MIT/LCS/TR-373

Boston Community Information System

User's Manual

(Version 8.17)

David A. Segal, David K. Gifford,
John M. Lucassen, James B. Henderson,
Stephen T. Berlin, and David E. Burmaster
The Boston Community Information System turns your computer into a personal information assistant that monitors the news as it happens. This experiment, CommIns, tests a new way of distributing world news as it happens and features from the New York Times and the Associate Press wire service directly to personal computers via radio waves. Acting on your instructions, your computer will "filter" this flow of information, saving the stories that match your list of interests. Thus, you can walk up to the system at any time, and browse through the stories that the system has saved for you. Because your personal computer can receive and filter much more information that you could read yourself, it can help you focus and enlarge your awareness of the world. You will probably find that the system consistently finds more articles of interest on certain subjects than you do.
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Section 1 — Introduction

Welcome to the Boston Community Information System — the Boston CommIns! We are pleased to welcome you as a participant. This experiment is a test of a new way of distributing world news and features from the New York Times (NYT) and the Associated Press (AP) wire service directly to people’s personal computers via radio waves. With our software and a special radio receiver connected to your IBM (or compatible) personal computer, you can receive up to the minute information on the myriad topics carried by the New York Times and AP wire services, including world news, local events, financial reports (and some closing stock prices), business news, editorials, commentaries, features on the arts, and weather forecasts. With the Boston CommIns, you may even receive information on those topics before its announcement on the radio or its publication in a newspaper!

The Boston CommIns turns your computer into a personal information assistant that monitors the news as it happens. Acting on your instructions, your computer will “filter” this flow of information, saving the stories that match your list of interests. Thus, you can walk up to the system at any time, and browse through the stories that the system has saved for you. Because your personal computer can receive and filter much more information than you could read yourself, it can help you focus and enlarge your awareness of the world. You will probably find that the system consistently finds more articles of interest on certain subjects than you do.

Additionally, users with a modem may access a full database of New York Times articles that is stored on several database servers at MIT. The commands used to access this database are exactly the same as those which allow you to access the articles saved on your system.

For best results, we recommend that you leave your personal computer running with the Boston CommIns software running whenever you are not using your personal computer for another task. The radio station that carries our transmissions is on the air 20 hours per day. If you leave your system running overnight, it will be ready the next day with the latest news. Most news is transmitted several times a day, so you can use your personal computer for other tasks without fear that you will miss an important article. Additionally, the program can be used in a background mode with programs like DeskView (TM) and Double Dos (TM) with only 256K devoted to the software.

This User’s Manual is designed to tell you everything you need to know to set up and operate the equipment and software loaned to you. We have prepared this manual for new and experienced PC users alike. We hope the manual will answer all your questions about connecting our special digital receiver to your PC, about using the software for the first time, and about customizing the software for your personal use. If you have difficulties, try re-reading this manual, especially the appendix on troubleshooting, but if the difficulties persist, do call us for assistance at the Boston CommIns HOTLINE: (617) 253 0007.

Because this is an experiment, we are very much interested in your thoughtful evaluation of the Boston CommIns. Not only do we want your first impressions of the system, i.e. your ideas on making the system easier to use during the first few hours, but we also want your later impressions, i.e. your suggestions and advice (on all aspects of the system) from the perspective of an experienced user. To this end, we will send you a Questionnaire each month, which you should return to us promptly. In
truth, we hope that you will send us additional information as the spirit moves you; we want to know your full thoughts on the system, not just your responses to the monthly questionnaire. In a sense, the monthly questionnaires represent a minimum of feedback and evaluation from you; please do send more if you wish.

As a participant in this experiment, you have signed an agreement concerning your responsibilities. Note that you must abide by this agreement, in spirit and in letter, or you will be asked to return all loaned equipment and software to us immediately.

We welcome you to this experiment to test the Boston ComMS, and we are looking forward to working with you in the coming months.

Professor David K. Gifford
Massachusetts Institute of Technology
Cambridge, Massachusetts
September, 1986
Organization of this Manual

This introduction is followed by three more sections, which describe, in turn:

- the capabilities of the CommInS software, and how to use it;
- the information services provided by the Boston CommInS; and
- how to put together your own personalized 'news filter'.

There are seven appendices. Appendix I is the most important one for new users: it describes how to connect the receiver to your PC, and how to install and run the software. Appendix II is a guide to help users set up their modem for use with the remote system.

Appendix III is a trouble-shooting guide, and contains descriptions of common problems and their solutions.

Appendix IV is designed for users experienced with previous versions of our software. It describes the basic changes in the current program.

Appendix V is the reference section: all the commands are listed here. Appendix VI describes the files used by the system, and finally, Appendix VII contains a few words about the responsibilities of participants in the Boston CommInS experiment.

How to Use this Manual

First-time users should proceed in the following order:

- First, you should read Appendix I — Getting Started and follow the instructions for unpacking the equipment, installing it, and installing the software.
- After you install the hardware and software, you should read Section 2. It includes instructions for first-time users that you should follow. These instructions guide you through the section quickly and superficially, to give you a general idea of how to use the CommInS software.
- Next, you should skim Sections 3 and 4, to learn about the information services that are available, and to learn how to put together your own news filter.
- Finally, you should turn back to Section 2, read the parts that you were asked to skip on first reading, and try out all the different commands.

Start with "Appendix I — Getting Started". Good luck!
Section 2 — Using the CommInS Software

As shown in Figure 2-1, the CommInS software divides the screen of your PC into four separate areas:

- The status line is the highlighted line at the top of the screen. In addition to the date and time, the status line indicates which window is displayed below, which line or summary in the window is selected (if any), which lines or summaries are shown, and how many lines or summaries the window contains.
- The query line, also highlighted, is the third line from the bottom. The purpose of the query line is described in Section 2.1.
- The message area occupies the bottom two lines of the screen. Messages from the system (such as acknowledgments and error messages) are displayed here.
- The window display occupies the remainder of the screen. It is used to display the following five windows:
  - the filter window, which contains your news filter,
  - the summary window, which contains article summaries,
  - the article window, which contains articles,
  - the diagnostic window, which contains details about the system's operation, and
  - the options window, which contains the setting of various controls that you can change.

When the system starts up, it displays the filter window. To find out how to ask the system to display...
the other windows, press F3: this instructs the system to show the *window selection menu* (see Figure 2.1). A menu is a highlighted box containing a list of commands, one of which (the *selected command*) appears on a contrasting background. You can use the | and | keys to select any command in a menu, when you press <Enter>, the selected command is *executed*. If you do not want to execute a command, you can select *DO NOTHING*, or you can press the shorthand key (Esc). If you press a key other than |, | or <Enter>, the system will remove the menu and then act upon the key you pressed.3

You can use the window selection menu (see Figure 2.1) to instruct the system to display any of the five windows. As an alternative, you can simply press the corresponding *shorthand key* shown in the menu (F2 for the filter window, F4 for the summary window, and so forth). The status line (at the top of the screen) always indicates which window is being shown. The shorthand keys work whether or not there is a menu on the screen: thus, you can *always* ask the system to display any of the five windows by pressing F2, F4, F5, F8 or F10. If this is your first time using the system, you should take a look at the other windows before you read on.

If a window contains more than one screenful of text, this is indicated in the status line. To see whole text of the window, use the *scroll keys*:

- **<PgDn>** Show the next page
- **<PgUp>** Show the previous page.
- **<Home>** Show the first page of the window.
- **<End>** Show the last page of the window.

In the filter window and the summary window, you can also use the following keys:

- **Shift: |** Move forward one line (or summary)
- **Shift: |** Move back one line (or summary)
- **|** Select the next line (or summary)
- **|** Select the previous line (or summary)

The shift key used in conjunction with | and | has the same effect as using the numeric pad key. That is, use of this feature causes the screen to shift as opposed to only cursor movement.

Each of the five windows has its own set of commands; for example, the filter window has a command for adding new filter lines, the article window has a command for going to the next article, and so on. The commands for each window are listed in the *command menu* for that window. When you are looking at a window, press / to see the corresponding command menu. You can display all five command menus in turn by pressing F2 /, F4 /, F6 /, and so forth. Note that every command has a shorthand key, which is listed to the right of the command in the menu.

For your protection, some commands (such as *DELETE ALL MATCHING ARTICLES*) ask for confirmation.
before they do anything. When you execute such a command, a confirmation box appears on the screen. A confirmation box is a tiny menu with only two options: DO NOTHING and EXECUTE. Select EXECUTE and press <Enter> if you wish to go ahead, or use the shorthand A E.\footnote{The prefix "A:" refers to the <Alt> key, for example, A L means "hold down the <Alt> key and press l." Similarly, the prefix "C:" refers to the <Ctrl> key, for example, C D means "hold down the <Ctrl> key and press d."} If you wish to cancel the command, execute the DO NOTHING command or use the shorthand <Esc>.

A help file is provided with the system which contains an overview of some basic commands. If this is your first time using the system, you should press F1 and look through this help file. It also contains some information not yet covered. You can view this file any time by pressing F1.
2.1 — The Filter Window

The CommInS software monitors the information that comes in via the receiver, and "filters in" the articles that match your interests, based on the filter. Thus, the filter serves as your personal "interest profile". The filter on the distribution disk serves only as an example to get you started — you will soon learn how to customize the filter for your personal use.

Press F2 to see the filter window (see Figure 2-2). Each line in the filter corresponds to a specific topic. Each filter line is preceded by a number in parentheses, which indicates how many articles matching that line are on the disk. One of the filter lines is highlighted: it is called the selected line. You can select any line in the filter by means of the scroll keys, i.e. ↑, ↓, <PgDn>, etc. When you select a particular line, the contents of that line appears on the query line so that you can use it as a query. If this is your first time using the system, select a line for which the number of matching articles is not zero, and press <Enter>. When you press <Enter>, the system processes the query on the query line, and displays summaries of the

---

5. If there are two numbers in front of each filter line, as is the case in Figure 2-2, the number before the "/" is the number of matching articles. The second number is the budget for that filter line; budgets will be discussed shortly.

6. If none of the filter lines appear brighter than the rest, press <Home> and adjust the brightness and contrast controls on your PC until the first filter line appears brighter than the rest.

7. If none of the filter lines have any matching articles, turn to the Appendix on trouble shooting.
articles that match the query. The summary window is described in the next subsection. If this is your first time using the system, turn to the next subsection after you have pressed <Enter>.

Because disk space and memory are limited, the system does not save all matching articles permanently. When the system runs out of space, it deletes old articles to make room for new ones. You can tell the system how many matching articles you would like to keep for each filter line by specifying a budget for each line. If this is your first time using the system, press F2 to see the filter list; then press A-S to display the budgets if they are not visible. For each filter line, the system will try to keep at least as many articles as the budget indicates; and perhaps more if there is enough room. You can change the budget of any filter line by selecting that filter line, and pressing "$" to increase the budget, or "$" to decrease it.

When the system needs to delete an article to make room for a new one, it will first attempt to delete one from a filter line that is "over budget". If several lines are over budget, an article will be deleted from the last such line in the filter. If all the filter lines are within their budgets, an article will be deleted from the last line in the filter that has matching articles. Because the system deletes articles from the bottom of the filter first, you should arrange your filter so that the topics that interest you most appear near the top. You can rearrange the lines in the filter by pressing A-U (or A-N) to move the selected line up (or down) in the filter. This is better than deleting the line and re-inserting it elsewhere, because when you delete the line, articles that match only that line will be deleted.

To find out what you can do in the filter window, press F2 (to see the filter window), and press / to see the corresponding command menu (see Figure 2.2). You can execute any command in the menu by selecting it (using ] and [) and pressing <Enter>, or you can use the shorthand keys. Most of the command names are self-explanatory; if this is your first time using the system, please go ahead and try out the various commands. The commands are briefly explained below, with more detail about several of the commands below.

- **DO NOTHING** (with shorthand <Esc>) — this command removes the menu.
- **SHOW WINDOW SELECTION MENU** (F3) — this command shows the window selection menu; it is listed primarily to remind you of the shorthand key, F3.
- **SHOW SUMMARIES** (<Enter>) — this command shows brief summaries of all articles matching the current query that are saved on disk.
- **SHOW REMOTE SUMMARIES** (Control-Enter) — this command will send the query to our New York Times database and show brief summaries of all articles matching the current query that are found in the data at MIT.
- **SHOW FIRST ARTICLE** (A-R) — this command display the first article on disk that matches the current filter line.
- **DELETE ALL ARTICLES IN LIST** (A-K) — this command deletes all the articles on the disk that match the current filter line. Articles that match more than one line are not removed. This command asks for confirmation first.
- **PRINT ALL ARTICLES IN LIST** (A-A) — this command prints all the articles that match the current filter line.
- **CHANGE BUDGET OF CURRENT LINE** (A-B) — this command puts the cursor in the budget field of the current filter line and lets you change the budget. This command requires you to press <Enter> when you have finished entering the budget.
- **INSERT A NEW LINE (A-I)** — this command inserts a new filter line, puts the cursor in it, and lets you edit the new line. This command requires you to press Enter when you have finished entering the filter line.

- **REMOVE CURRENT LINE (A-W)** — this command removes the current line from the filter list and deletes all matching articles.

- **MOVE CURRENT LINE UP (A-U)** — this command moves the current filter line up in the filter list. See the preceding paragraph about filter line priority.

- **MOVE CURRENT LINE DOWN (A-D)** — this command moves the current filter line down in the filter list. See the preceding paragraph about filter line priority.

- **TURN BEEP-ON-ARRIVAL ON/OFF (A-I)** — this command toggles the feature that rings the bell upon arrival of an article matching the current filter line. This feature is described below.

- **TURN PRINT-ON-ARRIVAL ON/OFF (A-2)** — this command toggles the feature that prints all articles that match the current filter line upon arrival. This feature is described below.

- **EXIT TO DOS (A-X)** — use this command if you want to turn off the PC or if you want to use the PC for something else. This command requires confirmation.

The **SHOW SUMMARIES** command, with shorthand <Enter>¹, instructs the system to process the query on the query line. Usually, the query line contains a copy of the current filter line. However, you can submit any query you like by editing the query line before you press <Enter>.² The **query language** is described in Section 4. Note that while any valid query is permitted as a filter line, you can locally process only queries that contain only words and phrases that occur in the filter.

Queries which contain words or phrases which do not already appear in your filter will be automatically submitted to the remote database if the program was started with the -d option. If a query is not specific enough to process at the remote database, the program will, if possible, show a menu of terms which may be added to the query in order to process the query remotely. You may choose a term from the menu, or select **DO NOTHING** to cancel the query (see Figure 2-5).

A query which can be answered locally (on your PC) may be submitted to the remote database: select **SHOW SUMMARIES FROM REMOTE SYSTEM** from the menu, or press C-Enter instead of <Enter>.

You can customize the filter by adding and removing lines, by re-ordering lines, and by changing their budgets (see **Section 4 — The Query Language**). To add a new line to the filter, select a line at the point where you want to insert the new line, and select the **INSERT A NEW LINE** command or press (A-I). The system will create a new filter line, containing a copy of the query line and place the cursor in it. You can use the edit keys to edit the new filter line and place the cursor in it. You can use the edit keys to edit the new filter line if you wish. After editing the new filter line, press the <Enter> key to install it in the filter. If you change your mind and you decide that you do not want to add a line after all, press <Esc>.

When you delete a filter line, the matching articles are also deleted.³ For this reason, the **REMOVE CURRENT LINE (A-W)** command requires confirmation.

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¹ Since <Enter> is also used to initiate processing on menus, it can only be used as shorthand when there is no menu on the screen.

² The editing keys are described in **Appendix V.3 — Editing Keys**.

³ Except for articles that match one or more other lines as well.
Filter Window (line: 4) Viewing lines 4 through 22 of 22  aug 20, 12:40
(  1)  (type: nyt)  (subject: newssummary)
(  1)  (subject: briefing)
(  0)  (subject: findigest)
(  4)  (subject: business digest)
(  2)  (subject: wall street)
(  0)  (subject: patents or technology)
(  0)  (subject: telerate or rates)
(  0)  forecast boston vicinity
(  0)  (subject: calendar)
(  0)  (subject: movie)
(  5)  ibm or compaq or (apple and com)
(  5)  wang or "data general" or "digital"
(  8)  "star wars" or sdi or "strategic defense"
(  1)  health risk
(  0)  mit or "massachusetts institute"
( 29)  harvard (category: not sports)
(  2)  aids
(34)  (category: news) (priority: urgent : bulletin : flash)
(  87) *

terrorism
The receiver is running on port 1
Welcome to the MIT Community Information System - Type F1 for help

Figure 2-3: The Filter Window with the Remote Query Routing Menu

You can 'mark' a filter line so that the system will ring the bell when a matching article arrives. This is called "beep-on-arrival", and you can turn it on and off (for the selected filter line) by pressing A-1. Filter lines that have "beep-on-arrival" set are identified by a musical note in the margin. You can also mark a filter line so that the system will print all articles matching that line as they arrive. This is called "print-on-arrival", and you can turn it on and off (for the selected filter line) by pressing A-2. Filter lines that have "print-on-arrival" set are identified by the symbol Pt in the margin. If a line has both "beep" and "print" set, only the Pt symbol appears.

The last line of the filter, displayed as an asterisk (*), is not really a filter line; it matches every article on the disk, and the number of articles matching it indicates how many articles are on the disk. The budget of this line is called the system budget, and it indicates the maximum number of articles that the system will keep. You can change the system budget just as you change the budget of a filter line, by pressing 'Y' or 'K' or by executing the command CHANGE BUDGET OF CURRENT LINE. If you have a hard disk, you can limit the size of the \news directory by setting the system budget to, say, 100 articles. The system budget is limited by the amount of free memory; when the system runs out of memory, it reduces the system budget accordingly.
2.2 — The Summary Window

![Figure 2-4: The Summary Window and its Command Menu](image)

The summary window (see Figure 2-4) contains summaries of the articles that match a particular query or filter line. If this is your first time using the system, press F4 to see the summary window.

Each article summary is preceded by a highlighted line containing:

- the date (and time) of the article,
- the number of lines in the article,
- the priority of the article, and
- the general subject area of the article.

If the article has not yet been displayed, the header line also contains the words (not read). The header line is followed by a brief "summary" of the article. The summaries are listed in reverse chronological order, i.e. the summary of the most recent article is listed first.

The arrow to the left of the summaries points to the selected summary. You can select any summary in the summary window using the scroll keys.12

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11 We do not employ someone to read the articles and write summaries. Instead, the system automatically extracts the first sentence of each article to display as the summary. In most news articles, the first sentence provides a reasonably good summary. Sometimes, as you will discover, it doesn’t. And sometimes our automatic procedure for finding the first sentence doesn’t work.

12 When you use the scroll keys, the system will select a different summary if this is necessary to ensure that the arrow remains visible on the screen.
To learn what you can do in the summary window, press / to see the command menu (see Figure 2.4). The command menu contains the following commands:

- **DO NOTHING** (with shorthand F58) - this command removes the menu.
- **SHOW WINDOW SELECTION MENU** (F3) - this command shows the window selection menu; it is listed primarily to remind you of the shorthand key, F3.
- **SHOW CURRENT ARTICLE** (A-H) - use this command if you wish to read the article corresponding to the selected summary. If this is your first time using the system, you should select this command, press <Enter>, and turn to the next subsection.
- **DELETE CURRENT ARTICLE** (A-D) - this command deletes the article corresponding to the selected summary. It does not ask for confirmation.

  **Note:** Articles which have been received from the remote system can not be deleted.

- **DELETE ALL ARTICLES IN LIST** (A-K) - this command deletes all the articles whose summaries are in the summary window. It will ask for confirmation first. The number of articles in the summary window is listed on the status line.
- **PRINT CURRENT ARTICLE** (A-P) - this command prints the article corresponding to the selected summary. It works only if your PC is equipped with a printer and the printer is turned on.
- **PRINT ALL ARTICLES IN LIST** (A-A) - this command prints all the articles whose summaries are in the summary window. The number of articles in the summary window is listed on the status line.

  **Note:** Remote articles cannot be printed from the summary window. To print a remote article, retrieve the article (using the **SHOW CURRENT ARTICLE** command), and print it from the article window (as described in Section 2.3).

- **EXIT TO DOS** (A-X) - use this command if you want to turn off the PC or if you want to use the PC for something else. This command requires confirmation.

  **Note:** The summary window always contains the summaries from the last query processed. Thus, even if you change the query line and press F4 again, the contents of the summary window will remain the same. The following two commands, which are listed in **Section 2.1 — The Filter Window**, are the only ones that create a new list of summaries:

- **SHOW SUMMARIES**
- **SHOW FIRST ARTICLE**
- **SHOW REMOTE SUMMARIES**
2.3 — The Article Window

The article window (see Figure 2-5) is used to display articles. You can move up and down through the article using the scroll keys. If this is your first time using the system, press F6 to see the article window.

Most articles contain several words that matched your filter. The first occurrence of each such word is highlighted, so you can scan an article quickly and determine why it matched the filter. This is useful because filter lines sometimes match out of context, filtering in articles that do not interest you at all. If a particular filter line matches a lot of articles that do not interest you, you may wish to make that filter line more 'specific' — this is explained in Section 4.

To find out what you can do in the article window, press F6 (to see the article window), and press / to see the corresponding command menu (see Figure 2-5).

SHOW NEXT ARTICLE is probably the most useful command. It instructs the system to display the article corresponding to the next summary in the summary window. If there are no more articles, the system puts a message in the message area, and displays the filter window.

The ComminS software remembers which articles it has displayed. If you don't want to see the same article twice, you can use the command SHOW NEXT UNREAD ARTICLE instead of SHOW NEXT ARTICLE.

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13. [PgUp], [PgDn], [Home], [End], etc

14. There is no highlighting in articles received from the remote database.
When you have read an article, you can delete it (to make room for new articles). Depending on what you want to do next, you can use the command DELETE, THEN SHOW NEXT ARTICLE, the command DELETE, THEN SHOW NEXT UPLOADED ARTICLE, or the command DELETE, THEN SHOW SUMMARIES.

**Note:** Remote articles cannot be deleted.

If your PC is equipped with a printer, you can *print* the article using the command PRINT CURRENT ARTICLE. If only a portion of a remote article has been received when a print command is issued, only that portion will be printed; in order to ensure that the complete article has been received before printing, wait for the "**End of Article**" line to appear at the end of the article.

As always, you can use the command EXIT TO DOS if you want to turn off the PC or if you want to use the PC for something else.

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**Note for first-time users:**

If this is your first time using the system, we recommend that you:

- turn to Section 3 — *Databases and Services*, and skim it to learn about the information services that are available through the Boston ComminS;

- skim Section 4 — *The Query Language*, to find out how to put together a news filter that filters in the information you are interested in;

- after that, turn back to the beginning of this section (Section 2), read the parts that you were asked to skip on first reading, and try out all the different commands.
2.4 — The Diagnostic Window

The diagnostic window contains information about the operation of the Boston Commins software. This information is updated continually. If your system is working correctly, you should have no need for this window at all. If this is your first time using the system, press F8 to see the diagnostic window.

In the Boston Commins radio transmissions, each article is divided into "packets" that are transmitted separately. Each packet is checksummed to permit error detection, and broadcast twice to permit error recovery. The Commins software receives packets, verifies the checksum, and discards duplicate packets. The most important indicator of system performance is the number of "intact packets" received. During normal operation, the number of "intact packets" received should be increasing steadily, at a rate of about three per second, occasionally interrupted by brief pauses that are followed by rapid catching up. If the number of "intact packets" is not increasing, turn to the trouble-shooting guide in Appendix 11.

All "intact packets" are "accepted", unless they are "duplications" of packets received earlier. Since every packet is transmitted twice, the number of "duplications" should be approximately equal to the number of "accepted" packets.

If a packet is "unframed", or contains a "checksum error", it is not received "intact". These numbers are an indication of reception quality. If your receiver is functioning well, the number of "unframed" packets should be quite small.
packets and "checksum errors" should be very small, probably less than ten per day.\(^\text{15}\) When the radio station is off the air (usually from 2 am to 6 am) the number of bad packets will increase.

You can get a sense of the percentage of articles that actually match your filter by comparing the number of "articles matching the filter" with the number of "articles broadcast since system startup". The number of matching articles that are actually written to the disk is listed as "Articles accepted". The number of "Articles presently on disk" is the number of articles on the disk.

You may reset all of the statistics counters by selecting the \texttt{RESET COUNTERS TO ZERO (A 0)} command.

For legal and policy reasons, all our information broadcasts are digitally encrypted. Different kinds of information are encrypted using different keys. The software distributed for this experiment contains keys for the \textit{New York Times} and AP articles, as well as for system announcements. Articles that are intended for a limited audience (for example, personal mail) are encrypted using keys that are not distributed to the general public: when such articles are received, they are counted as "articles with unknown keys".

If you instruct the system to \textit{print} one or more articles, in the background, the number of "Articles currently in print queue" indicates how many articles remain to be printed. You can stop printing and clear the print queue at any time using the shorthand key \texttt{A-Q}.

The bottom line in the Diagnostic window indicates the amount of free memory, and the amount of unused stack space in each of the 'forks' (internal processes) of the program.\(^\text{16}\) \textit{Mem} is the total amount of memory that is not allocated. Memory is allocated for each filter line, and for each article on the disk.

\textit{Bfrk} is the amount of unused stack space in the receiver fork. The receiver fork receives data, checks packets, assembles them into articles, decrypts the articles, matches them against the filter, and writes new information to disk.

\textit{kfrk} is the amount of unused stack space in the keyboard fork. The keyboard fork processes all keystrokes and commands.

\textit{Cfrk} is the amount of unused space in the clock fork. The clock fork is responsible for periodic processing, such as updating the clock in the upper right corner of the screen.

\textit{Brfrk} is the amount of unused space in the remote receiving fork. The remote fork receives information from the remote database server. This will only appear if the duplex system is selected when the CIS program is started.

\textit{Brcfrk} is the amount of unused space in the remote receiver fork. This fork receives and processes information from the remote database server. This will only appear if the duplex system is selected when the CIS program is started.

\(^{15}\) There will generally be at least one "unformatted" packet, because when you start up the Boston Commins program, odds are that you will receive at least one packet before it begins to receive whole packets.

\(^{16}\) This information is provided primarily for the system implementors: there are no "user-serviceable parts" within the Boston Commins software. However, if the amount of free memory gets very small (under 100 for the forks, under 1000 for the free memory) you may encounter unexpected problems. This should not happen during normal operation of the system.
2.5 — The Options Window

The options window shows the setting of various controls that you can change. If this is your first time using the system, press F10 to see the options window.

- The first line in the options window indicates whether the receiver is on or off. You can turn the receiver on or off with the command `TURN RECEIVER ON/OFF`, or with the shorthand `A-O`. When you shut the receiver off, the system will respond to your commands more promptly, because it won't be writing articles to the disk. On the other hand, you won't receive any new articles. If you decide to turn the receiver off so you can read articles without being interrupted, don't forget to turn the receiver back on when you're done.

- Line two of the options window indicates whether or not the budgets are being displayed in the filter window. You can turn the budget display on or off with the command `TURN BUDGET DISPLAY ON/OFF`, or with the shorthand `A-S`.

- Line three indicates whether the program is listening for articles on port 1 or on port 2. The modem which allows communication with a remote database server is assumed to be on the other port. If you have two serial ports, you can switch the program to the other port with the command `SWAP MODEM/RECEIVER PORTS` (or with the shorthand `A-V`).

- Line four indicates how many articles are waiting to be printed. To stop printing and empty the print queue, use the command `STOP PRINTING AND EMPTY QUEUE` or press `A-Q`.

---

17 You can also select a port when you start up the program. See Appendix 1.5.1 — Starting the Commins Program.
Line five indicates whether the program is expecting to print articles in the foreground or background. Background printing is more convenient because it allows other commands to be processed concurrently. However, the CIS program is designed to print in background on IBM Graphics printers only. In order to use other printers, select the PRINT FOREGROUND command from the menu.

Note that even though this command menu is only available in the options window, the shorthand keys described here may be pressed at any time.

There are several additional commands available in the menu:

- **BLANK THE SCREEN (A-Y)** Causes the screen to become completely blank until any key is pressed. This may be particularly useful in conjunction with multi-processing systems such as DesqView (TM) or Double-Dos (TM) which allow the CIS program to operate in the background while other programs are running on the computer.

- **IDLE THE SCREEN (A-C)** Similar to BLANK THE SCREEN, this command causes a message to be displayed on the screen. The message is displayed in different places on the screen every few seconds, so as not to permanently burn the phosphors in the display.

- **HANGUP CONNECTION (A-H)** Terminates any connection to a remote database. This frees the database server for other users, and hangs up the telephone connection.
Section 3 — Databases and Services

The Boston CommIns provides you with access to two major databases:

- the text of the New York Times, and
- the Associated Press (AP) news wire.

The New York Times service includes the complete text of the articles that appear in that newspaper. The AP service provides articles on a wide variety of topics. Because the New York Times is a New York paper, it does not carry local news for the Boston area. However, the AP service provides extensive Boston and New England coverage.

The New York Times and AP databases are founded on different philosophies. The New York Times provides highly polished and readable news stories, corresponding to the printed version of the New York Times. Developing news stories are usually updated once a day by their editors. The AP service, on the other hand, provides up-to-the-minute reports on breaking news stories, as well as corrections, updates, and occasional retractions of previous stories. Thus, you can expect to get different kinds of information from these different sources.

3.1 — Fields

All news articles follow the same standard format: an article consists of several fields, including the TEXT field. Section 4 describes how to take advantage of the information in the various fields when you put together your personal news filter.

The set of fields is fixed; the use of the various fields is described below. For an example of how the fields are used, just look at any article.

| TYPE    | The TYPE field of an article identifies the source of the article. There are three types of articles: "nyt" (New York Times), "ap" (Associated Press), and "cis" (announcements from the Boston Community Information System). As we expand our information services, new article types may appear. |
| DATE    | The DATE field indicates the date and time at which article was written. |
| CATEGORY| The CATEGORY field identifies the general subject area of an article. The categories used by the New York Times and AP editors are described in the next subsection. |
| AUTHOR  | The AUTHOR field identifies the author of an article. This field is sometimes left blank by the originating information source. Occasionally, the author of an article is identified by a by line in the TEXT field of the article. |
| PRIORITY| The PRIORITY field indicates the priority of the article, as classified by the originating information source. The PRIORITY field of an article contains one the following words or phrases: flush — the highest priority; it is seldom used bulletin — the priority level of prime news; it is also used for corrections, updates, and occasional retractions of previous stories urgent — the priority level of important news regular — the priority level of routine news |
deferred the lowest priority level; used for delayed sending of a completed story
Weekday advance material for a future weekday
Sunday advance material for a future Sunday returns returns

SUBJECT The SUBJECT field contains a subject identifier that is assigned by the originating information source. Certain subject identifiers are used consistently; some of these are listed in Section 3.3. Some articles are actually listings of upcoming articles, and they give the subject identifier for each upcoming article (for example, "REAGAN SPEECH"). If you are interested in such an article, add a filter line of the form (subject: "reagan speech") to your filter and your system will catch the article.

TITLE The TITLE field contains the title of the article, if any. Most articles do not have titles.

TEXT The TEXT field contains the text of the article itself.

3.2 — Categories
As will be explained in Section 4 — The Query Language, a filter line or query of the form (category: <something>) matches articles whose CATEGORY field contains <something>. The CATEGORY field is very useful, because the New York Times and AP editors put every article in an appropriate category. The following is a list of the categories used. Unfortunately, the categories do tend to change with time, so this list is not complete.

Advisories Listing of the subject lines of stories on the news wire
Domestic Domestic news, except for news from Washington D.C.
Washington News News concerning national politics, the United States government, actions of the President, and congressional decisions

International News News about foreign events, including articles originating at the United Nations headquarters

State and Regional News News concerning the local Massachusetts area
Financial Business news, financial indicators, and some stock market information

Features Feature stories
Lifestyle Social news
Entertainment and Culture Articles on entertainment, culture, and the arts, including reviews of movies, plays, books, and television programs

Racing Results and Entries Upcoming horse races as well as results
Sports Sports features and scores
Individual Sports Scores Selected box scores
Commentary Editorials and columns
Travel Travel information and human interest stories involving travel
Multiple Categories Articles consisting of segments that belong in different categories; frequently used for announcements of upcoming
3.3 — Subjects

Our information sources provide a variety of information, such as news summaries, on a regular basis. Information of this kind is identified using the SUBJECT field. For example, the query (subject: news summary) matches the New York Times news summary, as well as various kinds of AP news summaries. In the descriptions below, (NYT) refers to material from the New York Times, (AP) refers to material from the Associated Press. The following subject identifiers are used consistently by our information sources, but note that they do change occasionally and new subjects may be added for events occurring at a particular time, i.e. elections, sport seasons, etc.: 

anderson column: Dave Anderson's column (NYT)
architecture: Articles about architecture (NYT)
arts: News about the arts (AP)
60 minute gourmet: What to do for dinner in one hour (NYT)
baker column: Russell Baker's editorial (NYT)
aba: American League Baseball (AP)
bnn: National League Baseball (AP)
bbo: Combined League Baseball stories (AP)
berkow column: Sports commentary (NYT)
bestsellers: Hardcover bestseller list (NYT)
biztalk: Business news summaries (NYT)
bizweek: Weekly business story (NYT)
hkc: College Basketball (AP)
bonds: Bond prices (AP)
brock review: Reviews of new books (NYT)
booktalk: Column about books (NYT)
bbox*: Box scores of baseball games (AP)
briefing: Briefing on Washington news and political events (NYT)
broadway: Stories about Broadway openings/closings/reviews (NYT)
business digest: Business news digest (AP)
business highlights: Business news highlights (AP)
business mirror: Column on business (AP)
calendar: Calendar of political events or of crafts, performing arts, and openings in the New England area (AP)
candidates: Close up on political candidates (when applicable) (NYT)
capitol ideas: Column from Washington (AP)
careers: Features on interesting careers (NYT)
cheese eggs: Cheese and egg prices (AP)
chess: Articles on chess (NYT)
claiborne: Cooking with Craig Claiborne (NYT)
DATABASES AND SERVICES

colleges
Stories on college sports (NYT)
column
Columns from the New York Times
comput
Various columns about computers, computing etc. (NYT)
congress
Stories on Congress actions (NYT)
consumer column
Consumer advocacy column (NYT)
customer rates
Consumer credit rates (NYT)
court
Important court rulings (NYT)
credit
Reports on commercial credit markets (NYT)
credit rates
Present commercial credit rates (NYT)
databank
National economic indicators (NYT)
deaths
Obituaries (AP)
digest briefs
Well-edited news summaries (AP)
dollar
Information on the exchange rates (AP)
economy
Information and articles about the US economy (AP)
eco
Various economic stories (NYT)
edit
Editorials from the New York Times
editorial rmdp
Editorials from New England papers (AP)
education
Stories on education (NYT)
elections
Various election results (when applicable) (AP)
extendeds
Three-day extended weather forecasts (AP)
fashion
Articles about fashion (NYT)
fhc
College football (AP)
fbn
Professional football (National league) (AP)
fbo
Combined league football stories (AP)
finbriefs
Collections of short news items about business and finance (NYT)
findigest
A daily digest of top financial news from the New York Times. This digest is identical to the business digest on the front page of the New York Times business section.
followups
Follow up on the news (NYT)
food fitness
Nutrition articles (NYT)
football qa
Football question column (NYT)
forecasts
Forecasts for around the country (AP)
foreign affairs
Foreign affairs column (NYT)
foreign briefs
Foreign news briefs (NYT)
foreign exchange
Foreign exchange rates (AP)
frontpage
A daily description of the layout of the front page of the New York Times
global temps
Temperatures around the world (AP)
gov finances
Figures on Government spending and debt (AP)
hkn
National Hockey (AP)
hko
American League Hockey (AP)
hom video
Recent home videotape releases (NYT)
indexes
New York and American Stock Exchange indexes (AP)
industry news
Business news briefs (AP)
<table>
<thead>
<tr>
<th>Database/Service</th>
<th>Description</th>
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<tbody>
<tr>
<td>interview</td>
<td>Various interviews (AP)</td>
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<tr>
<td>investing</td>
<td>Various stories on investments (NYT)</td>
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<tr>
<td>kitchen</td>
<td>A column on kitchen equipment (NYT)</td>
</tr>
<tr>
<td>kisselgolf dance</td>
<td>A weekly column on dance (NYT)</td>
</tr>
<tr>
<td>kremlin</td>
<td>Political events in Russia (NYT)</td>
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<tr>
<td>lewis column</td>
<td>Anthony Lewis' column (NYT)</td>
</tr>
<tr>
<td>lpga</td>
<td>Ladies' professional golf stories (AP)</td>
</tr>
<tr>
<td>mail order</td>
<td>Mail order suggestions (NYT)</td>
</tr>
<tr>
<td>market</td>
<td>A daily report on the stock market (NYT)</td>
</tr>
<tr>
<td>marketplace</td>
<td>Wall street news (NYT)</td>
</tr>
<tr>
<td>mass digest</td>
<td>Massachusetts news digest (AP)</td>
</tr>
<tr>
<td>mass* lottery</td>
<td>Massachusetts daily lottery results (AP)</td>
</tr>
<tr>
<td>mass* news*</td>
<td>Massachusetts News summaries (AP)</td>
</tr>
<tr>
<td>mass* nightcap</td>
<td>Massachusetts News summaries (AP)</td>
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<tr>
<td>matchups</td>
<td>Pre-game analysis of upcoming sporting events (NYT)</td>
</tr>
<tr>
<td>megabucks</td>
<td>Massachusetts Megabucks lottery stories (AP)</td>
</tr>
<tr>
<td>mortgage</td>
<td>Articles about mortgages (NYT)</td>
</tr>
<tr>
<td>movie*</td>
<td>Movie reviews and features about movies, including columns by Maslin and Canby (NYT)</td>
</tr>
<tr>
<td>movie notes</td>
<td>Movie column (NYT)</td>
</tr>
<tr>
<td>movie review</td>
<td>Movie reviews (NYT)</td>
</tr>
<tr>
<td>names news</td>
<td>People in the news (AP)</td>
</tr>
<tr>
<td>nasdaq</td>
<td>Selected over-the-counter stock prices (AP)</td>
</tr>
<tr>
<td>news digest</td>
<td>A capsule summary of top national news stories from the AP.</td>
</tr>
<tr>
<td>newssummary</td>
<td>A capsule summary of top news stories from either the AP or the New York Times. The New York Times news summary comes out once a day around midnight, and is identical to the news summary that appears on the first page of the B section of the printed paper. Use the query (type: nyt) (subject: newssummary) for this summary. The AP summarizes local news many times a day.</td>
</tr>
<tr>
<td>obits</td>
<td>Obituaries (NYT)</td>
</tr>
<tr>
<td>oly</td>
<td>Olympics coverage (AP)</td>
</tr>
<tr>
<td>on language</td>
<td>Column by William Safire on the English language (NYT)</td>
</tr>
<tr>
<td>outdoors</td>
<td>Column on outdoor activities (NYT)</td>
</tr>
<tr>
<td>patents</td>
<td>Patents of special interest that have recently issued (NYT)</td>
</tr>
<tr>
<td>paperbacks</td>
<td>Paperback bestseller list (NYT)</td>
</tr>
<tr>
<td>people</td>
<td>Column on people in the news (AP)</td>
</tr>
<tr>
<td>personal finance</td>
<td>Column on personal finance (NYT)</td>
</tr>
<tr>
<td>personal health</td>
<td>Column on personal health (NYT)</td>
</tr>
<tr>
<td>pga</td>
<td>Professional golf stories (AP)</td>
</tr>
<tr>
<td>pop</td>
<td>Articles on popular music (NYT)</td>
</tr>
<tr>
<td>practical traveler</td>
<td>Travel advice (NYT)</td>
</tr>
<tr>
<td>produce</td>
<td>Boston wholesale produce prices (AP)</td>
</tr>
<tr>
<td>Prospects</td>
<td>Financial prospects for particular business sectors (NYT)</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-----------------------------------------------------------</td>
</tr>
<tr>
<td>Question Box</td>
<td>Sports questions and answers (NYT)</td>
</tr>
<tr>
<td>Quotes</td>
<td>Notable quotations (AP)</td>
</tr>
<tr>
<td>Racing</td>
<td>Horse racing news (NYT)</td>
</tr>
<tr>
<td>Records</td>
<td>Recent classical record releases (NYT)</td>
</tr>
<tr>
<td>Reston Column</td>
<td>James Reston's column (NYT)</td>
</tr>
<tr>
<td>Russell Art</td>
<td>John Russell's art column (NYT)</td>
</tr>
<tr>
<td>Safire Column</td>
<td>Column by William Safire that is not “On Language” (NYT)</td>
</tr>
<tr>
<td>Science Q&amp;A</td>
<td>Science questions and answers (NYT)</td>
</tr>
<tr>
<td>Science Watch</td>
<td>Short summaries of recent scientific news (NYT)</td>
</tr>
<tr>
<td>Cotus</td>
<td>Supreme Court (of the United States) news (AP)</td>
</tr>
<tr>
<td>Scouting</td>
<td>Stories on sports players (NYT)</td>
</tr>
<tr>
<td>Silk Column</td>
<td>Financial commentary by Leonard Silk (NYT)</td>
</tr>
<tr>
<td>Ski</td>
<td>Column on skiing (NYT)</td>
</tr>
<tr>
<td>Sports Briefs</td>
<td>Brief stories about sports (AP)</td>
</tr>
<tr>
<td>Sports Minute</td>
<td>Latest sports stories (AP)</td>
</tr>
<tr>
<td>Sports Watch</td>
<td>Time tables for sporting events (AP)</td>
</tr>
<tr>
<td>Stocks</td>
<td>Articles on the stock market (NYT)</td>
</tr>
<tr>
<td>Talktalk</td>
<td>Food column (NYT)</td>
</tr>
<tr>
<td>Tech*</td>
<td>Reports on new and interesting technologies (NYT)</td>
</tr>
<tr>
<td>Telerate</td>
<td>Interest rates, including T-bills, Eurodollar, Federal discount rate etc. (AP)</td>
</tr>
<tr>
<td>Theater</td>
<td>Articles about and reviews of the theater (NYT)</td>
</tr>
<tr>
<td>Transactions</td>
<td>New York Stock Exchange trading volume (AP)</td>
</tr>
<tr>
<td>Travel</td>
<td>Various travel stories (AP)</td>
</tr>
<tr>
<td>Travel Notes</td>
<td>Vacation ideas (NYT)</td>
</tr>
<tr>
<td>Travelers Forecast*</td>
<td>Weather forecasts for selected cities (AP)</td>
</tr>
<tr>
<td>TV Review</td>
<td>Reviews of upcoming television programs (NYT)</td>
</tr>
<tr>
<td>TV tonight</td>
<td>Tonight's TV programs: sent three days in advance (NYT)</td>
</tr>
<tr>
<td>TV Weekend</td>
<td>Weekend television (NYT)</td>
</tr>
<tr>
<td>Vacation</td>
<td>Vacation notes and ideas (NYT)</td>
</tr>
<tr>
<td>Hockey Column</td>
<td>Sports column (NYT)</td>
</tr>
<tr>
<td>Video</td>
<td>Column on home videotapes (NYT)</td>
</tr>
<tr>
<td>Wall Street</td>
<td>Reports on Wall Street trading (AP)</td>
</tr>
<tr>
<td>Washington Brief Watch</td>
<td>Short news items from Washington D.C. (AP)</td>
</tr>
<tr>
<td>Weather Watch</td>
<td>Upcoming business events to watch (NYT)</td>
</tr>
<tr>
<td>Weather Temps</td>
<td>Temperatures and weather: from major cities around the country (AP)</td>
</tr>
<tr>
<td>Weather Page</td>
<td>Summary of weather around the country (NYT)</td>
</tr>
<tr>
<td>Wicker Column</td>
<td>Tom Wicker's column (NYT)</td>
</tr>
<tr>
<td>Wine*</td>
<td>Column on wine (NYT)</td>
</tr>
</tbody>
</table>
3.4 — Useful Queries
In addition to the subject specifiers above, the following queries will provide you with useful information.

- boston vicinity forecast
- massachusetts daybook
- ski conditions

(Title: week review)
(subject: mass digest)

- Local weather forecast (AP)
- Newsworthy upcoming events in Massachusetts (AP)
- Ski conditions at all local ski resorts (AP)
- Articles from the New York Times "week in review" section
- Latest Massachusetts news capsules (AP)
Section 4 — The Query Language

The Commis software lets you describe articles that interest you using a simple language, called the query language. The query language is used primarily for filter lines, but you can also type queries directly into the query line. As described in Section 2, the system uses your filter to determine which articles to save for you. Using the query language, you can tell the system what articles interest you, in terms of their contents, source, author, subject, and a variety of other attributes. In this section, we explain the query language, starting with the simplest possible queries.

The simplest possible query is a single word. Imagine, for example, that you are interested in all articles that contain the word "peace". The corresponding query is the word peace. If you are interested in all articles that contain the words "war" and "peace", the corresponding query could be war, peace, or simply war & peace. Thus, you can combine two simple queries into a more specific query by means of and, &, or concatenation.

Next, imagine that you are interested in all articles that mentioned the Supreme Court. You could use the query supreme court, but this query matches all articles that contain the words "supreme" and "court", regardless of whether they appear consecutively. To indicate that the words "supreme" and "court" must appear consecutively as a phrase, simply put them in quotes: "Supreme Court". A phrase may contain any number of words. The remote system cannot handle phrases, therefore typing "new york mets" has the same effect as typing the three words as explained in the preceding paragraph.

Next, imagine that you are interested in all articles about computers, computing, computation, and so on. To catch all these articles, use the query comput*: it matches all articles that contain one or more words beginning with the letters "comput". These queries are called stem queries, because they match any word that begins with a specified stem. There are two restrictions on stem queries: a stem query may not appear inside a phrase, and the stem must be at least two characters long.

The following convention applies to all queries: uppercase and lowercase letters are considered the same, and all punctuation characters in articles are treated as spaces, except for apostrophes, which are ignored. The system will not accept queries that contain punctuation characters, except for hyphens, which are treated as spaces. Thus, the query rogers matches the following words: rogers", "Roger", "roger's", "Roger's", and so forth. The queries "space-cadet" and "space-cadet" match the following phrases: "space-cadet", "Space Cadet", etc.

Next, imagine that you are interested in articles by a certain author, say John Smith. You could use the query Smith, but it matches every article that contains the word "smith", regardless of the context in which it appears. To rule out all these extra articles, use the query (author: smith); it matches all articles that have an AUTHOR field containing the word "smith". Queries of this kind are called field-specific queries; the possible fields (besides AUTHOR) are listed in Section 3.1. Other examples of field-specific queries include (subject: newssummary) and (type: cis).

Above, we showed how to combine two queries into a more specific query by means of and, &, or concatenation. In combination with field specific queries, this combining rule is very useful; for example, the query ibm (category: financial) matches all articles that contain the word "ibm" and have a CATEGORY field containing the word "financial".
In some situations, the date of an article is important. The query language permits you to specify a date using a special format; dates are recognized when enclosed in square brackets with the special key word DATE.

\[ \text{[date: jun 12 1986]} \]

Dates may be specified as a number of days in the past:

\[ \text{[date: -1]} \]

Dates may also be specified as ranges:

\[ \text{[date: jun 12 : jun 16]} \]

Note that the year will default to the current year.

The date on which an article was written appears in the "date" field of the article. For example, to find all articles containing the word juggling that appeared in yesterday's New York Times, use the following query:

\[ \text{juggling \& (type: nyt) \& (date: [date -1])} \]

Queries issued to remote database servers must be narrowed to specific dates, i.e. \(\text{(date: [date -30 : -1])}\), and sources, i.e. \(\text{(type: nyt)}\). The CIS program will assist in this by suggesting what sources and dates are available, based on information read in from the configuration file.

The examples on the next page illustrate the different kinds of queries, and the various ways in which they can be combined using and, or and not.
The Query

<table>
<thead>
<tr>
<th>Query</th>
<th>Matches Articles that...</th>
</tr>
</thead>
<tbody>
<tr>
<td>peace</td>
<td>contain the word &quot;peace&quot;</td>
</tr>
<tr>
<td>&quot;War and Peace&quot;</td>
<td>contain the phrase &quot;war and peace&quot;</td>
</tr>
<tr>
<td>computer</td>
<td>contain a word that begins with &quot;computer&quot;, such as &quot;computer&quot;, &quot;computation&quot; or &quot;computability&quot;</td>
</tr>
<tr>
<td>ski*</td>
<td>contain a word that begins with &quot;ski&quot;, such as &quot;ski&quot;, &quot;skiing&quot;, &quot;skid&quot;, &quot;skin&quot; or &quot;skyscraper&quot;</td>
</tr>
<tr>
<td>war and peace</td>
<td>contain the words &quot;war&quot; and &quot;peace&quot;. The three queries shown to the left are equivalent.</td>
</tr>
<tr>
<td>war &amp; peace</td>
<td>contain the words &quot;war&quot;, &quot;and&quot;, and &quot;peace&quot;</td>
</tr>
<tr>
<td>war peace</td>
<td>contain either the word &quot;war&quot; or the word &quot;peace&quot;. The two queries shown to the left are equivalent.</td>
</tr>
<tr>
<td>war &quot;and&quot; peace</td>
<td>do not contain the word &quot;war&quot;. The two queries shown to the left are equivalent.</td>
</tr>
<tr>
<td>war or peace</td>
<td>contain the words &quot;war&quot; and &quot;peace&quot;</td>
</tr>
<tr>
<td>war</td>
<td>peace</td>
</tr>
<tr>
<td>not war</td>
<td>do not contain the word &quot;war&quot;. The two queries shown to the left are equivalent.</td>
</tr>
<tr>
<td>~ war</td>
<td>contain the word &quot;peace&quot; and either the word &quot;quiet&quot; or the word &quot;talks&quot;</td>
</tr>
<tr>
<td>peace and (quiet or talks)</td>
<td>contain the words &quot;peace&quot; and &quot;quiet&quot; or the word &quot;talks&quot;</td>
</tr>
<tr>
<td>(peace and quiet) or talks</td>
<td>have a SUBJECT field containing a word that begins with &quot;movie&quot;</td>
</tr>
<tr>
<td>(subject: movie*)</td>
<td>have an AUTHOR field containing the word &quot;smith&quot; but not the word &quot;john&quot;</td>
</tr>
<tr>
<td>(author: smith (not john))</td>
<td>contain the word &quot;harvard&quot; but do not have a SUBJECT field containing the word &quot;football&quot;. The two queries shown to the left are equivalent.</td>
</tr>
</tbody>
</table>

The following are some examples of invalid queries, along with the reasons why they are invalid:

Is Invalid Because...

<table>
<thead>
<tr>
<th>Query</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;comput* languages&quot;</td>
<td>a stem query may not appear within a phrase</td>
</tr>
<tr>
<td>(author: (subject: smith))</td>
<td>a field-specific query may not be nested inside another field-specific query</td>
</tr>
<tr>
<td>Mr. Rogers' neighborhood</td>
<td>punctuation (such as periods and apostrophes) cannot be entered in queries</td>
</tr>
<tr>
<td>(topic: reagan)</td>
<td>a TOPIC is not a valid field name. The valid field names are listed in Section 3.1.</td>
</tr>
<tr>
<td>(a or (b) or c</td>
<td>parentheses must be balanced</td>
</tr>
</tbody>
</table>
Appendix I — Getting Started

Important

The Boston Commlns hardware and software have been designed for use with an IBM PC™, XT™, or AT™ personal computer with the following minimal configuration:

- a monochrome or graphics display card and monitor,
- version 2.1 or 3.1 of the MS DOS™ operating system, or a corresponding version of PC-DOS™,
- one floppy disk drive,
- 256 K (kilobytes) of RAM, and
- one RS-232 serial port.
- one 1200-baud modem to retrieve articles from our New York Times database (optional)

The Boston Commlns hardware and software may also work with 100-percent compatible machines made by other manufacturers, provided that they have at least the configuration listed above.

Introduction

This appendix explains how to unpack the equipment and how to start using the hardware and software for the Boston Commlns. It covers the following topics:

- unpacking the equipment,
- installing the hardware,
- installing the software,
- running the Commlns program, and
- stopping the Commlns program.

Please read and follow these steps in order, even though you may have years of experience with microcomputers and/or communications.

I.1 — Unpacking the Equipment

All the equipment, software and documentation for the Boston Commlns is packaged together. Each package should contain the following:

- One receiver (wrapped in bubble wrap) — an grey box with a signal strength meter, three connectors, and an MIT equipment tag
- power supply (AC adaptor) — a black object with prongs that can be plugged into an ordinary outlet (110 volt AC)
- One antenna — a flat, white ribbon cable in the shape of a large "T", with a special connector at the bottom of the "T"
- One RS-232 cable — a gray, 20 foot cable with a 25 pin connector at one end and a "phone" plug at the other end
One distribution disk — a standard 5¼ inch (360K format) floppy disk, packed inside the user’s manual

One user’s manual — you’re reading it.

Place the contents of the distribution package on a table, and make sure you have received all of the above items. If one or more items are missing, call the Boston ComminS‘HOTLINE’ at (617)-253-0007.

Please save the box and packing materials for when you return the equipment to us at the end of this experiment.

1.2 Installing the Hardware

Note: Please read this section once before you begin to put the equipment together.

Positioning the Equipment

The receiver, power supply, antenna, and cables can be arranged in any way that suits you, provided that they can be plugged into each other (see Figure 1-1). Place the antenna near a window, preferably on the side of your building nearest Boston’s Back Bay neighborhood (the Prudential Tower, to be exact). Referring to Figure 1-1, position the receiver so that (i) it can be plugged into the antenna, (ii) the 6-foot power cable can reach an ordinary outlet (110 volt AC) and (iii) the 20-foot RS-232 signal cable can reach your personal computer.

Power

Plug the power supply (AC adaptor) cable into an ordinary outlet (110 volt AC). Plug the other end of
the power cord into the matching connector on the receiver.

**RS-232 Cable**

Plug the gray "phono" plug at the end of the 20 foot RS-232 cable into the matching connector on the receiver. Then plug the 25 pin RS-232 connector at the other end of this cable into the RS-232 serial port of your computer. For most installations, this description suffices. However, two unusual situations may apply to you:

- If you have more than one RS-232 serial port on your personal computer, you must know which is port 1 and which is port 2. Normally, the CommIns software expects the receiver to be connected to port 1, but either port 1 or port 2 may be used.
- If you have an IBM AT™ computer with a 9-pin serial port connector, you will need an adaptor cable that lets you connect the 25-pin RS-232 connector to the socket on the AT's rear panel.
- If a modem is connected to either serial port one or two, the CIS program may be instructed to use it to retrieve information from a remote database server.

**Receiver**

Plug the antenna into the receiver. If you place the receiver near a window, be sure to protect it from rain and snow if you keep the window open.

**Antenna and Orientation**

Positioning the antenna properly is the most important part of installing the system. If the antenna is not in a good position, you may not get good reception. As discussed earlier, try to position the antenna near a window on the side of your building closest to Boston's Back Bay. Our transmitter is located atop the Prudential Building.

Note that the antenna looks like a large "T" (about four feet wide) — keep the top part of the T straight and taut. We have found that in most locations the best results are achieved when the top of the "T" is kept horizontal. While keeping the top of the antenna horizontal, rotate the antenna until you find the orientation that maximizes the reading on the receiver's signal strength meter. For best results, do not hold the antenna while you read the signal strength meter. Once you have found the orientation that maximizes the meter reading, fix the antenna in this position.

If you are returning to this section because of poor reception, try one of the following:

- Tape the antenna to your window — remember to keep the top of the "T" fully extended — and check your reception.
- Stand facing the Prudential Building and hold the antenna fully extended between your hands. Now lay the fully extended antenna down, fix it in this position, and check your reception.
- Instead of using the antenna supplied in the package, you can use another antenna; antennas designed for VHF TV will work very well. If the antenna does not have a plug that fits the socket on the receiver, connect it to the two screw terminals on the black connector (balun) provided with the antenna in the package. The antenna should be pointed towards the Prudential building for best results.

If neither of these suggestions help, call the Boston CommIns "HOTLINE" at (617) 253-0007.
1.3 — Installing the software

Note: Before you install the software, make sure that you are using version 2.1 or 3.1 of the "DOS" operating system, or a corresponding version of "PC DOS".

Locate the Distribution Disk in the distribution package. Use the DOS "DIR" command to list the directory of the Distribution Disk. The disk should contain four files:

- CIS.EXE
- FILTER.TXT
- HELP.TXT
- CONFIG.TXT

The instructions for installing the software depend on whether you have a hard-disk drive, two floppy disk drives, or only one floppy disk drive. Determine which of the following three sections is appropriate, and follow the instructions in that section.
1.3.1 — Installing the Software on a Hard Disk

1. Insert the distribution disk into drive A.
2. Make the hard disk the default drive:
   
   \[
   \text{c: <Enter>}
   \]

   Most hard disk systems use drive C to refer to the hard disk. If you have multiple hard
disks, or your disk is known by a different drive letter, replace C in the instructions by
the drive of your choice.

3. Build a directory for the Boston CommInS program, and change the current directory to be this
new directory:

   \[
   \text{mkdir \news <Enter>}
   \text{cd \news <Enter>}
   \]

   Because the DOS file system limits the root directory to 112 files, the Boston
CommInS data should be stored in a subdirectory. We recommend using a directory
called \news.

4. Copy the CommInS files from the distribution disk:

   \[
   \text{copy a:*.* <Enter>}
   \]

   This command will copy four files: CIS.EXE, FILTER.TXT, HELP.TXT and
CONFIG.TXT.

5. Remove the distribution disk from the floppy disk drive, and store it in a safe place.
   Keep the distribution disk as a backup.

6. Start the Community Information System program:

   \[
   \text{cis <Enter>}
   \]

7. Turn to Appendix 1.4 — Running the CommInS Program.
I.3.2 — Installing the Software with Two Floppy Disk Drives

1. Take a blank disk that has been formatted with the /S option.
   If you do not have a blank system disk handy, format a new disk now. Make sure the
   new disk is not write protected: remove the piece of tape covering the write protect
   notch on the side of the disk if necessary.

2. Label this blank system disk "Boston CommlnS Program".
   From now on, we will refer to this disk as the "program disk".

3. Take another blank disk, this one formatted without the /S option.
   Use a disk formatted without the /S option, because it has more space for data
   storage.

4. Label this second blank disk "Boston CommlnS Data".
   By keeping the data on a separate disk from the program, you will be able to store
   more information. From now on, we will refer to this disk as the "data disk".

5. Insert the distribution disk in drive A.

6. Insert the program disk in drive B.

7. Copy the file CIS.EXE from the distribution disk onto the program disk:
   
   ```
   copy a:\cis.exe b: <Enter>
   ```

8. Remove the program disk from drive B, and insert the data disk in drive B.

9. Make drive B the default drive:
   
   ```
   b: <Enter>
   ```

10. Build a directory for the Boston CommlnS data, and change the current directory to be this new
    directory:

    ```
    mkdir \news <Enter>
    cd \news <Enter>
    ```

    Because the DOS file system limits the root directory to 112 files, the Boston
    CommlnS data should be stored in a subdirectory. We recommend using a directory
    called \news.

11. Copy the CommlnS text files from the distribution disk into the \news directory:

    ```
    copy a:\*.txt <Enter>
    ```

    This command will copy three files: FILTER.TXT, HELP.TXT and CH4FIG.TXT.

12. Remove the distribution disk from floppy disk drive A, and store it in a safe place.

    Keep the distribution disk as a backup.

13. Insert the program disk in drive A.

    When you run the CommlnS program, the program disk should be in drive A, and the
    data disk in drive B.

14. Start the Community Information System program:

    ```
    a:\cis <Enter>
    ```

    The program is on drive A, and the \news directory containing the data is on drive B.

15. Turn to Appendix I.4 — Running the CommlnS Program.
I.3.3 — Installing the Software with One Floppy Disk Drive

1. Take a blank disk, formatted with the /S option. If you do not have a blank system disk handy, format a new disk now. Make sure the new disk is not write protected. Remove the piece of tape covering the write protect notch on the side of the disk if necessary.

2. Label the blank system disk "Boston CommInS".
   From now on, we will refer to this disk as the "program disk".

3. Insert the program disk in the floppy disk drive.

4. Build a directory for the Boston CommInS data, and change the current directory to be this new directory:
   ```
   mkdir \news
   <Enter>
   cd \news <Enter>
   ```
   Because the DOS file system limits the root directory to 112 files, the Boston CommInS data should be stored in a subdirectory. We recommend using a directory called \news.

5. Copy the CommInS files from the distribution disk:
   ```
   copy b:.* <Enter>
   ```
   You will be asked to remove the program disk and insert the distribution disk. This command will copy four files: CIS.EXE, FILTER.TXT, HELP.TXT and CONFIG.TXT. You may need to swap the two disks several times.

6. Remove the distribution disk from the floppy disk drive, and store it in a safe place. Keep the distribution disk as a backup.

7. Re-insert the program disk in the floppy disk drive.

8. Start the Community Information System program:
   ```
   cis <Enter>
   ```

9. Turn to Appendix I.4 — Running the CommInS Program.
1.4 — Running the ComminS Program

At this point, the Boston ComminS program should be running on your PC. Normally, the program assumes the receiver is connected to port 1. If your receiver is connected to port 2, hold down the Ctrl key and press V to switch the system to port 2.

You should now be "on the air". News articles received by the system will be stored in the "News" directory. To verify that the system is working, press F8 and wait until the highlighted line at the top of the screen displays the words "Diagnostic Window". If the system is working, it should be receiving "intact packets" at a rate of about three packets per second. Find the number of "intact packets" on the screen; it is displayed five lines above the highlighted line near the bottom of the screen. The number should be increasing steadily, at a rate of about three per second, occasionally interrupted by brief pauses that are followed by rapid catching up. If this is the case, everything is working; please turn to Section 2 — Using the ComminS Software and follow the instructions for first-time users.

If the number of intact packets is not changing, refer to the trouble-shooting guide in Appendix III.

1.5 — Starting and Stopping the ComminS Program

1.5.1 — Starting the ComminS Program

The procedure for normal start-up depends on the hardware configuration of your personal computer:

- If you have either a hard disk or a single floppy disk drive, use the cd command to change the current directory to the "News" directory, and start the program by typing cis.
- If you have two floppy disk drives, place the ComminS program disk in drive A, the ComminS data disk in drive B, use the cd command to change the current directory to the "News" directory on the data disk, and start the program by typing a: cis.

If your receiver is connected to port 2, you can use the "-2" option to tell the program to listen to port 2 right from the start:

```
cis -2 <Enter>
```

or

```
a: cis -2 <Enter>
```

If you want the ability to use a modem to retrieve information from remote databases, you must start the CIS program with the "-d" option to enable duplex operation:

```
cis -d <Enter>
```

or

```
a: cis -d <Enter>
```

You may configure the program to print articles in the foreground (necessary if you do not have a Hard Graphics printer) by specifying the "-p" option:

```
cis -p <Enter>
```

or

```
a: cis -p <Enter>
```

Of course, options may be combined, for example:
When you start the ComlnS program, it begins to receive data immediately. You should verify this by pressing the F8 key and checking to see that the number of "intact packets" is increasing. If the system is not receiving data, refer to trouble-shooting guide in Appendix III.

1.5.2 — Stopping the ComlnS Program
To stop the ComlnS program, you should hold down the <Alt> key and press X, or execute the exit command that appears in every menu. This instructs the system to save its article directory on the disk and return to DOS.

---

Warning:

Do not stop the ComlnS program by turning off the power or by re-booting your PC.

If you interrupt the program in this way, the files used by the system may be left in an inconsistent state. When this happens, the program must be re-started using the " -r" option (described below).

---

1.6 — Restarting after a Crash or Accidental Shutdown
If the hardware or software running the Boston ComlnS fails or is inadvertently shut down without using the exit command, the files used by the system may be left in an inconsistent state. Depending on the cause of the problem, you may wish to consult the trouble-shooting guide in Appendix III.

If the system crashes or is accidentally shut down, you should reboot the DOS operating system in one of the two standard ways — either (i) by turning your personal computer off for 30 seconds and turning it back on, or (ii) by simultaneously holding down the <Ctrl> and <Alt> keys and then pressing the <Del> key. We recommend the latter method, to minimize wear of the computer hardware.

To restart the ComlnS program, follow the instructions for normal start-up in Appendix 1.5.1, but invoke the ComlnS program with the " -r" option:

```
cis -r <Enter>
```

or, if you are using Port 2:

```
cis -2 -r <Enter>
```

The " -r" option instructs the ComlnS program to re-build the ComlnS directory file, CIS - DIR.TXT, by reading all the article files on the disk and comparing them with the filter file. During the rebuilding process, the system displays the names of the files as it reads them; when this is finished, the system starts up as usual. Because of the large amount of disk reading and indexing that is required, the rebuilding process takes a large amount of time to execute.

As always, the system should begin to receive data immediately. You should verify this by pressing the F8 key and checking to see that the number of "intact packets" is increasing. If the number of "intact packets" is not changing, refer to trouble-shooting guide in Appendix III.
Appendix II — Setting Up The Remote System

Note:
If you do not have a modem that is capable of using a 1200 baud communications, you cannot use the remote access feature of the Boston ComminS program. Please check that your modem has 1200 baud capabilities before continuing.
If you have only one serial port, the program cannot listen to broadcast articles and access the New York Times database simultaneously. However, you can do one or the other at any time, provided that you connect the modem or receiver to the serial port and swap the ports within the program.

II. 1 — Hayes Modems
If you have a Hayes or Hayes compatible modem, the Boston ComminS software does not need any additional set up, beyond starting the program with the -d option. (See Appendix 1.5.1)

II. 2 — Non-Hayes Modem
If your modem is not Hayes compatible you will have to first establish a connection to the remote server prior to issuing remote queries to the Boston ComminS software. The following procedure must be executed with a modem communications program:

- Reset the modem to its initial state.
- Set the modem for 1200 baud mode, if applicable.
- Dial the remote server at (617) 258-7161. If you get a busy signal, continue to attempt to make a connection. Once a connection is established, you should receive a 'login' prompt. If you did not receive this prompt, you may not have a 1200 baud modem. Check your manual.
- Exit your modem communications program, without severing the connection.
- Enter the Boston ComminS software with the -d option (See Appendix 1.5.1)
- The software will check if the modem is connected, prior to sending a query.
- If there is a problem with the connection and the Boston ComminS program needs to re-establish the modem, you will have to exit the program and execute the above steps again. The program cannot re-establish a connection on non-Hayes or compatible modems.
- NOTE: If you are running the Boston ComminS software in the background, you do not have to exit the program each time to establish a modem connection. Simply make the connection with the modem program with the Boston ComminS software in the background.

If you are still having difficulties, contact the Boston ComminS 'HOTLINE' at (617) 253-0007.
Appendix III — Trouble-shooting Guide

If you are having trouble installing or using the system, check this list of common problems, symptoms, and solutions. If you cannot resolve the problem, call the Boston CommlnS ‘HOTLINE’ at (617)-253-0007. If none of the consultants are available, please leave a message on the answering machine and someone will call you back.

Please report ‘crashes’ (defined below) to the Boston CommlnS ‘HOTLINE’; try to describe as many of the keystrokes and system actions leading up to the crash as you remember.

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Possible Problems</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>The program does not start up, and does not respond to the keyboard.</td>
<td>Not enough memory in your PC. (You need at least 256 K of RAM in order to run the Boston CommlnS program.)</td>
<td>Install more memory.</td>
</tr>
<tr>
<td>The program ‘freezes’ while starting up, and does not respond to the keyboard.</td>
<td>Some previous program left the PC in an unusable state (probably because of disorderly termination).</td>
<td>Re-boot the PC and re-start the program.</td>
</tr>
<tr>
<td>The program stops responding to the keyboard.</td>
<td>The program has crashed.</td>
<td>Re-boot the PC and restart the program using the command “cis -r”. Please report the crash to the Boston CommlnS ‘HOTLINE’.</td>
</tr>
<tr>
<td>The program prints a “Fatal Error” message when starting up.</td>
<td>The system files are in an inconsistent state (perhaps because of a previous crash or accidental shutdown).</td>
<td>Re-start the program using the command “cis -r” (See Appendix I.6).</td>
</tr>
<tr>
<td>The program exits to DOS unexpectedly.</td>
<td>The program got into a situation that was considered impossible, and crashed.</td>
<td>The file STDOUT.TXT will contain an error message. Please record this message, and when you report the crash to the Boston CommlnS ‘HOTLINE’, report the error message as well. Re-boot the PC and restart the program using the command “cis -r”.</td>
</tr>
<tr>
<td>Symptom</td>
<td>Possible Problem</td>
<td>Solution</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>----------------------------------</td>
<td>----------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>The number of “intact packets” (in the diagnostic window) does not change.</td>
<td>The receiver is not connected.</td>
<td>Make sure that the receiver is plugged in, and that the cable between the receiver and the personal computer is connected.</td>
</tr>
<tr>
<td></td>
<td>The program is listening to the wrong serial port.</td>
<td>Either type A V to instruct the program to listen to the other port, or connect the receiver to the other port.</td>
</tr>
<tr>
<td></td>
<td>The radio station is off the air.</td>
<td>Our data transmissions are carried by WERS Boston, FM 88.9. WERS is generally off the air from 2:00 until 6:00 am. Listen to WERS on a regular FM radio, and wait until it comes back on the air.</td>
</tr>
</tbody>
</table>

| The number of “articles received” (in the diagnostic window) does not change. | Poor reception.                  | Refer to the discussion on “Antenna and Orientation” in Appendix I.2 — Installing The Hardware. |
| The number of “unframed packets” and/or the number of “checksum errors” are increasing. |                                                                                   |                                                                                                    |
| The leads on the antenna connector are touching.                        | Move the leads on the antenna connector so they no longer touch.                   |                                                                                                    |

| The number of “articles received” (in the diagnostic window) is increasing, but the number of “matching articles” does not change. | The program does not have a filter.                                               | Either: a) start the program in a directory that has a filter file (FILTER.TXT), or insert one or more filter lines into the filter window. |

| The number of “matching articles” (in the diagnostic window) does not change. | The program does not have any keys loaded.                                        | Copy the CONFIG.TXT file from the distribution disk into the \news directory, and re-start the program. |

(continued)
<table>
<thead>
<tr>
<th>Symptom</th>
<th>Possible Problem</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occasional periods of poor reception.</td>
<td>Radio interference.</td>
<td>Move the receiver, antenna, and PC away from other electrical equipment.</td>
</tr>
<tr>
<td>Difficulty establishing a connection to a remote database server.</td>
<td>Not using a Hayes-compatible 1200 baud modem.</td>
<td>Use a standard terminal or modem program to establish a connection to the remote server and wait until you receive a LOGIN: prompt before starting the CIS program.</td>
</tr>
<tr>
<td></td>
<td>Various connection problems.</td>
<td>Press &lt;A-H&gt; to reset the connection from within the CIS program, then turn the modem power off and on, and attempt a remote query again. Or, attempt to &quot;strobe&quot; the modem, i.e. press &lt;A-V&gt; twice.</td>
</tr>
</tbody>
</table>
Appendix IV — Differences from Version 6.0 (7)

IV.1 — Keystroke Changes
In an attempt to make the program easier to use, we have changed some of our keystroke bindings to a "more standard" form:

<table>
<thead>
<tr>
<th>Old Key</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>?</td>
<td>The F1 key replaces ? and instructs the system to display the help file. It contains an overview of commands and queries.</td>
</tr>
<tr>
<td>F10</td>
<td>The F3 key replaces F10 and instructs the system to display the window selection menu.</td>
</tr>
<tr>
<td>&lt;Esc&gt;</td>
<td>The / key replaces the &lt;Esc&gt; to display the command menu for the current window (see Section 2 — Using the Commins Software). Additionally, &lt;Esc&gt; no longer is used to process menu items, see &lt;Enter&gt; below.</td>
</tr>
<tr>
<td>&lt;C-C&gt;</td>
<td>The &lt;Esc&gt; key replaces the &lt;C-C&gt; and (shorthand for the command DO NOTHING) instructs the system to exit the current menu or cancel inserting a filter line. If neither of these cases apply, &lt;Esc&gt; still does nothing.</td>
</tr>
<tr>
<td>&lt;Enter&gt;</td>
<td>The &lt;Enter&gt; key instructs the system to process whatever is currently being done. Therefore, when there is a menu on the screen, the &lt;Enter&gt; key instructs the system to execute the selected command. When inserting a filter line, &lt;Enter&gt; instructs the system to finish inserting the edited line. Any other time the &lt;Enter&gt; key (shorthand for the command SHOW SUMMARIES) instructs the system to process the query on the query line and to display summaries of the matching articles (see Section 2.1 — The Filter Window).</td>
</tr>
<tr>
<td>&lt;A-Y&gt;</td>
<td>The &lt;A-Y&gt; key is now used for confirmation to execute commands (when applicable) and the &lt;A-Y&gt; is used to blank the screen.</td>
</tr>
<tr>
<td>F2</td>
<td>The &lt;A-S&gt; key replaces the F2 key and instructs the system to toggle between displaying and turning of the budget display.</td>
</tr>
<tr>
<td>F1</td>
<td>The F2 key replaces the F1 key and instructs the system to SHOW FILTER WINDOW.</td>
</tr>
<tr>
<td>F3</td>
<td>The F4 key replaces the F3 key and instructs the system to SHOW SUMMARY WINDOW.</td>
</tr>
<tr>
<td>F5</td>
<td>The F6 key replaces the F5 key and instructs the system to SHOW ARTICLE WINDOW.</td>
</tr>
<tr>
<td>F7</td>
<td>The F8 key replaces the F7 key and instructs the system to SHOW DIAGNOSTIC WINDOW.</td>
</tr>
<tr>
<td>F9</td>
<td>The F10 key replaces the F9 key and instructs the system to SHOW OPTIONS WINDOW.</td>
</tr>
</tbody>
</table>
IV.2 — Remote Queries
A brand new feature of the current software is the ability to access a complete database of New York Times articles. This database is stored on several database servers at MIT. Users must have a 1200 baud modem to use this feature.

The service is invoked by using the `-d` option at startup (see Appendix I.5.2 — Starting the CommInS Program) and issuing queries with `<C-Enter>`, instead of `<Enter>` (see Section 2.1 — The Enter Window and Figure 2.3). Also, Appendix II will help set up your modem for use with the software.

IV.3 — Screen Dimming
If no keys are pressed for ten minutes, the CIS program now enters a 'screen protect' mode. In this mode, the screen is blanked, and a message ("Bounce") is printed. This message is moved randomly to different places on the screen. The screen-dimming mode prevents the CIS display from becoming permanently burned into the screen. Typing any keys restores the screen, then executes the command indicated by the key that was pressed. The menu item "Idle the screen (A-C)" in the options window immediately blanks the screen and displays the message.

If you prefer not to see any message when the screen is blanked, select "Blank the screen (A-Y)" from the options menu. This is particularly useful if you run the CIS program under a multi-tasker such as Double-Dos (TM) or DesqView (TM), because it prevents any output from appearing on the screen.

IV.4 — Printer Support
The CIS system now supports several different printer models.

IBM printers may be run in the default (background) mode. In this mode, additional CIS commands can be processed while the article is being printed. Also, relevant words and phrases are highlighted when articles are printed on the IBM printer. In background mode, the CIS program sends characters directly to the printer, bypassing print spoolers and all DOS calls.

Other printers may be used in 'foreground'. No additional CIS commands can be entered until printing is complete. In foreground mode, the CIS system sends characters to the printer by issuing DOS calls. Special printer drivers and spoolers may be used.

The foreground mode may be invoked using the shorthand (A-C) (see Section 2.5 — The Options Window) or at startup using the `-p` option (see Appendix I.5.1 — Starting the CommInS Program).
Appendix V — Summary of Commands

V.1 — Special Function Keys

The following keys on the PC keyboard have special meaning to the CommIns software:

**F1**  
The F1 key instructs the system to display the *help* file. It contains an overview of commands and queries.

**F3**  
The F3 key (shorthand for the command *SHOW WINDOW SELECTION MENU*) instructs the system to display the *window selection menu*.

**/**  
The `/` key instructs the system to display the *command menu* for the current window (see Section 2 — *Using the CommIns Software*).

**<Esc>**  
The `<Esc>` key (shorthand for the command *DO NOTHING*) instructs the system to exit the current menu or cancel inserting a filter line. If neither of these cases apply `<Esc>` still does nothing.

**<Enter>**  
The `<Enter>` key instructs the system to process whatever is currently being done. When there is a menu on the screen, the `<Enter>` key instructs the system to *execute* the selected command. When inserting a filter line (or editing a budget), `<Enter>` instructs the system to insert the edited line (or budget). Any other time the `<Enter>` key (shorthand for the command *SHOW SUMMARIES*) instructs the system to process the query on the query line and to display summaries of the matching articles (see Section 2.1 — *The Filter Window*).

**<Control-Enter>**  
The `<Control-Enter>` key (shorthand for the command *SHOW SUMMARIES FROM REMOTE SYSTEM*) instructs the system to *submit* the query on the query line to a remote database server and to display summaries of the matching articles (see Section 2.1 — *The Filter Window*).

V.2 — Scroll Keys

The following keys can be used to scroll through a window:

**<PgDn>**  
Show the next page

**<PgUp>**  
Show the previous page

**<Home>**  
Show the first page of the window

**<End>**  
Show the last page of the window

**↓**  
Select the next line (or summary)

**↑**  
Select the previous line (or summary)

**Shift-↓**  
Move forward one line (or summary)

**Shift-↑**  
Move back one line (or summary)
V.3 — Editing Keys
The following keys can be used to edit the query line. They can also be used in the 'edit boxes' created by the commands CHANGE BUDGET OF CURRENT LINE and INSERT A NEW LINE. Note: the <Backspace> key is the key with a left arrow (→) on a gray background.

- <Backspace> delete the character before the cursor
- C W delete the word before the cursor
- C D delete the character after the cursor
- C K delete everything after the cursor
- <Del> delete the entire line
- ← or C B move the cursor to the left
- → or C F move the cursor to the right
- C A move the cursor to the beginning of the line
- C E move the cursor to the end of the line

V.4 — Alphabetical Listing of Commands
The next page contains an alphabetical listing of the commands recognized by the CommIns software, along with their shorthand keys and the menu(s) in which each command is listed. The shorthand keys for the commands listed in the window selection menu and the options window command menu are available in every window; these keys are marked with an asterisk. All other shorthand keys are available in a given window only if the corresponding command is listed in the command menu for that window.

[Note: Further content is not transcribed.]
<table>
<thead>
<tr>
<th>Name of Command</th>
<th>Shorthand</th>
<th>Listed in:</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLANK THE SCREEN</td>
<td>A:Y</td>
<td>options window command menu</td>
</tr>
<tr>
<td>CHANGE BUDGET OF CURRENT LINE</td>
<td>A:B</td>
<td>filter window command menu</td>
</tr>
<tr>
<td>DELETE ALL ARTICLES IN LIST</td>
<td>A:K</td>
<td>summary window command menu</td>
</tr>
<tr>
<td>DELETE ALL MATCHING ARTICLES</td>
<td>A:K</td>
<td>filter window command menu</td>
</tr>
<tr>
<td>DELETE CURRENT ARTICLE</td>
<td>A:D</td>
<td>summary window command menu</td>
</tr>
<tr>
<td>DELETE, THEN SHOW NEXT ARTICLE</td>
<td>A:D</td>
<td>article window command menu</td>
</tr>
<tr>
<td>DELETE, THEN SHOW NEXT UNREAD</td>
<td>A:J</td>
<td>article window command menu</td>
</tr>
<tr>
<td>DELETE, THEN SHOW SUMMARIES</td>
<td>A:M</td>
<td>article window command menu</td>
</tr>
<tr>
<td>DO NOTHING</td>
<td>&lt;Esc&gt;</td>
<td>every menu</td>
</tr>
<tr>
<td>EXIT TO DOS</td>
<td>A:X</td>
<td>every menu</td>
</tr>
<tr>
<td>HANGUP REMOTE CONNECTION</td>
<td>A:H</td>
<td>options window command menu</td>
</tr>
<tr>
<td>IDLE THE SCREEN</td>
<td>A:C</td>
<td>options window command menu</td>
</tr>
<tr>
<td>INSERT A NEW LINE</td>
<td>A:I</td>
<td>filter window command menu</td>
</tr>
<tr>
<td>MOVE CURRENT LINE DOWN</td>
<td>A:N</td>
<td>filter window command menu</td>
</tr>
<tr>
<td>MOVE CURRENT LINE UP</td>
<td>A:U</td>
<td>filter window command menu</td>
</tr>
<tr>
<td>PRINT ALL ARTICLES IN LIST</td>
<td>A:A</td>
<td>summary window command menu</td>
</tr>
<tr>
<td>PRINT ALL MATCHING ARTICLES</td>
<td>A:A</td>
<td>filter window command menu</td>
</tr>
<tr>
<td>PRINT CURRENT ARTICLE</td>
<td>A:P</td>
<td>filter window command menu</td>
</tr>
<tr>
<td>PRINT IN BACKGROUND/FOREGROUND</td>
<td>A:G</td>
<td>summary window command menu</td>
</tr>
<tr>
<td>REMOVE CURRENT LINE</td>
<td>A:W</td>
<td>filter window command menu</td>
</tr>
<tr>
<td>RESET COUNTERS TO ZERO</td>
<td>A:0</td>
<td>diagnostic window command menu</td>
</tr>
<tr>
<td>SHOW ARTICLE WINDOW</td>
<td>F6</td>
<td>window selection menu</td>
</tr>
<tr>
<td>SHOW CURRENT ARTICLE</td>
<td>A:R</td>
<td>summary window command menu</td>
</tr>
<tr>
<td>SHOW CURRENT ARTICLE</td>
<td>F8</td>
<td>window selection menu</td>
</tr>
<tr>
<td>SHOW DIAGNOSTIC WINDOW</td>
<td>F2</td>
<td>window selection menu</td>
</tr>
<tr>
<td>SHOW FILTER WINDOW</td>
<td>A:R</td>
<td>filter window command menu</td>
</tr>
<tr>
<td>SHOW FIRST ARTICLE</td>
<td>F1</td>
<td>startup message</td>
</tr>
<tr>
<td>SHOW HELP FILE</td>
<td>A:N</td>
<td>article window command menu</td>
</tr>
<tr>
<td>SHOW NEXT ARTICLE</td>
<td>A:Z</td>
<td>article window command menu</td>
</tr>
<tr>
<td>SHOW NEXT UNREAD ARTICLE</td>
<td>F10</td>
<td>window selection menu</td>
</tr>
<tr>
<td>SHOW OPTIONS WINDOW</td>
<td>&lt;C:Enter&gt;</td>
<td>filter window command menu</td>
</tr>
<tr>
<td>SHOW REMOTE SUMMARIES</td>
<td>&lt;Enter&gt;</td>
<td>filter window command menu</td>
</tr>
<tr>
<td>SHOW SUMMARIES</td>
<td>F4</td>
<td>window selection menu</td>
</tr>
<tr>
<td>SHOW SUMMARY WINDOW</td>
<td>F3</td>
<td>every menu</td>
</tr>
<tr>
<td>SHOW (THE) WINDOW SELECTION MENU</td>
<td>F3</td>
<td>options window command menu</td>
</tr>
<tr>
<td>STOP PRINTING AND EMPTY QUEUE</td>
<td>A:Q</td>
<td>options window command menu</td>
</tr>
<tr>
<td>SWAP MODEM/RECEIVER PORTS</td>
<td>A:V</td>
<td>filter window command menu</td>
</tr>
<tr>
<td>TURN DEEP ON ARRIVAL ON/OFF</td>
<td>A:1</td>
<td>options window command menu</td>
</tr>
<tr>
<td>TURN DEEP DISPLAY ON/OFF</td>
<td>A:S</td>
<td>filter window command menu</td>
</tr>
<tr>
<td>TURN PRINT ON ARRIVAL ON/OFF</td>
<td>A:2</td>
<td>filter window command menu</td>
</tr>
<tr>
<td>TURN RECEIVER ON/OFF</td>
<td>A:O</td>
<td>options window command menu</td>
</tr>
</tbody>
</table>
Appendix VI — Files used by the system

VI.1 — The CommInS Directory File

The CommInS directory file, CIS - DIR.TXT, contains information about the articles on the disk. It contains an index, which is used to speed up the processing of queries, and it contains summaries of the articles, so that these can be displayed without delay. It also contains a list of articles that you have deleted, so that these articles can be filtered out if they are received again.

When the program is running, the contents of the directory file is stored in memory; it is saved on the disk only when you exit from the program. This explains why the program should always be stopped using the EXIT command. If the directory file is missing, the program should be started with the "-r" option (see Appendix I.6 — Restarting after a Crash or Accidental Shutdown).

VI.2 — The Filter File

The filter file, FILTER.TXT, contains your personal filter. In this file, each filter line is stored as a separate line, along with two numbers: the first number is the budget for that line, and the second number indicates whether "beep" or "print" is turned on for that filter line (see Section 2.1 — The Filter Window).

VI.3 — The Help File

The help file, HELP.TXT, contains a brief description of how to use the system. The system displays the tutorial when you press F1.

VI.4 — The Configuration File

The configuration file, CONFIG.TXT, contains information that is used by the CIS program, but may change at a future date. Currently, there are entries for two kinds of information, decryption keys and remote database descriptors.

An entry for a decryption key includes a key number and the hexadecimal representation of the key:

```
K 17001 131b3df7ea8fbb20
```

An entry for a remote database includes the telephone number used to access the database and a description of the contents of the database:

```
d 7587161 ((type: nyt) & (date: [date -90 : 0]))
```

VI.5 — The Error File

The error file, STDOUT.TXT, is written whenever the program exits. It normally does not contain any useful information; however, when the program exits to DOS unexpectedly, it leaves an error message in this file. Please record this message, and report it to the Boston CommInS HOTLINE at (617)-253-0007.
VI.6 — Article Files

Article files have names of the form $\text{YMMMDN NNN}$, where $t$ indicates the type of the article (A for Associated Press, N for New York Times, or C for ComminS announcements); $y$ is the last digit of the year, MM is the month, DD is the date, and N.NNN is a four-digit serial number. Each article file contains a number indicating the number of lines of text, followed by a set of numbers that indicate which words in the article should be highlighted for display (see Section 2.3 - The Article Window), followed by the text of the article. Yes
Appendix VII — Your Responsibilities

As a volunteer in the experiment to test the Boston Community Information System, you have several responsibilities. A copy of the agreement that you have signed is reproduced on the next page as Figure V.1.

VII.1 — Your Responsibilities to the Boston ComminS Project

We at the Boston ComminS project want and need your active participation in the evaluation and testing of the ComminS hardware, software and documentation. This means that we would like you to

• use the system to the fullest extent of its features,
• give us your thoughtful appraisal of the existing features, and
• give us your suggestions for possible improvements.

You may express these ideas, suggestions, and questions to us in many ways — in writing or by telephone — as often as you wish. However, at a minimum, and even if you have provided feedback in other forms, you must fill out a Questionnaire once a month. This is the minimal requirement for your continued participation in the experiment.

VII.2 — Your Responsibilities Regarding Use of the Information Received

To conduct this unique experiment in the digital broadcast of news and information, MIT has entered into understandings and legal agreements with the Associated Press, the New York Times Company and Mead Data Central, Inc. As a volunteer in this experiment, you have agreed

1. not to make more than one copy — in any form — of any information received;
2. not to retain copies — in any form — of more than an “insubstantial part” of the information received;
3. not to transfer any of the information received — in any form — to third parties, whether or not for profit; and
4. not to retain any of the information received from the New York Times — in any form — for more than 90 days.
5. to return all the equipment to MIT upon request.

In view of the unique nature of this experiment, we feel that the responsibilities outlined above are reasonable. If you do not act in keeping with the letter and the spirit of the agreement, we will request that you return all loaned equipment and software to us immediately.
Legal Agreement with Mead Data Central, Inc.

The above designated "Recipient" agrees that it will not retain any copies of data from the New York Times in any form, whether print, machine readable or otherwise for a period of more than 90 days, and that any such data retained will be 1) limited to single copies, 2) never consist of more than an insubstantial part of the entire database made available to MIT, and 3) will not be transferred, whether or not for profit to any third party. It is agreed that all copies of such data will be returned or destroyed earlier than the 90-day maximum retention period upon written request from MIT, The New York Times Company, or Mead Data Central, Inc.

Agreed

______________________________
Signature of Recipient

______________________________
Date

Understanding and Agreement with MIT

Whether or not for profit, I understand and agree not to transfer in printed or electronic form any information received via the Boston CommInS project to any third party.

I understand and agree that I must complete and return a questionnaire provided for that purpose to the Boston CommInS Project once a month or else have to return the receiver and software to the project.

I understand and agree that the software and hardware will remain the property of MIT and that I must return all the materials used in this test of the Boston CommInS system either (i) at the end of the experiment in approximately 12 months or (ii) upon written notice from the project -- whichever comes first.

I understand and agree that MIT has made no expressed nor implied guarantees to provide this information service without interruption throughout the duration of the experimental test.

Agreed

______________________________
Signature of Recipient

______________________________
Date

Copies of this signed agreement will be held by (i) the Recipient, (ii) the Boston CommInS Project at MIT, and Mead Data Central, Inc.

Figure VII-1: Text of Agreement
OFFICIAL DISTRIBUTION LIST

Director  
Information Processing Techniques Office  
Defense Advanced Research Projects Agency  
1400 Wilson Boulevard  
Arlington, VA  22209

Office of Naval Research  
800 North Quincy Street  
Arlington, VA  22217  
Attn:  Dr. R. Grafton, Code 433

Director, Code 2627  
Naval Research Laboratory  
Washington, DC  20375

Defense Technical Information Center  
Cameron Station  
Alexandria, VA  22314

National Science Foundation  
Office of Computing Activities  
1800 G. Street, N.W.  
Washington, DC  20550  
Attn:  Program Director

Dr. E.B. Royce, Code 38  
Head, Research Department  
Naval Weapons Center  
China Lake, CA  93555

Dr. G. Hooper, USNR  
NAVDAC-OOH  
Department of the Navy  
Washington, DC  20374
END
DATE
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DTIC
4/88