A Bulletin Board System for Feedback to the Durcon Expert System: A Description and Reference

Lawrence J. Kaetzel
James R. Clifton

U.S. DEPARTMENT OF COMMERCE
National Bureau of Standards
National Engineering Laboratory
Center for Building Technology
Gaithersburg, MD 20899

March 1986

U.S. DEPARTMENT OF COMMERCE

BUREAU OF STANDARDS

NBSIR 86-3332

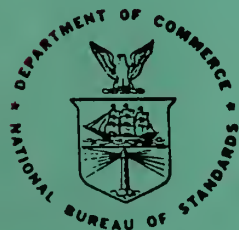# A BULLETIN BOARD SYSTEM FOR FEEDBACK TO THE DURCON EXPERT SYSTEM: A DESCRIPTION AND REFERENCE

Lawrence J. Kaetzel
James R. Clifton

U.S. DEPARTMENT OF COMMERCE
National Bureau of Standards
National Engineering Laboratory
Center for Building Technology
Gaithersburg, MD 20899

March 1986

A BULLETIN BOARD SYSTEM FOR FEEDBACK TO THE DURCON EXPERT SYSTEM: A CASE STUDY

Lawrence J. Kaetzel
James R. Clifton

ABSTRACT

The electronic communication of information among building research experts through the use of a computer speeds up the feedback process for projects requiring the exchange of ideas. The DURCON expert system requires such feedback in the form of evaluation, suggested changes and the communication of expert knowledge related to the project. This report describes a bulletin board system that has been established to aid the researchers in communicating effectively.

Key words: Bulletin board; message transfer; file transfer; expert system; feedback; communication.

DISCLAIMER

Reference to computer hardware and software vendors in this
report does not constitute an endorsement by the National Bureau
of Standards.

CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDIX

1. INTRODUCTION

An electronic bulletin board system named "Concrete Expert Sys" has been installed at the Center for Building Technology (CBT) research facility, National Bureau of Standards in Gaithersburg, MD. The bulletin board provides an efficient, timely and convenient method for providing feedback to the DURCON [1] Expert System project. The bulletin board is also effective in communicating information between participating groups involved in related activities of the CBT Materials Division. This report has been written to describe the bulletin board system and to serve as an operator reference for its users.

2. BULLETIN BOARD CAPABILITIES

Capabilities provided by the system include the communication of messages, transfer of computer stored files, teleconferencing, and testing of prototype software. Each of these capabilities is described in the remainder of this section.

2.1 Communicating Messages

Text messages may be written on the bulletin board and "mailed" to a designated user or to the entire bulletin board community. By this process, reviewers of DURCON can readily transmit recommended modifications and comments. In addition, bulletins and notices concerning further efforts from expert system developers can be communicated to the bulletin board community.

2.2 Transferring Computer Stored Files

Transferring files involves the use of a file utility available on the bulletin board system. Information (disk files) can be sent to the bulletin board (uploaded) or retrieved (downloaded) from the bulletin board. This capability provides an effective way to communicate larger bodies of text. It can also provide for the transfer of computer executable programs. There are two protocols available to transfer computer files. First, there is the ASCII protocol used to transfer text documents. Secondly, there is the XMODEM[1] protocol used to transfer the computer executable program files. An example of the ASCII or text document would be a proposal developed by the sender to be "mailed" to a user. An example of a computer executable program file would be a program capable of running on a user's computer, such as the DURCON program.

2.3 Teleconferencing

Teleconferencing is a process which allows a group of users to conduct a conference via the bulletin board system. A facility provided by the system called "joining" allows the linking of users as participants or observers for this purpose.

2.4 Software Testing

The current procedure for distributing prototype software systems for DURCON is to provide the evaluator with a IBM PC DOS formatted floppy diskette containing the necessary files. A procedure also exists to allow the evaluator to execute the prototype software on the bulletin board system through a process named "DOORS" described in Section 8. The DOORS facility will enhance the

---

[1] XMODEM protocol requires that a user logon to the bulletin board with 8 data bit communications mode.

process, provide faster feedback to the developers, and allow a more efficient method for the testing of new or revised systems. The capability will also allow users who do not have compatible equipment to participate in the evaluation process.

3. BULLETIN BOARD OPERATION

The Concrete Expert Sys bulletin board operates on a Compaq
Desk Pro, Model 4 microcomputer using a software system named
"Remote Bulletin Board System" (RBBS) [2]. RBBS is a system which
is widely used in the Washington, DC area. The bulletin board is
operational 24 hours per day, 7 days per week. Problems concerning
the operation or use of the bulletin board should be directed to
the System Operator (SYSOP) at the address or telephone below.

>   Lawrence Kaetzel
>   National Bureau of Standards
>   Center for Building Technology
>   Bldg 226, B206
>   Gaithersburg, MD 20899
>   Telephone: (301) 921-2650

Technical questions concerning the DURCON project should be
directed to the project leader at the address or telephone below
or the SYSOP.

>   Dr. James Clifton
>   National Bureau of Standards
>   Center for Building Technology
>   Bldg 226, B348
>   Gaithersburg, MD 20899
>   Telephone: (301) 921-3458

In addition, messages may be left for the above individuals via
the bulletin board "message" function.

4. BULLETIN BOARD USER INTERFACES

4.1 Communication Protocol and Hardware

Virtually anyone able to communicate with the telephone system
and with access to a terminal or computer can use the bulletin
board system. However, to use the file transfer feature, computer
facilities such as disk drives are necessary. Examples of
equipment that have been used to communicate with the system thus
far, are listed below.

    Texas Instruments, Model 745 Terminal
    IBM PC Microcomputers and compatibles
    Apple Microcomputers
    Osborne Microcomputers

The requirements for communicating with the system are listed in
Table 1.

4.2 Communication Software

To communicate with the bulletin board using a computer, a
communications program is necessary. It is possible to use many
different communications programs to communicate with the
bulletin board system. For example, to communicate as a terminal,
one needs a program that sends characters entered through the
keyboard to the bulletin board system and displays the information
returned from the system. To utilize the file transfer facility,
a more powerful and flexible program is required. Such programs
as SmartTerm [3], PC-Talk [4], Minitel [5], and Kermit [6] are
available for this purpose. A description of the Minitel
communications program usage is found in this document. Minitel
is a public domain program which is available free of charge for
non-commerical use. Minitel runs on the IBM PC and compatible
computers. Users interested in obtaining a copy of the program
should contact the bulletin board system operator. Appendix E
contains a guide for using Minitel on the IBM PC and compatible
computers.

5. ESTABLISHING USER NAMES AND LOGGING ON

Using any facility on the bulletin board is simple because the system is for the most part self-documenting. At any point in the operating session, a "Help" facility is available to the user. Connection to the bulletin board system is made by dialing telephone number (301) 869-2065. To become a user of the bulletin board system, you must answer the questions displayed when you logon on for the first time. Obtaining a user name on the bulletin board is achieved using a few very simple commands. Table 2 lists the logon options and their meanings. An example of this procedure is found in Appendix A.

After you have established a user name for the first time, you will be required to logon and enter your password in subsequent sessions. It is important that you retain your user name identity so that you will receive messages directed to you. If you should incorrectly enter your user name in a later session, be sure to use the "D(isconnect)" command during the logon procedure. This will prohibit the faulty user name from entering the system.

6. SENDING AND RECEIVING MESSAGES

The message facilities of the bulletin board allow for creating, viewing, killing, and responding to messages. These commands are activated through the bulletin board's Message System Menu.
The following are some of the most commonly used message commands and their purpose:

R)ead Msg   -   Displays message created by other users
E)nter Msg   -   Creates a message to be send to a
                                 specific user or all users
K)ill Message   -   Deletes a message

Appendix B contains a listing of the message system functions.

7. FILE TRANSFERS

7.1 Sending Files (Uploading)

The bulletin board File Transfer Upload facility allows users
to send computer stored files to the bulletin board. To activate
the file transfer facility, follow the procedures outlined below.

If you are uploading a computer program file:
- o   select "U)TILITIES" from the Message System Menu (see
          Appendix C for functions).
- o   select "F)ILE TRANSFER PROTOCOL" from the Utilities Menu
          (see Appendix D for the file system menu).
- o   select "<X>MODEM" for computer program upload.
- o   remember: You must be using the 8 data bit communications
          setting to transfer in XMODEM mode.

If you are uploading a text document file:
- o   select "U)TILITIES" from the Message System Menu (see
          Appendix C for functions).
- o   select "F)ILE TRANSFER PROTOCOL" from the Utilities Menu
          (see Appendix D for the file system menu).
- o   select "<A>SCII" for text document upload.

After performing one of the above upload operating procedures:

- o   select "F)ILE" for file transfer from the bulletin board
          function menu.
- o   select "U)PLOAD" from the file system function menu.
- o   enter the name to be given the file for storage on
          the bulletin board.
- o   setup your local communications program to transmit the
          file (see Appendix E for an example).

When the transfer has completed, return to the Message System Menu:
- o   select "Q)UIT TO MAIN MENU".

7.2 Receiving Files (Downloading)

The bulletin board File Transfer Download facility allows users
to receive computer stored files from the bulletin board. To activate
the file transfer facility, follow the procedures outlined below.

If you are downloading a computer program file:
- o   select "U)TILITIES" from the Message System Menu (see
          Appendix C for functions).
- o   select "F)ILE TRANSFER PROTOCOL" from the Utilities Menu
          (see Appendix D for the file system menu).
- o   select "<X>MODEM" for computer program upload.
- o   remember: You must be using the 8 data bit communications
          setting to transfer in XMODEM mode.

If you are downloading a text document file:
- o   select "U)TILITIES" from the Message System Menu (see Appendix C for functions).
- o   select "F)ILE TRANSFER PROTOCOL" from the Utilities Menu (see Appendix D for the file system menu).
- o   select "<A>SCII" for text document upload

After performing one of the above download operating procedures:
- o   select "F" for file transfer from the bulletin board function menu.
- o   select "D)OWNLOAD" from the file system function menu.
- o   enter the name to be given the file for storage on your local computer.
- o   setup your local communications program to receive the file (see Appendix E for an example).

When the transfer has completed, return to the Message System Menu:
- o   select "Q)UIT TO MAIN MENU".

8. RUNNING APPLICATIONS PROGRAMS (DOORS)

The bulletin board DOORS feature allows a remote user to run an application program while connected to the host computer system. This capability makes the testing of the expert system software easier and more accessible, particularly for users who do not have access to a computer that is compatable with the DURCON software. When a user calls the DOORS utility from the Message System Menu, the available applications are displayed on the users terminal. Entering one of the application program names (called windows) starts the program running. For example, to run the DURCON expert system program the user would type DURCON. When the user stops the application program or it terminates, the bulletin board program takes over and the Message System Menu is displayed. Appendix F shows a sample of the DOORS system display.

9. REFERENCES

1. Development of Durcon, An Expert System for Durable Concrete: Part I, James R. Clifton, Bhalchandra C. Oltikar, Steven K. Johnson, NBSIR 85-3186, (1985).

2. Remote Bulletin Board System, Version CPC12.5, D. Thomas Mack, (Great Falls, VA, 1985).

3. Smartcom II User's Guide, Hayes Microcomputer Products, (Norcross, GA, 1985).

4. PC-Talk, Version 2.0, The Headlands Press, Inc., (Tiburon, CA, 1985).

5. Minitel Communications Program Software, Fido Software, (San Francisco, CA, 1985).

6. Columbia University, Center for Computing Activities, (New York, NY 10027).

Table 1. COMMUNICATION REQUIREMENTS

<u>Communication Feature</u>	<u>Supported Setting/s</u>
Type	Asychronous (ASCII)
Speed	300, 1200, and 2400 baud
Parity	None, Even, Odd
Data Bits	7 and 8
Stop Bits	1
Communications Method	modem or acoustic coupler
File Transfer Protocol	ASCII (text documents)
	XMODEM-checksum (computer programs)

Messages
File Transfer
Teleconferencing
DOORS

Telecommunications Line

Modem

Modem
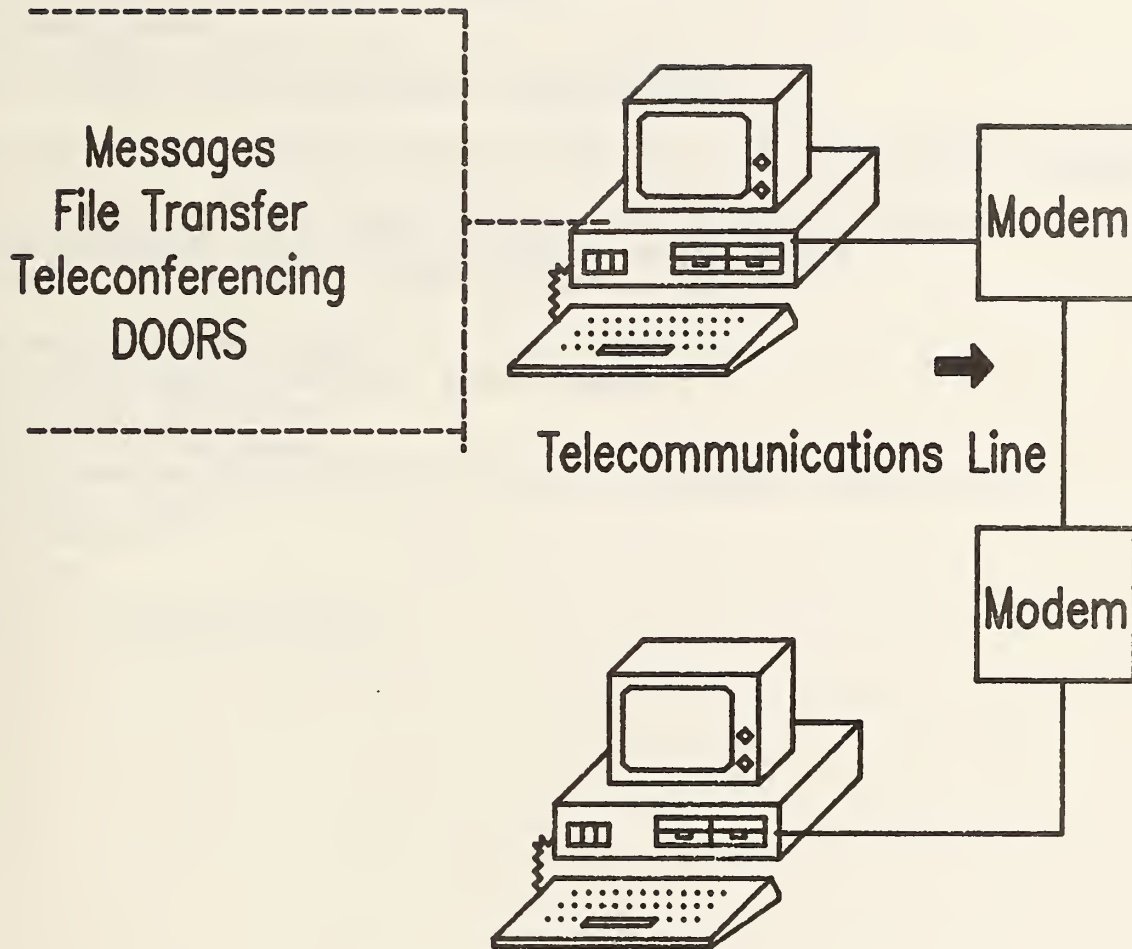
Figure 1. BULLETIN BOARD
CONFIGURATION

APPENDIX A.   EXAMPLE OF BULLETIN BOARD LOGON SESSION

WELCOME TO CONCRETE EXPERT SYS

WHAT IS YOUR FIRST NAME?   CONCRETE
WHAT IS YOUR LAST NAME?   SYSTEM
CHECKING USERS...
TYPE SYSTEM CALLING FROM (C/R IS IBMPC)?
WHAT IS YOUR CITY AND STATE? GAITHERSBURG, MD

WELCOME TO THE WORLD OF RBBS-PC AND THE CONCRETE EXPERT SYSTEM.

<R>EGISTER, <C>HANGE NAME/ADDRESS, <D>ISCONNECT <DON'T REGISTER>? R
ENTER PASSWORD YOU'LL USE TO LOGON AGAIN? EXSYS
PASSWORD VERIFICATION <DOTS ECHO>? ......

REMEMBER YOUR PASSWORD
CAN YOUR TERMINAL DISPLAY LOWER CASE? Y
UPPER CASE AND lower
Graphics unavailable
FILE transfer default type <A>scii, <X>modem, <Q>uit? A
PROTOCOL: Ascii
Want Nulls? Y
Nulls On

Logging CONCRETE SYSTEM

APPENDIX B: MESSAGE SYSTEM MENU

                        RBBS-PC   MESSAGE SYSTEM

----- COMMUNICATIONS -------   ------ UTILITIES -----   - ELSEWHERE ---
PERSONAL   SYSTEM   CONFERENCE
E)NTER MSG   B)ULLETINS   J)OIN   H)ELP   D)OORS SYSTEM
K)ILL MSG   C)OMMENT   V)IEW   L)INES PER PAGE   F)ILES SYSTEM
P)ERSONAL MAIL I)NITIAL WELCOME   X)PERT ON/OFF   G)OODBYE
Q)UICK SCAN   O)PERATOR PAGE   ?)LIST FUNCTIONS U)TILITIES
R)EAD MSGS   W)HO ELSE IS ON
S)CAN MSGS

MAIN FUNC <B,C,D,E,F,G,H,I,J,K,L,O,P,Q,R,S,U,V,W,X,?>? F

APPENDIX C: UTILITY SYSTEM MENU

                          RBBS-PC UTILITIES SYSTEM
                          ~~~~~~~~~~~~~~~~~~~~~~~~~

---------------- UTILITIES --------------   - ELSEWHERE -
 USER PROFILE/PREFERENCE   SYSTEM
C)ASE CHANGES (UPPER/LOWER) B)AUD RATE (300-->450)   Q)UIT TO MAIN MENU
F)ILE TRANSFER PROTOCOL   H)ELP
G)RAPHICS   P)ASSWORD CHANGES
L)INE FEEDS (ON/OFF)   S)YSTEM STATISTICS
M)ESSAGE MARGIN   T)IME ON SYSTEM
N)ULLS (ON/OFF)   U)SER LOG
P)ASSWORD CHANGES
R)EVIEW USER'S PREFERENCES
X)PERT (ON/OFF)
!)PROMPT BELL (ON/OFF)

APPENDIX D.   FILE SYSTEM MENU

                        RBBS-PC   F I L E   S Y S T E M

-----------F I L E   T R A N S F E R ------- -- UTILITIES -- - ELSEWHERE -
   FILE TRANSFER   FILE INFORMATION
D)OWNLOAD A FILE   L)IST FILES AVAILABLE   H)ELP   G)OODBYE
U)PLOAD A FILE   N)EW FILES LISTED   X)PERT ON/OFF Q)UIT AND RETURN
                        S)EARCH FILE DIRECTORIES   TO MAIN MENU
                        ?)FILE TRANSFER TUTORIAL

FILE FUNC   <D,G,H,L.N,Q,S,U,X,?>?

APPENDIX E. MINITEL COMMUNICATION GUIDE

<u>GUIDE FOR USING MINITEL COMMUNICATION</u>
<u>WITH THE RBBS BULLETIN BOARD SYSTEM</u>

1.   Load the Minitel diskette in drive A.

2.   Type the command MINITEL (enter)...to start the program

3.   Set the communications parameters as follows:

     <u>Minitel Command</u>   <u>Setting</u>

           B   1200
           N   XMODEM - CHECKSUM

4.   Dial the bulletin board 869-2065

5.   Logon to the bulletin board system

6.   Converse as needed:

     a.   to send a file:
               select the bulletin board file utility...type "F"
               select the upload function...type "U"
               enter name of file you are storing on the bulletin
                    board
               depress the "ESC" key on your PC
               select the file send...type "T"
               type the name of the file you are sending.

     b.   to receive a file:
               select the bulletin board file utility...type "F"
               select the download function...type "D"
               enter name of file you are retrieving from the bulletin
                    board
               depress the "ESC" key on your PC
               select file retrieve...type "R"

APPENDIX E: MINITEL COMMUNICATION GUIDE

Minitel Menu Display

```
:MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM:
:  Command:                                                            :
:                                                                      :
: R ... Receive file(s)       F ... Full duplex       H ... Half duplex :
: T ... Transmit file(s)      M ... Linefeeds off     L ... Linefeeds on :
: N ... Select file transfer  I ... Terminal Type     V ... Set Parity  :
:       mode                                                            :
:                                                                       :
:          SYSTEM                           MODEM                       :
: Q ... Quit to DOS                 X ... Raise/Lower DTR               :
: ? ... List MINITEL Status        B ... Set Baud Rate                 :
: C ... Save Conversation          - ... Line BREAK                    :
: S ... Stop Save Convers.                                             :
:                                                                       :
:          FILES                            SPECIAL                     :
: Y ... List disk files            Z ... Change ESCape key             :
: W ... Type (view) a file         ! ... Clear Screen                  :
: K ... Delete disk file(s)                                            :
:    Minitel - (c) Fido Software 6 Apr 85 Version 3.2 Minital is a      :
:    subset of Ptel (c) Phoenix Software Associates Ltd (800) 344-7200  :
:MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM:
```

Display of MINITEL Communication Configuration (XMODEM)

```
:MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM:
:    Type any key to continue:                                         :
:                                                                      :
: Full Duplex                                                          :
: Linefeeds Off                                                        :
: Cursor is at line 25, column 1                                       :
: Not collecting text                                                  :
: 1200 baud                                                            :
: Terminal Type is VT102                                               :
: No Parity                                                            :
: Command Key is ^[, ESC                                               :
: File Transfer Method: XMODEM - CHKSUM                                :
:MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
```

APPENDIX F.   DOORS SYSTEM DISPLAY


```
*********************************************************************************
* "WINDOWS" CURRENTLY AVAILABLE    *              -                            *
*                                  *              -                            *
* TURBOTST  - PASCAL TEST PROG     *              -                            *
* DURCON    - EXPERT SYSTEM        *              -                            *
*           -                      *              -                            *
*********************************************************************************
```

U.S. DEPT. OF COMM. **BIBLIOGRAPHIC DATA** **SHEET** (See instructions)	1. PUBLICATION OR REPORT NO. NBSIR-86/3332	2. Performing Organ. Report No.	3. Publication Date FEBRUARY 1986

4. TITLE AND SUBTITLE

A BULLETIN BOARD SYSTEM FOR FEEDBACK TO THE DURCON EXPERT SYSTEM: A DESCRIPTION AND REFERENCE

5. AUTHOR(S)

Lawrence J. Kaetzel, James R. Clifton

6. PERFORMING ORGANIZATION (If joint or other than NBS, see instructions) **NATIONAL BUREAU OF STANDARDS** **DEPARTMENT OF COMMERCE** **WASHINGTON, D.C. 20234**	7. Contract/Grant No.
	8. Type of Report & Period Covered

9. SPONSORING ORGANIZATION NAME AND COMPLETE ADDRESS (Street, City, State, ZIP)

10. SUPPLEMENTARY NOTES

☐ Document describes a computer program; SF-185, FIPS Software Summary, is attached.

11. ABSTRACT (A 200-word or less factual summary of most significant information. If document includes a significant bibliography or literature survey, mention it here)

The electronic communication of information among building research experts through the use of a computer speeds up the feedback process for projects requiring the exchange of ideas. The DURCON expert system requires such feedback in the form of evaluation, suggested changes and the communication of expert knowledge related to the project. This report describes a bulletin board system that has been established to aid the researchers in communicating effectively.

12. KEY WORDS (Six to twelve entries; alphabetical order; capitalize only proper names; and separate key words by semicolons)

Bulletin board; message transfer; file transfer; expert system; feedback; communication.

13. AVAILABILITY XXX Unlimited ☐ For Official Distribution. Do Not Release to NTIS ☐ Order From Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. XXX Order From National Technical Information Service (NTIS), Springfield, VA. 22161	14. NO. OF PRINTED PAGES 26
	15. Price $9.95