Honeywell

Documentation Tool

SW11-509

Total Plant

Honeywell

Documentation Tool

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The following standard document conventions may be used in this document. Check Section 1 for conventions unique to this document.

Item	Convention	Meaning
<KEYCAPS>	Pointed brackets around a term	A key on a computer keyboard
[TARGET]	Square brackets around a term	For touch screen monitors, an area that can be touched to invoke a system action
`entry data`	Courier bold text	Data you enter into the system
`screen/program data`	Courier text	Screen or program data

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Documentation Tool
Section 1—Introduction

1.1 About This Document

Basics

Purpose	Describes the functionality of the Documentation Tool.
Intended audience	Operators, maintenance technicians, or engineers who need to retrieve and customize statistical and conditions data from LCN nodes and process-connected devices including AMs, CMs, the UCN, and Data Hiways
For product release	TDC 3000^{X} Release 500.

Document background

This Introduction

- Defines the 1.2 Documentation Tool Concept, page 2 and lists functionalities 1.4 Comparing Documentation Tool to Find Names, page 8
- Describes procedures to do 1.3 Before Using the Documentation Tool, page 4

The rest of this document will

- Define the many commands available with the Documentation Tool (2.6 Command Summary, page 23).
- Describe the 2.8 Documentation Tool Procedures, page 25 required to use these commands
- Give 2.2 Application Examples, page 10 of how the Documentation Tool can benefit you in your job.

1.2 Documentation Tool Concept

Definition

The Documentation Tool is a TDC 3000^X Engineering Personality function that allows you to retrieve data from several sources including

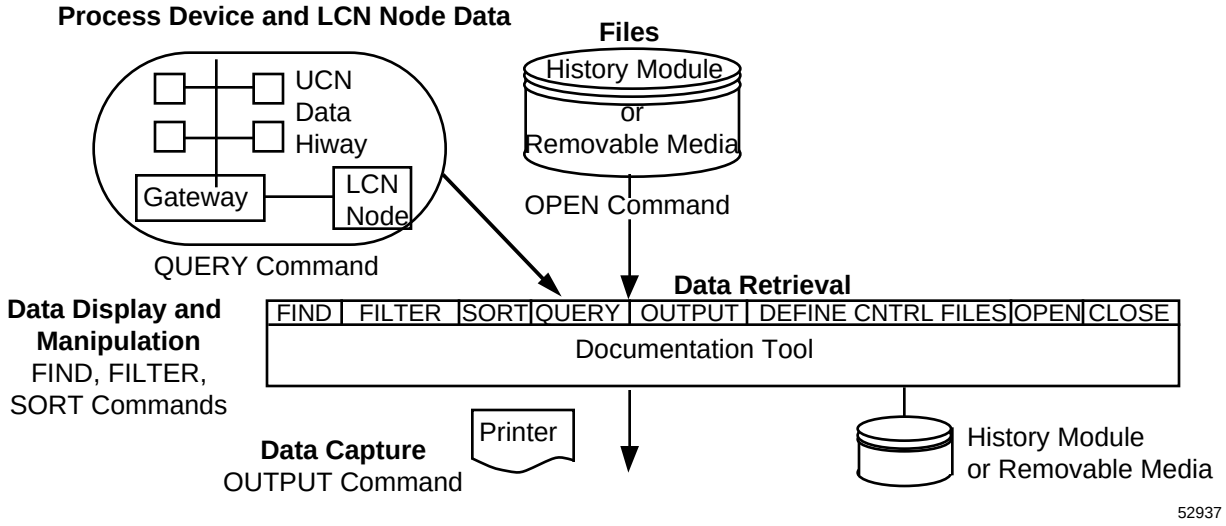
- Process-connected devices
- LCN nodes
- Files from the History Module and removeable media

Purpose

Once retrieved, data can be displayed or manipulated by using various commands within the Documentation Tool, creating more customized information. Results can then be stored to a file or printed. Queries depict current system information and assist you in documenting the system database.

Conceptual diagram

This diagram illustrates how the Documentation Tool retrieves data for queries and from files on storage media. The data can then be manipulated by using the Find, Filter, or Sort commands with the results being output to a file or a printer.



Typical users

Operators, maintenance technicians, or engineers can benefit from Documentation Tool results. The following examples depict how it assists these users.

Operators

Operators can obtain current process conditions on demand. For example, when an operator first starts a shift, a query can be executed listing all LCN points currently in emergency alarm, manual mode, or inactive state. After the query results are displayed, they can be sorted so that points are listed in alphabetical order by unit. Sorted data can then be printed.

Technicians

- Example 1: A query can be created to list current tuning constants for all PID controllers, with the results sorted by hiway box or UCN node. The sorted listing shows tuning constants for each device that can be used to note constants changed by operations personnel or to document tuning after startups.
- Example 2: The configuration of logic points can be traced to find the cause of a tripped interlock by executing a query listing all logic points in a particular device and their corresponding input connections, interlocks, and permissives.
- Example 3: If a site is using the UCN Advanced Process Manager, a query can be executed to obtain statistics such as the number of transitions and total run time for motors being controlled by Device Control or Digital Composite points.

Engineers

Database resources can be documented more easily by performing queries on all hiway boxes or UCN nodes to show which boxes or nodes are presently being used.

Example: One query can retrieve all numerics listed by box or node number, point name, and internal variable number. A second query can retrieve all Regulatory Control points and their corresponding algorithms, input sources, output sources, and units.

The data can be sorted by box or node number to produce more relevant information and then saved to a file. The contents of this file can be edited in the Text Editor to include descriptive comments.

Displaying data

Data is presented in single-or multiple-page displays. Displays show the content of files you opened or the results of queries you executed while in the Documentation Tool. Displays may also appear as boxes of information the Documentation Tool creates automatically, such as an error message box. These boxes overlay the current display.

Each display remains available for recall until it is cancelled or closed. Every new display overlays the previous one, creating a stack of displays. You can page through displays in the stack using the <DISP FWD> and <DISP BACK> keys.

If you try to bring more displays into the stack than Universal Station memory can handle, you are asked to cancel one or more displays.

1.3 Before Using the Documentation Tool

Two required procedures

Before you use the Documentation Tool for the first time, two procedures must be performed:

- Procedure 1- create required directories and set pathnames for them
- Procedure 2 - create a query control file

Procedure 1

Procedure 1 will Create Documentation Control and Temporary File directories, page 4 and specify their pathnames to the Universal Station. Because this procedure involves using the Command Processor, the keyswitch must be in the ENG position. If your site has users that store these prebuilt queries on different media, Procedure 1 may be required each time the Documentation Tool is accessed from a particular Universal Station.

Purpose of the directories

The Documentation Control and Temporary File directories created in Procedure 1 serve the following purposes:

1. Documentation Control directory
   - This directory contains a file with the predefined name of SYSQRY.DC. It holds the data generated from query saves.
2. Temporary File directory
   - Temporary files hold data currently being displayed and exist only while a function is in effect. Ordinarily, the Temporary File directory is empty unless an engineering function that uses temporary files is in progress, such as the Command Processor List (LS) command, the Picture Editor, and the Documentation Tool Sort and Query commands.
   - Temporary files are normally deleted after exiting the Documentation Tool, but on occasion, abnormal errors leave them in the directory. You can delete these files if this happens.

Procedure 2

Procedure 2 of the Documentation Tool installation will Create the Query Control File, page 6, a control file named SYSQRY.DC. Prebuilt queries are stored in this file. If it is not present, errors result when using the Query command. The Define Cntrl Files command in the Documentation Tool initially creates the SYSQRY.DC file.

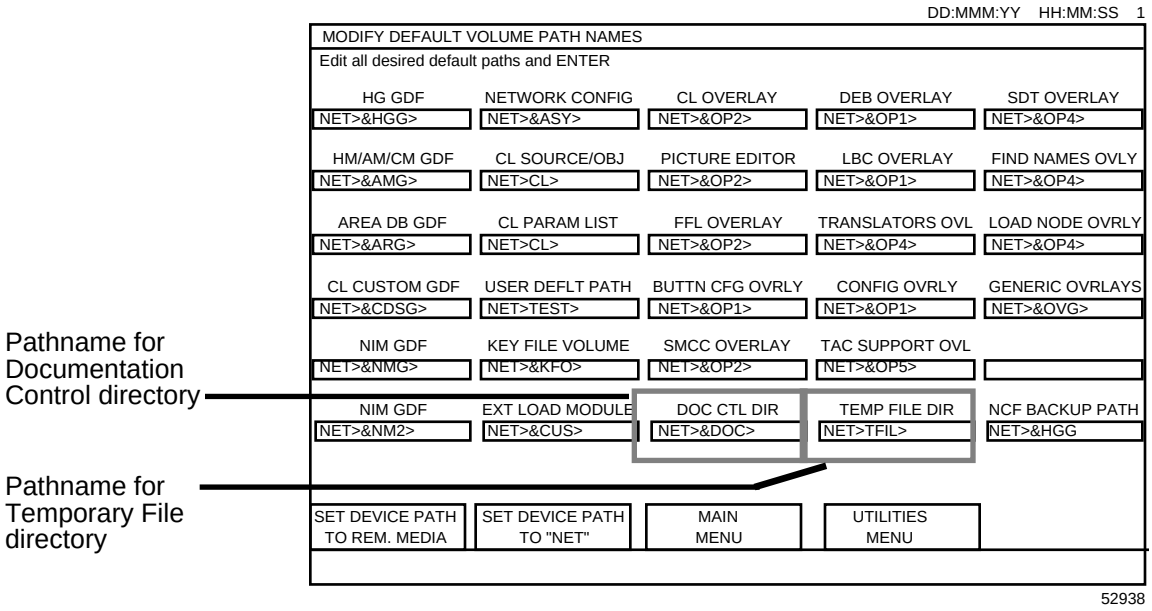
Create Documentation Control and Temporary File directories

The first procedure to perform before using the Documentation Tool is as follows.

Table 1-1 Procedure 1- Create Directories and Set Pathnames

Step	Action	Result
1	Put the keyswitch in the ENG position.	The access level is now ENG.
2	Call up the Command Processor display to create the Documentation Control and Temporary File directories. Example: CD NET>VOL &DOC CD NET>VOL TFIL	The directory and pathnames are specified later in the Modify Default Volume Path Name display. NOTE: The default directory names in the pathname catalog are &DOC and TFIL. You may define other names if you wish. The directories can be created on either the HM or removable media.
3	Using different pathnames other than &DOC and TFIL that are defined in pathname catalog? If yes, perform Steps 4 through 6. If no, go to Procedure 2.	 You must make additional entries. You have completed Procedure 1.
4	Perform one of the following procedures to call up the Modify Default Volume Path Name display. • If Engineering Select Main Menu is on screen, select [SUPPORT UTILITIES] select [MODIFY VOLUME PATHS] • If Command Processor display is on screen, Type in SP and press <ENTER>.	The Modify Default Volume Pathname display, page 6 appears, as shown at the end of this procedure. The Documentation Tool uses the specified pathnames to access the Documentation Control and Temporary File directory.
5	Type in the desired pathnames. Use the directory names and media created in Step 2.	Pathnames for Documentation Control and Temporary File directories are defined.
6	Perform one of the following procedures to return to prior display. • If prior display was Engineering Main Menu, select [MAIN MENU]. • If prior display was Command Processor, hold <CTL> and Press <MENU>.	Prior display appears.

Modify Default Volume Pathname display



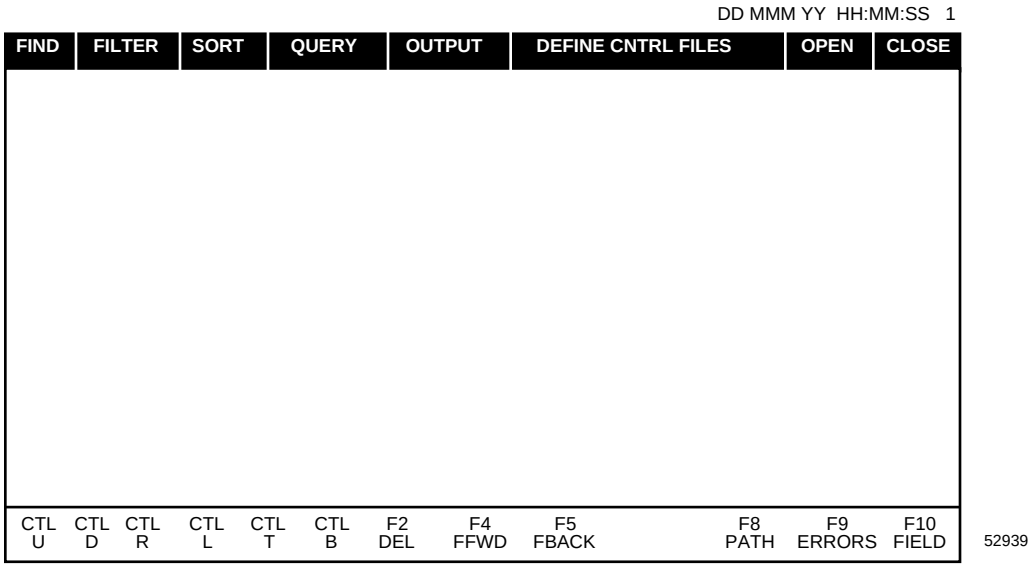
Create the Query Control File

The second procedure to perform before using the Documentation Tool is as follows.

Table 1-2 Procedure 2 - Creating a Query Control File

Step	Action	Result
1	Perform one of the following procedures to access the Documentation Tool. • If Engineering Main Menu is on screen select [DOCUMENTATION TOOL] • If Command Processor display is on screen, type in **DT** and press <ENTER>.	Documentation Tool display, page 7 appears, as shown at the end of this procedure. Commands are displayed across the top of the screen as targets to be selected. Additional functions available as keys are displayed across the bottom of the screen.
2	Select [DEFINE CNTRL FILE] and press <ENTER>.	The SYSQRY.DC file is created in the Documentation Control directory, then the message “Operation complete” appears. You can now use either the Open or Query commands in the Documentation Tool. For command procedures see 2.9 Opening Files, page 26 or 2.16 Building, Saving, and Executing a Query, page 40.

Documentation Tool display



1.4 Comparing Documentation Tool to Find Names

Functional differences

The following table depicts how the Documentation Tool differs from the Find Names (FN) function of the Command Processor.

Table 1-3 Documentation Tool vs. Find Names

Function	Documentation Tool	Find Names
Searches the following files for cross references to entities or patterns: History Unit, Area Database, Picture Editor, Button Source, checkpoint, and text files.		√
Searches Display databases (DDB).		√
Lists the file name that contains the character string you are searching for, and prints out the string.		√
Searches the on-line databases of LCN nodes and process-connected devices including: AMs, CMs, the UCN, and Data Hiways	√	
Displays the entire contents of a file once the specified character string is found.	√	
Saves engineering effort and time by arranging information in a useful manner.	√	

Section 2—Using Documentation Tool

2.1 Overview

Description

The Documentation Tool saves engineering time and effort by arranging information in a useful manner. With it you can:

- Search the on-line databases of LCN nodes and process-connected devices including:
  AMs, CMs, the UCN, and Data Hiways.
- Display the entire contents of a file once the specified character string is found.
- Customize system database documentation so it can be stored or printed.

This section

- Defines the many 2-3 Commands, page 23 available
- Describes the 2.8 Documentation Tool Procedures, page 25 required to use these commands,
- Gives 2.2 Application Examples, page 10 that show how the Documentation Tool can benefit you in your job, and
- Provides procedures for 2.3 Accessing the Documentation Tool, page 15.

2.2 Application Examples

Two examples

The following examples depict the breadth of Documentation Tool functionality, and also help you gain insight into how Documentation Tool commands are implemented.

Specifically,

- Example 1, page 10 is a step-by-step approach of Opening the file, page 10, Defining a field, page 11, and using the Results of the Filter command, page 12 to display only certain data.
- Example 2, page 12 is also a step-by-step approach of opening a file, defining a field, and using the Sort command (Sorting data, page 13) within the file in chronological order.

Example 1

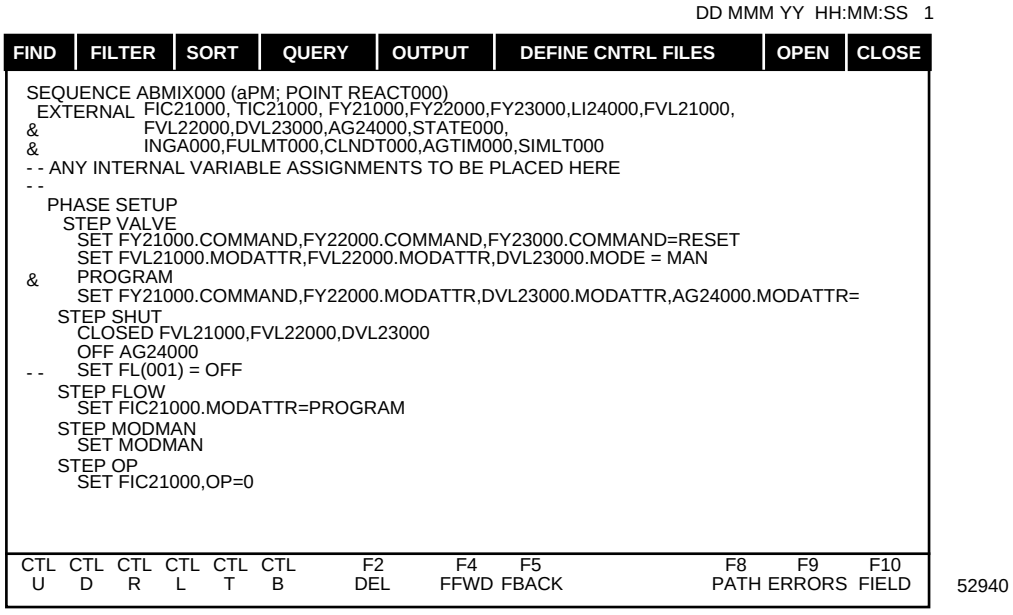
Purpose: List all SEND STATMENTs used in this CL program.

Description: You must create a field in the CL source file for the purpose of searching the data contained within the field.

Opening the file

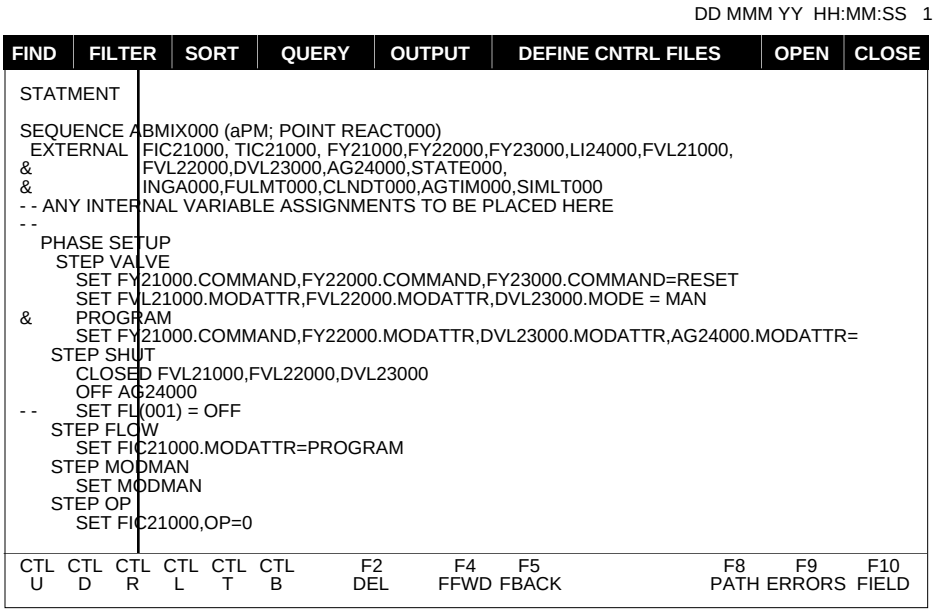
First, you use the Open command to retrieve the CL source file from storage media. To do this, select [OPEN] from the command line, and enter the pathname of the file, for example, `NET>TEST>ABMIX000.CL`. This results in the CL source file shown in the following figure to be displayed.

Opened CL source file



Defining a field

Second, you must define a field to identify CL statement types so data can be searched in that field. To do this, begin by positioning the cursor where you want the end of the field to be and press <CTL> <F10>. A Field name and Type menu, page 39 appears. Type in the field name. In the following example, STATMENT is the field name used. Then select the field type. In the example shown, the STRING field-type target is selected. When you press the [ENTER] key, a STATMENT field appears at the top of the CL file and a vertical line showing the width of the new field appears, as the figure illustrates.



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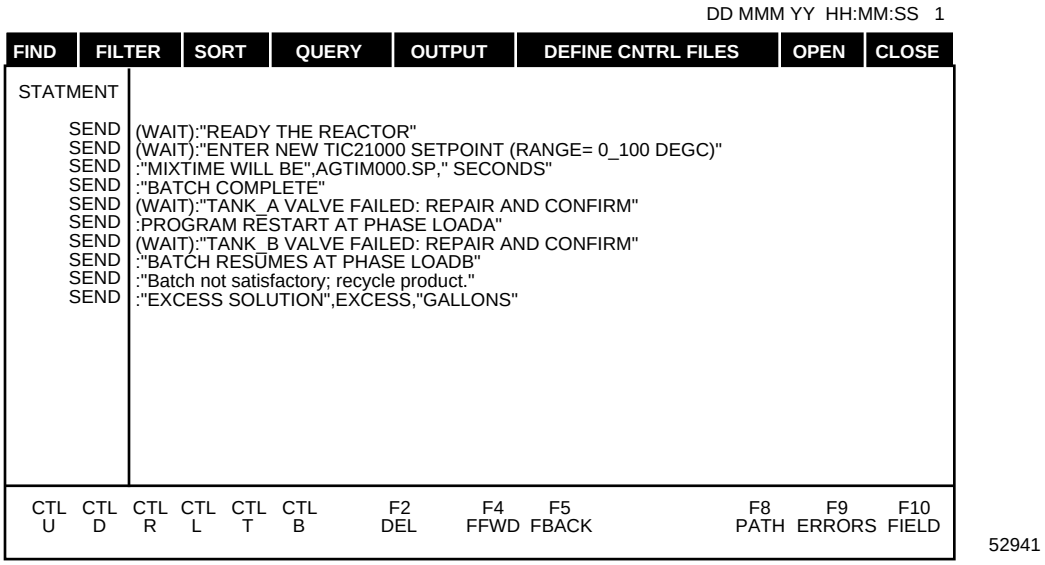
Filtering data

Third, use the Filter command to eliminate all data in the CL program except the SEND statements from the display. Enter the following condition in the entry port after selecting [FILTER] from the command line, and turning the Filter state [ON]:

STATMENT=SEND

As a result, only the records with SEND in the STATMENT field are displayed as shown in the following figure.

Results of the Filter command



Outputting data

Fourth, you can save data results by storing it to a file or printing it. To do this, select [OUTPUT] from the command line.

Example 2

Purpose: Sort a Find Names (FN) file in chronological order.

Description: From the Documentation Tool, you open a Find Names file that was created using the Find Names command. The file includes data Find Names has found searching the database, checkpoints, and references. To sort the data in this file, you must first create one or more fields.

For more information on the Find Names command see the *Find Names Command* document.

Opening the file

First, you use the Open command to retrieve the Find Names file. To do this, select [OPEN] from the command line, and enter the file pathname, for example, `$F1>TEST>TEMP.XX`. The Find Names file shown in the following figure is displayed.

Opened Find Names file

```
                                                    DD MMM YY  HH:MM:SS  1
FIND | FILTER | SORT | QUERY | OUTPUT | DEFINE CNTRL FILES | OPEN | CLOSE

FN AM_CP   ENTITY      * CL RAMP*
  MEDIA       AMCP        ENTITY       CL
- - - - - - - - - - - - - - - - - - - - -
NET>F94      NO          RAMP304      RAMPAM
NET>F93      NO          RAMP303      RAMP
NET>F93      NO          RAMP301      RAMP
NET>F93      NO          RAMP302      RAMP
NET>F93      NO          RAMP305      RAMP
NET>F93      NO          RAMP306      RAMP
NET>F93      NO          RAMP307      RAMP
NET>F93      NO          RAMP310      RAMPAM
NET>F93      NO          RAMP309      RAMP
NET>F93      NO          RAMP312      RAMP
NET>F93      NO          RAMP311      RAMP
NET>F93      NO          RAMP308      RAMP
NET>F93      NO          RAMP313      RAMP
NET>F93      NO          RAMP314      RAMPAM
NET>F93      NO          RAMP315      RAMPAM
NET>F93      NO          RAMP316      RAMPAM
NET>F93      EA          RNDNO332     RAMPAM
NET>F95      SO          RNDNO333     RAMPAM
NET>F96      WE          RNDNO331     RAMPAM
FIND NAMES COMPLETE

CTL U  CTL D  CTL R  CTL L  CTL T  CTL B     F2 DEL     F4 FFWD  F5 FBACK     F8 PATH  F9 ERRORS  F10 FIELD
```

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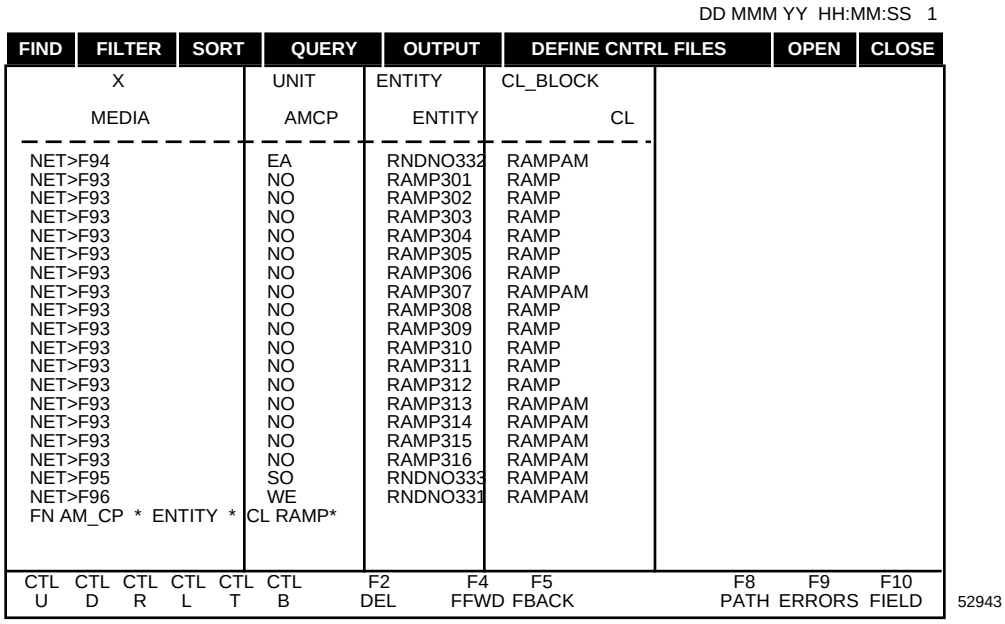
Defining a field

Second, you must create a field in the file so that data can be sorted. In this example, the field name being defined is UNIT; and STRING is selected as the data type. Other fields defined in this example include X (because we are not concerned with the data in this column), ENTITY, and CL_BLOCK.

Sorting data

Third, you select the Sort command target and enter UNIT as the field name to sort on. When you press the [ENTER] key, the Sort command reorders the units data in chronological order.

Results of Unit Field Sort, example



Outputting data

Fourth, you can save this data by storing it to a file or printing it. To do this, select [OUTPUT] from the command line.

2.3 Accessing the Documentation Tool

Keylock access

All commands in the Documentation Tool are available at the Operator keylock level except the Output to File command, and deleting prebuilt queries. Operators can only output data to a printer.

> **ATTENTION**
>
> You can access the Documentation Tool once you have completed the installation procedures as described in 1.3 Before Using the Documentation Tool, page 4.
>
> Once the Documentation Tool has been accessed, you use only the Open or Query commands.
>
> References:
>
> 2.9 Opening Files, page 26
>
> 2.5 Queries, page 20

Procedure

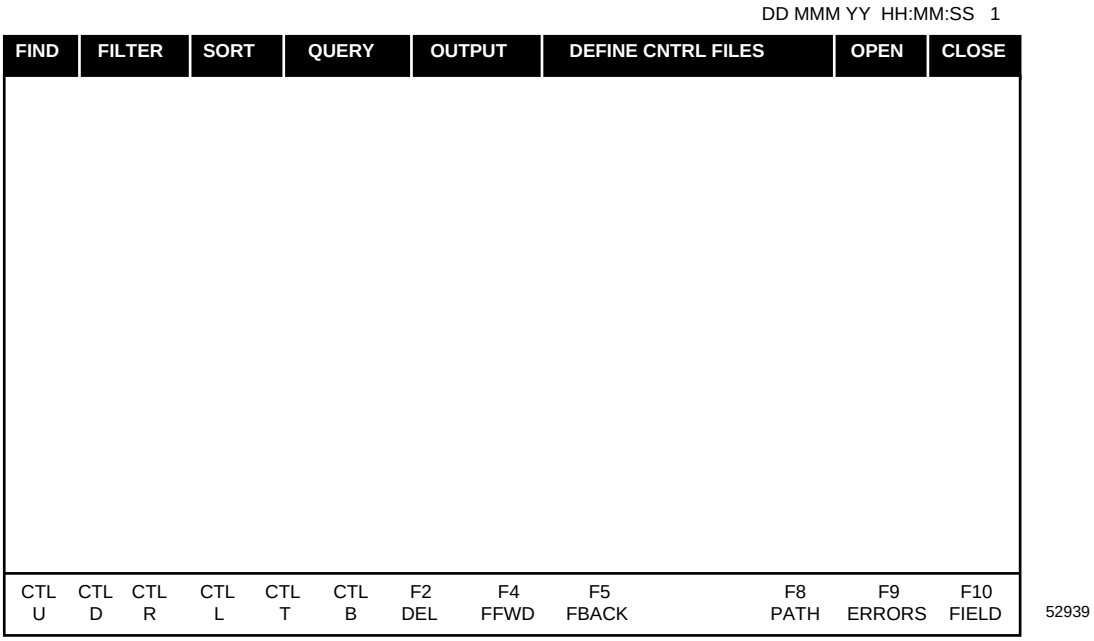
The following procedure describes the steps required to access the Documentation Tool.

Table 2-1 Accessing the Documentation Tool

Step	Action	Result
1	Select [DOCUMENTATION TOOL] target from Engineering Main Menu. or Type **DT** in the Command Processor and press <ENTER>.	Documentation Tool display appears. A sample Documentation Tool display, page 16 appears at the end of this procedure.
2	`Do you want to open a system file?` If yes, select the [OPEN] target. If no, go to Step 3.	Entry box appears for file pathname. Reference: 2.9 Opening Files, page 26
3	`Do you want to execute a query?` If yes, select the [QUERY] target. If no, procedure is concluded.	Reference: 2.16 Building, Saving, and Executing a Query, page 40

Documentation Tool display

Commands are displayed across the top of the screen as targets to be selected. Additional functions available as keys are displayed across the bottom of the screen.



2.4 Fields

Definition

Fields are columns of data displayed in an open file. You may label these columns with a name and assign them a type to be used in subsequent commands of the Documentation Tool. Once you define a field, the field name is shown at the top of the display, along with vertical lines indicating field boundaries. The following Documentation Tool commands use fields:

- Find
- Filter
- Sort
- Query

Field name example

The following figure depicts a file with field names. In this example, the field names are: ENTITY, PV, SP, MODE, and PTDESC.

Example of a File with Field Names

FIND	FILTER	SORT	QUERY	OUTPUT	DEFINE CNTRL FILES	OPEN	CLOSE

ENTITY	PV	SP	MODE	PTDESC
FVL23911	ON	52	AUTO	FLAGFOR PV232911
FVL24911	OFF	60	AUTO	FLAGFOR PV232911
DVL23911	ON	32	MAN	
PI23911	OFF	44	CAS	NUMERIC FOR PV232911
LI24911	50.000000000	68	CAS	STIMULATION FORPUMP911
FI23911	- - - - - - - - - - - -	70	AUTO	FLAGFOR PV232911
VLV23911	OFF	57	AUTO	DISCHARGE PUMP
PV23911	ON	25	MAN	LOGIC TOGGLES SOE POINT
LOGIC_FORSOE	62.000000000	75	MAN	SEQUENCE OF EVENTS POINT
DIS23911	OFF	68	AUTO	FLAG STARTS SOE TOGGLING
FLAG15	OFF	81	AUTO	REACTOR LEVEL INDICATOR
LI24000	- - - - - - - - - - - -			
ASIM000	ON	20	MAN	SOL. A FLOW SIMULATOR
BSIM000	OFF	30	NAN	SOL. B FLOW SIMULATOR
DSIM000	OFF	45	MAN	DRAIN FLOW SIMULATOR

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Creating fields

Fields are either created or generated in the following ways:

- The user creates fields by positioning the cursor in the displayed data at the desired end of the field and pressing the <CTL> <F10> keys (Mark Field).

- The Query command results generate fields. The Query command allows entry of entity names and parameters in determining what it searches for. When the query execution process is completed, field names and their boundary lines are displayed, along with columns of data.

Field types

Available field types are:

- Strings (ASCII text)
- Numbers (integer, real, exponential formats)
- Date/time

Date/time formats

The following date/time formats are supported by the Documentation Tool:

Table 2-2 Date/Time Formats

Type	Format(s)	Example
Duration	DDDD hh:mm:ss NOTE: Only one blank is allowed between days and hours. All three parts of the time must be specified.	21 10:00:33
Numeric Date	MM/DD or MM/DD/YY MM-DD or MM-DD-YY	01/03/92 01-03-92
ISO Date	YY/MM/DD YY-MM-DD	92/01/03 92-01-03
European Date	DD/MMM/YY DD-MMM-YY	13/AUG/92 13-AUG-92
Time	HH:MM HH:MM:SS HH:MM:SS:NNNN	10:00 10:00:03 10:00:03:250
Date and Time	Any of the previous date formats with the addition of time.	01/03/92 10:00:03 13/AUG/92 10:00

Changing field types

When a query is executed, the field type matches the data type found for that parameter. In some instances a field may contain mixed types of data. You can change the field type by using the <CTL> <F10> keys.

Example: A PV value could be a number or an ON/OFF string. When more than one data type is returned by the query, the type becomes a string. The field “PV” could be changed to a number field type, allowing the Sort command to sort PV by value. Any strings such as ON or OFF will go to the end of the sort.

ATTENTION

Enumerations such as MAN, AUTO, and CAS, and self-defined enumerations such as ON/OFF are considered STRING field types.

Field name size You can enter up to sixteen characters for a field name.

2.5 Queries

Definition

The Query command retrieves user-created entity data (not system or "$" entities) from the on-line database. On-line data resides in the following devices:

- Gateways
- Application Module
- Computing Module
- Process-connected devices

Query examples

Examples of the kinds of queries you can create are described as follows:

Example 1

List all points in Unit 1 that are in manual mode, and display their descriptor, PV, and alarm state.

Example 2

List all points in Units 1 through 5 that are in alarm state, and display their description, PV, mode, and alarm state.

Example 3

List all points on process networks 10 and 12 that have tagnames starting with "FIC," and show their PV, SP, and mode.

Example 4

List all AM regulatory, switch, and custom points in Units 1, 2, and 3 that have a PV greater than 60. For every point listed, show the parameters ALENBST, PTEXECST, and PVEUHI.

Example 5

List all regulatory points on LCN nodes 1-64.

Query operations

Before executing a query, you must first build the query by entering "setup" data. After building the query, you execute it to retrieve the data. The "setup" data that you enter can be saved for future use; this is called a prebuilt query. Setup data includes the following:

- Type of database: hiway, UCN, unit, or node
- Specific entities and conditions (optional)
- Parameters to display in the query results (optional)
- Descriptor (required only if saving query "setup" data)
- Entity types

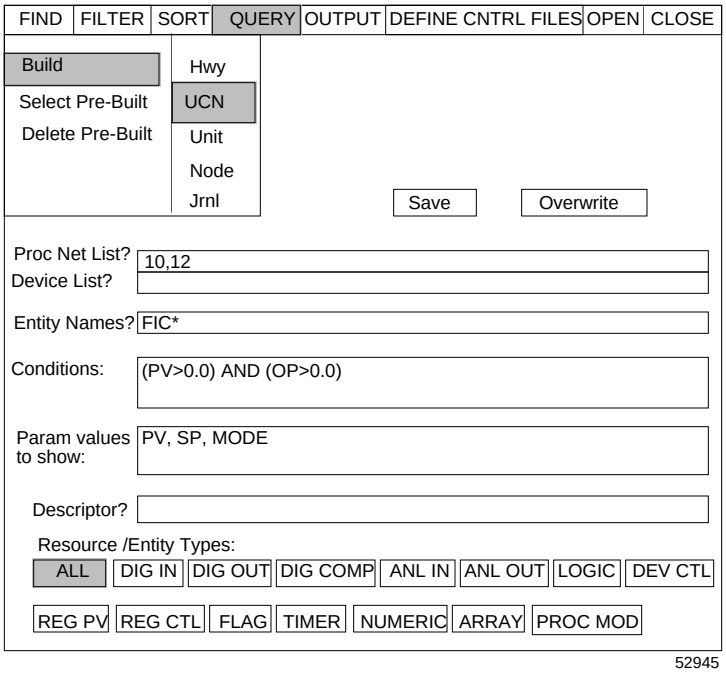
Query commands

The three Query command operations are:

- Build — Calls up targets and ports to build, save, and execute a query.
- Select Pre-built — Calls up a list of previously built queries from which you can modify or execute a specific prebuilt query.
- Delete Pre-built — Calls up a list of previously built queries from which you can delete a specific prebuilt query.

Query setup example

The following figure is an example of the query setup display that searches for all of the entities starting with “FIC” on process networks 10 and 12, and whose PVs and outputs are greater than zero.



Query results

All parameters listed in the “Param values to show” port of the query setup are displayed in the query results as shown in the following figure.

Parameter names become field names in the query results. Field names are subsequently used by the Find, Filter, and Sort commands. In the following figure, four fields and field names were automatically generated: ENTITY is a string field type, PV and SP are number field types, and MODE is a string field type. The results of the query can be sent to a file or printer by using the Output command.

Query results example

	QUERY			
ENTITY	PV	SP	MODE	
FIC101	50.5	50.8	AUTO	
FIC102	55.2	59.1	CAS	
FIC103	100.0	100.0	AUTO	
FIC202	25.4	30.5	CAS	
FIC204	33.4	52.2	MAN	
FIC301	24.4	21.3	MAN	
FIC303	75.6	75.5	AUTO	
FIC401	- - - - -	0.0	MAN	
FIC404	56.5	56.6	CAS	

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Query errors

The following errors may appear in the data columns of the query results:

??????	Communication on the LCN is disrupted, or a device has failed (node, hiway, or box is down).
@@@@@@	Parameter was not configured on the point, or the entity does not exist. You can usually correct these errors.
------	Value of parameter has been set to NaN (Not a Number).
!!!!!!	Parameter does not exist on the point.

You are not required to do any error recovery if these errors appear in your data.

2.6 Command Summary

Overview

The Documentation Tool contains several commands that are described in the following table.

Table 2-3 Commands

Command	Description
[FIND]	Looks for the next occurrence of a specified pattern.
[FILTER]	Displays only data which meets a specified condition.
[SORT]	Reorders the data according to values in the fields.
[QUERY]	Performs a query or alters the prebuilt query file: • [BUILD] Creates and executes queries, which can be saved to a file and printed. • [SELECT PRE-BUILT] Selects a previously built query. • [DELETE PRE-BUILT] Deletes a previously built query.
[OUTPUT]	Sends display data to a file or printer. NOTE: Results displayed from the Query command can also be saved using the Output command.
[DEFINE CNTRL FILES]	Creates the SYSQRY.DC file which holds the data generated from query saves.
[OPEN]	Displays the contents of a file after entry of a pathname. Example: NET>TEST>TEST.EB NOTE: You can use the Command Processor List (LS) command to list available text files, for example: .CL, .EB, .XX, .YY, .ZZ. To go to the Command Processor display, press [ESC]. To return to the Documentation Tool, hold <CTL> and press <MENU>.
[CLOSE]	Removes display currently on the screen.

2.7 Function Key Summary

Function keys

The Documentation Tool contains several function keys that are described in the following table.

Table 2-4 Function Keys

Key	Description
<PAGE FWD> or <PAGE BACK>	Pages forward and backward through data one full screen at a time.
<DISP FWD> or <DISP BACK>	Pages through the displays in the Documentation Tool. Multiple displays can be invoked, with each overlaying the previous display.
<CTL> <U> or <D>	Scrolls the screen up or down one line at a time.
<CTL> <R> or <L>	Scrolls data right or left across the screen, displaying the next or previous field. If no fields are defined, 10 characters are shifted at a time. Up to 240 characters are displayed per line.
<CTL> <T> or <B>	Positions display at start (top) or end (bottom) of the data.
<CANCEL>	Removes display currently on the screen. If an unentered command is on the screen, the command is deleted. If a file is on the display, it is closed.
<CTL> <F2> DEL	Deletes a single prebuilt query descriptor line.
<CTL> <F4> FFWD	Repeats a “find” in the forward direction. It searches forward from the current cursor position, using the last pattern entered in the Find command. If a match is found, the cursor is moved to the location of the match.
<CTL> <F5> FBACK	Repeats a “find” in the backward direction. It searches backward from the current cursor position, using the last pattern entered in the Find command. If a match is found, the cursor is moved to the location of the match.
<CTL> <F8> PATH	Displays the pathname of the data where the cursor is currently located. In a display resulting from a query or sort, the system-generated pathname is shown. Example: NET>TEST>26661400._ _
<CTL> <F9> ERRORS	Displays errors from the last operation on a separate display. • If 1 or 2 errors are present, then errors are shown in the prompt area. • If more than 2 errors are present, then a status message directs user to use <CTL> <F9> keys. Error messages are present and remain as a separate display on the display stack until cancelled. Multiple <F9> displays may be on display stack.
<CTL> <F10> FIELD	Reads the current cursor position and calls up a menu to define a field name, type, and boundary.

2.8 Documentation Tool Procedures

Overview

The procedures that are discussed in the following subsections include:

- 2.9 Opening Files, page 26 — Displays a file as defined by the pathname entered in the entry port.
- 2.10 Closing Files, page 28 — Removes the display from the display stack.
- 2.11 Finding Data, page 29 — Locates the next occurrence of a pattern or specified field within the current display data.
- 2.12 Filtering Data, page 31 — Displays a subset of the data currently on the screen.
- 2.13 Sorting Data, page 33 — Arranges records with a file in ascending order.
- 2.14 Outputting Files, page 36 — Prints or saves the results of previous Documentation Tool operations such as queries and sorts.
- 2.15 Defining, Changing, and Deleting Fields, page 38 — Labels columns of data with a name and a type to be used in subsequent operations.
- 2.16 Building, Saving, and Executing a Query, page 40 — Retrieves user-created entity data from the on-line database.
- 2.19 Modifying and Executing a Prebuilt Query, page 50 — Modifies a previously-built query.
- 2.20 Deleting a Prebuilt Query, page 52 — Deletes a previously-built query.

2.9 Opening Files

Definition

The Open command displays a file as defined by the pathname entered in the entry port. More than one file may be open at the same time, creating a display stack. Once a file is open, you can use either the Find, Filter, Sort, or Define Field commands to manipulate data within the file. Files with lines 80 characters in length can be displayed. You can use the <CTL> <R> or <CTL> <L> keys to scroll right or left to view the data in the file.

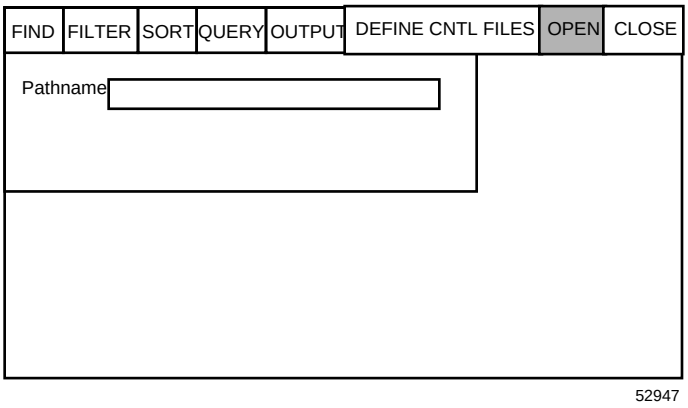
Procedure

The following procedure describes the steps required to use the Open command.

Table 2-5 Open Command

Step	Action	Result
1	Select the [OPEN] target from the command line.	The pathname entry box appears. A sample Pathname entry box, page 27 appears at the end of this procedure.
2	Type in the desired pathname and press [ENTER]. Example: NET>TEST>TEST.EB NOTE: If only the file name is entered, the device and directory is obtained from the user default pathname (entered by using the Default Volume Pathname display or the Command Processor SP command).	File is displayed, or an error message appears. If an error message is shown, see 2.24 Responding to Errors, page 61.
3	Select another command (either Find, Filter, Sort, or Define Fields) to manipulate data within the opened file, or select the [OPEN] target again to display another file.	The entry box for selected command is displayed. For command procedures see: 2.11 Finding Data, page 29 2.12 Filtering Data, page 31 or 2.13 Sorting Data, page 33 2.15 Defining, Changing, and Deleting Fields, page 38.

Pathname entry box



2.10 Closing Files

Definition Closing a file removes it from the display stack.

Procedure The following procedure describes the steps required to use the Close command.

Table 2-6 Close Command

Step	Action	Result
1	Select the [CLOSE] target from the command line. or Press the <CANCEL> key. NOTE: In Free Format Logs (when built) and the Picture Editor, the <CANCEL> key undoes the previous command. In the Documentation Tool, the <CANCEL> deletes the display currently on the screen.	The file is removed from the display stack.

2.11 Finding Data

Definition

The Find command locates the next occurrence of a pattern, or specified field within the current display data. Once you press <ENTER> to start the search, the cursor is positioned over the first character at the beginning of the page and starts the search from, but not including, the first character.

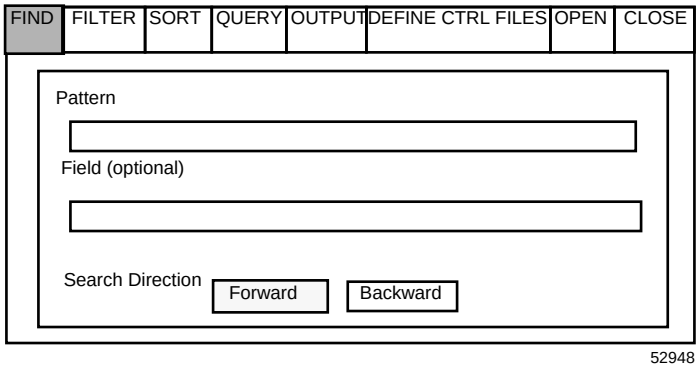
Procedure

The following procedure describes the steps required to use the Find command.

Table 2-7 Find Command

Step	Action	Result
1	With a file displayed on the screen, select the [FIND] target from the command line.	Both Pattern and Field entry boxes overlay the display. A sample Pattern and Field entry boxes, page 30 appears at the end of this procedure.
2	Type in the pattern to be searched. You also have the option of searching on a field. Select a search direction, and press <ENTER>. References: Conditions for Query Journal, page 56 2.15 Defining, Changing, and Deleting Fields, page 38 NOTE: To abort the search, press <CTL> <BREAK>.	"match found" appears and cursor is positioned at location of match, or "no match found" appears. NOTE: If fields are not defined in the file, they cannot be specified in the entry port, and the entire line is searched. If fields are defined, they can be specified in the entry port, with only those fields being searched.
3	Repeat search pattern? If yes, press <CTL> <F4> (forward), or <CTL> <F5> (backward). If no, procedure is concluded.	Find command continues to search through displayed file from current cursor position, or Find command is discontinued.

Pattern and Field entry boxes



2.12 Filtering Data

Definition

The Filter command is used to display a subset of the data currently on the screen. After the condition is entered, and the filter state is turned on, only lines of data that meet the specified condition are shown. The entire file is not filtered when the command is entered; the data is filtered as it is displayed.

Filter state

The Filter command is in effect until the [OFF] target is selected. When the Filter state is set to “off,” the original unfiltered data is redisplayed.

> **ATTENTION**
>
> Fields must be defined in order to use the Filter command.

Procedure

The following procedure describes the steps required to use the Filter command.

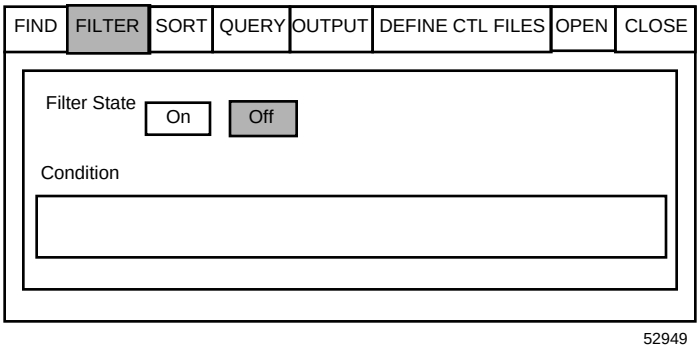
Table 2-8 Filter Command

Step	Action	Result
1	With a file displayed on the screen, select the [FILTER] target on the command line.	Both Filter State targets and Condition entry box overlay the display. A sample Filter State and Condition entry box, page 32 appears at the end of this procedure.
2	Select the [ON] target.	Target is highlighted.
3	Type in desired condition. Press <ENTER>. Reference: 2.21 Conditions for Query and Filter Commands, page 53	Records that meet the condition are displayed.
4	Were records found after condition was entered? If yes, go to Step 5. If no, select [FILTER] from the command line, and set Filter State to [OFF], and press <ENTER>. NOTE: If the results of a filter generates more than one page of data, the message “filtering data” appears when you use the <PAGE FWD> key to view the next page of data.	You are returned to Documentation Tool initial display.
5	Save filtered data? If yes, use the [OUTPUT] command. Reference: 2.14 Outputting Files, page 36 for this command procedure. If no, go to Step 5.	Filtered data is saved, or the Filter command is repeated.

Table 2-8 Filter Command (continued)

Step	Action	Result
6	Repeat Filter command? If yes, go to Step 1. If no, go to Step 7.	Not applicable.
7	Select the [FILTER] target, than the [OFF] target, and press <ENTER>. NOTE: Filter state can remain on except when defining fields.	Filter command is turned off.

Filter State and Condition entry box



2.13 Sorting Data

Definition

The Sort command arranges records within the data in ascending order.

Sort rules

The following rules apply to the sort command:

- Zero or more fields may be specified. If no fields are specified, the data is sorted according to the first field. If no fields are defined in the data, the entire record is treated as a field.
- If multiple field names are specified in the field name list, data is sorted by the first field. All entries equaling the first field are then sorted by the second field, continuing in this way for all fields specified.
- Values which are NaN (- - -) are listed at the end of the data listing.
- Numbers or date/time must be defined as either number or date/time field types in order to be sorted by value when using multiple fields. If the data is not sorted after pressing <ENTER>, the field type can be checked by using the <CTL> <F10> keys as described in 2.15 Defining, Changing, and Deleting Fields, page 38.
- If the error message “Sort contains bad data” appears, then data in fields did not convert to values. This can happen if date/time or number fields are in unrecognized formats. The records which did not convert go to the end of the data.
- When sorted data consists of several pages, the results of the sort reside in a temporary file. When sorted data consists of a small amount of data, the results are held in memory.

Sort example

The following tables demonstrate how the Sort command works when the file contains the fields: NODENUM, MODNUM, and SLOTNUM, and the fields are specified in the Field Name entry box. The Sort command sorts the data by the first field: in this case NODENUM, then MODNUM, and then SLOTNUM.

Table 2-9 Before Sort

NODENUM	MODNUM	SLOTNUM
7	1	2
5	2	1
5	1	2
5	1	1
7	1	1

Table 2-10 After Sort

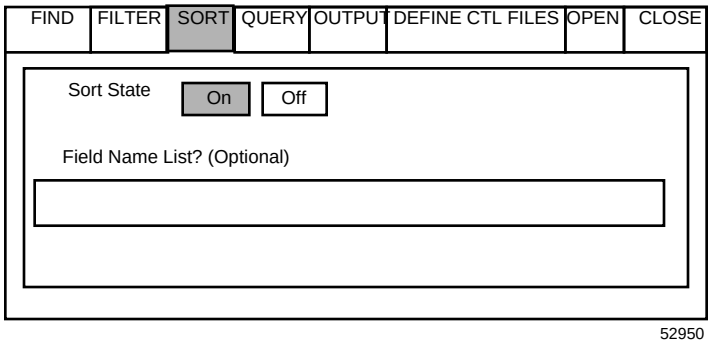
NODENUM	MODNUM	SLOTNUM
5	1	1
5	1	2
5	2	1
7	1	1
7	1	2

Procedure The following procedure describes the steps required to use the Sort command.

Table 2-11 Sort Command

Step	Action	Result
1	With file displayed on the screen, select the [SORT] target on the command line.	Both Sort State targets and Field Name entry box overlay the display. A sample Sort State and Field Name entry box, page 35 appears at the end of this procedure.
2	Select the [ON] target.	The [ON] target is highlighted.
3	Sorting by specified fields? If yes, type in field name(s) separated by commas or blanks, and press <ENTER>. If no, press <ENTER>. NOTE: To abort Sort command, press <CTL> <BREAK>.	“Sort in progress” message appears on screen. When sort is complete, the “Operation complete” message appears with sorted data.
4	Save sorted data? If yes see, 2.14 Outputting Files, page 36 for this command procedure. If no, go to Step 5.	Not applicable.
5	Continue with another sort? If yes, go to Step 1. If no, select the [SORT] target from the command line, then the [OFF] target and press [ENTER]. NOTE: Sort state can remain on unless defining fields.	Data is returned to its original order.

Sort State and Field Name entry box



2.14 Outputting Files

Definition The Output command is used to print, or save to a text file, the results of previous Documentation Tool operations such as queries and sorts.

Keylock level If you are sending output to file, the keyswitch must be in the ENG position. If you are sending output to a printer, the keyswitch can be in any position.

Save options You have three save options when outputting to a file.

Table 2-12 Save Options

Option	Description	Comments
Overwrite with Field Definitions	Saves current data to the file, including field definitions.	DEFINE_FIELD directives are saved at the beginning of the file, so when the file is opened with the Open command, the fields are displayed. Example: .DEFINE_FIELD ENTITY 20 STRING SHOW 2 ENTITY is the field name generated by the query.
Overwrite without Field Definitions	Saves current data to the file, but does not save field definitions.	Usually done for raw data intended to be used in another context.
Append	Adds current data to an existing file.	• If current display has fields, then fields must match those already in file. • If current display does not have fields, then there should be no fields in the file to which you are appending.

ATTENTION

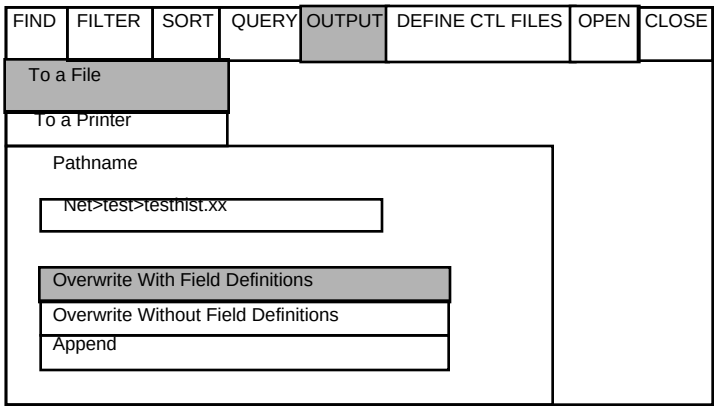
One of the three save options must be selected before you can output to a file. To create a new file, either the Overwrite with Field Definitions or the Overwrite without Field Definitions save option must be selected.

Procedure The following procedure describes the steps required to use the Output command.

Table 2-13 Output Command

Step	Action	Result
1	With the file or query display currently on screen, select the [OUTPUT] target on the command line.	Targets appear for specifying destination: [TO A FILE] [TO A PRINTER]
2	Outputting to a file? If yes, select the [TO A FILE] target. If no, go to Step 4.	Entry box for file pathname and the save options targets appear. A sample Output command pathname and save options, page 37 figure appears at the end of this procedure.
3	Type in file pathname, select appropriate save option, and press <ENTER>. NOTE: Reference the table in: Save options, page 36.	"Request in progress" message appears, then "Operation complete." Display data is saved to the named file.
4	Outputting to a printer? If yes, select the [TO A PRINTER] target, type printer ID in entry box (e.g., $P4), and press <ENTER>. If no, procedure is concluded.	"Request in progress" message appears, and data is printed. "Operation complete" message is displayed. NOTE: Virtual printers (VP) are illegal. Direct output to a real printer only.

Output command pathname and save options



2.15 Defining, Changing, and Deleting Fields

Procedure The following procedures describe how to define, change, and delete fields.

Table 2-14 Defining Fields

Step	Action	Result
1	With file displayed on the screen, move the cursor to the last character to be included in the field, and press <CTL> <F10>. NOTE: Fields cannot be defined if the Filter or Sort state is “On.”	A menu appears, prompting for the field name and type. • If cursor is not on last column of existing field, then a new field is defined from end of preceding field, up to and including the cursor position. A sample Field name and Type menu, page 39 appears at the end of this procedure.
2	Type in field name, select type, and press <ENTER>. NOTE: Sixteen characters are allowed for the field name, but only displays characters that fit the width of the field.	The field boundary is defined and indicated by a vertical line to the right of the cursor.
3	Save newly defined field(s)? If yes, see 2.14 Outputting Files, page 36 for this command procedure. If no, new fields disappear when file is closed.	This is done if you need to use this data for future reference.

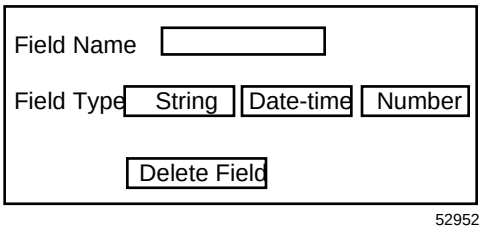
Table 2-15 Changing Fields

Step	Action	Result
1	Move the cursor to the last character in the field and press <CTL> <F10>. Type in the new field name, and press <ENTER>. NOTE: Field names created as a result of a query cannot be changed.	A menu appears, prompting for the new field type. A sample Field name and Type menu, page 39 appears at the end of this procedure.
2	Change type of an existing field? If yes, move the cursor to the last character in the field and press <CTL> <F10>. Select the new field type, and press <ENTER>. If no, field type(s) remain unchanged.	A menu appears, prompting for the new field type. A sample Field name and Type menu, page 39 appears at the end of this procedure.

Table 2-16 Deleting Fields

Step	Action	Result
1	Delete existing fields? If yes, move cursor to the last character in the field to be deleted, and press <CTL> <F10>. Field name and type are displayed. Select [DELETE FIELD] target, and press <ENTER>. If no, procedure is concluded.	The field name and field definition indicated by the blue line disappears.

Field name and Type menu



2.16 Building, Saving, and Executing a Query

Finding query-building information

Before building a query, you must be knowledgeable of the process network numbers, device numbers, node numbers, unit IDs, entity names, or entity types for your system. If you do not know these names and numbers, you can find them through the System Menu or the System Status display.

To learn which unit IDs are on your system, call up the System Menu, and select [ORGANIZATIONAL SUMMARY], [UNIT TITLES], then select [DISPLAY]. The Unit Titles display appears listing all unit IDs and unit names.

To determine your process network numbers, call up the System Status display. The process network targets, along with the network numbers appear in the lower half of this display.

Saving query data

There are two types of query data that you may save:

1. The setup data that is entered before the query is executed.
2. The results data that is displayed after the query is executed.

Saving setup data

Setup data for a query can be saved at any time during the [BUILD] process by typing in a query descriptor and selecting the [SAVE] target.

After the setup data is saved, you can choose [SELECT PRE-BUILT], modify the data, and save it again under the same or a different descriptor. When modifying an existing (prebuilt) query, you use the [OVERWRITE] target.

ATTENTION

Remember to select the Save or Overwrite target before pressing <ENTER> to execute the query. After a query is executed, the setup data is cleared and, if you have not previously saved it, the setup data cannot be retrieved.

Saving results data

You save the results of a query before cancelling the display by using the Output command. Results can be saved to a printer or a user-named file on storage media.

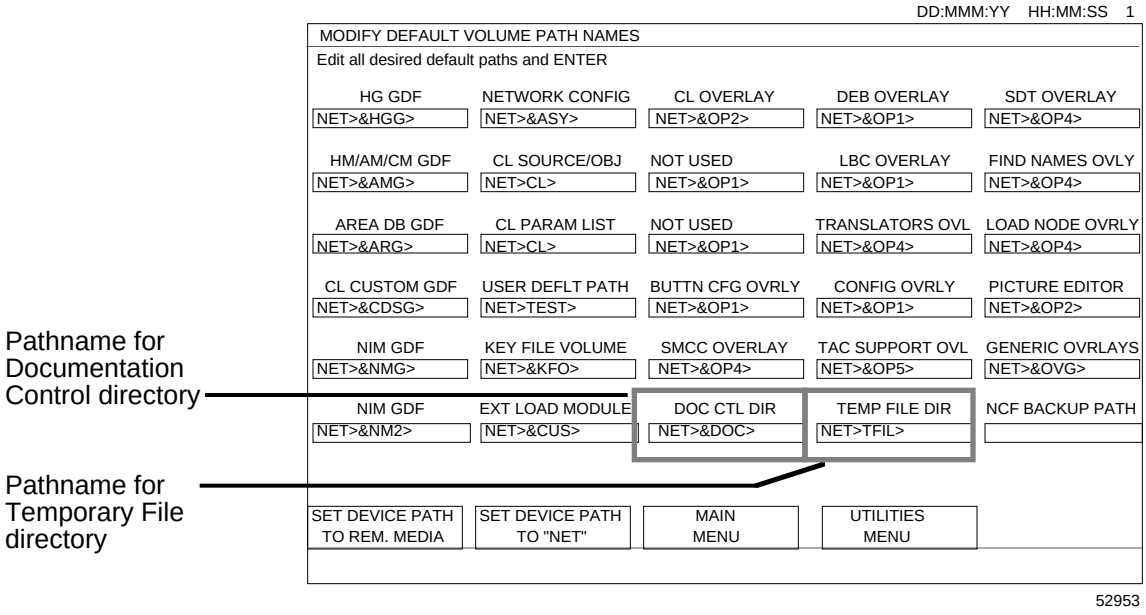
Before beginning

If you are using removable media with the Documentation Tool, perform the following procedure before saving or executing queries:

Table 2-17

Step	Action
1	Call up the Modify Default Volume Path Name display, and enter pathnames for the following directories: • Documentation control directory (DOC CTL DIR) • Temporary file directory (TEMP FILE DIR)

Modify Default Volume Path Name display



Procedure

Use the following procedure to build, save, and execute a query.

Table 2-18 Build, Save, and Execute a Query

Step	Action	Result
1	Select the [QUERY] target from the command line.	Targets appear for the 3 query operations: [BUILD] [SELECT PRE-BUILT] [DELETE PRE-BUILT]
2	Select the [BUILD] target.	Targets appear for the database types that can be queried: [HWY] [UCN] [UNIT] [NODE] [JRNL]

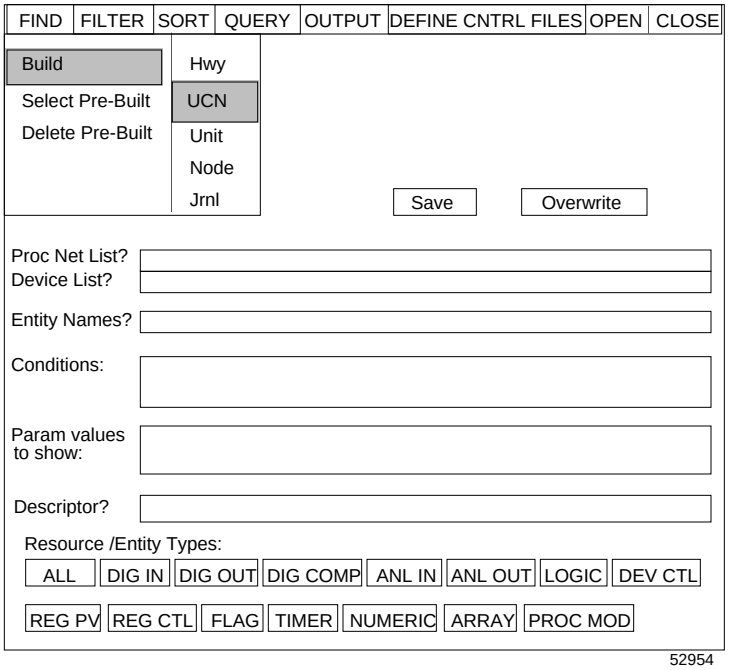
Table 2-18 Build, Save, and Execute a Query (continued)

Step	Action	Result
3	Select appropriate target for desired database: • To Access data from an entire hiway, a list of hiways, a single box, or a list of boxes on one or more hiways, select [HWY]. • To access data from an entire UCN, a list of UCNs, a single UCN device, or a list of devices on one or more UCNs, select [UCN]. • To access data from a single unit or a list of units, select [UNIT]. • To access data from a single LCN node or a list of LCN nodes, select [NODE]. • To access data from one or more journals, select [JRNL].	A query setup display appears. Each display varies slightly depending on the database you have selected. A sample Query display, page 43 appears at the end of this procedure. Reference **>>Query Journal Events** for more information about this function for the R500 and later Documentation Tool.
4	Type in the query setup data. **WARNING:** Do not press <ENTER> yet! Reference the table found in: 2.18 Rules for Entering Query Setup Data, page 47.	Not applicable. NOTE: If you select Jrnl query, when the setup display appears you can press the <ENTER> key so that default date-time values appear for the preceding 24-hour period.
5	Save query “setup” data? • If no, go to Step 6. • If yes, type in descriptor and select the [SAVE] target.	Query is saved to SYSQRY.DC file in the DOC CTL directory, and is now available as a prebuilt query. If an error message appeared, see 2.26 Setting the Directory Pathname, page 66.

Table 2-18 Build, Save, and Execute a Query (continued)

Step	Action	Result
6	Execute the query now? • If no, press <CANCEL> key to clear display and conclude procedure. • If yes, press <ENTER> key. NOTE: <CTL> <BREAK> can be used to abort a query.	Query results appear on the screen or • If no data was found to match specified criteria, the message “No Match Found” appears. • If any entries were invalid, an error message appears and the entry changes to red. Reference: Query result, page 44 NOTE: To manipulate query results, reference: 2.11 Finding Data, page 29 2.12 Filtering Data, page 31 2.13 Sorting Data, page 33 2.15 Defining, Changing, and Deleting Fields, page 38
7	Save query results? • If no, procedure is concluded. • If yes, select the [OUTPUT] target on command line. • Reference: 2.14 Outputting Files, page 36	Not applicable.

Query display



Query result

QUERY

ENTITY	PV	SP	MODE
FIC101	50.5	50.8	AUTO
FIC102	55.2	59.1	CAS
FIC103	100.0	100.0	AUTO
FIC202	25.4	30.5	CAS
FIC204	33.4	52.2	MAN
FIC301	24.4	21.3	MAN
FIC303	75.6	75.5	AUTO
FIC401	- - - - -	0.0	MAN
FIC404	56.5	56.6	CAS

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2.17 Query Journal Events

Overview

For R500 and later releases, Documentation Tool has a Query function Journal (Jrnl) option for accessing, filtering, and sorting data from real-time journals.

The query process for Journal is:

1. Information is presorted on the date-time (DT) field.
2. You then select the Sort target and enter one of the four field types in the Field Name List port:
   - DT (date-time)
   - ET (event type)
   - U (unit)
   - GI (general information)

You can use the F10 key to redefine the fields, and then sort on this redefinition.

Press the <CANCEL> key to exit any of the Documentation Tool targets.

Select the Output target to save the resulting data to a file or to a printer.

To clear the Query results without saving them, press the <CANCEL> key.

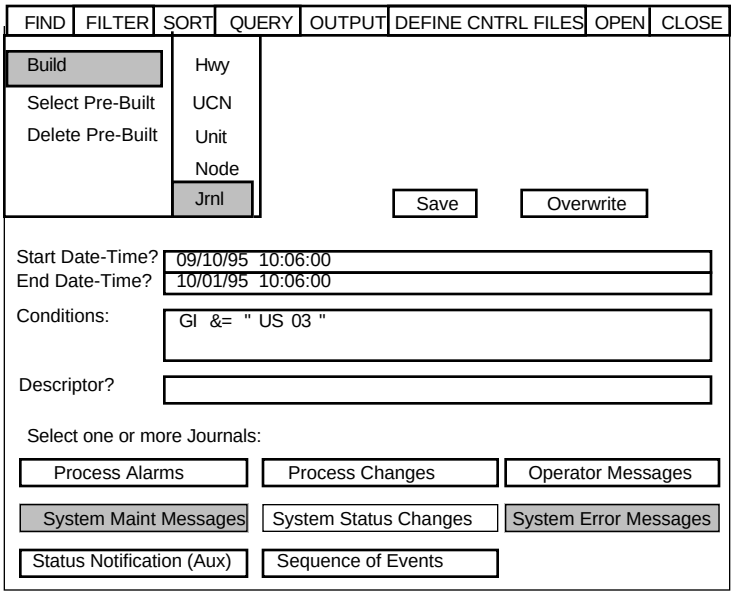
Comparing Query Journal to Event History

This Query Journal option differs from Event History in several ways:

- Journal allows you to query any or all of the journals existing on the system as shown in the figure that follows. Event History only allows you to select one journal at a time.
- Journal requires that you set the start and end date-time parameters in two ports. Event History requires that you set these parameters in four ports.
- Journal allows you to further filter or sort and then save data that has been collected to a file or printer. Event History data cannot be saved.
- Journal allows you to see Sequence of Events (SOEs) that reside on multiple History Modules and to operate on this data—filter, sort, and so on.

Query Journal setup display

The following figure represents the Query Journal setup display, with sample data parameters.



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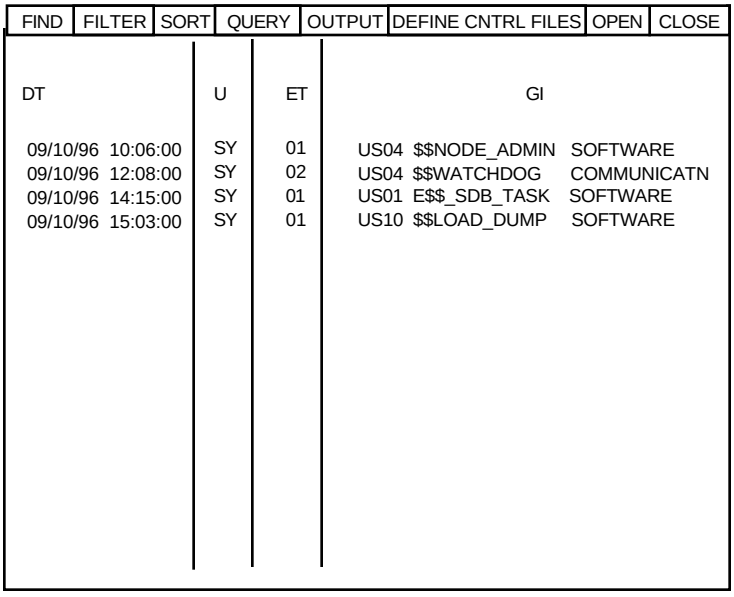
Query Journal results

The following figure represents the query results from selected journals on the Query Journal display.



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2.18 Rules for Entering Query Setup Data

List of rules

The following table lists rules for entering query setup data. The Entry column corresponds to ports and targets on the query setup displays.

Table 2-19 Rules for Entering Query Setup Data

Entry	Definition	Rules
Process Network List	One or more Data Hiway or Universal Control Network (UCN) numbers. This entry limits the search to the network(s) listed.	• Legal entries are numbers 1 through 20. • Type in one number (1), a list of numbers separated by blanks or spaces (1 2 3), or a range (1-3).
Start Date-Time (Optional)	Beginning date-time of journal records you are searching for.	• DD/MM/YY hh/mm/ss, day/month/year hour/minute/sec. Time can be omitted—defaults to zero (00:00).
End Date-Time (Optional)	Ending date-time of journal records you are searching for.	• DD/MM/YY hh/mm/ss, day/month/year hour/minute/sec. Omitted time defaults to 00:00.
Device List (optional)	One or more Data Hiway box numbers or UCN node numbers. This entry limits the search to the process device(s) listed.	• Leave blank for all devices on the hiway or UCN. • Legal entries are hiway box numbers 5 through 63, or UCN node numbers 1 through 64. • Type in one device number (9), a list of numbers separated by blanks or spaces (9 13 17), or a range (9-17).
Unit List	A two character unit name. This entry limits the search to the unit(s) listed.	• Legal entries are the unit names that have been specified in the NCF unit names configuration. • Type in one unit (FE), or a list of units separated by blanks or spaces (FW FE 03).
Node List	One or more LCN node numbers. This entry limits the search to the LCN nodes listed.	• The legal entries are numbers 1 through 96. • Type in one node (40), a list of nodes separated by blanks or spaces (40 50 60), or a range (40-60).
Entity Names (optional)	One or more point names. This entry limits the search to the database of the point names listed.	• Leave blank to specify all points. • Use commas or blanks to separate point names. • Do not use system-created entities ($entities).

Table 2-19 Rules for Entering Query Setup Data (continued)

Entry	Definition	Rules
Conditions (optional)	One or more expressions defining which conditions to search for. Entities that meet the condition are listed in the query results.	• Reference: 2.21 Conditions for Query and Filter Commands, page 53
Parameter Values to show (optional)	One or more parameter names. Parameters listed in this port are displayed in the query results along with the point name.	• Use commas or blanks to separate parameter names. • Do not use special characters. NOTE: See the table in Parameters occurring on every point, page 48 for a listing of those parameters that occur on every point for each node on the system.
Descriptor (optional)	The name you want to assign to the query for future reference.	• Legal entry is up to 64 alphanumeric and/or special characters. • This entry is required if query is to be saved.
Resource/ Entity Types	Targets to select entity types to search. Selecting entity types speeds up the query since a smaller database is searched.	• Select one or more entity types. For unit and node queries, the entity types are not shown until the resource type is selected: AM, CM, UCN, Hiway, or ALL.
Select one or more Journals	Targets to select journal types to retrieve events from.	• Select one or more journal types. Reference: **>>Obtaining Process Histories: Logs, Reports, Journals section, *Process Operations Manual.***
[SAVE] (optional) [OVERWRITE] (optional)	Targets used to save the query setup data to the SYSQRY.DC file in the Documentation Control directory.	• If a query with the current descriptor already exists, select both Overwrite and Save targets to overwrite existing query.

Parameters occurring on every point

The following parameters occur on every point for each node in the system. All other parameters apply only to specific nodes, and are listed in the *Parameter Reference Dictionary* for that particular node. You enter the parameters listed here in the “Param value to show” entry box.

Table 2-20 Parameters Occurring on Every Point

Parameter	Type	Definition
ENT_TYPE	Enumeration	The entity type of the point.
UNIT, UNITNAME	Enumeration	The two letter unit name. The Documentation Tool returns both parameters as two ASCII characters.
CRB	Integer	The LCN number the point is built on.
SUBSCRIPT	Integer	The entity type subscript. This parameter is only for subscripted entity types.
NODE_NO	Integer	The node number where the point resides.

Table 2-20 Parameters Occurring on Every Point (continued)

Parameter	Type	Definition
NAME	String	The external point name. It is up to 16 characters in length if the LCN is local, and up to 19 characters if the LCN is external.
NODETYPE	Integer	The node type where the point resides: 0 - CG, 1 - HG, 2 - HM, 3 - AM, 4 - Universal Station, 8 - NIM, 9 - NG

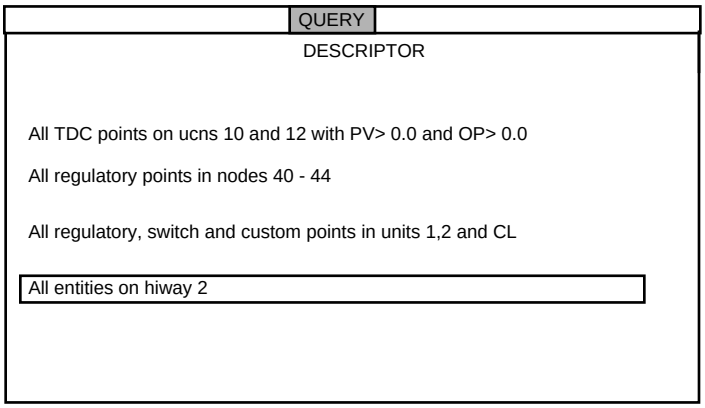
2.19 Modifying and Executing a Prebuilt Query

Procedure A previously built and saved query can be executed by performing the following procedure.

Table 2-21 Execute a Built and Saved Query

Step	Action	Result
1	Select the [QUERY] target from the command line.	Targets appear for the query operations: [BUILD] [SELECT PRE-BUILT] [DELETE PRE-BUILT]
2	Select the [SELECT PRE-BUILT] target.	A menu appears listing descriptors of all prebuilt queries, with each descriptor being a separate target. A sample Prebuilt Query descriptors menu, page 51 appears at the end of this procedure.
3	Select query to be executed.	The setup data appears for the selected query.
4	Do you want to modify the data? • If no, go to Step 6. • If yes, type in new data. • **WARNING:** Do not press <ENTER> yet! Reference the table found in: 2.18 Rules for Entering Query Setup Data, page 47.	Not applicable.
5	Do you want to save the data? • If no, go to Step 6. • If yes, save with different descriptor? If yes, type in new descriptor and select the [SAVE] target. If no, select the [OVERWRITE] target, then select the [SAVE] target.	The “setup” data is saved and is now available as a prebuilt query.
6	Execute query now? • If no, procedure is concluded. • If yes, press <ENTER> key. NOTE: Use <CTL> <BREAK> to abort query.	Results of query are displayed. To manipulate query results, see 2.11 Finding Data, page 29 2.12 Filtering Data, page 31 2.13 Sorting Data, page 33

Prebuilt Query descriptors menu



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2.20 Deleting a Prebuilt Query

Procedure

A previously built and saved query can be deleted by performing the following procedure. The keylock level must be ENGR.

Table 2-22 Deleting a Built and Saved Query

Step	Action	Result
1	Select the [QUERY] target from the command line.	Targets appear for the query operations: [BUILD] [SELECT PRE-BUILT] [DELETE PRE-BUILT]
2	Select the [DELETE PRE-BUILT] target.	A menu appears listing descriptors of all prebuilt queries, with each descriptor being a separate target. Reference: Prebuilt Query descriptors menu, page 51
3	Position the cursor on the descriptor to be deleted and press <CTL> <F2>.	The query is deleted from the list of prebuilt query descriptors.
4	Save changes to the new list of pre-built queries? • If yes, select [CLOSE], and select the [SAVE] target. • If no, select or [CLOSE], and select the [DO NOT SAVE] target.	New prebuilt query list is saved with changes, or not saved with changes depending on which option is selected.

2.21 Conditions for Query and Filter Commands

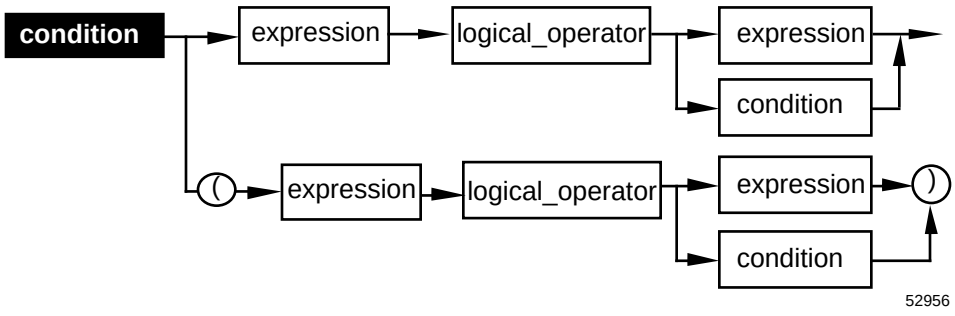
Definition

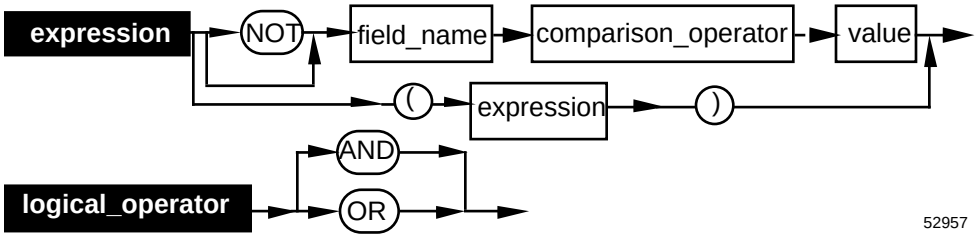
A condition is composed of one or more expressions connected with logical operators. Expressions contain field names, comparison operators, and values. Both Filter and Query commands use conditions.

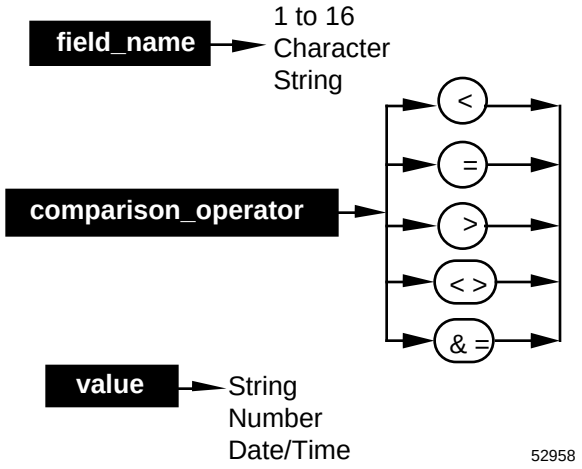
> **ATTENTION**
>
> When you use a condition with the Query command, you are entering parameter names. The parameter name does not have to be on the display. When you use a condition with the Filter command, you are entering field names. The field name must be on the display.

Condition format

Conditions and expressions are normally in the following formats:







Condition operator precedence

Operator precedence from highest to lowest is as follows:

1. ( )
2. = <> < > &=
3. NOT
4. AND OR

The following table describes allowable condition operators.

Table 2-23 Condition Operators

Operator	Description	
Logical Operators	AND, OR	
Comparison Operators	<	less than
	>	greater than
	<>	not equal
	=	equal (must be an exact match)
	&=	contains (the data contains the string specified in the value)
( )	May be used to order the evaluation, as in any arithmetic expression. Parentheses are not required.	

Condition with Filter command

(TAG = FIC21000) AND (TIME > 07:00:00)

where

TAG	= Field name
=	= Comparison operator
FIC21000	= Value
AND	= Logical operator
TIME	= Field name
>	= Comparison operator
07:00:00	= Value

Result:

Lines of data not meeting the condition are filtered (removed) from the display.

Condition using [NOT] operator with Filter command

(TIME > 08:00:00) AND ([NOT] ALARM = BADPV)

where

TIME	= Field name
>	= Comparison operator
08:00:00	= Value
AND	= Logical operator
NOT	= Not operator
ALARM	= Field name
=	= Comparison operator
BADPV	= Value

Result:

Lines of data whose alarm field is other than “BADPV” are displayed.

Condition with Query command

(HIWAY = 2) AND (BOXNUM > 5)

where

HIWAY	= Field name
=	= Comparison operator
2	= Value
AND	= Logical operator
BOXNUM	= Field name
>	= Comparison operator
5	= Value

Result:

Entity names that meet this condition are listed, i.e., the entity is assigned to hiway 2, and its box number is greater than 5.

Condition rules

The following table describes condition rules.

Table 2-24 Condition Rules

Item	Rule
Blanks	Blanks must be enclosed in single or double quotes. Example: DATE(1) > “01/02/91 12:00:00”
Special Characters (?, *, # or [ ])	Special characters are not allowed for field names, but are allowed for values that may be patterns. Example: (PTDESC = TANK*) OR (PTDESC = ?TNK[1-4])
Parameter Names	If a parameter name is being used, it must be on the left side of the operator. Example: PV = 100
Field Names	A field name defined for the current data set must appear to the left of the comparison operator.
Values	See the following table titled 2-25 Values, page 56.

Table 2-25 Values

When the field type is...	Then...
A number and the operator is <,>	The value must be a number.
A number and the operator is &=, =, <>	The value may be a pattern (which may contain special characters or numbers).
A date/time and the operator is <, >	The value must be date/time.
A date/time and the operator is &=, < >, =	The value may be a pattern (which may contain special characters or date/time).
A string and the operator is =,<>,&=	The value may be a pattern (which may contain special characters).

Conditions for Query Journal

The following are your choices of pre-defined fields when entering conditions for a Query Journal (Jrnl):

- DT (date-time)
- ET (event type)
- GI (general information)
- U (unit)

For example, to query selected journals for entries of event type 27, you would enter the following in the Query Journal Condition port:

ET=27

2.22 Patterns for Query, Find, and Filter Commands

Definition

A pattern is a string the Documentation Tool matches using either the Find, Filter, or Query commands. A pattern can be used as a value in a condition.

Pattern special characters

The following special characters have meanings making it possible to specify a template, rather than an exact string.

Table 2-26 Special Characters to Use in Patterns

Special Character	Description	Result
?	Match a single character.	Example: A? Matches “A” followed by any character.
*	Match zero or more characters.	Example: *A Matches “A” preceded by any number of any characters.
[string]	Match any single character in <string>. Specifies a subset of characters that match. The characters specified between the brackets define what are considered a match. NOTE: Do not include ‘ ’ inside the set unless it is one of the characters you want to match.	Example: A[BC]D Matches ABD or ACD.
[~string]	Not. Match any single character except those in <string>. A match occurs when it is not one of the characters specified in the set.	Example: A[~BC]D Matches AAD, ADD, AED, AFD.
-	A range of characters within the set to match. Used inside brackets.	Example: A[B-D]D Matches ABD, ACD, ADD
#	Match zero or more of the previous character.	Example: AB# Matches A, AB, ABB, ABBB
@	The special character that follows @ operates as the character itself.	Example: @? Matches only the “?” character.

2.23 Help Function

Overview

The Help function assists you in using Documentation Tool commands. All help information is contained in one text file, and you can use either the <PAGE BACK> or <PAGE FWD> keys to scroll through the file to locate the information you need, or the Find command to search for certain words in the file.

Accessing the Help function

You access the Help function by pressing the <HELP> key. The portion of the file which displays depends on what you have selected in the Documentation Tool.

Table 2-27 Help File Displays

If	Then
A command is selected	Help information applying to that particular command is displayed.
A command has not been selected	The beginning of the Help file is displayed.

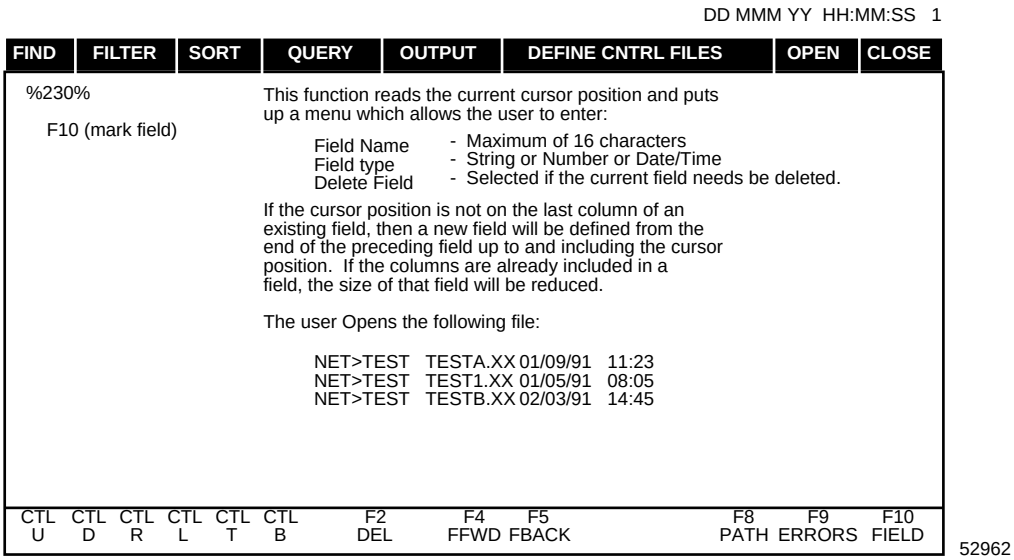
Leaving the Help function

Once you have finished using the Help function, use the Close command or <CANCEL> key to close the display before proceeding with Documentation Tool commands.

Example

An example of a display in the Help file is shown in the following figure.

Help display

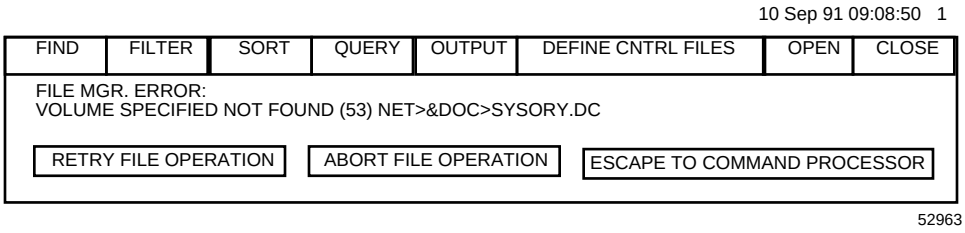


2.24 Responding to Errors

How errors appear Error messages appear on the current display in one of three ways:

- At the bottom of the screen describing why the current operation cannot be performed.
- As an error message box overlaying the current display, with a message describing why the operation was discontinued. These overlays appear when File Manager and out-of-memory errors occur.
- As a message directing the user to press the <CTL> <F9> (Errors) keys to display error messages. These keys are used when three or more errors occur during an operation.

Error box overlay An example error message box is depicted here. Three targets are displayed in the error message box, and one of them must be selected before you can continue.



Error box targets A description of the error message box targets is as follows:

Table 2-28 Error Message Box Targets

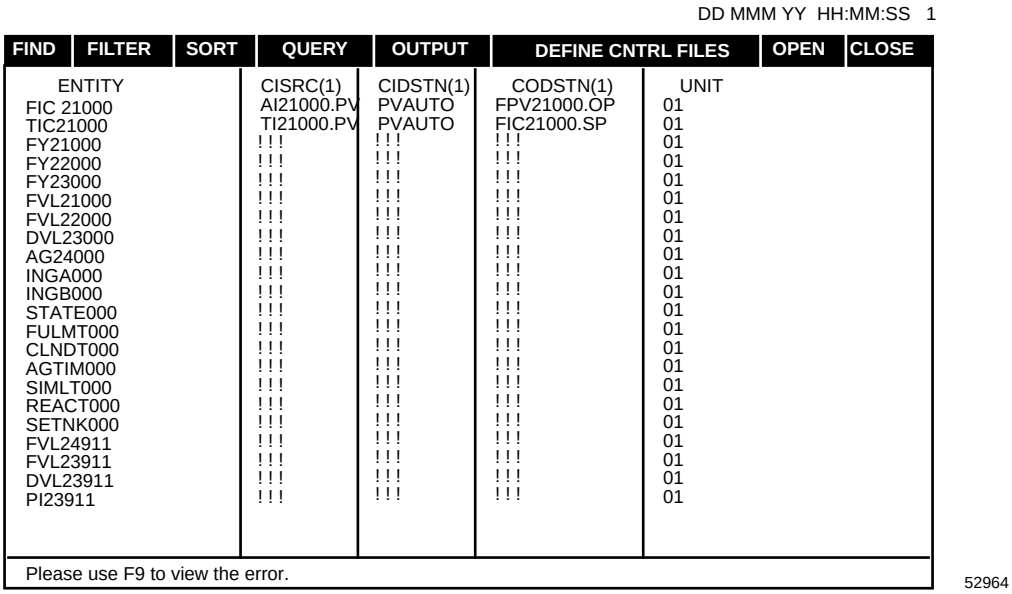
Target	Description
[RETRY FILE OPERATION]	Reattempts the current Documentation Tool operation.
[ABORT FILE OPERATION]	Operation aborts and returns to prior screen of Documentation Tool operation.
[ESCAPE TO COMMAND PROCESSOR]	Calls up the Command Processor. Once in the Command Processor, you may perform operations such as setting the pathname for the Documentation Control directory, and deleting files if additional media space is required.

F9 error message

If you perform a function that creates more than two errors, an error message box does not appear. Instead, the message "`Please use F9 to view the error`" appears at the bottom of the current display. You then use the <CTL> <F9> keys to view the error display.

> If you proceed with another function in the Documentation Tool, and do not call up the error display, it cannot be recalled. Once the error display has been called up, you can only remove it from the display stack by pressing the <CANCEL> key. It does not disappear when the next command is executed.

Display with F9 error message



2.25 Out of Memory/Storage Space Errors

Ways to exceed memory or storage space

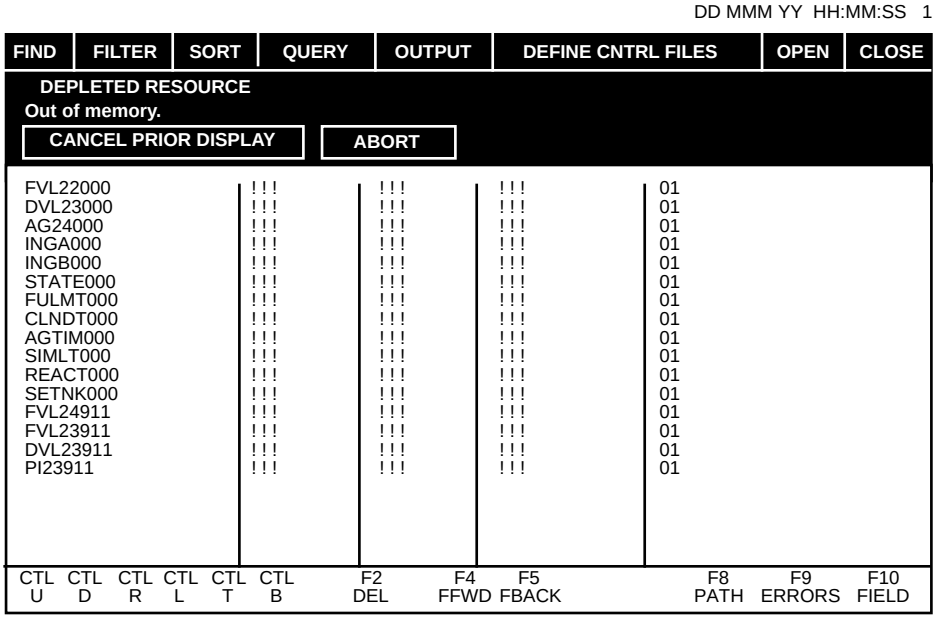
There are three ways you may exceed available memory or storage space when using the Documentation Tool:

- By performing a function that depletes Universal Station memory
- By exceeding the maximum number of files allowed for the directory as determined during the Create Directory command (CR)
- By performing a function that exceeds removable media storage space.

Exceeding Universal Station memory

When you run out of memory on the Universal Station, an error message box displays as follows.

Universal Station out of memory error box



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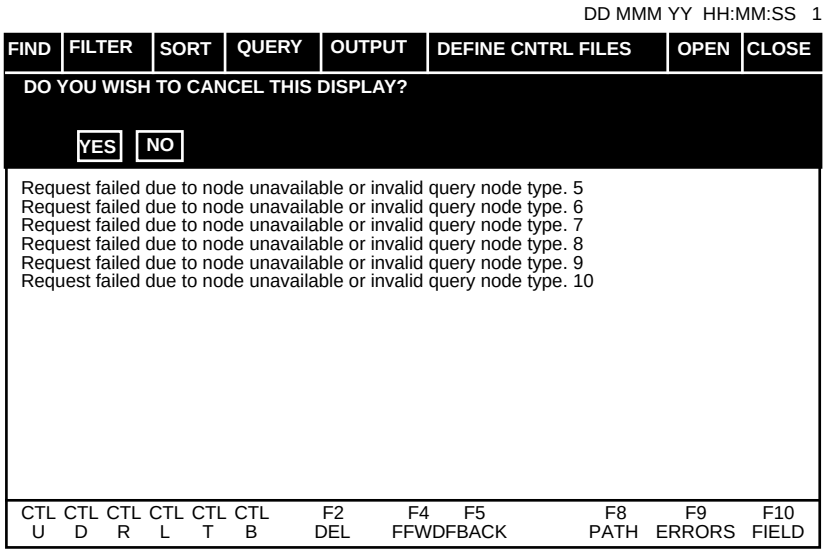
Procedure

The following procedure describes the steps to take when you run out of Universal Station memory.

Table 2-29 Running Out of Universal Station Memory

Step	Action	Result
1	Select the [CANCEL PRIOR DISPLAY] target from the Out of Memory Error box.	The Cancel Error box displays. A sample Cancel Error box, page 64 appears at the end of this procedure.
2	The display to be cancelled is shown. Do you wish to cancel it? If yes, select the [YES] target. If no, select the [NO] target.	 The display is cancelled. You are returned to the prior display.
3	Select [CLOSE] target to close one or more displays.	Removes displays from display stack and creates more memory for the Universal Station. When a sufficient amount of memory is available, you can continue using the Documentation Tool.

Cancel Error box



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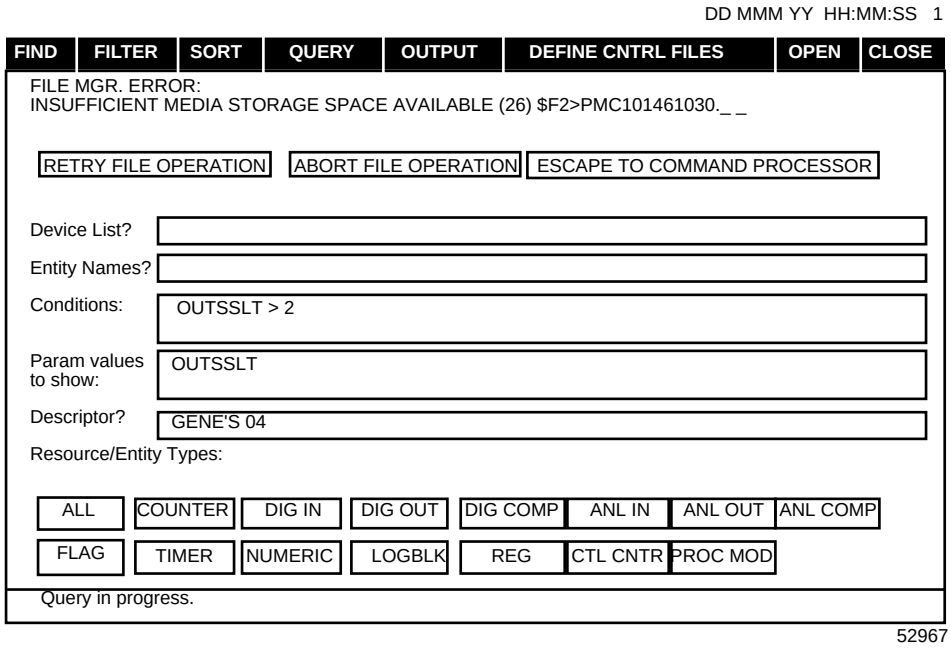
Exceeding storage space capacity

When you run out of storage space on removable media, the error message box appears. The table found in Error box targets, page 61 discusses how to use the targets shown in this error message box.

Removable media out of memory error box



Deleting files

If you run out of storage on removable media, you can delete files to create additional space to continue using the Documentation Tool.

Procedure

Use the following procedure to delete files.

Table 2-30 Delete Files

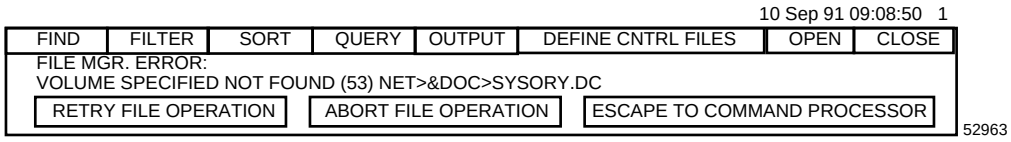
Step	Action	Result
1	Select the [ESCAPE TO COMMAND PROCESSOR] target on error message box.	Command Processor displays.
2	Enter the delete command and the name of the file to delete, or specify all (*.*). Example: DEL $Fn>TEST>*.*	“DELETE COMPLETE” appears.

2.26 Setting the Directory Pathname

Why set the pathname?

The directory pathname must be set if the error message "VOLUME SPECIFIED NOT FOUND" appears in an error message box as depicted in the following. The message appears for one of the following reasons:

- The specified directory had not been created.
- The pathname to the Document Control directory had not been specified properly.
- The SYSQRY.DC file had not been created using the [DEFINE CNTRL FILES] target.



Procedure

The following procedure describes the steps required to set the directory pathname.

Table 2-31 Setting the Directory Pathname

Step	Action	Result
1	Select the [ESCAPE TO COMMAND PROCESSOR] target on error message box.	Command Processor display appears.
2	Key in SP, and press <ENTER>.	Volume Pathname display appears.
3	Enter the directory names. NOTE: Default directory names are &DOC (Documentation Control), and TFIL (Temporary File), respectively. You may change these names.	Volume Pathname display is modified.
4	Select the [MAIN MENU] target on the Volume Pathname display.	Command Processor is displayed.
5	Press <CTL> <MENU>.	Error message box overlay in the Documentation Tool displays.
6	Select [RETRY FILE OPERATION] on the error message box overlay.	Error message box overlay disappears and previous Documentation Tool display appears.

2.27 Error Messages

Overview

The following error messages can appear while using the Documentation Tool. Some messages are informative, and do not require you to take any action, while other messages require a response. If you encounter an error that requires a response, review:

2.24 Responding to Errors, page 61

2.25 Out of Memory/Storage Space Errors, page 63

2.26 Setting the Directory Pathname, page 66

ATTENTION

If any error messages occur while using the Documentation Tool that are not listed in this subsection, contact the Honeywell Technical Assistance Center (TAC) at (800) 822-7673.

Messages

Documentation Tool error messages and their descriptions are as follows:

`# ILLEGAL AT BEG OF STRING`

- Description: A repeat character (#) must have a character preceding it.

`ARRAY PARAMETER USAGE INVALID`

- Description: You cannot request an entire array by entering “array_name” in the “parameters to show port” for the Query command. Each element must be specified with its index. For example, PISRC is not legal, but PISRC(1), PISRC(2), or PISRC(3) is legal.

`AT SIGN ILLEGAL AT END OF STRING`

- Description: An escape character (@) is illegal at the end of a pattern.

`CANNOT ADD DELETE FIELDS IN QUERY RESULTS OR PREBUILT QUERY DISPLAYS`

- Description: You cannot use the <F10> function on query results or the Prebuilt Query display.

`CANNOT DEFINE A FIELD ON A DISPLAY WITH SORT OR FILTER ON`

- Description: Fields cannot be defined with the Sort or Filter commands turned on. Turn off Sort and Filter commands before attempting to define fields.

`CANNOT SORT WHILE EDIT IS ON`

- Description: You cannot sort a “delete prebuilt” display.

`CURSOR IS NOT ON DISPLAY`

- Description: The cursor is not intersecting a line of the display. When you press the <CTL> <F8> keys (Path), or select a prebuilt query, the cursor must intersect a line of data.

CURSOR WAS NOT ON A FIELD END COLUMN

- Description: The cursor must be at the end of the field column when deleting a field.

DATA TYPE CHANGED

- Description: This field contains more than one type of data; the data is not all numbers or date/time, so its data type has been changed to string.

DESCRIPTOR MUST BE USED TO SAVE QUERY PREBUILT

- Description: You must enter a descriptor in order to save a prebuilt query.

DUP FIELDS WITH DIFFERENT TYPES

- Description: You attempted to define a field with the same name as an existing field that has a different type defined for it.

DUPLICATE FIELD NAME EXISTS

- Description: You attempted to define another field with a name that already exists.

END OF INPUT

- Description: The end of data to be displayed has been reached.

EXCEEDS 240 CHARACTERS

- Description: Only 240 characters of a record can be displayed.

FAILURE

- Description: The operation has failed.

FIELD LENGTH ERR

- Description: The field name found in the ".DEFINE FIELD" command is greater than 16 characters in length, or the field type in the ".DEFINE FIELD" command is invalid.

FIELD DEF MISMATCH

- Description: You attempted to append an existing file with field definitions that do not match those already in the file. They must have the same name and type, and be in the same order.

FIELD NOT FOUND

- Description: The field you named and entered is not defined on the current display.

FILE ALREADY EXISTS

- Description: You must select the “overwrite” option if you want to output, but not append to an existing file.

`FILE NAME OR EXTENSION EXPECTED`

- Description: You must enter a file name or extension in the entry port.

`FILE NOT LINKED TYPE`

- Description: You cannot open a file unless its type is “L.” Use the List File Attributes (LS) command in the Command Processor to check the file type.

`FILTER IS OFF`

- Description: You attempted to turn the Filter command off when it was already set to OFF.

`HIGH LIMIT ERROR`

- Description: The number you entered is greater than the maximum number allowed.

`INDEX EXPECTED`

- Description: The “(“ was not followed by the integer index.

`INVALID CONDITIONAL EXPRESSION`

- Description: The expression you entered is not in a valid format. Reference 2.21 Conditions for Query and Filter Commands, page 53

`INVALID DEVICE ID`

- Description: The device ID you entered does not exist.

`INVALID DEVICE WITH VOLUME ID`

- Description: The device ID you entered does not exist.

`INVALID FIELD ID`

- Description: The field name specified using `<CTL><F10>` is too long or contains a delimiter (‘“or ,) or the field_ID specified in the .DEFINE_FIELD command is invalid.

`INVALID FIELD ORDER`

- Description: You attempted to edit the .DEFINE_FIELD definitions. Only one field of an undefined width (-32768) may be defined; it also must be last.

`INVALID IDENTIFIER`

- Description: An illegal entity name has been entered.

`INVALID PARAMETER ID`

- Description: The parameter ID you entered does not exist.

`INVALID PARAMETER INDEX`

- Description: The index must be an integer within a range of valid indices.

`INVALID PARAMETER OR FIELD NAME`

- Description: The parameter or field name you entered does not exist.

`INVALID PATHNAME`

- Description: The pathname you entered is syntactically incorrect.

`INVALID PATTERN SPECIFIER`

- Description: The string you entered is not a legal pattern. Reference: Conditions for Query Journal, page 56

`INVALID UNIT ID`

- Description: While building a query, you entered a Unit ID that does not exist.

`INVALID VALUE OR PATTERN`

- Description: The value or pattern you entered is not valid. Reference: 2.21 Conditions for Query and Filter Commands, page 53 or Conditions for Query Journal, page 56.

`INVALID VERSION`

- Description: Your version of the SYSQRY.DC file is incorrect.

`INVALID VOLUME ID`

- Description: You have entered an illegal character in the volume ID.

`KEYLOCK MUST BE ENGINEER`

- Description: The keylock must be ENGINEER in order to send output to a file.

`MISSING DOT END COMMAND`

- Description: The .DEFINE FIELD commands located at the start of a file with field definitions must be terminated by an .END command.

`MISSING END BRACKET`

- Description: The expression or condition is missing the end bracket.

`MISSING RIGHT PAREN`

- Description: The expression or condition is missing the right parenthesis.

`MUST SELECT OVERWRITE TO SAVE`

- Description: A prebuilt query with this descriptor name already exists. Press the [OVERWRITE] target or change the descriptor name.

`NODE UNAVAILBLE`

- Description: You attempted to do a query on a node that is presently down, a backup node, or a node that does not support a process entity.

`NO DATA TO FIND`

- Description: There is no data in the file that equals your Find command request.

`NO DISPLAY TO CLOSE`

- Description: There is no display presently open.

`NO ERRORS TO DISPLAY`

- Description: The <CTL> <F9> keys do not result in any errors to be displayed.

`NO FILE EXISTS FOR THIS DISPLAY`

- Description: There is no error display available, or the result of your request comes from memory, and not a temporary file.

`NON NUMERIC`

- Description: An integer was required for this entry.

`NO PREBUILT QUERIES TO DISPLAY`

- Description: You have not saved any prebuilt queries, so none can be called up.

`NOTHING TO FILTER`

- Description: There is no data that applies to your Filter command request.

`NOTHING TO OUTPUT`

- Description: There is no data that can be output to either a file or printer.

`NOTHING TO SORT`

- Description: There is no data that applies to your Sort command request.

`NUMERIC INPUT EXPECTED`

- Description: You must enter a numeric value.

`OPERATION ABORTED BY BREAK KEY`

- Description: The operation was discontinued after using the<CTL> <BREAK> keys.

`OPERATOR EXPECTED`

- Description: A comparison or logical operator must used in either the expression or condition.

`OUT OF MEMORY`

- Description: Available Documentation Tool memory has been exceeded.

`OUT OF ROOM`

- Description: Available Documentation Tool storage space has been exceeded.

`OVERFLOW`

- Description: The number you have specified is too large.

`PATHNAME DOES NOT EXIST`

- Description: The pathname you have entered does not exist.

`PATTERN MUST BE SPECIFIED`

- Description: You must enter a pattern within the condition or expression. Reference: Conditions for Query Journal, page 56

`PRESS ENTER TO EXECUTE COMMAND`

- Description: You must press <ENTER> in order to execute a Documentation Tool command.

`QUERY HAS NO DATA TO COLLECT`

- Description: There were no entities returned from the query request.

`REQUEST ERROR`

- Description: Information you entered for your query request is incorrect.

`REQUEST FAILED DUE TO HIWAY OR UCN UNAVAILABLE`

- Description: Your request has failed because either the Data Hiway or UCN has shutdown or failed.

`REQUEST FAILED DUE TO NODE UNAVAILABLE`

- Description: Your request has failed because node has either shutdown or failed.

`SINGLE IDENTIFIER EXPECTED`

- Description: Multiple items are not allowed in this entry port.

`SINGLE PATHNAME EXPECTED`

- Description: Only one pathname for the desired file can be entered.

`SINGLE VALUE EXPECTED`

- Description: Multiple values are not allowed in this entry port.

`SORT DATA CONTAINS BAD VALUES`

- Description: Data that is in the sort field is in a format incompatible with the field's type. This can be either an invalid date, time, date/time combination, real, exponential, or integer format.

`SYNTAX ERROR`

- Description: Your request was syntactically incorrect.

`SYS QUERY REQUIRES ENTITY TYPE`

- Description: The Entity Names type cannot remain unselected while executing a query.

`TOO MANY CHARACTERS`

- Description: You have exceeded the number of characters for this entry port.

`TOO MANY FIELDS`

- Description: You have exceeded the number of fields that can be defined for this file.

`TOO MANY RECORDS IN BLOCK FILE`

- Description: The Documentation Tool cannot read this file.

`USE OF WILDCARDS INVALID`

- Description: The use of special character is not allowed with this command.

`VALID PRINTER ID REQUIRED`

- Description: The printer ID you entered to send output to is not valid.

`VALUE OUT OF RANGE`

- Description: The value that was entered was not within the legal range.

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