section 5 for complete information on configuring console trend lists. After the trend list is configured and consoles are defined, the list must be assigned to the console.

Report Point Configuration

Report point configuration can be performed anytime after the project is defined. It must be performed before the tags they represent are usable from the tag data tables. Report point configuration is valid for open access system (OAS) E.1 and later machines only. Refer to ***REPORT POINT CONFIGURATION*** in Section 5 for information on configuring report point lists. After the report point list is configured and OAS machines are defined, the list must be assigned to the OAS machine.

EUD, LSD, and Alarm Comment Configuration

The EUD, LSD, and alarm comment browsers can be used to edit their respective lists anytime after the project is defined. Refer to ***ENGINEERING UNIT DESCRIPTOR CONFIGURATION*** in Section 5, ***LOGIC STATE DESCRIPTOR CONFIGURATION*** in Section 5, and ***ALARM COMMENT CONFIGURATION*** in Section 5 for information on configuring these lists. These lists are global and are used by all consoles in the project. These configurations should be performed before configuring tag lists.

Console Display Configuration

Use the graphical display configuration (GDC) utility to perform display and symbol configuration. The dynamic tag linking feature of the GDC utility allows tag names to be picked from the tag data tables for use in escapes. Refer to Section 6 for details on the GDC utility.

Console Tag List Configuration

After the global tag list is created, console tag lists can be created. Further prerequisites depend on the method used to create the console tag lists. Console tag lists can be created in several ways: 1) Import an existing list. Refer to ***TAG UTILITIES*** in Section 11. 2) Open the global list and mark selected tags to be saved as a console tag list. Refer to ***USING THE BROWSERS*** in Section 5 for complete information. 3) The console tag list browser can also be used to add and edit console tag lists. 4) After the console displays are created, run tag synchronization to generate a console tag list from the tags residing in the displays. Refer to ***TAG SYNCHRONIZATION*** in Section 11 for complete information.

Log Configuration

Log configuration can be performed after the consoles are defined and a log group is added to the console. Log

configuration is not supported for all console types. Refer to Section 7 for complete information.

Keyboard Configuration

Keyboard configuration can be performed after the consoles are defined and a keyboard group is added to the console. Keyboard configuration is not supported for all console types. Refer to Section 8 for complete information.

Assign Lists to Consoles

A new, empty list can be created and assigned to the console when the console is added to the project. Otherwise, after the console tag lists are created they need to be assigned to a console. Refer to ***EDITING CONSOLE INFORMATION*** in Section 4 for complete information.

Synchronize Displays

The console displays and symbols must be synchronized to the console tag list. This means insuring that the tag name, type, and index in the display match the appropriate tag in the console tag list or correcting it if it does not. Changes made to the tag name, type, or index from within the browsers are not automatically reflected in the displays (the browsers do not know which displays use which tags). A display or symbol is synchronized whenever it is opened within the GDC utility. One or more displays and symbols can also be synchronized using the synchronize utility. Refer to ***TAG SYNCHRONIZATION*** in Section 11 for complete information. The method of synchronization used depends on the circumstance. For example, it may be better to insure that displays are synchronized before translation rather than generating warnings and errors during translation.

Translate Display Configurations

Once configured, display and symbol files need to be translated from EWS format (***DR*** and ***DY***) to console format (***DT***). Console display and symbol files must be synchronized to the tag data prior to translation. Refer to ***TRANSLATING DISPLAYS AND SYMBOLS*** in Section 9 for information on translating display and symbol files.

Translate Tag and Trend Lists

This is only required for specific consoles. Tag and trend lists must be translated for MTOS consoles and is done as part of transferring the configurations. PCV 4.3 console tag lists must be translated from the DOS prompt. Refer to ***PCV 4.3 TAG BUILDER*** in Section 12.

Transfer Configuration

Before transferring configurations, the configurations must be up-to-date, any synchronization done, and any required translating done. Configurations can be transferred in any order and at any time the particular configuration is completed. Refer to Section 10 for complete information.

The following information may also be useful during the course of configuration:

Importing Project Information

Rather than starting with no existing information, project information can be imported from other projects or from

pre-WLDG console tools. For example, an entire project database could be imported from an existing SLDG configuration. This issue was discussed in Example 2 of ***TAG LINKING AND PROJECT CONFIGURATION*** in this section.

SUPPLEMENTAL CONFIGURATION UTILITIES

This section describes additional operations that can be performed during the course of configuring consoles.

Supplemental Utilities

The following utilities can be performed at any appropriate time during the course of configuring consoles:

Tag synchronization: Update console display files from the console tag list and add tags to a tag list from the console display files. Refer to ***TAG SYNCHRONIZATION*** in Section 11.

Tag utilities: Import and export lists, copy lists, re-index lists, and pack lists. Refer to ***TAG UTILITIES*** in Section 11.

Printing display and symbol files: Print display and symbol files outside of the GDC utility. Refer to ***PRINTING GDC DISPLAYS*** in Section 11.

Log file viewer: View log files generated by the utilities. Refer to ***VIEWING LOG FILES*** in Section 11.

Communications port setup: Sets up the communications port for the display broadcasting utility (and the module configuration tools if installed). Refer to ***CONFIGURING WINTOOLS COMMUNICATIONS*** in Section 11.

Setting up the GES user interface: Sets up color and sound features of the general edit system used for the DOS utilities. Refer to ***CONFIGURING THE GES USER INTERFACE*** in Section 11.

Supplemental DOS Utilities

The following utilities must be run from the DOS prompt:

Display utilities: Manipulate and extract information from translated display files (***DT***). Refer to ***DISPLAY UTILITIES*** in Section 12.

Automatic display and popup (ADAP): Refer to ***AUTOMATIC DISPLAY AND POP-UP*** in Section 12.

Tag list builder for PCV 4.3 consoles: Tag lists must be built for the PCV consoles before transferring them. Refer to ***PCV 4.3 TAG BUILDER*** in Section 12.

Transfer for PCV 4.3 tag lists: PCV 4.3 tag lists must be transferred from the DOS prompt. Refer to ***TRANSFER*** in Section 12.

WINDOWS CONVENTIONS

Many of the console tools run under the Windows operating environment. The Windows operating environment presents standard methods of interfacing to the utilities. Complete information for using the Windows environment is located in the Windows documentation. Some of the more common user actions are described in Table 3-1. Table 3-2 describes buttons found in dialog boxes.

Table 3-1. Windows Actions

Action	Description
Click	Press and release a mouse button. Unless otherwise specified, it refers to the primary mouse button. For example, clicking on a menu makes it drop down. Clicking on an object selects it.
Ctrl-Click	Press and hold Ctrl while clicking. This will select multiple objects.
Choose	Cause a command or other action to be performed.
Double click	Press and release the mouse button twice in succession. For example, double clicking on a file in the *Open* dialog box opens the file.
Drag	Press and hold the mouse button while moving the mouse. For example, dragging is used to position an entity or draw a selection window.
Point	Move the mouse cursor to a designated position.
Multi-select	More than one item can be selected at a time. In the console tools executive file window, multiple files can be selected using the following method: Point to a starting file and drag the cursor down the file list. Each file in turn is selected. Release the mouse button when done.
Select	Mark or highlight an item or entity for some subsequent action or command.

Table 3-2. Windows Dialog Box Buttons

Action	Description
OK	Accepts changes in a dialog boxes and returns to the application.
Cancel	Cancels any changes in a dialog box and returns to the application.
Apply	Accepts changes in a dialog box. The changes are reflected in the application but the dialog box remains. This can be used to verify changes before leaving the dialog box.
Default	Returns dialog box entries to system defaults.

Table 3-2. Windows Dialog Box Buttons (continued)

Action	Description
Help	Activates help for the dialog box.

GENERAL EDIT SYSTEM CONVENTIONS

The general edit system (GES) defines the user interface conventions used by the DOS utilities. This includes menu selection and entering or modifying data in data entry screens. Refer to Appendix C for a complete description of the general edit system. Commonly used functions are described in Table 3-3.

Table 3-3. General Edit System Functions

Function	Keys
Menu selection	Press the corresponding alphabetic character or highlight the item with the cursor keys and press **Enter**.
Cursor movement in a screen	↑, ↓, **Ctrl**-↑, **Ctrl**-↓, **Home**, **End**, **Ctrl**-**Home**, **Ctrl**-**End**
Accept screen data	**F10**
Exit screen	**Esc**
Cursor movement within a field	←, →
Delete characters in a field	**Del**, **Backspace**
Enter data in a field and move to the next field	**Enter**, **Tab**

SECTION 4 - MANAGING PROJECTS

INTRODUCTION

This section describes the activities involved in managing a project. These activities include defining and opening a project, adding loops, consoles, and groups to a project, deleting these same items from a project, and defining project and console information files.

PROJECT DIRECTORY STRUCTURE

The project directory structure shown in Figure 4-1 reflects the organization of the project in the directory tree. It is created as items are added to the project tree. This directory structure is enforced and is the only structure recognized by the console tools executive. In Figure 4-1 directories and files for both the console and module tools are shown; however, the console project tree only shows console related items. The following additional rules regarding the directory structure are observed:

- A project must reside on the user's local disk. Network drives are not supported.
- A project can consist of either module configurations, console configurations, or both.
- A project root directory can have only a single project in it (designated by a ***PRJ*** file).
- The project file name (***PRJ***), the CAD border information file name (***JHD***), and the tag data table files all use the same name (with different extensions).
- Changes to the project directory structure and files should be made via the console tools executive only.

PROJECT OPERATIONS

Before using a configuration utility, a project must be defined or opened. When a project is defined, it is automatically opened. Opening a project means making it the current project. The current project tree appears in the console tools executive application workspace and current project information is made available to the utilities. Only one console tools executive and project can be active at any one time.

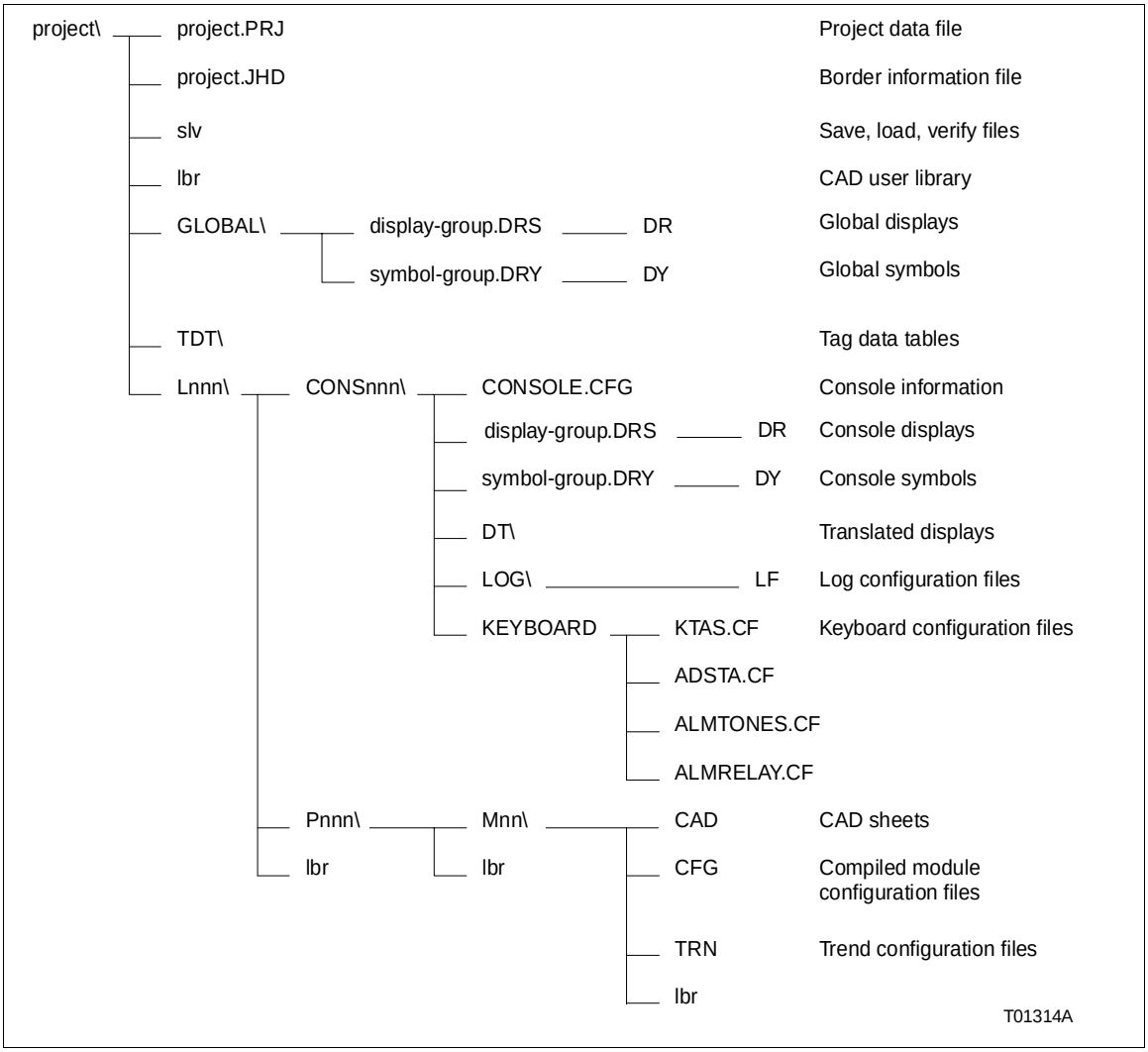


Figure 4-1. Project Directory Structure

Defining

When a project is defined, a number of files are created and stored in the project directory. All the files for a given project use the same name as given when the project is defined and have different extensions. Each project must be stored in a unique path.

To define a new project:

1. If necessary, use the file manager or DOS commands to create a directory for the new project. The console tools executive will not create a directory for the project.

2. If a project is currently opened, it must be closed before defining a new project. Use *Close* from the *File* menu (Alt F C) to close a project.

3. Choose *New* from the *File* menu (Alt F N). The *New Project* dialog box appears.

4. If necessary, select a drive and directory to specify a starting path for the project. This must be a local drive. The project files will be stored in this path. The console tools executive default is C:\EWS.

5. Type in a name for the new project in the *File Name* box and click on *OK*.

6. The *Project Information* dialog box appears. Type in a description for the project and click on *OK*.

After creating a project:

- It is automatically opened.
- The project description appears next to the Elsag Bailey logo at the root of the project tree.
- The project files are created and stored in the project directory.
- A subdirectory (TDT) for the tag data tables is created containing an empty tag database (except for the default EUD and LSD lists).
- The tag icon reflecting the tag data tables and the standard symbols group appear under the project.
- Loops and a global data group can be added to the project.

Opening

The *Open Project* dialog box defaults to the last project worked on (defined or opened). The default project can be opened or any defined project can be selected from the *File Name* box. Project files have a ***PRJ*** extension.

To open a project:

1. If a project is currently opened, it must be closed before opening a new project. Use *Close* from the *File* menu (Alt F C) to close a project.

2. Choose *Open* from the *File* menu (Alt F O). The *Open Project* dialog box appears.

3. Select or type the name of a project in the *File Name* box. If necessary, select a drive and directory. Only projects on the user's local drive should be accessed.

4. Click on *OK* to continue.

After opening a project:

- The executive reads the directory structure for the project and displays tag data, loop, and global data group directories as icons in the project tree.
- The project description appears next to the project folder icon at the root of the project tree.

NOTES:

1. Only one project can be opened at a time.

2. If *Auto Open on Start-Up* from the *File* menu is toggled on, the last opened project is automatically opened when the console tools executive is launched.

3. If the project TDT database revision does not match the revision expected for the software release, a message appears indicating the TDT database needs upgraded. Refer to ***Upgrading the Project TDT Database*** for information.

Closing

An opened project must be closed before another project can be opened or defined. To close a project, use *Close* from the *File* menu (Alt F C).

Upgrading the Project TDT Database

This procedure upgrades a WLDG01 release 1.0/1.1 TDT database to WLDG01 release 2.0 format for the current project. The upgrade adds the TAGTYPESRC field to the tag list table.

If the TDT database needs upgraded, a message indicating a TDT version mismatch appears when the project is opened. The project will open and the project tree appears, however any tools that operate on the TDT database are disabled (the menu items are grayed out). After upgrading the TDT database, the tools that operate on the TDT database are enabled and the *Upgrade TDT* menu item is disabled.

To upgrade the TDT database:

1. Choose *Upgrade TDT* from the *Project* menu (Alt P G).

The *Upgrade TDT* dialog box appears. It shows the current TDT database, its revision, and the amount of disk space needed to perform the upgrade. If *Backup TDT file(s) before upgrading* is checked, any current files that need to be modified during the upgrade are copied to the directory \WT1X under the current

TDT directory. This can be used to restore the TDT database to its pre-upgrade condition by copying the files back to the parent TDT directory.

> **NOTE:** Once the TDT database is upgraded and new tags are added to the database or tags are deleted from the database, the files in the \WT1X directory cannot be copied back into the TDT directory.

2. Click on *Upgrade* to continue.

3. A confirmation message appears. Click on *Yes* to continue. The upgrade process proceeds.

4. When done, a message appears indicating the results of the upgrade. Click on *OK* to exit the upgrade utility.

EDITING PROJECT INFORMATION

The project information can be edited at any time using *Edit Project Info* from the *File* menu (Alt F P).

DEFINING THE PROJECT STRUCTURE

The project structure is defined by adding branches to the project tree. The *Project*, *Loop*, and *Console* menus have an item to add a branch one level below themselves. For example, the *Project* menu has an *Add Loop* item. After a branch is added to the project, the branch information is automatically recorded in the project directory. There is no need or provision to save the project structure manually.

> **NOTE:** Once a project structure is defined, do not use DOS, Windows, or any utilities to modify project directories or files. To remove branches from the project tree, refer to ***DELETING LOOPS, CONSOLES, AND GROUPS***.

Adding Loops

In the console tools executive, loops contain consoles. Any number of loops can be added, up to the maximum supported.

To add a loop to the project:

1. Select the project branch.

2. Choose *Add Loop* from the *Project* menu (Alt P A).

3. The *Add Loop Address* dialog box appears. Enter a unique loop address from 0 to 250 in the *Loop* text box and click on *OK* to continue.

After adding a loop:

- A loop directory is created under the project directory designated Lnnn, where nnn is the loop address.
- The loop branch is added to the project tree.
- Consoles can be added to the project.

Adding Consoles

Consoles contain the display, symbol, log, and keyboard configuration groups. Any number of consoles can be added to a loop, up to the maximum supported.

To add a console to a loop:

1. Select the loop to which the console is to be added.

2. Choose *Add Console* from the *Loop* menu (Alt L A).

3. The *Add Console* dialog box appears. The loop address appears in the *Loop* text box and cannot be changed. Enter a unique console address from 0 to 250 in the *Console Address* text box and click on *OK* to continue.

   NOTE: A console address within the valid range may conflict with a PCU address defined in WCAD. If so, the console tools executive detects the conflict.

4. The *Console Information* dialog box appears. Refer to Table 4-1 for a description of the dialog box items and enter information as required.

Table 4-1. Console Information Dialog Box

Item	Description
Description	Appears beside the console address in the project tree.
Type and revision	Console type and revision must be provided to continue.
Floppy drive size	Used for transferring configurations.
Tag list	A new or existing tag list to be used by this console. If the tag list does not exist, it must be created using the tag browser or tag synchronization.
Trend list	An existing trend list to be used by this console.
Report point list	An existing report point list to be used by this console. Valid for OAS machines only.

5. The *Console Type and Revision* must be filled in. The remaining information can be entered now or edited later. The

trend and report point lists cannot be added until they are created. Click on *OK* to continue.

After adding a console:

- A console directory is created under the loop directory designated CONSnnn, where nnn is the console address.
- The console branch is added to the project tree under the selected loop.
- A DT directory is automatically created under the console directory to store translated display files and a corresponding icon appears under the console branch. (This appears for all consoles, including those that do not use ***DT*** files.)
- Display, symbol, log, and keyboard groups can be added.

Adding a Display Group

Display groups contain console display files and can be used to organize the displays for a console. As well, DOS file system performance can be optimized by having multiple groups of less files (on the order of 100 to 150 maximum). More than one display group can be added to a console.

To add a display group:

1. Select the console to which the display group is to be added.

2. Choose *Add Display Group* from the *Console* menu (Alt C D). The *Display Group Name* dialog box appears.

3. Enter a valid DOS file name and click on *OK* to continue.

After adding a display group:

- A directory is created under the console directory using the display group name and a ***DRS*** extension.
- The display group is added to the console branch.

After configuring displays, the display configuration file names for a console appear in the file window when the display group is selected.

Adding a Symbol Group

Symbol groups contain console symbol files can be used to organize the symbols for a console. As well, DOS file system performance can be optimized by having multiple groups of

less files (on the order of 100 to 150 maximum). More than one symbol group can be added to a console.

To add a symbol group:

1. Select the console to which the symbol group is to be added.

2. Choose *Add Symbol Group* from the *Console* menu (Alt C S). The *Symbol Group Name* dialog box appears.

3. Enter a valid DOS file name and click on *OK* to continue.

After adding a symbol group:

- A directory is created under the console directory using the symbol group name and a ***DYS*** extension.

- The symbol group is added to the console branch.

After configuring symbols, the symbol configuration file names for a console appear in the file window when the symbol group is selected.

Adding a Keyboard Group

The keyboard group contains the keyboard configuration files for a console. Keyboard groups are only valid for consoles that are supported by the keyboard configuration utility. One keyboard group can be added to a console.

To add a keyboard group:

1. Select the console to which the keyboard group is to be added.

2. Choose *Add Keyboard Group* from the *Console* menu (Alt C K).

After adding a keyboard group:

- A directory is created under the console directory designated KEYBOARD.

- The keyboard group is added to the console branch.

After configuring keyboards, the keyboard configuration file names for a console appear in the file window when the keyboard group is selected.

Adding a Log Group

Log groups contain the log configuration files for a console. Log groups are only valid for consoles that are supported by the log configuration utility. One log group can be added to a console.

To add a log group:

1. Select the console to which the log group is to be added.
2. Choose *Add Log Group* from the *Console* menu (Alt C L).

After adding a log group:

- A directory is created under the console directory designated LOGS.
- The log group is added to the console branch.

After configuring logs, the log configuration file names for a console appear in the file window when the log group is selected.

Adding a Global Console Group

A global console group can contain global display and global symbol groups. One global console group can be added to a project.

To add a global console group, choose *Add Global Data Group* from the *Project* menu (Alt P G).

After adding a global group:

- A directory is created under the project directory designated GLOBAL.
- The global group is added to the console branch.
- Display and symbol groups can be added to the global data group.

After global displays and symbols are created or added to the project, their file names appear in the file window when the group is selected from the project tree.

DELETING LOOPS, CONSOLES, AND GROUPS

Deleting a loop, console, or data group deletes the item from the project tree and deletes all associated directories and files from disk.

To delete a loop, console, or group from the project:

1. Select the loop, console, or group to be deleted.

2. Choose the *Delete Loop* (Alt L L), *Delete Console* (Alt C E), or *Delete Group* item under the corresponding menu.

3. A confirmation message appears. Click on *OK* to proceed with the deletion.

DELETING FILES

One or more configuration files can be deleted from a group without deleting the group.

To delete files from a group:

1. Select the group containing the configuration files to be deleted.

2. Select one or more files from the file window.

3. Choose *Delete File(s)* from the appropriate menu.

4. A confirmation message appears. Click on *OK* to proceed with the deletion.

NOTE: Tag lists cannot be deleted in this manner.

COPYING DISPLAYS AND SYMBOLS

Display and symbol files can be copied into a display or symbol group from any available path. When a display or symbol is copied, the file is physically copied from the source to the destination group directory and, optionally, tag synchronization can be run on the copied display file.

To copy display or symbol files:

1. Select the display or symbol group that is to be the destination.

2. Choose *Copy Display(s)* from the *Display* menu (Alt D O) or *Copy Symbol(s)* from the *Symbol* menu (Alt S O). A copy files dialog box appears.

3. Locate the files to copy using the drive and directory boxes.

4. Select one or more files to copy from the *Files to Copy* list box.

5. Click on *OK* to copy the selected files. While copying, if there is a file name conflict, a prompt appears to overwrite the existing file.

6. When display files are copied, a *Synchronize Tags* dialog box appears and tag synchronization can be performed. Refer to ***TAG SYNCHRONIZATION*** in Section 11 for information.

When done, the file window is updated and the imported files appear in the file window list.

EDITING CONSOLE INFORMATION

Console information can be edited after adding a console to the project. One reason to do this is to assign tag, trend, and report point lists to the console if they are not available when the console was initially defined.

To edit console information:

1. Select the console of interest from the project tree.

2. Choose *Edit Console Info* from the *Console* menu (Alt C E). The console information dialog box appears.

3. Refer to Table 4-1 for a description of the console information dialog box items.

NOTES:

1. The floppy drive size is updated only after selecting a console type and tabbing out of the list box.

2. If the console type is changed, the project is rescanned and all loops, consoles, and groups are closed.

3. If changing the console type invalidates a console group, for example *Keyboards* (since keyboard configuration is not supported for all consoles), then the group is removed from the project tree but the KEYBOARD directory and its contents remain unchanged on the disk.

4. MTOS and 40 series consoles generate different and incompatible log configuration files. If the console type is changed between these two, the log group is valid, but the configurations are not valid and must be reconfigured for the proper console type.

SECTION 5 - TAG DATABASE CONFIGURATION

INTRODUCTION

This section describes how to configure the project tag data tables (TDT). The tag data tables comprise the database for a project and include all console tag lists, all console trend lists, and all OAS report point lists. Other lists include the alarm comment list, engineering unit descriptor list, and logic state descriptor list which are common to all console tag lists. These lists are maintained by database editor applications called browsers. Each browser application operates in a similar manner but is customized to work with its particular type of list.

This section provides the following information:

- An overview of the tag data tables structure, features, and operation.
- Detailed information on using the browser applications.
- Specific information on configuring each type of list.

The first two subsections should be reviewed first to become familiar with the tag data tables structure and operation of the browsers. The remaining sections contain configuration procedures and information specific to each type of list.

The project TDT configuration is console type and revision level independent. In particular, this means that tag and trend list configuration supports all tag and trend types and fields for all console types and revision levels listed in Table 1-3. There is no checking done within the browsers to verify that a tag or trend type or field is valid for a particular console to which the tag or trend list is assigned. When a tag or trend list is transferred, tag and trend fields not valid for the console type and revision are filtered out of the transferred list. Invalid tag types are transferred and appear as undefined on the console.

TAG DATA TABLES OVERVIEW

This section describes the tag data tables and their role in configuring console tag lists. The tag data tables contain console tag, trend, engineering unit descriptor (EUD, logic state descriptor (LSD), alarm comment (AC), and report point list information. The structure of this information is different than that used by the console but can be exported in several formats, including console format. For a description of how tags, trends, and the associated lists are used on the consoles, refer

to the appropriate ***Configuration*** instruction listed in Table 1-2.

The structure of the tag data tables is shown in Figure 5-1. The key feature of the tables is how the console tag information is managed. Tag field information is of two types: common field information is the same for all console tag lists; console specific field information can be defined uniquely for each console tag list. Each tag in the project database is defined once in the global tag table. Its definition includes at minimum, the tag name, type, and address. All common tag fields are in the global tag table. The console tag table contains all console tag lists. Tag references in the console lists are linked to their definition in the global tag table. The console tag lists contain the console specific fields for each tag in the list. (Refer to Table 5-10 for a list of the common and console specific fields.)

The structure of the TDT database is release dependent, reflecting changes needed, for example, as tag types and fields are added to the database structure. This has the following consequences:

- The configuration tools used to configure consoles and modules within a project must be of the same release revision. WLDG01 release 1.0/1.1 and WCAD01 release 1.0/1.1 are used together and WLDG01 release 2.0 and WCAD01 release 2.0 are used together. They cannot be intermixed for use within the same project.

- The TDT database must be of the same revision level as the configuration tools used. After installing WLDG01 release 2.0 and prior to using it for configuration, a TDT database from an existing project must be upgraded for use with release 2.0. This can be done from within WLDG01 release 2.0 or WCAD01 release 2.0. Refer ***Upgrading the Project TDT Database*** in Section 4 for information. Once the TDT database is upgraded it can no longer be used with the earlier release configuration tools.

In the TDT structure, the following tables are maintained:

Global Tag Table

One global tag table is maintained for a project. The global tag table contains all console common fields for all tags defined in a project. As well as supporting tag linking, the use of a global tag table for console common fields reduces the size of the database on the engineering work station since this information is stored in one location rather than with each console list. This also reduces configuration time since any editing of the common tag data is performed once and not for each console tag list.

Console Tag Table

The console tag table contains all console tag lists for a project. Each list contains all console specific fields for all tags used by that console and links to the tag definition in the global tag

table. The console lists are not necessarily console specific. A console tag list can be transferred to one or more consoles and even consoles of different types and revisions.

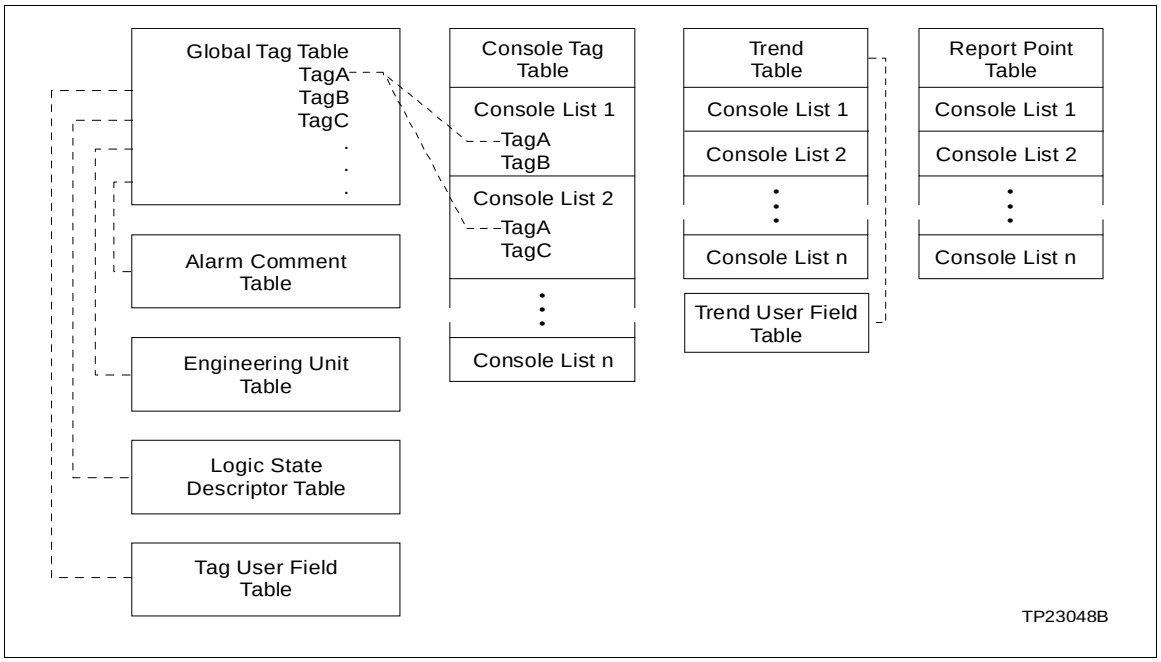


Figure 5-1. Tag Data Tables Structure

In the TDT structure, console tag lists are console type and revision independent. All fields for all tag types are maintained and can be configured. When the console list is transferred, the transfer utility filters out fields not valid for that console and revision. It is the user's responsibility to be aware of the fields and tag types supported by the consoles in the project. Refer to Table 1-3 for a list of supported consoles and to Table 1-2 for a list of console ***Configuration*** instructions.

Tag User Field Table

This table contains the tag list user fields. In the browsers, the user fields appear and are configured along with other tag fields. They are maintained in a separate table to facilitate configuring the user field structure.

Console Trend Table

The console trend table contains all console trend lists for a project. Each list contains all fields for all trends used by that console. The console lists are not necessarily console specific. A console trend list can be transferred to one or more consoles and even consoles of different types and revisions.

Trend User Field Table

This table contains the trend list user fields. In the browsers, the user fields appear and are configured along with other trend fields. They are maintained in a separate table to facilitate configuring the user field structure.

Report Point Table The report point table contains all OAS report point lists for a project. Each list contains all fields for all report points used by that OAS machine. The lists are not necessarily console specific to a revision level. A report point list can be transferred to one or more OAS machines and of different revisions.

EUD Table The EUD table contains engineering unit descriptors for all consoles in a project.

LSD Table The LSD table contains all logic state descriptors for all consoles in a project.

AC Table The AC table contains all alarm comments for all consoles in a project.

These tables are in an internal format designed to be maintained by the browsers. Additionally, tag lists can be updated and maintained by other tools including the graphical display configuration (GDC) utility, the graphical module configuration (GMC) utility, and tag utilities.

Versions of the console tools WLDG01 and later and its companion product, module tools WCAD01 and later, support a feature called tag linking. The tag linking capability means that tags added to the project with the GMC (graphical module configurator) application or the tag browsers are immediately available for use in tag lists and displays. Changes to linked properties (fields) are made once and propagated throughout the project. Changes to a tag name in the browser are (after saving the change) reflected in displays automatically when opened in the GDC application or manually using tag synchronization.

Whenever a tag is added by an application, it receives a tag identifier. Tag identifiers are unique to a tag throughout the project and are used to link the tag to its various points of use. The tag identifier is neither visible nor able to be edited by the user. If the graphical display configurator uses a tag in a console display, this tag and any information about it entered by the graphical display configurator can also be added to the console tag list. Refer to ***TAG LINKING AND PROJECT CONFIGURATION*** in Section 3 for examples of interaction among the tools.

The following utilities operate on the tag data tables but are not discussed in this section:

GMC The GMC utility can add tag definitions and tag data to the global tag table. This tool is not included with the console tools. Refer to the ***Module Configuration Tools (WCAD01)*** instruction for information.

GDC

The GDC utility can add tags and tag data to a console tag list by using that tag in a console display. The tag must exist in the global tag table. Refer to Section 6 for information.

Tag Synchronization

The tag data tables are used by and modified by the GDC, GMC, and browser applications. Changes to the global table or a console list are not automatically reflected in the GDC configurations. There are two ways to update display configurations: 1) Opening the console display using the GDC application or 2) using the tag synchronization utility. Opening a large number of files just to update the tag data may be time consuming and inconvenient. It may be more convenient to update console displays using a separate tag synchronization utility.

Furthermore, any tags added to a console display outside the context of a project are not automatically added to the tag list. In this case, tag synchronization can be used to add tags to the console tag list from the displays.

The console tools include a tag synchronization utility that can add tags to the tag list from the console display configurations or update tag data in the console display configurations from the tag list. Refer to ***TAG SYNCHRONIZATION*** in Section 11 for information on using the tag synchronization utility.

Pack List

When a record is deleted within a browser application, it is actually only marked for deletion and not physically removed from the table. At this point, it is still seen by other console tools (GDC, import, export, etc.) and can still be recovered. This utility removes all records marked for deletion from a selected list. Once the list is packed, deleted records cannot be recovered. Refer to ***TAG UTILITIES*** in Section 11 for information on packing a table.

Transfer Configuration

These utilities transfer a configuration to and from the console by means of floppy disk. Refer to Section 10 for information on transferring configurations.

Import/Export

These utilities import and export tag lists in ***DBF*** and ASCII format. One use would be to export a tag list in ***DBF*** format in order to use third-party utilities to perform some operation on the tag list. The import functions can also be used to import existing tag lists into the project. Refer to ***TAG UTILITIES*** in Section 11 for information on importing and exporting lists.

Copy

Copies a tag list to a new name within the current project. Refer to ***TAG UTILITIES*** in Section 11 for information on copying a list.

Reassign Index

When a record is added to a tag list, it is always given an index incremented by one from the current highest index number. If tags have been deleted, there may be unused tag indices below the current highest index number. To make use of these index

numbers, the reassign index utility can be run on the tag list. Tags can be reassigned to use the lower, unused index numbers. Refer to ***TAG UTILITIES*** in Section 11 for information on reassigning indices.

USING THE BROWSERS

The browser applications facilitate viewing and editing of the tag data tables. Each browser is similar in operation but customized to operate on its particular table or list. The following browser applications are included in the software release:

Tag Browser The tag browser edits global tag data or console specific tag lists. The tag user fields from the tag user field table also appear in the tag browser.

Trend Browser The trend browser edits console specific trend lists. The trend user fields from the trend user field table also appear in the trend browser.

Report Point Browser The report point browser edits report point lists for OAS machines.

Engineering Unit Descriptor Browser The EUD browser edits a common engineering unit descriptor table used by the tag lists.

Logic State Descriptor Browser The LSD browser edits a common logic state descriptor table used by the tag lists.

Alarm Comment Browser The AC browser edits a common alarm comment table used by the tag lists.

This subsection describes the operation of the browser applications. The basic operation of each browser is similar and the tag browser is used as an example in the following descriptions. Certain functionality may not be present on the other browsers and can be ignored. Other differences are noted in the subsection describing a particular configuration procedure (trend, report point, etc.).

Starting a Browser

The browsers are launched from the console tools executive or the tag utilities application. The tag, trend, and report point browsers have list display and edit options that can be selected before going to the browser application window.

To launch a browser:

1. Choose *Browse Tag Data* from the console tools executive *Project* menu or choose the tag utilities *Browse* menu. A submenu appears listing each of the browsers.

2. Choose the browser of interest from the list. If configuring trends, either *OIS Trend Lists* or *PCV Trend Lists* can be chosen. The EUD, LSD, and alarm comment browsers start immediately. The tag, trend, and report point browsers first display a dialog box from which a specific list can be selected and list display and edit options selected. Figure 5-2 shows the tag browser *Open* dialog box; the trend and report point browser opening screens are similar.

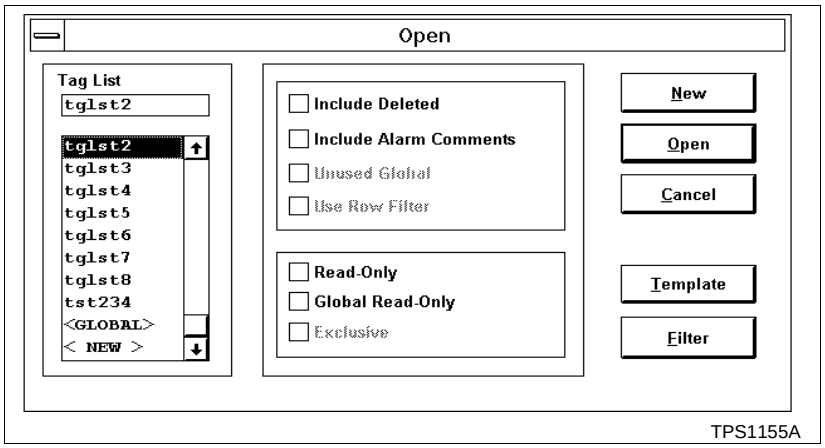


Figure 5-2. Browser Open Dialog Box

3. If editing an existing list, select the list of interest from the list that appears and select start-up options. Refer to Table 5-1 for display and edit option descriptions.

Table 5-1. Browser List Display and Edit Options

Option	Description
Exclusive	Not implemented at this time.
Global read-only	All tags and fields are viewable but permits editing console specific fields only. Tags cannot be added. Appears only for the tag browser.
Include alarm comments	Permits including the alarm comments. Not including alarm comments decreases the time it takes to open the list.
Include deleted	Includes records marked for deletion (in a previous session). They can be included in order to undelete them. Not including deleted records decreases the time it takes to open the list.
Read-only	If checked, records cannot be edited, but all fields can be viewed.
Unused global	Tags are referred to as unused global if they have been defined but have not been assigned to a console. This option permits viewing and editing only the unused global tags. Appears only for the tag browser.

Table 5-1. Browser List Display and Edit Options (continued)

Option	Description
Use filter	If checked, uses filter information to restrict the records viewed by the browser. It is enabled after filtering is defined and defaults to checked. Any filtering remains in effect for the current session. It can be unchecked, when a new list is opened and filtering is not to be used. Template (row) filtering is always in effect.

The following actions can be performed from the tag, trend, and report point browser *Open* dialog box:

- The records and fields that are displayed in the browser can be filtered by clicking on *Filter* or *Template*. Refer to ***Viewing Records*** and ***Viewing Fields*** for more information.
- The selected list can be opened by clicking on *Open*.
- A new list can be started by clicking on *New*.
- The operation can be cancelled by clicking on *Cancel*.

4. Click on *Open* to continue. The browser starts with the selected list and options.

When the browser starts, it creates a temporary file containing the selected data: the list, tags, and fields. This is the file that the browser displays and is modified by the user. Be aware of the following restrictions when viewing tag data:

- Due to limitations in the browser, not every available field in the tag list is able to be viewed within the browser. Templates (filters) are used to restrict the number of fields displayed by the browser. If more fields are included in the template than the browser can handle, a message appears indicating the data has been truncated. Refer to ***Viewing Fields*** for more information.
- Due to limitations in the display screen, not all records and fields can be displayed at the same time within the browser application window. The scroll bars can be used to change the view within the browser window to view data of interest.

  NOTE: It is highly recommended that filtering be used. The best use of the browsers is to view subsets of the lists. Refer to ***Viewing Records*** for more information.

Browser Application Window

The browser application runs under the Windows operating environment. The parts of the browser application window are

shown in Figure 5-3 and described in the following paragraphs.

Title Bar The title bar is a standard Windows title bar showing the application title. To the right of the application title, the list opened and template used are indicated.

Menu Bar The menu bar contains the browser application menus. Menu selections are made by clicking on the menu and choosing the item, using the menu keys Alt menu key item key, or using a shortcut key combination if one is available.

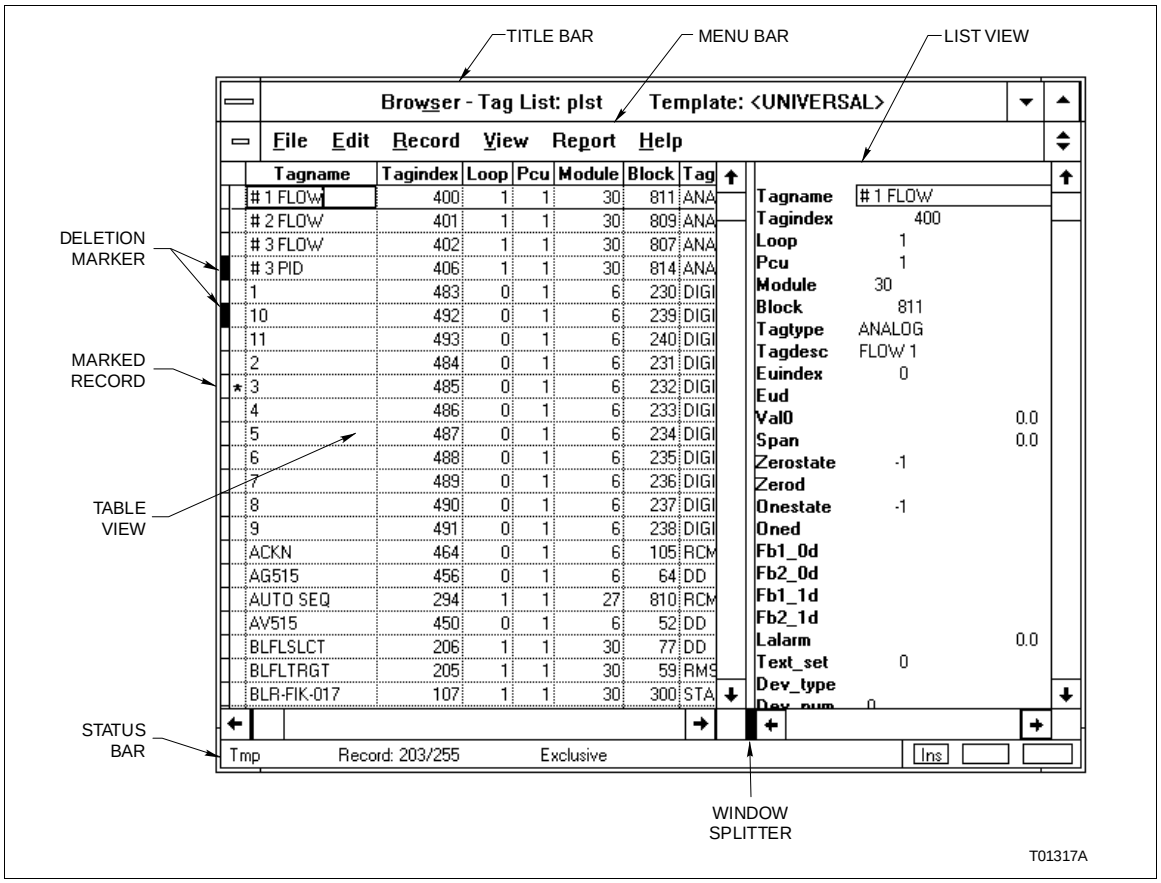


Figure 5-3. Browser Application Window

Control Menu This is a standard Windows control menu.

Scroll Bars The scroll bars are used to view records and fields not displayable in the window.

Browser Work Space The browser work space contains a single document window. The document window contains one list. As shown in Figure 5-3, the browser work space has a table view partition and a list view partition; however, both partitions are views of the same list. If the document window is maximized, the list and template appear in the browser title bar; otherwise, the list

and template appear in the document window title bar. Although the document window can be sized, moved, and minimized within the browser work space, the browser can only have one document open at a time.

Table View The table view displays tag data in row-column format. Each row contains one record and each column is one of the fields. This is the default view when the browser is launched.

List View The list view displays a tag list in a vertical list, showing all fields of the current template. Refer to ***Working in the Document Window*** for information on the list view.

Status Bar The status bar displays the following information:

Viewed file - this normally displays *Tmp*, indicating that the actual file viewed and edited in the browser is a temporary file.

Record - this shows the current record index and the total number of records viewed. The current record index refers to the index of the record at which the insertion point is located. This index is an internal index corresponding to the order in which the records are sorted and is not the tag or trend index.

Ins/Num/Caps - indicates the state of the Ins, Num Lock and Caps Lock keys.

System messages - occasionally system messages may appear on the status line, temporarily replacing the other contents.

Menu Items

The following paragraphs briefly describe each menu. For complete descriptions on using each menu item, refer to the procedures in the following subsections. A menu item followed by a right pointing triangle indicates a cascading menu. That is, if chosen, another menu appears to the right of the current menu with more items to choose from. A menu item followed by ellipsis (...) indicates a dialog box appears when the item is chosen. Some items are toggles. When the item is toggled on, a check mark appears to the left of the item. Underlined characters in the menu and menu items indicate the keys used in a menu key sequence Alt menu key item key. A key combination to the right of an item indicates it has a shortcut key combination. Pressing the shortcut keys in combination cause the command to be performed immediately without bringing up the menu.

File Menu Contains items to manage the lists. New lists can be created, existing lists can be opened, saved, merged, and printed.

Edit Menu Contains items to edit fields. Fields can be cut, copied, pasted, cleared, searched for a pattern, and selected.

Record Menu Contains items to edit, find, sort, delete, copy and add records.

View Menu Contains items to control the view of the table in the document window.

Report Menu Contains items to generate reports on the tag list.

Help Menu Contains items to access help and product support information.

On-Line Help

On-line help is available for the browser applications. It provides procedures similar to that found in the instruction. The on-line help can be used for convenient and quick access to the browser operating procedures. The help system conforms to the standard Windows conventions for on-line help. Help can be accessed by the following methods:

F1 Pressing F1 brings up the help *Contents* screen for the browsers.

Help Menu Selecting *Contents* from the *Help* menu brings up the help *Contents* screen for the browsers.

Opening a List

A tag, trend, and report point list can be opened either when the respective browser is launched or by using *Open* from the browser *File* menu (Alt F O). In either case, a dialog box is used to select the list to open and to pick display and edit options for the list. Refer to ***Starting a Browser*** for information on the display and edit options. There is a single list for each of the following: engineering unit descriptors, logic state descriptors, and alarm comments. The list is automatically opened when the respective browser is launched and there is no need to open these lists in any other manner.

Creating a New List

A new tag, trend, or report point list can be created in one of two ways.

To create a new, empty list, do one of the following:

- Click on *New* when launching the respective browser.
- Use *New* from the browser *File* menu (Alt F N).

When starting a new tag or trend list in this manner, a template dialog box appears. Refer to ***Viewing Fields*** for informa-

tion on using a template. If a template is not selected, the default template for that list is assumed.

To create a new list from an existing list:

1. Open the global list or console specific list to use as a basis for the new list.

2. If the new list is to be a subset of the existing list, mark all the records to be included in the new list. Refer to ***Editing Records*** for information on marking records.

3. Choose *Save As* from the *File* menu (Alt F A). The *Save As* dialog box appears.

4. Enter a new tag list name. If records have been marked, select *Marked Only*.

5. Click on *OK* to continue and create the new list.

Working in the Document Window

This section describes the features of the document window.

PARTITIONING THE BROWSE WINDOW

The browse window can be partitioned into two panes viewing the same tag list. The view mode (table view or list view) can be set independently for each pane. For example, one pane could show the list view and the other pane could show the table view. When partitioned, the right pane corresponds to the unpartitioned view. The panes are linked to each other so that each pane shows the same record. The active pane is determined by the location of the insertion point. Editing operations in one pane are reflected in the other pane.

To partition the browse window using the mouse:

1. Position the mouse cursor on the window splitter shown in Figure 5-3. The mouse cursor changes to the window splitter cursor.

2. Drag the mouse cursor to the right. As the cursor moves, the window is partitioned.

3. Stop when the panes are the desired size.

To partition the browse window using the *2 Panes* function, do one of the following:

- Choose *2 Panes (1:1)* from the *View* menu (Alt V 2) to partition the window into two panes of equal width.

- Choose *2 Panes (2:1)* from the *View* menu to partition the window into two panes with the right pane one-half the width of the left pane.

To return to an unsplit window, do one of the following:

- Move the window splitter all the way to the left.
- Choose *1 Pane* from the *View* menu (Alt V 1).

Changing Partitions

The active partition contains the insertion point. To change partitions using the mouse, move the mouse cursor to the partition of interest and click.

Resizing Partitions

Once split, the partitions can be resized. This is a similar operation to partitioning the window using the mouse.

To resize partitions using the mouse:

1. Position the mouse cursor on the window splitter shown in Figure 5-3. The mouse cursor changes to the window splitter cursor.

2. Drag the mouse cursor to the left or right. As the cursor moves, the window is partitioned.

If the window splitter is move all the way to the left, the partition is removed.

3. Stop when the partitions are the desired size.

The partitions can also be resized using the *1 Pane*, *2 Panes (1:1)*, and *2 Panes (2:1)* functions.

TABLE VIEW AND LIST VIEW

The browser can display the tag list in two ways: the table view and the list view. The table view displays the tag list as a table in row-column format. Each row is a record corresponding to one tag entry. The columns show the field entries for each tag record. The list view displays all the fields for a tag in one vertical list, followed by all fields for the next tag, and so on. Figure 5-3 shows a tag list with the document window partitioned. One partition shows the table view, the other shows the list view. The default mode is the table view. The same editing operations can be performed in either view.

To view a partition in list view, choose *List View* then *Right Pane or Left Pane* from the *View* menu (Alt V L). The docu-

ment window (or partition) will show the tag list in the list view. The right pane corresponds to the unpartitioned window.

To view a partition in table view, choose *Table View* then *Right Pane or Left Pane* from the *View* menu (Alt V T). The document window (or partition) will show the tag list in the table view. The right pane corresponds to the unpartitioned window.

CHANGING FONTS

Any installed Windows font can be used for viewing and printing the tag list.

To change the font:

1. Choose *Font* from the *View* menu (Alt V F). A *Font* dialog box appears.

2. Select the font, style, and size of interest.

3. Click on *OK* when done.

SIZING A FIELD

The field size refers to the size of the field on the display. Sizing the field does not alter the actual length of the field stored in the tag list. If the data in a field cannot be displayed in its entirety due to the font size, the field size can be increased or the data can be scrolled within the field by using the keyboard cursor keys.

To size a field using the mouse:

1. Position the mouse cursor on the right boundary of the field to be sized. The mouse cursor changes shape to the field size cursor.

2. Drag the cursor to the left or right to size the field.

MOVING A FIELD

The default field order is determined by the template. Moving a field does not alter its actual order in the tag list or template. The field order can be changed using the mouse. The field order is reset to the template order whenever the list is refreshed or redisplayed (list or table view, font, or template change, etc.).

To move a field using the mouse:

1. Position the mouse cursor on the field (column) heading to be moved.

2. Drag the field to its new position and release the mouse button.

Printing

The print function supports printing on any installed Windows printer. It prints the current table view (all records and fields in the browser temporary file).

To print a table:

1. Use the *Print Setup* function under the *File* menu (Alt F R) to set printer options. This is the standard Windows *Print Setup* dialog box. The printer, orientation, paper size and other print options can be set.

2. The number of fields that can be printed across a sheet of paper depends on the orientation and paper size selected. Depending on the situation, the number of fields in the table may need to be reduced; otherwise, the table will not be printed properly. If necessary, use *Fields* from the *Record* menu (Alt R F) to select or edit a template.

3. Choose *Print* from the *File* menu (Alt F P) to start printing. A print dialog box appears.

4. Do one of the following:

- To print to the printer, select *Printer* and click on *OK*.
- To print to a file, select *ASCII File*, enter a file name, and click on *OK*. The tag browser also displays the resulting file in the window - press Esc or click on the window to return to the browser window.

Saving

To save changes in a tag list, choose *Save* from the *File* menu (Alt F S). A tag list can also be saved under a different name using *Save As* from the *File* menu (Alt F A).

Merging Data

The records from the current browser temporary file can be added to another existing list. If the same tag already exists in the destination tag list, then the current tag list data overwrites the destination tag list data.

To merge the records from the current browser temporary file:

1. If a subset of the current list is to be merged into another list, mark the records to be included in the merge. Refer to ***Editing Records*** for information on marking records.

2. Choose *Merge Into* from the *File* menu (Alt F M). A dialog box containing the existing tag lists for the project appears.

3. Select the tag list into which the current tag list records are to be added. To merge only marked records, select *Marked Only*.

4. Click on *OK* to continue and merge the records.

Existing records cannot be merged into the global tag table using this function. Existing tag lists can be imported into the global tag table; refer to ***TAG UTILITIES*** in Section 11 for information on importing tag lists.

Viewing Records

The records that are displayed by the tag, trend, and report point browsers can be filtered when one of the respective tables are opened (either when the browser is started or using *Open* from the browser *File* menu). Filtering is a basic part of using the browsers and limits the size of the list being viewed. It should be performed on lists to reduce the time it takes to open a list, to improve performance, and to enable viewing only records and fields of interest. Figure 5-4 shows the *Filter* dialog box that appears if *Filter* is clicked from the list *Open* dialog box.

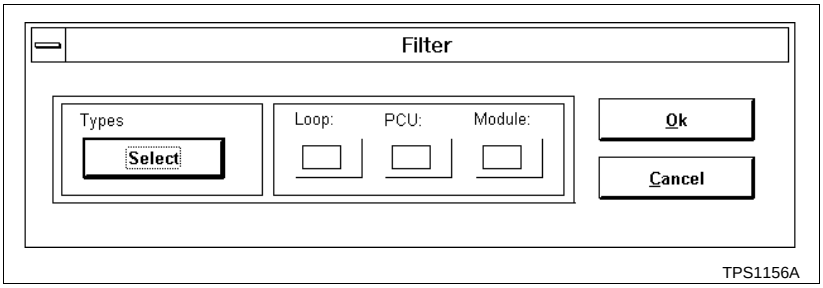


Figure 5-4. Filter Dialog Box

Tag and trend records can be specified by tag or trend type and address. To specify tag or trend records for display:

1. From the browser *Open* dialog box, click on *Filter*. The *Filter* dialog box appears.

2. Do any of the following:

- To use tag or trend types to determine which records to display in the browser, click on *Select*. The *Select Types* dialog box appears. Refer to Table 5-2 for a description of the *Select Types* dialog box elements and select the tags of interest.

Table 5-2. Select Types Dialog Box

Element	Description
All types	Displays a list of all available tags (or function codes for the report point browser).
Cancel	Cancels the dialog box.
Move	Moves the selected tag (or function code) in the all types list to the selected types list.
Move all	Moves all types in the all types list to the selected types list.
Ok	Accepts the dialog box and returns to the previous screen.
Remove	Removes a selected type from the selected types list.
Remove all	Removes all types from the selected types list.
Selected fields	Displays a list of tags (or function codes) selected to be displayed in the browser.

- To use the tag loop, PCU, and module address to determine which records to display in the browser, enter the loop, PCU, and module address in the respective text box. A blank entry includes all loops, PCUs, or modules.

3. Click on *Done* to accept the entries and return to the browser *Open* dialog box.

Report point records can be specified by function code type. To specify report point records for display, click on *Filter* from the *Open* dialog box. The *Select Types* dialog box appears. Refer to Table 5-2 for a description of the *Select Types* dialog box elements and select the function codes of interest.

Viewing Fields

The tag and trend tag browsers have standard and user definable templates that determine which fields are displayed in the browser. The templates can be selected at start up or when opening a table by clicking on *Template*. Template filtering is always in effect. The template can also be selected later using *Fields* from the *View* menu (Alt V F).

USING A TEMPLATE

A template can be selected as a tag or trend browser start-up option, when opening a table, or after the table has been opened. There are two predefined templates included with the tag browser and one with the trend browser:

Universal The UNIVERSAL template displays a selected group of fields determined to be vital to the tag definition. The UNIVERSAL template is available only in the tag browser.

Default The DEFAULT template attempts to display all fields applicable to all selected tag or trend types. However, if too many tag

types are selected, then the number of fields the browser can display may be exceeded and they will be truncated. The DEFAULT template is available for both the tag and trend browser.

There is an inherent limit on the number of fields that can be displayed in the tag browser. If filtering is not used to limit the number of tag types, the UNIVERSAL template is used unless another is selected. If filtering by tag types is used (refer to ***Viewing Records***), then the DEFAULT template is used unless another template is selected.

To select a template when starting the tag or trend browser or when opening a table:

1. Start the browser as described in ***Starting a Browser*** or open a table as described in ***Opening a List***. The browser *Open* dialog box appears.

2. At the browser *Open* dialog box, click on *Template*. The *Template* dialog box appears as shown in Figure 5-5. Refer to Table 5-3 for a description of the dialog box elements.

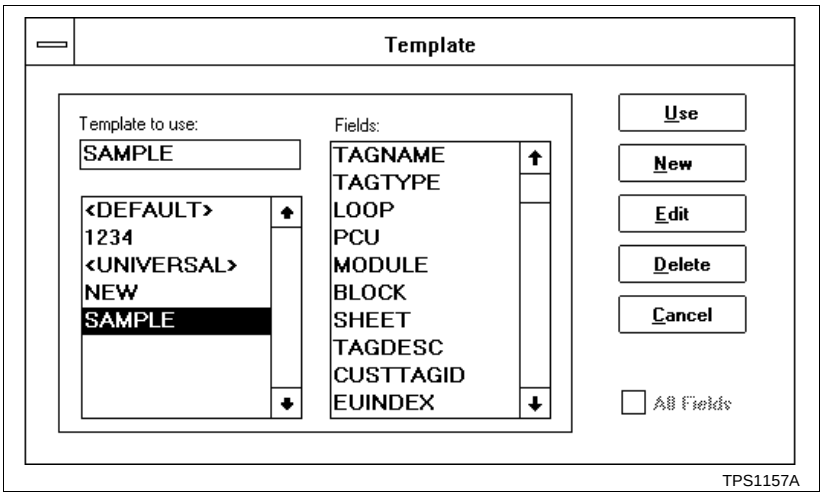


Figure 5-5. Template Dialog Box

Table 5-3. Template Dialog Box Elements

Element	Description
All fields	Use all available fields. Enabled only if *Read Only* was selected from the *Open* dialog box.
Cancel	Cancels the dialog box.
Delete	Deletes the selected template.
Edit	Activates the template editor dialog box to edit the current template as shown in the *Template to use* text box.
Fields	Lists the fields included in the currently selected template.

Table 5-3. Template Dialog Box Elements (continued)

Element	Description
New	Activates the template editor dialog box to start a new template.
Template to use	Indicates the current template as picked from the accompanying list box.
Use	Accepts the dialog box changes and continues.

3. The default template is DEFAULT as shown in the *Template to use* text box. To use a different template, select it from the list of templates.

4. Do any of the following:

- To accept the dialog box information and continue, click on *Use*.
- To cancel the dialog box, click on *Cancel*.
- To delete the currently selected template, click on *Delete*.
- To use all available fields, click on *All Fields*.
- To create a new template, click on *New*. Refer to ***CREATING AND EDITING TEMPLATES*** for information.
- To edit the currently selected template, click on *Edit*. Refer to ***CREATING AND EDITING TEMPLATES*** for information.

After clicking on either *Use* or *Cancel*, the focus returns to the *Open* dialog box.

To use a template after the table has been opened:

1. Choose *Fields* from the *View* menu (Alt V F). The *Template* dialog box appears as shown in Figure 5-5. Refer to Table 5-3 for a description of the dialog box elements.

2. The current template in use is shown in the *Template to use* text box. To use a different template, select it from the list of templates.

3. Do any of the following:

- To accept the dialog box information and continue, click on *Use*. The fields are resorted to use the new template.
- To cancel the dialog box, click on *Cancel*. Focus returns to the *Browser* window and no action is taken.
- To delete the currently selected template, click on *Delete*.

- To use all available fields, click on *All Fields*.
- To create a new template, click on *New*. Refer to ***CREATING AND EDITING TEMPLATES*** for information.
- To edit the currently selected template, click on *Edit*. Refer to ***CREATING AND EDITING TEMPLATES*** for information.

CREATING AND EDITING TEMPLATES

Templates can be created that define the fields and the order they appear in the browser. Existing templates can also be edited and used as a basis for a new template.

To create a new template:

1. Follow the steps in ***USING A TEMPLATE*** to display the *Template* dialog box.

2. Click on *New* at the *Template* dialog box. The *Template Editor* dialog box appears. Refer to Table 5-4 for a description of the *Template Editor* dialog box elements.

Table 5-4. Template Editor Dialog Box

Element	Description
All fields	Displays a list of all available fields.
Cancel	Cancels the dialog box.
Move	Moves the selected field in the all fields list to the selected fields list.
Move all	Moves all fields in the all fields list to the selected fields list.
Remove	Removes a selected field from the selected fields list.
Remove all	Removes all fields from the selected fields list.
Save	Saves the edited template under its existing name.
Save as	Saves a new or existing template under a new name.
Selected fields	Displays a list of fields selected to be in the template.

3. Perform any of the following actions:

- To add a field to the *Selected Fields* list, select a field from the *All Fields* list and click on *Move*. If a field is already in the *Selected Fields* list, it appears gray and cannot be selected in the *All Fields* list.
- To add all available fields to the *Selected Fields* list, click on *Move All*.
- To remove a field from the *Selected Fields* list, select it then click on *Remove*.

- To remove all fields from the *Selected Fields* list, click on *Remove All*.

- The order the fields appear in the *Selected Fields* list corresponds to the order they appear in the browser. Each field in the list has an associated positioning button in which a double-headed arrow appears when the field is selected. To change the order of a field, drag its move button up or down the list.

- To cancel editing and return to the previous screen, click on *Cancel*.

4. When done, save the template by clicking on *Save As*. The *Save As* dialog box appears.

5. Enter a template name in the *Template to use* text box and click on *Save*. The *Template* dialog box reappears with the new template name.

To edit an existing template:

1. Follow the steps in ***USING A TEMPLATE*** to display the *Template* dialog box.

2. Select a template to edit.

3. Click on *Edit* at the *Template* dialog box. The *Template Editor* dialog box appears. Refer to Table 5-4 for a description of the *Template Editor* dialog box elements.

4. Perform any of the following actions:

- To add a field to the *Selected Fields* list, select a field from the *All Fields* list and click on *Move*. If a field is already in the *Selected Fields* list, it appears gray and cannot be selected in the *All Fields* list.

- To add all available fields to the *Selected Fields* list, click on *Move All*.

- To remove a field from the *Selected Fields* list, select it then click on *Remove*.

- To remove all fields from the *Selected Fields* list, click on *Remove All*.

- The order the fields appear in the *Selected Fields* list corresponds to the order they appear in the browser. Each field in the list has an associated positioning button in which a double-headed arrow appears when the field is selected. To change the order of a field, drag its move button up or down the list.

- To cancel editing and return to the previous screen, click on *Cancel*.

5. Save the template by doing one of the following:

- To save the edited template under the same name, click on *Save*.

- To save the edited template under a new name, click on *Save As*. The *Save As* dialog box appears. Enter a template name in the *Template to use* text box and click on *Save*.

6. The *Template* dialog box reappears with the edited template name in the *Template to use* text box and its fields listed in the *Fields* list.

Editing Records

This section describes operations that can be performed on records. Editing operations can also be performed on fields; refer to ***Editing Fields***.

MARKING RECORDS

Records can be marked prior to marking them for deletion or replacing in order to specify which records to mark for deletion or replace. Records can also be unmarked and their marked or unmarked condition reversed. When a record is marked, an asterisk (*) character appears in the mark column of the record as shown in Figure 5-3. Records can be marked using the keyboard or using the *Mark* function.

> **NOTE:** Marking records and marking records for deletion are two separate functions.

To mark or unmark records using the keyboard:

1. Position the cursor in the mark column of the record of interest using the mouse or cursor keys.

2. Press Ctrl-↓ or Ctrl-↑ to mark or unmark the record.

To mark or unmark records using the *Mark* function:

1. Choose *Mark* from the *Records* menu (Alt R M). The *Mark* dialog box appears. Refer to Table 5-5 for a description of the *Mark* dialog box elements.

Table 5-5. Mark Dialog Box

Element	Description
All	Performs mark, unmark, or reverse on all records.
Cancel	Cancels the mark function.

Table 5-5. Mark Dialog Box (continued)

Element	Description
Conditionally	Performs mark, unmark, or reverse on records based on field, operation, and value.
Conditions	Contains one or more conditions that specify which records to mark.
Field	Field (column) data to be used for conditional marking.
Mark	Marks unmarked records.
Ok	Initiates the mark, unmark, or reverse process.
Operation	Operation to be used for the marking condition.
Remove	Removes a condition string from the conditions text box.
Reverse	Changes marked records to unmarked records and unmarked records to marked records.
Unmark	Unmarks marked records.
Value	Character string which must match the corresponding field value in order to mark, unmark, or reverse the record.

2. *Mark* is the default operation. To unmark or reverse the mark field, make the appropriate choice.

3. *All* is the default for marking records. To mark records conditionally using *Field*, *Operation*, and *Value*, do the following:

   a. Click on *Conditionally*.

   b. Select the field to be used for conditional marking from the *Field* list box.

   c. Enter the value in the *Value* text box.

   d. When done entering a value, press *Enter*. The condition string appears in the *Condition(s)* list box.

4. More than one field can be selected for matching a condition. When done, click on *OK*.

A condition string can be removed from the *Condition(s)* list by selecting it, then clicking on *Remove*.

MARKING RECORDS FOR DELETION

Records can be marked for deletion. When records are marked for deletion, they remain in the table and are visible to other applications. They can be unmarked for deletion until the table is packed. Marking records for deletion is different than marking records. Refer to ***TAG UTILITIES*** in Section 11 for information on packing tables.

NOTE: Marking records and marking records for deletion are two separate functions.

Deletion Marker Toggle

To mark a record for deletion using the deletion marker toggle:

1. Position the insertion point on any field of the record to be deleted.

2. Choose *Toggle Deletion Marker* from the *Record* menu (Alt R T) or use the shortcut key combination Ctrl-D. If *Show Deleted* in the *View* menu is toggled off, the record is removed from the displayed records.

3. Continue using the *Toggle Deletion Marker* function on all records to be marked for deletion.

Delete Function

The delete function can mark all records for deletion or mark only those that have been previously marked using the mark function. To mark records for deletion using the delete function:

1. If marking for deletion marked records, refer to ***MARKING RECORDS*** for additional information.

2. Choose *Delete* from the *Record* menu (Alt R D). The *Delete* dialog box appears.

3. The *Delete* and *All* options are on by default. If marking for deletion marked records, click on *Marked Only*.

4. Click on *OK* when done. The specified records (marked or all) are marked for deletion.

UNMARKING RECORDS FOR DELETION

Records can be unmarked for deletion. When records are marked for deletion, they remain in the table and can be unmarked for deletion until the table is packed.

Deletion Marker Toggle

To unmark a record for deletion using the deletion marker toggle:

1. If necessary, display the records marked for deletion by toggling *Show Deleted* from the *View* menu (Alt V S). Any records marked for deletion in the table will be displayed and indicated by their deletion marker toggled on (dark).

2. Position the insertion point on any field of the record to be unmarked for deletion.

3. Choose *Toggle Deletion Marker* from the *Record* menu (Alt R T) or use the shortcut key combination Ctrl-D. The deletion marker turns light showing the deletion marker has been toggled to not marked for deletion.

4. Continue using the *Toggle Deletion Marker* function on all records to be unmarked for deletion.

Delete Function

The delete function can unmark all records marked for deletion or unmark only those that have been previously marked using the mark function. To unmark for deletion records using the delete function:

1. If necessary, display the records marked for deletion by toggling *Show Deleted* from the *View* menu (Alt V S). Any records marked for deletion in the table will be displayed and indicated by their deletion marker toggled on (dark).

2. If unmarking for deletion marked records, refer to ***MARKING RECORDS*** for additional information.

3. Choose *Delete* from the *Record* menu (Alt R D). The *Delete* dialog box appears.

4. The *Delete* and *All* options are on by default. Click on *UnDelete*. If unmarking for deletion marked records, click on *Marked Only*.

5. Click on *OK* when done. The specified records (marked or all) are unmarked for deletion.

REPLACING RECORDS

One or more fields of specified records can be replaced with a given character string. The fields are replaced by selecting a field and entering a corresponding replacement string. All records can be replaced or only those that are marked. The tag name, tag index, and tag address must be unique for each tag. Therefore, no more than one record can have these fields replaced in a given replacement operation.

To replace records:

1. If marked records are to be replaced, refer to ***MARKING RECORDS*** to mark the records of interest first.

2. Choose *Replace* from the *Records* menu (Alt R R). The *Replace* dialog box appears. Refer to Table 5-6 for a description of the *Replace* dialog box elements.

Table 5-6. Replace Dialog Box

Element	Description
All	Performs a replacement on all records.
Cancel	Cancels the replacement function.
Field	Field (column) data to be replaced.
Marked only	Performs a replacement on marked records only.

Table 5-6. Replace Dialog Box (continued)

Element	Description
Ok	Initiates the replace process.
Remove	Removes a replacement string from the replacements text box.
Replacement(s)	Contains one or more replacement strings.
Value	String with which to replace the corresponding field data.

3. If only marked records are to be replaced, click on *Marked Only*.

4. Select the field data to be replaced from the *Field* list box.

5. Enter the replacement value in the *Value* text box.

6. When done entering a value, press Enter. The replacement string appears in the *Replacement(s)* list box.

7. More than one field can be selected for replacement. When done, click on *OK*.

A replacement string can be removed from the *Replacement(s)* list by selecting it, then clicking on *Remove*.

ADDING A NEW RECORD

A new, empty record can be appended to the table. To append a record, choose *Append New Tag* from the *Record* menu (Alt R N) or use the shortcut key combination Ctrl-N. A new, unique tag name and address must be specified for the added tag. The new record is given a tag index incremented from the highest current tag index. Indices appear only when viewing a console list. Tags do not have indices within the context of the global list.

> **NOTE:** Consoles support a maximum number of tags and have a highest valid tag index (e.g., 30,000). The browser does not enforce this limit. However, within a console list, the possibility exists that the highest current tag index does not reflect the actual number of tags in the list. This happens when tags have been deleted from the list. The indices are not automatically reassigned to account for the deleted tags. If the console limit is exceeded and it is necessary to add tags, try reassigning the tag indices. Refer to ***TAG UTILITIES*** in Section 11 for information on reassigning tag indices.

LOCATING A RECORD

To go to the first record in the browser display order, choose *Goto*, then *Top* from the *Record* menu (Alt R T *Top*).

To go to the last record in the browser display order, choose *Goto*, then *Bottom* from the *Record* menu (Alt R T *Bottom*).

SORTING RECORDS

The order of the records as they appear in the tag, trend, report point, or alarm comment browser window can be changed. The default order is by index when the list is opened. The global tag list cannot be sorted by index since it does not have an index field.

To sort records:

1. Choose *Sort* from the *Record* menu (Alt R S). A sort dialog box appears. The dialog box contents depends on the list type.

2. Select the sorting method of interest and then click on *OK*. The records are sorted accordingly.

COPYING TAGS

When a tag is copied, a new record is automatically added to the table with the field data from the original tag. All fields are copied except for tag name, address, and index. A new, unique tag name and address must be specified; the new record is given a tag index incremented from the highest current tag index. Global tag records do not have indices and therefore indices are not copied in this case. Trend tags are copied in the same manner.

> **NOTE:** Consoles support a maximum number of tags and have a highest valid tag index (e.g., 30,000). The browser does not enforce this limit. However, the possibility exists that the highest current tag index does not reflect the actual number of tags in the list. This happens when tags have been deleted from the list. The indices are not automatically reassigned to account for the deleted tags. If the console limit is exceeded and it is necessary to add tags, try reassigning the tag indices. Refer to ***TAG UTILITIES*** in Section 11 for information on reassigning tag indices.

To copy a tag or trend tag:

1. Position the insertion point on any field of the record to be copied.

2. Choose *Copy Tag* from the *Record* menu (Alt R C). The *Copy Tag* dialog box appears.

3. The *From* fields are for information only and cannot be edited. Enter a new, unique tag name in the *Tag Name* text box.

4. Enter a new address in the *Loop*, *PCU*, *Module*, and *Block* text boxes.

5. Click on *OK* when done. The tag is copied to a new record with the specified name and address.

Editing Fields

This subsection describes the editing operations that can be performed on fields. Editing operations can also be performed on records; refer to ***Editing Records***.

DATA VALIDATION

When editing fields, data validation is performed and the following entries are not allowed:

Field Values Invalid tag types, trend types, report point types, ranges, descriptor indices, field data types, and entries exceeding the field width.

Tag Name Multiple tags in the global tag list with the same name.

Tag Address Multiple tags in the global tag list with the same address.

Tag Index Multiple tags in a tag list with the same tag index.

Trend Index Multiple trends in a trend list with the same trend index.

Trend Tag, Mode, and Type Multiple trends in a trend list with the same tag, mode, and type.

Report Point Block Number Multiple report points in a report point list with the same block number.

In some cases, an invalid entry is not allowed and a tone sounds. In other cases, a message box appears indicating the problem which must be corrected before leaving the field. For some of the fields, if an invalid entry is made, a pop-up list box containing valid entries from which a selection can be made appears. In any case, the entry must be corrected before leaving the field or record.

MOVING TO A FIELD

In both the table view and list view, the current field is shown surrounded by a rectangle. Depending on whether or not filtering is used and the type of filtering, fields may appear in the browser that are only valid for certain records.

To move to a field using the mouse, position the mouse pointer at the field of interest and click. If necessary, use the scroll bars to bring the field of interest into view. The mouse cursor can be positioned on any displayed field, even those not valid for the current record. However, editing cannot be performed on these fields.

To move to a field using the keyboard, use the keyboard cursor keys, Tab, Shift-Tab, Enter, or Shift-Enter keys. When done this way, the field is selected as shown by the highlighting. The keyboard cursor cannot be positioned on fields not valid for the record.

MOVING WITHIN A FIELD

In both the table view and list view, the current field is shown surrounded by a rectangle.

To move within the field with the mouse, position the mouse pointer at the position of interest and click.

To move within the field with keyboard, use the left and right arrow cursor keys. If the field is selected, it can be deselected by pressing Shift-→, then ←. The cursor can be moved to the right by word within a field using the Ctrl-→ key combination. If the cursor is moved beyond the end of the field width, the cursor moves to the next valid field in the record.

SELECTING A FIELD

A field or portion of a field can be selected prior to performing an editing function. A selected field appears highlighted.

To select a field or portion of a field using the mouse, position the mouse pointer at one end of the text and drag it to the opposite end. A single word in a field can be selected by double clicking on it.

To select a field or portion of a field using the keyboard, position the cursor at one end of the text and use either the Shift-→ or Shift-← keyboard cursor keys until the selection is formed.

All text in a field can also be selected by choosing *Select All* from the *Edit* menu (Alt E A).

LOCATING A FIELD

To locate a field containing a character string using the find function:

1. Choose *Find* from the *Record* menu (Alt R F) or use the shortcut key combination Ctrl-F. The *Find* dialog box appears.

2. Fill in the *Find* dialog box options by referring to Table 5-7.

3. Click on *Find* when done. The first field containing a character string matching the given character string is located and selected.

Table 5-7. Find Dialog Box Options

Option	Description
Cancel	Cancels the find function.
Find	Initiates a search for the given character string with the specified options.
Ignore case	Case is ignored in the search string.
Look for	Character string to search for in the list.
Match whole word	Character string is delimited by spaces.
Replace all	Not implemented.
Wrap around	Continues the search at the top of the list.

To find further instances of the character string, use the *Find Again* function from the *Record* menu (Alt R F) or use the shortcut key combination Ctrl-G.

CUTTING, COPYING, AND PASTING

These editing commands are often used together. Cutting copies a field or portion thereof to the Windows clipboard and deletes it from the record. Copying a field copies it to the Windows clipboard but does not affect the record contents. A field must be selected before it can be cut or copied. Pasting inserts the current contents of the Windows clipboard at the insertion point.

To cut a field:

1. Locate and select the field contents by any available method.

2. Choose *Cut* from the *Edit* menu (Alt E C) or use the short cut key combination Ctrl-X.

To copy a field:

1. Locate and select the field contents by any available method.

2. Choose *Copy* from the *Edit* menu (Alt E O) or use the short cut key combination Ctrl-C.

To paste from the Windows clipboard:

1. Position the insertion point at the field of interest by any available method.

2. Choose *Paste* from the *Edit* menu (Alt E P) or use the short cut key combination Ctrl-V.

CLEARING

Clearing deletes the field or portion thereof from the record but does not copy it to the Windows clipboard.

To clear a field:

1. Locate and select the field contents by any available method.

2. Choose *Clear* from the *Edit* menu (Alt E E).

CHANGING CONTENTS

Field contents can be changed by positioning the cursor and typing. Any of the normal keyboard keys can be used to enter or edit the field. If invalid data is entered into a field, a tone sounds and it must be corrected (refer to ***DATA VALIDATION***). Field contents can be changed in the table view or in the list view. Also refer to ***Editing Records***.

Generating Reports

A default reporting facility is included with the tag, trend, and report point browsers. Other report formats can also be defined provided the user has access to the FoxPro® relational database management system. For information on defining a report, refer to the FoxPro documentation.

The following ***DBF*** report format files located in the C:\EWS directory are needed when creating user defined reports:

OIS-TAG.DBF for the tag browser.

OIS-TRN.DBF for the trend browser.

OIS-RPT.DBF for the report point browser.

A default report prints tag, trend, or report point data in a standard format with a limited number of fields. The number of fields permit the report to fit across one sheet of paper in landscape mode. Reports are printed to the default Windows printer. The default Windows printer can be changed using the *Print Setup* from the *File* menu.

To print a default report:

1. Choose the ***Report*** menu (Alt P). The *Report* dialog box appears.

2. Select *Default* from the *Report* dialog box and click on *OK*. The report will be printed to the default Windows printer.

To print a user defined report:

1. Choose the ***Report*** menu (Alt P). The *Report* dialog box appears.

2. Enter the report form name in the *Report Form* list box or click on *Browse* to use a standard Windows *Open* dialog box to locate the report form to be used.

3. The default output device is the printer. To print to a file, click on *File* and enter the file name in the *File* text box.

4. Click on *OK* when done to print the report.

TAG LIST CONFIGURATION

This section provides information specific to configuring the global and console tag lists using the tag browser application. Refer to ***USING THE BROWSERS*** for general information on the browser application operation. Also refer to Section 10 for information on transferring tag lists to the console and to Section 11 for supplemental tag utilities.

A tag list consists of a table organized by row and column. The rows are records containing all information that belongs to a tag. Each column identifies a field. A field is a particular item of information in the record. Each tag is one record in the tag list. Associated with each tag are its name, description, hardware address, alarm, and display characteristics. Each of these various tag characteristics is stored as a unique field within the tag record. The contents of these fields for a particular tag depend upon the type of tag, i.e., analog, digital, station, etc.

Tag Types

There are three general types of tags. One type defines a process control point that is monitored by the console over the communication highway. These tags have an associated exception reporting function code that outputs the point value and alarm conditions of the point. Depending on the function code associated with the tag, the console operator may also be able to control the point.

The second type of tag defines an internal value to be monitored: either from an application processor task or from a console peripheral. There are no associated function codes and no values are received over the communication highway for these tags.

A third tag type receives status information and problem reports from INFI 90 OPEN equipment over the communication highway. It does not have an associated function code.

For tags that have an associated function code in the module configuration, the loop, PCU, module, and block address of the exception reporting function code essentially defines the tag. If a tag is defined in the console database with a corresponding address, then when information from that function code is exception reported to the communication highway, the console can receive the value, alarm conditions, and other information from the function code. The information received and used by the console depends on the function code and how the tag is configured in the console database. Table 5-8 lists and describes each specific tag type.

Each tag definition forms a record in the tag database. The fields in each record define characteristics of the tag: its address, name, index, alarm states, and other information. In operation, some of the fields are updated with live information from the exception reported values from the associated function code or device. Most of this information can be used by the console in displays, alarm summaries, log reports, and annunciator display panels, for example.

When a tag list is viewed in the browser, tag information is extracted from the TDT database, filtered by tag type, address, and field template and displayed in the table view or list view. Most fields in the browser have a corresponding field in the console tag list. Exceptions are fields containing logic state descriptors, and depending on the console type and revision, alarm comments. The browser has fields for both the index of the descriptors or alarm comments and the descriptor or alarm comment text. Either the index, the descriptor, or both can be displayed within the browser by editing the template. The alarm comments can be displayed if selected at start-up.

Descriptor Fields in the Browser

The text descriptor fields that can appear in the browser include the engineering unit descriptor (EUD), zero (ZEROD), one (ONED), two (TWOD), and three state (THREED) descriptors, feedback (FBn_nD) descriptors, permissive state (PMn_nD) descriptors, and alarm comment (ACDnn) descriptors. Whether these fields appear in the browser depends on the filtering done in the template. The descriptor text can be edited but only if the result is a valid descriptor in the logic state descriptor or alarm comment list. Another way to view and edit the descriptors is to launch the respective browser.

When a tag list is translated to console format, the engineering unit index, logic state index, and alarm comment index are the fields translated along with the console list.

If a tag list is imported and the descriptors it uses are not defined in its associated EUD, LSD, or alarm comment list, then a string of asterisks (******) is placed in the descriptor field in the browser.

Tag Fields

Tag list configuration supports all tag types and fields for all console types and revision levels. Furthermore, tag list configuration is independent of console type and revision level. There is no checking done within the browser to verify that a tag type or field is valid for a particular console to which the tag list is assigned. When a tag list is transferred, tag fields not valid for the console type and revision are filtered out of the transferred tag list. Not all fields are required to have an entry. Refer to Table 5-9 for fields that must be supplied in order for the operator console to process them correctly. Table 5-10 lists each tag field alphabetically, the tags that use the field, its format, TDT table, source, and brief description. Refer to the on-line help file or appropriate ***Configuration*** instruction for a complete description of each field.

Field Data and Format

Field data types are either character or numeric, depending on the information that the field needs. Fields also have a maximum number of characters or numerals that they will accept. The Format column in Table 5-10 indicates its width and whether it is character (C) or numeric (N). Some fields have a fixed number of valid choices; for example, the tag type field accepts only valid tag types. Other fields are indeterminate and accept any combination of characters and numerals; for example, the tag description field. Generally, any invalid input is signaled by a tone. If there are a limited number of valid inputs, a pick list of the valid inputs appears if an input error is made.

Field Sources

With the incorporation of tag linking into the console and module configuration tools, the data in the tag fields can be sourced and maintained from an appropriate tool as follows:

Module tools - fields sourced by the module tools are indicated by an M in the Source column of Table 5-10. These fields can be updated by the graphical module configurator or tag synchronization utilities if the module tools are available and share the project database with the console tools. These fields are used by the console.

Console tools - fields sourced by the console tools browser application are indicated by a C in the Source column of Table 5-10. These fields are used by the console.

Browser (information only fields) - fields sourced by the browser application as information only fields are indicated by an I in the Source column of Table 5-10. Information only fields provide documentation for tags but are not required for the system to function.

Global and Common Fields

There is one global tag list and any number of console tag lists for each project. The global tag list contains only the console common (global) fields; the console tag lists contain the console specific fields. The TDT Table column in Table 5-10 indicates whether a field is global (G) or console specific (C). When

the global tag list is viewed within the browser, only the console common fields can be displayed. However, when a console tag list is viewed within the browser, the console common and console specific fields for each tag in the console tag list are extracted from the respective lists and are available for display. (Templates can be used to display a subset of the available fields.)

The TDT Table column also indicates the descriptor text table: alarm comment table (A), engineering unit descriptor table (E), logic state descriptor table (L), or user field table (U).

Tag Records

Records are physically stored in the tag list in the order in which they are entered. Since tags are usually entered as data becomes available, there is no logical order to the physical location of tags in the tag list. However, when editing or looking at the tag list, the records can be presented in tag name, tag index, tag address, or tag type order using the *Sort* function under the browser *Record* menu. Tag records and fields can also be filtered to display a subset of the records and fields in the list. Refer to ***USING THE BROWSERS*** for information on filtering tag lists.

To edit a tag list:

1. Launch the tag browser by choosing *Tag Browser* from the *Browse Tag Data* submenu under the console tools executive *Project* menu (Alt P B T). The tag browser is launched and the *Open* dialog box appears as shown in Figure 5-1.

2. Select the tag list of interest from the *Tag List* list box.

3. Refer to ***USING THE BROWSERS*** for information on the tag browser start-up options and click on *OK* when done picking options.

4. The tag browser application window appears. Refer to ***USING THE BROWSERS*** for information on using the browser.

5. Add and edit tag records as needed. In the TDT structure, console tag lists are console type and revision independent. All fields for all tag types are maintained and can be configured. When the console list is transferred, the transfer utility filters out fields not valid for that console and revision (invalid tag types are transferred and appear as undefined types on the console). It is the user's responsibility to be aware of the fields and tag types supported by the consoles in the project. Refer to the appropriate ***Configuration*** instruction for valid tag types and fields for a particular console.

The following tables provide tag configuration information.

Table 5-8 Lists and describes each tag type. The tag types must be entered as shown in upper case in the browser tag type field.

Table 5-9 List of required tag fields.

Table 5-10 Descriptions and other information for each field.

Table 5-11 Description of choices for the ALARMTYPE field

Table 5-12 Valid entries for the ALMINHST and APSTATE fields.

Table 5-13 Lists module types and descriptions for the MODTYPE field.

Table 5-14 Lists valid device type, number and subtype entries for the DEV_TYPE, DEV_NUM, and DEVSUBTYPE fields.

6. Use *Save* from the *File* menu (Alt F S) to save any changes in the tag list.

7. When done, use *Exit* from the *File* menu (Alt F X) to exit the tag browser.

Table 5-8. Tag Types

Tag	Description	Function Code
ANALOG	Acquires an analog exception reported value. Supports the analog exception report function code.	FC 30, FC 47, FC 70, FC 158, FC 222, FC 223
CLIF	Acquires analog, digital, and text string primary, control feedback, and auxiliary data from a CLIF (configured logic interface function) block. It also allows interacting with the control components of the block.	Defined when created.
DAANALG	Acquires an analog exception reported value providing enhanced alarm management capabilities. Supports data acquisition only. It incorporates a DA macro that supports a control station function code. Also supports the data acquisition analog function code but does not enable the full functionality of the function code.	FC 21, FC 22, FC 23, FC 80, FC177
DADIG	Acquires a digital exception reported state providing enhanced alarm management capabilities. Allows selecting the input source for the function block in a PCU module and writing a user-inserted value to the block. Supports the data acquisition digital function code.	FC 211
DADIGTL	Acquires a digital exception reported state providing enhanced alarm management capabilities. Supports data acquisition only. It incorporates a DA macro that supports a multi-state device driver function code.	FC 129
DANG	Acquires an analog exception reported value providing enhanced multiple level alarming and deviation and rate alarming. Allows selecting the input source for the function block in a PCU module and writing a user-inserted value to the block. Supports the data acquisition analog function code.	FC 177
DD	Acquires an exception reported set or reset state for a device while it is in either manual or automatic mode. Allows initiating manual control. Supports the device driver function code.	FC 123

Table 5-8. Tag Types (continued)

Tag	Description	Function Code
DEVSTAT	For internal console use only; no values are received over the communication highway for this type of tag. Allows the console to monitor the status of its peripheral devices: keyboards, annunciator display panels, monitors, printers, touch screens, and data storage devices.	Not applicable
DIGITAL	Acquires a digital exception reported state. Supports the digital exception report function code.	FC 45, FC 224, FC 225
INTANG	For internal console use only; no values are received over the communication highway for this type of tag. Allows writing an analog value from an application processor that can be used throughout console functions.	Not applicable
INTDIG	For internal console use only; no values are received over the communication highway for this type of tag. Allows writing a digital value from an application processor that can be used throughout console functions. Can also be used for a point being recorded in an SOE log. Writes descriptive tag information to the log.	Not applicable
MSDD	Acquires an exception reported status for a three-state device while it is in either manual or automatic mode. Allows initiating manual control. Supports the multi-state device driver function code.	FC 129
N90STA	Reads detailed status information and problem reports from INFI 90 OPEN equipment over the communication highway. **NOTE:** For Plant Loop nodes to receive the same time-stamped message to support distributed trending, all nodes on the loop must have an N90STA tag.	Not applicable
RCM	Acquires an exception reported set or reset state of a device and allows initiating control of the device. Used in this way, supports the remote control memory function code. Also monitors operation of a sequential events recorder and allows requesting sequence of events summary reports. Used in this way, supports the sequence of events log and sequence of events slave function codes.	FC 62, FC 99, FC 210
RMCB	Acquires an exception reported start or stop state of a device and allows initiating control of the device. Supports the remote motor control function code.	FC 136
RMSC	Acquires an exception reported constant value and allows changing the value stored in a PCU module. Supports the remote manual set constant function code.	FC 68
STATION	Monitors the exception reported variables from a control station while the station is in either manual or automatic mode and allows changing the control output, set point, or ratio index. Supports the M/A station basic, M/A station - cascade, M/A station - ratio, and control station function codes.	FC 21, FC 22, FC 23, FC 80
TEXT	Acquires an exception reported text selector message. The message, generated by the PCU module, contains a message number that corresponds to a text string defined on the console. It also contains a color and blink option. Supports the text selector function code. A text string can be defined to describe the good, bad, or wait condition of a device driver block or a multi-state device driver block. Also, a text string can be defined to describe the good, alarm, or wait condition reported for a remote motor control block.	FC 151
TEXTSTR	Enables communication between the console and a C language or batch program running in a PCU module to allow transfer of text strings. Supports the user-defined data export function code.	FC 194

Table 5-9. Required Fields

Tag Types	Fields
All	TAGINDEX, TAGNAME, TAGTYPE
Tags with associated exception reporting function code	LOOP, PCU, MODULE, BLOCK
N90STA	LOOP, PCU, MODULE
DEVSTAT	DEV_NUMBER, DEVSUBTYPE, DEV_TYPE (DEVSUBTYPE only if applicable).

Table 5-10. Tag Browser Fields

Field[1]	ANALOG	CLIF	DAANALG	DADIG	DADIGTL	DANG	DEVSTAT	DD	DIGITAL	INTANG	INTDIG	MSDD	N90STA	RCM	RMCB	RMSC	STATION	TEXT	TEXTSTR	Format[2]	Source[3]	TDT Table[4]	Description
ACD01	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	64C	C	A	Return to normal alarm comment.
ACD02	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•		•	64C	C	A	High alarm for analog types; alarm for digital types; high alarm for CLIF.
ACD03	•	•	•			•				•							•			64C	C	A	Low alarm comment.
ACD04		•	•			•											•			64C	C	A	2-high alarm comment.; high deviation for station.
ACD05		•	•			•											•			64C	C	A	2-low alarm comment.; low deviation for station.
ACD06		•	•			•														64C	C	A	3-high alarm comment.
ACD07		•	•			•														64C	C	A	3-low alarm comment.
ACD08		•				•														64C	C	A	High deviation alarm comment.
ACD09		•				•														64C	C	A	Low deviation alarm comment.
ACD10		•				•														64C	C	A	High rate of change alarm comment.
ACD11		•				•														64C	C	A	Low rate of change alarm comment.
ACD12		•																		64C	C	A	State alarm comment.
ACD13		•																		64C	C	A	Hardware failure alarm comment.
ADSKEYBD	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•	•	•	2N	C	C	ADP keyboard, lamp, and panel number defining the full address of the lamp to light when this tag goes into alarm. Keyboard range: 0-4 (0 = all). Lamp range: 0-64 (0 indicates no ADP function). Panel range: 0-4 (0 = all panels).
ADSLAMP	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•	•	•	2N	C	C	
ADSPANEL	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•	•	•	2N	C	C	
ALARMDB			•																	11N	C	G	Deadband - must be a positive number in EU.
ALARMTYPE			•																	3C	C	G	Type of alarming - refer to Table 5-11.
ALMACKBC	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•	•	•	1C	C	C	Broadcast alarm acknowledge messages: Y/N.
ALMACKNL	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•	•	•	2N	C	C	Node list number for broadcasting alarm acknowledgment; 0-4 (0 = selects the node list containing the first 32 N90STA tags in the database that define either a console or a computer).
ALMACKTR													•							1C	C	C	Transmit alarm acknowledge messages to this node: Y/N.

Table 5-10. Tag Browser Fields (continued)

Field[1]	ANALOG	CLIF	DAANALG	DADIG	DADIGTL	DANG	DEVSTAT	DD	DIGITAL	INTANG	INTDIG	MSDD	N90STA	RCM	RMCB	RMSC	STATION	TEXT	TEXTSTR	Format[2]	Source[3]	TDT Table[4]	Description
ALMGROUP	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•	•	•	2N	C	C	Alarm group number for this tag; range: 0-99 (0 is used for tags, not alarms).
ALMINHST	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•	•	•	2C	C	C	Alarm inhibiting state; refer to Table 5-12.
ALMINHTAG	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•	•	•	5N	C	C	Index of tag which inhibits alarms.
ALMSILTR													•							1C	C	C	Transmit alarm silence messages to this node: Y/N.
ALMSTATE				•				•	•		•	•		•	•			•		3N	C	G	Not currently used by the console.
ALRMCMNT1	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	5N	C	G	Return to normal alarm comment index.
ALRMCMNT2	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•		•	5N	C	G	High alarm index for analog types; alarm index for digital types; high alarm index for CLIF.
ALRMCMNT3	•	•	•			•				•							•			5N	C	G	Low alarm comment index.
ALRMCMNT4		•	•			•											•			5N	C	G	2-high alarm comment index.
ALRMCMNT5		•	•			•											•			5N	C	G	2-low alarm comment index.
ALRMCMNT6		•	•			•														5N	C	G	3-high alarm comment index.
ALRMCMNT7		•	•			•														5N	C	G	3-low alarm comment index.
ALRMCMNT8		•				•														5N	C	G	High deviation alarm comment index.
ALRMCMNT9		•				•														5N	C	G	Low deviation alarm comment index.
ALRMCMNT10		•				•														5N	C	G	High rate of change alarm comment index.
ALRMCMNT11		•				•														5N	C	G	Low rate of change alarm comment index.
ALRMCMNT12		•																		5N	C	G	State alarm comment index.
ALRMCMNT13		•																		5N	C	G	Hardware failure alarm comment index.
ALRM_PRTY1	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	1N	C	G	Return to normal priority.
ALRM_PRTY2	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	1N	C	G	Bad quality priority.
ALRM_PRTY3	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•	•	•	1N	C	G	High alarm for analog types; alarm for digital types; high alarm for CLIF.
ALRM_PRTY4	•	•	•			•									•		•			1N	C	G	Low alarm priority.
ALRM_PRTY5		•	•			•											•			1N	C	G	2-high alarm or high deviation for stations.
ALRM_PRTY6		•	•			•											•			1N	C	G	2-low alarm or low deviation alarm for stations.
ALRM_PRTY7		•	•			•														1N	C	G	3-high alarm priority.

Table 5-10. Tag Browser Fields (continued)

Field[1]	ANALOG	CLIF	DAANALG	DADIG	DADIGTL	DANG	DEVSTAT	DD	DIGITAL	INTANG	INTDIG	MSDD	N90STA	RCM	RMCB	RMSC	STATION	TEXT	TEXTSTR	Format[2]	Source[3]	TDT Table[4]	Description
ALRM_PRTY8		•	•			•														1N	C	G	3-low alarm priority.
ALRM_PRTY9		•				•														1N	C	G	High deviation priority.
ALRM_PRTYA		•				•														1N	C	G	Low deviation priority.
ALRM_PRTYB		•				•														1N	C	G	High rate of change priority.
ALRM_PRTYC		•				•														1N	C	G	Low rate of change priority.
ALRM_PRTYD		•																		1N	C	G	State alarm.
ALRM_PRTYE		•																		1N	C	G	Hardware failure.
APSTATE																				2C	I	G	Not used by console.
APTASK																				8C	I	G	Not used by console.
ARCHIVE																				1C	I	G	Not used by console.
BLOCK	•	•	•	•	•	•		•	•			•		•	•	•	•	•	•	4N	M	G	Block address; range is module dependent.
CNTRLENABL																			•	C1	C	C	Control enable. Y = Yes, N = No.
CUSTTAGID	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	32C	C	G	Additional description for the tag (optional).
DEV_NUM							•													1N	C	G	Device number (range 1-4) (refer to list in Table 5-14).
DEVSUBTYPE							•													16C	C	G	Device subtype (refer to list in Table 5-14).
DEV_TYPE							•													16C	C	G	Device type (refer to list in Table 5-14).
EUD	•		•			•				•						•	•			6C	C	E	Engineering units (EU) descriptor.
EUINDEX	•		•			•				•						•	•			3N	C	G	Engineering units descriptor index.
FB1_0D								•				•			•					6C	C	L	Zero state descriptor for feedback input 1.
FB1_0STATE								•				•			•					3N	C	G	Zero state descriptor index for feedback input 1.
FB1_1D								•				•			•					6C	C	L	One state descriptor for feedback input 1.
FB1_1STATE								•				•			•					3N	C	G	One state descriptor index for feedback input 1.
FB2_0D								•				•			•					6C	C	L	Zero state descriptor for feedback input 2.
FB2_0STATE								•				•			•					3N	C	G	Zero state descriptor index for feedback input 2.
FB2_1D								•				•			•					6C	C	L	One state descriptor for feedback input 2.
FB2_1STATE								•				•			•					3N	C	G	One state descriptor index for feedback input 2.
FB3_0D												•								6C	C	L	Zero state descriptor for feedback input 3.

Table 5-10. Tag Browser Fields (continued)

Field[1]	ANALOG	CLIF	DAANALG	DADIG	DADIGTL	DANG	DEVSTAT	DD	DIGITAL	INTANG	INTDIG	MSDD	N90STA	RCM	RMCB	RMSC	STATION	TEXT	TEXTSTR	Format[2]	Source[3]	TDT Table[4]	Description
FB3_0STATE												•								3N	C	G	Zero state descriptor index for feedback input 3.
FB3_1D												•								6C	C	L	One state descriptor for feedback input 3.
FB3_1STATE												•								3N	C	G	One state descriptor index for feedback input 3.
FB4_0D												•								6C	C	L	Zero state descriptor for feedback input 4.
FB4_0STATE												•								3N	C	G	Zero state descriptor index for feedback input 4.
FB4_1D												•								6C	C	L	One state descriptor for feedback input 4.
FB4_1STATE												•								3N	C	G	One state descriptor index for feedback input 4.
HALARM[5]	•		•			•				•							•			11N	C	G	High alarm value (in EU).
H2ALARM			•																	11N	C	G	2-high alarm value (in EU).
H2DELTA			•																	11N	C	G	Delta value added to the high variable alarm value to give the 2-high variable alarm value; must be a positive number specified in EU.
H3ALARM			•																	11N	C	G	3-high alarm value (in EU).
H3DELTA			•																	11N	C	G	Delta value added to the high variable alarm value to give the 3-high variable alarm value; must be a positive number specified in EU.
HVARALMTAG			•																	5N	C	C	High variable alarm tag index: the value of this tag determines the high variable alarm limit.
LALARM[5]	•		•			•				•							•			11N	C	G	Low alarm value (in EU).
L2ALARM			•																	11N	C	G	2-low alarm value (in EU).
L2DELTA			•																	11N	C	G	Delta value subtracted from the low variable alarm value to give the 2-low variable alarm value; must be a positive number in EU.
L3ALARM			•																	11N	C	G	3-low alarm value (in EU).
L3DELTA			•																	11N	C	G	Delta value subtracted from the low variable alarm value to give the 3-low variable alarm value; must be a positive number in EU.
LVARALMTAG			•																	5N	C	C	Low variable alarm tag index; the value of this tag determines the low variable alarm limit.
LOOP	•	•	•	•	•	•		•	•			•	•	•	•	•	•	•	•	3N	M	G	Loop address; range: 0-255.

Table 5-10. Tag Browser Fields (continued)

Field[1]	ANALOG	CLIF	DAANALG	DADIG	DADIGTL	DANG	DEVSTAT	DD	DIGITAL	INTANG	INTDIG	MSDD	N90STA	RCM	RMCB	RMSC	STATION	TEXT	TEXTSTR	Format[2]	Source[3]	TDT Table[4]	Description
MODULE	•	•	•	•	•	•		•	•			•	•	•	•	•	•	•	•	2N	M	G	Module address; range: 0-31.
MODREV													•							2C	I	G	Revision level of modtype.
MODTYPE													•							8C	C	G	Module type (refer to list in Table 5-13).
NUMDECPL	•	•	•			•				•						•	•			1N	C	G	Number of decimal places to use displaying the value; range: 0-6.
ONED				•	•			•	•		•	•		•	•					6C	C	L	One state descriptor.
ONESTATE				•	•			•	•		•	•		•	•					3N	C	G	One state descriptor index.
PCU	•	•	•	•	•	•		•	•			•	•	•	•	•	•	•	•	3N	M	G	PCU address; range: 0-255.
PID_BLOCK		•															•			4N	C	G	PID block address for tuning function (11-9998). Tuning block number for CLIF tags (0 or 30 - 9998).
PM1_0D															•					6C	C	L	Permissive state descriptors and associated indices for RMCBs.
PM1_0STATE															•					3N	C	G	
PM1_1D															•					6C	C	L	
PM1_1STATE															•					3N	C	G	
PM2_0D															•					6C	C	L	
PM2_0STATE															•					3N	C	G	
PM2_1D															•					6C	C	L	
PM2_1STATE															•					3N	C	G	
PR_ALARM	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•	•	•	1C	C	C	Print alarms for this tag in the event log: Y/N.
PRIMDISP	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	8C	C	C	Name of display called from an alarm summary, or from operating parameters for this tag.
PRIMDSPCRT	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	2N	C	C	Primary display CRT.
PR_OPACT	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	1C	C	C	Print operator actions for this tag in the event log: Y/N.
PR_STCHNG		•		•	•			•	•		•	•		•	•					1C	C	C	Print state changes for this tag in the event log: Y/N.
SEC_GROUP	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	2N	C	C	Security group (1-16).
SEC_LEVEL	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	2N	C	C	Security level (1-16).
SETPTVAL0																	•			11N	C	G	0% value on the set point scale (in EU).
SHEET	•	•	•	•	•	•		•	•			•		•	•	•	•	•	•	8C	M	G	CAD sheet of source function code.

Table 5-10. Tag Browser Fields (continued)

Field[1]	ANALOG	CLIF	DAANALG	DADIG	DADIGTL	DANG	DEVSTAT	DD	DIGITAL	INTANG	INTDIG	MSDD	N90STA	RCM	RMCB	RMSC	STATION	TEXT	TEXTSTR	Format[2]	Source[3]	TDT Table[4]	Description
SPAN	•		•							•						•	•			11N	C	G	Span (in EU).
STR_LENGTH																			•	2N	C	C	Console string length. Range: 0-80.
SV_ALARM	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•	•	•	1C	C	C	Save alarms for this tag on disk: Y/N.
SV_OPACT	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	1C	C	C	Save operator actions for this tag on disk: Y/N.
SV_STCHNG		•		•	•			•	•		•	•		•	•					1C	C	C	Save state changes for this tag on disk: Y/N.
TAGDESC	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	32C	C	G	Describes the tag, its function, location, etc.
TAGINDEX	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	5N	C	C	Identifies the tag by number.
TAGNAME	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	14C	C	G	Identifies the tag by name.
TAGTYPE	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	7C	C	G	Tag type name (refer to Table 5-8).
TAGTYPESRC	•	•	•	•	•	•		•	•			•		•	•	•	•	•	•	8C	M	G	Symbol name of function code generating the tag.
TEXT_SET															•					3N	C	G	Number of text set to use for RMCB (0-100).
THREED												•								6C	C	L	Three state descriptor.
THREESTATE												•								3N	C	G	Three state descriptor index.
TP0TYPE													•							2N	C	G	Terminal type for terminal emulation mode, NIU port 0 (0 = terminal not configured, 1 = VT220 terminal, 2 = HP2392).
TP1TYPE													•							2N	C	G	Terminal type for terminal emulation mode, NIU port 1 (0 = terminal not configured, 1 = VT220 terminal, 2 = HP2392).
TP0LANG													•							1N	C	G	Language type for terminal emulation.
TP1LANG													•							1N	C	G	0 = USA, 1 = Norwegian.
TWOD												•								6C	C	L	Two state descriptor.
TWOSTATE												•								3N	C	G	Two state descriptor index.
USER1[6]	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	4C	I	U	Default user field.
USER2	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	4C	I	U	Default user field.
USER3	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	8C	I	U	Default user field.
USER4	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	8C	I	U	Default user field.
USER5	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	12C	I	U	Default user field.

Table 5-10. Tag Browser Fields (continued)

Field[1]	ANALOG	CLIF	DAANALG	DADIG	DADIGTL	DANG	DEVSTAT	DD	DIGITAL	INTANG	INTDIG	MSDD	N90STA	RCM	RMCB	RMSC	STATION	TEXT	TEXTSTR	Format[2]	Source[3]	TDT Table[4]	Description
USER6	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	12C	I	U	Default user field.
USER7	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	16C	I	U	Default user field.
USER8	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	16C	I	U	Default user field.
USER9	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	20C	I	U	Default user field.
USER10	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	32C	I	U	Default user field.
VAL0	•		•							•						•	•			11N	C	G	0% value (in EU).
ZEROD				•	•			•	•		•	•		•	•					6C	C	L	Zero state descriptor.
ZEROSTATE				•	•			•	•		•	•		•	•					3N	C	G	Zero state descriptor index.

NOTES:

1. The attributes noted as being applicable to a particular tag type are not necessarily required for every tag of that type; i.e., the alarm inhibit tag attribute need not be specified for every analog tag, only of those which the alarm inhibit feature is desired. Refer to Table 5-9 for a list of required fields.
2. N(umeric) = Numerals 0 to 9 only.
   C(haracter) = Alphabetic characters, special characters, and numerals (0-9) used as descriptors.
3. M = Can be maintained by the module tools (graphical module configurator or tag synchronization) if available and shares the project database with the console tools.
   C = Entered into the TDT by the console tools (tag browser).
   I = Information only field; entered into the TDT by the console tools (tag browser).
4. A = Contained in the TDT alarm comment list.
   C = Contained in the TDT console list.
   E = Contained in the TDT engineering unit list.
   G = Contained in the TDT global list.
   L = Contained in the TDT logic state list.
   U = Contained in the TDT user field list.
5. For DAANALG tags, this field can be maintained by the module tools.
6. The user field structure can be modified. Refer to ***TAG UTILITIES*** in Section 11 for information.

Table 5-11. Choices for ALARMTYPE Field

Type	Entry	Applicable Attributes
Standard INFI 90 OPEN alarm	Std	HALARM, LALARM
Fixed alarming with OIS multiple level alarms	Fix	HALARM, LALARM H2ALARM, L2ALARM, H3ALARM L3ALARM
Variable OIS alarm limits with multiple level alarms	Var	HVARALMTAG, LVARALMTAG H2DELTA, L2DELTA H3DELTA, L3DELTA

Table 5-12. Choices for ALMINHST Field

Alarm Inhibiting State	Entry
No alarm inhibiting state	Blank
Digital (MSDD, DD, RCM, RMCB, DADIGTL, INTDIG, DADIG, TEXTSTR)	
Alarm	A
Zero	0
One	1
Two	2
Three	3
Analog, Station (DAANALG, INTANG)	
High	H
Low	L
Station (DAANALG, DANG)	
High deviation	HD
Low deviation	LD
Two high	2H
Two low	2L
Three high	3H
Three low	3L
DANG	
High rate of change	HR
Low rate of change	LR

Table 5-13. N90STA Tag MODTYPE Field Choices

Entry	Nomenclature	Description
AMMH	NAMM01	Analog Master Module (high)
AMML	IMAMM03, NAMM02/03	Analog Master Module (low)
AOM	IMAOM01, NAOM01	Analog Output Module
BIM	INBIM02, NBIM01/02	Bus Interface Module
BTM	INBTM01, NBTM01	Bus Transfer Module
CBC	CBC01	Batch Command Controller
CLC	CLC03/04	Loop Command Controller

Table 5-13. N90STA Tag MODTYPE Field Choices (continued)

Entry	Nomenclature	Description
COM/QRC	IMCOM03/04, IMQRC01, NCOM02/03/04, NQRC01	Controller Module and Quick Response Controller Module
COMPUTER	N/A	Used to access computers running process interface software packages (e.g., XRS 90 Data Management, 1090 Process Management, etc.)
CSC	CSC01	Sequence Command Controller
CTM	NCTM01	Configuration and Tuning Module
CTT	NCTT01/02	Configuration and Tuning Terminal
GCM/PPT	INPPT01, NGCM02	Plant Loop to Plant Loop Transfer Module (remote)
IIT01	INIIT01, NBCM01	INFI-NET to INFI-NET Transfer Module (local)
IIT02	INIIT02, NGCM03	INFI-NET to INFI-NET Transfer Module (remote)
IPT01	INIPT01, NGCM04	INFI-NET to Plant Loop Transfer Module (local)
LCM01	NLCM01	Large Controller Module
LCM02	NLCM02	Large Controller Module
LCM03	NLCM03	Large Controller Module
LMM01	NLMM01	Logic Master Module
LMM02	IMLMM02, NLMM02	Logic Master Module
LSM/PCT	INPCT01, NLSM01/02	Plant Loop to Computer Transfer Module
MCS	NMCS02	Management Command System
MFC	IMMFC03/04/05, NMFC01/02/03/04/05	Multi-Function Controller Module
MFP	IMMFP01/02/03/05	Multi-Function Processor Module
MPC	IMMPC01, NMPC01	Multi-Processing Module
NPM	INNPM01	Network Processing Module (Controlway)
OIS10	IIOIS10	Operator Interface Station
OIS20	IIOIS20/IIOIS25	Operator Interface Station
OIS40	IIOIS40/IIOIS41/IIOIS42	Operator Interface Station
OIU	NOIU01/02/03	Operator Interface Unit
OIU5000	NOIU01/02/03	Operator Interface Unit (5000 tag version)
PBUG	N/A	Module Bus Debugger
PIM	NPIM01	Processor Input Module (CIU)
PTM	INPTM01, NPTM01	Point Table Module
SBM	NSBM01	Superloop Bus Module
SCM	NSCM01, NNIUO1	Serial Communication Module Network Interface Unit
SEM	IMSEM01	Sequence of Events Logging Module
SSM/ICT	INICT01, NSSM01	INFI-NET to Computer Transfer Module

Table 5-14. Choices for DEV_TYPE, DEV_NUM, and DEVSUBTYPE Fields

DEV_TYPE	DEV_NUM	DEVSUBTYPE
Printer	Printer number (range 1 - 4)	ANSI, IBM Color ANSI Color, IBM COL 24 ANSI High, IBM B&W 24 IBM
Keyboard	Keyboard number (range 1 - 4)	MKI EMKI EMKI Track
ADP Panel	Keyboard number (range 1 - 4) ADP panel number (range 1 - 4)	Not applicable
Touch screen	Touch screen number	Noncal Elograph Calib Elograph
CIU	Not applicable	Not applicable
CRT	CRT number (range 1 - 4)	Not applicable
Clock	Not applicable	Battery Satellite
Storage	Not applicable	SASI Winchester SCSI Winchester Floppy Magtape Optical Disk

TREND LIST CONFIGURATION

This section provides information specific to configuring console trend tag lists using the trend browser application. Refer to ***USING THE BROWSERS*** for general information on the browser application operation. Also refer to Section 10 for information on transferring trend lists to the console and to Section 11 for supplemental tag utilities.

> **NOTE:** PCV 5.1 trend lists are not fully supported. In particular, configuration of historical classes is not supported.

Trend tags define tags for which the tag value is to be collected at specified intervals for some period of time. The trend data is used to plot trend graphs on the console. For a complete description of how trend tags are used by the console, refer to the appropriate ***Configuration*** instruction listed in Table 1-2.

Trend tag information can be found in console displays, module configurations, and in the tag data tables. However, trend tag linking is not supported and the aforementioned applications do not share trend tag definitions between each other. There is no global trend tag list (as with the tag list) and all information about the trend tags reside in each individual console trend tag list.

The trend list structure is in the form of a table with trend records forming rows and fields forming the columns. Each trend tag is a record in the list and each field is available for viewing in the browser. As with the tag browser, subsets can be defined that display specific fields. The subsets are defined in templates and can be tailored for the user's convenience. The trend browser supports both OIS and PCV trend configuration. Due to differences in the trend structure and fields used for each console, a selection based on the console type must be made when starting the trend browser.

To configure a trend tag list:

1. Do one of the following:

- To configure OIS trend lists, choose *OIS Trend Tables* from the *Browse Tag Data* submenu under the *Project* menu (Alt P B D O).

- To configure PCV trend lists, choose *PCV Trend Tables* from the *Browse Tag Data* submenu under the *Project* menu (Alt P B D P).

The trend browser is launched and the opening screen appears similar to that shown in Figure 5-3.

2. Select the trend tag list of interest from the *Trend Tag List* list box.

3. Refer to ***USING THE BROWSERS*** for information on the trend browser start-up options and click on *OK* when done.

4. The trend browser application window appears. Refer to ***USING THE BROWSERS*** for information on using the browser. Refer to Table 5-15 for the trend list field descriptions and enter trend information as needed.

NOTES:

1. Not all trend types and fields described in the table are valid for all console types and revisions. Refer to the appropriate ***Configuration*** instruction for valid trend types and fields for a particular console.

2. The PCV console uses some of the fields differently than described. Refer to the PCV instruction for information.

5. Use *Save* from the *File* menu (Alt F S) to save any changes in the trend list.

6. When done, use *Exit* from the *File* menu (Alt F X) to exit the trend browser.

Table 5-15. Trend List Field Descriptions

Field	Type	Width	Bailey or Customer	Description
TRINDEX	Numeric	4	B	Number of the trend tag to be configured. Valid input is 1 to the number of trends configured for the console. Refer to the console ***Configuration*** instruction listed in Table 1-2 for the maximum trend index for a console.
TAGINDEX	Numeric	5	B	Index number of the tag that creates the exception report for the trend tag as defined in the tag list. Upon entering either the tag index or the tag name, the other is filled in automatically.
TAGNAME	Character	14	C	Name of the tag that creates the exception report for the trend tag as defined in the tag list. Upon entering either the tag index or the tag name, the other is filled in automatically.
TRRESNUM	Numeric		C	Trend resolution number. PCV consoles only.
TRRESUNIT	Character	1	C	Trend resolution units (S,M,H,D). PCV consoles only.
TRTYPE	Character	8	C	Trend type that is being used in the module. Valid input is FAST, NORMAL, and ENHANCED. FAST and NORMAL are valid only if 1) the block address is that of an FC 66 (analog trend) or 2) the block address is that of an FC 70 or FC 158 (analog point definition/ enhanced analog point definition). ENHANCED is only valid if the block address is that of an FC 179.
TRSPNNUM	Numeric	2	C	Displayed if the trend type is FAST or NORMAL. These two fields represent the total time for the trend data to be stored to disk, before the data is overwritten. Valid input is 1 H (hour) through 92 D (days).
TRSPNUNIT	Character	1	C	
TRCOLRES	Numeric	6	C	Displayed if the trend type is ENHANCED. It defines the resolution (in seconds) to be used by the trend displays which reference this trend tag. Valid input is 1 through 691200 seconds.
TRMODE	Character	3	C	Trend mode as defined in the block. Valid entries are AVG (average), SMP (sample), MIN (minimum), MAX (maximum), and SUM. If the trend type is ENHANCED, RNG (range) is also valid.
TRSUBTYPE	Character	2	C	Only valid for the STATION tag type. Valid input is PV, SP, CO, and RI.
TRLOOP	Numeric	3	B	INFI 90 OPEN block address of the exception report block from which to collect the trend data.
TRPCU	Numeric	3	B	
TRMODULE	Numeric	2	B	
TRBLOCK	Numeric	4	B	
TRARCHIVE	Character	1	C	Determines whether to archive the trend or not. Valid input is Y or N. PCV consoles only.

Table 5-15. Trend List Field Descriptions (continued)

Field	Type	Width	Bailey or Customer	Description
TRUSAGE	Character	12	C	Determines what the target of the trend data is going to be. Valid input is DISPLAY ONLY, SAVE TO DISK, or ARCHIVE. Any of the previous selections imply that the trend data is displayable. Valid input: DISPLAY ONLY = no trend data is saved to disk. SAVE TO DISK = trend data is saved to disk. ARCHIVE = trend data is saved to disk and also archived. ARCHIVE is not supported for an ENHANCED trend on consoles with an S or earlier tag list structure. EXTERNAL SRC = trend data is stored to disk on an OAS. Valid for 40 series E and later only.
NUMEVENTS	Numeric	6	C	Displayed if the trend type is ENHANCED. It defines the total number of events to be saved to disk before the data is overwritten. Valid input is 1 to through 999999.
TRZERO	Numeric	11	C	Low and high limits of the trended value that will be used on the trend display. Usually the same as the limits of the block that is being trended. These values are for reference and are not required for the trend to function.
TRSPAN	Numeric	11	C	
SHEETNBR	Character	2	B	Sheet number of the CAD drawing that the INFI 90 trend block resides on. This field is for reference and is not required for the trend to function.
TRSOURCE	Character	6	C	Source of the trend data to be displayed Valid input is LOCAL or name of open access system node. If TRUSAGE is set to EXTERNAL SRC and the console is a 40 series E or later this field must be filled in. Valid for 40 series E and OAS E and later only.
TRUSER1	Character	8	C	For additional information that the user may want associated with the trend records. These fields are also for reference only and are not required for the trend to function.
TRUSER2	Character	20	C	

ENGINEERING UNIT DESCRIPTOR CONFIGURATION

This section provides information specific to configuring the engineering unit descriptor list using the EUD browser application. Refer to ***USING THE BROWSERS*** for general information on the browser application operation. Also refer to Section 10 for information on transferring the EUD list to a console.

Engineering unit descriptors describe the unit of measurement for a value received from a process; for example, DEG F, GPM,

AMPS, LB/HR. A list of these descriptors is maintained and configured separately from the tag list. A single engineering unit descriptor (EUD) list serves all consoles in a project. The engineering unit descriptor is entered into the tag list (using the tag browser) for reference only. The actual engineering unit descriptor is defined in the module and when the console goes on-line, the module engineering unit index from the module is read and the engineering unit descriptor corresponding to the index is used by the console.

An engineering unit has two parts: its index number and its text description. A total of 256 engineering units can be defined in the EUD list. Those descriptors with indices zero through 15 are predefined and cannot be changed by the user. The remaining descriptors with indices 16 through 255 can be user defined. The EUD browser can be used to view and edit the engineering unit descriptors. The engineering unit descriptors are stored in the file ***EUDSCP.CF*** when transferred to the console.

To configure the engineering unit descriptors:

1. Launch the EUD browser by choosing *EUD Browser* from the *Browse Tag Data* submenu under the console tools executive *Project* menu (Alt P B E). The EUD browser application window appears. Refer to ***USING THE BROWSERS*** for information on using the browser.

The EUD browser displays the engineering units in 16 rows, with each row containing 16 descriptors. Certain functions described in ***USING THE BROWSERS*** and included with the tag browser, for example, do not apply to the EUD browser:

- The *Record*, *View*, and *Report* menus are not included.
- Although the field order can be changed, it is not required and should be avoided.
- Since there is a single EUD list per project and its file name is defined internally, the *Open* and *Save* functions are not available from the *File* menu.

Other differences include:

- The EUD list changes are automatically saved on exit.
- *Find* and *Find Again* are under the *Edit* menu.
- A *Refresh* item is available from the *File* menu. This function rereads the EUD database file into the browser. This could be used, for example, after an import to update the browser contents.

2. Position the insertion point on the description field of interest. The field must have an index of 16 through 255 in order to make any changes to it.

3. Edit or enter new descriptors. Descriptors accept a maximum character string of six characters and can include alphabetic, numeric, and other valid console characters.

4. When done viewing or editing, choose *Exit* from the *File* menu (Alt F X) or use the shortcut key combination Ctrl-X. Any changes to the EUD list are automatically saved on exit.

LOGIC STATE DESCRIPTOR CONFIGURATION

This section provides information specific to configuring the logic state descriptor list using the LSD browser application. Refer to ***USING THE BROWSERS*** for general information on the browser application operation. Also refer to Section 10 for information on transferring the LSD list to a console.

Logic state descriptors show the current logic state of a device; for example, on or off, zero or one, run or stop, or closed or open. A list of these descriptors is maintained and configured separately from the tag list. A single logic state descriptor (LSD) list serves all consoles in a project. The logic state descriptor is entered into the tag list (using the tag browser) and, unlike in the case of engineering units, the console does refer to the tag database for the correct descriptor. The PCU module does not report an index number of a logic state descriptor.

A logic state has two parts: its index number and its text description. A total of 256 logic states can be defined in the LSD list. Those descriptors with indices zero through 15 are predefined and cannot be changed by the user. The remaining descriptors with indices 16 through 255 can be user defined. The LSD browser can be used to view and edit the engineering unit descriptors. Logic state descriptors are stored in the file ***LSDSCP.CF*** when transferred to the console.

To configure the logic state descriptors:

1. Launch the LSD browser by choosing *LSD Browser* from the *Browse Tag Data* submenu under the console tools executive *Project* menu (Alt P B L). The LSD browser application window appears. Refer to ***USING THE BROWSERS*** for information on using the browser.

The LSD browser displays the logic states in 16 rows, with each row containing 16 descriptors. Certain functions described in ***USING THE BROWSERS*** and included with the tag browser, for example, do not apply to the LSD browser:

- The *Record*, *View*, and *Report* menus are not included.
- Although the field order can be changed, it is not required and should be avoided.
- Since there is a single LSD list per project and its file name is defined internally, the *Open* and *Save* functions are not available from the *File* menu.

Other differences include:

- The LSD list changes are automatically saved on exit.
- *Find* and *Find Again* are under the *Edit* menu.
- A *Refresh* item is available from the *File* menu. This function rereads the LSD database file into the browser. This could be used, for example, after an import to update the browser contents.

2. Position the insertion point on the description field of interest. The field must have an index of 16 through 255 in order to make any changes to it.

3. Edit or enter new descriptors. Descriptors accept a maximum character string of six characters and can include alphabetic, numeric, and other valid console characters.

4. When done viewing or editing, choose *Exit* from the *File* menu (Alt F X) or use the shortcut key combination Ctrl-X Any changes to the LSD list are automatically saved on exit.

ALARM COMMENT CONFIGURATION

This section provides information specific to configuring the alarm comment list using the alarm comment browser application. Refer to ***USING THE BROWSERS*** for general information on the browser application operation. Also refer to Section 10 for information on transferring the alarm comment list to a console.

Alarms inform the operator of process problems. It is the user's responsibility to be aware of points that require monitoring for alarm conditions and to instruct the operator on proper action to take in the event of an alarm.

One means by which the operator can be assisted in properly responding to an alarm is by the use of alarm comments. These are messages that can be configured by the user to be displayed when specific alarm conditions occur. The messages can either provide information about the alarm condition, or inform the operator as to the proper action to take: for example, *Turn off pump G12*. It is the user's responsibility to deter-

mine the proper alarm comments and to configure the display to incorporate each comment. The alarm comment browser can be used to view and edit alarm comments. Alarm comments are stored in the file ***ALRMCMNT.I90*** when transferred to the console.

To view or edit the alarm comments:

1. Launch the alarm comment browser by choosing *Alarm Comment Browser* from the *Browse Tag Data* submenu under the console tools executive *Project* menu (Alt P B A). The alarm comment browser application window appears. Refer to ***USING THE BROWSERS*** for information on using the browser.

The alarm comment browser displays the alarm comments as records. Each alarm comment record has an index and a comment field. Certain functions described in ***USING THE BROWSERS*** and included with the tag browser, for example, do not apply to the alarm comment browser:

- The *Report* menu is not included.
- The *Record* and *View* menus provide only functions that apply to the alarm comment list.
- Although the field order can be changed, it is not required and should be avoided.
- Since there is a single alarm comment list per project and its file name is defined internally, the *Open* and *Save* functions are not available from the *File* menu.

Other differences include:

- The alarm comment list changes are automatically saved on exit.
- The alarm comment indices can be edited; however, they must be unique.

2. Position the insertion point on the index or comment field of interest.

3. Edit or enter new alarm comments. Comments accept a maximum character string of 64 characters and can include alphabetic, numeric, and other valid console characters.

To add an alarm comment to the list, use *Append Record* from the *Browse* menu (Alt B N) or use the shortcut key combination Ctrl-N. The new alarm comment is given an index incremented by one from the current highest index number.

4. When done viewing or editing, choose *Exit* from the *File* menu (Alt F X) or use the shortcut key combination Ctrl-X Any changes to the alarm comment list are automatically saved on exit.

REPORT POINT CONFIGURATION

This section provides information specific to configuring report point lists using the report point browser application. Refer to ***USING THE BROWSERS*** for general information on the browser application operation. Also refer to Section 10 for information on transferring report point lists to the OAS machine and to Section 11 for supplemental tag utilities.

Open access systems (OAS) revision E.1 and later have the capability of generating exception reports to the INFI 90 OPEN Strategic Enterprise Management System. The exception reports are generated by simulating one of the following function codes:

FC 30 Analog output, loop (AO/L).

FC 45 Digital output, loop (DO/L).

FC 82 Segment control (SEGCRM).

A console can be configured to receive a report point exception report just as an exception report generated by a module. When a console is configured to use a report point, the tag information is configured in a manner similar to using the function code for which the report point is simulating. The following guidelines must be used when configuring the console tag:

- The tag name used by the console must match the tag name given to the report point in the report point list.
- The loop and PCU address of the console tag come from the OAS address generating the report point.
- The module address for a report point is always ***2***.

A report point list on the OAS machine specifies the information needed to generate these exception reports. The list contains, among other information, the specifications for the function blocks the report points are simulating. The report point browser can be used to maintain report point lists.

Report point lists maintained by the browser are not necessarily specific to a particular OAS machine. This has two consequences: 1) A single report point list may be used on more than one OAS machine; and, 2) The report point list is maintained independent of the OAS revision level. The report point

list used by an OAS machine is specified in the OAS description in the console tools executive and must be valid for that revision level.

To configure report points:

1. Launch the report point browser by choosing *Report Point Browser* from the *Browse Tag Data* submenu under the console tools executive *Project* menu (Alt P B R). The report point browser is launched and the *Open* dialog box appears as shown in Figure 5-2.

2. Select the report point list of interest from the *Report Point List* list box.

3. Refer to ***USING THE BROWSERS*** for information on the start-up options and click on *Ok* when done.

4. The report point browser application window appears. Refer to ***USING THE BROWSERS*** for information on using the browser. Field descriptions are given in Table 5-16.

Table 5-16. Report Point Field Descriptions

Field	Description
Tagname	Tag name as defined in the console tag list receiving the report point.
Block	Any valid block address.
Fc_code	Function code simulated: AO/L (FC 30), DO/L (FC 45), SEGCRM (FC 82).
Sigchg	Corresponds to the significant change specification in FC 30 and FC 82.
Blockin	Corresponds to the block address input of the function code.
Segatt	Corresponds to the segment attributes specification in FC 82.
Almst_ind	Corresponds to the alarm state indicator specification for FC 45.
Euindx	Corresponds to the engineering unit index for FC 30.
Tarper	Corresponds to the target period specification for FC 82.
Eudesc	Corresponds to the engineering unit descriptor for FC 30.
Segprio	Corresponds to the segment priority specification for FC 82.
Mintim	Corresponds to the minimum report time specification for FC 82.
Val0	Corresponds to the zero of the input specification for FC 30.
Maxtim	Corresponds to the maximum report time specification for FC 82.
Span	Corresponds to the span of the input specification for FC 30.
Almdb	Corresponds to the alarm dead band specifications for FC 82.
Halarm	Corresponds to the high alarm point limit value specification for FC 30.

Table 5-16. Report Point Field Descriptions (continued)

Field	Description
Lalarm	Corresponds to the low alarm point limit value specification for FC 30.
Segcyc	Corresponds to the segment cycle time alarm limit specification for FC 82.

5. Use *Save* from the *File* menu (Alt F S) to save any changes in the report point list.

6. When done, use *Exit* from the *File* menu (Alt F X) to exit the report point browser.

SECTION 6 - DISPLAY CONFIGURATION

INTRODUCTION

Console displays are used to monitor process operation and results of control actions. Displays can be assigned to tags, keyboard keys, and ADP pushbuttons for data input. Display types include alarm summaries, graphic overviews, graphic details, groups, trends, and XY plots.

> **NOTE:** WLDG01 does not support display configuration for PWC90 consoles.

The graphical display configuration (GDC) application provides a means of graphically developing and editing display configurations. Graphic elements that make up the displays include primitive entities, escapes, and symbols. Primitive elements include lines, circles, arcs, rectangles, and text. Escapes provide a means of inserting dynamic elements into the drawing. They include simple escapes, dynamic symbols, alarm summaries, faceplates, XY plots, trends, and interactives. Symbols are complex elements built from the primitive entities, escapes, and other symbols. Primitive elements, escapes, and symbols are all referred to as entities in general.

A GDC document can contain either a display or symbol file. User symbols can be created separately from displays and are stored in a symbol library directory. Standard symbols are provided with the product release. As needed, symbols can be referenced in the display files and other symbol files. After configuration, both the display and symbol files are translated to console format if necessary then transferred to the console.

The configuration process is similar for both displays and symbols. Display configuration is assumed unless otherwise indicated. This section describes the operation of the GDC application and provides procedures outlining activities involved in developing display and symbol configurations including:

- Features of the graphical display configuration application.
- Display development overview: a general procedure and notes, display development guidelines, differences in displays and symbols, and the effects of tag linking.
- Launching the GDC application.
- Parts of the GDC application window, its menu items, and on-line help description.

- Document operations: opening, saving, printing, and closing a document.
- Document window operation.
- Working in the document work space.
- Placing and drawing entities, configuration components, and entity attributes.
- Selecting and locating entities.
- Editing entities.
- Symbol specific information.

GDC APPLICATION FEATURES

This version of the GDC application features a Windows interface with mouse and pull-down menu support. Using this version provides the following benefits:

- The display has a 1:1 aspect ratio - circles drawn with this version appear as circles on the operator console.
- Using a standard VGA display adapter, it can display the 16 primary colors. Using a 256 color VGA graphic display adapter, it can show all 64 operator console colors and color intensities.
- Overlaps entities in the same manner as the operator console (rather than mixing the colors).
- Emulates the operator console method of marking and scaling text.
- Does not allow entities to be placed, moved, or copied to places that would require clipping.
- Allows screen background color to be displayed.
- Supports 640×480 and greater resolution.
- Drawing files produced by the Console Configuration Tools SLDG 5.6 and earlier can be used with the GDC application.
- On-line help.

DISPLAY DEVELOPMENT OVERVIEW

This section provides general information on display development and the effects of tag linking on display development.

General Procedure

The following steps provide a general procedure for configuring displays:

1. Add display and symbol groups to the consoles. If global displays and symbols will be configured, add the global data group to the project. Refer to ***DEFINING THE PROJECT STRUCTURE*** in Section 4.

2. If possible, displays should be configured within the context of a project and with a tag list assigned to the console for which they are being configured. If console tag lists exist, insure that they are assigned to the consoles. If a console tag list does not exist, a new empty list can be created and assigned to a console. Refer to ***EDITING CONSOLE INFORMATION*** in Section 4.

Tags can be added to the console tag list when configuring displays using the *Add Tags on Save* function described in ***Adding Tags from a Display to the Console Tag List***. Alternatively, tags from one or more displays can be added to the console tag list after configuration using synchronization as described in ***TAG SYNCHRONIZATION*** in Section 11.

3. Configure symbols using the information given in this section.

4. Configure console displays using the information given in this section.

5. If the tag list is edited after displays are created or displays are edited after the tag list is created, synchronization may need to be performed as described in ***TAG SYNCHRONIZATION*** in Section 11.

6. Translate the displays and symbols to console format, refer to ***TRANSLATING DISPLAYS AND SYMBOLS*** in Section 9.

7. Transfer displays and symbols to the console, refer ***DISPLAYS AND SYMBOLS*** in Section 10.

8. Refer to the appropriate console configuration instruction listed in Table 1-2 for information on loading and using the displays on the console.

General Notes

The following general usage notes apply to this version of the GDC application:

- All mouse operations are performed using the primary mouse button unless otherwise stated. The primary mouse

button is the left button by default but can be changed in the Windows control panel.

- The GDC drawing screen X,Y coordinates 400,400 (lower left) to 9600,7200 (upper right) are relative to the console.
- In the console tools, display and symbol names need not be unique since displays and symbols can be grouped under one or more directories. However, all displays and symbols are grouped under a single directory in the console. Therefore, duplicate file names should be avoided.
- Although every effort has been made to provide exact correlation between displays on the GDC screen and consoles, some differences exist because of hardware differences.
- The GDC utility records but does not display blinks. If an entity is programmed to blink, it blinks only on the console.
- The operator console interprets line widths as polygons or rectangles pieced together. Therefore, lines having widths of greater than one should be limited to orthogonal line segments. All entities other than lines should use line widths of one only.

Display Development Guidelines

Try to standardize display features as follows:

- Put all titles in the same position.
- Keep the title color the same for all displays or set a particular color for a specific plant operation.
- Standardize colors of the process values. For example, normal always green, alarm always yellow, and bad quality always magenta.
- If pop-up control boxes are used, have them appear in the same location for all points. A good position to reserve for the pop-up is the lower right corner. Specific coordinates are 7400,400.
- If a box is to appear around the display select indicator, keep the same position and indication for all graphics which use this. Keep the same control letter to call up the display select to avoid operator confusion.
- Keep like process lines and text the same color.

Document Types

Three type of documents can be created and edited with the GDC application.

Displays

Display files have a ***DR*** extension and contain the displays that actually appear on the console screen. Displays are made up of simple entities, escapes, symbols, and pop-up symbols. Certain entities cannot be inserted directly into a display but are used in symbols which can then be referenced in a display. Displays reside in a console or global display group.

Symbols

Symbols have a ***DY*** extension and can be referenced in one or more display or symbol files. A symbol file cannot contain trends, alarms summaries, XY plots, or a clip rectangle. Symbol files in this case cannot be called as a pop-up. Symbols must reside in a symbol group under the console containing the display in which they are referenced or in a global symbol group.

Pop-Up Symbols

Pop-up symbols also have a ***DY*** extension and can be referenced in one or more display or symbol files. Pop-up symbols automatically receive a clip rectangle display element. Pop-up symbols are the only symbols that can be called as a pop-up symbol. Pop-up symbols must reside in a symbol group under the console containing the display in which they are referenced or in a global symbol group.

The document type is initially defined when it is created. It can be changed afterwards using the *Set File Type* from the *File* menu, refer to ***DOCUMENT OPERATIONS*** for more information.

Displays and Tag Linking

Tag linking creates and maintains links between tag references in displays and the tag definitions in the tag data tables. In order to benefit from tag linking, the GDC application must be started from within the context of a project with the tag data tables available. If so, tag linking provides the following benefits:

- Dynamic display entities can be configured by selecting tags from the tag data tables.
- Tags used in a display can be automatically added to a console tag list if not already present.
- Tag index numbers in displays can be automatically updated from the tag data tables.

Tag linking works in a similar manner for symbol files as for display files, except that tags cannot be added to a console tag list from a symbol file. This is because tag references in symbol files generally act as place holders and are replaced when the symbol is placed into a display.

Tag linking does not permit the following:

- A tag cannot be deleted from the tag data tables from the GDC application, even if all references in all displays for a given tag are removed.
- If a tag is deleted using the browser application, references to the tag in the displays are not automatically removed. An error message appears during translation or when running the tag synchronization utility.
- If the tag type is changed using the browser application, usage of that tag in the displays is not checked for validity. Any discrepancies in tag usage are indicated when running the tag synchronization utility.
- It is recommended that displays be configured using tag names and not tag indices. When trying to synchronize tag data in displays with tags in the tag data tables, the GDC application always attempts to first synchronize on the tag name. If unsuccessful, it attempts to synchronize on the tag index.
- The spelling of a tag name cannot be modified in the GDC application.

CONFIGURING DISPLAYS WITH TAG LINKING

Tag linking is enabled when the project TDT exists and the GDC application is launched from the console tools executive. The following apply to configuring displays with tag linking enabled:

- When a display file is opened or created, the GDC determines the tag list to be associated with it to establish links. If the GDC is launched from a console display or symbol menu, it reads the console's definition file for the associated tag list. If a console has not been assigned a tag list or GDC is launched from global symbol or display menu, it uses global tag data table to establish links.
- When configuring display entities which require tag data (name and index), the tag name can be typed in or picked from a provided list of tags already used in the display.
- If the tag name selected exists in the tag data tables, a link is defined between the display entity and the tag.

- If the tag name selected is not in the tag data tables, the GDC application maintains the association of the selected tag name to the display entity. A link is not established between the display entity and tag data tables.

- The tag index can also be used to define tag references. If a tag index is provided and the GDC application knows the console tag list associated with the display, then the GDC application attempts to retrieve the corresponding tag name from the console tag list.

- If the tag index provided exists in the console tag list (and therefore the tag name exists in the global tag data table), a link is established between the display entity and the tag.

- If the tag index provided does not exist in the associated console tag list or there is no associated console tag list, the GDC application keeps the association of the tag index to the display entity. A link is not established between the display entity and tag data tables.

- If the tag reference is successfully linked to the tag data tables, then the GDC application retrieves the tag type and may use it as a filter to permit configuring dynamic entities valid for that tag type only. The GDC application assumes that if a tag exists in the tag data tables, a tag type has been defined for it.

- If the tag reference cannot be linked to the tag data tables, the user must specify the tag type where necessary for use by the GDC application. The GDC application records this tag type for subsequent references to that tag in the display.

ADDING TAGS TO THE CONSOLE LIST FROM THE GDC

If a tag name is entered into a display and the tag name exists in the global tag data table but does not exist in the console tag list, the tag can be optionally added to the console tag list. The tag is added to the console list when the display is saved and only if *Add Tags on Save* is enabled.

A tag configured for a display entity that cannot be linked successfully by the GDC application (for example, if it does not exist in the global tag data table) cannot be added to a console tag list by the GDC application.

SYNCHRONIZING TAG DATA AND DISPLAYS

When an existing display is opened, links between the tag references in the display and the tag list associated with the display are updated by the GDC application provided valid project tag data tables exist.

The following occurs:

- If a tag link already exists, the tag name, tag index, and tag type information kept by the GDC application is updated based on TDT information.

- If no tag link exists, the GDC application tries to establish one based on first the tag name and secondly the tag index defined for each entity.

Each time an entity containing a tag reference has its tag reference modified or is pasted into a display, the GDC application attempts to reestablish the tag link. Tag synchronization can also be performed as a batch process on one or more displays. Refer to ***TAG SYNCHRONIZATION*** in Section 11.

PROJECT TAG DATA TABLES UNAVAILABLE

If the project tag data tables are unavailable or the GDC is started outside the context of a project, the GDC application still allows tag based display entities to be defined. A tag name or tag index can still be selected from the current list of tags used in the display. Since there is no project TDT information available, the GDC application cannot establish a link between the display and the tags it references and cannot insure the correct usage of those tags in the display at configuration time. Discrepancies between the display and the tag references can be detected by the tag synchronization utility or the next time the file is opened by the GDC application from the executive and the project tag data tables are available.

STARTING THE GDC APPLICATION

The GDC application can be started either from within the console tools executive or from outside the executive using the application launcher or any method available from Windows. Refer to ***Displays and Tag Linking*** for information on the consequences of launching the GDC application within and without the context of a project. This procedure assumes the console tools executive or application launcher is running and is the active application. Refer to Section 3 for information on the console tools executive and the application launcher.

To start the GDC application within the context of a project and edit an existing display or symbol, do one of the following:

- Select a display from the file window then choose *Configure Display* from the console tools executive *Display* menu. The GDC application appears with the selected file in a document window.

- Select a symbol from the file window then choose *Configure Symbol* from the console tools executive *Symbol* menu. The

GDC application appears with the selected file in a document window.

- Double click on a display or symbol of interest in the console tools executive file window. The GDC application window appears with the chosen display or symbol in a document window.

To start the GDC application within the context of a project and set the symbol search path correctly while adding a new display or symbol to the group:

1. Choose *Add File* from the console tools executive *Display* or *Symbol* menu. A dialog box requesting a file name appears.

2. Enter the display or symbol file name and click on *OK*. The GDC application window appears with a new, blank document of the appropriate type.

To start the GDC outside the context of the project, do one of the following:

- Click on the *GDC* button in the application launcher or choose it from the application launcher *Application* menu.

- Double click on the GDC icon in the *Bailey WinTools* program group.

- Use file manager to locate and launch ***GDC.EXE*** in the C:\EWS directory.

Only one instance of the GDC application can be running. If the GDC application is already running and it is launched a second time, focus returns to the GDC application. It will contain a new document window if a file had been selected or added.

CLOSING THE GDC APPLICATION

Closing the GDC application closes the application and returns control to the previous application.

To close the GDC application, do one of the following:

- Choose *Exit* from the *File* menu (Alt F X).

- Choose *Close* from the control menu (Alt Space Bar C) or use the shortcut key combination Alt-F4.

When the GDC application is closed, any open document windows are automatically closed. If any document windows contain unsaved changes, a prompt appears to save the documents before exiting.

GDC APPLICATION WINDOW

This section describes the GDC application window, the GDC menus, and how to access on-line help.

Parts of the GDC Application Window

The GDC application runs under the Windows operating environment. The parts of the GDC application window are shown in Figure 6-1 and described in the following paragraphs.

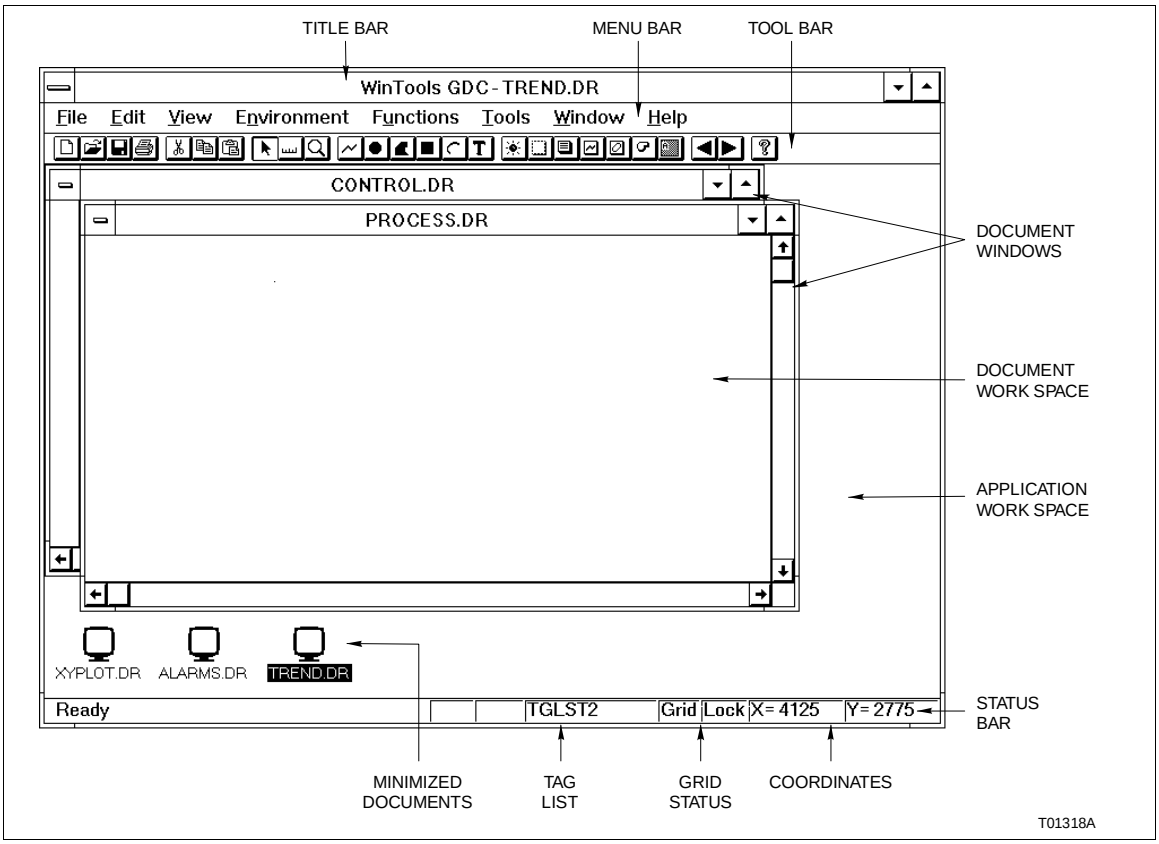


Figure 6-1. GDC Application Window

Title Bar The title bar is a standard Windows title bar showing the application title. If a document window is maximized, its name appears appended to the application title.

Menu Bar The menu bar contains the graphical module configuration application menus. Each GDC function is listed as an item on the appropriate menu. Menu selections are made by clicking on the menu and selecting an item, using the menu keys Alt menu key item key, or using a shortcut key combination if one is available.

Tool Bar The tool bar shows the *Tools* menu functions in graphic form. The tool bar is an alternative method of selecting a tool to place

or draw an entity. In addition, selected file and edit functions reside on the tool bar. The tool bar appears only when enabled using *Toolbar* from the *View* menu (Alt V T).

Application Work Space

The application work space contains one or more document windows. Each document window contains one display or symbol file. If a document is minimized, it appears as an icon at the bottom of the application work space.

Document Window

The document window provides the work space on which the displays and symbols are drawn. Each document window contains one display or symbol file. More than one document window can be opened at a given time in the application work space. If a document window is maximized, then only the maximized document window is visible in the application work space. The document windows can be arranged by sizing, moving, cascading, or tiling.

Status Bar

The status bar appears at the bottom of the application window. It displays messages on the current status of the GDC application and brief help instructions when working on a document. The status bar appears only when enabled using *Status Bar* from the *View* menu (Alt V S).

Coordinates Box

The coordinates box is located at the right edge of the status bar. It shows the X and Y coordinates of the cursor when it is in the document work space. Valid coordinates range from 400,400 to 9600,7200. The coordinates can be used to position and size entities and correspond to console display coordinates.

The GDC application window also contains scroll bars, maximize and minimize buttons, and a control-menu box. All parts of the GDC application window conform to standard Windows conventions. For more information on these and other standard parts of an application window, refer to the Windows documentation.

Menu Items

The following paragraphs briefly describe each menu. For a complete description of each menu item, refer to the subsections that follow.

A menu item followed by a right pointing triangle indicates a cascading menu. That is, if chosen, another menu appears to the right of the current menu with more items to choose from. A menu item followed by ellipsis (...) indicates a dialog box appears when the item is chosen. Some items are toggles. When the item is toggled on, a check mark appears to the left of the item. Underlined characters in the menu and menu items indicate the keys used in a menu key sequence Alt **menu key** **item key**. A key combination to the right of an item indicates it

has a shortcut key combination. Pressing the shortcut keys in combination cause the command to be performed immediately without bringing up the menu.

File Menu Contains items to open, save, close and print display and symbol documents. Refer to ***DOCUMENT OPERATIONS***.

Edit Menu Contains items to edit and modify entities. Refer to ***EDITING ENTITIES***.

View Menu Controls display of the tool bar and status bar. Refer to ***WORKING IN THE DOCUMENT WORK SPACE***.

Environment Menu Contains items to set the configuration environment including grid settings, entity default attributes, and draw mode, refer to ***WORKING IN THE DOCUMENT WORK SPACE***. Also permits setting the console display attributes, refer to ***PLACING AND DRAWING ENTITIES***.

Functions Menu Contains items to refresh the screen and zoom to full size, refer to ***WORKING IN THE DOCUMENT WORK SPACE***. Contains items to modify entities, refer to ***EDITING ENTITIES***. Contains items to find entities, refer to ***LOCATING AND SELECTING ENTITIES***.

Tools Menu Contains items to place and draw entities, refer to ***PLACING AND DRAWING ENTITIES***. Contains items to magnify and measure distance, refer to ***WORKING IN THE DOCUMENT WORK SPACE***.

Window Menu Contains items to manage the document windows, refer to ***WORKING IN THE DOCUMENT WORK SPACE***.

Help Menu Contains items to access help, refer to ***On-Line Help***.

On-Line Help

On-line help is available for the GDC application. It provides command descriptions, procedures and reference material similar to that found in the instruction. The on-line help can be used for convenient and quick access to the GDC application operating procedures. The help system conforms to the standard Windows conventions for on-line help. Refer to ***ON-LINE HELP*** in Section 3 of this instruction or the Windows documentation for more information.

DOCUMENT OPERATIONS

This section describes how to open, save, print, close, and set the file type of documents.

Opening a Document

New documents can be opened as needed when configuring displays and symbols. Existing displays and symbol files can be opened to make changes or continue editing.

NOTES:
1. Choosing *Add File* from the console tools executive *Display* or *Symbol* menu can also be used to open a new document.

2. Double clicking on a display or symbol in the console tools executive file window can also be used to open an existing document.

To open a new document:

1. Choose *New* from the *File* menu (Alt F N) or use the shortcut key combination Ctrl-N. A dialog box appears requesting a document type: display, symbol, or pop-up symbol.

2. Select the document type and click on *OK* to continue.

A new document window appears with a temporary title GDCn where n reflects the number of new documents opened during this session.

NOTE: This display or symbol has no context inside the project until it is saved.

To open an existing document:

1. Choose *Open* from the *File* menu (Alt F O) or use the shortcut key combination Ctrl-O.

2. The *File Open* dialog box appears with a list of files in the current directory. If necessary, change the drive, directory, and file type to locate the file to be opened.

3. Select the file to be opened and click on *OK* to continue. If a file name is entered that does not exist, then upon confirmation, a new file of the given name is opened.

When an existing file is chosen, the GDC application verifies that it is a GDC compatible file before opening it. The chosen file appears in a new document window and becomes the active window.

The last four documents opened appear in the *File* menu. To open one of the last four opened documents, choose it from this list or use the key sequence Alt F n, where n is the number next to the file name.

The following items describe associating tag data to a document when opened:

- If a file is created or opened within a project for which the GDC application has established an association to project tag data tables, then the GDC application attempts to link tag references in the current file to tags in the tag data tables.

- If a console display has been opened, the GDC applications forms an additional association between the console tag list and the display. If a console tag list has been assigned, the tag list name appears in the status bar. If a console tag list has not been assigned, then the GDC application only links the display to the global tag data.

- If a global display is opened, then the GDC application automatically links the display to the global tag data. The text *Global* appears on the status bar.

- If a display outside the current project is opened, the GDC application does not associate any tag list information the display. The text *No TDT* appears on the status bar.

Saving a Document

A document can be saved at any time. It is recommended to save documents regularly to prevent loss of data. The first time a new document is saved (that is, it still has its default name), the *Save As* dialog box appears. Use *Save As* to name and save unnamed documents. A document can also be saved under a new name using *Save As*. When a document is saved, any new tags referenced in the display can optionally be added to the console tag list. To do so, the file being saved must belong to the current project for which the tag data table association is understood and *Adds Tags on Save* must be toggled on.

To save a document, choose *Save* from the *File* menu (Alt F S) or use the shortcut key combination Ctrl-S.

To name and save a new document using *Save As*:

1. Select *Save As* from the *File* menu (Alt F A).

2. In the file name box, type in a file name. If necessary, redirect it using the drive and directory functions.

3. Click on *OK* to rename and save the file.

To rename a document using *Save As*:

1. Select *Save As* from the *File* menu (Alt F A).

2. In the file name box, type in the new file name. The directory defaults to the directory in which the file was originally opened. If necessary, redirect it using the drive and directory functions.

3. Click on *OK* to rename and save the file. The original document remains unchanged since its last save; the document window contains the renamed document.

NOTES:

1. *Save As* will not save the document as a different document type. That is, it will not save a symbol file as a display file. To change the document type, refer to ***Changing the Document Type***.

2. When working within a project, the GDC application issues a warning if the document is not being saved to a location that maintains the integrity of the project directory structure. Display files need to be saved to display directories (DRS) and symbol files need to be saved to symbol directories (DYS).

3. When a document containing symbol references is saved, the GDC application creates a *filename.**LST*** file, where *filename* is the document name, and saves the ***LST*** file to the same location as the document. This is an ASCII text file containing a list of all the symbol references used in the file including the symbol path. If the symbol was not found or other error occurred trying to read a symbol file, an error is listed. Missing symbol names (represented by the NULLSYM symbol) are also listed in this file. Any text editor or viewer can be used to view this file.

Printing a Document

Two printing options are available for printing display and symbol files: printing the current document from within the GDC application using *Print* from the GDC *File* menu and batch printing using *Print* from the console tools executive *Display* or *Symbol* menu. The latter method is described in ***PRINTING GDC DISPLAYS*** in Section 11.

To print the current document from the GDC application:

1. Choose *Print* from the *File* menu (Alt F P) or use the shortcut keys Ctrl-P. The standard Windows *Print* dialog box appears.

2. Set options as needed then click on *OK* to continue. The entire current document is printed to the active printer.

To view the print preview, choose *Print Preview* from the *File* menu (Alt F V). A standard Windows print preview window appears.

To set up the printer, choose *Print Setup* from the *File* menu (Alt F R). A standard Windows *Print Setup* dialog box appears. The printer, orientation, and paper size can be set from this

dialog box. To set printer options, click on *Options*. A setup dialog box specific to the printer appears. Refer to the printer documentation for complete information on setting up a specific printer.

Closing a Document

When finished editing a document, close it using *Close* from the *File* menu (Alt F C). If the document contains unsaved changes, a prompt appears to save it first. When a document is closed the document window closes and the next document window becomes the current window.

Changing the Document Type

When a document is opened, it is defined to be one of three types: display, symbol, or pop-up symbol. If the type of the document needs to be changed, use *Set Document Type* from the *File* menu (Alt F T) to do so.

If the document type is changed, the contents of the file are examined to insure all entities in it are valid for the type of document specified. If entities are discovered that are not valid for the selected document type, an error message appears and upon confirmation, the invalid entities are deleted. Refer to Table 6-2 for a list of entities not valid for a particular document type. If the document type is changed from display to symbol or symbol to display, then the *Save As* dialog box appears when the document is saved.

Adding Tags from a Display to the Console Tag List

Tags referenced in a display can be added to a console tag list provided the following conditions are met:

- The tag data tables are present.
- The console specific list is known.
- The tags used in the display are already present in the global tag data table.

To add tags to the console tag list:

1. Enable the *Add Tags on Save* toggle from the *Environment* menu (Alt N A).

2. Save the display using *Save* from the *File* menu (Alt F S).

Listing Symbol Usage

A list of the symbols used in a document can be generated and viewed. The list contains the paths searched, each symbol referenced and the number of references, and the symbol path. The list is written to the document directory and named *display.**LST***, where *display* is the display or symbol document file name.

To view a list of symbols in the current document, choose *Symbol Usage* from the *View* menu (Alt V U). A dialog box appears containing the symbol list.

> **NOTE:** This list is generated automatically and written to disk whenever the document is saved.

DOCUMENT WINDOWS

When a display or symbol is opened, it appears in a document window. A GDC document window includes a title bar, control menu, maximize and minimize buttons, and scroll bars. Operation of these components conforms to the Windows conventions and complete information can be found in the Windows documentation. Document windows have the following features:

- The display or symbol file name appears in the document window title bar. If the document window is maximized, the file name appears in the GDC application title bar.
- Each document window contains one display or symbol file.
- The GDC application can have a number of document windows open at one time. The number of open document windows depends on the available memory.
- The document windows can be arranged by tiling or cascading. If the document windows are cascaded, the active window appears in the forefront.
- If a document window is minimized, it appears as an icon at the bottom of the GDC application work space. It is visible if the GDC application work space is not covered by a document window.
- Entities can be copied and pasted between the document windows.

- More than one document window can contain the same display or symbol file.
- The document windows can only be moved within the GDC application window.

Working with Multiple Document Windows

More than one document window (each containing a single display or symbol) can be opened at a time. If a document window is maximized, it is the only window visible in the work space.

To open more than one document at a time, use *New* or *Open* from the *File* menu. The newly opened document appears in a new document window and becomes the active window.

To switch between document windows, do one of the following:

- If the document window is not visible, arrange the other windows (by tiling, cascading, moving, or sizing) to make it visible first, then click anywhere on the window.
- If the document window to be made active is visible, click anywhere on the window. It becomes the active window.
- If the document window has been minimized, double click on its icon.
- Each document title is listed under the *Window* menu. Select the document title from the *Window* menu to make it the active document.

To make the next window the active window, press Ctrl-F6. The next document window in the order they were opened becomes the active window.

A new view of the current document can be opened in a new document window. To do so, choose *New Window* from the *Window* menu (Alt W N). Each view shows the same document, but the views can be zoomed and panned separately. Any configuration changes to one view are immediately reflected in the other view.

Sizing, Moving, and Arranging Document Windows

Document windows can be arranged within the GDC application work space. They can be maximized, minimized, tiled, cascaded, and otherwise arranged by sizing and moving. Document windows can be arranged by tiling or cascading. One or more windows can be maximized and one or more windows can be minimized

To maximize a document window, click on the document window maximize button.

To minimize a document window, click on the document window minimize button.

To tile document windows, use *Tile* from the *Window* menu (Alt W T).

To cascade document windows, use *Cascade* from the *Window* menu (Alt W C).

To size document windows, point to the document window border. When the cursor changes to a double ended arrow, drag the border to resize the window.

To move document windows, point to the document window title bar and drag.

To arrange document icons, use *Arrange Icons* from the *Window* menu (Alt W A). The document icons are arranged along the bottom of the GDC application work space.

WORKING IN THE DOCUMENT WORK SPACE

The document work space refers to that area of the document window excluding the menu bar and scroll bars. The work space has a coordinate system extending from 400,400 to 9600,7200 and corresponds to the console display coordinates. The document work space can be zoomed and panned to gain a better view of any area of interest; for example, to have finer control when drawing, placing, or editing entities. Refer to ***Magnifying, Panning, and Refreshing the View*** for more information.

The coordinate system is used as an aid in drawing, placing, sizing, and positioning entities. The coordinate units are the finest resolution at which entities can be positioned. A grid can be defined as a subset of the coordinate system. The grid has a snap-to-grid toggle and can be used to align entities to the grid. A subset of the grid can also be defined and displayed as points on the document work space. Refer to ***Using the Grid*** for more information.

The remainder of this section describes some of the procedures that can be performed in the document work space. These procedures assume basic familiarity with the Windows operating environment. Use of the mouse and typical methods of operation are stressed. Alternative methods of performing actions may be found in the Windows documentation.

Choosing Commands

All GDC commands and functions are listed as an item on one of the menus. Menu operation conforms to the Windows interface standards. The mouse or keyboard can be used to choose an item from a menu. When a command is chosen, brief help instructions appear in the status bar.

To use the mouse:

1. Click on the menu containing the command item. The menu drops down to reveal a list of the menu items.

2. Do one of the following:

- Point to the item of interest and click. The action is carried out. If the mouse button is held down, the status line displays a brief description of the item; the action is carried out if the mouse button is released.

- Drag the highlighted bar through the list and release the mouse when the item of interest is highlighted. Before the mouse button is released, the status line provides a brief description of the item.

A command can be canceled while the mouse button is pressed by moving the mouse pointer off the item before releasing the mouse button.

Each menu and each menu item has an underlined letter that indicates the key sequence to use to choose the item. To use the menu key sequence, sequentially press and release the keys in the sequence Alt menu key item key where menu key is the underlined menu character and item key is the underlined item character. The menu is opened and the item chosen.

To use the Alt keyboard cursor key sequence:

1. Press Alt. The *File* menu drops down.

2. Do one of the following:

- If the *File* menu is the menu of interest, use the ↑ and ↓ arrow keys to select the item of interest and press Enter to choose the item. While an item is selected and before it is chosen, the status line provides a brief description of the item.

- If another menu is of interest, use the ← and → arrow keys to select the menu of interest, then the ↑ and ↓ arrow keys to select the item of interest. Press Enter to choose the

item. While an item is selected and before it is chosen, the status line provides a brief description of the item.

NOTE: The mouse, menu key sequence, and Alt keyboard cursor key methods can be used together in any combination that makes sense to do so.

Some commands also have a shortcut key combination that bypasses the menu system. If a command has a shortcut key combination, it is listed to the right of the menu item. The shortcut key combinations are also given in the command description. When a shortcut key combination is used, the command is performed immediately; the menu is not brought up. To use a shortcut key combination, press all keys in the combination simultaneously. For example, Ctrl-S immediately saves the document.

When a tool is chosen from the *Tools* menu, the cursor changes shape to reflect the chosen tool. The tool remains in effect until another tool is chosen. Whenever the GDC application is launched, the selection arrow is automatically made the default tool.

To cancel the use of a tool once chosen, either press Esc or choose the selection arrow (or other tool).

Using the Tool Bar

The tool bar shown in Figure 6-2 provides an alternate and more convenient method of selecting a tool for drawing and placing entities. All the commands that draw or place entities or perform commonly used functions are represented by icons on the tool bar. The tool bar can be enabled or disabled using the *Toolbar* toggle on the *View* menu (Alt V T).

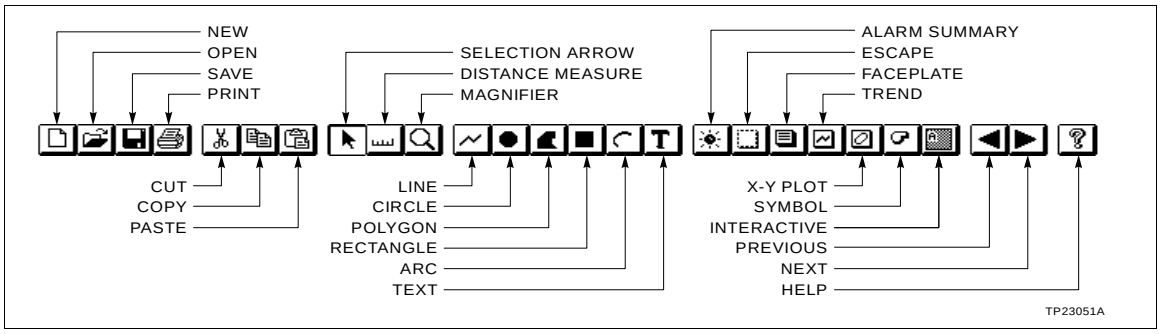


Figure 6-2. Tool Bar

To choose a tool from the tool bar, click on its icon. The cursor changes shape to reflect the chosen tool. The tool remains in effect until another tool is chosen. Whenever the GDC

application is launched, the selection arrow is automatically made the default tool.

To cancel the use of a tool once chosen, either press Esc or choose the selection arrow (or other tool).

Magnifying, Panning, and Refreshing the View

This section describes operations that affect the view of the document.

MAGNIFYING

An area of the document can be magnified to perform detailed work. The document can also be sized to fit the entire document into the document window. The following functions affect the magnification of the document.

Magnify Fits a windowed region to the document window. To magnify a document using the magnifier tool:

1. The magnifier works by defining a rectangular window that is magnified to fit the document window. Choose the magnifier from the *Tools* menu (Alt T M) or use the tool bar. The cursor changes to the magnifier cursor.

2. Position the magnifier at one corner of the window and drag the cursor to the diagonally opposite corner. Release the mouse button. The windowed area is magnified to fit the current size of the document window.

Fit to Window Fits the entire document area to the current size of the document window. This can be used after magnifying an area to return to the original view or after resizing the application window. To fit the document area to the document window, choose *Fit to Window* from the *Functions* menu (Alt U F).

PANNING

Panning can occur under two conditions: If the document is zoomed in, pan can be used to move the view left or right and up or down to view other areas of the document at the same zoom. Pan can also be used if the document window has been sized such that even at full size, the window itself is not big enough to display the document. Pan is performed using the scroll bars attached to the side of the document window and by auto-panning.

Scroll Bars To pan a document using the document window scroll bars, use the horizontal and vertical scroll bars to move the visible portion of the document around the document window. If the

document is zoomed to fit in the window and the window is maximized, panning cannot be performed.

Auto-Panning

To pan a document using auto-panning, point the cursor anywhere in the document window and drag the cursor to any edge of the window. As the cursor reaches the edge of the window, the window pans toward that edge of the document. This also works while drawing, moving, or sizing an entity or drawing a selection window. If the document is zoomed to fit the window and the window is maximized, panning cannot be performed.

REFRESHING THE VIEW

After performing drawing and editing operations, stray graphics may occasionally litter the document. This litter is not part of the document and only appears on the screen. The refresh function redraws the display and removes the litter. To refresh the display, choose *Refresh* from the *Functions* menu (Alt U R).

Using the Cursor

The cursor is used to draw and position entities, to select entities for editing, and to move, size and otherwise edit entities. The cursor is moved around the document work space using the mouse in the standard Windows environment manner. The keyboard cursor keys can be used to move the cursor as well. Depending on the tool selected or the action being performed, the cursor takes on different shapes. When a drawing tool or editing command is chosen, the cursor takes on the shape of the chosen tool or a shape that represents the chosen command. The coordinates box in the lower right of the application window gives the current cursor position in document coordinate units.

If *Snap to Grid* in the *Environment* menu is toggled on, cursor movement is restricted to the grid increment when placing, drawing, or editing entities.

Using the Grid

The grid can be used as an aid in positioning entities when they are drawn, placed, or edited. This can be done in two ways: by visually aligning the entity to the display grid or by using *Snap to Grid* and force the entity to lie on grid points. Four functions affect the grid:

Grid Spacing

Grid spacing sets the number of coordinate units between orthogonally adjacent grid points. If *Snap to Grid* is toggled on, then drawing, placing, and editing of entities are restricted to the grid points.

To set the grid spacing:

1. Choose *Grid Spacing* from the *Environment* menu (Alt N G). The *Grid Spacing* dialog box appears.

2. Set the *Grid Spacing* box to an integer value between 1 and 400.

3. Click on *OK* when done.

Display Nth Grid Point

This function determines the grid points that are displayed if *Display Grid* is toggled on.

To set the display grid spacing:

1. Choose *Grid Spacing* from the *Environment* menu (Alt N G). The *Grid Spacing* dialog box appears.

2. Set the *Display Nth Grid Point* box to an integer value between 1 and 7200.

3. Click on *OK* when done.

> **NOTE:** For the grid to be displayed, the following relationship must be observed: *Grid Spacing* * *Display Nth Grid Point* ≥ 100. For example, if *Grid Spacing* is set to **25**, then *Display Nth Grid Point* must be set to at least **4** for the grid to be displayed.

Display Grid

This is a toggle that displays the grid points set by the *Grid Spacing* and *Display Nth Grid Point* functions. To toggle it, choose *Display Grid* from the *Environment* menu (Alt N D). When *Display Grid* is toggle on, a check mark appears beside the *Display Grid* item in the *Environment* menu.

Snap to Grid

This is a toggle that confines entity drawing, placing, and editing to the grid points set by *Grid Spacing*. To toggle it, choose *Snap to Grid* from the *Environment* menu (Alt N S). When *Snap to Grid* is toggle on, a check mark appears beside the *Snap to Grid* item in the *Environment* menu.

Snap to grid works somewhat differently depending on the entity: line, polygon, and rectangle vertices must lie on the grid points; circle and arc center points must lie on grid points; text string start and end points must lie on grid points; and symbol origins must lie on grid points.

> **NOTE:** *Display Grid* and *Snap to Grid* operate independently of each other.

The default grid settings are:

Grid increment: 25
Displayed point: 4
Grid display: On
Snap to grid: On

Measuring Distance

The distance measure function measures the distance between two coordinate points in the document window.

To measure the distance between two points:

1. Choose *Distance Measure* from the tool bar or *Tools* menu (Alt T D). The cursor changes to the distance measure cursor.

2. Position the cursor at any point in the document window and drag to any other point. The status bar displays the following information:

(*startx,starty*) to (*endx,endy*)=(*x,y*), | *distance* |

where:

startx,starty	Starting X and Y coordinates.
endx,endy	Ending X and Y coordinates.
x,y	Distance along each coordinate axis.
distance	Distance between the two points.

Environment

This section describes the drawing environment features. The environment determines some aspect of how entities are placed or drawn or appear in the document window. A description of each *Environment* menu item is presented here.

Grid Spacing Defines the mouse and display grid resolution.

Display Grid Toggles the display grid on and off.

Snap to Grid A toggle that restricts drawing, placing, and editing entities to the display grid spacing.

Refer to ***Using the Grid*** for more information on the grid environment settings.

Entity Defaults Defines the default entity attributes. Refer to ***Entity Default Attributes*** for more information.

Quick Draw A toggle that determines how entities are drawn. If quick draw is on, a check mark appears next to *Quick Draw* on the *Environment* menu and the entities are drawn with an outline only. This can be used to speed up the display in some cases and to view entities hidden below or overlapped by another entity. To toggle quick draw on and off, choose *Quick Draw* from the *Environment* menu (Alt N Q).

Console Sets the console display attributes. Refer to ***CONSOLE DISPLAY ATTRIBUTES*** for more information.

Add Tags on Save If this toggle is enabled, tags referenced in the display may be added to the console tag list. Refer to ***Adding Tags from a Display to the Console Tag List***.

Display Interactives The *Display Interactives* toggle permits displaying interactives (within the GDC application) that have no visible component on the console. Each interactive has a *Display on Console* check box for its key select and touch select configuration. The *Display Interactives* toggle and the *Display on Console* toggle work in the following manner:

- If *Display Interactives* is not checked and *Display on Console* is not checked, the interactive is not visible on the GDC display nor on the console display.
- If *Display Interactives* is checked and *Display on Console* is not checked, the interactive is visible on the GDC display but not on the console display.
- If *Display on Console* is checked the interactive is visible on the GDC display and on the console display, regardless of the state of the *Display Interactives* toggle.

Entity Default Attributes

Primitive entities have default attributes that can be configured and are automatically used when the entity is drawn. Not all default attributes are used by each primitive entity. The default attributes are applied appropriately to each primitive entity until changed by the user. The default attributes default to system settings each time the GDC application is launched. Changes the user makes to the default attributes configuration are not saved between sessions. After a primitive entity is drawn, its attributes can be changed, refer to ***Modifying Attributes***.

To configure the entity default attributes:

1. Choose *Entity Defaults* from the *Environment* menu (Alt N E). The *Entity Defaults* dialog box appears.

2. Refer to Table 6-1 for a description of the default attributes. To configure the color attributes, click on the corresponding button. A *Select Color* dialog box appears containing pick lists for the color and intensity and a color palette. Either can be used to configure the default color. The blink attribute is also set from this dialog box.

3. After making any changes, click on *OK* to configure the default attributes for the current GDC session.

Table 6-1. Default Entity Attributes

Attribute	Default	Description
Text foreground	Cyan	Defines the color and brightness used to display text.
Text background	Black	Defines the color and brightness used for text background.
Fill text	On	Defines the state of text interior: color or transparent.
Text size	1	Sets the text size: 1, 2, or 3.
Text spacing	1	Sets the spacing between characters (in percent of the character height: 0 to 49).
Line color	Cyan	Defines the color and brightness of the line used to draw perimeters.
Line style	Solid	Defines the type of line used to draw perimeters: solid, dashed, dotted, dot-dash, or dot-dot-dash.
Line width	1	Width of line entities: 1 to 256. Drawing widths for all but the line entity are internally set to width 1.
Perimeter	On	Sets perimeter display on or off.
Fill color	Blue	Defines fill color and brightness.
Fill	Off	Defines the state of interior: color or transparent. Fill is valid only for closed entities (rectangle, polygon, circle, arc (if set closed). If fill is on, the entity can have an interior color, shade, and blink state.
Close arcs	On	When on, allows making pie-shaped arcs.
Blink	Off	If blink is set (ON), the entity blinks in the operator console display. The GDC application does not use the blink attribute.

DISPLAY COMPONENTS

The components that are drawn or placed into a display are referred to as entities. There are several types of that entities can be drawn or placed into a display:

Primitive Entities This includes arcs, circles, polygons, lines, rectangles, and text.

Escapes In general, this includes any entity that uses tag information or accepts or reacts to operator actions. Escapes are dynamic elements that, for example, display tag data. Simple escapes include configuration escape, dynamic escape, dynamic symbol escape, and status (alarm) escape. Other escape types are alarm summary, custom trend, interactive, trend, and XY plot.

Symbols Symbols are complex entities built from the primitive entities and escapes and can be referenced in more than one display. Standard symbols are provided with the software release. User

symbols, including default symbols, XY plot data symbols, and faceplates can be configured and stored in group directories.

Other components of a display include clip rectangles and the console display attributes:

Clip Rectangle

Displays can contain references to pop-up type symbols. The contents of this symbol are called up in an area on a console display upon an operator initiated action. A clip rectangle exists as part of a pop-up symbol in order to define the area to be cleared on a console display when the pop-up symbol is eventually exited. The clip rectangle itself is not visible on the console displays. Clip rectangles are inserted automatically into pop-up symbol files and cannot be inserted in any other way. A document must be defined as a pop-up symbol type in order to contain a clip rectangle.

Console Display Attributes

These attributes define characteristics that apply to the entire display as it is viewed on the console.

PLACING AND DRAWING ENTITIES

Entities are placed or drawn using their respective tool. The procedure for placing or drawing an entity depends on the specific entity. Brief help is given in the status line when placing or drawing an entity. On-line help is also available for the entity commands.

All entities have certain attributes that can be defined before they are drawn or placed into the document; for example, perimeter color. Refer to ***Entity Default Attributes*** for more information. After an entity is placed, attributes can be changed and it can be otherwise edited and modified (cut, pasted, sized, etc.), refer to ***EDITING ENTITIES***. Before it can be modified in any way, an entity must be selected, refer to ***LOCATING AND SELECTING ENTITIES***.

Not all entity types are valid for all document types. Table 6-2 lists invalid entities for each document type. Invalid entities cannot be placed or pasted into a document and are removed from the document if the document type is changed and the entity is not valid for the new document type.

Table 6-2. Invalid Entities

Document Type	Invalid Entities
Display	XY plot data symbol, faceplate data symbol, clip rectangle.
Symbol	Trend trace symbol, alarm summary, faceplate, XY plot, clip rectangle.
Pop-up	Custom trend, XY plot data symbol, faceplate data symbol.

The following subsections provide information on drawing or placing each type of entity.

ALARM SUMMARY

Alarm summary displays are escape entities used to create displays that provide plant alarm information. A single alarm summary can manage one or several alarm groups or priorities.

To place an alarm summary:

1. Choose *Alarm Summary* from the *Tools* menu (Alt T U). The cursor shape changes to the alarm summary cursor.

2. Position the cursor in the document area and click. The *Alarm Summary* dialog box appears.

3. Refer to Table 6-3 for a description of the dialog box fields. Fill in the fields as needed.

4. Click on *OK* to continue.

After an alarm has been configured, the word *Current* appears in the upper right corner of the drawing screen. On the console, current means that the alarms currently displayed are the highest priority alarms. (When on the console an alarm may show either *Current* or *Paging*. Paging means that the current alarms are not the highest priority, which may occur if the user has paged down to look at other alarms.)

NOTES:

1. With the exception of explode, rotate, and scale, all editing functions can be used with an alarm summary display element.

2. Since alarm summary display elements are not associated with specific tags, the change tag, find tag name, and similar functions have no effect on an alarm summary display element.

3. Refer to the appropriate operation and configuration instruction listed in Table 1-2 for more information on alarm summaries.

Table 6-3. Alarm Summary Attributes

Attribute	Description
Format	Type of format: *Standard* or *Custom*. For standard formats, the *Size*, *Number of Alarms*, and *Character Height* fields must match one of the combinations in Table 6-4. For custom formats, the *Format Type* field appears and the user must indicate the number of the user-defined format. Refer to the appropriate configuration instruction listed in Table 1-2 for more information on custom format.
Format number	Appears for custom formats only; valid format numbers are 5 through 105.
Size	Amount of the display screen occupied by the alarm.
Number of alarms	Number of standard alarms that can be displayed in the block.

Table 6-3. Alarm Summary Attributes (continued)

Attribute	Description
Character size	Text size in the displayed alarm summary.
Select by	Specifies whether to select alarms by group or priority for display.
Range	Upper and lower limits of a range of alarm groups or alarm priorities to be displayed. Valid entries are 1 through 99 for group and 1 through 8 for priority.
Alarm type	Alarm status to be displayed.
Individual list	Alarm groups or alarm priorities to be included. Up to ten individual alarm groups or priorities can be entered. Valid entries are 1 through 99, S (system), D (device status) for group; 1 through 8 for priority.
Key selection	Control - keystroke that activates the alarm summary from the display. Any valid console keystroke can be used. Primary - Starting key for the individual alarm key selects that are displayed on the alarm summary display. Any alphabetic character can be used. The other individual alarm key selects follow in alphabetic order.
Key placement	Specifies on which side of the screen to show the alarm key selects.
Touch enabled	Enables or disables touch points for activating the alarm summary from the display.
Color	Selector key - Color of the alarm select keystrokes. Border - Color of the border line. Background - Color of the alarm summary background. The default background color is black.

Table 6-4. Valid Standard Format Combinations

Size	Number of Alarms	Character Height
Full	8,16, 24	Single
Full	8,16	Double
Half	4,8,16	Single
Half	4,8	Double
Quarter	2,4,8	Single
Quarter	2,4	Double
Eighth	2,4	Single
Eighth	2	Double

ARC

An arc is a primitive entity defined by a center point, a start point, and an end point. Arcs can be open or closed (pie-shaped).

To draw an arc:

1. If necessary, define the arc default attributes.

2. Choose *Arc* from the tool bar or the *Tools* menu (Alt T A). The cursor shape changes to the arc cursor.

3. Position the cursor to mark the center point of the arc. Click and drag the cursor to simultaneously size the arc and to define its start point. A circular shape appears with a radius line as this is being done. The radius line defines the size of the arc and its start point. Click when the arc is sized.

4. Drag the cursor to define the end point of the arc and click.

CIRCLE

Circles are primitive entities defined by a center point and a circumference point.

To draw a circle:

1. If necessary, define the circle default attributes.

2. Choose *Circle* from the tool bar or the *Tools* menu (Alt T C). The cursor shape changes to the circle cursor.

3. Position the cursor to mark the center point of the circle. Click and drag the cursor to size the circle. Release the mouse button when the circle is sized.

CLIP RECTANGLE

A clip rectangle automatically appears in a pop-up symbol document and cannot be placed or drawn in any other manner. The clip rectangle can be moved and resized as with other entities to enclose the other entities in the pop-up symbol. Alternatively, *Fit Clip Rectangle* from the *Functions* menu (Alt U L) can be used to automatically size and position it to enclose the pop-up symbol entities.

CONSOLE DISPLAY ATTRIBUTES

Console display attributes can be defined for each display file (but not symbol files). These attributes define characteristics that apply to the entire display: name, screen color, security mask, screen background, whether to clear the screen to the background color on call up. This is not a display entity in the sense that it does not appear in the document window. The console display attributes are set to default values initially and can be changed by the user.

To define console display attributes:

1. Choose *Console* from the *Environment* menu (Alt N C). The console display attributes dialog box appears.

2. Refer to Table 6-5 for a description of the dialog box fields. Fill in the fields as needed.

Table 6-5. OIS Display Attribute Fields

Field	Description
OIS title	Appears at the top of the display on the console in white.
Background color	Background color to be displayed by the console.
Clear screen	Clears the screen color on the console to screen background color if the flag is set to Yes.
Security levels	Sets the security level for a display and symbol. The console checks the primary level first, then the secondary level. The secondary level is optional. Valid security levels range from 1 through 16.

3. Click on *OK* to continue.

CUSTOM TREND

Trends permit creating displays that chart a set of values over a period of time. A single trend element can manage up to five different traces (points). The maximum number of trend display elements allowed in a display is eight. Each trend can contain a maximum of five traces. The maximum number of traces per display is 20.

Custom trends provide more flexibility than simple trends. Standard custom trend templates intended for use throughout a project can be configured and can be further customized for use in a specific display. Each instance is easily configured with specific tag, trend index, key information, and high and low limit.

> **NOTE:** This procedure assumes that one or more custom trend symbols have been defined. Refer to ***Custom Trend Template Symbol*** for information on configuring a custom trend symbol template.

To place a custom trend into a display:

1. Choose *Trend* from the tool bar or *Tools* menu (Alt T N), then choose *Custom Trend* from the choice box that appears.

2. Position the cursor to mark the insertion point of the trend element and click. The *Custom Trend* dialog box appears. The *Custom Trend* dialog box has three pages of information. The *General* page is initially enabled.

3. Type a custom trend symbol template name in the *Trend Symbol* box or click on *Select Template* and choose the custom trend symbol to be used from the list that appears. After a template is entered, the *Change template values* check box appears.

4. Edit other *General* page custom trend information by referring to Table 6-6. At least one trace must be defined by entering a trend index for that trace.

Table 6-6. Custom Trend General Page

Field	Description
Trend symbol	Custom trend symbol template to be used as selected in Step 3.
Trace symbol	Optional trace symbol. This field is displayed but cannot be edited from the *General* page.
Trend index	Index of the trend for this trace
Keys	Key stroke combination that takes control of the trend element. Valid combinations are: single alpha character and single numeric character followed by and alpha or numeric character. This key is displayed in the upper left corner of the trend element box and appears on the trend trace to identify it. Keystrokes must be unique within a display.
Tag name	Tag name to be used in the trend display element. The tag name list box displays a list of tag names already used in the displays.
High limit Low limit	Upper and lower limit of the trend (real format). The upper and lower limit values must match the values configured in the trend tag list. If the tag name is found in the TDT database and the high and low limit have not been specified, the zero and span values from the console tag list are used.

5. If any options or traces are to be further customized (including positioning and sizing components after the trend is placed), check *Change Template Values*. The *Options* and *Traces* pages are now available. The following can be performed:

- Click on the *Options* or *Traces* tab to display and edit the respective page. Refer to ***Custom Trend Template Symbol*** for information on these pages.

- Click on the trace number to go directly to the configuration page for that trace. Refer to ***Custom Trend Template Symbol*** for information on the *Trace* page.

- Uncheck *Change Template Values* to return all fields on all pages to their default values as defined in the custom trend symbol.

6. Click on *OK* to continue. The custom trend is placed into the display document. If the custom trend is to be further customized by repositioning components, refer to ***Custom Trend Template Symbol*** for information.

DEFAULT SYMBOLS

Dynamic symbol display elements (DSDE) are used to graphically show the different states of a pump or valve or other process related item. Typically, these are entered along with process variable, and alarm state, and a control or display select keystroke and touch point all using the same tag. The default symbol feature allow these elements to be grouped into a symbol so that only the attributes that change from instance to instance need to be specified when it is placed. The attributes that need to be specified are the name of the default symbol to use, the tag name, and the keystroke for the control select or display select if any. This allows a default to be established for a particular project that can be easily changed.

Placing a default symbol is similar to placing a static symbol, except that the keystrokes for the escape interactives contained in the symbol or nested symbols are displayed. The default value for each escape interactive is retrieved from the symbol file. This value may be used or it can be overwritten with something else. If more than one escape interactive of the type listed as a qualifying entity is inserted into a drawing, the GDC application uses the first one it finds. Refer to ***CONFIGURING SYMBOLS*** for complete information on default symbols including creating default symbols.

To place a default symbol:

1. Choose *Symbol* from the *Tools* menu (Alt T Y). The cursor shape changes to the symbol cursor.

2. Position the cursor to place the origin point of the symbol and click. The *Select Symbol* dialog box appears.

3. Select the default symbol of interest from the list box and click on *OK* to continue. A dialog box appears prompting for escape interactive values appears.

4. A typical dialog box for the symbol escape values contains the tag name, tag index, and keystrokes for the interactives. Edit the default values as necessary and click on *OK* to continue.

ESCAPE

Escape in this description specifically refers to the following simple escape classes:

Configuration Escape Displays tag data that remains static for a particular tag. For example, a tag name configuration escape retrieves and displays the tag name associated with a specified tag.

Dynamic Escape

Allows the use of dynamic process data in the displays. For example, a dynamic bar could be used to show the value of an analog tag along a scale.

Dynamic Symbol Display Element

Allows a symbol to change based on the state of a tag alarm. For example, the symbol, its color, and position could all change as an analog tag goes from low alarm to high alarm. The symbols used in a DSDE escape cannot contain tag references themselves.

Status (Alarm) Escapes

Displays an alarm or quality field. For example, it can present alarm indications and status information for a process tag.

> **NOTE:** The graphical display configurator supports configuration for CLIF escapes primary data only.

To place a simple escape:

1. Choose *Escape* from the *Tools* menu (Alt T E) or use the tool bar.

2. Position the cursor to mark the insertion point of the escape element and click. The *Escape* dialog box appears.

3. Enter a tag name by doing one of the following:

- Type a tag name into the *Tag Name* text box.
- Select a tag name from the *Tag Name* list box. The *Tag Name* list box maintains a list of tag already used in the current display.
- If the tag browser application is running, a tag can be copied from the browser and pasted into the *Tag Name* text box.

> **NOTE:** A tag index can be used in place of the tag name; however, it is recommended to use tag names whenever possible.

4. If necessary, select a tag type from the *Tag Type* list box. However, the tag type is entered automatically if either of the following conditions are met:

- If the tag name is in the tag data tables, the tag type is retrieved and automatically entered into the *Tag Type* text box.
- If the tag name is not in the tag data tables, but the tag name has been used previously in the current display, its tag type is retrieved from the display file and entered into the *Tag Type* text box.

5. The available escape types depend on the tag type and the escape class selected. Select an escape class, then select an escape type from the list of valid escape types.

6. Click on *OK* to continue. An *Escape Properties* dialog box appears.

7. Select a subtype and edit other escape properties as needed.

> **NOTE:** Escape properties are described in the on-line help. Click on *Help* from the *Escape Properties* dialog box.

8. Click on *OK* to place the escape.

FACEPLATE

Faceplates are complex entities consisting of a faceplate symbol, a key select, and a touchpoint select.

> **NOTE:** Faceplates are not supported for PCV or IIOIS10 consoles.

To place a faceplate:

1. Determine whether to use a faceplate from the standard symbol library or to use a custom faceplate. If using a custom faceplate symbol, refer to ***CONFIGURING SYMBOLS*** for information on creating one if necessary.

2. Refer to Figure 6-3 for a template showing the standard faceplate outlines and coordinates for positioning faceplates. This template is also available in a file (without the coordinate entries). It can be inserted and used to position the faceplate elements. When done, the template can be selected and deleted. Its symbol file is ***FPTMPLAT.DY***.

3. Choose *Faceplate* from the tool bar or the *Tools* menu (Alt T F).

4. Position the insertion point to place the lower left corner of the faceplate and click. The *Faceplate* attribute screen appears.

5. Do one of the following:

- To use a standard faceplate, select one from the *Faceplate* list box.

- To use a custom faceplate symbol, select it using *Select Symbol*.

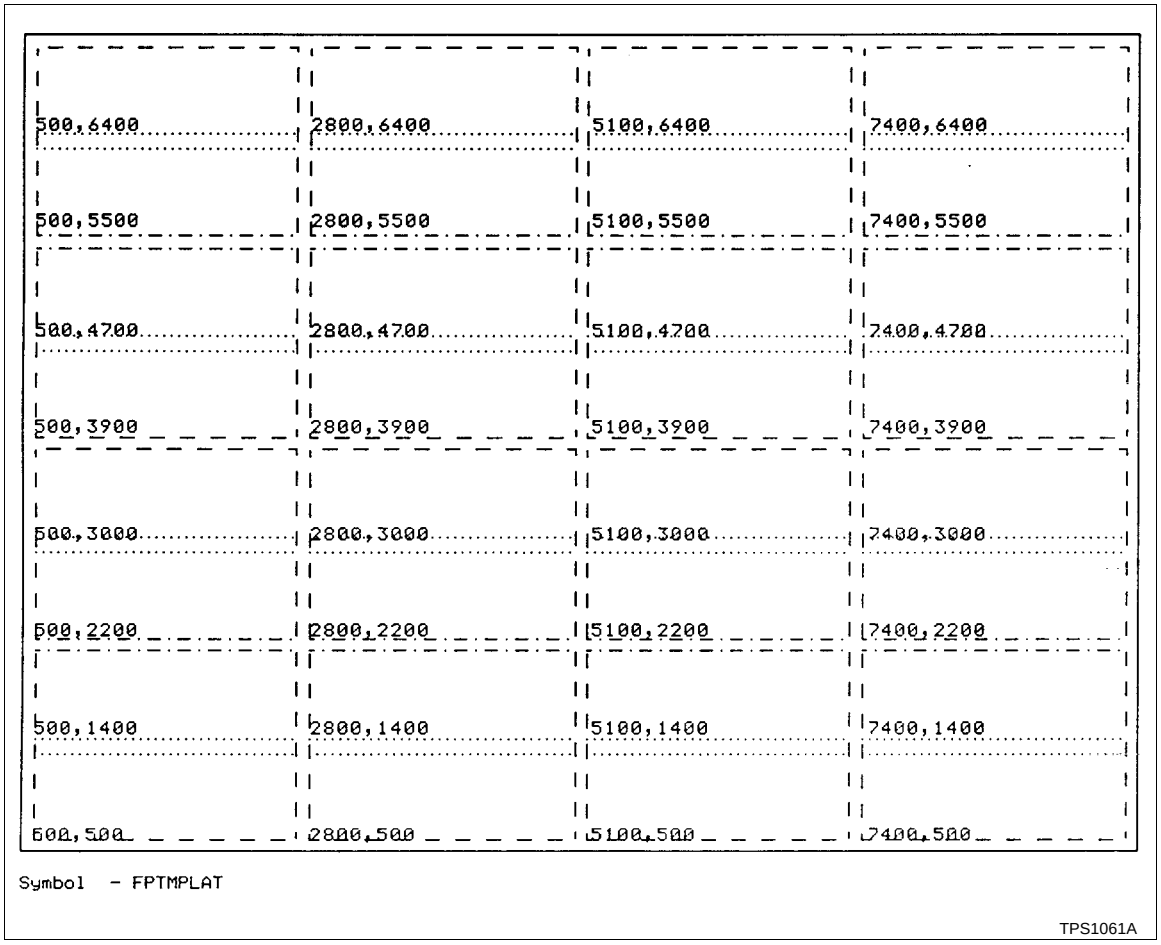


Figure 6-3. Faceplate Template

6. Fill in the remaining faceplate attributes and click on *OK* when done to place the faceplate.

INTERACTIVES

Interactives provide various types of control functions activated from within displays. The following escape interactives are supported:

@aGlance/IT™ User Task Activation
Control Select
Control Window
Display Select
Faceplate Select
Multiwindow Display
Push Button
Soft Key - Block Details
Soft Key - Log By Name

Soft Key - Module Problem Report
Soft Key - Tuning
UTI User Task Activation
XY Plot Select

Table 6-7 lists and describes fields common to most interactives that define their key select and touch point configuration. All interactives have other fields specific to their type.

Table 6-7. Interactive Key and Touch Select Fields

Field	Description
Key select	
Enabled	Enables key sequence selection if checked.
Keys	One or two character key sequence used as the key selection. If a single character is used, it may be alpha or numeric. If two characters are used, the first character must be numeric and the second alpha or numeric. If a display contains more than one interactive using key select, the key sequences must be unique within the display.
Character size	Character size: 1, 2, or 3.
Display on console	Displays the key sequence on the console if checked. The key sequence is always displayed on the GDC display.
Foreground	Key sequence character color.
Background	Key sequence background color. If used, this must be enabled by checking the associated enabled check box.
Touch select	
Enabled	Enables touch point selection.
Display on console	Displays the touch area on the console if checked. The touch area is always displayed on the GDC display.
Line type	Solid or dashed line may be selected to surround the touch area.
Line	If enabled, the line color used to draw the touch area on the console. In the GDC display, the touch area is always drawn.
Fill	If enabled, the fill color used to draw the touch area on the console.

@aGlance/IT User Task Activation

Defines a touch point area or key sequence used to send a command to a user-written @aGlance/IT server program. This interactive can only be used with a 40 series console that supports @aGlance/IT.

Due to restrictions imposed by the @aGlance/IT API, the OIS console can only process one activation request at a time.

When the OIS console sends an activation message to a user's server, no other activation requests can be processed until the user's server has responded to the activation request. The server must define the specified command according to certain guidelines so that the OIS console can process multiple activation request quickly. Refer to the ***Open Data Server (LIODS01)*** instruction listed in Table 1-2 for information.

To place an @aGlance/IT user task activation interactive:

1. Choose *Interactive* from the tool bar or *Tools* menu (Alt T I).

2. Position the cursor to mark the insertion point of the interactive and click. The *Escape Interactive* dialog box appears.

3. Select *@aGlance/IT User Task Activation* and click on *OK*.

The *@aGlance/IT User Task Activation* dialog box appears. Interactive specific options appears at the top of the dialog box. Key select and touch select options appear at the bottom of the dialog box.

4. Refer to Table 6-8 for a description of the interactive specific options and to Table 6-7 for key and touch select options. Fill in the option boxes as needed and click on *OK* to place the interactive.

Table 6-8. @aGlance/IT Interactive Fields

Field	Description
Server name	Name of the user-written @aGlance/IT server. The server name can be either a logical or actual server name. If using a logical, it must appear in the system logical name table. Maximum of 32 characters.
Server command	Name of the server-specific command to invoke. Maximum of 32 characters.
Remain connected	Yes = remain connected. Activation requests for servers that are frequently used should remain connected which allows for faster communication on subsequent activations. No = disconnect. Activation requests for servers that are infrequently used and do not require rapid activation should disconnect to save on resources. This option should also be used if the server allows only a limited number of sessions.
Command argument string	String to be passed with the command as one of the input values. Maximum of 80 characters.

5. Position and size the interactive key select and touch point area as needed.

Control Select

The control select interactive defines a touch point area on the screen or key sequence used to enable control of a tag element. It functions with a CLIF, DANG, DADIG, DD MSDD, RCM, RMCB, RMSC, STATION, and TEXTSTR tag.

To place a control select interactive:

1. Choose *Interactive* from the tool bar or *Tools* menu (Alt T I).

2. Position the cursor to mark the insertion point of the interactive and click. The *Escape Interactive* dialog box appears.

3. Select *Control Select* and click on *OK*.

The *Control Select* dialog box appears. Interactive specific options appears at the top of the dialog box. Key select and touch select options appear at the bottom of the dialog box.

4. Refer to Table 6-9 for a description of the interactive specific options and to Table 6-7 for key and touch select options. Fill in the option boxes as needed and click on *OK* to place the interactive.

Table 6-9. Control Select Interactive Fields

Field	Description
Tag name	Name of the tag associated with the escape. The drop down list box provides a list of tags of the appropriate type already defined in the display.
Control type	The tag type associated with the tag name. It can be automatically filled in if the tag is defined in the TDT database.
Control prompt	Bottom Line Prompt - the prompt appears at the bottom line of the window (outside the display area). There is no highlight box with this option. This option is not valid for control type DANG and DADIG.The push button feature is not valid for and is disabled if this control prompt is selected. Prompt In Box - the prompt appears within the highlight box in a fixed position. Bottom Line Prompt & Box - the prompt appears at the bottom line of the window (outside the display area) and a highlight box appears in the display. This option is not valid for control type DANG and DADIG. Disjoint Prompt & Box - the prompt appears within the highlight box and can be positioned.

Table 6-9. Control Select Interactive Fields (continued)

Field	Description
Highlight box deselection	This is the color that the console uses when redrawing the area after the control is deselected. Normally, this should be the same color used to draw the object over which the highlight box appears.
Symbol	Name of a symbol file; valid only when the control type is CLIF. This identifies where the operator control sequences for the CLIF tag are defined. If the control sequences are defined in the display file itself, do not include a symbol name.

5. After a control select is dropped, the following components can be positioned as needed (provided they have been configured into the escape): highlight box, key select sequence, touch select area, and prompt.

Push Button

Push buttons can be added to a control select escape. A push button defines a touch point area on the screen that initiates keyboard action from the console display screen. Any control related keyboard key sequence can be mimicked in this way. A maximum of 102 push buttons can be added to a control select. Each push button can invoke a key sequence consisting of a maximum of 10 keys.

NOTES:
1. The console can be configured so that the push button operates on a corresponding tag without having to first select the tag for control.

2. Key sequences that enter numeric values or strings into prompt fields (e.g., set point) are not supported.

To add a push button to a control select:

1. Click on *Push Buttons* from the *Control Select* dialog box. An *Edit Push Buttons Sequence* dialog box appears with the following controls:

Add	Adds a push button after the current button.
Insert	Adds a push button before the current button. Disabled if are no push buttons defined.
Edit	Edits the current push button. Disabled if there are no push buttons defined.
Delete	Deletes the current push button.

Number of Buttons	Indicates the number of push buttons defined.
Current Button	Selects a current button for editing purposes.
OK	Saves changes and returns to the *Control Selec*t dialog box.
Cancel	Cancels changes and returns to the *Control Select* dialog box.

2. When adding, inserting, or editing a push button, a *Push Button* dialog box appears. Refer to Table 6-10 and enter information as needed

Table 6-10. Control Select Push Button Fields

Field	Description
Display on console	Displays the push button as a rectangular marker on the console if checked.
Line	Displays the line surrounding the push button if enabled. Either the line or the fill must be enabled.
Line color	Sets the line color.
Line type	Sets the line type.
Fill	Displays the push button fill color if enabled. Either the line or the fill must be enabled.
Fill color	Sets the fill color.
Tag name	Configured from Control Select dialog box.
Tag type	Configured from Control Select dialog box.

3. Click on *Set Key Sequence*. The *Select Keys* dialog box appears showing console keys in a console keyboard diagram.

4. Do any of the following:

- Not all keys are visible in the keyboard diagram frame. If necessary, use the scroll bars to locate the key of interest.

- Add a key to the sequence by locating and clicking on the key of interest from the keyboard diagram. As keys are added to the sequence, they appear in the key sequence frame.

- Select a key from the key sequence frame by clicking on it in the key sequence frame.

  The current key appears outlined in black in the key sequence frame. The current key is the last key added or selected. Keys are always added after the current key in the sequence.

- Delete the current key in the key sequence frame by pressing Del.

  NOTE: Only those keys reflecting control actions valid for the control type should be selected.

5. Click on *OK* to accept the sequence. The *Push Button* dialog box reappears with the key sequence appearing in the key sequence frame.

6. Click on *OK* to return to the *Edit Push Button Sequence* dialog box.

7. Perform any other actions as described in Step 1. Click on *OK* when all push buttons have been configured. Focus returns to the *Control Select* dialog box.

8. Click on *OK* to place the interactive.

9. Position and size the touch point area as needed. Text or a graphic can be placed over the push button area to reflect the console key it represents.

Control Window

The control window (pop-up) select interactive defines a key select and touch point area used to call a pop-up symbol to the screen. The interactive contains parameters that define the location on the screen where the symbol appears. Make sure to leave this area clear to avoid overwriting a display area with a pop-up. The pop-up symbol is often a faceplate or it could be used to implement hypertext documentation. This is not a control select. The control select should be defined as part of the pop-up symbol.

This interactive also defines a tag that is to be substituted for the default tag defined in a pop-up symbol source file. This enables using the same symbol source file in several pop-ups instead of creating a dedicated source file for each control window select interactive.

The symbol file should not reference more than one unique tag when using tag substitution; however, a maximum of 20 tags can be referenced.

If the default pop-up symbol does not exist on the console because it was not loaded onto the console, no pop-up will be displayed when the control window select is activated. If the default symbol does not exist on the console due to a symbol name not received in the CLIF specifications, no pop-up will be displayed when activated.

To place a control window interactive:

1. Choose *Interactive* from the tool bar or *Tools* menu (Alt T I).

2. Position the cursor to mark the insertion point of the interactive and click. The *Escape Interactive* dialog box appears.

3. Select *Control Window (PopUp)* and click on *OK*.

The *Control Window (PopUp) Select* dialog box appears. Interactive specific options appears at the top of the dialog box. Key select and touch select options appear at the bottom of the dialog box.

4. Refer to Table 6-11 for a description of the interactive specific options and to Table 6-7 for key and touch select options. Fill in the option boxes as needed and click on *OK* to place the interactive.

Table 6-11. Control Window Interactive Fields

Field	Description
Symbol name	Name of a pop-up symbol file to be displayed. Do not include the file extension. If the interactive references a CLIF tag, the symbol name is optional. The symbol name is extracted from the CLIF exception report specifications. Use *Select Symbol* to locate a symbol.
Window location	Coordinates indicating the where the pop-up symbol origin will be placed.
Tag name	Tag name to substitute for the tag name parameter in the pop-up symbol. The drop-down list box provides a list of tag names already used in the display.

5. Position and size the interactive key select and touch point area as needed.

Display Select

The display select interactive defines a touch point area on the screen or key sequence used to call another display from the current display.

To place a display select interactive:

1. Choose *Interactive* from the tool bar or *Tools* menu (Alt T I).

2. Position the cursor to mark the insertion point of the interactive and click. The *Escape Interactive* dialog box appears.

3. Select *Display Select* and click on *OK*.

The *Display Select* dialog box appears. Interactive specific options appears at the top of the dialog box. Key select and touch select options appear at the bottom of the dialog box.

4. Enter a display name in the *Display Name* field. It must be the eight-character name of the display to call after initiating a select. The display name must correspond to the name of an assembled display file residing on the target console. Use the display name without the extension. Refer to Table 6-7 for key and touch select options. Fill in the option boxes as needed and click on *OK* to place the interactive.

5. Position and size the interactive key select and touch point area as needed.

Faceplate Select

The faceplate select interactive defines a touch point area on the screen or key sequence used to provide control selection. This is part of a faceplate symbol and is valid in symbol files only.

To place a faceplate select interactive:

1. Choose *Interactive* from the tool bar or *Tools* menu (Alt T I).

2. Position the cursor to mark the insertion point of the interactive and click. The *Escape Interactive* dialog box appears.

3. Select *FacePlate Select* and click on *OK*.

The *Faceplate Select* dialog box appears. Interactive specific options appears at the top of the dialog box. Key select and touch select options appear at the bottom of the dialog box.

4. Refer to Table 6-12 for a description of the interactive specific options and to Table 6-7 for key and touch select options. Fill in the option boxes as needed and click on *OK* to place the interactive.

Table 6-12. Faceplate Interactive Fields

Field	Description
Control type	The tag type associated with the tag name.
Control prompt	Bottom line prompt - the prompt appears at the bottom line of the window (outside the display area). There is no highlight box with this option. This option is not valid for control type DANG and DADIG. Prompt in box - the prompt appears within the highlight box in a fixed position.

Table 6-12. Faceplate Interactive Fields (continued)

Field	Description
Control prompt *(continued)*	Bottom line prompt & box - the prompt appears at the bottom line of the window (outside the display area) and a highlight box appears in the display. This option is not valid for control type DANG and DADIG. Disjoint prompt & box - the prompt appears within the highlight box and can be positioned.
Highlight box deselection	This is the color that the console uses when redrawing the area after the faceplate is deselected. Normally, this should be the same color used to draw the faceplate.
Symbol	Name of a symbol file; valid only when the control type is CLIF. This identifies where the operator control sequences for the CLIF tag are defined. If the control sequences are defined in the display file itself, do not include a symbol name.

5. Position and size the interactive key select and touch point area as needed.

Multiwindow Display

The multiwindow display interactive defines a touch point area on the screen or key sequence used to initiate the call up of several displays across several console screens.

To place a multiwindow display interactive:

1. Choose *Interactive* from the tool bar or *Tools* menu (Alt T I).

2. Position the cursor to mark the insertion point of the interactive and click. The *Escape Interactive* dialog box appears.

3. Select *MultiWindow Display* and click on *OK*.

The *MultiWindow Display Interactive* dialog box appears. Interactive specific options appears at the top of the dialog box. Key select and touch select options appear at the bottom of the dialog box.

4. Refer to Table 6-13 for a description of the interactive specific options and to Table 6-7 for key and touch select options. Fill in the option boxes as needed and click on *OK* to place the interactive.

5. Position and size the interactive key select and touch point area as needed.

Table 6-13. Multiwindow Display Interactive Fields

Field	Description
Display (1-8)	Name of the display that is to appear on the corresponding screen (1-8). The display name must correspond to the name of an assembled display file residing on the target console. Use an eight-character display name without the extension.
CRT Number	Cannot be edited by the user.

Push Button

A push button interactive defines a touch point area on the screen that initiates keyboard action from the console display screen. Any single key on the keyboard can be mimicked in this way.

Push buttons have the following characteristics:

- Independent push buttons can mimic a single key only.
- If a tag is specified, the key that can be configured must be a control key valid for that tag type. In operation, control is affected without separately selecting the tag for control.

  NOTE: The CLIF tag type is not supported for independent push buttons.

- If a tag is not specified, the keys that can be configured include all keys defined for the console keyboard.

To place a push button interactive:

1. Choose *Interactive* from the tool bar or *Tools* menu (Alt T I).

2. Position the cursor to mark the insertion point of the interactive and click. The *Escape Interactive* dialog box appears.

3. Select *Push Button* and click on *OK*. The *Push Button* dialog box appears.

4. Refer to Table 6-14 for a description of the interactive specific options. Fill in the option boxes as needed.

Table 6-14. Push Button Interactive Fields

Field	Description
Display on console	Displays the push button as a rectangular marker on the console if checked.

Table 6-14. Push Button Interactive Fields (continued)

Field	Description
Line	Displays the line surrounding the push button if enabled. Either the line or the fill must be enabled.
Line color	Sets the line color.
Line type	Sets the line type.
Fill	Displays the push button fill color if enabled. Either the line or the fill must be enabled.
Fill color	Sets the fill color.
Tag name	If the push button is to operate on a tag, the name of that tag. This should be a tag whose type is valid for control actions.
Tag type	Must be configured if and only if a tag is configured in tag name.

A tag needs configured only if the push button is to operate on a tag. If a tag is configured:

- The control type must be configured. If the tag is defined in the display or the TDT database and tag linking is enabled, the control type is automatically filled in from the tag type.

- The control type may be overridden if there is no type specified for the tag or if the tag type is not a valid type for control actions.

- If the type of the tag is not valid for control actions, a valid control option must be selected. This generates an error, but assumes that the tag type in the TDT database will be defined later as a type valid for control actions.

5. Select a key as follows:

   a. Click on *Set Key Sequence*. The *Select Keys* dialog box appears showing keys on the console keyboard.

   b. Not all keys are visible in the keyboard diagram frame. If necessary, use the scroll bars to access the key of interest.

   c. Click on the key to select it. The key appears in the key sequence frame. Then click on *OK* to accept the selection. The *Push Button* dialog box reappears.

   NOTE: If a tag is configured, only those keys reflecting control actions valid for the control type should be selected

6. Click on *OK* to place the interactive.

7. Position and size the touch point area as needed. Text or a graphic can be placed over the push button area to reflect the console keyboard it represents.

Soft Key - Block Details

A soft key - block details interactive defines a key sequence used to call a block details display from the current display. It can be configured to either contain parameters that define the input requirements necessary to directly initiate a function or to allow entering the necessary inputs after selection.

To place a soft key - block details interactive:

1. Choose *Interactive* from the tool bar or *Tools* menu (Alt T I).

2. Position the cursor to mark the insertion point of the interactive and click. The *Escape Interactive* dialog box appears.

3. Select *Soft Key - Block Details* and click on *OK*.

The *Soft Key - Block Details* dialog box appears. Interactive specific options appears at the top of the dialog box. Key select and touch select options appear at the bottom of the dialog box.

4. Refer to Table 6-15 for a description of the interactive specific options and to Table 6-7 for key select options. Fill in the option boxes as needed and click on *OK* to place the interactive.

Table 6-15. Soft Key - Block Details Fields

Field	Description
Tag name	Name of the tag associated with the function block for which the details are requested. The drop down list box provides a list of tags of the appropriate type already defined in the display. Provide either the tag name or the block address but not both.
Loop	Block address for which the details are requested. Provide either the tag name or the block address but not both.
Node	
Module	
Block number	
Permit modify	If checked, the associated parameter can be changed by the user while viewing the block details display.

5. Position the interactive key select as needed.

Soft Key - Log by Name

A soft key - log by name interactive defines a key sequence used to initiate a log printout from the current display. It can be configured to either contain parameters that define the input requirements necessary to directly initiate a function or to allow entering the necessary inputs after selection.

To place a soft key - log by name interactive:

1. Choose *Interactive* from the tool bar or *Tools* menu (Alt T I).

2. Position the cursor to mark the insertion point of the interactive and click. The *Escape Interactive* dialog box appears.

3. Select *Soft Key - Log By Name* and click on *OK*.

The *Soft Key - Log By Name* dialog box appears. Interactive specific options appears at the top of the dialog box. Key select options appear at the bottom of the dialog box.

4. Refer to Table 6-16 for a description of the interactive specific options and to Table 6-7 for key select options. Fill in the option boxes as needed and click on *OK* to place the interactive.

Table 6-16. Soft Key - Log by Name Fields

Field	Description
Log number	Log index number.
Log retention	Log retention time.
Permit modify	If checked, the associated parameter can be changed by the user after activating the function.

5. Position the interactive key select as needed.

Soft Key - Module Problem Report

A soft key - module problem report interactive defines a key sequence used to call a module problem report display from the current display. It can be configured to either contain parameters that define the input requirements necessary to directly initiate a function or to allow entering the necessary inputs after selection.

To place a soft key - module problem report interactive:

1. Choose *Interactive* from the tool bar or *Tools* menu (Alt T I).

2. Position the cursor to mark the insertion point of the interactive and click. The *Escape Interactive* dialog box appears.

3. Select *Soft Key - Module Problem Report* and click on *OK*.

The *Soft Key - Module Problem Report* dialog box appears. Interactive specific options appears at the top of the dialog box. Key select options appear at the bottom of the dialog box.

4. Refer to Table 6-17 for a description of the interactive specific options and to Table 6-7 for key select options. Fill in the option boxes as needed and click on *OK* to place the interactive.

Table 6-17. Soft Key - Module Problem Report Fields

Field	Description
Loop	Address of the module for which the problem report is needed.
Node	
Module	
Permit modify	If checked, the associated parameter can be changed by the user while viewing the module problem report display.

5. Position the interactive key select as needed.

Soft Key - Tuning

A soft key - tuning interactive defines a key sequence used to call a tuning display from the current display. It can be configured to either contain parameters that define the input requirements necessary to directly initiate a function or to allow entering the necessary inputs after selection.

To place a soft key - tuning interactive:

1. Choose *Interactive* from the tool bar or *Tools* menu (Alt T I).

2. Position the cursor to mark the insertion point of the interactive and click. The *Escape Interactive* dialog box appears.

3. Select *Soft Key - Tuning* and click on *OK*.

The *Soft Key - Tuning* dialog box appears. Interactive specific options appears at the top of the dialog box. Key select options appear at the bottom of the dialog box.

4. Refer to Table 6-18 for a description of the interactive specific options and to Table 6-7 for key select options. Fill in the option boxes as needed and click on *OK* to place the interactive.

Table 6-18. Soft Key - Tuning Fields

Field	Description
Tag name	Name of the tag associated with the PID block to be tuned. The drop down list box provides a list of tags of the appropriate type already defined in the display. Provide either the tag name or the block address or both.
Loop	PID block address to be tuned. Provide either the tag name or the block address or both.
Node	
Module	
Block number	
Permit modify	If checked, the associated parameter can be changed by the user while viewing the tuning display.

5. Position the interactive key select as needed.

UTI User Task Activation

The UTI (user task interface) user task activation interactive defines a touch point area or key sequence used to execute a user-written program on a node containing the user task interface. It can only be used with a 40 series console.

To place a UTI user task activation interactive:

1. Choose *Interactive* from the tool bar or *Tools* menu (Alt T I).

2. Position the cursor to mark the insertion point of the interactive and click. The *Escape Interactive* dialog box appears.

3. Select *UTI User Task Activation* and click on *OK*. The *UTI User Task Activation* dialog box appears. Interactive specific options appears at the top of the dialog box. Key select and touch select options appear at the bottom of the dialog box.

4. Refer to Table 6-19 for a description of the interactive specific options and to Table 6-7 for key and touch select options. Fill in the option boxes as needed and click on *OK* to place the interactive.

Table 6-19. UTI Interactive Fields

Field	Description
Node name	Name of the node that contains the user task interface and user-written program. The node name can be a logical or actual node name. If using a logical, it must appear in the system logical name table. Maximum of 32 characters. If left blank, then in operation, the current node name is used.

Table 6-19. UTI Interactive Fields (continued)

Field	Description
Task name	Name of the UTI program to be executed. The entered name can be a logical or the actual name of the program. If using a logical, it must appear in the system logical name table. In either case, include the complete path along with the name (i.e., device and directory). Maximum of 32 characters.
Activation method	Create - If using the create method of activation, the console expects the program to not be running. An error message occurs if the program is running and the operator attempts to execute (i.e., create) it again. Infrequent, one-shot programs that do not require rapid activation can use this activation method. Wake - The wake option expects the program to already be running, but not currently active (i.e., hibernating). If it is not running, the console will execute then activate the program. Frequently activated programs that could possibly be required to respond to multiple activation requests should use the wake activation method.
Parameters	An argument string to be passed to the program upon activation. Maximum of 80 characters.

5. Position and size the interactive key select and touch point area as needed.

XY Plot Select

The XY plot select interactive defines a touch point area on the screen or key sequence used to enable a specific XY plot index in an XY plot element for control. It is valid for symbol files only.

To place an XY plot select interactive:

1. Choose *Interactive* from the tool bar or *Tools* menu (Alt T I).

2. Position the cursor to mark the insertion point of the interactive and click. The *Escape Interactive* dialog box appears.

3. Select *XY Plot Select* and click on *OK*.

4. The *XY Plot Select* dialog box appears. Refer to Table 6-7 for key and touch select options. Fill in the option boxes as needed and click on *OK* to place the interactive.

5. Position and size the interactive key select and touch point area as needed.

LINE

Lines or polylines are primitive entities defined by a minimum of two and a maximum of 20 vertex points for a total of 19 segments per line entity.

To draw a single line segment:

1. If necessary, define the line default attributes.

2. Choose *Line* from the tool bar or the *Tools* menu (Alt T L). The cursor shape changes to the line tool cursor.

3. Position the cursor to mark the start point and click to anchor the line segment at this point.

4. Position the cursor to mark the end point of the line segment. As the cursor moves, the line rubber bands to fit between the points. When positioned, double click to fix the line segment between these points.

To draw a polyline:

1. If necessary, define the line default attributes.

2. Choose *Line* from the tool bar or the *Tools* menu (Alt T L). The cursor shape changes to the line tool cursor.

3. Position the cursor to mark the start point and click to anchor the line segment at this point.

4. Position the cursor to mark the end point of the line segment. As the cursor moves, the line rubber bands to fit between the points. When positioned, click to fix the first line segment between these points.

5. Do any of the following:

- To continue drawing line segments, continue to position the cursor and click at each end point.

- To terminate the operation, double click at the end point of the last segment.

POLYGON

Polygons are primitive entities defined by a minimum of three and a maximum of 20 vertex points.

To draw a polygon:

1. If necessary, define the polygon default attributes.

2. Choose *Polygon* from the tool bar or the *Tools* menu (Alt T P). The cursor shape changes to the polygon tool cursor.

3. Position the cursor to mark the start point and click.

4. Position the cursor to mark the next point. As the cursor moves, a line rubber bands to fit between the points. When positioned, click to fix one edge of the polygon between these points.

5. Drag the cursor to mark the next vertex of the polygon.

6. Do any of the following:

- To continue drawing polygon segments, continue to position the cursor and click at each vertex point.
- To terminate the operation, double click at the vertex point of the last segment.

RECTANGLE

Rectangles are primitive entities defined by two diagonal opposite corner points.

To draw a rectangle:

1. If necessary, define the rectangle default attributes.

2. Choose *Rectangle* from the tool bar or the *Tools* menu (Alt T R). The cursor shape changes to the rectangle tool cursor.

3. Position the cursor to mark the first corner point and click.

4. Drag the cursor to the diagonally opposite corner. As the cursor moves, the rectangle rubber bands to fit between the corners.

5. When the second corner is positioned, release the mouse button to anchor the second corner.

SYMBOLS

Symbols are complex entities composed of primitive entities, escapes, and other symbols. They are stored in symbol files (***DY***) and can be referenced in display or symbol documents. Standard symbols are provide with the software release. User symbols are symbols created by the user and stored in a console symbol directory. Refer to ***DEFAULT SYMBOLS*** for information on placing default symbols and ***XY PLOT*** for

information on using XY plot data symbols. Refer ***USING SYMBOLS*** for general information on symbols.

To place a symbol:

1. Choose *Symbol* from the *Tools* menu (Alt T Y) or use the tool bar. The cursor shape changes to the symbol cursor.

2. Position the insertion point to place the origin of the symbol and click. A *Select Symbol* dialog box appears.

The dialog box lists all standard symbols and all symbols in the symbol search path. For a console symbol, the search path includes all symbols in all symbol groups for the console and all global symbol groups. For a global symbol, the search path includes all symbols in all global symbol groups.

3. Choose a symbol from the list box or type the symbol name in the text box that appears and click on *OK* to continue.

> **NOTE:** If *Preview Symbol* is checked, the symbol appears in the preview area. The previewed symbol is not to scale and is sized to fit the symbol preview display area.

4. A *Symbol* dialog box appears. If applicable, enter a tag name and define variable color for the symbol.

5. Click on *OK* to continue and place the symbol.

TEXT

Text strings are primitive entities. To insert text into a display:

1. If necessary, define the text default attributes.

2. Choose *Text* from the tool bar or *Tools* menu (Alt T T). The cursor shape changes to the text cursor.

3. Position the cursor to mark the starting point of the text and click. A *Text* dialog box appears.

4. Fill in the text and text attributes and click on *OK* when done to insert the text into the display.

TREND

Trends permit creating displays that chart a set of values over a period of time. A single trend element can manage up to five different traces (points). The maximum number of trend display elements allowed in a display is eight. Each trend can

contain a maximum of five traces. The maximum number of traces per display is 20.

> **NOTE:** The custom trend display element offers more configuration options than the standard trend display element. Refer to ***CUSTOM TREND*** for information.

To place a standard trend display element:

1. Choose *Trend* from the tool bar or *Tools* menu (Alt T N), then choose *Simple Trend* from the choice box. The *Trend* dialog box appears.

2. Edit the common trend display attributes listed at the top of the dialog box. Refer to Table 6-20 for descriptions.

Table 6-20. Trend Attributes

Field	Description
Size	Size of the trend box. Both boxes are 2,180 screen units wide. Full size is 1,280 units high. Half size is 600 units high.
Period	Trend resolution.
Pan with current window	If not checked, update window blanked when panning. If checked, update window displayed when panning.
Outline color	Color the outline returns to after being active.
Touch screen	If checked, supports touch screen control.
Display key selects	If checked, displays the selector keys for the traces of the trend.
Type	Standard point types are available. If a standard point type or *Empty* is entered, the proper symbol is automatically used in the trend display. Available types are: PV (process variable), SP (set point), CO (control output), RI (ratio index), DI (digital), AN (analog), V1, V2, and V3 for CLIF variables 1, 2, and 3, and EMPTY. If a custom point type is to be used, enter the symbol name in the *Type* text box. The *Symbols* button activates the *Select Symbol* dialog box in order to locate a symbol to enter into the *Type* text box.
Index	Trend tag index. Valid entries for this field depend on the console.
Keys	Key stroke combination that takes control of the trend element. Valid combinations are: single alpha character and single numeric character followed by an alpha or numeric character. This key is displayed in the upper left corner of the trend element box and appears on the trend trace to identify it. Keystrokes must be unique within a display.
Tag	Tag name to be used in the trend display element. The tag name list box displays a list of tag names already used in the display. To locate a tag defined in the tag data tables, click on *Browse*.
Color	Color of the trend trace.
High limit	Upper limit of the trend (real format). The upper limit value must match the values configured in the trend tag list.
Low limit	Lower limit of the trend (real format). The lower limit value must match the values configured in the trend tag list.

3. For each trace to be defined in the trend display, edit attributes specific to that trace. Refer to Table 6-20 for descriptions.

The height of the trend display is determined by a combination of the *Size* attribute and the number of traces configured. The number of traces configured is determined by the value of the *Type* attribute. The *Type* attribute is the driving field for the rest of the trace information. If the field contains one of the trace type choices or a custom symbol, the trace will be active and the rest of the attributes for the trace need to be provided. If the *Type* attribute is set to *EMPTY*, the rest of the attributes do not need to be provided; the trace is used as a place holder and affects the height of the trend display. If the *Type* attribute is left blank, that trace will not appear in the trend display.

4. Click on *OK* to continue. The display contains a box the minimum size of the trend. The lower right corner of the trend is positioned at the insertion point.

5. Size the trend display area to the desired width by selecting the trend display element and dragging from its stretch point.

XY PLOT

The XY plot display element plots data variables against one another on a graph as either single points, multiple points, or a continuous line. The values are plotted against one another on X and Y axes. There are two general data sources for an XY plot. One type is tag or trend, which uses two values (X and Y). The second type is a file data source. The file data type plots as a group a set of values received from an INFI 90 OPEN module. There are three types of traces (plots); single point, multiple point, and continuous curve. The trace type is displayed by the update mode indicator, and can be changed on the operator console. Each XY plot can contain up to five traces. An XY plot can be configured in display documents only.

NOTE: XY plots are not supported for the PCV or IIOIS10 console.

Before placing an XY plot, an XY plot data symbol must exist (containing as a minimum an update mode indicator, XY plot key select, and touch point). Refer to ***CONFIGURING SYMBOLS*** for information on configuring an XY plot data symbol.

To place an XY plot:

1. Open a display document to contain the XY plot.

2. Choose *XY Plot* from the tool bar or *Tools* menu (Alt T X). The cursor changes to the XY plot cursor.

3. Position the insertion point to mark the lower left corner of the XY plot and drag to size the plot.

4. An *XY Plot Selector* dialog box appears with two choices:

Tag/Trend - compares two tags or two trends against one another in a plot. One tag or trend on the X-axis and the other on the Y-axis. The values can be plotted in single point, multiple point, or constant curve.

File - consists of a set of values gathered (i.e. from an MFP module) and periodically plotted as a group. The values can be plotted in single point, multiple point, or constant curve.

Select a trace type and click on *OK*. The *XY Plot Data* dialog box appears.

5. Refer to Table 6-21 to configure the XY plot traces and click on *OK* to place the XY plot.

After the XY plot is placed, it can be selected and any of the component entities sized and positioned.

Table 6-21. XY Plot Configuration

Field	Description
Plot index	Refers to the number of the plot as it is configured in the XY plot list in the console. Up to five plot indices can be configured for each XY plot. The index number can be between one and 80 (inclusive). Default is zero (0) and means the trace is not being used for the plot. At least one plot index must be configured for an XY plot.
Tag	Entry into this field occurs if the data symbol contains entities requiring a tag which is used in conjunction with the trace. If the data symbol does not contain a tag, entry into this field is not necessary.
Data symbol	Name of the data symbol associated with the plot. It contains information pertaining to the plot. Refer to ***XY Plot Data Symbols***.
Key(s)	Key sequence that displays the update indicator mode on the console. Entry into this field can be a single letter or a combination letter and number.
Color	Color of the plot and keystroke as displayed on the console screen. This color is also used if any variable-color entities are used in the data symbol.
Show title	Controls displaying a title for the plot.
Show vertical legend	Controls displaying descriptive text pertaining to the Y-axis of the plot.
Enable touch point	Enables or disables the touch point feature.
Show horizontal legend	Controls displaying descriptive text pertaining to the X-axis of the plot.
Show grid divisions	Controls displaying a grid along with the plot. This entry field is only valid when the data source is file type. The grid is not visible on the engineering work station. When the XY plot is active on the console the grid will display.
X divisions	If a grid is to be displayed, the user can specify the grid resolution for the X-axis ranging between one and 20.

Table 6-21. XY Plot Configuration (continued)

Field	Description
Y divisions	If a grid is to be displayed, the user can specify the grid resolution for the Y-axis ranging between one and 20.
Title	Title text.
Horizontal legend	Horizontal legend text.
Vertical legend	Vertical legend text.

LOCATING AND SELECTING ENTITIES

This section describes how to locate and select entities.

Locating Entities

Entities can be located and selected by tag name and tag index.

To locate and select an entity by tag name or index:

1. Choose *Find* from the *Functions* menu (Alt U F). The *Find* dialog box appears.

2. Do one of the following:

- To find an entity by tag name, type in a tag name or select it from the list of tag names.

- To find an entity by tag index, type in a tag index.

3. Click on *OK* to continue. If a tag name is provided, all entities with that tag name are located and selected. If a tag index is provided, all entities with that tag index are located and selected.

4. To select any one of the located entities, use the next and previous buttons or menu items.

Selecting Entities

Entities must be selected before they can be edited. Entities can be selected in several ways: by pointing and clicking, by window, and by tag name or index. When an entity is selected, it is identified by the appearance of dotted rectangle, called the bounding box, surrounding it. Any points within the entity that can be independently positioned or sized are identified by positioning or stretch point boxes.

To select an entity by pointing and clicking:

1. Choose the selection arrow from the tool bar or from the *Tools* menu (Alt T S).

2. Point to the entity to be selected and click.

This method is not guaranteed to select the entity of interest. If two entities are close to one another, or one is on top of the other, the wrong entity may be selected. If this happens, reposition the cursor and try again, reposition the overlapping entity, change the ordering of the overlapping entity, or use another method of selecting it.

To select one or more entities by window:

1. Choose the selection arrow from the tool bar or from the *Tools* menu (Alt T S).

2. A window will be formed around the entities of interest. Position the selection arrow at one corner of the window and drag to form the window. Release the mouse button. All entities entirely within the window are selected.

If *Next Entity* and *Previous Entity* from the *Edit* menu are used with a selection window, the selection window is temporarily disabled and each individual entity within the selection window is selected in turn as *Next Entity* or *Previous Entity* is used. After the last entity is selected, the selection window is enabled the next time *Next Entity* or *Previous Entity* is used.

To select entities using *Next Entity* and *Previous Entity*:

1. Choose *Next Entity* from the *Edit* menu (Alt E N) or use the shortcut key combination Shift-N or next button on the tool bar. The first entity in the order in which the entities occur is selected.

2. Continue using *Next Entity* until the entity of interest is selected.

Previous Entity (Alt E P or Shift-P) or the previous button on the tool bar works in the same manner, except that the order in which the entities are selected is reversed. The first time *Previous Entity* is used, the last entity in the order in which the entities occur is selected.

To deselect an entity, select another entity, click in a blank area of the document, or choose another tool.

EDITING ENTITIES

Once an entity is drawn or placed, editing operations can be performed. Most entities can be cut, copied, deleted, duplicated, moved, and attributes modified. Other actions performed on an entity depend on the entity type. Before an entity can be edited, it must be selected as described in ***LOCATING AND SELECTING ENTITIES***.

Changing Tag Name or Tag Index

Entities that have a tag reference can have their tag reference changed. Changing a tag name or index changes the tag an entity is referencing - it does not just replace the name or index of the entity's current tag reference.

To change the tag name or tag index of an entity:

1. Select the entity or group of entities that are to have their tag reference changed.

2. Choose *Replace Tag* from the *Functions* menu (Alt U P).

3. In the *Replace Tags* dialog box, do one of the following:

- To change the reference by tag name, type in a tag name or select it from the list of tag names.

- To change the reference by tag index, type in a tag index.

4. Click on *OK* to continue. All selected entities have their tag reference changed to the tag reference corresponding to the given tag name or tag index.

Cutting, Copying, and Pasting Entities

These editing commands are often used together. Cutting an entity copies it to the GDC clipboard and deletes it from the sheet. Copying an entity copies it to the GDC clipboard but does not affect the entity. Pasting an entity places the contents of the GDC clipboard into the current document.

NOTES:

1. Although the cut, copy, and paste commands work in a similar manner as in other Windows applications, the Windows clipboard is not used in these operations. Entities cannot be copied to the Windows clipboard nor can entities be placed from the Windows clipboard.

2. When entities containing tag attributes are cut or copied, the tag linking information is not cut or copied to the clipboard (the tag name and index is cut or copied). When the entity is pasted, an attempt is made to establish a tag link between the entity tag reference and the tag data tables.

3. Clip rectangles cannot be copied, cut, or pasted.

4. Entities not valid for a document type (display, symbol, or pop-up) cannot be pasted into the document. Refer to Table 6-2 for a list of entities not valid for a particular document type.

To cut an entity:

1. Select the entity by any available method.

2. Choose *Cut* from the *Edit* menu (Alt E T) or use the shortcut key combination Ctrl-X.

To copy an entity:

1. Select the entity by any available method.

2. Choose *Copy* from the *Edit* menu (Alt E C) or use the shortcut key combination Ctrl-C.

To paste an entity, choose *Paste* from the *Edit* menu (Alt E P) or use the shortcut key combination Ctrl-V. The pasted entity appears in the lower left corner of the document window.

Deleting Entities

Entities can be deleted from a document. This is different than cutting an entity since a deleted entity is not pasted to the GDC clipboard.

To delete an entity:

1. Select the entity by any available method.

2. Choose *Delete* from the *Edit* menu (Alt E D) or use the shortcut key Del.

NOTE: Clip rectangles cannot be deleted.

Exploding Symbols

Most symbols can be broken into their component entities. Once a symbol is exploded, it loses its identity as a symbol. It is reduced to the simple entities and other symbols comprising it. When exploded, any tag references or color given to the symbol are propagated to the appropriate component entity. One level of explosion occurs. For example, assume SYMBOL1 is composed of simple entities and SYMBOL2. If SYMBOL1 is exploded, SYMBOL2 remains a symbol.

To explode a symbol:

1. Select the symbol of interest.

2. Choose *Explode* from the *Functions* menu (Alt U E). The symbol is exploded.

Manipulating Grouped Entities

XY plots and all interactives are considered to be grouped entities whose component entities can be individually manipulated. When one of these entities is selected, all appropriate component entities appear with positioning and stretch points.

To manipulate a grouped entity:

1. Select the grouped entity of interest. Positioning and stretch points appear as appropriate on the component entities.

2. Do any of the following:

- Move the entire grouped entity by clicking and dragging on any open area within the bounding rectangle.

- All component entities have positioning points. Move a component entity by clicking and dragging its positioning point. The bounding rectangle expands to fit around any moved entities.

- Some component entities have stretch points. Stretch a component entity by clicking and dragging its stretch point.

Modifying Attributes

All entities have attributes or configuration information that can be modified after the entity has been placed or drawn.

To modify attributes of an entity:

1. Do one of the following:

- Select the entity of interest and then choose *Attributes* from the *Functions* menu (Alt U A).

- Double click on the entity of interest.

A dialog box appears specific to that entity. For simple entities, the dialog box contains attribute information similar to the default entity attributes. For complex entities, the dialog box is the same as the dialog box that appears when it was initially configured.

2. Make any modifications to the attributes or configuration and click on *OK* to continue.

Moving Entities

Entities can be repositioned after they have been drawn or placed. When moved, no part of an entity is allowed outside the legal drawing area. If attempted, the entity is automatically repositioned inside the legal drawing area.

To move an entity:

1. Select the entity or group of entities to be moved.

2. Position the cursor within the entity's bounding rectangle and drag the entity to its new position. If the entity has positioning or stretch points, do not place the cursor on these points to move the entity.

> **NOTE:** Certain complex entities have component entities that can be repositioned within the complex entity. Refer to ***Manipulating Grouped Entities*** for more information.

Ordering Entities

As entities are drawn or placed into a document, they are given a position in a list of entities maintained for that document. The position in the list the entity occupies initially corresponds to the order in which the entity was drawn or placed. The last entity placed is at the front of the ordering list.

One consequence of ordering is an entity's ability to be selected when two or more entities are close to one another or lie on top of one another. Only the topmost entity (the one closest to the front of the ordering list) may be selected. One way to select other entities is to change the ordering of the one on top: it can be moved backward one or more positions or sent to the back of the ordering list. Ordering also determines how the entities appear when they overlap and the order in which *Next Entity* and *Previous Entity* select entities.

To change the ordering of an entity by one position:

1. Select the entity.

2. Choose *Bring Forward* or *Send Backward* from the *Edit* menu (Alt E B or Alt E W) or use the shortcut keys Shift-F or Shift-B.

To move an entity to the front or back of the ordering list:

1. Select the entity.

2. Choose *Bring to Front* or *Send to Back* from the *Edit* menu (Alt E F or Alt E K) or use the shortcut keys Ctrl-F or Ctrl-B.

Rotating Entities

Certain entities can be rotated after they have been drawn or placed. Rotation is performed about the center of the bounding

box. When rotated, no part of an entity is allowed outside the legal drawing area. If attempted, the entity is automatically repositioned inside the legal drawing area.

To rotate an entity:

1. Select the entity or group of entities to be rotated. If multiple entities are selected, all must be able to be rotated to perform a rotation.

2. Choose *Rotate* from the *Functions* menu (Alt U O). A *Rotation* dialog box appears.

3. Enter an integer rotation value in degrees or radians. Positive values perform clockwise rotation and negative values perform counter-clockwise rotation.

4. The center of rotation defaults to the center of the bounding box. This can be changed by entering new coordinates if needed.

5. Click on *OK* to perform the rotation.

Scaling Entities

Certain entities can be scaled after they have been drawn or placed. Scaling is performed uniformly. When scaled, no part of an entity is allowed outside the legal drawing area. If attempted, the entity is automatically repositioned inside the legal drawing area.

To scale an entity:

1. Select the entity or group of entities to be scaled. If multiple entities are selected, all must be able to be scaled to perform scaling.

2. Choose *Scale* from the *Function* menu (Alt U C). The *Scale* dialog box appears.

3. Enter a scale factor and click on *OK* to proceed.

Stretching Entities

Certain entities can be stretched after they have been drawn. Entities that can be stretched appear with stretch point markers at each vertex when selected. When stretched, no part of an entity is allowed outside the legal drawing area. If attempted, the entity is automatically repositioned inside the legal drawing area.

To stretch an entity:

1. Select the entity to be stretched.

2. Drag on the stretch points to reposition the segments that make up the entity as needed.

Undeleting

The last deletion or all deletions performed on a document since its last save can be undone.

To undo the last deletion, choose *Undelete* from the *Edit* menu (Alt E U) or use the shortcut key combination Ctrl-U.

To undo all deletions, choose *Undelete All* from the *Edit* menu (Alt E A) or use the shortcut key combination Ctrl-A.

USING SYMBOLS

This section describes general features unique to symbols including:

- Symbol types.
- Search paths for symbols.
- Symbol color characteristics.
- Symbol display characteristics.
- Listing symbols used in a display.

Symbol Types

All symbol types have a ***DY*** file extension. The following paragraphs provide a brief description of each symbol type:

Custom Trend Symbol Custom trend symbols serve as templates when placing custom trends. This makes using custom trends easier by defining much of the configuration information in one or more custom trend symbols. The appropriate symbol is then referenced when a custom trend is placed and only instance-specific information needs to be provided. Refer to ***Custom Trend Template Symbol*** for complete information.

Default Symbol Default symbols group a DSDE escape and a control select or display select all using the same tag. Default symbols are further described in ***Default Symbols***.

Dependent Symbol Dependent symbols are used within the GDC application only and are not used by the console. Faceplate symbols, XY plot symbols, and default symbols are dependent symbols.

DSDE Symbol Dynamic symbol display elements are escapes that can call up symbols based on the state of the tag defined in the DSDE escape. The symbols referenced in the DSDE escapes are referred to as DSDE symbols (or dynamic symbols). The DSDE symbols themselves can contain primitive entities only and cannot contain tag references. This type of symbol should be variable in color.

Faceplate Symbol Faceplate symbols are used when placing a faceplate. They contain information about the location and color of the control select keystroke that must appear in the display's ***DT*** file. Refer to ***Faceplate Symbols*** for information on creating a custom faceplate symbol.

Pop-Up Symbol (With Tag) Pop-up symbols are displayed based on a keystroke or touch point reference from the display that calls it. Pop-up symbols contain a clip rectangle that defines the area to be cleared after the pop-up symbol is erased. In addition, they may contain references to tags and primitive entities. Pop-up symbols must be created in a pop-up symbol document.

Standard Symbol This is not a type in itself, but refers to any symbol provided with the software release. Standard symbols are stored in the C:\EWS\SODGSYM directory.

Static Symbol (With Tag) A static symbol can contain primitive entities only or primitive entities and dynamic escapes (for example, a faceplate). All escapes in the symbol will reference the same tag. If the symbol contains escapes, each tag reference is replaced by the tag that is specified when the symbol is placed.

Trace Symbol Trace symbols are used when placing a trend display element. They contain information about the location and color of various pieces of the trend configuration that must appear in the display's ***DT*** file.

User Symbol This is not a type in itself, but refers to any symbol created by the user. User symbols are stored in symbol groups.

XY Plot Symbol XY plot symbols are used when placing an XY plot display element. They contain information about the location and color of various pieces of the XY plot configuration that must appear in the display's ***DT*** file. Refer to ***XY Plot Data Symbols*** for more information.

Search Paths for Symbols

When placing a symbol or when the GDC application is otherwise looking for a symbol, the following search methods apply.

If configuring a console display or symbol:

1. Search the console symbol groups for the symbol.

2. Search the global symbol groups for the symbol.

3. Search C:\EWS\SODGSYM (standard symbols directory).

If configuring a global display or symbol:

1. Search the global symbol groups for the symbol.

2. Search C:\EWS\SODGSYM (standard symbols directory).

If the symbol is found it is placed, otherwise, an error message appears and the frown symbol is placed.

Symbol Color Characteristics

Symbols can have four color types, and colors can be fixed or variable:

Color types - there are four types of colors in an OIS display or symbol: line, fill, text and marker. Line, fill, and text colors are changed by entities that use them. The GDC application does not support marker color since markers cannot be placed in GDC documents.

Fixed color (within a symbol) - each entity within a symbol has at least one color associated with it. To have an entity always show the same color whenever that symbol displays, that color is fixed. For example, if a furnace symbol is always cyan outline with red flame and blue pipes regardless of where it is inserted into a drawing, or where it is referenced within a dynamic symbol display element, all of its entities must have fixed colors.

Variable color (within a symbol) - to specify the color of an entity when the symbol is inserted into a display or to reference it in a dynamic symbol display element, that color is variable. For example, to have a valve appear blue in one place on a display, red in another place, and be referenced by a dynamic symbol display element to have one of a number of colors, depending on the state, specify ***variable*** for all symbols that are to change color.

> **NOTE:** Refer to ***Symbol Color Requirements*** for information on creating a symbol with both variable and fixed entities.

Symbol Display Characteristics

The symbols that display when appropriate are: static symbols, static symbols with escapes, and a user defined state symbol of the dynamic symbol display element. Note that the symbols themselves display, while the escapes (dynamic, configuration, and status alarm) are displayed as dashed rectangles. This includes escapes within symbols.

If memory fills, the GDC application is unable to display more symbols, and displays an error message to that effect. Perform a save or exit. This may help make space available for the file. After saving, try calling up the display again and continue. If all memory is filled, no more symbols can be added.

Listing Symbols Used in a Display

After saving a display or symbol or using *Symbol Usage* from the *View* menu, the system creates an (***LST***) file that holds the list of all symbols in that display or symbol. This file also lists the name and path of each symbol. The list contains all symbols in the display or symbol, but not nested symbols. For instance, the display contains symbol A. Symbol A is then in the list. Symbol A contains symbols B and C. B and C are not in the display, other than being nested in A. Symbols B and C are not in the list.

This file has the same name as the symbol or display, with the suffix ***LST***. For example, if the display name is ***NAME.DR***, the list file is ***NAME.LST***. If there are no symbols in the display/ symbol file, the system does not create an ***LST*** file.

The ***LST*** file contains a line for each occurrence of every symbol. For example, if a symbol occurs five times in a display, there are five lines in the ***LST*** file. ***LST*** files contain the path name of all symbols in the file and give one of the following reasons if the file is not found:

Not available - file not found.

Not a symbol - ***DY*** file found, but not a symbol.

Wrong language - the language used to build the symbol is different than the current language.

Error - processing error has occurred.

The list file can be viewed by any ASCII text file viewer or viewed using *Symbol Usage* from the *View* menu.

CONFIGURING SYMBOLS

Symbols are configured in a similar manner as displays. This section describes configuration procedures unique to symbols and includes:

- Creating symbols.
- Deleting symbols from disk.
- Symbol color requirements
- Faceplate symbols.
- XY plot data symbols.
- Default symbols.

Creating Symbols

When a symbol document is created, its origin point appears as a small gray cross hair (+) marker. This marks the point that will be positioned at the insertion point when the symbol is placed. The origin marker can be moved but not deleted.

Deleting Symbols

Before deleting any symbols from disk, first check the ***LST*** files to verify that the symbol to be deleted is not used in any displays. After checking the ***LST*** files, use **ATTRIB -R** *symname***.DY** to remove write protection. Then, use the standard DOS delete command to remove unwanted symbols.

Symbol Color Requirements

When defining symbol color attributes, consideration must be given to how the colors actually appear when they are placed into a display and used on the console. The following rules must be observed:

1. For a given color type (line, fill, or text) all entities with that color type set to variable must lie behind all entities having that color type set to fixed. In general, an entity lies behind another if it is drawn first. The ordering of the entities can be changed after they are drawn using Bring Forward, etc.

2. For a given color type, all entities having that color type set to variable must also use the same default color for the color type.

These rules take into account the manner in which the console reads and displays the symbol file. The GDC application displays symbols in the same manner as the console.

Symbol colors will appear in the display correctly in the following cases:

- All entities in the symbol have fixed color for all color types.
- All entities in the symbol have variable color and their color attribute is set to the same color for a given color type.

Example:

A circle and polygon are drawn with their fill set to variable and red. Both the circle and polygon fill color will assume the color given when the symbol is placed into the display.

If the polygon fill color had been set to green in the symbol, then the symbol colors would not appear correctly when placed. The entity in the foreground would not assume the fill color when placed and would appear with the fill color given to it in the symbol file.

- All entities having a variable color lie behind entities having a fixed color, for a given color type.

Example:

A circle and polygon are drawn with their fill set to variable and red. A rectangle is drawn after both the circle and polygon have been drawn and its fill color is set to blue and fixed. The circle and polygon fill color will assume the color given when the symbol is placed into the display. The rectangle will have blue fill color as it was originally drawn.

If the rectangle were drawn first, the circle and polygon would not assume the color given when the symbol is placed, but would appear in their default color.

Custom Trend Template Symbol

Trends are defined in the console trend database and correspond to trend points defined in the module configuration using trend function codes. The values recorded from these points over a period of time can be graphed on a console display. The actual values and other text based information can also be displayed in a trend. Furthermore, a trend can be used to control the process.

A custom trend template symbol is used as a template when placing a custom trend in a display. Custom trends feature more configuration options than standard trends. By pre-defining these elements, trends can be quickly configured for any number of specific displays. For example, by specifying the trend index, tag name, and keys for each instance; all other features would be specified by the template. Other features of using a custom trend template include:

- The ability to override any of the template values to allow further customizing if necessary when placing a custom trend in a display.

- When a custom trend element is configured within a symbol document, it becomes a custom trend template symbol. It can only be referenced within another custom trend display element within a display.

- If a custom trend is placed in a symbol document, no other display elements are allowed in the symbol document.

A custom trend display element consists of a graphical display, text-based information, and an optional associated symbol containing tag-related information. All of these elements can be configured in the custom trend template symbol.

Custom Trend Symbol Configuration

To configure a new custom trend template symbol:

1. Open a new symbol file.

2. Choose *Trend* from the tool bar or *Tools* menu (Alt T N), then choose *Custom Trend* from the choice box. The *Custom Trend* dialog box appears showing the *General* configuration page.

General Page

3. The *Custom Trend* dialog box has three main pages of information. The *General* page is initially displayed. Edit the general custom trend information by referring to Table 6-22.

NOTE: The trend index, keys, and tag name are normally configured when the custom trend is used in a display. However, a dummy index must be entered for each trace that is to be configured.

Table 6-22. Custom Trend General Page

Field	Description
Trace button	Shows the number and color of the trace. If clicked, the trace configuration page for that trace appears.
Trace symbol	Displays an optional trace symbol name associated with the trace. It must be edited from the associated trace page.
Trend index	Index of the trend for this trace
Keys	One or two key stroke combination that takes control of the trend element: If a single key is used, it must be alphabetic. If two keys are used, the first key must be numeric and the second key either alphabetic or numeric. This key is displayed in the upper left corner of the trend element box and appears on the trend trace to identify it. Keystrokes must be unique within a display.
Tag name	Tag name to be used in the trend display element. The tag name list box displays a list of tag names already used in the displays.
High limit Low limit	Upper and lower limit of the trend (real format). The upper and lower limit values must match the values configured in the trend tag list. If the tag name is found in the TDT database and the high and low limit have not been specified, the zero and span values from the console tag list are used.

Trace Pages

There are five custom trend trace pages, one for each of the five traces allowed in a trend display.

4. Do one of the following:

- Click on the *Traces* tab. The *Trace #1* page appears. Other trace pages can be viewed by clicking on the respective trace tab.
- Click on the trace number in the *General* page to go directly to the configuration page for that trace.

5. Edit each trace page by referring to Table 6-23. Once a trace page is displayed, other trace pages can be displayed by clicking on their respective trace number tab.

Table 6-23. Custom Trend Trace Page

Field	Description
Select symbol	Selects an optional trace symbol name associated with the trace. It is not necessary to use a trace symbol in a custom trend since other elements of the custom trend can provide the same information as provided by a trace symbol. Refer to Table 6-24 for a description of available trend symbols. Trace symbols can also be configured as needed.
Trend select	Configures the key select and touch select for the trace symbol. Options are: Key select Enabled - always enabled. Keys - configured from *General* page. Char Size - size of key text in standard text sizes: 1, 2, or 3. Display on console - displays the key select on the console if checked. Foreground color - set to *Line Color* on *Trace* page. Background color - if enabled, sets the key select background color. Touch select Enabled - enables touch point activation of the trend. Display on console - displays the touch area on the console if checked. Line type - a solid or dashed line may be selected to surround the touch area. Line color - if enabled, the line color used to draw the touch area on the console. Fill - if enabled, the fill color used to draw the touch area on the console.
Trend index Tag name Key	Displays the values of these items as configured from the *General* page.
Scale limits	High and low scale limits are configured from the *General* page.The values are displayed on the *Trace* pages, but cannot be edited from them. The scale limits can be displayed in the trend element by checking the *Display High Scale Limit* and *Display Low Scale Limit* check boxes. The color of the scale limits can be set using the *Text* and *Background* buttons.
Color of value at cursor	Displays the value at the cursor for this trace if the check box is checked. The color of the value can be set using the *Text* and *Background* buttons.
Display trend identifier	Displays the trace identifier number next to the trace if checked.
Line color	Push button used to configure the color of the trace.

Table 6-24. Trend Symbols

Trend Symbol	Description
TRNDANFL TRENDANHF	Full and half height analog trend symbols.
TRENDCOFL TRENDCOHF	Full and half height control output trend symbols. Must be driven by a station tag type.
TRENDDGFL TRENDDGHF	Full and half height digital trend symbols.
TRENDDIFL TRENDDIHF	Full and half height digital trend symbols.
TRENDFTFL TRENDFTHF	Not used.
TRENDMTFL TRENDMTHF	Full and half height empty trend symbols used in a simple trend to increase the vertical size of the trend display. Not needed in a custom trend since it can be sized using the cursor.
TRENDPVFL TRENDPVHF	Full and half height process variable trend symbols. Must be driven by a station tag type.
TRENDRIFL TRENDRIHF	Full and half height ratio index trend symbols. Must be driven by a station tag type.
TRENDSPFL TRENDSPHF	Full and half height set point trend symbols. Must be driven by a station tag type.

Options Pages

The options page consists of five subpages that configure information that applies to the custom trend as a whole.

6. Click on the *Options* tab. The *Trace Direction* options page appears. Any other options page can be displayed by clicking on the respective tab.

7. Edit the options page fields by referring to Tables 6-25 through 6-28.

Table 6-25. Trace Direction Options

Field	Description
Trace option/cursor position	Configures the trace direction and cursor position. If the trace direction is *Left To Right* or *Right To Left*, the cursor position can be *Top* or *Bottom*; if the trace direction is *Bottom To Top* or *Top To Bottom*, the cursor position can be *Left* or *Right*.
Cursor color	Configures the color of the cursor.
Display time at cursor	Displays the time the cursor is pointing to underneath the cursor if checked. If checked, the time text color can be configured.

Table 6-26. Time Options

Field	Description
Display resolution	Amount of time between displayed trend data. This value must be greater than or equal to the least common multiple of the resolutions of all of the trends configured in the element.
Trend time span	Total time span that the trend element represents. This value must be a multiple of the display resolution.
Time line interval	To display time lines, check the *Time Line Interval* check box. If set to display, the amount of time between time lines can be configured. The time line interval value must be evenly divisible into the trend time span value.
Time label interval	To display time labels, check the *Time Label Interval* check box. If set to display, the amount of time between time labels can be configured. The time label interval must be a multiple of the display resolution and, if *Time Line Interval* is checked, a multiple of the time line interval value.
Time interval before scrolling	Configures the update window size. It must be a multiple of the display resolution and one of the following if they are enabled: if *Time Label Interval* is checked, it must be a multiple of the time label interval value; otherwise, if *Time Line Interval* is checked, it must be a multiple of the time line interval value.
Time label	Configures the time label display format and color characteristics. Can be configured only if *Time Label Interval* is checked.

Table 6-27. Pan/Zoom Options

Field	Description
Display update window	Displays the update window if checked.
Display pan and zoom	Displays the pan and zoom status indicators if checked. The text and background colors can be configured if display is enabled.

Table 6-28. Other Options

Field	Description
Width of trend line	Configures the trend traces to one of four line widths.
Highlight box color	Configures the color of the trend box when it is not selected.
Trend area background	Configures the background color of the trend display area.
Scale options	Enables display of scale divisions if *Display Scale Divisions* is checked. *Number Of Scale Divisions* configures the number of scale divisions.

8. Return to the *General* page by clicking on the *General* tab.

9. Click on *OK* to continue. The custom trend is placed into the symbol document.

10. Position and size the custom trend components as needed. Positioning and stretch points appear as appropriate on the component entities. Do any of the following:

- Move the entire custom trend template symbol by clicking and dragging on any open area within the bounding rectangle.
- Move a component entity by clicking and dragging its positioning point. The bounding rectangle expands to fit around any moved entities.
- Some component entities have stretch points. Stretch a component entity by clicking and dragging its stretch point.

11. Set the symbol origin point as needed.

12. Save and close the symbol document.

Faceplate Symbols

Custom faceplate symbols can be configured to allow alternate information or alternate arrangements to be displayed. Create custom faceplate symbols using either of the following methods:

- Copy an existing faceplate symbol to a new symbol document, then modify it by adding, deleting, or relocating the desired information.
- Use the *Escape Interactive* menu to insert a faceplate key select and a faceplate touch point or border into a symbol file. Both of these entities must be included in all faceplate symbols. Then add any other valid symbol file escapes or entities to the faceplate symbol.

  NOTE: The position of the faceplate touch point or border entity determines the position for the touch point, the highlight box, and the border for the faceplate. If touch points are not desired, they may be deactivated from the faceplate dialog box when the faceplate is inserted. If the prompt option selected for the faceplate dialog box does not include a highlight box, no highlight box coordinates are generated.

XY Plot Data Symbols

The first step in configuring an XY plot is to create a data symbol. A data symbol is a block of information that appears with

each trace of an XY plot. The information could be values such as high and low limits of the X and Y axes. A data symbol is required when configuring an XY plot. The data symbol must contain the following elements:

XY Plot Key Select The key select is the console key that will control the XY plot.

XY Plot Touch Point or Border The XY plot touch point or border is a designated area that the user can touch to control the XY plot and serves as the highlight box.

Update Mode Indicator The update mode indicator shows the current plot mode (single or multiple point, or constant curve).

Other elements may be included in the XY plot data symbol as well.

To create an XY plot data symbol:

1. Start a new symbol document.

2. Add the key select and touch point area:

   a. Choose *Interactive* from the *Tools* menu.

   b. Position the insertion point and click. The *Escape Interactive* dialog box appears.

   c. Choose *XY Plot Select*. The *XY Plot Select* dialog box appears.

   d. Configure the key select and touch point as needed. Click on *OK* to place the key select and touch point.

   e. Select the key select and touch point and then position and size them as needed.

3. Add the update mode indicator:

   a. Choose *XY Plot* from the *Tools* menu. The *XY Plot Escape* dialog box appears. Any of the items shown can be configured in the data symbol. Only the update mode indicator is required.

   b. Choose *Update Mode Indicator* to place an update mode indicator into the symbol document.

   c. Select the update mode indicator and position it as needed.

4. Insert any other items from the *XY Plot Escape* dialog box the same way the update mode indicator.

5. Save the XY plot data symbol and configure the XY plot in a display document.

Default Symbols

A default symbol is a symbol created with the console configuration utilities containing certain entities called qualifying entities. Qualifying entities are dynamic symbols or escape interactive keystrokes of the following types:

- Control select.
- Display select.
- Control window.
- Window with tag.
- User task activation.
- Multi-window display.

PURPOSE OF DEFAULT SYMBOLS

Dynamic symbol display elements (DSDEs) are used to graphically show the different states of a pump, valve, or other process related items. Typically, these are entered along with a process variable (PV), an alarm state, and a control or display select keystroke and touch point all using the same tag. An example is shown in Figure 6-4. The default symbol feature allows these elements to be grouped into a symbol, so that only the attributes that change from instance to instance need to be specified. This allows a default to be established for a particular job that can be easily changed if the need arises. The attributes that can be changed are:

- Name of the default symbol to use.
- Tag name.
- Keystroke for the escape interactive (if any). Since the default symbols use the same file extension as other symbols, it may be desirable, but is not necessary, to put the default symbols in their own directory.

In order to modify a specific instance of the default, the symbol is inserted, then exploded. The individual pieces can then be modified. When the symbol is exploded, the tag and color information are propagated to the individual components.

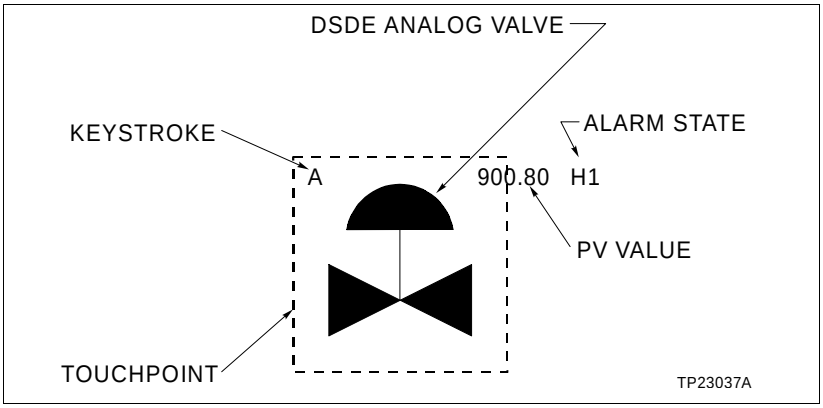


Figure 6-4. Default Symbol Example

CREATING A DEFAULT SYMBOL

To create a default symbol, simply insert one or more of the qualifying entities into a ***DY*** file.

> **NOTE:** With the console configuration utilities release SLDG 5.5 or later, it is not possible to create a static symbol containing one of the qualifying entities. This is different from the way previous versions worked, although SLDG 5.5 or later still treats symbols created with previous versions the same.

TRANSLATING A DEFAULT SYMBOL

When the display and symbol translator encounters a default symbol, it treats it differently than a standard static symbol. In addition, depending on whether a drawing file or a symbol file has been specified, the display and symbol translator also works differently.

Drawing (DR) Files

When the display and symbol translator encounters a default symbol entity, it searches the associated symbol file and its children for any qualifying entity. This entity does not have to be referenced by the default symbol in the drawing. The search is for any qualifying entity. If a qualifying entity is found in the symbol, the display and symbol translator looks for a matching entity in the default symbol. If a matching entity is found, the qualifying entity is updated with new keystroke information from the default symbol.

As long as any qualifying entity is found in the symbol, the entity is updated with location information, tag name, and tag index from the default symbol and output as if the entity was contained in the drawing. If a qualifying entity is found in the associated symbol file or its children and does not match any

entities in the default symbol, the entity is output, but not updated with keystroke information from the symbol.

Under normal conditions, for every qualifying entity in the symbol, there is a matching entity in the default symbol. Mismatches occur when the user edits the symbol and inserts or deletes qualifying entities. In this case, the default symbols need to be placed into the drawing again.

Symbol (DY) Files

When the display and symbol translator encounters a qualifying entity in a default symbol, it simply ignores it. The qualifying entities are exploded into the ***DR*** file and are not translated in symbol files.

DEFAULT SYMBOLS CONSTRAINTS

The following are constraints to be aware of when working with default symbols:

Number of escape interactives - up to five escape interactives can be inserted into a default symbol. As many dynamic symbols as required may be inserted into a default symbol.

Use of control window and window with tag - these two escape interactives may not coexist in any one default symbol. That is why there is only one field (*Window (With Tag) Keystroke*) for both of these escapes when placing a default symbol into a drawing.

Nesting default symbols - default symbols may be nested; however, the constraints mentioned in this section apply to the total of all escape interactives referenced by the root symbol and all of its branches.

Modifying default symbol - once a default symbol has been placed in a drawing, escape interactives should not be added or deleted from the default symbol. This is because there is information in the drawing which is dependent on the number and type of escape interactives inserted into the default symbol. The information in the drawing file (***DR***) is not changed when the default symbol file (***DY***) is changed.

If the number of escape interactives must be changed, perform the following: 1) copy the symbol to another symbol, 2) change the number of escape interactives, and 3) then use that symbol as the default for any drawing which needs a different number of escape interactives.

HANDLING A MISMATCH IN ESCAPE INTERACTIVES

Changing the number of escape interactives in a default symbol may cause unpredictable results. It is highly recommended not to do this. It is worse to add keystrokes to a default symbol than to delete them because there is no key reference in the drawing for the new escape. The following describes what happens when the number of escape interactives are changed.

If escape interactives are added to a default symbol which has already been placed into a drawing:

Display and symbol translator - the translator always searches the default symbol first. It looks for all possible escape interactives in a default symbol. If it finds one, it looks for a matching key reference in the drawing file. If it does not find one (i.e., the user added an escape interactive to the default symbol) the display and symbol translator uses the key text stored in the default symbol and outputs that escape to the ***LD*** file.

GDC - the GDC application cannot add new key references to an instance of a default symbol once it has been placed into the drawing. As a result, the user does not see new escapes at all. Delete the default symbol and redrop it.

If escape interactives are deleted from a default symbol which has already been placed into a symbol:

Display and symbol translator - the translator ignores all key references in the drawing which do not have matching escapes in the symbol.

GDC - when the GDC application reads a drawing with a default symbol, it tries to find matching escapes for each key reference. In this case, it cannot find them because the user deleted them. On the initial read of the drawing, any key references without matching escapes are marked as deleted. Once the user saves the file, they are deleted.

If the keystroke values in the document are changed, perform the following to clear the extra keystrokes:

1. Save the drawing.

2. Exit the GDC application.

3. Restart the GDC application.

4. Save the drawing.

CONFIGURING REMOTE MOTOR CONTROL BLOCKS

This section provides information on configuring a remote motor control block. The text display and dynamic symbol display elements are used to display RMCB elements.

Text Display Elements

The text display element displays one of the following strings, in the indicated color, depending on the state of the referenced tag.

INTLK NOT READY	Green
NOT RUNNING	Red
RUNNING	Green
ELEC NOT RDY	Blinking White
DISAGREE	Blinking Green

It also displays a solid box of the indicated color to the left of the string. The tag must be RMCB type. Place a DYNAMIC, RMCB TEXT escape. Fill in these fields:

- Tag name (optional).
- Tag index.
- X-Y coordinate.
- Character size (defaults to 1).

Dynamic Symbol Display Element

The dynamic symbol display element displays a symbol in the same colors as the text display element, depending on the state of the referenced tag. The tag must be RMCB type. Note that unlike other DSDE elements, only one symbol is displayed. Place a DYNAMIC SYMBOL, RMCB escape and fill in these fields:

- Tag Name.
- Symbol Name.
- Flash.

RMCB Faceplate

There is a standard box (symbol) for the RMCB element (***RMCB1.DY***). Use it to create displays that have RMCB boxes.

CONFIGURING STATUS DISPLAYS

There are three standard template files available that facilitate status display configuration:

N90STAT1.DR - this template is the main overview page for displaying the status for all nodes residing on one loop.

NODSTAxx.DR - this is the second page for displaying the status for all modules residing within a node.

The following instructions assume that the necessary status tags are contained in the tag list.

NOTES:
1. Each loop of the system requires a status display.

2. Each node within a loop requires a ***NODSTAxx.DR*** and ***NODSTAnn.LE*** file (replace *nn* with node address). For example: PCU with node address of 8 requires ***NODSTA08.DR*** and ***NODSTA08.LE***.

Type the following from the display directory:

COPY C:\SODGSYM\N90STAT1.DR *filename.dr NAME*.**DR**

Then type:

COPY C:\SODGSYM\NODSTA*nn*.*

N90STAT1 Display

To configure an N90STAT1 display:

1. Use the GDC utility to replace the default tag index (1) of the symbols corresponding to the nodes that exist within the loop using the tag list tag index.

2. Delete all symbols corresponding to nodes which ***do not*** reside within the loop.

3. Delete all escape interactives (on the bottom of the display) that correspond to nodes that do not reside in the loop.

NODSTANN Display

To configure an N90STANN display:

1. Use the GDC utility to call up the ***NODSTAnn.DR*** file. Assign a name to the first node within the loop. Replace the *nn* with the node address.

2. Replace the default tag index (1) of the symbols corresponding to the modules that exist within each node with the tag list tag index.

3. Delete all symbols corresponding to modules which ***do not*** reside within the loop.

4. Save and translate the display file.

5. Use a text editor to call the ***NODSTAnn.LE*** file. Assign a name to the first node within the loop. For each module, delete the RP from the front of the line that corresponds to the escape interactive for that module address.

6. Replace the R with the loop number and the P with the PCU (node) number.

7. Save and then merge.

8. Repeat Steps 1 through 7 for each node that resides within the loop.

SECTION 7 - LOG CONFIGURATION

INTRODUCTION

This section describes how to configure custom logs for the consoles. The custom log configuration utility facilitates off-line configuration of logs for an operator console. Collection of log data is configurable based on either time trigger or event trigger. Printing of log data is configurable based on time trigger, collection trigger, or event trigger. Refer to the appropriate console instruction for complete custom log information.

NOTES:

1. Log configuration is not supported for the PCV and IIOIS10 consoles.

2. Log configurations created with the console tools must be converted to console format on the console. Refer to the appropriate console instruction for this information. Since there is no conversion from console format to engineering work station format, log configurations cannot be brought back to the engineering work station once they have been converted on the console.

3. This is a DOS utility launched from the console tools executive.

4. Only one copy of the log configuration utility can be running.

LOG CONFIGURATION START-UP

The log configuration utility is launched from the console tools executive. To configure logs:

1. Select the log group of interest from the project tree.

2. Do one of the following:

- To create and configure a new log, choose *Configure Log* from the *Log* menu (Alt O L).

- Double click on any log name in the file list. The log application launches but the actual log file must be selected from within the log application.

The log configuration opening screen appears as shown in Figure 7-1.

3. Select the appropriate target console at the *Choice:* prompt by typing A for MCS, MCS PLUS, IIOIS20, or IIOIS25 consoles; or B for 40 series consoles.

4. Press Enter to continue. The screen shown in Figure 7-2 appears providing key usage information when editing a log.

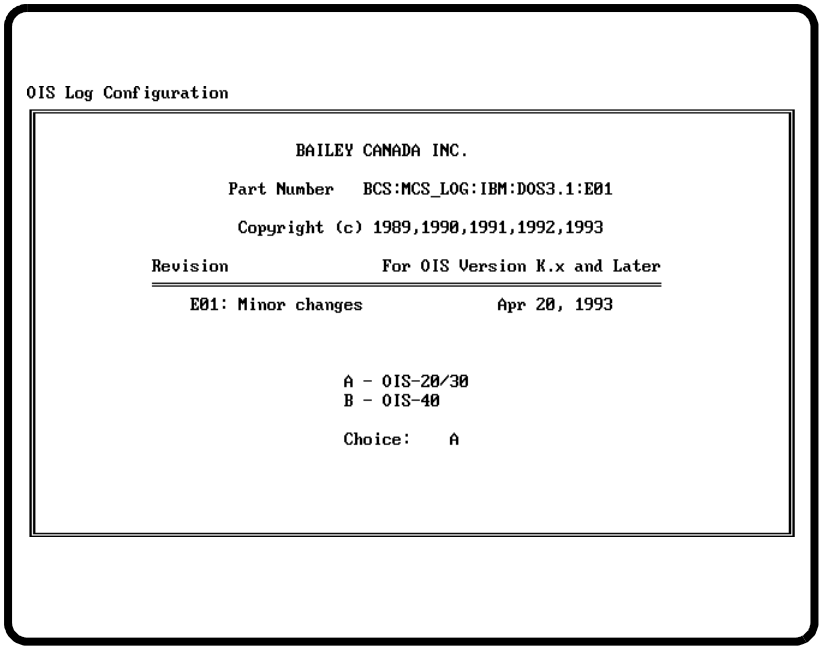


Figure 7-1. Log Configuration Opening Screen

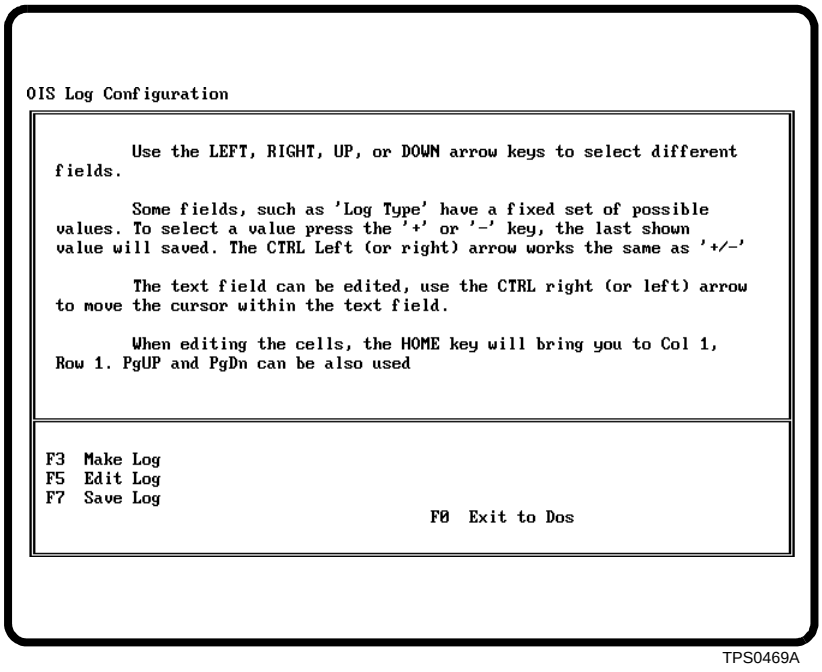


Figure 7-2. Log Configuration Main Menu

5. Continue by pressing the appropriate function key to make a log, edit a log, save a log, or exit.

F3	Creates a new log.
F5	Edits a log.
F7	Saves the log configuration.
F10	Exits and control returns to the console tools executive (shown as *F0*).

CREATING A NEW LOG

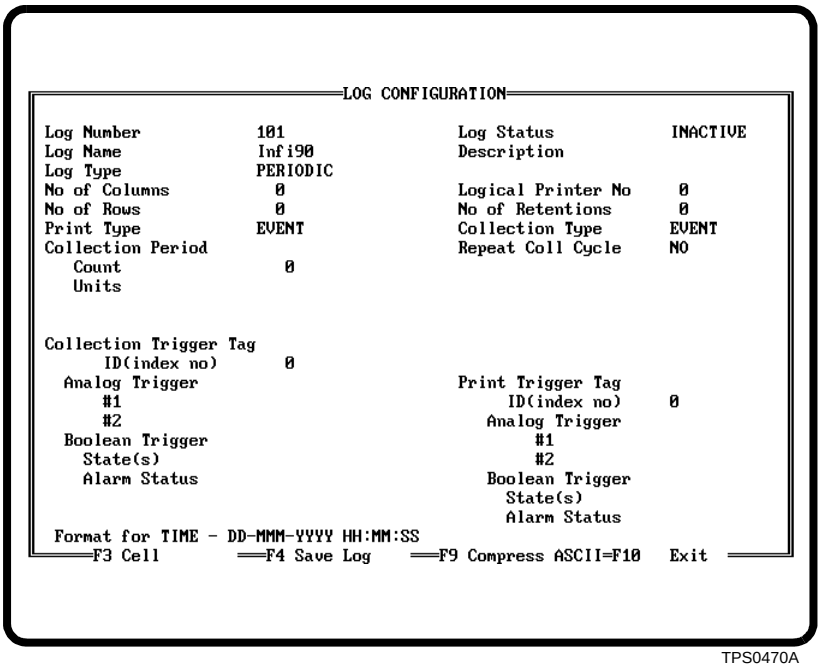
To create a new log:

1. If the target console is an MCS, MCS PLUS, IIOIS20, or IIOSI25 console, insure that an up-to-date copy of the ***LOGNAMES.LG*** file for the target operator console is resident in the current directory (this is not necessary for the 40 series console). ***LOGNAMES.LG*** is automatically created or updated as new logs are created.

2. Press F3 from the *Log Configuration* main menu.

3. At the prompt, type in the log number and press Enter The *Log Configuration Header* screen appears (Figure 7-3).

4. Proceed to ***EDITING AN EXISTING LOG*** to fill in the header and cell configuration fields.



TPS0470A

Figure 7-3. Log Configuration Header Screen

EDITING AN EXISTING LOG

To edit an existing log:

1. Press F5 from the *Log Configuration* main menu.

2. Type in the log number and press Enter (or continue from ***CREATING A NEW LOG***). The *Log Configuration Header* screen (Figure 7-3) appears with current field information for this log.

3. From this screen, either proceed to the ***Editing the Log Configuration Header*** section, or use one of the following keys to select an alternate function.

F3	Activates the *Cell Configuration* screen (refer to ***Editing Cells***).
F4	Saves the log (refer to ***SAVING A LOG***).
F9	Compresses ASCII space (refer to ***Compressing ASCII Space***).
F10	Exits and returns to the *Log Configuration* main menu.

Editing the Log Configuration Header

The following steps outline editing the log configuration header. Continue directly from the *Log Configuration Header* screen. To edit the header:

1. Use Table 7-1 as an aid when filling in the *Log Configuration Header* fields. Where necessary, further explanation is given in the subsections following Table 7-1. Use the following keys when editing field information:

←, →, ↑, and ↓	Moves the cursor to a specific field for editing.
Ctrl-← and Ctrl-→	Moves the cursor within a text field or to scroll through available selections in fields that have a fixed number of selections.
+ and -	Scrolls through available selections in fields that have a fixed number of selections.

In variable fields (*Log Name, Description,* and *Collection Trigger Tag*), type in numeric or alphanumeric information. In fields with system choices (*Log Type, Collection Type, Print Type,* etc.), use + and - on the numeric keypad to scroll through available selections.

Table 7-1. Log Definition Fields

Field	Valid Entries	Description
Log number	1 to 300	Log number.
Log status	Active Inactive	Used to activate or deactivate the log.
Log name	8-character ASCII text	Valid DOS file name.
Log description	32-character ASCII text	Description of the log.
Log type	Standard Periodic Trip	Trend log. Snapshot log. Trip log.
Logical printer number	1 to 16	Logical printer number.
Number of columns	1 to 64	Number of columns.
Number of rows	1 to 250	Number of rows.
Number of retentions	0 to 9	Number of outputs of the log saved on disk.
Collection type	Demand Event Time	Collect on demand only. Collect on event. Collect at certain time.
Print type	Demand Event Time Collect	Print on demand only. Print on event. Print at certain time. Print when collection complete.
Repeat collection cycle	Yes/No	Repeat the collection cycle the log has completed. Refer to ***REPEAT COLLECTION CYCLE*** in this section for further explanation.
Collection period (or pre-trip) time	Count Units	Up to 999. Hours, minutes, seconds. **NOTE:** For a periodic log, this time period elapses before the log collects. **Example:** To have a periodic log collect upon the occurrence of an event, configure the log to collect upon the trigger event, and configure the collection period to be zero.
Pre-trip period time	Count Units	Up to 999. Hours, minutes, seconds.
Print trigger time	Time	Time of time triggered print.
Post-trip period time	Count Units	Up to 999. Hours, minutes, seconds.
Collection trigger tag	Valid tag name or index	Tag name or index.
Analog collection trigger conditions (1 and 2)	3H 2H H N <blank> L 2L 3L	Trigger on 3H condition. Trigger on 2H or 3H. Trigger on H, 2H, or 3H. Trigger on return to normal condition. No trigger. Trigger on L, 2L, or 3L. Trigger on 2L or 3L. Trigger on 3L conditions. Refer to ***ANALOG COLLECTION TRIGGER CONDITIONS*** for further explanation.

Table 7-1. Log Definition Fields (continued)

Field	Valid Entries	Description
Boolean collection trigger conditions states	ZERO, ONE, <blank>	Specify the logic state descriptors to be recognized as the trigger state. Two fields are available for specifying up to two descriptors. Specify logic state zero as a trigger state, logic state one as a trigger state, or both or neither.
Boolean collection trigger alarm status	ALARM, RTN, <blank>	Alarm status condition for triggering. Specify an alarm state as a trigger state, the return to normal as a trigger state or neither. The alarm status is independent of the logic state.
Print trigger tag	Tag name or index	Works like demanding a log by an event. Regular log collection does not get interrupted. To enable this field, print type should be event.
Analog print trigger conditions (1 and 2)	3H 2H H N <blank> L 2L 3L	Trigger on 3H condition. Trigger on 2H or 3H. Trigger on H, 2H, or 3H. Trigger on return to normal condition. No trigger. Trigger on L, 2L, or 3L. Trigger on 2L or 3L. Trigger on 3L condition. Refer to ***ANALOG PRINT TRIGGER CONDITIONS*** for further explanation.
Boolean print trigger conditions states	ZERO, ONE, <blank>	Specify the logic states to be recognized as the trigger state. Two fields are available for specifying up to two descriptors. Specify the logic state zero as a trigger state, logic state one as a trigger state, or both or neither.
Boolean print trigger alarm status	ALARM, RTN, <blank>	Alarm status condition for triggering. Specify an alarm state as a trigger state, the return to normal as a trigger state or neither. The alarm status is independent of the logic state.
Log starting time	Military format 13:00 = 1:00 pm	Time of first collection. **NOTE:** For a periodic log, the actual collection of the first snapshot is the log starting time minus the length of one collection period. This field should not be used for a trip log. **Example:** To have a periodic log collect at 1:00 and once an hour thereafter, the log starting time must be 12:00 and the collection period must be one hour.
Log completion time	Time	Calculated by the console, not user-assignable.

2. After editing the log configuration header, proceed by pressing one of the following keys.

F3 — Activates the *Edit Cell* screen (refer to ***Editing Cells***).

F4	Saves the log (refer to ***SAVING A LOG***).
F9	Compresses ASCII space (refer to ***Compressing ASCII Space***).
F10	Exits and returns to the *Log Configuration* main menu.

The following are general notes to observe when editing the log configuration header:

1. Not all fields are relevant to all log types. The system permits the user to make entries to only certain fields.

2. Entry fields for pre-trip and post-trip periods pertain only to trip logs.

3. Depending upon collection type, entry fields for collection trigger tags and trigger conditions may or may not be utilized.

4. Depending upon print type, entry fields for print trigger tags, print times and trigger conditions may or may not be utilized.

5. Changing row and column size on existing logs adds and deletes cells as required. Be careful not to inadvertently delete information from an already created log.

6. Log configuration does not have access to the tag or trend lists. Therefore, give the tag index when assigning data to the *Collection Trigger Tag* and *Print Trigger Tag* fields; and select the tag type when changing the tag index and leaving the field. There are a maximum of 25 tag types (not all are valid.) Press + or - until the correct type appears.

7. During log definition entry, only valid fields for user entries are displayed; invalid fields are blanked out.

8. At the present time, logs are limited to approximately 12,000 cells (240 rows by 50 columns, or 187 rows by 64 columns.

> **NOTE:** When a log is activated, validity of the log header configuration is checked. If any field is not configured correctly, an error message is displayed and the cursor (input field) appears at the wrong data field to prompt the user for correction.

REPEAT COLLECTION CYCLE

If the *Repeat Collection Cycle* field is set to NO for any active log, the log automatically deactivates after it completes its collection cycle. The following two subsections explain what happens when this field is set to YES.

Time Triggered Logs

If the *Repeat Collection Cycle* field for time triggered logs is set to YES, the log will be rescheduled for collection after its current collection cycle has completed. The log will always be rescheduled at integral multiple periods (defined by the collection period parameter) from the last completed cycle.

Example:

log start time - 10:00 am

collection period - 1.5 hours

(final collection time is 11:30 am)

- At collection completion for the 11:30 am collection, the log will be rescheduled for final collection at 1:00 pm, if current time is prior to 1:00 pm.
- At collection completion for the 11:30 am collection, if current time is 1:01 pm, then the log will be rescheduled for final collection at 2:30 pm.
- If current time is 3:00 pm, then the log will be rescheduled for final collection at 4:00 pm.

Event Triggered Logs

If the *Repeat Collection Cycle* field for event triggered logs is set to YES, when trigger occurs all subsequent trigger occurrences with respect to that log are ignored until the log has completed its collection processing.

Trigger occurs only when the trigger tag has a transition from a non-trigger state to the trigger state. After the log completes its collection processing, the tag must trigger again (i.e., if the tag is at the trigger state when the log completes, the tag must have a transition from trigger state to non-trigger state and then from non-trigger state to trigger state to trigger the log). If the tag is at the non-trigger state, then a transition from non-trigger state to trigger state will trigger the log. Any trigger occurrence during the log's collection processing will be ignored. This does not prevent the same tag from triggering other logs with opposite trigger states nor other logs activated after first trigger event with the same trigger state.

The interval of time the trigger tag is ignored with respect to the triggered log is indeterminate. The factors are: configuration of the log, the logging system's processing time and load, and the console system load.

The time of the trigger represents:

Trip Logs - time of the trip.

Standard Logs - start time of the log; final collection time is time of the trigger plus collection period.

Periodic Logs - start time of the log; final collection time is time of the trigger plus collection period. In this case, collection period is most likely zero.

ANALOG COLLECTION TRIGGER CONDITIONS

Two analog collection trigger conditions can be specified. Each condition is independent of the other.

- If 2H is specified, the trigger occurs when the tag goes to the alarm states 2H or 3H from non-2H or non-3H alarm states.
- If 2H and 3H are specified for conditions one and two, the trigger occurs when the tag goes to the alarm states 2H or 3H from non-2H or non-3H alarm states. The second condition at 3H is redundant.
- If H and L are specified, the trigger occurs when the tag goes from normal into alarm (H, 2H, 3H for condition one; L, 2L, 3L for condition two).

ANALOG PRINT TRIGGER CONDITIONS

Two print trigger conditions can be specified. Each condition is independent of the other.

- If 2H is specified, the trigger occurs when the tag goes to the alarm states 2H or 3H from non-2H or non-3H alarm states.
- If 2H and 3H are specified for conditions one and two, the trigger occurs when the tag goes to the alarm states 2H or 3H from non-2H or non-3H alarm states. The second condition at 3H is redundant.
- If H and L are specified, the trigger occurs when the tag goes from normal into alarm (H, 2H, 3H for condition one; L, 2L, 3L for condition two).

Editing Cells

To edit cells:

1. From the *Log Configuration Header* screen, press F3 to activate the *Edit Cell* screen shown Figure 7-4.

2. Edit the cell fields as desired. Use the following keys when editing cell fields.

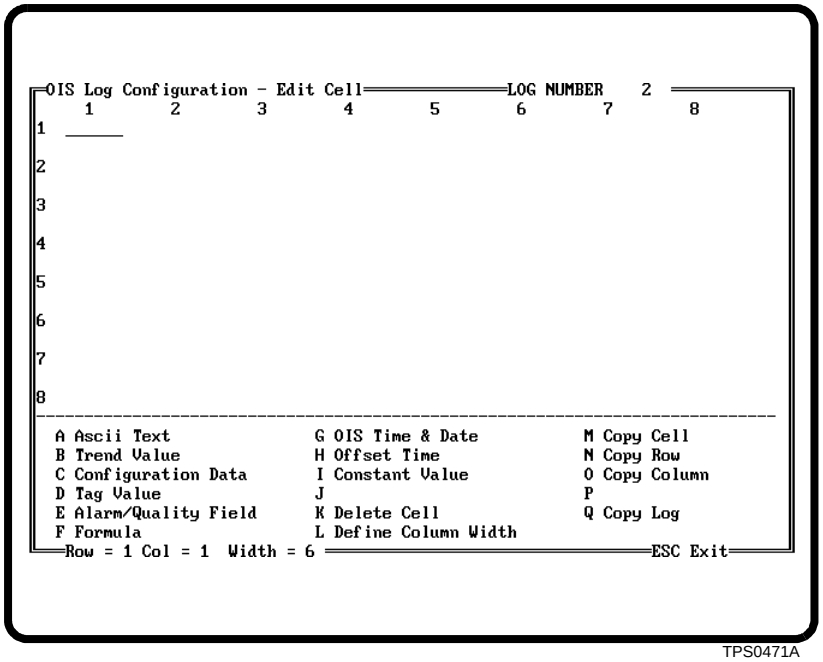


Figure 7-4. Edit Cell Screen

Home	Goes directly to column one, row one.
←, →, ↑, and ↓	Moves the cursor to a specific field for editing and to bring off screen cells into view.
Ctrl-← and Ctrl-→	Moves the cursor within a text field or to scroll through available selections in fields that have a fixed number of selections.
+ and -	Scrolls through available selections in fields that have a fixed number of selections. These keys are on the numeric keypad.
Page Up and Page Down	Goes to the next or previous group of eight rows (the column position remains unchanged).

3. Position the cursor at the desired cell. Choose the appropriate cell type by making a selection from the menu at the bottom of the cell configuration screen. This brings up sub-menus in order to record additional information about the cell type. Refer to the subsections that follow for descriptions of each of the cell types.

For fields that the console permits entry of either the tag name or the index, use only the tag index. Use + and - to scroll through and select from available entries.

4. When done, save the log by returning to the *Log Header Configuration* display or the *Log Configuration/Help* menu.

The *Edit Cell* screen also provides cell editing functions:

Delete Cell Position the cursor on the cell and press K

Define Column Width Press L. This defines the width of each of the columns of the log. (Columns default to a width of six printable characters.) Column widths are used to determine the starting point for each column and for justifying values within a column field. ASCII text, time and date, offset time, and tag configuration data type cells are allowed to cross column boundaries for ease of definition.

Copy Cell Press M. This copies one cell definition to another. Enter the row and column of the source cell (defaulted to the currently selected cell) and the row and column of the destination cell (also defaulted to the currently selected cell). Pressing Enter performs the function, pressing Esc returns to the cell definition menu without performing the function.

Copy Row Press N. This copies one entire row to another row. The default destination and source rows are the same as the currently selected row. The function copies the entire ***source*** row of cell definitions to the ***destination*** row's cell definitions.

Copy Column Press O. This copies one entire column of cell definitions to another. The default source and destination columns are the same as the currently selected column.

Copy Log Press Q. This copies an entire log definition to another log definition file. The source log is the log currently being defined or reviewed; the destination log must be specified.

The following subsections describe each of the cell type definitions called up from the menu in the lower portion of the *Edit Cell* screen.

ASCII TEXT

ASCII text allows entering an ASCII string of up to 80 characters. In addition, special printer controls can be accessed by typing the % character followed by an escape sequence listed in Table 7-2. To get the character % to print, key in %%; the escape sequence is ignored. All non-valid escape codes are printed as ASCII text (maximum ASCII characters is 5,120).

Table 7-2. Printer Escape Sequences

Sequence	Control Description
N	New line (carriage return and line feed).
F	Form feed (top of form and carriage return).

Table 7-2. Printer Escape Sequences (continued)

Sequence	Control Description
C0	Turn compressed print off.
C1	Turn compressed print on (allows maximum of 200 characters per line). C1 puts the printer into compressed mode and leaves it in compressed mode. The printer is not reset to normal mode (132 characters per line) by the printing of another log. To configure this log only to be printed in compressed mode, use a C0 command as the last cell printed.

The color in the custom configured logs can be specified through an ASCII cell definition. For example, the escape sequence %K2 sets the color output to red. This escape sequence does not occupy any character position in the actual output. Other color escapes are listed in Table 7-3.

Table 7-3. Color Escape Sequences

Sequence	Color	Sequence	Color
%K0	black	%K6	magenta
%K2	red	%K7	yellow
%K3	green	%K12	blue-magenta
%K5	cyan		

The number denoting the color is terminated by any non-digit character. If the non-digit character is %, it is not in the output. This % character acts as the terminating character for the color, and allows a numeric character to be output immediately following the color escape sequence.

TREND VALUE

Trend value defines strings of trend cells in a given column or row. It may also be used to define a single trend cell. All trended values must be defined in the console trend configuration. Refer to Table 7-4 for an explanation of the fields.

Table 7-4. Trend Value Cell Fields

Field	Description
Trend index	Index of trend from which this value is to be taken: 1 to 10000. (Maximum active trends is 4,000 for MCS or IIOIS25 consoles and 10,000 for 40 series consoles).
Offset time of first cell	Time relative to starting time of the log for this trend value. Specified by count (0 to 999) and units (seconds, minutes, hours).
Resolution	Time difference between consecutive trend cells being defined. Specified by count (0 to 999) and units (seconds, minutes, hours).

Table 7-4. Trend Value Cell Fields (continued)

Field	Description
Number of consecutive cells	Number of consecutive cells to be defined as trend cells. Must not exceed maximum cells in row or column.
Direction of cells	Specifies how consecutive cells are to be defined. Vertical = down a column. Horizontal = across a row.

Single or multiple trend cells can be defined. When defining multiple cells, the starting cell is the current cell. When using the feature *# of Consecutive Cells* and the *Resolution* (log generator will then copy trend cells with an offset), log data values are listed in ascending time order from either the starting time or earliest value of the log. Therefore, it is not possible for the data in a log to be printed in reverse chronological order using this feature.

CONFIGURATION DATA

Configuration data permits static tag configuration data in the cell. The tag name or index must be specified along with the type of data requested. The following configuration items for the tag can be specified: name, description, engineering units, and alarm group.

TAG VALUE

Tag value specifies a tag name or index for this cell so that the tag value (a snapshot value taken at the log collection time) will be put in the cell. This cell type is intended primarily for periodic logs when getting a snapshot of a tag value at a certain time. For device driver, multi-state device driver, and station type tags, there is a sub tag value type prompt so that the user can choose the intended value of the tag.

ALARM/QUALITY

Alarm and quality specifies a tag name or index in order to get the alarm and quality status for that tag. This status can only be associated with tag values (snapshot values), not trended values. Trended values do not carry along a status. In addition, a status field width of either one or three characters can be specified. A three character field will have two characters for the alarm status and one character for the quality. It is treated in a similar fashion to the five character alarm and quality field in the console display subsystem, minus the two characters for the alarm group. A one character field will have an abbreviated alarm status, overridden by bad quality, similar to a one character alarm and quality field in the console display subsystem.

FORMULA

Formula defines a cell to be a function of other cells. Specifically, a cell can be defined to be the sum of a row or column, the average of a row or column, a minimum of the row or column, or the maximum of the row or column.

Formula cells perform calculations on all cells within the row or column of tag value, trend value or constant cell types. If any one of the cells involved in the calculation is bad quality, it is omitted from the calculation. The resulting formula cell value is marked with the suspect indicator ?. The suspect indicator is the fourth item choice in the alarm quality configuration text set (13). This indicator overwrites the right most character (least significant digit position) of the formula cell field.

> **NOTE:** The formula includes all values in a given row or column, not just those values above the sum. For example, if a sum for a column resides above the formula for the average of the same column, the sum will be included in the average.

OIS TIME AND DATE

OIS time and date generates an OIS time and date for this cell. The time and date can be either the time of the log output, or the time the log started (starting collection time). In addition, all or part of the normal time and date line can be printed. The date can be formatted in two ways. The options for time and date are shown in Table 7-5.

Table 7-5. Time and Date Formats

Time/Date	Format	Example
Time	Time	16:32:00
	Date	19-JUL-94
	Day	Tuesday
	Time/date	16:32:00 19-JUL-94
	Time/day	16:32:00 Tuesday
	Date/day	19-JUL-94 Tuesday
	Time/date/day	16:32:00 19-JUL-94 Tuesday
Date	Day-month-year	19-JUL-1994
	Month-day-year	JUL-19-1994
	Year-month-day	1994-JUL-19

The following describe the log start time for the log types:

Standard (trend) - time that the log starts collecting. Normally, the first trend cell is offset zero from the log start time.

In this case, the log start time is also the time of the first trend cell.

Trip - time of the event.

Periodic (snapshot) - time the snapshot was made.

The following describe the current time for the log types:

Standard - time that collection of the log is complete. This does not include the processing time required to format the log for printing.

Trip - time that collection of the log is complete, i.e., the time of the latest post-trip data that has been collected. This time does not include processing.

Periodic - time that collection of the log is complete. This does not include the processing time required to format the log for printing.

OFFSET TIME

Offset time defines one or more cells to be an offset time from the starting time of the log. The offset is defined in units and a count, such as units = sec, count = 60, which would define the cell to be an offset time 60 seconds after the log starting time. Units can be specified as sec, min, hrs, or day, and a count of up to 9999. The formats that can be used to print the offset time as shown in Table 7-6.

Table 7-6. Offset Time Formats

Format	Example
HH:MM:SS	12:30:00
HH:MM	12:30
DATE HH:MM	20 12:30
MM:SS	30:00

To configure a log that has 24 trend values and has the offset time shown beside each trend, enter count as one (hour) and number of cells (24), and select the direction (vertical or horizontal). After pressing Enter, 24 offset cells with the correct offset value in each cell are created.

CONSTANT VALUE

Constant value permits entering a constant value to be printed in this cell. This constant value can then be used in formulas in formula type cells. If the value is not to be used in a formula

type cell, define the constant as an ASCII text cell type, not as a constant cell type.

Compressing ASCII Space

This function reclaims ASCII space. There is a limit of 2,160 bytes for ASCII data. As ASCII strings are edited, space may be wasted. Using the compress ASCII function reclaims this space. It is recommended that this be done before saving a log, or periodically if doing much ASCII editing. To compress ASCII space, press F9 from the *Log Configuration Header* screen.

SAVING A LOG

NOTE: Before saving a log, be sure to compress ASCII space first. Refer to ***Compressing ASCII Space***.

To save a log from the *Log Configuration* main menu, press F7.

To save a log from the *Log Configuration Header* screen, press F4.

All files are placed into the current console working directory. For the MCS, MCS PLUS, IIOIS20, and IIOIS25 consoles, as logs are created, the file ***LOGNAMES.LG*** is made. If there are existing logs on the console, copy over the ***LOGNAMES.LG*** file. It is updated as new logs are made.

SECTION 8 - KEYBOARD CONFIGURATION

INTRODUCTION

This section describes the console keyboard configuration utilities. These utilities configure the annunciator display panel keys, function keys, alarm tones, and alarm relays.

NOTES:

1. Use these utilities to configure the MCS, MCS PLUS, IIOIS20, and IIOIS25 consoles only. Other consoles require that keyboard configuration be performed on the console itself.

2. These are DOS utilities launched from the console tools executive.

3. Only one copy of each utility can be running at one time.

ANNUNCIATOR DISPLAY PANEL KEYS

The annunciator display panel (ADP) key configuration utility facilitates off-line configuration of the ADP keys. User definable keys can be configured to activate displays, start application processor tasks, or execute user defined macros. This information is stored in the ***ADSTA.CF*** configuration file and is transferred to the console.

Before using this utility, insure the console is configured for the appropriate operator console model and revision. Refer to ***EDITING CONSOLE INFORMATION*** in Section 4. The ***ADSTA.CF*** file is sized to support the maximum number of ADP panels supported by the selected console. Only the ADP panels that actually exist should be configured.

To configure the ADP keys:

1. Select the keyboard group of interest from the project tree.

2. Do one of the following:

- To create and edit a new ADP key configuration, choose *Configure ADP* from the *Keyboard* menu (Alt K A).

- To edit the existing configuration, double click on the ***ADSTA.CF*** file name from the list in the file window.

The screen shown in Figure 8-1 appears. The current keyboard and panel number appear in the upper right of the screen. Refer to Table 8-1 for a description of the ADP key fields.

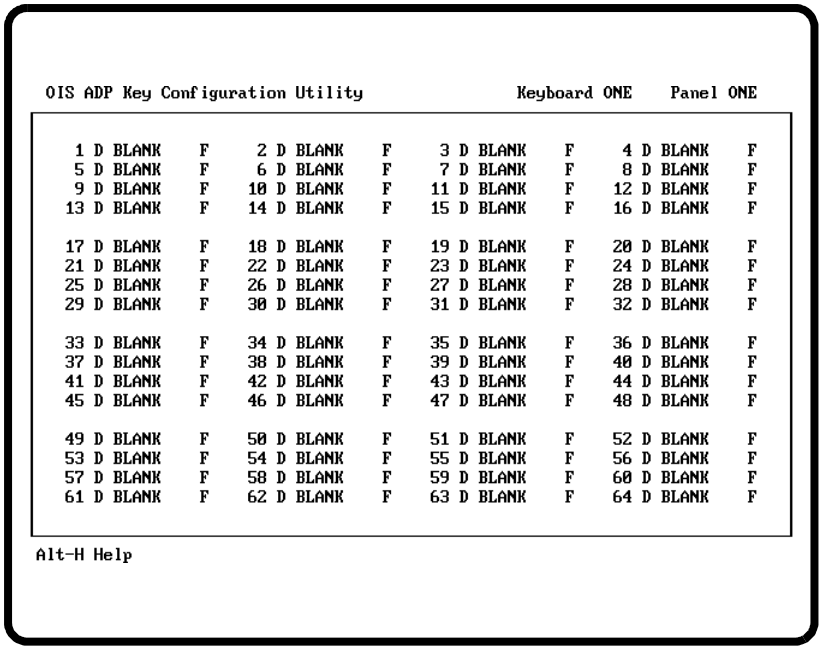


Figure 8-1. OIS ADP Key Configuration Utility

Table 8-1. ADP Key Fields

Field	Valid Entry
ADP key number	1-64 (not user definable).
ADP key type	D = display. A = application task[1]. L = multiwindow display. M = macro.
Description	Display name, AP task index, or macro index[2].
Target CRT	0 = all. 1, 2, 3, or 4 = specific screen. F = follow keyboard assignment.

NOTES:

1. An entry of A in the ADP key type field is only valid for MCS consoles.
2. The ADP key type field affects the contents of the description field as follows:

An A in the ADP key type field requires the AP (applications processor) task index (1-50) in the description field.

A D in the ADP key type field requires a display name in the description field.

An M in the ADP key type field requires a macro index (1-96) in the description field.

3. Use these keys when entering data in the ADP fields:

→ and ←	Moves the cursor within a field.
Ctrl-→ and Ctrl-←	Moves the cursor horizontally between fields.
Enter and Tab	Moves to the next field.
Shift-Tab	Moves to the previous field.

↑ and ↓	Moves the cursor vertically between ADP keys.

4. Use the following keys to save or exit:

Page Up and Page Down	Save the information entered and goes to the next and previous panel.
F10	Saves the current panel information and goes to a specific panel. Specify the keyboard and panel in the input line that appears at the bottom of the screen.
Esc	Goes directly to a specific panel without saving the current panel. Specify the keyboard and panel in the input line that appears at the bottom of the screen.
F10 Esc	Exits to the console tools executive after saving the current panel.
Esc Esc	Exits to the console tools executive without saving the current panel.

If Esc is pressed before saving the current screen, the utility displays the message *Field has changed. Do you still want to escape? (Y/N)*. Respond **Y**(es) or **N**(o) as desired.

FUNCTION KEYS

The function key configuration utility facilitates off-line configuration of the 32 function keys. User definable keys can be configured to activate displays, start application processor tasks, or execute user defined macros. This information is stored in the ***KTAS.CF*** configuration file and is transferred to the console.

Before using this utility, insure the console is configured for the appropriate operator console model and revision. Refer to ***EDITING CONSOLE INFORMATION*** in Section 4. The ***KTAS.CF*** file is sized to support the maximum number of keyboards supported by the selected console. Only the keyboards that actually exist should be configured.

To configure the function keys:

1. Select the keyboard group of interest from the project tree.

2. Do one of the following:

- To create and edit a new function key configuration, choose *Configure OIS Function Keys* from the *Keyboard* menu (Alt K K).

- To edit the existing configuration, double click on the ***KTAS.CF*** file name from the list in the file window.

A screen similar to the one shown in Figure 8-2 appears. The current keyboard number appears in the upper right of the screen.

3. Refer to Table 8-2 for a description of the function key fields and enter information as needed.

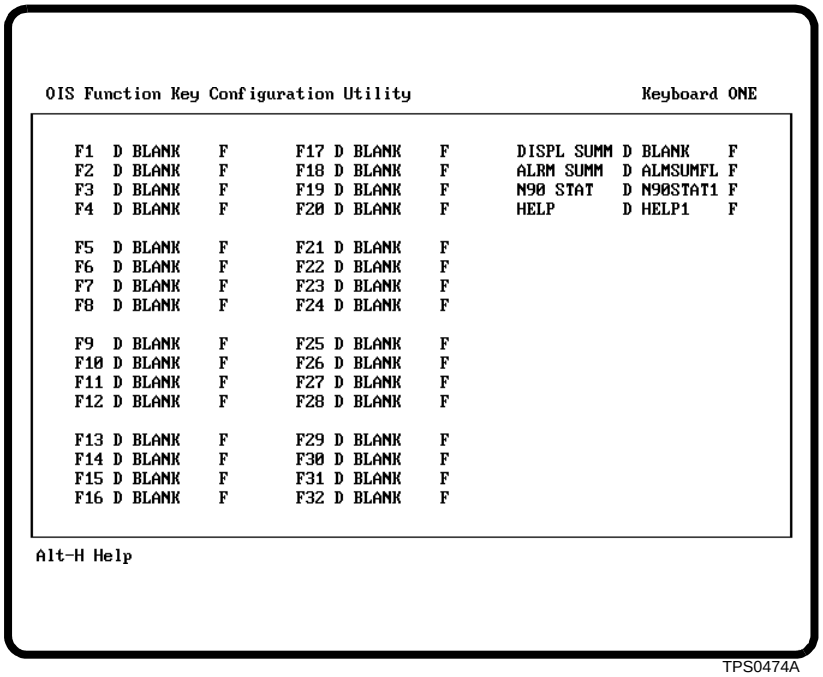


Figure 8-2. OIS Function Key Configuration Utility

Table 8-2. Function Key Fields

Field	Valid Entry
Function key number	1-32 (not user definable).
Function key type	D = display. A = application task[1]. L = multiwindow display. M = macro.
Description	Display name, AP task index, or macro index[2].
Target CRT	0 = all. 1, 2, 3 or 4 = specific screen. F= follow keyboard assignment.

NOTES:

1. An entry of A in the function key type field is only valid for MCS consoles.
2. The key type field affects the contents of the description field as follows:

An A in the function key type field requires the AP (applications processor) task index (1-50) in the description field.

A D in the function key type field requires a display name in the description field.

An M in the function key type field requires a macro index (1-96) in the description field.

4. Use these keys to enter data in the function key fields:

→ and ←	Moves the cursor within a field.
Ctrl-→ and Ctrl-←	Moves the cursor horizontally between fields.
Enter and Tab	Moves to the next field.
Shift-Tab	Moves to the previous field.
↑ and ↓	Moves the cursor vertically between function keys.

5. Use the following keystrokes to save or exit:

Page Up and Page Down	Save the information entered and goes to the next and previous panel.
F10	Saves the current panel information and goes to a specific panel. Specify the keyboard and panel in the input line that appears at the bottom of the screen.
Esc	Goes directly to a specific panel without saving the current panel. Specify the keyboard and panel in the input line that appears at the bottom of the screen.
F10 Esc	Exits to the console tools executive after saving the current panel.
Esc Esc	Exits to the console tools executive without saving the current panel.

If Esc is pressed before saving the current screen, the utility displays the message *Field has changed. Do you still want to escape? (Y/N)*. Respond **Y**(es) or **N**(o) as desired.

ALARM TONES

The tones configuration utility facilitates off-line configuration of the keyboard alarm tones. Tone configuration can assign one of 20 logical tones (five per keyboard) to sound when a tag goes into alarm. Each of the 20 logical tones is formed by altering the pitch of the one physical tone provided by the keyboard. The logical tone is assigned to a unique keyboard number and priority. The priority indicates which tone sounds first in the event two tones are triggered simultaneously. This information is stored in the ***ALMTONES.CF*** configuration file and is transferred to the console.

Before using this utility, insure the console is configured for the appropriate operator console model and revision. Refer to ***EDITING CONSOLE INFORMATION*** in Section 4.

To configure the alarm tones:

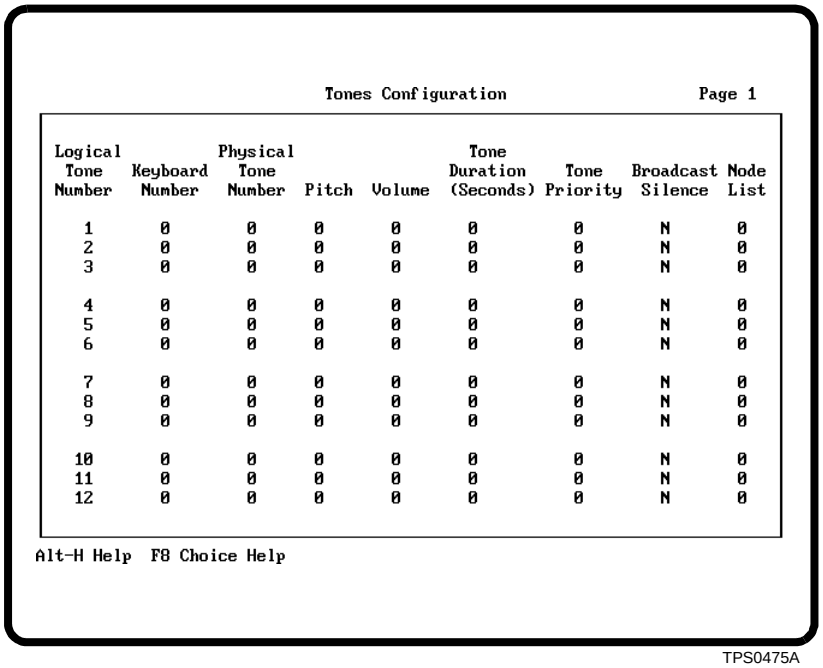
1. Select the keyboard group of interest from the project tree.

2. Do one of the following:

- To create and edit a new alarm tones configuration, choose *Configure Alarm Tones* from the *Keyboard* menu (Alt K T).

- To edit the existing configuration, double click on the ***ALM-TONES.CF*** file name from the list in the file window.

The screen shown in Figure 8-3 appears. The current page number appears in the upper right of the screen. Each tone has nine fields, described in Table 8-3.



TPS0475A

Figure 8-3. Tones Configuration Screen

Table 8-3. Tones Configuration Fields

Field	Valid Entries
Logical tone number	1-20 (not configurable)
Keyboard number	0-4 (also depends on OIS configuration)
Physical tone number	0-4
Pitch	0-15
Volume	0-15
Tone duration	0-65535
Tone priority	0-20
Broadcast silence	Y/N

Table 8-3. Tones Configuration Fields (continued)

Field	Valid Entries
Node list	0-4

3. Use the following keys when configuring tones:

→ and ←	Moves the cursor within a field.
Ctrl-→ and Ctrl-←	Moves the cursor horizontally between fields.
Enter and Tab	Moves to the next field.
Shift-Tab	Moves to the previous field.
↑ and ↓	Moves the cursor to the next and previous logical tone number.
Page Up or Page Down	Saves the information entered and goes to the next or previous page.
F8	Shows valid entries for each field.

4. When done, save the configuration by pressing F10

5. Exit the tones configuration utility by pressing Esc

ALARM RELAYS

The relays configuration utility facilitates off-line configuration of the keyboard alarm relays.

Relay configuration can assign one of 24 logical relays to close when a tag goes into alarm. Each of the 24 logical relays is formed by one of six physical relays per keyboard. A logical relay is assigned to a unique keyboard number. The relay duration is the number of seconds the relay is closed. This information is stored in the ***ALMRELAY.CF*** configuration file and can be loaded onto the console with the configuration.

Before using this utility, insure the console is configured for the appropriate operator console model and revision. Refer to ***EDITING CONSOLE INFORMATION*** in Section 4.

To configure the alarm relays:

1. Select the keyboard group of interest from the project tree.

2. Do one of the following:

- To create and edit a new alarm relays configuration, choose *Configure Alarm Relays* from the *Keyboard* menu (Alt K R).

- To edit the existing configuration, double click on the ***ALM-RELAY.CF*** file name from the list in the file window.

The display shown in Figure 8-4 appears. Each relay has four fields, described in Table 8-4.

3. Use the following keys when configuring relays:

→ and ←	Moves the cursor within a field.
Ctrl-→ and Ctrl-←	Moves the cursor horizontally between fields.
Enter and Tab	Moves to the next field.
Shift-Tab	Moves to the previous field.
↑ and ↓	Moves the cursor to the next and previous logical relay number.
Page Up or Page Down	Saves the information entered and goes to the next or previous page.
F8	Shows valid entries for each field.

4. When done, save the configuration by pressing F10.

5. Exit the relays configuration utility by pressing Esc.

Relays Configuration

Logical Relay Number	Keyboard Number	Physical Relay	Relay Duration (Seconds)	Logical Relay Number	Keyboard Number	Physical Relay	Relay Duration (Seconds)
1	0	0	0	13	0	0	0
2	0	0	0	14	0	0	0
3	0	0	0	15	0	0	0
4	0	0	0	16	0	0	0
5	0	0	0	17	0	0	0
6	0	0	0	18	0	0	0
7	0	0	0	19	0	0	0
8	0	0	0	20	0	0	0
9	0	0	0	21	0	0	0
10	0	0	0	22	0	0	0
11	0	0	0	23	0	0	0
12	0	0	0	24	0	0	0

Alt-H Help F8 Choice Help

TPS0476A

Figure 8-4. Relays Configuration Screen

Table 8-4. Relays Configuration Fields

Field	Valid Entries
Logical relay number	1-24 (not configurable)
Keyboard number	0-4
Physical relay	0-6
Relay duration	0-65535

SECTION 9 - TRANSLATE CONFIGURATIONS

INTRODUCTION

Depending on the console type, displays and symbols, tag lists, and trend lists may need to be translated to console format before they are transferred to the console. This section provides information on translating displays and symbols to console format.

TRANSLATING DISPLAYS AND SYMBOLS

With the exception of PCV 5.0 and later consoles, displays and symbols need to be translated before they are transferred to floppy disk. The display and symbol translation utility translates displays and symbols from EWS format (***DR*** and ***DY***) to console format (***DT***). The display translation utility is a DOS program launched from the console tools executive.

Translating Selected Console Displays and Symbols

During translation, index numbers from the console's tag list are entered into the ***DT*** file. The index numbers are entered into and replace any index numbers currently in the display or symbol. The ***DR*** or ***DY*** file remains unchanged.

To translate console displays and symbols:

1. Select the display or symbol group of interest from the project tree.

2. Select one or more displays to be translated from the list of files in the file window.

3. Choose *Translate* from the *Display* or *Symbol* menu (Alt D T or Alt S T).

The translation utility is launched and translation proceeds. Any warnings or errors are written to an error log file residing in the group directory and can be viewed using the log file viewer application.

After translation, the translated display and symbol files reside in the console's *DT* group.

Translating Selected Global Displays and Symbols

Global displays and symbols need to be assigned a console before they are translated. The console assignment is temporary and is for purposes of translation only. During

translation, index numbers from this console's tag list are entered into the ***DT*** file. The index numbers are entered into and replace any index numbers currently in the tag references in the display or symbol. The ***DR*** or ***DY*** file remains unchanged.

To translate global displays and symbols:

1. Select the display or symbol group of interest from the project tree.

2. Select one or more displays to be translated from the list of files in the file window.

3. Choose *Translate* from the *Display* or *Symbol* menu (Alt D T or Alt S T).

4. A *Translate Globals* dialog box appears. Select a target console to assign the translated displays to and click on *Translate* to continue.

The translation utility is launched and translation proceeds. Any warnings or errors are written to the error log file ***DRTODT.LOG*** residing in the group directory and can be viewed using the log file viewer application.

After translation, the translated display and symbol files reside in the console's *DT* group.

Translating All Console and Global Displays and Symbols

This method can be used to translate all console displays and symbols, all global displays and symbols, or both console and global displays and symbols. During translation, index numbers from the console's tag list are entered into the ***DT*** file. The index numbers are entered into and replace any index numbers currently in the tag references in the display or symbol. The ***DR*** or ***DY*** file remains unchanged.

To translate all displays and symbols:

1. Select the console of interest from the project tree.

2. Choose *Translate Displays/Symbols* from the *Console* menu (Alt C T). A submenu appears.

3. Do one of the following:

- Choose *Local Only* to translate all console displays and symbols.

- Choose *Global Only* to translate all global displays and symbols using the selected console as the target console.

- Choose *Both Global and Local* to translate all global and console displays and symbols using the selected console as the target console.

The translation utility is launched and translation proceeds. Any warnings or errors are written to the error log file ***DRTODT.LOG*** residing in the console directory and can be viewed using the log file viewer application.

After translation, the translated display and symbol files reside in the console's *DT* group.

Translating Standard Symbols

Standard symbols need to be assigned a console before they are translated. The console assignment is temporary and is for purposes of translation only.

To translate standard symbols:

1. Select the standard symbols group from the project tree.

2. Select one or more symbols to be translated from the file list.

3. Choose *Translate* from the *Symbol* menu (Alt S T).

4. A *Translate Globals* dialog box appears. Select a target console to assign the translated displays to and click on *Translate* to continue.

The translation utility is launched and translation proceeds. Any warnings or errors are written to the error log file ***DRTODT.LOG*** residing in the group directory and can be viewed using the log file viewer application.

After translation, the translated symbol files reside in the console's *DT* group.

SECTION 10 - TRANSFER CONFIGURATIONS

INTRODUCTION

The transfer configuration utilities facilitate the transfer of configurations to and from consoles. Configurations can be transferred from the engineering work station to floppy disk in order to be loaded onto an operator console. Configurations can also be retrieved from an operator console and loaded back onto the engineering work station. Displays can be transferred to consoles using the display broadcast utility. It is also possible to broadcast tag lists using the global database manager application (not provided with the console tools).

This section describes how to transfer configurations between an engineering work station and a console. It includes:

- General information that applies to all transfers.
- Transferring tag lists to a console.
- Transferring trend lists to a console.
- Transferring report point lists to an OAS machine.
- Transferring display and symbol files to a console.
- Transferring log configurations to a console.
- Transferring keyboard configurations to a console.
- Retrieving configurations from a console.
- MCS file utilities.
- Broadcasting tag lists.
- Broadcasting display configurations.

Most transfer utilities run from a DOS window launched from the console tools executive.

> **NOTE:** Transfer of data to and from IIOIS25, IIOIS20, MCS, and MCS PLUS consoles is not supported on the Windows NT operating system.

GENERAL INFORMATION

The transfer utilities give a label name to each floppy disk to which a configuration is transferred. Label a set of floppy disks according to the names given them by referring to Table 10-1. If more than one floppy disk is needed, then the floppy disks are labeled consecutively (xx01, xx02, etc.). The tag configuration always requires two or more floppy disks.

If the floppy disk is not properly formatted for the target console type, the utility prompts to format it. The report point, keyboard, and trend configurations can be put onto the same floppy disk or sequence of floppy disks. If the floppy disk is not empty, the utility prompts to proceed anyway, initialize (erase), retry with another floppy disk, or abort.

Table 10-1. Transfer Configuration Floppy Disk Labels

Configuration	Label
Report point	CF01
Keyboard	CF01
Trend	CF01
Tag	TG01, TG02
Display/symbol	DT01
Log	LG01

The utility displays the file transfer status (file name and number) as it proceeds. If requested, insert the next floppy disk in the sequence. When done, the following message appears:

Transfer successfully completed

If any problems occur, an error message appears instead.

Refer to the appropriate ***File Utilities*** instruction listed in Table 1-2 for information on loading the configuration onto the console.

40 SERIES, OAS, IIOIS12, AND PCV 5.0 AND 5.1 TAG LISTS

The following files are transferred when a tag list is transferred:

- ***EUDSCP.CF*** - engineering unit descriptors.
- ***LSDSCP.CF*** - logic state descriptors.
- ***ALRMCMNT.TAC*** - alarm comments for tag list in ASCII format.
- ***listname*** - console tag list as defined in the console information file.

The ***EUDSCP.CF***, ***LSDSCP.CF***, and ***ALRMCMNT.TAC*** files are transferred to floppy disk TG01. The tag list (***listname***) is transferred to floppy disk TG02 and subsequent floppy disks as needed. The utility compresses and renames the tag list to ***TAGLISTxy.CP***, where ***xy*** stands for file ***x*** of ***y***. For example, if the tag list takes two floppy disks, the file on TG02 is named ***TAGLIST12.CP*** and the file on TG03 is named ***TAGLIST22.CP***.

To transfer a console tag list:

1. Select the console of interest from the project tree. This console must have a tag list assigned to it. The tag list assigned to the console and the common ***EUDSCP.CF***, ***LSDSCP.CF***, and ***ALRMCMNT.TAC*** files will be transferred automatically - no file selection is required.

2. Choose *Tag List* from the *Transfer Tag Info TO Console* submenu on the *Console* menu (Alt C R T). A DOS window appears in which the transfer utility runs.

3. Follow the instruction given to insert the previously labeled floppy disks into the appropriate drive.

MCS, MCS PLUS, IIOIS20, AND IIOIS25 TAG LISTS

The following files are transferred when a tag list is transferred:

- ***EUDSCP.CF*** - engineering unit descriptors.
- ***LSDSCP.CF*** - logic state descriptors.
- ***ALRMCMNT.TAC*** - alarm comments for tag list in ASCII format.
- ***listname*** - console tag list as defined in the console information file.

The ***EUDSCP.CF***, ***LSDSCP.CF***, and ***ALRMCMNT.TAC*** files are transferred to floppy disk TG01. The tag list (***listname***) is transferred to floppy disk TG02 and subsequent floppy disks as needed. The utility compresses and renames the tag list to ***TAGLISTxy.CP***, where ***xy*** stands for file ***x*** of ***y***. For example, if the tag list takes two floppy disks, the file on TG02 is named ***TAGLIST12.CP*** and the file on TG03 is named ***TAGLIST22.CP***.

To transfer a console tag list:

1. Select the console of interest from the project tree. This console must have a tag list assigned to it. The tag list assigned to the console and the common ***EUDSCP.CF***, ***LSDSCP.CF***, and ***ALRMCMNT.TAC*** files will be transferred automatically - no file selection is required.

2. Choose *Tag List* from the *Transfer Tag Info TO Console* submenu on the *Console* menu (Alt C R T). This translates the tag list to ***TTG*** format and creates a ***listname.TTG*** file in the console *DT* group directory. The engineering unit descriptor, logic state descriptor, and alarm comment lists are created and written to the console *DT* group directory as well.

3. Open the console *DT* group and select ***listname.TTG***.

4. Choose *Transfer TO Console* from the *DT* menu (Alt D N). A DOS window appears in which the transfer utility runs.

5. Follow the instructions to insert the previously labeled floppy disks into the appropriate drive.

PCV 4.3 TAG LISTS

The following files are transferred when a tag list is transferred:

- ***EUDSCP.CF*** - engineering unit descriptors.
- ***LSDSCP.CF*** - logic state descriptors.
- ***ALMDESC.CF*** - PCV console tag list file.
- ***TAGCNFG.CF*** - PCV console tag list file.
- ***TAGNAME.CF*** - PCV console tag list file.
- ***CUSTTGID.CF*** - PCV console tag list file.
- ***TAGDESC.CF*** - PCV console tag list file.

To transfer a PCV 4.3 tag list:

1. Record the name of the tag list assigned to the PCV 4.3 console.

2. Activate the tag utilities application (choose *Tag Utilities* from the console tools executive *Project* menu).

3. Choose *Tag List* from the tag utilities *Export* menu. A *Tag List Export* dialog box appears.

4. Provide the information described in Table 10-2.

Table 10-2. PCV 4.3 Tag List Export Information

Field	Information
Destination	Path and name for the exported file. Use a ***TTG*** extension and record this information.
Tag list to export	List recorded in Step 1.
Tag list revision	L.3/M.1.
Export options	Check these as needed. The alarm comment list is not used and not created.

5. Click on *OK* to proceed.

6. When the export is complete, exit Windows.

7. Change to the directory recorded in Step 4.

8. Run the tag builder from the DOS prompt by referring to ***PCV 4.3 TAG BUILDER*** in Section 12.

9. Run the transfer utility from the DOS prompt by referring to ***TRANSFER*** in Section 12.

40 SERIES, OAS, IIOIS12, AND PCV 5.0 AND 5.1 TREND LISTS

This procedure transfers the trend list file (the ***listname*** as defined in the console information file).

To transfer a trend list:

1. Select the console of interest from the project tree. This console must have a trend list assigned to it. The trend list assigned to the console will be transferred automatically - no file selection is required.

2. Choose *Trend List* from the *Transfer Tag Info TO Console* submenu on the *Console* menu (Alt C R R). A DOS window appears in which the transfer utility runs.

3. Follow the instruction given to insert the previously labeled floppy disks into the appropriate drive.

MCS, MCS PLUS, IIOIS20, AND IIOIS25 TREND LISTS

This procedure transfers the ***TRENDDEF.CF*** file. For these consoles, the trend list must be translated to console format before transfer can be performed.

To transfer a trend list:

1. Select the console of interest from the project tree. This console must have a trend list assigned to it. The trend list assigned to the console will be translated automatically - no file selection is required.

2. Choose *Trend List* from the *Transfer Tag Info TO Console* submenu on the *Console* menu (Alt C R R). A DOS window appears in which the translate utility runs. A Windows message box also appears.

3. Click on *OK* in the Windows message box to continue. When the translation is complete, the ***TRENDDEF.CF*** file is written to the console's *DT* group directory.

4. Open the *DT* group under the console of interest. A ***TRENDDEF.CF*** file appears in the file window.

5. Select the ***TRENDDEF.CF*** file and then choose *Transfer TO Console* from the *DT* menu (Alt D N).

6. A DOS window appears in which the transfer utility runs. Follow the instruction given to insert the previously labeled floppy disk into the appropriate drive.

PCV 4.3 TREND LISTS

To transfer a PCV 4.3 trend list:

1. Record the name of the trend list and the tag list assigned to the PCV 4.3 console.

2. Activate the tag utilities application (choose *Tag Utilities* from the console tools executive *Project* menu).

3. Choose *Trend List* from the tag utilities *Export* menu. A *Trend List Export* dialog box appears.

4. Provide the information described in Table 10-3.

Table 10-3. PCV 4.3 Trend List Export Information

Field	Information
Destination	Path and name for the exported file. Use a ***TTR*** extension and record this information.
Trend list to export	Trend list recorded in Step 1.
Associated tag list	Tag list recorded in Step 1.
Trend list revision	PCV.

5. Click on *OK* to proceed.

6. Go to the DOS prompt.

7. Change to the directory recorded in Step 4.

8. Transfer the trend list using DOS commands.

REPORT POINT LISTS

This procedure is for transferring report point lists for OAS E.1 and later machines. The report point file defined in the console information file is transferred.

To transfer report point lists:

1. Select the console of interest from the project tree. This console must have a report point list assigned to it. The report point list assigned to the console will be transferred automatically - no file selection is required.

2. Choose *Report Point List* from the *Transfer Tag Info TO Console* sub-menu on the *Console* menu (Alt C R R). A DOS window appears in which the transfer utility runs.

3. Follow the instruction given to insert the previously labeled floppy disk into the appropriate drive.

DISPLAYS AND SYMBOLS

Depending on the console type, a console uses either translated display and symbol files (***DT***) or the original display (***DR***) and symbol (***DY***) files. This section provides procedures for both types of consoles.

DT Files

To transfer translated display and symbol files (***DT***):

1. Open the console of interest from the project tree and select its *DT* group. A list of translated files appears in the file window.

2. Select one or more files to be transferred.

3. Choose *Transfer TO Console* from the *DT* menu (Alt D N).

4. A DOS window appears in which the transfer utility runs. Follow the instruction given to insert the previously labeled floppy disk into the appropriate drive.

DR and *DY* Files

To transfer display (***DR***) and symbol (***DY***) files:

1. Open the console of interest from the project tree and select its *Display* or *Symbol* group. A list of display or symbol files appear in the file window.

2. Select one or more files to be transferred.

3. Choose *Transfer TO Console* from the *Display* or *Symbol* menu (Alt D N).

4. A DOS window appears in which the transfer utility runs. Follow the instruction given to insert the previously labeled floppy disk into the appropriate drive.

LOGS

This procedure is for transferring log configurations. The following files are transferred:

- ***LOGnnnn.LF***.
- ***LOGNAMES.LG*** - MCS, MCS PLUS, IIOIS20, and IIOIS25 consoles only.

To transfer log configurations:

1. Open the console of interest from the project tree and select its *Log* group. A list of log configuration files appears in the file window.

2. Select one or more files to be transferred.

3. Choose *Transfer TO Console* from the *Log* menu (Alt O N).

4. A DOS window appears in which the transfer utility runs. Follow the instruction given to insert the previously labeled floppy disk into the appropriate drive.

When complete, a message appears in the DOS window stating the number of files transferred and the transfer status. The number of files transferred may not appear correct because the ***LOGNAMES.LG*** file is not transferred for all consoles.

KEYBOARD CONFIGURATIONS

This procedure is for transferring console keyboard configuration files. The following files are transferred:

- ***KTAS.CF*** - keyboard configuration.
- ***ADSTA.CF*** - annunciator display panel keys.
- ***ALMTONE.CF*** - alarm tones.
- ***ALMRELAY.CF*** - alarm relays.

To transfer keyboard configurations:

1. Open the console of interest from the project tree and select its *Keyboard* group. A list of keyboard configuration files appears in the file window.

2. Select one or more files to be transferred.

3. Choose *Transfer TO Console* from the *Keyboard* menu (Alt K N).

4. A DOS window appears in which the transfer utility runs. Follow the instruction given to insert the previously labeled floppy disk into the appropriate drive.

RETRIEVING TAG, TREND, AND REPORT POINT CONFIGURATIONS

This procedure is for retrieving configurations from a console. Configurations in the following file formats can be retrieved:

- ***TTG*** - tag lists.

- ***TTR*** - trend lists.

- ***TRP*** - report point lists. OAS machines do not have the capability to export a report point list in this format. This function is provided to retrieve a report point list from the same floppy disk to which the console tools transferred it.

When retrieving tag, trend, and report point lists, the console revision level must be known in order to import them into the project tag data tables.

To retrieve configurations:

1. Refer to the appropriate ***File Utilities*** instruction listed in Table 1-2 for information on transferring the configuration onto floppy disk.

2. From the tag utilities *Import* menu, choose *Load List from Floppy* (Alt I L). A dialog box appears with transfer options.

3. Select the type and revision of the source console and the type of list to load. Click on *OK* to continue.

A prompt appears to insert the floppy disk labeled for the corresponding configuration.

4. Insert the appropriate floppy disk and press P to proceed.

5. The utility examines the floppy disk and displays a list of files found on the floppy disk in a standard GES selection screen. The appropriate files are automatically selected (highlighted). If necessary, select any files.

6. Press F10 to continue.

7. The utility prompts for the target directory. Enter the directory in which to place the transferred files and press F10

As the utility transfers the configuration, it displays the file transfer status. Upon successful completion of the transfer, the following message appears:

Transfer successfully completed

Otherwise, an error message appears.

After tag, trend, and report point lists are retrieved, the following must be done:

1. Convert the list from ASCII format to ***DBF*** format. Refer to ***TAG UTILITIES*** in Section 11 for information on converting list formats.

2. Import the list into the project. Refer to ***TAG UTILITIES*** in Section 11 for information on importing lists into the project.

RETRIEVING KEYBOARD CONFIGURATIONS

To retrieve a keyboard configuration:

1. Select the *Keyboards* group under console of interest from the console tools executive project tree.

2. Choose *Load FROM Console* from the *Keyboard* menu (Alt K F).

3. A DOS window appears in which the transfer utility runs. Follow the instruction given to insert the source floppy disk into the appropriate drive and proceed with the transfer.

MCS FLOPPY DISK UTILITIES

This utility provides floppy disk functions for the following consoles: IIOIS20, IIOIS25, MCS, and MCS PLUS.

To run the MCS floppy disk utilities:

1. Select an IIOIS20, IIOIS25, MCS, or MCS PLUS console from the project tree.

2. Choose *MCS Floppy Utilities* from the *Console* menu (Alt C M). A DOS window appears with a standard GES menu. The following functions are available:

MCS disk directory - lists the contents of the MCS disk.

MCS disk format - formats a disk for MCS console use.

MCS disk initialize - deletes files on an MCS disk and assigns volume labels.

MCS disk copy - copies the volume of an MCS disk to another MCS disk.

Delete file from MCS disk - deletes files from an MCS disk.

Command line mode - allows manual use of MTOS disk utilities.

BROADCASTING TAG LISTS

The global database manager can be used to broadcast tag lists to consoles. To do so, the tag lists first need to be transferred to the engineering work station running the global database manager software. Refer to the global database manager instruction listed in Table 1-2 for more information.

BROADCASTING DISPLAYS AND SYMBOLS

This procedure describes how to broadcast displays and symbols over the INFI-NET network to operator consoles. The following are requirements for display and symbol broadcasting:

- The operator console must be minimum one of the following:

  MCS
  MCS PLUS
  IIOIS20
  IIOIS25
  40 series

- The engineering work station must be connected to INFI-NET using an INFI-NET to computer interface (ICI) module. Plant Loop does not support the broadcast feature. Refer to ***CONFIGURING WINTOOLS COMMUNICATIONS*** in Section 11 for information on configuring the port.

- Displays and symbol files (***DR*** and ***DY***) must be translated to ***DT*** format prior to broadcasting. Refer to ***TRANSLATING DISPLAYS AND SYMBOLS*** in Section 9 for information.

To broadcast displays and symbols:

1. Open the console of interest and select its *DT* group. A list of translated displays appears in the file window.

2. Select one or more ***DT*** files from the list.

3. Choose *Broadcast Displays* from the *DT* menu (Alt D B). A dialog box appears with prompts to identify the destination console.

4. Enter the console loop and node address in the appropriate fields and click on *OK* to proceed.

> **NOTE:** If the engineering work station is ***not*** connected to the loop, a message appears indicating a communication problem.

A status window appears at the bottom of the broadcast display screen with the following broadcast status information: the display or symbol name, the transmission packet being sent, and the total number of packets in the display.

If broadcasting multiple displays and there is a broadcasting or processing problem with a particular display, the utility goes to the next display or stops and prompts to continue. For example, if the problem is a user error in the display and it is not properly processed using the display and symbol translation utility, the broadcast utility goes on to the next display. If, however, there is a communication problem, the broadcast utility stops and asks if the broadcast should continue. If the response is **Y** to the prompt, the utility tries to send the next display.

When the transmission is complete, the engineering work station receives acknowledgment that the displays or symbols have been successfully received by the console.

Check the message log file (***BCASTDSP.LOG***) for messages. The EWS message log file resides in the current directory. It is an ASCII file and can be viewed with the log file viewer. All broadcast messages are appended to this log. The broadcast display utility never erases this file. If the log becomes too large, the

user can delete the file. If problems occur while writing to the log, the broadcast function continues.

NOTE: If abnormal termination of the broadcast function occurs (i.e., booting the engineering work station during broadcasting), the ***BCASTDSP.LOG*** file will not be properly closed. The next time the broadcast function is initiated, it will not be able to write to the file. In this case, copy ***BCASTDSP.LOG*** into another file, and delete the unclosed ***BCASTDSP.LOG*** file. This allows a new ***BCASTDSP.LOG*** file to be created.

SECTION 11 - SUPPLEMENTAL CONFIGURATION UTILITIES

INTRODUCTION

This section describes the following supplemental configuration utilities:

- Tag synchronization.
- Tag utilities.
- Printing GDC displays.
- Viewing log files.
- Configuring the GES user interface (for DOS utilities).
- Communications port setup for display broadcasting.

TAG SYNCHRONIZATION

Tag synchronization scans display files and updates tag references in the display file from the tag data tables. Tag synchronization can be performed on all or selected displays in a console or global data group.

Tag synchronization performs the following:

- If the file is in SLDG 5.x format, it updates the file to use tag linking. WLDG01 display files have an internal tag table that contains tag information including tag name, tag index, and tag type for each tag referenced in an escape.
- For each escape that has a tag name it fills in the tag index from the console list and verifies the tag type.
- For each escape that does not have a tag name but does have an index and the index exists in the console tag list, it fills in the tag name and verifies the type.
- If tag synchronization is performed on global displays using the global tag table, the tag index is ignored.
- Optionally, for each tag reference found in the display but not in the console list, it adds the tag to the console list provided the tag exists in the global tag table.
- Any inconsistencies or errors are written to the log file ***DRSYNC.LOG*** in the display directory. This file also lists all entities in the display that use tags for which synchronization was performed.

Console

To synchronize tags in a console display:

1. If selected displays are to be synchronized, open the display group and select the files.

2. Choose *Synchronize Tags* from the *Console* or *Display* menu. The *Synchronize Tags* dialog box appears.

3. The following options can be selected:

Add New Tags to Tag List - adds tags referenced in the display or symbol but not in the console tag list to the console tag list provided the tag exists in the global tag table.

Update DR Files - updates the display file. The default (this option not selected) is a test mode that does not update the display file, but does write errors and results to the log file.

> **NOTE:** It is highly recommended that test mode be used and all errors fixed before actually updating the files.

4. Click on *OK* to proceed with the synchronization.

Global

To synchronize tags in a global display group:

1. If selected displays are to be synchronized, open the display group and select the files.

2. Choose *Synchronize Tags* from the *Global* or *Display* menu. The *Synchronize Tags* dialog box appears.

3. Do one of the following:

- To perform synchronization using the global tag table, select *Sync on Global Tag List*. This method ignores tag index references.

- To perform synchronization using a console list, select *Sync on Console Tag List* and pick a console from the list provided.

4. The following options can be selected:

Add New Tags to Tag List - adds tags referenced in the display but not in the console tag list to the console tag list provided the tag exists in the global tag table. This is valid only if a console tag list has been selected for synchronization.

Update DR Files - updates the display. The default (this option not selected) is a test mode that does not update the display, but does write errors and results to the log file.

> **NOTE:** It is highly recommended that test mode be used and all errors fixed before actually updating the files.

5. Click on *OK* to proceed with the synchronization.

TAG UTILITIES

A number of tag utilities are grouped together under a separate application that can be launched from the console tools executive. The tag utilities application contains a menu bar from which these tag utilities can be launched.

To launch the tag utility application, choose *Tag Utilities* from the console tools executive *Project* menu (Alt P U). Refer to ***Tag Utilities Menus*** for a brief description of each menu.

Tag Utilities Menus

File Menu — Contains one item to exit the tag utility application.

Browse Menu — The *Browser* menu contains items to launch the browser applications. Refer to ***USING THE BROWSERS*** in Section 5 for information on using the browsers.

Converters Menu — Converts tag, trend, and report point lists from console format to ***DBF*** format in order to import them into a project. Also contains an item to convert MCS trend lists (***TRENDDEF.CF***) to ***TTR*** format.

Import Menu — Contains items to import tag, trend, and report point lists.

Export Menu — Contains items to export tag, trend, and report point lists.

Utilities Menu — Contains items to copy, pack, and re-index lists and to launch the error log file viewer and the user field structure editor.

Help Menu — Contains items to access help information.

Converting File Formats

Tag, trend, and report point lists can be retrieved from the console (refer to ***RETRIEVING TAG, TREND, AND REPORT POINT CONFIGURATIONS*** in Section 10). After this is done, they must be converted to ***DBF*** format in order to be imported into a project. Before an MCS trend list is converted to ***DBF*** format, it must be converted from ***CF*** to ***TTR*** format.

MCS UNTREND

This procedure describes how to convert an MCS, MCS PLUS, IIOIS20, or IIOIS25 trend list from ***CF*** to ***TTR*** (ASCII) format.

> **NOTE:** The associated tag list must be imported before the trend list can be converted.

To untrend an MCS trend list:

1. Choose *MCS Untrend (CF to TTR)* from the *Converters* menu (Alt C U). A Windows dialog box appears.

2. Enter the source file (***CF***) name in the *Source File* text box or use the *Browse* button to locate it.

3. Enter a destination file name in the *Output File* text box.

4. Enter the tag list with which this trend file is associated in the *Associated Tag List* box. This is the console tag list that is associated with the console from which the trend list was retrieved.

5. Click on *OK* to start the conversion.

TTG/TTR/TRP TO DBF

This procedure describes how to convert a tag, trend, or report point list from ASCII format (***TTG***, ***TTR***, or ***TRP***) to ***DBF*** format.

To convert a tag, trend, or report point list:

1. Choose *TTG/TTR/TRP to DBF Converter* from the *Converters* menu (Alt C T). A Windows dialog box appears.

2. Select the file type to be converted.

3. Enter the source file name in the *Source* text box or use the *Pick Source File* button to locate it.

4. Select the revision level of the source file.

NOTES:

1. It is very important to correctly select the revision level of the source file. Otherwise, unpredictable table errors can occur.

2. If the type selected is *TTG* and the revision is *R1* or later, *Include Alarm Comments* is enabled. If this option is checked, the alarm comment file ***ALRMCMNT.TAC*** (which must exist in the same directory as the ***TTG*** file) will be converted to ***ALRMCMNT.I90*** when the ***TTG*** file is converted to ***DBF*** format.

5. Click on *OK* to proceed.

Importing Lists

Tag, trend, and report point lists can be imported into the tag data tables provided they are in ***DBF*** format. If a list is in ASCII format (***TTG***, ***TTR***, or ***TRP***), refer to ***Converting File Formats*** to convert the file to ***DBF*** format first. The procedures in this

section describe how to import these lists. Each import function has a test mode which does not update the tag data tables but does write the results to a log file. The test mode should always be run first and any problems fixed in the ***DBF*** file before running the import utility in the update mode.

IMPORTING A TAG LIST

This procedure describes how to import a tag list. A tag list should always be imported before the trend list associated with it is imported.

> **NOTE:** Import time is affected by the EWS hardware and software configuration, by the size of the tag list, and whether it is a first time import for the tag list. An initial import of a 1,000 tag tag list can take several minutes. An initial import of a 30,000 tag tag list can take up to several hours. Subsequent imports of the same tag list will take a fraction of this time.

To import a tag list:

1. If necessary, establish the user field structure. Refer to ***Editing the User Field Structure***.

2. Insure that the ***DBF*** file and its associated alarm comment (***ALRMCMT.I90***), engineering unit descriptor (***EUSCP.CF***), and logic state descriptor (***LSDSCP.CF***) files are all in the same directory.

3. Choose *Tag List Import* from the *Import* menu (Alt I T). The *Tag List Import* dialog box appears.1

4. Refer to Table 11-1 for a description of the dialog box elements. Enter information as needed.

Table 11-1. Tag List Import Dialog Box

Element	Description
Source DBF file	Name of the ***DBF*** file to be imported. *Browse* can be used to locate it if necessary.
Destination tag list	If importing into a new list, enter a new tag list name. If merging into an existing list, pick an existing tag list name. If merging into the global tag data table only, enter a dummy name.
Global tag list: append new tags	If checked, adds any tags found in the imported ***DBF*** tag list that do not exist in the global tag table already to the global tag table. It does not update or modify existing tags.
Global tag list: modify existing tags	If checked, updates existing tags in the global tag table from the imported ***DBF*** tag list. It does not add any new tags to the global tag table.

Table 11-1. Tag List Import Dialog Box (continued)

Element	Description
Console tag list: append new tags	If checked, adds any tags found in the imported ***DBF*** tag list that do exist in the global tag table but do not exist in the console tag list already to the console tag list. It does not update or modify existing tags. If importing tags to the global tag table only, do not check this option.
Console tag list: modify existing tags	If checked, updates existing tags in the console tag list from the imported ***DBF*** tag list. It does not add any new tags to the console tag list. If importing tags to the global tag table only, do not check this option.
Add new logic state descriptors	Logic state descriptors may exist in the ***DBF*** file, but not in the ***LSDSCP.CF*** file. If this option is checked, these logic state descriptors will be added to the common logic state descriptor list in the tag data tables; otherwise, a warning is written to the log file.
Test mode	If checked, does not update the tag data tables, but does write any problems found to the log file ***TGLSTIMP.LOG***. Importing should always be run in test mode until all problems are resolved.

5. For a first pass, check the *Test Mode* option.

6. Click on *OK* to run the import in test mode. When running, a a DOS window appears with a status box. Messages indicate the current state of the import process, the file being processed, and the current tag being imported.

7. When the import process is complete, press any key to continue.

8. Review the log file ***TGLSTIMP.LOG*** in the TDT directory for any problems.

9. If necessary, fix any problems in the ***DBF*** file.

10. Continue running import in test mode until no problems are found.

11. Deselect the *Test Mode* option and run import in update mode to import the tag list into the tag data tables.

IMPORTING A TREND LIST

This procedure describes how to import a trend list. A trend list should always be imported after the tag list associated with it.

> **NOTE:** Import time is affected by the EWS hardware and software configuration, by the size of the trend list, and whether it is a first time import for the trend list.

To import a trend list:

1. If necessary, establish the user field structure. Refer to ***Editing the User Field Structure***.

2. Choose *Trend List Import* from the *Import* menu (Alt I R). The *Trend List Import* dialog box appears.

3. Refer to Table 11-2 for a description of the dialog box elements. Enter information as needed.

Table 11-2. Trend List Import Dialog Box

Element	Description
Source DBF file	Name of the ***DBF*** file to be imported. *Browse* can be used to locate it if necessary.
Destination trend list	If importing into a new list, enter a new trend list name. If merging into an existing list, pick an existing trend list name.
Associated tag list	Existing tag list to which this trend list is associated.
Modify existing tags	If checked, updates existing trends in the console tag list from the imported ***DBF*** tag list. It does not add any new tags to the console tag list.
Append new tags	If checked, adds any trends found in the imported ***DBF*** trend list that do not exist in the trend list already to the trend list. It does not update or modify existing tags.
Test mode	If checked, does not update the tag data tables, but does write any problems found to the log file ***TRLSTIMP.LOG***. Importing should always be run in test mode until all problems are resolved.

4. For a first pass, check the *Test Mode* option.

5. Click on *OK* to run the import in test mode. When running, a a DOS window appears with a status box. Messages indicate the current state of the import process, the file being processed, and the current trend being imported.

6. When the import process is complete, press any key to continue.

7. Review the log file ***TRLSTIMP.LOG*** in the TDT directory for any problems.

8. If necessary, fix any problems in the ***DBF*** file.

9. Continue running import in test mode until no problems are found.

10. Deselect the *Test Mode* option and run import in update mode to import the trend list into the tag data tables.

IMPORTING A REPORT POINT LIST

This procedure describes how to import a report point list. A report point list should always be imported after the tag list associated with it.

> **NOTE:** Import time is affected by the EWS hardware and software configuration, by the size of the list, and whether it is a first time import for the list.

To import a report point list:

1. Choose *Report Point List Import* from the *Import* menu (Alt I P). The *Tag List Import* dialog box appears.

2. Refer to Table 11-3 for a description of the dialog box elements. Enter information as needed.

Table 11-3. Report Point List Import Dialog Box

Element	Description
Source DBF file	Name of the ***DBF*** file to be imported. *Browse* can be used to locate it if necessary.
Destination report point list	If importing into a new list, enter a new list name. If merging into an existing list, pick an existing list name. If merging into the global tag data table only, enter a dummy name.
Loop address	Loop address of the OAS machine for which this list is configured.
Console PCU address	Console address of the OAS machine for which this list is configured.
Global tag list: append new tags	If checked, adds any report points found in the imported ***DBF*** list that do not exist in the global tag table already to the global tag table. It does not update or modify existing report points.
Global tag list: modify existing tags	If checked, updates existing report points in the global tag table from the imported ***DBF*** list. It does not add any new report points to the global tag table.
Report point list: append new tags	If checked, adds any report points found in the imported ***DBF*** list that do exist in the global tag table but do not exist in the console report point list already to the console report point list. It does not update or modify existing report points. If importing report points to the global tag table only, do not check this option.
Report point list: modify existing tags	If checked, updates existing report points in the console report point list from the imported ***DBF*** list. It does not add any new report points to the console report point list.
Test mode	If checked, does not update the tag data tables, but does write any problems found to the log file ***RPLSTIMP.LOG***. Importing should always be run in test mode until all problems are resolved.

3. For a first pass, check the *Test Mode* option.

4. Click on *OK* to run the import in test mode. When running, a a DOS window appears with a status box. Messages indicate the current state of the import process, the file being processed, and the current report point being imported.

5. When the import process is complete, press any key to continue.

6. Review the log file ***RPLSTIMP.LOG*** in the TDT directory for any problems.

7. If necessary, fix any problems in the ***DBF*** file.

8. Continue running import in test mode until no problems are found.

9. Deselect the *Test Mode* option and run import in update mode to import the tag list into the tag data tables.

Exporting Lists

Tag, trend, and report point lists can be exported from the tag data tables to ***DBF*** and ASCII format (***TTG***, ***TTR***, or ***TRP***). The procedures in this section describe how to export these lists.

EXPORTING A TAG LIST

This procedure describes how to export a tag list. Its associated alarm comment (***ALRMCMT.I90*** or ***ALRMCMT.TAC***), engineering unit descriptor (***EUSCP.CF***), and logic state descriptor (***LSDSCP.CF***) files can be exported at the same time as well.

> **NOTE:** Export time is affected by the EWS hardware and software configuration and by the size of the tag list. It takes approximately 1.6 minutes for every 1,000 tags exported.

To export a tag list:

1. Choose *Tag List Export* from the *Export* menu (Alt E T). The *Tag List Export* dialog box appears.

2. Refer to Table 11-4 for a description of the dialog box elements. Enter information as needed.

3. Click on *OK* to start the export. When running, a a DOS window appears with a status box. Messages indicate the current state of the export process, the file being processed, and the current tag being exported.

4. When the export process is complete, press any key to continue.

Table 11-4. Tag List Export Dialog Box

Element	Description
Destination TTG or DBF file	Name of the destination tag list. A new or existing name can be used. The extension given the destination list determines the file type used for the export. The *Browse* button can be used to locate a list or specify a directory.
Tag list to export	Tag list to export from the list of existing tag lists in the tag data tables.
Tag list revision	Console revision level to use for exporting the list.
Include EUD, LSD, and alarm comment lists	If checked, exports these associated lists.
Include user fields	If checked, includes user fields in the exported list.

EXPORTING A TREND LIST

This procedure describes how to export a trend list.

> **NOTE:** Export time is affected by the EWS hardware and software configuration and by the size of the trend list.

To export a trend list:

1. Choose *Trend List Export* from the *Export* menu (Alt E R). The *Trend List Export* dialog box appears.

2. Refer to Table 11-5 for a description of the dialog box elements. Enter information as needed.

Table 11-5. Trend List Export Dialog Box

Element	Description
Destination TTR or DBF file	Name of the destination trend list. A new or existing name can be used. The extension given the destination list determines the file type used for the export. The *Browse* button can be used to locate a list or specify a directory.
Trend list to export	Trend list to export from the list of existing trend lists in the tag data tables.
Associated tag list	Tag list to which the trend list is associated from the list of existing tag lists in the tag data tables.
Trend list revision	Console revision level to use for exporting the list.
Include user fields	If checked, includes user fields in the exported list.

3. Click on *OK* to start the export. When running, a DOS window appears with a status box. Messages indicate the current state of the export process, the file being processed, and the current trend being exported.

4. When the export process is complete, press any key to continue.

EXPORTING A REPORT POINT LIST

This procedure describes how to export a report point list.

> **NOTE:** Export time is affected by the EWS hardware and software configuration and by the size of the list.

To export a report point list:

1. Choose *Report Point List Export* from the *Export* menu (Alt E P). The *Report Point List Export* dialog box appears.

2. Enter the name of the destination report point list. A new or existing name can be used. The extension given the destination list determines the file type used for the export. The *Browse* button can be used to locate a list or specify a directory.

3. Select a report point list to export from the list of existing report point lists in the tag data tables.

4. Click on *OK* to start the export. When running, a DOS window appears with a status box. Messages indicate the current state of the export process, the file being processed, and the current report point being exported.

5. When the export process is complete, press any key to continue.

Copying Lists

This procedure describes how to make a copy of console tag, trend, or report point list using the copy list function of the tag utilities.

To make a copy of a list:

1. Do one of the following:

- To copy a tag list, choose *Copy List*, then *Tag List* from the *Utilities* menu (Alt U C T).
- To copy a trend list, choose *Copy List*, then *Trend List* from the *Utilities* menu (Alt U C R).
- To copy a report point list, choose *Copy List*, then *Report Point List* from the *Utilities* menu (Alt U C R).

A copy list dialog box appears.

2. Pick a source list from the *Source List* list box. The source list must be a console list in the tag data tables.

3. Enter a new name for the copied list in the *Destination List* text box.

4. Click on *OK* to make a copy of the list.

Packing Lists

This procedure describes how to pack a list. When a list is packed, all records marked for deletion from within the respective list browser are removed from the list.

To pack a list:

1. Choose *Pack List* from the *Utilities* menu (Alt U P). The *Pack TDT Tables* dialog box appears.

2. Do one of the following:

- To pack all lists in all tag data tables, click on *All Tables*.
- To pack a selected list from one table, click on *Selected Tables*, then select the list name or all lists of the selected type to be packed.

3. Click on *OK* to continue and pack the tables.

Reassigning Tag and Trend Indices

Tag and trend indices can be reassigned within a list to make more index numbers available. The highest supported index number in a tag list is 30,000. When a tag is added to a list, it is always given the next index number after the currently highest index number. This could lead to situations in which tags cannot be added to a list even though there are index numbers with no tags assigned to them. For example, if a tag list containing 30,000 tags has tags with indices from 5,000 to 10,000 deleted. There is now room for 5,000 tags in the list; however, the next tag added would be given an invalid index of 30,001. To accommodate these situations, tags can be reassigned to use lower, unused indices and make room for more tags. When indices are reassigned, the relative order of the tags or trends in the list remains unchanged.

To reassign tag indices in a tag list:

1. Choose *Re-Index*, then *Tag List* from the *Utilities* menu (Alt U R T).

2. The *Reassign Tag Indexes* dialog box appears. Select a tag list, then click on *Reindex*.

Another tag list can be selected to have its tag indices re-assigned.

3. When done, click on *Cancel*.

To reassign trend indices in a trend list:

1. Choose *Re-Index*, then *Trend List* from the *Utilities* menu (Alt U R R).

2. The *Reassign Tag Indexes* dialog box appears. Select a trend list, then click on *Reindex*.

Another trend list can be selected to have its trend indices reassigned.

3. When done, click on *Cancel*.

Editing the User Field Structure

When a new TDT is created, default user fields are provided. If user fields are to be used and their structure modified from the defaults, it should be done before entering or importing data into the tag data tables. If user fields will not be used, they should be reduced to a single field to reduce disk usage. The following comments apply to user fields:

- There must be at least one user field defined. A maximum of 64 user fields can be defined.
- If the default tag user fields are left as they are created, they will increase the size of the tag data tables, consuming up to four megabytes of disk space (for a 30,000 tag global tag list).
- The total width of all fields summed together must be less than 3,072 bytes.
- If a new project is started and existing tag and trend lists are to be imported, the user field structures should be modified to match those of the existing lists.
- When tag or trend lists are imported, the user field data will be imported to a user field in the tag data tables of the same name provided its type is the same and its width is equal to or greater than the width of the imported field.
- If a user field does not exist in the tag data tables for a tag or trend list that is imported, then the data in that user field will not be imported.

To edit the user field structure:

1. Choose *User Field Structure Editor* from the *Utilities* menu (Alt U U). The user field structure editor application window appears.

2. The user field structure editor works in a similar manner to the list browsers. Refer to ***USING THE BROWSERS*** in Section 5 for more information.

3. Edit, delete, and add records as needed. Refer to Table 11-6 for user field structure editor field descriptions.

Table 11-6. User Field Structure Editor Fields

Field	Description
Field name	Unique ten-character name for the field.
Type	Type of field: C for character; N for numeric.
Width	Width of the field.
Precision	For numeric fields only, the number of decimal places to the right of the decimal point.

PRINTING GDC DISPLAYS

This section describes how to print GDC display and symbol files using the print displays utility running under the console tools executive. The print displays utility is capable of printing multiple displays in sequence and adding tag name, tag index, display select, and symbol name labels to the print out. It supports the following Hewlett Packard printers:

- LaserJet III.
- LaserJet 4.
- PaintJet XL300.

NOTE: These procedures assume the console tools executive is running and is the active application.

Defining a Printer Configuration File

Printer configuration files can be defined and recalled to determine how a display is printed. These are called print configuration (***PCS***) files. To define a printer configuration file:

1. Select the *Displays* group under the console of interest.

2. Choose *Print* from the *Display* menu (Alt D P). A screen similar to Figure 11-1 appears in a DOS window.

3. Refer to Table 11-7 for field descriptions and fill in the printer configuration file information as needed.

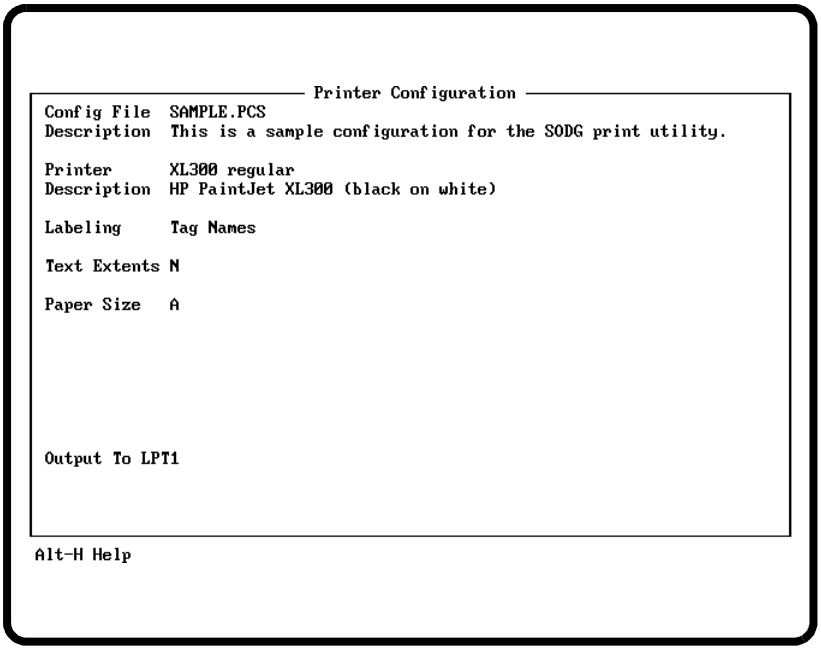


Figure 11-1. Printer Configuration Screen

Table 11-7. Printer Configuration Fields

Field	Description
Configuration file	Name of the printer configuration file. It has a ***PCS*** (printer configuration) extension. Press F8 to view a choice help list of current configuration files.
Description	Description of the printer configuration file.
Printer	LaserJet: HP LaserJet III and 4. XL300 regular: XL300 black on white. XL300 reverse: XL300 white on black.
Description	Description of the printer. Cannot be edited by the user.
Labeling	Optional labeling that can be included in the printed copy. One of the following can be selected: None: Do not print labels. Tag Names: Prints tag names associated with entities. Tag Indexes: Prints tag names associated with entities. Display Select: Prints key select letters. Dynamic Symbols: Prints names of dynamic symbols. All Symbols: Prints names of all symbols.
Text extents	Y(es) = print text extents.
Paper size	Size A only.
Output	Device to print to: LPT1, LPT2, LPT3: Parallel printer. COM1, COM2, COM3, COM: Serial printer. If printing to a serial port, communication setting fields appear. FILE: Print to a file using the same display or symbol name and with a ***PLT*** extension.

4. Press F10 to save the printer configuration file.

Printing Displays

To print GDC displays:

1. Select the *Displays* group under the console of interest.

2. Select the displays to print from the list of files in the file window.

3. Choose *Print* from the *Display* menu (Alt D P). A screen similar to Figure 11-1 appears.

4. Type in the printer configuration file to use when printing or press F8 to select it from a choice help list.

5. If necessary, changes can be made to the configuration at this time. When done, press F10 to accept and save the configuration parameters and start printing.

A ***DRDY_ENG.LOG*** log file is generated for the print session and overwrites the previous log file. This is a text file that can be viewed or printed using the log file viewer application or DOS commands.

VIEWING LOG FILES

A log file viewer application is included with the console tools and runs under the console tools executive and the tag utilities application. It displays and prints any of the log files generated by the utilities. To use the log file viewer:

1. Choose *View Error Log* from the console tools executive *Utilities* menu or from the tag utilities application *Utilities* menu. The log viewer application window appears. The application window is similar to other Windows applications. It has two menus:

File Contains menu items to open and print log files and to exit the application.

Help Contains one item to display information about the application.

2. Choose *Open* from the *File* menu. A standard file open dialog box appears. Choose the file of interest from this dialog box.

To print an opened file, choose *Print* from the *File* menu.

To quit the application, choose *Exit* from the *File* menu.

CONFIGURING THE GES USER INTERFACE

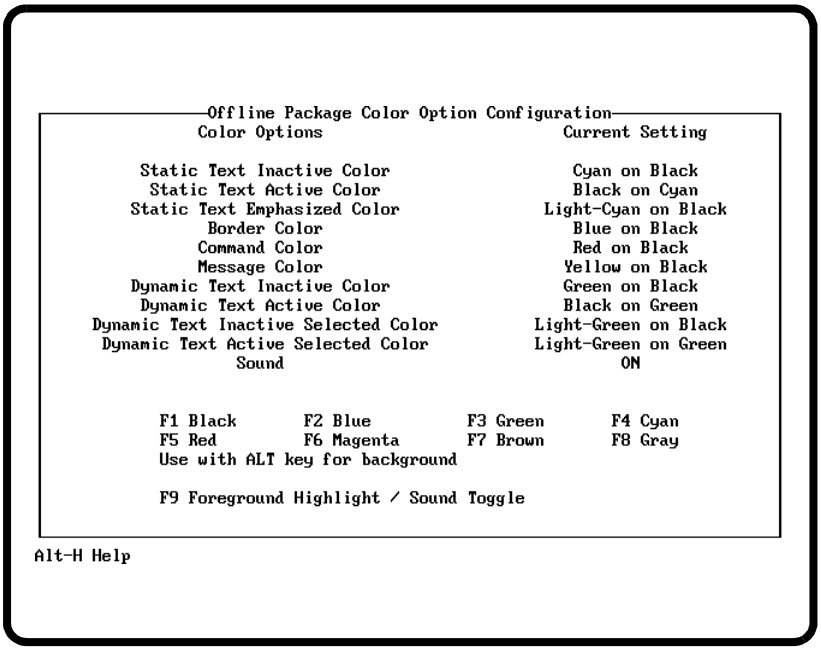
The set up user interface utility allows the user to change colors and turn sound on and off for the console tools DOS utilities.

> **NOTE:** This procedure assumes the console tools executive is running and is the active application.

Changing Colors

The following procedure describes how to change the color of GES screen items. The areas affected are the text and the background. To change color:

1. Choose *DOS Interface Setup* from the console tools executive *Utilities* menu. The *Off-Line Package Color Option Configuration* screen (OPCOC) appears in a DOS window as shown in Figure 11-2.



TPS0486A

Figure 11-2. Off-Line Package Color Option Configuration

The screen has two corresponding columns: *Color Options* and *Current Setting*. There are ten *Color Options* in the left column with their corresponding *Current Settings* in the right column. The *Current Setting* lists two colors, the first is the foreground color and the second is the background color. Below the columns are function keys with designated colors. The color options are listed in Table 11-8.

Table 11-8. Color Option Description

Color Option	Description
Static text inactive color	Standard screens and prompts, which are unchanging. For example, the choices on the SMM.
Static text active color	Standard prompts that display which are unchanging and are highlighted by the cursor.
Static text emphasized color	Standard prompts and text which are highlighted.
Border color	Lines and borders surrounding screens.
Command color	Characters on menu screens that initiate a selection.
Message color	Error messages and attention-getting prompts.
Dynamic text inactive color	Modifiable input fields that have not been modified.
Dynamic text active color	Input fields that have been modified.
Dynamic text inactive selected color	Selectable items that have been selected.
Dynamic text active selected color	Selectable items that have been selected (with the cursor still located on the item).

2. To change the foreground color, position the cursor on the desired color option. Press the appropriate function key.

3. To change the background color, position the cursor on the desired color option. Press Alt-*function key*.

Foreground Highlight and Sound Toggle

From the set up user interface utility, the foreground highlight and sound features can be activated or deactivated. To set up the foreground highlight and the sound:

1. Choose *DOS Interface Setup* from the console tools *Utilities* menu. The *Off-Line Package Color Option Configuration* appears as shown in Figure 11-2.

2. Move the cursor to the desired selection and perform the following:

- To toggle the foreground highlight press F9.
- To toggle the sound, position the cursor at *Sound* and press Alt-F9.

CONFIGURING WINTOOLS COMMUNICATIONS

The console tools support two types of communication for display broadcasting, referred to as I90 communications and ICI

communications. ICI communication supports the semAPI library functions, I90 communication does not. Refer to Table 11-9 for communications support information.

Table 11-9. Communication Support

Type	Operating System	Connection/NIU
I90 communications	Windows 3.1, 3.11, and Windows for Workgroups 3.11 Windows 95 Windows NT 3.51	INICI01 serial port only INICI03 serial port only
ICI communications	Windows 95 Windows NT 3.51	INICI03 serial port (local) INICI03 SCSI port (local) OSM (network)

Setup and operation of I90 communication is straightforward. Refer to ***Application Programming Interface (semAPI) NT*** for information on ICI communication. The communication settings are also used for the module tools communications.

WinTools communication supports 20 logical communication paths, designated numerically from 0 to 31. Logical communication path 0 is reserved for I90 communications and defaults to:

Port - COM1.

Baud - 9600 baud.

Handshaking - hardware.

These settings can be changed if needed and other logical communication paths configured. Each of the configured logical communication paths are saved within the console tools and can be selected whenever needed.

Selecting a communication path

To select a logical communication path:

1. Choose *INFI 90 Communications Setup* from the executive *Utilities* menu (Alt U C). The communications setup dialog box appears.

2. Choose a logical communication path from the drop down list box.

3. Click on *Apply* to use the selection and store it as the current communication path.

Configuring I90 communications

To configure an I90 communication path:

1. Choose *INFI 90 Communications Setup* from the executive *Utilities* menu (Alt U C). The communications setup dialog box appears.

2. In the *I90 Communications* box, click on *Configure*. The *Configure I90 Communications* dialog box appears.

3. Configure the communications port, baud rate, and handshaking as needed for use with the communications unit. A 32-character description can be given to the logical path.

4. Click on *Apply* to save the information and return to the previous dialog box.

Configuring ICI communications

To configure an ICI communication path:

1. Choose *INFI 90 Communications Setup* from the executive *Utilities* menu (Alt U C). The communications setup dialog box appears.

2. In the *ICI Communications* box, click on *Configure*. The *ICI Configuration* dialog box appears.

3. Refer to the ***Application Programming Interface (semAPI) NT*** for Windows for configuration information.

SECTION 12 - DOS UTILITIES

INTRODUCTION

This section documents supplemental DOS utilities intended to be used at the user's discretion - no support is provided beyond the procedures given in this instruction. These utilities must be run from the DOS prompt. The following utilities are described in this section:

- Display manipulation and information extraction utilities.
- Automatic display and pop-up.
- PCV 4.3 tag builder.
- Running transfer from the DOS prompt.

DISPLAY UTILITIES

The display utilities provide utilities for manipulating and extracting information from console display files. To use the display utilities:

1. Go to the DOS prompt.

2. Change the DOS directory to the directory in which the files are located.

3. Type the following at the DOS prompt:

   OISUTIL -c*path***CONSOLE.CFG** Enter

where:

path	Full directory path containing the console information file.

The *OIS Offline Display Utility* menu appears as shown in Figure 12-1.

Presently, only ***DT*** format files are read and understood by the display utilities. The utilities process valid ***DT*** files only; it is not a syntax checker. If a utility encounters an invalid command, its actions are unpredictable. A ***DT*** command with improper parameters will be processed incorrectly or not at all, and there is a possibility the utility may crash. If this happens, it is possible that the last ***DT*** line read contains an error. Correct the error and retry. When the file is written back to the disk, it is essentially in the same format; however, the utility does make some changes in certain situations.

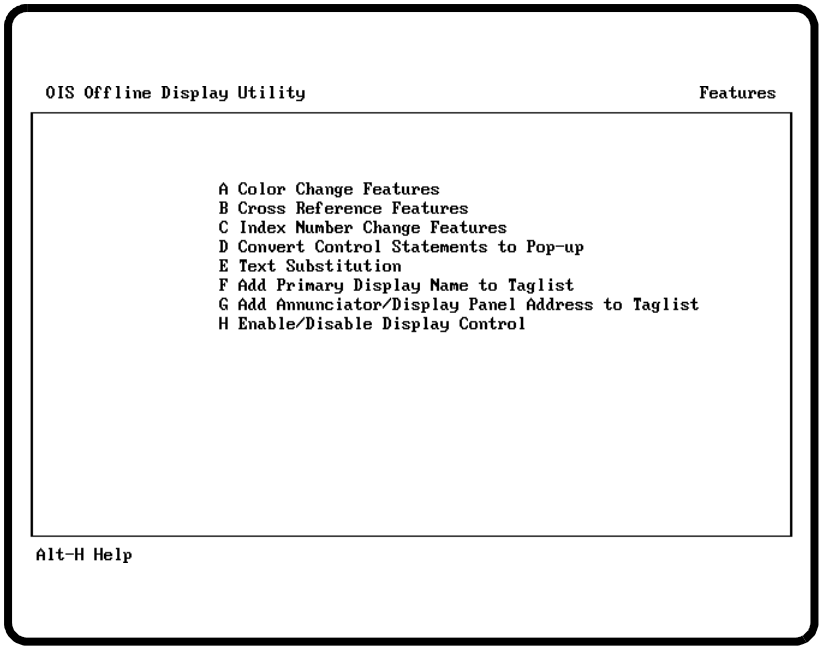


Figure 12-1. Display Utilities Main Menu

These situations are:

- Tag index values with invalid non-numeric characters are changed to a valid 0001 value. This value is the same as tag one.
- X,Y coordinate values with non-numeric characters are changed to a zero value.
- X,Y coordinate values that use arithmetic operations (i.e., 1000 + 400) are changed to one value (i.e., 1400).
- All unnecessary tildes are removed; only necessary tildes are kept in place.
- X,Y coordinate values are separated by a comma (,). X,Y pairs are separated by a semicolon (;). The console accepts (,), (;) or (:) as separators, and this utility recognizes them as such, but they are changed when the display is written to disk.

The utilities accepts any command found in the latest version of the ***Display Builder Reference*** instruction listed in Table 1-2.

When choosing a feature, a parameter selection screen appears. Enter the specific values that the particular feature needs to operate on the display file. Press F10 to start the operation or Esc to abort the operation.

All features require entry of a file specification so that the utility knows what display files to process. Wildcards may be used in the file specification. The file parameters for all commands must conform to DOS standards, with the following exception: If only a directory name is given, DOS interprets this to mean all files in that directory (i.e., TEMP would go to TEMP*.* if TEMP is a directory). To achieve the same with these DOS functions, enter the directory name with the trailing backslash (i.e., TEMP\ for the above example). If an invalid file specification is entered, an error message appears, and the system asks for another file specification. There must be at least one file that corresponds to the given file specification, or it will have to be re-entered.

After entering parameters, press F10 to begin the operation. Each specified file is read in, processed and written to disk (only if a change has been made). Progress information appears on the screen. When the operation is complete, press any key to return to the main menu.

If a feature generates any extra files, such as cross-reference files or listing files, they are placed in the same directory as the display files from which they were produced.

Features that use either the tag or trend list require entry of the tag list file name in the list of parameters. If the file is not present, or is not in the proper structure, an error occurs. The transfer utility only checks for these fields contained in the standard console database structure. It does not check user fields. For faster access, a database index file is created for each list file the system uses. If the list file has been previously indexed, and has not been altered, the index file will not be recreated.

When specifying the tag index to operate on, a single number or a range of numbers can be entered. The range is represented by separating the low and high value by a dash (-). Type **ALL** to specify all tag indices.

Color Change Features

This feature allows the following color statements to be changed to a new color:

- Line color (lines, polygons, circles, arcs, etc.).
- Fill color (polygons, circles, etc.).
- Text color (text items only).
- Prompt box color (interactive escapes only).

- Foreground color (alarm, configuration, and dynamic escapes).
- Background color (alarm, configuration, and dynamic escapes).
- Alarm color (alarm, configuration, and dynamic escapes).

To change color in a display:

1. Select *Color Change Features* from the *OIS Offline Display Utility* menu. A menu appears from which the type of color statement to change can be made.

2. Select the type of color statement to change. A data entry screen appears.

3. Refer to Table 12-1 to fill in the data fields. Table 12-2 lists the numbers associated with each screen color available at the operator console.

Table 12-1. Color Change Parameters

Field	Description
Type of escape to change[1]	All escapes. ec = escape configuration. ed = escape dynamic. ea = escape alarm.
Change color	Color number to be changed.
New color	New color number.
Displays	Display name to change. Wildcards can be used.

NOTE:

1. This field appears for escape foreground, escape background, and escape alarm only. Refer to the ***Display Builder Reference*** for more information.

Table 12-2. Console Colors

Number	Color[1]	Number	Color[1]
0	Black	8	Orange
1	White	9	Yellow-Green
2	Red	10	Green-Cyan
3	Green	11	Cyan-Blue
4	Blue	12	Blue-Magenta
5	Cyan	13	Magenta-Red
6	Magenta	14	Dark Gray
7	Yellow	15	Light Gray

NOTE:

1. Color shades chosen that do not display in GDC will display on the console. Shades available for the PCV01 and PCV02 consoles are dependent upon what type of graphics card is used.

Cross Reference Features

These utilities search through display files to extract the following information:

- Displays in which a tag appears.
- Tags in a display.
- Trends in a display.

Select *Cross Reference Features* from the *OIS Offline Display Utility* menu. A menu appears from which the desired cross reference can be selected.

> **NOTE:** The cross-reference functions do not produce a cross-reference file if tags (or trends) are not present in the display file. Invalid index numbers, or those which are not defined in the tag or trend list, are stated as such in the cross-reference listing.

LIST OF DISPLAYS IN WHICH A TAG APPEARS

This utility produces a list of displays in which a given tag occurs. The list is contained in the file ***OISUTIL.XRF***. The utility does not alter the display files. It only creates or modifies the ***OISUTIL.XRF*** file to contain the cross-reference listing.

To generate a list of displays containing a tag:

1. Select *List of Displays a Tag Appears in* from the *Cross Reference Features* menu. The data entry screen shown in Figure 12-2 appears.

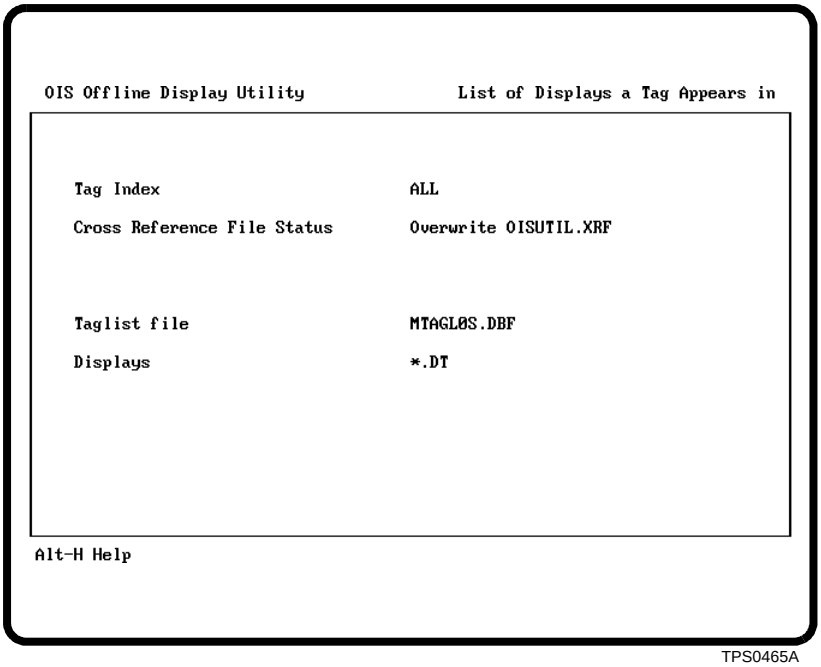


Figure 12-2. Tag Cross-Reference (List of Displays)

2. Refer to Table 12-3 to fill in the data fields.

3. Press F10 to generate the list.

4. Return to the DOS prompt and use a file viewer or text editor to view the cross-reference listing.

Table 12-3. Displays in Which a Tag Appears Fields

Field	Description
Tag index	Tag to cross-reference.
Cross reference file status	Instructs the program to take a specific action on the cross-reference file (***OISUTIL.XRF***). Append = append to the end of the existing file. Overwrite = erase existing file first.
Tag list file	Tag list containing the tags to cross-reference.
Displays	Display files to process.

LIST OF TAGS IN A DISPLAY FILE

This function generates a list of tags and their number of occurrences in a display file. The file has the same name as the display file but with the extension ***XRF***.

To generate a list of tags occurring in a display:

1. Select *List of Tags in a Display* from the *Cross Reference Features* menu. The screen shown in Figure 12-3 appears.

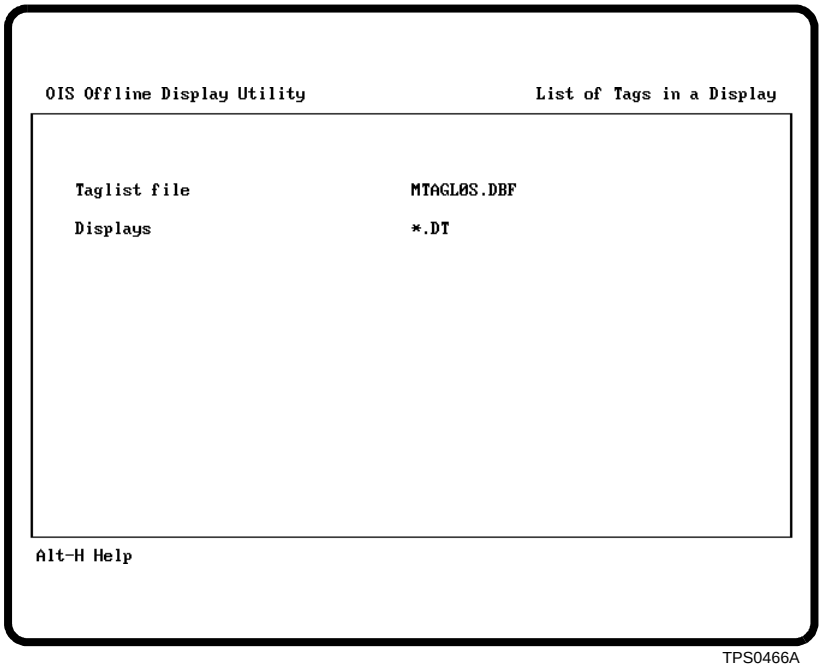


Figure 12-3. Tag Cross-Reference (List of Tag Numbers)

2. Enter the tag list file and the display files to cross-reference in the data fields.

3. Press F10 to generate the list.

4. Return to the DOS prompt and use a file viewer or text editor to view the cross-reference listing.

LIST OF TRENDS IN A DISPLAY FILE

This feature produces a list of trends that occur in a display file, along with the number of occurrences. The file has the same name as the display file but with a ***TRD*** extension. This utility does not alter the display files. It creates the cross-reference file from the information contained in the display.

To generate a list of trends occurring in a display:

1. Select *List of Trends in a Display* from the *Cross Reference Features* menu. The data entry screen shown in Figure 12-4 appears.

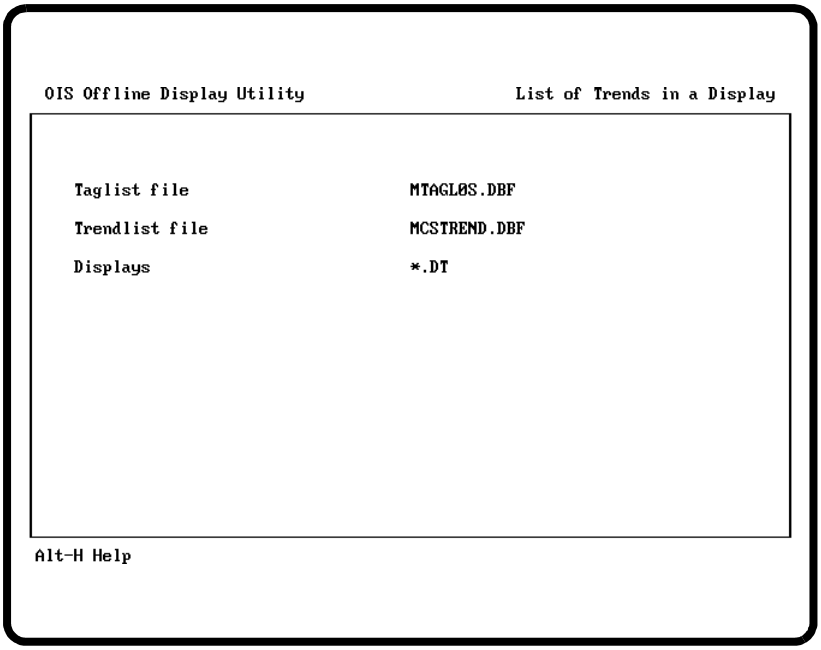


Figure 12-4. Trend Cross-Reference (List of Trend Numbers)

2. Enter the tag list file, the trend list file, and the display files to cross-reference in the data fields.

3. Press F10 to generate the list.

4. Return to the DOS prompt and use a file viewer or text editor to view the cross-reference listing.

Index Number Change Features

These utilities permit changing tag or trend index numbers. Select *Index Number Change Features* from the *OIS Offline Display Utility* menu. A menu appears from which tag index numbers or trend index numbers can be selected to change.

CHANGE TAG INDEX NUMBER

This utility changes tag index numbers by a given offset (alters existing lines). To change tag indices:

1. Select *Change Tag Index Number* from the *Index Number Change Features* menu.

2. A data entry screen appears. Refer to Table 12-4 to fill in the field information.

3. Press F10 to make the changes.

Table 12-4. Change Tag Index Number Fields

Field	Description
Type of escape	E = all escapes A = alarm escapes C = configuration escapes D = dynamic escapes I = interactive escapes S = symbol escapes P = pop-up escapes
Tag index	Tag numbers to change.
Change offset	Offset to apply to the tag indices. It can be a positive or negative number in the range of -10,000 to +10,000. This operation will not change a tag index that would make the index out of range (e.g., 1 to 10,000).
Displays	Display name where the tag is located.

CHANGE TREND INDEX NUMBER

This feature changes trend index numbers by a given offset. It does not add extra lines to the ***DT*** file, it only alters existing lines.

To change trend indices:

1. Select *Change Tag Index Number* from the *Index Number Change Features* menu.

2. A data entry screen appears. Refer to Table 12-5 to fill in the field information.

3. Press F10 to make the changes.

Table 12-5. Change Trend Index Number Fields

Field	Description
Trend index[1]	Trend numbers to change.
Change offset	Offset to apply to the trend indices. It can be a positive or negative number in the range of -1000 to +1000. This operation will not make changes to a trend index that would make the index out of range (e.g., -1 to 1000).
Displays	Display name where the trend is located.

NOTE:

1. -1 can be entered as a trend index to change, but it must be by itself, not as part of a range of trend indices.

Convert Interactive Control Statements to Pop-Up Style Control

This utility modifies interactive control statements to use pop-up style control selects. Two types of normal control select interactives ***cannot*** be modified with this feature:

- A normal touch control cannot be changed to pop-up keyboard control because the key codes cannot be determined from the touch control statement.

- A normal keyboard control cannot be changed to pop-up touch control when bottom line prompt control option is used because the touch area cannot be determined from the keyboard control statement.

To convert interactive control statements:

1. Select *Convert Control Statements to Pop-up* from the *OIS Offline Display Utility* menu. A data entry screen appears.

2. Refer to Table 12-6 for data field descriptions.

3. After entering the field information, press F10 to make the changes.

Table 12-6. Convert Control Statement to Up Fields

Field	Description
Conversion type	Type of conversion to perform: Normal key control to pop-up key control. Normal touch control to pop-up touch control. Combination of both (a) and (b). Normal key control to pop-up touch control.

Table 12-6. Convert Control Statement to Up Fields (continued)

Field	Description
Size of DCS pop-ups	Type of digital control station to use in the conversion: Full = uses the DCS full size station. Half = uses the DCS half size station. Press the first letter of the desired choice to select. This parameter is used only when a DCS tag is encountered. Other tag types do not have a choice of sizes.
Pop-up reference point	Screen position (reference point) of the pop-up. The default is 7400,400. However, any valid X-Y pair will place the pop-up on the screen.
Displays	Displays to change.

Text Substitution

This feature performs a case sensitive text substitution. It changes text in text entities, symbol names and display titles. Text must match exactly (including case) for the substitution to occur.

To substitute text:

1. Select *Text Substitution* from the *OIS Offline Display Utility* menu. A data entry screen appears.

2. Fill in the search text, replacement text, and the displays to change. The text parameters can be no longer than 30 characters.

3. Press F10 to make the changes.3

Add Primary Display Name to Tag List

This function adds the primary display name to the tag list. This primary display name is determined by scanning the specified displays and placing that display name into the primary display name field for every tag that occurs in that display. If a tag occurs in more than one display, the last display which uses it is the one that is added to the primary display name field.

To add the primary display name to the tag list:

1. Select *Add Primary Display Name to Taglist* from the *OIS Offline Display Utility* menu. A data entry screen appears.

2. Fill in the appropriate tag list file name and the displays to change.

3. Press F10 to make the changes.

Add ADP Address to Tag List

This utility adds the annunciator-display panel (ADP) address to the tag list. This is accomplished by using the ADP configuration file ***ADSTA.CF***. This file can be obtained from either an existing console or the OIS keyboard configuration utility. The ***ADSTA.CF*** file must be present to use this feature. All displays that are both listed in the configuration file and found in the current directory are scanned. The address for that display is placed in the ADP address fields for every tag occurring in the display. If a tag occurs in more than one display, the latter display address is used.

To add the ADP address to the tag list:

1. Select *Add Annunciator/Display Panel Address to Taglist* from the *OIS Offline Display Utility* menu. A data entry screen appears.

2. Fill in the appropriate tag list file name and the displays to change.

3. Press F10 to make the changes.

Enable/Disable Display Control

This utility enables or disables display control. This only affects control for points. Trends, alarm summaries and display selects are unaffected. Pop-ups will not activate when control is disabled.

> **NOTE:** This feature disables control only in the ***DT*** display file, ***not*** in the ***DR*** display file. If control is disabled and changes are made to the ***DR*** display file, control must be disabled again with the new ***DT*** display file. Once control is disabled in the ***DT*** display file, do not make any alterations (except with console tools) or control enable may not be possible.

To enable or disable display control:

1. Select *Enable/Disable Display Control* from the *OIS Offline Display Utility* menu. A data entry screen appears.

2. Fill in the appropriate action (enable or disable) and the displays to change.

3. Press F10 to make the changes.

AUTOMATIC DISPLAY AND POP-UP

The automatic display and pop-up (ADAP) utility provides the management command system (MCS R and later and MCS

PLUS) with the ability to actuate user defined GDC displays and symbols based upon the states of digital tags.

> **NOTE:** The ADAP utility is not supported by operator interface stations (OIS) or process control view (PCV). Support exists for MCS consoles with revision R or later only.

The tags are contained in sets; up to thirty tag sets can be configured on the operator console using the ADAP utility. A tag set can contain up to 100 digital tags. Each of the tags making up the tag set can trigger a display or pop-up to appear on the operator console. The following conditions must be met before this can occur: 1) The tag set must be activated; and, 2) The digital tag must have a digital state of one. A tag set is activated by a user defined master display and deactivated by a user defined terminate display.

Configuring Automatic Display and Pop-Up

To configure a tag set:

1. Go to the DOS prompt.

2. Change the DOS directory to the directory in which the files are located.

3. Type the following at the DOS prompt:

   ADAP -C*path***CONSOLE.CFG** Enter

where:

path	Full directory path containing the console information file.

The *ADAP Configuration* screen appears as shown in Figure 12-5. This screen permits specifying a tag set name and number.

4. The cursor is located in the tag set name field. Provide a name (up to twenty characters), and press Enter. A tag set can consist of up to 100 digital tags. Each of the tags making up the set can trigger a user defined display or pop-up when the tag set is activated.

5. The cursor moves to the tag set number field. Up to 30 tag sets can be configured. Provide a number ranging between one and 30 and press F10. The tag set number is used by the operator console to identify tag sets.

> **NOTE:** Either name or number may be specified to activate an existing tag set. To create a new tag set, both name and number must be specified.

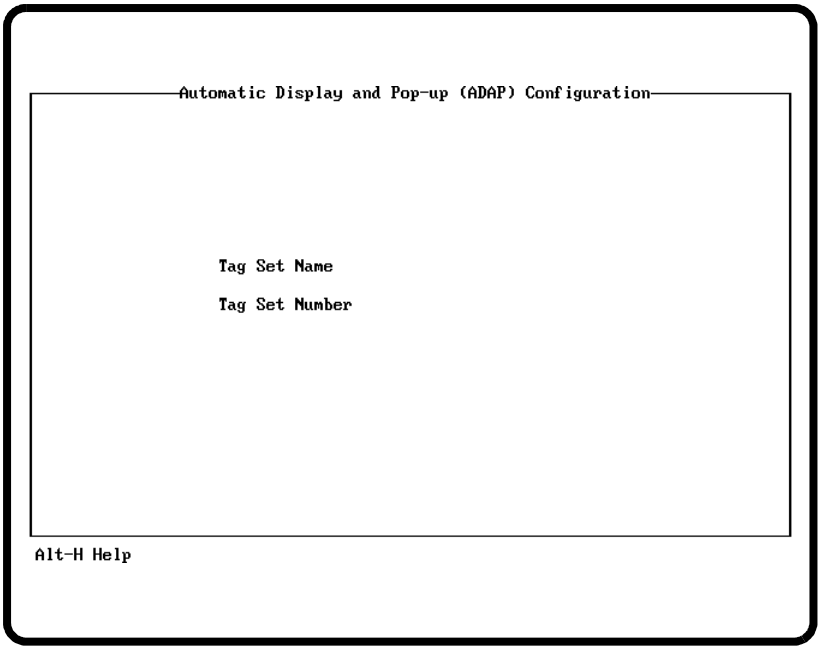


Figure 12-5. ADAP Configuration Screen

6. The *ADAP Configuration* screen (labeled *Page 1 of 7* in the lower-right corner) appears as shown in Figure 12-6. The fields tag set name and tag set number have the contents from the previous screen. Tag set name can be modified but the tag set number is fixed to the value specified upon creation. Fill in the remaining fields by referring to Table 12-7.

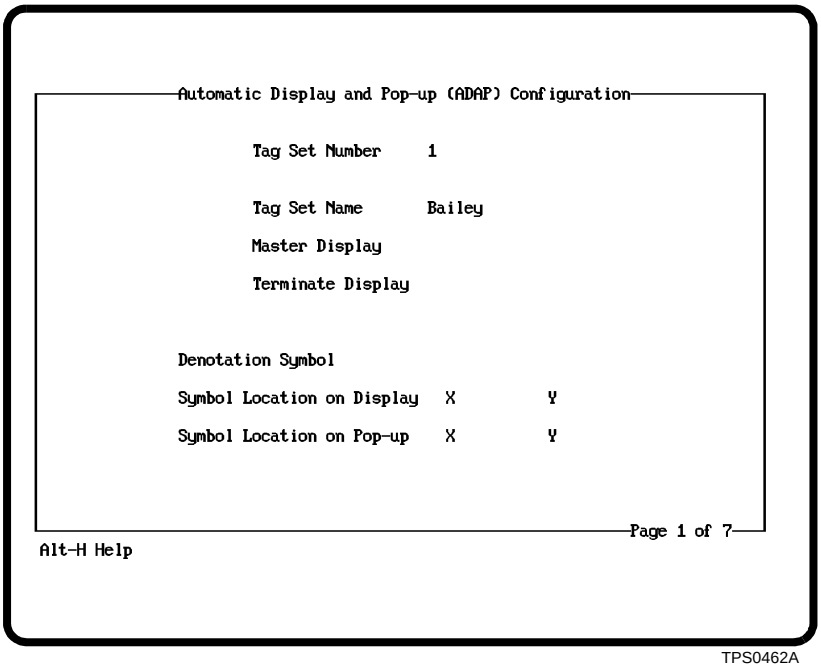


Figure 12-6. ADAP Configuration Screen (1 of 7)

Table 12-7. ADAP Configuration Screen 1

Field	Description
Master display	Name of the master display. When the master display is called up on the console the corresponding tag set is activated. Each tag set has a unique master display. The tag set cannot become active until the master display is called up on the console.
Terminate display	Name of the termination display. Each tag set must have a terminate display. When the terminate display is called up on the console, the tag set is deactivated. The tag set cannot be deactivated until the terminate display screen is called up on the console, or another tag set master display is called. The terminate display can be any display file other than the master display file.
Denotation symbol	Name of the denotation symbol. The denotation symbol is used to inform the console operator that the display or symbol on the screen is an automatic display or pop-up and not an operator initiated display or pop-up. The denotation symbol (if specified) will display on all ADAP displays and pop-ups of the set. Input into this field is optional.
Symbol location on display	Location of the denotation symbol location for ADAP display in this field. This specifies where on the screen the denotation symbol appears. Input an x and y value. SODG screen displays range from 400 to 9600 on the x axis and 400 to 7200 on the y axis. 400 (x) and 400 (y) is the lower left corner of a display window. Input into this field is required only when a denotation symbol is specified.
Symbol location on popup	Location of the denotation symbol location for ADAP pop-ups in this field. This locates the symbol relative to the pop-up location. The denotation symbol location ranges between ±9200 on the x-axis and ±6800 on the y-axis. Input into this field is required only if a denotation symbol is specified.

7. Press **Page Down** to accept the values. Pages two of seven through seven of seven, as shown in Figure 12-7, are the ADAP screens where the digital tags that make up the tag set are specified. Up to 100 digital tags can be used to generate automatic displays or pop-ups. The same six column heading appears on screens two through seven.

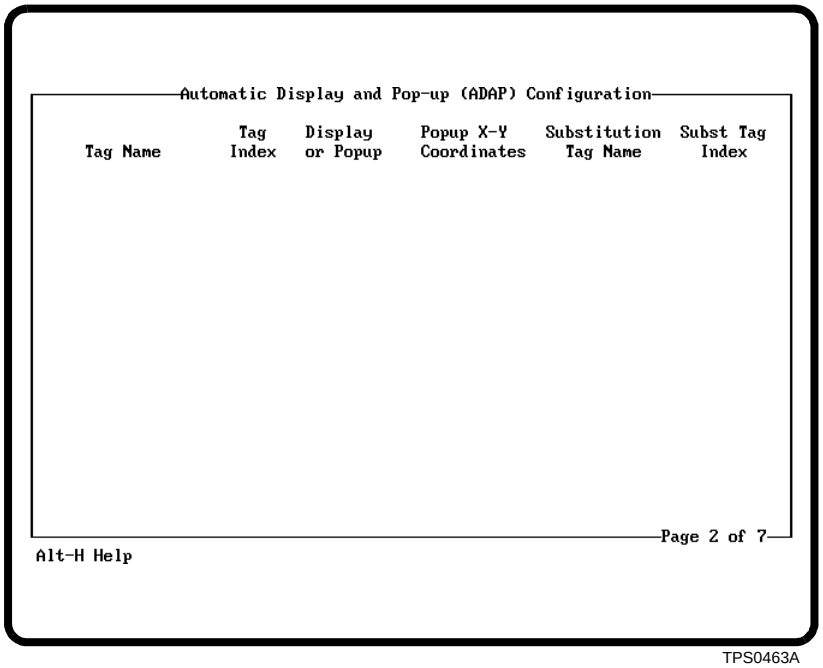


Figure 12-7. ADAP Configuration Screen (2 through 7)

8. Refer to Table 12-8 for field descriptions and make entries as needed.

Table 12-8. ADAP Configuration Screens 2 through 7

Field	Description
Tag name	Informational field for the user and should be the name associated with the tag. Up to 14 alphanumeric characters can comprise the name.
Tag index	Actual number of the operator console tag. The state of the tag index determines whether a display or pop-up will trigger when tag set is active.
Display or pop-up	Name of the display or pop-up to appear when the tag set is active and the state of the tag index becomes one. When the digital tag changes to zero, the display or pop-up is automatically removed from the screen.
Pop-up x-y coordinates	Only apply to pop-ups. When a pop-up is configured in the display or pop-up field, the coordinates of its location must be specified. X-axis ranges from 400 to 9600 and the y-axis ranges from 400 to 7200 (400, 400 is the lower-left corner).
Substitution tag name	Informational field for the user and should be the name associated with the tag. Up to 14 alphanumeric characters can be used. Input into this field is optional.
Substitution tag index	Tag to be displayed in the pop-up when the pop-up is triggered. Input into this field is required only when a pop-up is specified in the display or pop-up field.

9. After declaring the tags and related information, press F10 to complete the ADAP configuration and return to the DOS prompt. ADAP configuration files are named ***SETnnn.CP***; where ***nnn*** is the set number.

Transferring ADAP Configurations

To transfer ADAP configurations, refer to ***TRANSFER***.

PCV 4.3 TAG BUILDER

Builder creates the following five configuration files for transfer to the PCV console:

ALMDESC.CF
CUSTTGID.CF
TAGCNFG.CF
TAGDESC.CF
TAGNAME.CF

It uses the exported tag list file (***TTG***) and associated ***EUDSCP.CF*** and ***LSDSCP.CF*** files to do so.

To run the builder for a PCV 4.3 tag list:

1. Export the tag list as described in ***PCV 4.3 TAG LISTS*** in Section 10. Current ***EUDSCP.CF*** and ***LSDSCP.CF*** files must be available in the directory. If necessary, check the *Include EUD, LSD and Alarm Comment Lists* export option in the *Tag List Export* dialog box to create them.

2. Copy the builder data file ***OISL.FMT*** from the C:\EWS directory to the same directory given as a path in the *Tag List Export* dialog box. This only needs to be done once.

3. Go to the DOS prompt.

4. Change the DOS directory to the directory in which the tag list (***TTG***), ***EUDSCP.CF***, ***LSDSCP.CF***, and ***OISL.FMT*** files are located.

5. Type the following at the DOS prompt:

BUILD-L Enter

6. The builder opening screen appears. Press any key to continue.

7. The builder main menu appears. To begin the build, press F5 and enter the exported tag list file name (***TTG***).

8. When done, press F10 to exit the builder program.

Refer to the following paragraphs for a description of other builder functions.

F1 Yields a short help display that describes the use of the function keys.

F2 Along with F4, is used to select the range of tag indices. These numbers refer to the maximum number of tags configured on the operator console, and not the actual number of tags in the tag list. Normally, for any tag configuration, leave the first index field at zero and use F4 to set the last index field to the maximum number of tags configured on the operator console.

F4 Along with F2, is used to select the range of tag indices. These numbers refer to the maximum number of tags configured on the operator console, and not the actual number of tags in the tag list. Normally, for any tag configuration, leave the first index field at zero and use F4 to set the last index field to the maximum number of tags configured on the operator console.

F7 Performs the reverse operation of F5. After pressing F7 the system asks for the name of the ASCII (text) file to create from the console configuration files.

F8 Permits viewing of tag attributes that are within the console configuration files after these files have been built. The following files should be in the directory after the tag list is built:

ALMDESC.CF
CUSTTGID.CF
EUDSCP.CF

LSDSCP.CF
TAGCNFG.CF
TAGDESC.CF
TAGNAME.CF

After pressing F8, a screen appears showing the attributes of every tag. Once the *View a Tag* screen is present, start viewing at index one by pressing F9. Use Enter to see the next tag. To reach a particular index, press F7, then type in the index number. To see a particular tag, press F8 and type in the tag name.

F9 is used in special cases to offset a range of tags or extract a range from one machine for use in another. Pressing F9 causes builder to prompt for the offset number. For example, suppose a configuration has 2,500 tags and indices 300 through 600 are to be extracted in order to start an ASCII file for another operator. Set the first index to 300, set the last index to 600, and set the offset to 300. This produces an ASCII file with 300 tags starting with index one. If the offset is 200, then a 300 tag file with the first index starting at 100 is created.

F10 Terminates builder and returns to the DOS prompt.

TRANSFER

The following configurations must be transferred from the DOS prompt:

- PCV 4.3 tag lists.
- ADAP configurations.

To transfer any of these configurations:

1. Go to the DOS prompt.

2. Insert a properly formatted floppy disk into the drive.

3. Change the DOS directory to the directory in which the configuration files are located.

4. Do one of the following:

- To transfer PCV 4.3 tag lists, type the following at the DOS prompt:

  XFEROIS -c*path***CONSOLE.CFG -TTAG** Enter

where:

path	Full directory path containing the console information file (***CONSOLE.CFG***).

- To transfer ADAP configurations, type the following at the DOS prompt:

  XFEROIS -c*path***CONSOLE.CFG -TGENERAL** Enter

where:

path	Full directory path containing the console information file (***CONSOLE.CFG***).

5. A GES file selection screen appears containing all appropriate configuration files found in the directory. Select the files to transfer and press F10 to proceed.

APPENDIX A - FILE NAME EXTENSIONS

EXTENSIONS

Table A-1 is a reference table that lists and describes the various file types that exist in the console tools. The file types are identified by their extensions (i.e. ***filename.CFG***).

Table A-1. File Extension Description

Extension	Description
CF	Console configuration files.
CFG	Contains configuration settings used by off-line programs.
CP	Compressed console format configuration files.
DAT	Data file for faceplate and trend configurator.
DBF	The tag or trend list in dBase format.
DL	A symbol file in the VDM format. ***DL*** files currently exist only on the console.
DR	A display file in GDC format.
DT	Output of the display translator function for input to the display translation function on the console. A ***DT*** file may be a display or a symbol. The display translator translates a ***DR*** or ***DY*** file and merges it with an ***LE*** file (if it exists) to produce a ***DT*** file (this suffix is used to identify a text file on the console).
DU	A display file in the VDM format. ***DU*** files currently exist only on the console.
DY	A symbol file in GDC format.
FMT	Format files for the translate tag list and trend configurator functions.
LD	A text format display or symbol file output by the display translator. It has beginning and ending information.
LE	A display file that is to be merged with an ***LD*** file. An ***LE*** file does not have begin and end metafile information. It contains information for display elements that the GDC utility does not handle.
LG	Log configuration file in console format.
LOG	Error log files generated by the console tools.
LST	Symbol listing output by the GDC utility.
NXS	Index file used by the display utilities function.
RV	Revision control file. Internal use only.
TAC	Alarm comments in ASCII format.
TGI	Unique index file for tag list in dBase format.
TGN	Unique index file for tag or trend list in dBase format.
TRD	Trend cross-reference listings.
TRI	Unique index file for trend list in dBase format.
TRP	Report point list in ASCII format.

Table A-1. File Extension Description (continued)

Extension	Description
TTG	Tag list in ASCII format.
TTR	Trend list in ASCII format.
XRF	Tag cross-reference listings.
XX1	Internally generated file used by the display utilities function. Should be deleted by the display utilities function. If it is found; there has been a problem and it should then be manually deleted.

APPENDIX B - STANDARD SYMBOLS

SYMBOLS

The GDC utility comes with a library of standard symbols such as tanks, pumps, etc. Figures B-1 through B-5 show these symbols. Note that in symbol titles with X (e.g., VLVX100), replace X with one of the following:

L - left.

R - right.

U - up.

D - down.

H - horizontal.

V - vertical.

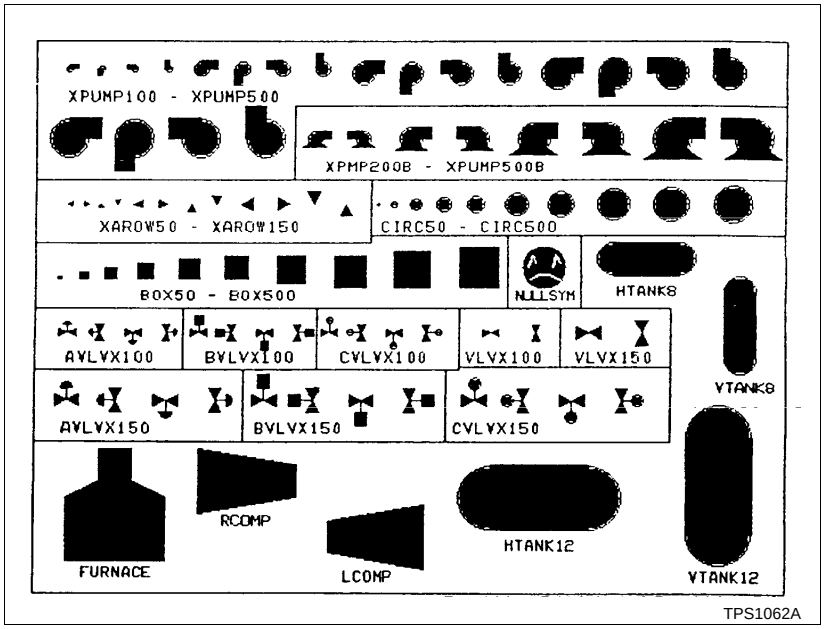


Figure B-1. Standard Tank, Pump and Valve Symbols

Table B-1 refers to Figures B-2, B-3, B-4 and B-5. The symbol name column lists the pre-SLDG 5.3 symbols used to build a faceplate with the FTCONFIG utility or manually using the SODG utility. The faceplate name column contains the corresponding names of the symbols available with the console tools to build a faceplate automatically with the GDC utility. Those symbols marked as N/A are neither considered nor available

as faceplates because they do not contain any control elements.

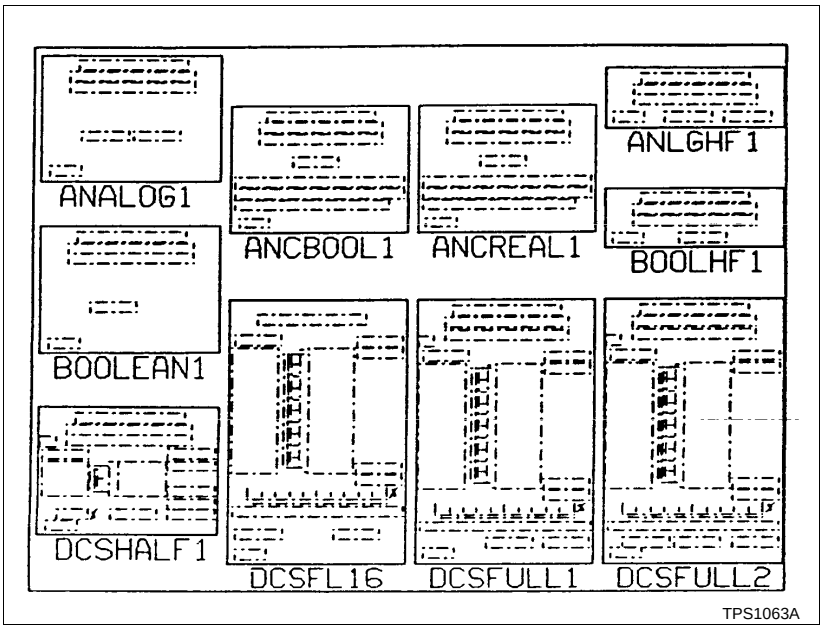


Figure B-2. Standard Symbols (Page 1)

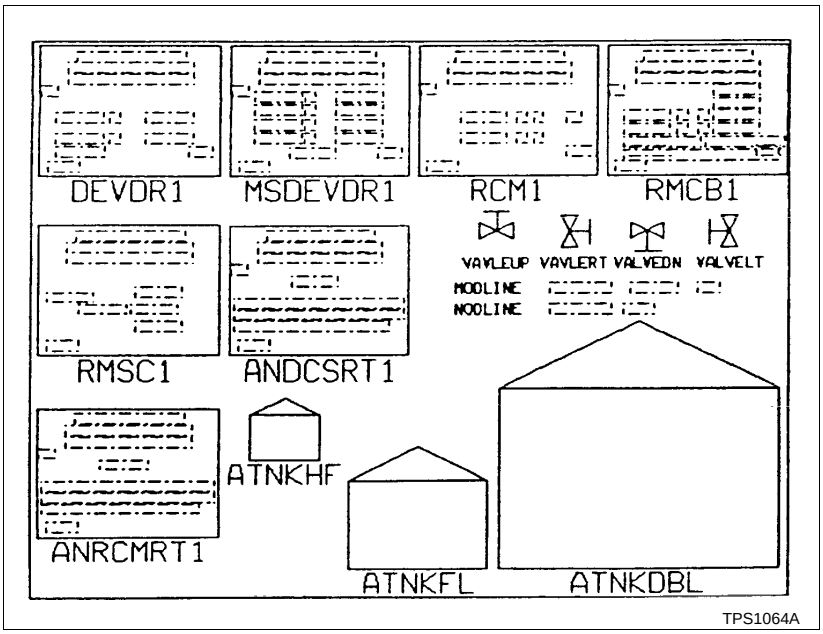


Figure B-3. Standard Symbols (Page 2)

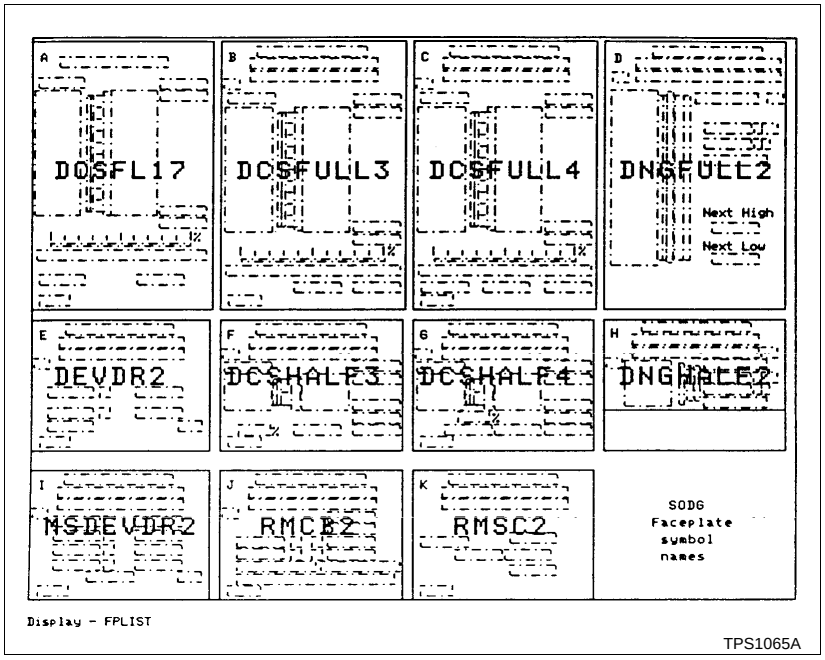


Figure B-4. Faceplate Symbol Names (Page 1)

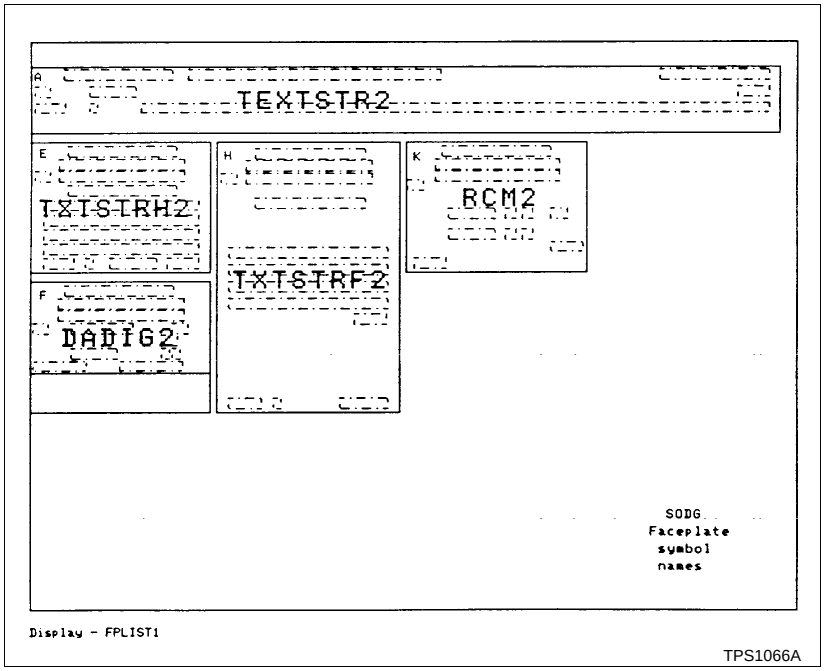


Figure B-5. Faceplate Symbol Names (Page 2)

Table B-1. Symbols and Faceplates

Symbol Name	Faceplate Name	Symbol Name	Faceplate Name
ANALOG1	N/A	DCSHALF2	DCSHALF4
ANCBOOL1	N/A	DCSHPOP	N/A

Table B-1. Symbols and Faceplates (continued)

Symbol Name	Faceplate Name	Symbol Name	Faceplate Name
ANCREAL1	N/A	DEVDR1	DEVDR2
ANDCSRT1	N/A	DEVDRPOP	N/A
ANLGHF1	N/A	MSDEVDR1	MSDEVDR2
ANRCMRT1	N/A	MSDEVPOP	N/A
BOOLEAN1	N/A	RCM1	RCM2
BOOLHF1	N/A	RCMPOP	N/A
DCSFL16	DCSFL17	RMCB1	RMCB2
DCSFPOP	N/A	RMCBPOP	N/A
DCSFULL1	DCSFULL3	RMSC1	RMSC2
DCSFULL2	DCSFULL4	RMSCPOP	N/A
DCSHALF1	DCSHALF3		

APPENDIX C - GENERAL EDIT SYSTEM

INTRODUCTION

Most data input screens share a common method of entering or modifying fields according to the general edit system (GES). This is an intuitive and easily learned interface. Rather than repeating this information each time it is needed, it is described in this section. Special considerations or deviations from this method are noted where appropriate. Users unfamiliar with the general edit system and data entry screens should review this section; otherwise it can be used as a reference section.

STANDARD COLORS

Different colors convey different information. There are a limited number of colors used on any display. The standard colors are described in Table C-1.

Table C-1. Standard Colors

Color	Usage
Blue or dark blue	Outlines, borders.
Cyan	All static text including headers. Standard prompts that appear when calling a function are cyan. It is also used as a border to show the active window if there is any question about which is the active window. For example, a screen with only one window would not have a cyan outline.
Green	All dynamic data. On input screens, where data is entered. On screens where data is not keyed in, green is used to show data that may change when a screen comes up. For example, a screen that has headers and shows contents of files would have the headers in cyan (same whenever the screen comes up) and the contents of the files in green (different depending on the file contents).
Highlight	For special emphasis, items may be highlighted in the same color.
Red	Alphabetic characters or keys F1 through F10 in menus (i.e., keys pressed to make a menu choice).
Yellow	To draw attention. Used for messages including errors, special attention getting prompts, etc.

DEFAULT COLORS

Table C-2 lists defaults colors used for specified text types.

Table C-2. Default Colors

Text Type	Foreground/Background Color
Border color	Blue on black
Command	Red on black
Dynamic text active	Black on green
Dynamic text active selected	Light-green on green
Dynamic text inactive	Green on black
Dynamic text inactive selected	Light-green on black
Error/message	Yellow on black
Static text active	Black on cyan
Static text emphasized	Light-cyan on black
Static text inactive	Cyan on black

DATA STATES

Data entered in the data entry screens can exist in one of five states. An understanding of these data states aids in entering data in a screen. Table C-3 lists and describes these states.

Table C-3. Data States

State	Description
Accepted	After performing the accept function (F10) for a screen, all fields in the screen are accepted.
Active	When the input field is on a given field, it is active and can be modified.
Default	Each data field has a default value. The system uses this value if no data is entered for the field. It can be blanks. When a screen page comes up for the first time, the fields show default values.
Entered	When the user keys data into the input field and then moves away by any means other than Esc, the data is entered. If the user keys in data, but does not enter it (by leaving the field), the last entered data can be recalled with the Undo function (Alt-U).
Original	Fields contain original data when a screen appears. The original data remains unchanged until accepted. If data is entered in one or more of the fields, but not accepted, the original data can be recalled (Alt-O).

INPUTTING DATA

The input field provides the means for inputting data. The input field is a green backlit field. It is as long as the maximum allowable input for the field (e.g., 32 characters). The cursor within the field is a blinking line or space. When entering text, the cursor does not wrap around. That is, the cursor stays at the last (right most) character of the field rather than wrapping back around to, and overwriting the first character.

STANDARD FUNCTIONS

Table C-4 provides a list of standard functions.

Table C-4. Standard Functions

Function	Description
Clearing input field	After tabbing to a field, if the first key pressed is an alphanumeric, the field automatically clears. The key pressed becomes the first character in the field. This is done so that when inputting a new field, it is not necessary to clear it first. If any other function is done first, (e.g., move the cursor), the auto clear is disabled. The program assumes that the field is to be edited, not cleared, and therefore works in normal character replace mode. To edit the first character of the field without clearing it, move the cursor right, then left, then proceed.
Error tones	It is common to sound a tone when an error message displays. Such tones help direct attention to the error message.
Input field checking	The system checks input to prevent erroneous information from being entered. This checking covers invalid characters and invalid field contents. Most checking is done when tabbing away from the field. The system displays an error message if it finds an error. An erroneous field cannot be left. The erroneous data stays in the field until corrected. Press Esc to clear the error message. (If the field cannot be corrected, press Alt-R, the last correct data entered appears.) In some cases, further error checking is done when the screen is accepted (F10). Complex error checks that depend on the data in several different fields are done.
Justification	Some fields are right justified, some are left justified and some are not justified. Justification depends on final use.

KEY FUNCTIONS

Table C-5 provides a list of special key usage when editing input fields. All keys are not valid in all screens or fields. Press Alt-K to see a list of valid keys for the current screen.

Table C-5. Special Key Functions

Function	Key	Description
Copy configuration	Alt-Y	Initiate a copy function, if appropriate. This generally is a copy of a page of data. The system prompts for the page to copy from (pressing Esc aborts the operation) and then for confirmation (*Are you sure?*) before the copy takes place. When completed, the current page is overwritten with data from the copy from page. The details of how this works vary from program to program.
Edit input field	Alt-B	Clear the current input field. Return the cursor to the left in the input field.
	Backspace	Deletes character to left of current cursor location.
	Ctrl-End	Move cursor to last character in input field.
	Ctrl-Home	Move cursor to first character in input field.
	Del	Deletes the character under the cursor.

Table C-5. Special Key Functions (continued)

Function	Key	Description
Edit input field *(continued)*	Ins	Toggles insert mode on/off. When insert is on, characters are placed in the field at the current cursor position, pushing characters to the right. When insert is off, new characters overwrite the existing characters in the field. When insert is off, the cursor is a single, blinking line. When insert is on, the cursor is a blinking full space.
	→, ←	Moves the cursor within the input field one space, with wraparound, in the direction specified.
Help	Alt-H	Pop up a help screen for the presently active field.
Key help	Alt-K	Brings up a help information screen that defines the standard keystrokes. If a help screen is on the display, press Esc to exit; then press Alt-K to bring up the standard keystrokes help screen.
Load configuration	Alt-L	If appropriate, do a forced load of given configuration file from disk.
Move, enter and go to another page keys	Enter	Enters data into the system, and moves the input field, with wraparound, to the next logical field (same as Tab).
	Esc	Escape from current page without saving data and returns to the previous menu or screen. If data is changed but not entered on the screen, the system displays *Are You Sure?*. Answer the prompt to continue. The entered data returns after the escape. Press Esc to clear an error message. (Doing so does not escape from the current page or jump up one level in the menu hierarchy.)
	F10	System accept. Typically used when finished keying in all data on a page in order to proceed.
	Home, End	Move input field to the logical first or last input field on page.
	Page Up, Page Down	Accept current page of data and go to the next logical page of data, with wraparound.
	Tab	Enters data into the system, and moves the input field, with wraparound, to the next logical field (same as Enter).
	Shift-Tab	Enters data into the system, and moves the input field, with wraparound, to the previous logical field.
	↑, ↓; Ctrl-→, Ctrl-←	Move the input field in the direction specified, with wraparound, on the current column or row. Data is entered as the field is left.
Print configuration	Alt-P	Prints the current screen if applicable (as indicated by the *Alt-P* prompt). If the logical piece to print is one page (the current one), the print is done. If the screen consists of more than one page, a prompt appears requesting how much should be printed. Press Esc to abort the request to print operation. If the printer is off-line, not connected or not functional, the system displays an error message and the print is not done.
Restore active input field keys	Alt-D	Set all input fields on the current screen to default values. Note that default values may be blanks.
	Alt-E	Set the current input field to its default value. Note that the default may be blanks.
	Alt-O	Set all values on the screen to the original data values (the values when the screen came up for the first time).

Table C-5. Special Key Functions (continued)

Function	Key	Description
Restore active input field keys *(continued)*	Alt-R	Set the input field to its original value. If the original value is what is shown, no action occurs. If the original value is an empty string, then the current selected field will be emptied.
	Alt-U	Undo the last data keyed into the active field. Set the contents of the active field back to the last entered value. This can only be done while still on the field. Note that data is entered when the field is left (except with Esc).
Save configuration	Alt-S	If appropriate, save to disk all data for the current page; return user to previous editing position.

APPENDIX D - FEATURE SUPPORT

INTRODUCTION

Not all configuration options and features provided within the console tools are valid for all console types and revision levels. This appendix lists WLDG01 configuration feature support by console type and revision level. Table D-1 lists all consoles supported by at least one feature of the console configuration tools.

Table D-1. Supported Consoles

Consoles
MCS S.3
MCS PLUS R.2, S.2, V.2, and X.1
IIOIS12 5.1
IIOIS20 E.2
IIOIS25 E.2, G.2, and J.1
IIOIS40 E.1
IIOIS40 Plus E.1, F.1, and G.3
IIOIS41 E.1, F.1, and G.3
IIOIS42 F.1, G.1, G.2, G.3, H.2, and J.1
IIOIS43 J.1
OAS E.1 and F.1
PCV 4.3, 5.0, and 5.1
IS12P 5.1
IS42X F.1, G.2, G.3, H.2, and J.1
PWC90 1.0

Table D-2. TDT Database Configuration

Feature	Console Support
Report point list	Open access system (OAS) E.1 and F.1 only.
Tag list	All consoles listed in Table D-1. Refer to the console instruction for tag types and fields used by a specific console.
Trend list	All consoles listed in Table D-1. Refer to the console instruction for trend types and fields used by a specific console.

Table D-3. Display Configuration

Feature	Console Support
Display configuration	All consoles listed in Table D-1 except PWC90.
Alarm summary	Not supported for PCV or IIOIS10 consoles.
Alarm type	Acknowledged and unacknowledged entries are valid only for MCS. Q, IIOIS20 B,and 40 series B, and later.
Background color	MCS PLUS X.1 and 40 series J.1, and later.
Select by	Priority entry is valid only for MCS Q, IIOIS20 B, and 40 series B, and later.

Table D-3. Display Configuration (continued)

Feature	Console Support
Custom trend	MCS PLUS X.1, 40 series J.1, and later only.
Display attributes	
Security levels	MCS R, IIOIS20 B, and 40 series C and later only.
Faceplate	Not supported for PCV and IIOIS10.
Interactives	
@aGlance/IT user task activation	40 series J.1 and later only.
Push button	MCS PLUS X.1, 40 series J.1, and later only.
UTI user task activation	40 series only.
XY plot select	Not supported for PCV or IIOIS10 consoles.
XY plots	Not supported for PCV or IIOIS10 consoles.

Table D-4. Log Configuration

Feature	Console Support
Log configurations	All consoles listed in Table D-1 except PCV, IIOS10, and PWC90.

Table D-5. Keyboard Configuration

Feature	Console Support
ADP keys	MCS, MCS PLUS, IIOIS20, and IIOIS25 consoles only.
Function keys	MCS, MCS PLUS, IIOIS20, and IIOIS25 consoles only.
Alarm tones	MCS, MCS PLUS, IIOIS20, and IIOIS25 consoles only.
Alarm relays	MCS, MCS PLUS, IIOIS20, and IIOIS25 consoles only.

Index

A

Alarm relays configuration 8-7
Alarm tones configuration 8-5
Annunciator display panel configuration 8-1
Automatic display and pop-up configuration 12-11

B

Broadcasting
- Displays and symbols 10-10
- Tag lists 10-10

Browser
- Application window 5-8
- Creating a list 5-11
- Document window 5-12
  - Changing partitions 5-13
  - Partitioning 5-12
  - Resizing partitions 5-13
- Fields
  - Changing contents 5-31
  - Clearing 5-31
  - Data validation 5-28
  - Editing 5-28, 5-30
  - Locatin 5-29
  - Moving 5-14
  - Moving to 5-28
  - Moving within 5-29
  - Selecting 5-29
  - Sizing 5-14
  - Viewing 5-17
- Fonts 5-14
- List view 5-13
- Menu items 5-10
- Merging data 5-15
- Opening a list 5-11
- Printing 5-14
- Records
  - Adding 5-26
  - Copying tags 5-27
  - Editing 5-22
  - Locating 5-26
  - Marking 5-22
  - Marking for deletion 5-23
  - Replacing 5-25
  - Sorting 5-27
  - Unmarking 5-24
  - Viewing 5-16
- Reports 5-31
- Saving 5-15
- Starting 5-6
- Table view 5-13
- Template 5-17
- Using 5-6

C

Communications port configuration 11-18
Compatibility 1-8
Console configuration overview 3-1, 3-18
Console tools
- Using 3-1

Console tools executive 3-2
- Menus 3-9
- Parts of the screen 3-5
- Project tree 3-6
- Starting 3-3

Content 1-4
Conventions
- Document 1-5
- General edit system 3-24
- Windows 3-23

Converting file formats 11-3

D

Data entry procedures C-1
Display configuration 6-1
- Adding tags to a console tag list 6-16
- Attributes 6-26
- Changing tag index 6-62
- Changing tag name 6-62
- Changing the document type 6-16
- Choosing commands 6-20
- Closing a document 6-16
- Closing the application 6-9
- Components 6-27
- Copying entities 6-62
- Cursor 6-23
- Cutting entities 6-62
- Deleting entities 6-63
- Distance 6-25
- Document types 6-5
- Document windows 6-17
- Document work space 6-19
- Drawing entities 6-28
- Dropping entities 6-28
- Editing entities 6-61
- Entities
  - Alarm summary 6-29
  - Arc 6-30
  - Circle 6-31
  - Clip rectangle 6-31
  - Console display attributes 6-31
  - Custom trend 6-32

Index (continued)

Default symbol 6-34
Escape 6-34
Faceplate 6-36
Interactives 6-37
Line 6-54
Polygon 6-54
Rectangle 6-55
Symbols 6-55
Text strings 6-56
Trend 6-32, 6-56
XY plot 6-58
Environment 6-25
Exploding symbols 6-63
GDC features 6-2
General procedure 6-3
Grid 6-23
Guidelines 6-4
Listing symbols 6-70
Locating entities 6-60
Magnifying 6-22
Manipulating grouped entities 6-63
Menu items 6-11
Modifying entities 6-64
Moving entities 6-64
Notes 6-3
On-line help 6-12
Opening a document 6-13
Overview 6-2
Panning 6-22
Parts of the window 6-10
Pasting entities 6-62
Printing a document 6-15
Refreshing the view 6-23
RMCB configuration 6-83
Rotating entities 6-65
Saving a document 6-14
Scaling entities 6-66
Selecting entities 6-60
Starting 6-8
Status displays 6-84
Stretching entities 6-66
Symbols
Color characteristics 6-69
Color considerations 6-71
Color Requirements 6-71
Configuring symbols 6-70
Creating symbols 6-71
Custom trend template 6-72
Default symbols 6-79
Deleting 6-71
Deleting symbols from disk 6-71
Faceplate symbol 6-77
Search paths 6-68
Types 6-67
XY plot symbols 6-77
Tag linking considerations 6-5
Tool bar 6-21
Undeleting 6-67
Display element 1-6
Display utilities 12-1
Add ADP address to tag list 12-11
Add primary display name to tag list 12-10
Color change 12-3
Convert interactive to pop-up 12-9
Cross reference 12-5
Enable and disable display control 12-11
List displays in which a tag appears 12-5
List tags in a display file 12-6
List trends in a display file 12-7
Substitute text 12-10
Tag indices number change 12-8
Trend index number change 12-8
DOS utilties 12-1

E

Entity 1-6
EWS 1-6
Exporting lists 11-9
Report point list 11-11
Tag list 11-9
Trend list 11-10

F

Feature support D-1
Features 1-2
File name extensions A-1
Files
.DT 12-1
ADSTA.CF 8-1, 10-8
ALMRELAY.CF 8-7, 10-8
ALMTONE.CF 10-8
ALMTONES.CF 8-5
ALRMCMNT.TAC 10-2, 10-3
BCASTDSP.LOG 10-11
EUDSCP.CF 5-52, 10-2, 10-3, 10-4
KTAS.CF 8-3, 10-8
LOGNAMES.LG 10-7
LOGnnnn.LF 10-7
LSDSCP.CF 5-53, 10-2, 10-3, 10-4
N90STAT1.DR 6-84
NODSTAxx.DR 6-84
RMCB1.DY 6-83

TRENDDEF.CF 10-5
Function key configuration 8-3

G

General edit system C-1
Data states C-2
Default colors C-1
Inputting data C-2
Key functions C-3
Standard colors C-1
Standard functions C-3
GES interface configuration 11-17
Glossary 1-6

H

Hardware key 2-9

I

Importing lists 11-4
Report point list 11-8
Tag list 11-5
Trend list 11-6
INFI-NET 1-6
Installation 2-2
Intended user 1-1

K

Keyboard configuration 8-1

L

Launcher 3-2
License management 2-9
Log configuration 7-1
Alarm and quality 7-13
ASCII text 7-11
Compress ASCII space 7-16
Configuration data 7-13
Constant value 7-15
Create new logs 7-3
Edit cells 7-9
Edit log configuration header 7-4
Edit logs 7-4
Formula 7-14
Offset time 7-15
Save log 7-16
Startup 7-1
Tag value 7-13
Time and date 7-14
Trend value 7-12

M

MCS 1-6
MCS floppy disk utilities 10-10

O

OIS 1-6
On-line help 3-15
Opening a project 3-4

P

Printing GDC Displays 11-14
Product support 1-7
Project
Closing 4-4
Defining 4-2
Defining structure 4-5
Deleting files 4-10
Deleting loops, consoles, and groups 4-9
Editing console information 4-11
Editing project information 4-5
Importing displays and symbols 4-10
Opening 4-3
Upgrading the TDT database 4-4
Project directory structure 4-1
Project structure 3-7
Global tag database 3-7
Project folder 3-7
Project tree 3-6
Using 3-6

R

Reference documents 1-6
Release information 2-4
Requirements
Certified computers 2-2
Hardware 2-1
Minimum configuration 2-2
Software 2-2
Retrieving configurations 10-8

S

Software key 2-10
Supplemental utilities 3-22
Symbol 1-6, B-1
Faceplate B-1
Standard B-1

Index (continued)

Synchronizing tag data....5-4

T

Tag....1-6
Tag linking
  Project configuration considerations....3-15
Tag synchronization....11-1
Tag utilities
  Copying lists....11-11
  Menus....11-3
  Packing lists....11-12
  Re-assigning tag and trend indices....11-12
  User field structure editor....11-13
Tag utilties....11-3
TDT database
  Alarm comment configuration....5-54
  EUD configuration....5-51
  LSD configuration....5-53
  Overview....5-1
  Report point list configuration....5-56
  Tag list configuration....5-32
  Trend list configuration....5-48
Tools....1-3
Transferring configurations....10-1
  Displays....10-6
  General information....10-1
  Keyboard....10-8
  Logs....10-7
  PCV 4.3 Tag lists....10-4
  Report point lists....10-6
  Symbols....10-6
  Tag lists....10-2
  Trend lists....10-4, 10-5
Translation
  Displays and symbols....9-1

U

User interface configuration
  Changing colors....11-17
  Foreground highlight....11-18
  Sound....11-18

V

Viewing log files....11-16

Visit Elsag Bailey on the World Wide Web at http://www.bailey.com

Our worldwide staff of professionals is ready to meet *your* needs for process automation.
For the location nearest you, please contact the appropriate regional office.

AMERICAS
29801 Euclid Avenue
Wickliffe, Ohio USA 44092
Telephone 1-216-585-8500
Telefax 1-216-585-8756

ASIA/PACIFIC
152 Beach Road
Gateway East #20-04
Singapore 189721
Telephone 65-391-0800
Telefax 65-292-9011

EUROPE, AFRICA, MIDDLE EAST
Via Puccini 2
16154 Genoa, Italy
Telephone 39-10-6582-943
Telefax 39-10-6582-941

GERMANY
Graefstrasse 97
D-60487 Frankfurt Main
Germany
Telephone 49-69-799-0
Telefax 49-69-799-2406

Form WBPEEUI310010B0 Litho in U.S.A. 497

Copyright © 1997 by Elsag Bailey Process Automation, As An Unpublished Work
® Registered Trademark of Elsag Bailey Process Automation
™ Trademark of Elsag Bailey Process Automation