

Burroughs Corporation



COMPUTER SYSTEMS GROUP
SMALL SYSTEMS PLANT

B1800/B1700 DMS/INQUIRY

P. S. 2222 2566

PRODUCT SPECIFICATION

REVISIONS

REV LTR	REVISION ISSUE DATE	PAGES REVISED ADDED DELETED OR CHANGE OF CLASSIFICATION	PREPARED BY	APPROVED BY
A	11/10/78	Original Release - Mark 8.0 Level		<i>J. Hall</i> <i>Hole</i>
B	9/18/80	Major Revision -- Mark 10.0 Release		

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The B1000 implementation of DMS/INQUIRY is standard with respect to the CSG INQUIRY STANDARD (revision B), with the following exceptions:

NON STANDARD ITEMS

- 1) Inquiry has no restrictions on which statements may be continued with the percent sign (%), or forced into the current text buffer with the double percent sign (%%).
- 2) SCALE truncates trailing fractional parts; it does not round.

SUBSETS OF THE STANDARD

- 1) Inquiry does not take advantage of sets when calculating functions. For example, with the following DASDL description:

```

DSA STANDARD DATA SET(
  A1 NUMBER(8);
  A2 NUMBER(8); );
S1 SET OF DSA KEY IS A1;
  
```

the Inquiry statement

```

DISPLAY SUM(A2 AT A1 > 100)
  
```

Would not use the index S1 even though it would be to its advantage to do so. The user may enter

```

GENERATE TS1 = A1 > 100; D SUM(A2 VIA TS1)
  
```

to take advantage of the index.

- 2) A single input is limited to a total length of 480 characters when continued with "%" signs. This is the size of the current text buffer.
- 3) Inquiry will never output "WAIT" before starting a long operation.
- 4) <boolean item>s have not been implemented in B1000 DMSII. They may not be included in a <selection expression>.
- 5) NULL has not been implemented as part of a <selection expression>. A statement such as

```

SELECT A1 = NULL
  
```

is not allowed.
- 6) An <arithmetic item> is an item in a record of type NUMBER. Item types POPULATION and FIELD have not been implemented in B1000 DMSII.

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- 7) The <current record functions> SIN, COS, TAN, EXP, LN, LOG, ARCSIN, ARCCOS, and ARCTAN have not been implemented.
- 8) Inquiry does not accept statements of the form DISPLAY AT <selection condition>. A <display list> must be included.

<display spec2> is as follows:

```

----- <structure option> -----|
|                                   |
|--- VIA -----|
|                                   |
|--- USING ----|
  
```

- 9) The FILE part of the PRINTER statement has not been implemented.
- 10) The GLOBAL part of the SHOW statement has not been implemented.
- 11) The DISK part of the SORT statement has not been implemented.
- 12) EDITs may not be executed from defines.
- 13) The DATA part of the <structure option> has not been implemented.
- 14) The subscripts in an <occurs segment> are required to be integer constants. A simple occurring item may have an expression as its subscript.

ITEMS LEFT TO BE SPECIFIED

- 1) To break out of a long operation, ?BRK, ?BREAK, BRK, or BREAK may be entered.
- 2) File names with special characters such as "." need to be quoted. For example, SAVE ABC.DEF would not work, but SAVE "ABC.DEF" would.

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OVERALL STRUCTURE

DMS/INQUIRY consists of three basic components:

- 1) DMS/BUILDING, the BUILD INQUIRY program: This program must be run after the database has been created with DASDL, and before DMS/INQUIRY is run. It will ask the user for the name of the physical database, and optionally the name of a logical database within that physical database. It will then ask for a pack id on which to put the INQUIRY CONTROL FILE. A timeout time limit and a list of usercodes which will be allowed to inquire against this database is then requested. When this information has been acquired, DMS/BUILDING proceeds to produce the inquiry control file named <database name>/INQCTL.
- 2) DMS/INQUIRY, the INQUIRY program: An instantiation of this program will exist for each user running INQUIRY. This program will ask the user for the name of the database which the user wants to inquire against and ensure that he is a valid user of that database. Reading the inquiry control file to get a description of the database, the program will initialize its internal tables and begin processing user inquiries. All INQUIRY processing is done by this program. All INQUIRY code is re-entrant.
- 3) DMS/HELPING, the help file: When the HELP verb is used in DMS/INQUIRY, this file is used to supply the syntax charts and semantics of all INQUIRY verbs and <syntax items>.

TERMINAL TYPES

The INQUIRY system will run on any terminal configuration which supports CANDE and SMCS (TD820, TD830, TIY, etc).

RUNNING ENVIRONMENTS

Both DMS/INQUIRY and DMS/BUILDING may be run alone or under a message control system. When run alone (with only a datacomm handler) the programs must be executed from the ODT, and the file named REMOTE must be file equated to the proper station. When running under an MCS such as SMCS, no file equation is necessary. Invocation of security may require that DMS/INQUIRY is executed with a usercode.

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DMS/BUILDING

The BUILD INQUIRY program takes its input from either a terminal or a card file. This is controlled by program switch 0. If SW0 = 0 (default), then terminal input is expected, otherwise a card file labeled CARDS is expected.

To execute the program with no controlling MCS, enter at the ODT:

EX DMS/BUILDING; FILE REMOTE NAME <name of station>;

If running under an MCS such as SMCS, enter at the users station:

EX DMS/BUILDING

If DMS/BUILDING has an entry in the SMCS/JOBS file such as:

\$BUILDING EXCEPT; EX DMS/BUILDING; PR 9;

the user may enter the SMCS command:

SIGN ON BUILDING

Once DMS/BUILDING has been executed, it will respond with:

B1000 DMS/BUILDING MARK X.0 VERSION 00 MM/DD/YY HH:MM

DATABASE NAME? (BLANK TO TERMINATE)

Valid responses are:

```
-----|
|
|---- <database name> -----|
|
|          |
|---- ON <pack id> ---|
```

If the database does not exist, or the syntax of the expression is incorrect, the program will respond with an error message and ask for another <database name>. If a null input is entered, the program will terminate.

Given an existing physical database, the program will query:

TOTAL OR LOGICAL DATABASE? (BLANKS TO DEFAULT TO "TOTAL")

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Valid responses are:

```

-----|
|      |      |
|--- TOTAL -----|
|      |      |
|--- LOGICAL ----|
|      |      |

```

If the response is "TOTAL", the entire physical database will be used. If the response is "LOGICAL", the program responds:

ENTER LOGICAL DATABASE NAME

to which the user should enter the name of a logical database within the physical database. Note that when a logical database is specified, the inquiry control file will be generated with a multi-file-id containing the <logical database name> instead of the <physical database name>.

After determining the physical and possibly logical database to be used, the program will ask:

PACK NAME FOR INQUIRY CONTROL FILE?
 (BLANKS TO DEFAULT TO SYSTEM PACK)

If the control file is to reside on a pack other than the system disk, that pack name should be given. A blank input specifies that the control file is to reside on the system disk. Note that if DMS/BUILDING is run under a usercode, that usercode must be public and privileged and should not have a default pack.

The next question is:

TIMEOUT TIME LIMIT IN MINUTES? (BLANKS TO DEFAULT TO 15)

DMS/INQUIRY will terminate the inquiry session of a user whose terminal remains inactive for a certain length of time. This gives the data base administrator a chance to specify the limit for all users of this physical or logical database. The response should be the number of minutes which must be greater than 0 and less than 1000. A blank response gives the default 15 minutes.

The last question is:

SECURITY ("YES"/"NO")? (BLANKS TO DEFAULT TO "NO")

If the response is "YES", then the message

ENTER USERCODES SEPARATED BY ","

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If BYE is specified, and no database named BYE exists, DMS/INQUIRY will terminate. If using the SMCS "ON" command, the name of the database may be appended to the sign on as in this example:

ON INQUIRY INVENTORY ON USERPACK

If the inquiry control does not exist, then DMS/INQUIRY prompts for another database name. Otherwise, if security checking was specified during DMS/BUILDING, the list of valid usercodes for this database is searched for the usercode that DMS/INQUIRY is being executed under. If the usercode appears in the list, then access is granted, otherwise DMS/INQUIRY aborts with a security error.

If access is granted, then the program responds with:

INITIALIZING...PLEASE WAIT...

and proceeds to open the database. When the database has been successfully opened, the user is notified by the following message:

...READY

#

At this point, DMS/INQUIRY is ready to process user requests. If no user input is received for the specified timeout time limit, then DMS/INQUIRY will terminate. If during a timeout, there are any unsaved DEFINES, VIRTUALS, or GENERATES, they are SAVED in a file named TIMEOUTnnn, where nnn is the LSN of the station. These may later be restored with the RESTORE command.

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MEMORY REQUIREMENTS

DMS/INQUIRY uses dynamic memory very heavily. As a result, the user can control the size and performance of the INQUIRY job. DMS/INQUIRY is released with 200000 bits of dynamic memory. Allocation of more memory does very little to improve performance, and the number of data overlays start to rise if less than 200000 bit is allocated. DMS/INQUIRY will run with as little as 100000 bits of dynamic memory, depending upon which constructs are used. However, the number of data overlays at this point become overwhelming. If memory space is at a premium, reasonable performance may be obtained by running DMS/INQUIRY with 150000 bits of dynamic memory. This will cause the elapsed time for a given request to be satisfied to degrade by approximately 33%. This is mainly because it will require approximately 5 times the number of data overlays, which will adversely affect the response times for all other programs in the mix. To change the amount of dynamic memory add ";ME nnnnnn" to the execute statement, for example:

```
EX DMS/INQUIRY; ME 150000
```

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TESTING FEATURES

In order to ease testing of DMS/INQUIRY, a feature has been added that enables input to be received from a disk file, and output to be printed on the line printer. If SW9 = 1, then this feature is invoked.

The disk file may have sequence numbers in columns 73-80. A normal CANDE SEQ file is easiest to use here. The internal name of this file is COMMANDS. To use this feature enter:

```
EX DMS/INQUIRY SW9=1; FI COMMANDS NAME <name of input file>;
```

Output to the printer will be formatted as if it were being sent to a TD830 (24 lines per page, 80 characters per line).

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DEBUG COMMANDS

There are three debugging commands: DUMP, DEBUG and ANALYZE. Their syntax and semantics may change at any time.

The DUMP command prints some of inquiry's dynamic internal tables on the terminal.

The DEBUG command sets and resets various internal debugging booleans which may result in diagnostic output being printed along with the normal output.

The ANALYZE command creates a printer listing of all the static information within tables created by DMS/BUILDING.

The current syntax for the DUMP command is:

```

          |<-----|
          |         |
DUMP ---|-----VCR-----|
      |         |
      |---VS---|
      |         |
      |---VDT---|
  
```

The current semantics of the various DUMP options are as follows:

- VCR Dumps the Virtual Current Record table to the terminal.
- VS Dumps the Value Space table to the terminal.
- VDT Dumps the Virtual Define and Tempset table to the terminal.

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LOG Each line of input is written to the printer file as a history of what has been done in this terminal session.

DEBUG1 Enables tracing of the WRITE_LINE routine to the printer.

DEBUG2 To be specified

DEBUG3 To be specified

DEBUG4 To be specified

ERRORDUMP Causes DMS/INQUIRY to take a dump at every ERROR message.

PITDUMP Causes DMS/INQUIRY to dump the TPIT (Temporary Polish Information Table), DFT (Display Format Table), PIT (Polish Information Table), RFT (Report Format Table), SCT (Selection Control Table), and SET (Summary Execution Table) during each SELECT, DISPLAY, SUMMARY, GENERATE, and REPORT statement.

IDLOOKUP Causes DMS/INQUIRY to display information each time an attempt is made to look up an identifier in either the VDT table or the DBN table.

STACKS Causes DMS/INQUIRY to display all stack operations while within the SELECT_THIS_RECORD routine. This shows all calculations for any expressions evaluated by DMS/INQUIRY to satisfy DISPLAY, GENERATE REPORT and SELECT statements.

ALL Either SETS or RESETS all of the debug options.

HELP Gives a help message listing each option

OPTIONS OPTIONS is the same as HELP

Specifying DEBUG only (with no options) displays the current settings of each debug option.

The current syntax for the ANALYZE command is:

```
ANALYZE -----|
-----
```

The current semantics for the ANALYZE command are:

When ANALYZE is entered, DMS/INQUIRY prints, in a readable form, the information that it received by reading the inquiry control file. This serves as an inquiry control file analyzer. If DMS/INQUIRY reads incorrect data from the control file, then very

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strange actions may be taken. The incorrect data in the inquiry control file may be due to a bug in DMS/BUILDING, or to corruption by the system.

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