

# Quick Introduction to WYLBUR

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## 1. What WYLBUR Can Do

WYLBUR is a tool used by many people for preparing various forms of text: electronic mail, form letters, manuscripts, logs, mailing lists, computer programs, charts and data. A computer program, WYLBUR is available to every registered user of the NIH Computer Center. WYLBUR is a computer program, but that need not concern you when using WYLBUR - you don't have to know anything about computers to make very good use of WYLBUR in everyday work.

People using WYLBUR create, file, retrieve and make changes to text by using simple "commands," or instructions, to tell WYLBUR what to do. To learn how to use WYLBUR, you must learn the commands, as well as how to transmit them to WYLBUR. This document will help you get started.

First, how are commands transmitted to WYLBUR so that WYLBUR can follow your instructions? A terminal, either a video- or typewriter-like device with a keyboard, is used to send and receive information to and from the computers. A personal computer (PC) with a terminal emulator program can serve as a terminal for using WYLBUR. You can send information between your terminal and the NIH computer over telephone lines, very much as you use telephone lines for voice communication. Section 3, "Getting Started," describes this connection between the terminal and WYLBUR in more detail.

Why is WYLBUR useful? Primarily, because once text is typed in and filed, you won't have to retype it; you can change just the words, phrases or characters that need to be changed. You can move lines and paragraphs easily, or change a single word throughout. Of course, it is easy to enter text (correcting errors as they are made) and file the text for later use. When instructed, WYLBUR will type out the complete, revised piece of text. You can print any number of copies (up to 250) either on the high speed printers at the Computer Center, on a printer attached to your terminal or PC, or at a "remote" printer located near your desk or office.

WYLBUR allows you to exchange electronic mail with people across the hall or around the world. Not only can you exchange mail with other registered WYLBUR users, you can also communicate both around the United States and internationally with users of BITNET - a worldwide network of scientists and researchers. You can exchange mail with an individual or send the same mail to a group of users. Mail exchange is virtually instantaneous.

When you prepare text such as papers and manuscripts, WYLBUR can reformat the text. For example, lines can be made even at the right margin. After changes are made in the text, evening up the lines creates a good-looking, final copy ready for final distribution.

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Not all WYLBUR users are interested in preparing text such as papers and other documents. Some users (for example, programmers and data entry people) use the computers to process batch jobs. With WYLBUR, you can send a job to the computers for processing; you can track its progress as it is being processed through a series of notices you can display on your terminal. Also, you can inspect the output of a batch job at your terminal. After checking it, you can print the job at the Computer Center or at a remote job entry workstation. You can also remove a batch job from the system entirely, instead of printing it.

WYLBUR offers many more capabilities. For example, when preparing documents such as manuals or papers, you can generate page numbers, tables of contents and indexes. You can write programs using the command procedure facility of WYLBUR. Command procedures allow you to tailor WYLBUR to your own applications and to execute many WYLBUR commands at once.

## 2. How to Use This Manual

This manual should help you become familiar with some of the basic uses of WYLBUR. We will not discuss how to use all the WYLBUR facilities here, however. After you become familiar with WYLBUR, you can explore the other facilities by consulting other WYLBUR manuals or by taking courses. Later on, we'll explain how to get more information about these services.

How do you use this manual to get started learning WYLBUR? You should read section 3, which describes how to begin using WYLBUR, regardless of what kind of work you will be doing. Section 4 will get you started in preparing documents by giving a step-by-step process for preparing a memo. Section 5 will explain how to prepare and run a job on the computer. Depending on how you want to use WYLBUR, you may want to skip either section 4 or section 5. Section 6 is for everyone; it tells you how to send and receive WYLBUR's electronic mail.

Abbreviations for commands (instructions you type in to tell WYLBUR what to do) follow the command names in parentheses; you can type the abbreviation instead of the full command name. In the examples, words or phrases you type in appear in bold; material that WYLBUR automatically displays on your screen appears in regular type.



### 3. Getting Started

To use WYLBUR, you need a computer terminal for sending and receiving commands to and from the central NIH computer. You'll need telephone equipment to send information back and forth. If you already have a personal computer, you can use it, as long as you also have a terminal emulator program (such as Kermit, available from the Computer Center).

The telephone equipment includes a "modem" (or "Dataphone") and a telephone line. The modem is a box attached to the telephone line. The modem allows typed information (that is, data) to be transmitted across the phone lines between the computer and your terminal. Some modems come with a regular telephone set. The telephone has extra buttons that are used when making the connection with the computer. With this kind of modem, you must dial the central computer's telephone number. Modems that do not have a telephone set can dial the computer for you, upon command from the terminal keyboard. Many different kinds of modems can be used with a telephone to transmit information to and from the computer. However, we will be discussing only two kinds of modems, the Bell 212A (Dataphone 300/1200), which has a telephone set, and the AT&T 2224B, which does not have a telephone set.

Many kinds of terminals can be used with WYLBUR. The most common terminal is the NIH8188, which has a keyboard and a TV-like picture tube to display what you type. A hardcopy printer can be attached to the NIH8188 so a printed copy of text can be made at the office.

The PSC-3101 (Printer Systems PSC-3101) terminal provides hard copy (text on paper) and quality printing. It resembles an office typewriter, and can be used as one with the addition of a numbers-only pad and selectable pitch (10 or 12 characters to the inch, at your option). It can use fabric ribbons for drafts and carbon ribbons for better quality, final copy.

The 5320 terminal is another hardcopy terminal. It prints at a faster rate than the PSC-3101, but does not provide letter-quality printing.

As noted above, you can also use a PC as a terminal. A special program named Kermit allows you to use a PC to access WYLBUR. Kermit is available free of charge from the NIH Computer Center - contact the DCRT Technical Information Office at (301) 594-3278.

There are terminals available for your use in the Computer Center's User Area, Building 12A, Room 1055, on the NIH campus.

Most keys on the terminal keyboard function like the keys on a typewriter. However, the ENTER (sometimes labeled RETURN) key not only returns the cursor to

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the left margin, but also sends the information on that line to WYLBUR. In this manual, (ENTER) means that you should hit the ENTER key.

Before you can access WYLBUR, you must register with the Computer Center. This isn't hard to do - just call the Project Control Office at (301) 496-6146, and they will send you a registration form.

What does registering entail?

1. A set of registered initials will be assigned to you. Your registered initials will be three letters or two letters and a number. Each user has a unique set of registered initials. Your registered initials may be your own initials. The registered initials assigned to you will identify you to WYLBUR.
2. You will be assigned an account number. The Computer Center will charge your account each time you use WYLBUR. All account numbers must have an account sponsor - usually this is someone who is in charge of the financial aspects of your group. Talk to your supervisor or administrative officer to see if your office already has a Computer Center account and sponsor. Account numbers are usually set up by project. Unlike the registered initials, the account number may be used by a number of WYLBUR users. The account number consists of four letters and/or digits.
3. Your account sponsor will initially set a RACF password for you. Each set of registered initials must have a RACF password associated with it. The RACF password protects against unauthorized use of the initials and can be used to protect data sets on an individual basis. You can change your RACF password any time you choose by using the ENTER RACF command. See the Computer Center Users Guide for more information on RACF protection.
4. Some users may also need an output box. You can be assigned a box when you register. You will need a box only if you plan to print copies of your text on the high speed printers (either at the Computer Center or at a location near your office). The box is located at the Computer Center. When you list text on the printers at the Computer Center, the listings are placed in the box. There are also mailing boxes for people who do not work on the main NIH campus, or who do not have a pickup service. Since there are many more users than there are boxes available, many users share boxes with their colleagues. Therefore, check to see if one of your colleagues already has a box assigned that you can share. Be sure to get the Box Access Code for the box - the special combination of letters you will need to open the box.

Once you have registered to use WYLBUR, you can also use the other facilities made available by the Computer Center.

Now it is time to find out how to connect up to WYLBUR so you can do some work.

While there are many kinds of terminals, they all connect to WYLBUR in basically the same way.

The following describes the steps to take to access (or "log on") to WYLBUR, using a PC (Personal Computer) as a terminal. It assumes you are also using either an AT&T 2224B modem (a Dataphone II) or a Hayes Smartmodem 2400. It also assumes you are using the Kermit software package available from the NIH Computer Center. (NOTE: Kermit may need some customization. See instructions on the README file contained on the Kermit disk.)

The steps are:

1. Make sure the modem is on. On the AT&T, the green MODEM light should be on. It stays on all the time, indicating that the modem is powered on and functioning properly. All other lights should be off.

On the Hayes, the MR (Modem Ready) light should be lit.

2. Turn the power on at the terminal. On the Hayes, the green TR light on the modem will then come on.
3. Type KERMIT and press ENTER. If you have installed NIH MS-Kermit on a hard drive and have followed the installation instructions, you can type KERMIT at the C: prompt. If your computer has two floppy drives, put the Kermit diskette in Drive A and type KERMIT at the A: prompt.
4. At the Kermit-MS> prompt, type CALL WYLBUR and press ENTER. NIH MS-Kermit will connect you to WYLBUR.

The question mark prompt appears; you are now connected to WYLBUR.

If you are using another kind of terminal, such as an NIH8188 or PSC-3101, consult the appendix of this manual for the steps to take to log on to WYLBUR.

WYLBUR will answer the log-on request by displaying the following information on your terminal:

- . Kind of terminal being used
- . Location of the computer
- . Subsystem assigned
- . Phone line number (port number) at the computer
- . Day, date and time

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For example, if you are using a PC as your terminal, WYLBUR might respond:

```
KERMIT TYPE 1 (240 CPS)
```

```
NIH/DCRT/CFB WYLBUR SUBSYSTEM B PORT 502 MONDAY 03/20/95 9:46:13 A.M.
```

After the connection is made, WYLBUR asks a series of questions (called "prompts") to identify who is using the computer. Type in the answer to each question and press the ENTER key. The questions are:

1. INITIALS? Type the three registered initials assigned to you by the Project Control Office.
2. ACCOUNT? Type your account number. The account number does not show on the screen (or paper) on most terminals. Thus, anyone looking at the screen or finding your paper later will not know your account number.
3. PASSWORD? Type the RACF password assigned to your registered initials. As a protection feature on most terminals, the characters entered for the password are not displayed or printed, or they are overstruck with a collection of miscellaneous characters.
4. TERMINAL? Will not be issued for some kinds of terminals such as the NIH8188, PSC-3101 and 5320. If this prompt occurs, the response is the three-character terminal identification number. If you don't know your terminal identification number or your terminal does not have one, type the word NONE, or simply press ENTER.

After WYLBUR verifies that the information you supplied is correct, a ? is displayed and WYLBUR is ready to be used.

The entire exchange between you and WYLBUR is shown below. What you type appears in bold; the rest is what WYLBUR displays on your screen. The example assumes you are using a PC as a terminal:

```
KERMIT TYPE 1 (240 CPS)
```

```
NIH/DCRT/CFB WYLBUR SUBSYSTEM B PORT 502 MONDAY 03/20/95 9:46:13 A.M.  
INITIALS? III(ENTER)  
ACCOUNT? AAAA(ENTER)  
ENTER RACF PASSWORD FOR RACFID III  
PASSWORD? PPPP(ENTER)  
?
```

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In the example above, the information you type is:

- . The user's registered initials (**III**)
- . The account (**AAAA**)
- . The RACF password (**PPPP**)

Although the example displays the account and password, this information may not be displayed on your terminal. The ? indicates that you are logged onto WYLBUR, and WYLBUR is waiting for your instruction.

There are some WYLBUR rules for correcting or changing what you have already typed. Remember that nothing is actually sent to WYLBUR until you press ENTER. This gives you the opportunity to correct errors before sending information to WYLBUR.

1. To erase characters, you can use the BACKSPACE key to backspace over characters and then retype them. For example, if you type mestake, you can press the backspace key six times, then type istake to correct the spelling.
2. To erase any line before pressing the ENTER key on an NIH8188 terminal, press the REENTER key. WYLBUR will erase what you just typed. If you are using another kind of terminal, press the BREAK key instead. \*\*\* is displayed to indicate that BREAK has been pressed, and WYLBUR will prompt again for the same information. In this manual, (BREAK) means that you press the BREAK key.
3. When typing in WYLBUR commands (instructions), you can use any combination of upper and lower case. This is also true when you log on. In this manual, uppercase letters will be used for commands, but you can use any case you want.

Soon we will learn some WYLBUR commands. First, it is important to point out that if you don't send anything to WYLBUR for one hour and fifty minutes (that is, there is no activity for that length of time), the message ARE YOU STILL THERE? will appear. After another five minutes of no activity, the message RESPOND OR BE LOGGED OFF is displayed. After a total of two hours with no activity, you will automatically be "logged off" (disconnected) from WYLBUR.

If you have been automatically logged off, whatever you have been working on will be saved until the end of the next day. If you sign back on before then, you will be asked if you wish to "recover." If you respond YES (Y) to the RECOVER? prompt the text you were working on will be restored to the state it was in when the terminal was disconnected.

If you press ENTER in response to WYLBUR's ? prompt, you can extend your time limit by another two hours.

If you have finished your work on WYLBUR and are ready to leave the terminal, simply type LOGOFF CLEAR (LOGOFF CLR). LOGOFF CLEAR tells WYLBUR to end your

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session. (Remember that you must press ENTER to have the command sent to WYLBUR.) WYLBUR will display the editing time (computer time) used, length of time you were connected to WYLBUR, the charges incurred for the work done and the date and time. For example,

```
? LOGOFF CLEAR(ENTER)
EDITING TIME = 0.82 SECONDS
CONNECT TIME = 0:08.10
CHARGE = $2.57
END OF SESSION SUBSYSTEM B  PORT 15  MONDAY 03/20/95  09:54:23 A.M.
```

If you just type LOGOFF, WYLBUR will ask if you wish to save your text and the parameters you've established, if any. An answer of SAVE (SV) will give you the opportunity to recover your text if you log on by the end of the next day. This is the same thing that happens if you are automatically logged off for no activity. An answer of CLEAR (CLR) is the same as if you had typed LOGOFF CLEAR (LOGOFF CLR) instead of LOGOFF. We recommend that you use the WYLBUR commands (to be discussed in the next sections) to save your text before you log off.

Now that you have learned how to log on and off of WYLBUR, it is time to learn how to use WYLBUR. If you want to use WYLBUR to prepare text such as memos, letters and manuscripts, read the next section. It explains how to prepare a memo from the beginning to producing a final copy. Users who want to learn how to run a batch job on the computer can skip the section on preparing a memo and go to section 5, which explains how to prepare and run a job. If you want to send and receive electronic mail, read the last section (section 6).

#### 4. Preparing a Memo

As was mentioned in the first section, WYLBUR can be used to prepare documents such as letters, memos and manuscripts. This section allows you to try out WYLBUR's text-editing capabilities by creating a memo. You'll develop a memo just as you would in a typical office situation - you'll type the first draft, make revisions, and print a final copy. You will get the most out of this session if you sit and actually use WYLBUR to go through each step yourself as it is discussed. By doing this exercise, you will be able to start using WYLBUR immediately. So, log on and let's get started!

As soon as you finish logging on, WYLBUR will ask what you want to do by prompting with:

?

When you see a question mark on a line by itself, this indicates that WYLBUR is waiting for a command (an instruction telling WYLBUR what to do). Most commands are regular English language words, such as LIST, SAVE and CHANGE. You can use either upper or lower case, or a mixture of both, when typing command words. In this manual, commands used in the examples will all be in upper case. You may use either case to type the commands.

To speed up typing, you can use abbreviations for many commands. In this manual, examples use the full command word. Instructions include the abbreviation, if any, in parentheses after the full command word. For example, LIST (L) indicates that you can use L as the abbreviation for LIST.

#### 4.1 Creating the Memo

To start creating your memo, use the COLLECT (C) command. Type COLLECT (C) after the question mark prompt, and then press the ENTER key. WYLBUR will then prompt for the first line of text by a number, followed by a question mark. The number is called a line number. When you create a memo on a regular typewriter, you don't use line numbers. But, when using WYLBUR, both you and WYLBUR will use line numbers as a reference to the text being prepared. You will use the line number in making changes to a line of text. You can instruct WYLBUR to omit the line numbers when you print the final copy - line numbers are just temporary editing aids.

So far, your screen looks like this, with (ENTER) indicating when you pressed the ENTER key:

```
? COLLECT(ENTER)
  1.   ?
```

Now it is time to begin typing in the memo. Type uppercase and lowercase letters exactly as you want them to appear. When you enter text, WYLBUR does distinguish between upper and lower case. After you have typed the first line of text and pressed ENTER, WYLBUR will automatically prompt for the second line. To create a blank line, just press the ENTER key after the line number prompt. When you have typed the last line of the memo and WYLBUR prompts for the next line, press the BREAK key. WYLBUR types \*\*\* and then stops prompting with line numbers. You will see only the prompt ?, which means that you are out of COLLECT mode and can now give WYLBUR the next command.

Try typing in the memo as shown below. Where (ENTER) appears, you should press the ENTER key, and where (BREAK) appears, you should press the BREAK key.

```
? COLLECT(ENTER)
  1.   ? TO:           John Doakes(ENTER)
  2.   ? (ENTER)
  3.   ? FROM:        Rodger Stokes(ENTER)
  4.   ? (ENTER)
  5.   ? DATE:        June 27, 1995(ENTER)
  6.   ? (ENTER)
  7.   ? SUBJECT:    Your Participation in Conference 1A(ENTER)
  8.   ? (ENTER)
  9.   ? (ENTER)
 10.  ? I'm glad you'll be with us for the conference(ENTER)
 11.  ? Energy in the Federal Government, on August 22.(ENTER)
 12.  ? (ENTER)
 13.  ? I'll make a reservation at the Holiday Inn(ENTER)
 14.  ? for the 21st - 28th. I'll meet you if(ENTER)
 15.  ? you tell me when your flight(ENTER)
 16.  ? arrives.(ENTER)
 17.  ? (BREAK)***
?
```

On line 17, if you forget to press the BREAK key and type in a command (remember, WYLBUR is still prompting for the text for line 17), the command will appear in line 17 as a line of text. WYLBUR does not interpret words as commands unless they have been entered after the question mark (?) prompt.

Remember, as you type each line you can backspace to erase typing mistakes, type correctly over them, and continue typing normally. Each time you backspace, the letter you backspace over is erased from the line. Also, remember that if you type some characters and realize that you'd rather type something else, you can press the BREAK key and WYLBUR will prompt for that line again. On the NIH8188, use REENTER instead of BREAK for this purpose.

The next step in preparing the memo is to review what you have typed. Use the LIST (L) command to display the lines on your terminal:

? LIST(ENTER)

```
1.      TO:          John Doakes
2.
3.      FROM:        Rodger Stokes
4.
5.      DATE:        June 27, 1995
6.
7.      SUBJECT:    Your Participation in Conference 1A
8.
9.
10.     I'm glad you'll be with us for the conference
11.     Energy in the Federal Government, on August 22.
12.
13.     I'll make a reservation at the Holiday Inn
14.     for the 21st - 28th. I'll meet you if
15.     you tell me when your flight
16.     arrives.
```

?

So far, you have typed in the memo and displayed it for proofreading and editing.

## 4.2 Editing the Memo

The first change you might want to make is to take out the line that says DATE: June 27, 1995 (line 5). You can use the DELETE (D) command to remove lines. Remember, you will use the line number to tell WYLBUR where to make the change. To remove a line, type DELETE (D), followed by the number of the line you want to delete. For example:

```
? DELETE 5(ENTER)
?
```

This command erases line 5 from the text.

The memo now looks like this:

```
? LIST(ENTER)
 1.      TO:          John Doakes
 2.
 3.      FROM:        Rodger Stokes
 4.
 5.
 6.
 7.      SUBJECT:    Your Participation in Conference 1A
 8.
 9.
10.      I'm glad you'll be with us for the conference
11.      Energy in the Federal Government, on August 22.
12.
13.      I'll make a reservation at the Holiday Inn
14.      for the 21st - 28th. I'll meet you if
15.      you tell me when your flight
16.      arrives.
?
```

Another change might be to add the words from New York between the words flight and arrives. To add these words without retyping anything (the whole point of using WYLBUR), you can squeeze in a new line, containing just the words you want to add, between lines 15 and 16. You must choose a line number for the new line - a number larger than 15 and smaller than 16, say 15.1. Use the INSERT (I) command to add the line. After the question mark prompt, type in INSERT (I) , followed by the new line number and press ENTER. WYLBUR will prompt you with the new line number followed by a question mark. After you type in the words you want to add and press ENTER, WYLBUR will prompt you for the next command with a ?. Note that when you use the INSERT command, WYLBUR only prompts you to insert a single line. This is different from COLLECT, which allows you to enter as many lines as you want.

The following example shows how to use the INSERT (I) command to make the change and then use the LIST (L) command to display the revised memo:

```
? INSERT 15.1(ENTER)
  15.1 ? from New York(ENTER)
? LIST(ENTER)
  1.      TO:          John Doakes
  2.
  3.      FROM:        Rodger Stokes
  4.
  5.
  6.
  7.      SUBJECT:    Your Participation in Conference 1A
  8.
  9.
 10.      I'm glad you'll be with us for the conference
 11.      Energy in the Federal Government, on August 22.
 12.
 13.      I'll make a reservation at the Holiday Inn
 14.      for the 21st - 28th. I'll meet you if
 15.      you tell me when your flight
 15.1    from New York
 16.      arrives.
?
```

Line numbers that are not integers (whole numbers) are called fractional line numbers. (To remember which fractional line numbers are available, think of line 15 as \$15 - \$15.10 is more than \$15 and smaller than \$16, so line 15.1 is bigger than 15 but smaller than 16.) To squeeze in additional lines of text, you can choose another fractional line number, one bigger than 15, but smaller than

15.1, say 15.01. WYLBUR would accept 15.001 too, so 999 lines can be inserted between any two whole-numbered lines.

For practice, insert the following line at the end of the first paragraph:

It should be an interesting conference.

Your screen should look like this:

```
? INSERT 11.1(ENTER)
  11.1 ? It should be an interesting conference.(ENTER)
?
```

To see the letter with this change, you could type the LIST (L) command and WYLBUR would display the entire letter. Since we are only interested in line 11.1, we can just list line 11.1:

```
? LIST 11.1(ENTER)
  11.1 It should be an interesting conference.
?
```

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To display lines 11 through 13, type 11 and 13 separated by a slash:

```
? LIST 11/13(ENTER)
  11.      Energy in the Federal Government, on August 22.
  11.1     It should be an interesting conference.
  12.
  13.      I'll make a reservation at the Holiday Inn
?
```

At this point, we have seen that LIST (L) allows you to display the entire text, a single line (by specifying an individual line number) or a series of lines (by typing the beginning and ending line numbers separated by a slash). The specification of the lines that the command (in this case LIST) will select is called the "range".

The BREAK key serves a special function when you are listing lines - if you press BREAK while a line is listing, the listing stops and the command also stops its processing. You can use this to check your changes at the beginning of the memo:

```
? LIST(ENTER)
  1.      TO:      John Doakes
  2.
  3.      FROM:    Rodger Stokes
  4.
  6.
  7.      SUBJEC(BREAK)
?
```

Notice that WYLBUR displays three periods when you press the BREAK key. We have now seen two functions of the special key BREAK - you can use it to re-enter text and to stop a command. Both functions are similar, in that they stop the action.

Now you might change the name of the person who is going to receive the memo. One way to accomplish this is to replace the line that says TO: John Doakes (line number 1) by first deleting the line and then inserting the new line. Another method is to use the REPLACE (R) command. Type in REPLACE (R), followed by the number of the line you want to replace. WYLBUR will prompt with the line number of the line to be replaced followed by a question mark. You then type in the contents of the new line. It should look like this:

```
? REPLACE 1(ENTER)
  1.  ? TO:      Henry Blokes(ENTER)
?
  LIST 1(ENTER)
  1.      TO:      Henry Blokes
?
```

To change the word us to Ed and me in line 10, you can use the CHANGE (CH) command. This command uses two sets of quotation marks to tell WYLBUR what needs to be changed and then what it should be changed to. The first set of quotation marks contains the text as it is now (what is to be changed) and the

second set shows the text as it is to become (the change to be made). The line number of the line to be changed must also be given (this is the range).

The following command will cause WYLBUR to look at line 10 and change the word us wherever it appears on the line to Ed and me. WYLBUR will display the changed line so you can check it:

```
? CHANGE "us" TO "Ed and me" IN 10(ENTER)
  10.      I'm glad you'll be with Ed and me for the conference Energy
?
```

Instead of quotation marks, you can use apostrophes (also called single quotes). Thus,

```
CHANGE 'us' TO 'Ed and me' IN 10
```

would do the same thing as the previous example did. In WYLBUR, the word "string" refers to the characters in quotation marks - 'us' and "us" are both strings. When you use a string, WYLBUR distinguishes between upper and lower case - thus, 'us' is not the same as 'Us'.

The CHANGE (CH) command can perform other kinds of changes. For example, it can change a word wherever it occurs in the memo. Suppose you want to change the word conference to seminar throughout the memo. To change the word in all places with one command, type the word ALL after IN to indicate that the range of lines (ALL) is the entire text:

```
CHANGE "conference" TO "seminar" IN ALL
```

WYLBUR will scan the entire text, and wherever the word conference is found, it will be changed to seminar. The changed lines are automatically displayed:

```
? CHANGE "conference" TO "seminar" IN ALL(ENTER)
  10.      I'm glad you'll be with Ed and me for the seminar
  11.1     It should be an interesting seminar.
?
```

Notice that line 7 was not included in the changed lines, even though it contains the word Conference. The difference is that in line 7, the word has an upper case C. To change it, you can do the following:

```
? CHANGE "Conference" TO "Seminar" IN 7(ENTER)
  7.      SUBJECT: Your Participation in Seminar 1A
?
```

As another example of the CHANGE command, let's change the wording in line 13 from I'll make a reservation at the Holiday Inn to I'll make a reservation in the Holiday Inn. The command to WYLBUR could be:

```
? CHANGE "at" TO "in" IN 13(ENTER)
  13.      I'll make a reserwinion in the Holiday Inn
?
```

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A reservinion? WYLBUR did exactly what you requested - each time it encountered the characters at, WYLBUR changed them to in. The word reservation contained at. To avoid the problem, we could have said:

```
CHANGE "at the" TO "in the" IN 13
```

The next sequence shows how to fix the mistake:

```
? CHANGE "reservinion" to "reservation" IN 13(ENTER)
  13.      I'll make a reservation in the Holiday Inn
?
```

At this point we have seen that you can tell WYLBUR which lines to examine when doing a CHANGE by using a range after IN (for example, ALL or a line number). You can also specify a group of lines by using the first and last line numbers in the group, separated by a slash. WYLBUR will look at all lines between the two line numbers given, including the two line numbers. For example,

```
CHANGE "conference" to "seminar" IN 1/16
```

is identical to the command

```
CHANGE "conference" TO "seminar" IN ALL
```

Some of the editing changes have made the line lengths uneven. The ALIGN (ALI) command allows you to rearrange all the words so that each line has approximately the same number of characters in it. Let's look at the memo to see which lines need to be rearranged.

```
? LIST(ENTER)
  1.      TO:      Henry Blokes
  2.
  3.      FROM:    Rodger Stokes
  4.
  5.
  6.
  7.      SUBJECT: Your Participation in Seminar 1A
  8.
  9.
 10.     I'm glad you'll be with Ed and me for the seminar
 11.     Energy in the Federal Government, on August 22.
 11.1   It should be an interesting seminar.
 12.
 13.     I'll make a reservation in the Holiday Inn
 14.     for the 21st - 28th. I'll meet you if
 15.     you tell me when your flight
 15.1   from New York
 16.     arrives.
?
```

Several lines are too short (for example, lines 15 and 15.1). To make the lines similar in length, use the ALIGN (ALI) command. You could ask WYLBUR to make each line approximately 65 characters long by using this command:

```
ALIGN 10/16 LENGTH 65
```

WYLBUR will move words between lines to make each line contain as close to 65 characters (never more, sometimes less) as possible. The number 65 is the "line length" - you can specify any line length you wish. Notice that the range of lines you specified (10/16) did not include lines 1 through 7, since their lengths were not going to be changed. After giving the ALIGN (ALI) command, list some lines to see the new arrangement:

```
? ALIGN 10/16 LENGTH 65(ENTER)
```

```
? LIST 10/LAST(ENTER)
```

```
10.      I'm glad you'll be with Ed and me for the seminar Energy in the
11.      Federal Government, on August 22.  It should be an interesting
12.      seminar.
13.
14.      I'll make a reservation in the Holiday Inn for the 21st - 28th.
15.      I'll meet you if you tell me when your flight from New York
16.      arrives.
```

```
?
```

The line number LAST is the same as the last line number in the text (that is, line 16).

### 4.3 Saving the Memo

To preserve these lines for later use, use the SAVE (SV) command. SAVE files a permanent copy. Type SAVE AS and the name of your file.

```
SAVE AS MEMO.SEMINAR
```

MEMO.SEMINAR is a name you choose to call the memo. The name can contain letters, digits, periods, hyphens, @, # and \$. It cannot contain other special characters (the &, \* and %, for example) or spaces.

When the file has been saved, WYLBUR displays a message confirming that this has been done:

```
? SAVE AS MEMO.SEMINAR(ENTER)
"MEMO.SEMINAR" SAVED AND CATALOGED ON FILE
?
```

FILE refers to a class of public online disks (also called volumes) where the data set is stored. Once data sets are stored on these disks, they are called permanent data sets. WYLBUR also records the data set in the catalog, which is WYLBUR's index to the permanent data sets.

At this point there are two copies of the memo: the copy that we have been correcting (referred to as the text in your "default active file"), and the other copy you saved on a public online volume (the "permanent data set"). The memo in your default active file is erased when you use a LOGOFF CLEAR (LOGOFF CLR) command to end the session. The memo saved in the permanent data set (MEMO.SEMINAR on FILE) remains when the session ends. When you make additional changes to the memo in the active file, the changes appear only in the copy of the memo in the active file. To copy the changes to the permanent data set as well, use the RESAVE (RSV) command:

```
? RESAVE AS MEMO.SEMINAR(ENTER)
"MEMO.SEMINAR" RESAVED AND CATALOGED ON FILE
?
```

To summarize, SAVE (SV) copies the text in your default active file to a permanent data set on a public online volume, and RESAVE (RSV) replaces the permanent data set with later revised versions.

What happens if you use RESAVE (RSV) instead of SAVE (SV), or SAVE (SV) instead of RESAVE (RSV)? WYLBUR will catch the mistake, type a message indicating that the data set does not exist, and will prompt you for another data set name (DSNAME?) or volume class (VOLUME?). If you press ENTER at either prompt, the response you originally gave in the RESAVE or SAVE command is used again. If you press ENTER for both prompts or press BREAK in response to either prompt, the command is aborted. You can then enter the correct command. For example,

```
? RESAVE AS MEMO.SEMINAR(ENTER)
"MEMO.SEMINAR" NOT IN CATALOG
RESPECIFY DSNAME AND/OR VOLUME
DSNAME? (ENTER)
VOLUME? (ENTER)
COMMAND ABORTED
? SAVE AS MEMO.SEMINAR
"MEMO.SEMINAR" SAVED AND CATALOGED ON FILE
?
```

If you specify the name of an existing data set on the RESPECIFY DSNAME prompt, WYLBUR will replace the existing data set with the contents of your default active file.

The RESAVE command is best used after a data set has been saved and then later recalled to the default active file with the USE command (described below). When used this way, the RESAVE command can be used alone - without including the data set name - because WYLBUR remembers the name that was specified in the USE command.

You can display a list of the names of permanent data sets you have stored. This is useful if you have forgotten what you chose for a name. The SHOW DS NAMES (SH DSNS) command will display the names of permanent data sets you have stored. For example,

```
? SHOW DS NAMES(ENTER)
FILE
MEMO.SEMINAR
?
```

In this example, there is only one name displayed. The command is most useful when you have saved a number of permanent data sets.

To begin creating another document, use the CLEAR TEXT (CLR TX) command to erase the memo in your default active file. Be sure you have saved the memo! This command will not erase the copy in the permanent data set. When you use the COLLECT (C) command after erasing old text with the CLEAR TEXT (CLR TX) command, WYLBUR prompts for a new line 1 - ready for you to begin typing in a new piece of text.

Since you saved the memo to Mr. Bloses (MEMO.SEMINAR on FILE), you can bring it back for further editing at any time with the USE command. The permanent data set remains stored on a public online volume until you delete it. When you use

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the USE command to place the text in your default active file, WYLBUR makes a copy of it for your default active file.

If you are ready to bring another document into your default active file, WYLBUR will expect you to clear your default active file first. Use the CLEAR TEXT (CLR TX) command to do that:

```
? CLEAR TEXT(ENTER)
? USE FROM MEMO.SEMINAR(ENTER)
?
```

If you forget to erase the default active file before using the permanent data set, WYLBUR will ask if you want to erase the default active file before copying the permanent data set into the default active file. If you have already saved its contents, or if you don't want to save your work, you can erase (or "clear") your default active file by responding YES (Y) to WYLBUR's CLEAR? prompt:

```
? USE FROM MEMO.SEMINAR(ENTER)
IF IT IS OK TO CLEAR TEXT, REPLY "YES"
CLEAR? YES(ENTER)
?
```

If you have not saved the contents of your default active file and you erase (clear) it, the text will no longer be available for further work.

If you mistype the name, and WYLBUR can't find the stored text, WYLBUR will prompt you for a new name (DSNAME?) and volume class (VOLUME?). The exchange might look like this:

```
? CLEAR TEXT(ENTER)
? USE FROM MEMO.SENIMAR(ENTER)
"MEMO.SENIMAR" NOT IN CATALOG
RESPECIFY DSNAME AND/OR VOLUME
DSNAME? MEMO.SEMINAR(ENTER)
VOLUME? (ENTER)
?
```

In summary -

1. You create and make changes to text in your default active file.
2. You use the SAVE (SV) command to store the text as a permanent data set for later use.
3. The CLEAR TEXT (CLR TX) command erases the text in the default active file.
4. The USE command copies the contents of a permanent data set into your default active file.
5. When you make changes in the text, only your default active file is changed. The permanent data set is not automatically changed.
6. Use the RESAVE (RSV) command to update the permanent data set with a revised version of the text in your default active file.

#### 4.4 Printing the Memo

How can you remove the WYLBUR line numbers when preparing a final copy? The command to temporarily suppress printing of line numbers is LIST UNNUMBERED (L UNN). If you have a hardcopy terminal (a 5320 or PSC-3101), put a clean piece

of paper into the terminal after you type LIST UNNUMBERED (L UNN) but before you press ENTER.

```
? LIST UNNUMBERED(ENTER)
```

```
TO:      Henry Blokes
```

```
FROM:    Rodger Stokes
```

```
SUBJECT: Your Participation in Seminar 1A
```

```
I'm glad you'll be with Ed and me for the seminar Energy in the  
Federal Government, on August 22. It should be an interesting  
seminar.
```

```
I'll make a reservation in the Holiday Inn for the 21st - 28th.
```

```
I'll meet you if you tell me when your flight from New York  
arrives.
```

```
?
```

If you have a PC or NIH8188 terminal with a printer attached, use the command

```
HARDCOPY LIST UNNUMBERED
```

You are almost ready to produce a final copy. The only remaining thing to do is to get rid of the ? at the end.

WYLBUR can recognize a marker when it is the first character in a line, and treat it as a signal to stop printing or skip to a new page. If you want to use a marker as such a signal, there should be nothing on the line except the marker character. When you list the text, you must tell WYLBUR you are using the character as a marker. Then, if you are listing on your terminal, when WYLBUR encounters the line with a marker character alone, the listing will stop until you press ENTER. If your terminal is a hardcopy terminal (a PSC-3101 or a 5320), this gives you a chance to put in a different piece of paper. When you press ENTER, the listing begins again.

If you are printing the memo on a "remote" printer near you or on one of the high-speed Computer Center printers, the printer will skip to a new page when WYLBUR encounters the lone marker character.

Either way, whether you are listing at your terminal or on your printer, any text immediately following the line with the marker character will be on a new page. So, let's add a line that contains the marker character at the beginning and at the end of the memo. You choose the marker character; it should be a character you do not normally use (for example, a #). You identify the marker character to WYLBUR by using the word **MARKER (MAR)**, followed by the marker character (for example, **MARKER #**), on the **LIST (L)** command. The procedure is:

```
? INSERT .1(ENTER)
   0.1 ? #(ENTER)
? INSERT 17(ENTER)
   17. ? #(ENTER)
? LIST UNNUMBERED MARKER #(ENTER)
(ENTER)
TO:      Henry Blokes

FROM:    Rodger Stokes

SUBJECT: Your Participation in Seminar 1A
```

I'm glad you'll be with Ed and me for the seminar Energy in the Federal Government on August 22. It should be an interesting seminar.

I'll make a reservation in the Holiday Inn for the 21st - 28th. I'll meet you if you tell me when your flight from New York arrives.

```
(ENTER)
?
```

If you have a PC or NIH8188 terminal with a printer attached, use the command

```
HARDCOPY LIST UNNUMBERED MARKER #
```

If you have a hardcopy terminal, when the last line of the memo is listed, there will be a pause. Insert a new piece of paper and press **ENTER**. WYLBUR will then prompt with a **?** for the next command.

If you do not have a hardcopy terminal or a printer attached to your PC or NIH8188, the **LIST** command you just used will display the memo on your screen, but it won't print it. To print the memo, use **LIST OFFLINE (L OFF)**. To print the memo on one of the NIH Computer Center's high-speed printers, you could use the following:

```
LIST UNNUMBERED MARKER # OFFLINE
```

The memo will be placed in the box assigned to you at the NIH Computer Center.

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To print the memo on a printer near your own terminal (a "remote" printer), you must include the remote printer number. For example:

```
LIST UNNUMBERED MARKER # REMOTE 6
```

#### 4.5 Erasing the Permanent File

Now that you've saved and printed the memo, suppose you want to erase the permanent file. How do you remove a permanent data set you no longer need? WYLBUR's SCRATCH (SCR) command erases a permanent data set and also erases the entry in the catalog. To erase MEMO.SEMINAR, use:

```
SCRATCH MEMO.SEMINAR
```

WYLBUR will display a message indicating what has been erased. For example,

```
? SCRATCH MEMO.SEMINAR(ENTER)
"MEMO.SEMINAR" SCRATCHED AND UNCATALOGED ON FILE
?
```

#### 4.6 Summary and Next Steps

To summarize, you have now been introduced to the commands:

ALIGN (ALI)	- Even up lines at the right margin
CHANGE (CH)	- Change characters in selected lines
CLEAR TEXT (CLR TX)	- Erase your existing default active file
COLLECT (C)	- Enter a series of lines
DELETE (D)	- Erase lines
INSERT (I)	- Insert a new line
LIST (L)	- Display lines
LOGOFF CLEAR (LOGOFF CLR)	- End the WYLBUR session
REPLACE (R)	- Replace lines
RESAVE (RSV)	- Replace text that has been stored on an online volume (replace a permanent data set with the contents of your default active file)
SAVE (SV)	- Store text on an online volume (create a permanent data set by saving the contents of your default active file)
SCRATCH (SCR)	- Erase a permanent data set
SHOW DSNames (SH DSNS)	- Display a list of names of permanent data sets
USE	- Use text that has been stored on an online volume (copy a permanent data set to your default active file)

Now you know enough to begin using WYLBUR to help with your work. The more you use it, the easier it will seem. To learn more about WYLBUR and discover some of the other things it can do, you can take any of three different approaches:

1. Take the computer-assisted (Assisted By Computer, or ABC) course on WYLBUR, "ABC Introduction to WYLBUR." It includes both online and printed tutorials. Anyone can order the first nine short written modules from the DCRT Technical Information Office (TIO). If you are registered to use WYLBUR (you have an assigned set of registered initials and an account number), you can get copies of all 40 printed lessons. To use the online tutorial, log on to WYLBUR and use the ENTER ABC command. The lessons will tell you what to do.
2. Take a WYLBUR classroom course. Several are available at no charge. If you are interested in classroom instruction, ask the DCRT Technical Information Office to send you a Computer Training Courses and Seminars brochure.
3. You can also learn more by using the WYLBUR Fundamentals manual, available from the DCRT Technical Information Office. The manual explains many useful features, such as copying and moving groups of lines, other ways to make changes within lines and how to use tabs.

To order a manual from the DCRT Technical Information Office, type ENTER PUBWARE at WYLBUR's ? prompt and follow the instructions. You can also call the DCRT Technical Information Office for a copy, at 4-DCRT or 4-3278 (on campus), (301)

594-3278 (commercial), 594-3278 (FTS), (301) 496-8294 (TDD), or (301) 402-0537 (FAX), or write to Technical Information Office, Customer Services Branch, DCRT, National Institutes of Health, Building 12A, Room 1017, 12 South Drive MSC 5603, Bethesda, Maryland 20892-5603.

Also, the Computer Center provides consulting help in using WYLBUR. For phone assistance, call the Technical Assistance and Support Center (TASC) at 4-DCRT or (301) 594-3278, weekdays from 9 AM to 4 PM.

The next section discusses using WYLBUR for preparing a job, submitting it to the computer for processing, and examining the job's output at a terminal. Unless you are interested in this topic, you should skip this section.

The last section shows you how to send and receive electronic mail using WYLBUR. You may want to read that section, then use one of the methods noted above to learn more about how to use WYLBUR.



## 5. Preparing a Program

Computer jobs contain Job Control Language (JCL), programs and data. Sometimes a job will use programs already stored in the computer, in which case the job may consist only of JCL and data. You can use WYLBUR to prepare all three portions of a job. Once you have prepared a job using WYLBUR, you can submit the job to the computer for processing. You can follow the progress of the job as it is being processed. When WYLBUR finishes processing the job, you can examine the output at your terminal and then decide either to print it or remove it from the system without printing it.

This section describes some functions of WYLBUR that are useful when running jobs. To better understand what is going on, try doing the same thing at your terminal as it is being described. The first step is to log on - so, log on and get started!

After you log on, WYLBUR asks what you want to do by prompting with a

?

When you see a question mark on a line by itself, WYLBUR is asking for a command (an instruction telling WYLBUR what to do). Most commands are regular English language words, such as LIST, SAVE and CHANGE. You can use either upper or lower case, or a mixture of both, when typing command words. In this manual, commands used in the examples will all be in upper case, but as you enter the commands, you may use any case you wish.

To speed up typing, you can use abbreviations for many commands. Here, the whole word of the command is used, to help familiarize you with the commands. The abbreviation, if any, appears in parentheses after the full command word. For example, LIST (L) indicates that you can use L as the abbreviation for LIST.

## 5.1 Creating the Job

The first step is to create the job. When you type in lines of text (in this case, the computer job), WYLBUR distinguishes between upper and lower case. However, the lines in a job must be in all upper case. You can accomplish this by using the CAPS LOCK key on your keyboard, if your keyboard has one. Another way is to have WYLBUR automatically translate lowercase letters to uppercase letters by using the SET UPPER (SET UPP or SET UPR) command:

```
? SET UPPER(ENTER)
?
```

Once you have typed in SET UPPER, WYLBUR converts all lowercase letters to uppercase letters. This translation is done until you log off of WYLBUR, or change back to upper and lower case. Use the SET UPLOW (SET UPL) command to go back to upper and lower case. SHOW CASE (SH CASE) shows you which mode is being used. The example below shows how to switch back and forth between upper case and upper and lower.

```
? SHOW CASE(ENTER)
CASE IS UPPER AND LOWER
? SET UPPER(ENTER)
? SHOW CASE(ENTER)
CASE IS UPPER
? SET UPLOW(ENTER)
? SHOW CASE(ENTER)
CASE IS UPPER AND LOWER
? SET UPPER(ENTER)
? SHOW CASE(ENTER)
CASE IS UPPER
?
```

To create your batch job, use the COLLECT (C) command. After you type COLLECT (C), WYLBUR will prompt for the first line by displaying a number followed by a question mark. The number is the line number. You and WYLBUR will use line numbers as a reference to the lines in the job as it is being prepared.

So far the series of steps looks like this, with (ENTER) indicating where you press the ENTER key:

```
? SET UPPER(ENTER)
? COLLECT(ENTER)
1. ?
```

After you type in the first line of text and press ENTER, WYLBUR will ask for another line by prompting with the next line number. This process continues until you are ready to inform WYLBUR that all lines have been typed in and you want to issue another command. Do this by pressing the BREAK key in response to the line number prompt. WYLBUR will type \*\*\* to indicate that BREAK has been pressed, and then will prompt with a ? so that you can give the next command.

When you submit a job to the computer, WYLBUR places the line numbers in columns 73 through 80 of each line. Usually, only the first 72 positions of a line are used in a job; you can use the line numbers in columns 73-80 for reference when making changes in the job.

Now, let's create a job that will add four numbers together. The first line is the JOB statement. Use your own registered initials (those you signed onto WYLBUR with) instead of III, your account number instead of AAAA, your box number instead of 999, and your last name instead of NAME. This program is written in the FORTRAN language, but, of course, WYLBUR does not care which programming language you are using.

The position of characters and spaces in your WYLBUR text is important. For example:

- . FORTRAN statements must begin in column 7
- . FORTRAN statement numbers must be in columns 1-5
- . In JCL lines, the // must appear in the first two positions of the line

You do not need to understand FORTRAN or JCL in order to try the example below. The JCL used in this example is described in the Computer Center Users Guide. For assistance in using JCL, take the online course offered by the Computer Center, "ABC Introduction to Job Control Language."

Now, let's create a WYLBUR batch job using the COLLECT (C) command. Remember that you must either have given the SET UPPER (SET UPP) command or you must type all of the statements in upper case:

```
? COLLECT(ENTER)
  1. ? //IIISAMPL JOB (AAAA,999,A),NAME(ENTER)
  2. ? // EXEC FORVCOMP(ENTER)
  3. ? //COMP.SYSIN DD *(ENTER)
  4. ?      SUM=0.0(ENTER)
  5. ?      DO 10 I=1,4(ENTER)
  6. ?      READ (5,100) X(ENTER)
  7. ? 10    SUM=SUM+X(ENTER)
  8. ?      WRITE(14,110) SUM(ENTER)
  9. ? 100   FOMRAT(F10.0)(ENTER)
 10. ? 110   FORMAT(' SUM IS ',F10.3)(ENTER)
 11. ?      END(ENTER)
 12. ? // EXEC FORVLDGO(ENTER)
 13. ? //GO.SYSIN DD *(ENTER)
 14. ? 15.75(ENTER)
 15. ? 10.3(ENTER)
 16. ? 12.92(ENTER)
 17. ? 14.051(ENTER)
 18. ? 32.1(ENTER)
 19. ? (BREAK)***
?
```

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If you forget to press the BREAK key and type in a command in line 19 (remember, WYLBUR is still asking for line 19), the command goes in on line 19 as a line of text - WYLBUR does not interpret words as commands unless they follow the question mark (?) prompt.

If you make a mistake while typing in a line, you can backspace over the characters typed and retype the characters correctly before pressing ENTER. Or, if you want to just retype the entire line, press REENTER (on the NIH8188) or BREAK (on other terminals) and WYLBUR will ignore what you just typed and prompt again for the same line.

WYLBUR's LIST (L) command will display what you typed in:

### ? LIST(ENTER)

```
1.      //IIISAMPL JOB (AAAA,999,A),NAME
2.      // EXEC FORVCOMP
3.      //COMP.SYSIN DD *
4.          SUM=0.0
5.          DO 10 I=1,4
6.          READ (5,100) X
7.      10      SUM=SUM+X
8.          WRITE(14,110) SUM
9.      100     FOMRAT(F10.0)
10.     110     FORMAT(' SUM IS ',F10.3)
11.         END
12.     // EXEC FORVLDGO
13.     //GO.SYSIN DD *
14.     15.75
15.     10.3
16.     12.92
17.     14.051
18.     32.1
?
```

## 5.2 Editing the Job

At this point, you have typed in the job. You are now ready to check it at your desk and correct any errors.

For example, you might want to take out line 15, which includes the data 10.3. (line 15). Use the DELETE (D) command to remove lines. You must instruct WYLBUR in terms of line numbers. To remove a line, type in DELETE (D), followed by the number of the line you want to delete. To delete line 15, type the following:

```
? DELETE 15(ENTER)
?
```

Your job now looks like this:

```
? LIST(ENTER)
 1.      //IIISAMPL JOB (AAAA,999,A),NAME
 2.      // EXEC FORVCOMP
 3.      //COMP.SYSIN DD *
 4.          SUM=0.0
 5.          DO 10 I=1,4
 6.          READ (5,100) X
 7.      10      SUM=SUM+X
 8.          WRITE(14,110) SUM
 9.      100     FOMRAT(F10.0)
10.      110     FORMAT(' SUM IS ',F10.3)
11.          END
12.      // EXEC FORVLDGO
13.      //GO.SYSIN DD *
14.      15.75
15.      12.92
16.      14.051
17.      32.1
18.
?
```

If you are a FORTRAN programmer, you may notice that we've built some errors into this code. We will correct these errors as we go through WYLBUR's edit functions.

While checking the job, we notice that a title isn't written in the output of the job. To do this, we will first add a FORTRAN WRITE statement between line 4 and line 5. To insert a line between 4 and 5, choose a line number that is larger than 4 and smaller than 5, say 4.1 (4.1 is greater than 4 and less than 5). Use the INSERT (I) command to add a line of text. Type in INSERT (I), followed by the number of the line you want to insert. WYLBUR will prompt for the text with the line number followed by a question mark. After you type the line and press ENTER, WYLBUR will prompt with a ? for the next command.

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```
? INSERT 4.1(ENTER)
  4.1 ?      WRITE(14,90)(ENTER)
?
```

When trying this at your terminal, note that you must type six blanks (spaces) before the word WRITE, because FORTRAN requires instructions to begin at least in the seventh position of the line.

At this point, you can use LIST (L) to display the job again:

```
? LIST(ENTER)
  1.      //IIISAMPL JOB (AAAA,999,A),NAME
  2.      // EXEC FORVCOMP
  3.      //COMP.SYSIN DD *
  4.          SUM=0.0
  4.1      WRITE(14,90)
  5.          DO 10 I=1,4
  6.          READ (5,100) X
  7.      10      SUM=SUM+X
  8.          WRITE(14,110) SUM
  9.      100     FOMRAT(F10.0)
 10.     110     FORMAT(' SUM IS ',F10.3)
 11.          END
 12.      // EXEC FORVLDGO
 13.      //GO.SYSIN DD *
 14.      15.75
 16.      12.92
 17.      14.051
 18.      32.1
?
```

Line numbers that are not integers (whole numbers) are called fractional line numbers. To squeeze in additional lines between 4 and 4.1, we have to choose a number larger than 4 and smaller than 4.1, say 4.01. WYLBUR would also accept 4.001, so 999 lines can be inserted between any two whole-numbered lines (for example, between 4 and 5).

Now insert the following line before line 9:

```
90      FORMAT(' SUMMING 4 NUMBERS'/)
```

Note that there are four blanks (spaces) between 90 and the word FORMAT and a blank before the word SUMMING. Your screen should look like this:

```
? INSERT 8.1(ENTER)
  8.1 ? 90      FORMAT(' SUMMING 4 NUMBERS'/)(ENTER)
?
```

To see the job with this change, you could type the LIST (L) command and WYLBUR would display the entire job. Since we are only interested in line 8.1, we can list just line 8.1:

```
? LIST 8.1(ENTER)
  8.1    90    FORMAT(' SUMMING 4 NUMBERS'/)
?
```

To display only lines 7 through 9, type in 7 and 9, separated by a slash:

```
? LIST 7/9(ENTER)
  7.     10    SUM=SUM+X
  8.          WRITE(14,110) SUM
  8.1    90    FORMAT(' SUMMING 4 NUMBERS'/)
  9.     100   FOMRAT(F10.0)
?
```

There are two methods of specifying what is called the "range" - that is, the lines you want WYLBUR to select. An individual line number and two line numbers separated by a slash are both ways of expressing a range.

The BREAK key serves a special function when lines are being listed. If you press BREAK while a line is listing, the listing stops and the command stops its processing. You can use this feature to verify what changes have been made to the beginning of the job:

```
? LIST(ENTER)
  1.     //IIISAMPL JOB (AAAA,999,A),NAME
  2.     // EXEC FORVCOMP
  3.     //COMP.SYSIN DD *
  4.          SUM=0.0
  4.1    WRITE(14,90)
  5.     DO 10 I=(BREAK)...
```

Notice that WYLBUR displays three periods when the you press the BREAK key. We have seen two functions of the BREAK key - it can be used to re-enter text and to stop a command. Both functions are similar, in that they stop the action.

Now let's assume that the first line of data (15.75) should really be 51.75. One way to make this change is to replace this line (line number 14). The REPLACE command replaces lines. The number of the line to be replaced follows REPLACE. WYLBUR will prompt with the line number of the line to be replaced, followed by a question mark. You type in the contents of the new line in response to the line number prompt. The exchange should look like this:

```
? REPLACE 14(ENTER)
  14.    ? 51.75(ENTER)
? LIST 14(ENTER)
  14.    51.75
?
```

## Quick Introduction to WYLBUR

The word FOMRAT is mistyped - it should be FORMAT. One way to correct this mistake is to use the MODIFY (M) command. MODIFY (M) gives you the chance to change individual characters in a line. You type in the range of lines you want to modify (for example, a line number) after MODIFY (M). WYLBUR lists the line, and then prompts you to type in the changes with an ALTERS ? prompt. For example,

```
? MODIFY 9(ENTER)
  9.      100   FOMRAT(F10.0)
ALTERS ?
```

To indicate a change, type an "alteration character" after the ALTERS ? prompt. This indicates the change you want to make directly under the corresponding characters in the line you want to modify. We will learn two of these alteration characters - X (for deleting characters) and I (for inserting characters):

- . X - Delete the character above the X. Type as many X's in a row as there are characters to be deleted. Each X you type will delete the character above it. As soon as you finish typing the X's, press ENTER.
- . I - All characters typed following I will be inserted in the line immediately before the character that appears above the I.

After you type the X's or I in the ALTERS ? line and press ENTER, WYLBUR displays the changed line and prompts you again with ALTERS ? for further changes. If you press ENTER and nothing else in response to the ALTERS ? prompt, WYLBUR will replace the original line with the changed line and prompt with a ? for the next command. If instead, you press BREAK and nothing else in response to the ALTERS ? prompt, the indicated changes will be ignored, the line will remain as it originally was and WYLBUR will issue the ? prompt, asking for the next command.

Now, let's correct the spelling of FOMRAT:

```
? MODIFY 9(ENTER)
  9.      100   FOMRAT(F10.0)
ALTERS ?      XX(ENTER)
  9.      100   FOAT(F10.0)
ALTERS ?      IRM(ENTER)
  9.      100   FORMAT(F10.0)
ALTERS ? (ENTER)
? LIST 9(ENTER)
  9.      100   FORMAT(F10.0)
?
```

You can also change the word FOMRAT to FORMAT by using the CHANGE (CH) command. In this command, you use two sets of quotation marks to indicate to WYLBUR what needs to be changed and then the text that will replace it. You must also type in the line number(s) of the line(s) to be changed (that is, the range).

The next command will cause WYLBUR to change FOMRAT to FORMAT wherever it appears in line 9. WYLBUR will print out the changed line so you can check it:

```
? CHANGE "FOMRAT" TO "FORMAT" IN 9(ENTER)
   9.      100  FORMAT(F10.0)
?
```

Instead of quotation marks, you can use apostrophes (or single quotes). Thus,

```
CHANGE 'FOMRAT' TO 'FORMAT' IN 9
```

would accomplish the same thing. In WYLBUR, the word "string" refers to characters in quotation marks - "FORMAT" and 'FORMAT' are both strings.

The CHANGE (CH) command can change characters wherever they occur in the job. If we wanted to change 14 to 6 everywhere in the text (for example, in lines 4.1 and 8) we would use the word ALL after IN to indicate that the range of lines (ALL) is the entire text:

```
CHANGE '14' TO '6' IN ALL
```

WYLBUR will scan the entire text, and wherever the characters 14 are found throughout the job, they will be changed to 6. The changed lines are printed out:

```
? CHANGE '14' TO '6' IN ALL(ENTER)
   4.1          WRITE(6,90)
   8.          WRITE(6,110) SUM
  17.         6.051
?
```

In the example above, notice that we mistakenly changed 14 to 6 in line 17. WYLBUR did exactly what we asked - each time a 14 was found (that is, the first string), it was changed to 6 (the second string). To avoid this problem, we could have included a comma in the range:

```
CHANGE '14,' TO '6,' IN ALL
```

Now, let's fix line 17:

```
? CHANGE '6' TO '14' IN 17(ENTER)
  17.         14.051
?
```

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Another way to make a change a particular group of lines is to indicate which lines WYLBUR should look at. This is done by entering the first and last line numbers, separated by a slash, as the "range." WYLBUR will look at all lines between the two line numbers, including those line numbers. For example, if the command

```
CHANGE '14' to '6' IN 4/11
```

had been used, only lines numbered 4.1 and 8 would have been changed; there would have been no need to correct line 17.

To change 14 to 6 in lines 4.1 and 8, we could also use the MODIFY (M) command instead of CHANGE (CH):

```
? MODIFY 4.1(ENTER)
  4.1          WRITE(14,90)
ALTERS ?      XX(ENTER)
  4.1          WRITE(,90)
ALTERS ?      I6(ENTER)
  4.1          WRITE(6,90)
ALTERS ? (ENTER)
? MODIFY 8(ENTER)
  8.           WRITE(14,110) SUM
ALTERS ?      XX(ENTER)
  8.           WRITE(,110) SUM
ALTERS ?      I6(ENTER)
  8.           WRITE(6,110) SUM
ALTERS ? (ENTER)
?
```

At this point let's look at the complete job, with all the changes made, by using the LIST (L) command:

```
? LIST(ENTER)
1.      //IIISAMPL JOB (AAAA,999,A),NAME
2.      // EXEC FORVCOMP
3.      //COMP.SYSIN DD *
4.          SUM=0.0
4.1      WRITE(6,90)
5.          DO 10 I=1,4
6.          READ (5,100) X
7.      10      SUM=SUM+X
8.          WRITE(6,110) SUM
8.1      90      FORMAT(' SUMMING 4 NUMBERS'//)
9.          100      FORMAT(F10.0)
10.       110      FORMAT(' SUM IS ',F10.3)
11.          END
12.     // EXEC FORVLDGO
13.     //GO.SYSIN DD *
14.       51.75
16.       12.92
17.       14.051
18.       32.1
?
```

Before learning how to submit the job to the computer for processing, we'll see how to store the job so it can be used at another time.

### 5.3 Saving the Job

To save your job for use later, use the SAVE (SV) command:

```
SAVE AS JOB.ADD
```

JOB.ADD is the name you chose to call the text - the name can contain letters, digits, periods, hyphens, @, # or \$. It cannot contain other special characters (&, \*, %, for example) or any spaces.

When WYLBUR has finished the SAVE (SV) command, a message is displayed telling you that the job has been saved:

```
? SAVE AS JOB.ADD(ENTER)  
"JOB.ADD" SAVED AND CATALOGED ON FILE  
?
```

FILE refers to a class of public online disks (also called volumes) where the data set is stored. Once data sets are stored on these disks, they are called permanent data sets. WYLBUR also records the data set name in the catalog, which is WYLBUR's index to the permanent data sets.

At this point, there are two copies of the job: the copy that we have been correcting (the text in the "active file") and the copy saved on a public online volume (the "permanent data set").

The job in your default active file is erased when you use a LOGOFF CLEAR (LOGOFF CLR) command to end the WYLBUR session. The job saved in the permanent data set (JOB.ADD on FILE), on the other hand, remains when the session ends. If you make other changes to the job in your default active file, the changes appear only in the copy of the job in the active file. To copy the changes to the permanent data set as well, use the RESAVE (RSV) command:

```
? RESAVE AS JOB.ADD(ENTER)  
"JOB.ADD" RESAVED AND CATALOGED ON FILE  
?
```

To summarize, SAVE (SV) copies the text in your default active file to a permanent data set on a public online volume. RESAVE (RSV) replaces the permanent data set with later, revised versions.

What happens if you use RESAVE (RSV) instead of SAVE (SV), or SAVE (SV) instead of RESAVE (RSV)? WYLBUR will catch the mistake, type a message indicating that the data set does not exist, and will prompt you for another name (DSNAME?) or volume class (VOLUME?). If you press ENTER at either prompt, WYLBUR uses the response you initially gave in the RESAVE or SAVE command. If you press ENTER for both prompts or press BREAK in response to either prompt, the command is aborted. You can then enter the correct command. For example,

```
? RESAVE AS JOB.ADD(ENTER)
"JOB.ADD" NOT IN CATALOG
RESPECIFY DSNAME AND/OR VOLUME
DSNAME? (ENTER)
VOLUME? (ENTER)
COMMAND ABORTED
? SAVE AS MEMO.SEMINAR
"JOB.ADD" SAVE AND CATALOGED ON FILE
?
```

If you specify the name of an existing data set on the RESPECIFY DSNAME prompt, WYLBUR will replace the existing data set with the contents of your default active file.

The RESAVE command is best used after a data set has been saved and then later recalled to the default active file with the USE command (described below). When used this way, the RESAVE command can be used alone - without including the data set name - because WYLBUR remembers the name that was specified in the USE command.

You can look up the names of permanent data sets you have stored. This is useful if you have forgotten what you chose for a name. The SHOW DS NAMES (SH DSNS) command will display the names of permanent data sets you have stored.

```
? SHOW DS NAMES(ENTER)
FILE
JOB.ADD
?
```

In this example, you have only saved one file. You are more likely to find the command useful in reminding you of the names you have used when you have saved a number of permanent data sets, all with different names (of course).

To begin creating another job, you can use the CLEAR TEXT (CLR TX) command to erase the copy of the job in the default active file. CLEAR TEXT will not erase the copy saved as the permanent data set on a public online volume. When you use the COLLECT (C) command after erasing the default active file with the CLEAR TEXT (CLR TX) command, WYLBUR prompts for a new line 1. You are now ready to begin typing in a new piece of text.

Since you saved the job (JOB.ADD on FILE), you can bring it back for further editing at any time by using the USE command. When you "use" a file in your default active file, the permanent data set remains stored on a public online

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volume - it is only copied to the default active file. Be sure to erase the default active file before bringing another copy into the default active file.

```
? CLEAR TEXT(ENTER)
? USE FROM JOB.ADD(ENTER)
?
```

If you forget to erase the default active file before using the permanent data set, WYLBUR will ask if it should be erased before copying the permanent data set into the default active file. If you have already saved the contents of the default active file, it can be erased (or cleared). If you have not saved the contents of the default active file and you erase (clear) the default active file, the text you created will no longer be available for further work. The exchange below shows how WYLBUR asks you if you want to clear your default active file.

```
? USE FROM JOB.ADD(ENTER)
IF IT IS OK TO CLEAR TEXT, REPLY "YES"
CLEAR? YES(ENTER)
?
```

If you mistype the name, and therefore WYLBUR can't find the stored text, WYLBUR will prompt you for a new name (DSNAME?) and volume class (VOLUME?). For example,

```
? CLEAR TEXT(ENTER)
? USE FROM JOB.DAA(ENTER)
"JOB.DAA" NOT IN CATALOG
RESPECIFY DSNAME AND/OR VOLUME
DSNAME? JOB.ADD(ENTER)
VOLUME? (ENTER)
?
```

In summary -

1. You create and make changes to text in your default active file.
2. You use the SAVE (SV) command to store the text as a permanent data set for later use.
3. The CLEAR TEXT (CLR TX) command erases the text in the default active file.
4. The USE command copies the contents of a permanent data set to your default active file.
5. Changes made to the text are only made in your default active file, not in your permanent file.
6. The RESAVE (RSV) command is used to replace your permanent data set with an updated copy of the text in your default active file.

#### 5.4 Submitting the Job

Your job is now ready to submit to the computer for execution. To do this, use the RUN command. After you have submitted the job, the job number assigned by the computer is displayed (in this case 3678). You will use this job number to identify the job in other commands. In addition, WYLBUR also displays the job name, which we created in the first line of JCL: IIISAMPL.

```
? RUN(ENTER)
JOB 3678 IIISAMPL SUBMITTED
?
```

When the job finishes executing, it is automatically printed. The output will be put in your box. The box number was also included in the JOB statement. In our example, box 999 was used. However, if you want to print the job at a "remote" printer near you, you must enter the "remote" number or name after the REMOTE option on the RUN command. For example, the remote printer in the public user area in the Computer Center is named USERAREA. Therefore, to print the job at the remote in the user area, you would type the following RUN command; WYLBUR will tell you that the job has been submitted:

```
? RUN REMOTE USERAREA(ENTER)
JOB 4391 IIISAMPL SUBMITTED
?
```

If the remote workstation in your building is assigned only a number (such as 8 for the one in the User Area), you could use the following RUN command to print the job there:

```
RUN REMOTE 8
```

## 5.5 Inspecting Job Output at the Terminal

One of WYLBUR's most useful features is that it allows you to examine the output of the job at your terminal. To do this, you must tell WYLBUR to hold the job in the computer instead of automatically printing it. You can do that by using HOLD on the RUN command:

```
? RUN HOLD(ENTER)
JOB 5347 IIIISAMPL SUBMITTED
?
```

But - the job must finish executing before you can inspect the output at the terminal. To find out what is happening to the job, use the LOCATE (LOC) command. The job number follows LOCATE (LOC). For example, to check on the status of job 5347, you would type:

```
? LOCATE 5347(ENTER)
JOB 5347 IIIISAMPL EXECUTING A CPU3
?
```

Notice that job 5347 is still executing on the computer. The next LOCATE command shows that the job has finished executing:

```
? LOCATE 5347(ENTER)
JOB 5347 IIIISAMPL IN OUTPUT HOLD
?
```

Once the job has finished executing, you can use the FETCH (FET) command to copy the output of the job into your default active file so you can examine it at your terminal. Type FETCH (FET), followed by the job number. Before you FETCH the job, however, you must erase whatever is in your default active file by using the CLEAR TEXT (CLR TX) command. Remember that if you save the job before you give the CLEAR TEXT command, you will be able to work with it again later by using the USE command. However, if you have not saved the job and you erase it from the default active file, you can never bring it back again without retyping it.

To copy the job's output to the default active file so you can use WYLBUR to review it, type:

```
? CLEAR TEXT(ENTER)
? FETCH 5347(ENTER)
?
```

As with the USE command, if you forget to erase the default active file before using the FETCH command, WYLBUR will ask if the default active file is to be erased.

You can also combine the two commands in one by entering:

```
FETCH 5347 CLEAR
```

If you haven't submitted the job so it can be fetched you should do so now. After it has finished executing, FETCH (FET) the job.

At this point, you can use WYLBUR to inspect the output of the job. The fetched output contains all the information that would be in the printed job, with the exception of the "header" and "trailer" sheets (that is, the first and last sheet that identify the job). Of course, the entire output can be listed at the terminal using the LIST (L) command, but this would be time-consuming, and a lot of uninteresting information would be listed. We've seen how to use ranges to list just portions of an active file (for example, LIST 15 or LIST 30/40). What line numbers should you use?

When you FETCH the output of a job, the first position in each line contains what is known as a carriage control character. Carriage control characters control the format (for example, the number of blank lines listed) for the output when it is printed. A carriage control character of 1 tells WYLBUR to start listing on the top of a new page.

The output of your program always begins on a new page (usually near the end of the job output). Therefore, if we can find out which lines have a carriage control character of 1, then we can see which lines we want to look at. By enclosing the 1 in quotation marks or apostrophes (that is, using the string '1'), you can use the LIST (L) command to display all the lines that contain a 1. The command

```
LIST '1'
```

will list all lines that have a 1. This will include a lot of lines that we don't want to see. The command

```
LIST '1' 1
```

will list only the lines that have a 1 in the first position of the line. The second 1 in this command tells WYLBUR the position in the line where the characters in the string must begin for the line to be listed. If you don't enter a range of line numbers for WYLBUR to list, the whole text will be listed.

Now, let's see which lines will be displayed at the top of each new page of output:

```
? LIST '1' 1(ENTER)
  1.      1                J E S 2   J O B   L O G   *****...
  5.      1      1      //IIISAMPL JOB (AAAA,999,A),NAME      ...
 98.      1
212.      1
219.      1LEVEL 2.6.0 (NOV 1993)                VS FORTRAN      JUN...
235.      1LEVEL 2.6.0 (NOV 1993)                VS FORTRAN      JUN...
261.      1LEVEL 2.6.0 (NOV 1993)                VS FORTRAN      JUN...
283.      1                                          DF...
310.      1
?
```

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The three periods (...) on the lines indicate that more information is contained on the lines, but there is not enough space on this page to include all the text.

Now we know the line numbers of the line that will be listed at the top of each page. When you do this at your terminal, you may find that the line numbers are slightly different.

Since the output begins on a new page and is normally the last page to be printed, we now know the first line number to look at (line 310). There is a special line number in WYLBUR, named LAST, that is equal to the last line number. Therefore, to list the results of the program that executed, use:

```
? LIST 310/LAST(ENTER)
310.      1
311.      SUMMING 4 NUMBERS
312.
313.      SUM IS      110.821
?
```

As we can see, the summation of the four numbers you entered as input is 110.821. This is called the program output.

If the job did not complete execution properly, sometimes the last page will indicate the error. If listing these lines doesn't indicate the error, list the first few lines - this may help you find the error. Remember that pressing BREAK after the LIST (L) command will stop the listing. As you learn more about how to use WYLBUR, you will learn more techniques for reviewing the job output at the terminal.

## 5.6 Printing and Purging the Job

The output of the job is still being held in the computer. Since we have inspected the output at the terminal, we must decide if we want to print the job or remove the job from the computer without printing it. If you print the job, the printed output will either be printed on a high-speed printer at the NIH Computer Center and put in your box there, or it will be printed at the remote printer you indicated when you told WYLBUR to run the job. Use the PRINT (PRT) command to print the job. For example:

```
PRINT 5347
```

will cause job 5347 to be printed.

Use the PURGE (PUR) command to remove the job from the computer without printing it. For example, to remove job 5347, use:

```
PURGE 5347
```

If you forget to either print or purge the job, it will automatically be removed from the computer without being printed four hours after it has been fetched.

After inspecting the fetched output at the terminal, you sometimes want to make changes to the job and run it again. This is very easy to do - remember that the job was stored on a public online volume (saved using the name JOB.ADD). Therefore, all you need to do is to clear your default active file (using the CLEAR TEXT command), USE the permanent data set JOB.ADD, make the necessary changes, RESAVE (RSV) the job, and then RUN the job again.

How do you remove a permanent data set that is no longer needed? WYLBUR's SCRATCH (SCR) command erases a permanent data set and also erases the entry in the catalog. To erase JOB.ADD from a public online volume, use:

```
SCRATCH JOB.ADD
```

WYLBUR will display a message indicating that the data set has been erased and uncataloged. For example,

```
? SCRATCH JOB.ADD(ENTER)
"JOB.ADD" SCRATCHED AND UNCATALOGED FROM FILE
?
```

## 5.7 Summary and Next Steps

To summarize, you have now been introduced to the commands:

CHANGE (CH)	- Change characters in selected lines
CLEAR TEXT (CLR TX)	- Erase your default active file
COLLECT (C)	- Enter a series of lines
DELETE (D)	- Erase lines
FETCH (FET)	- Copy held job output into your default active file
INSERT (I)	- Insert a line
LIST (L)	- Display lines
LOCATE (LOC)	- Display the status of a job
LOGOFF CLEAR (LOGOFF CLR)	- End your WYLBUR session
MODIFY (M)	- Delete or insert characters in selected lines
PRINT (PRT)	- Print a job being held in the computer
PURGE (PUR)	- Remove a job from the computer without printing it
REPLACE (R)	- Replace lines
RESAVE (RSV)	- Replace text saved on an online volume (replace a permanent data set using the contents of your default active file)
RUN	- Submit a job to the computer
SAVE (SV)	- Store text on an online volume (create a permanent data set)
SCRATCH (SCR)	- Erase a permanent data set
SET UPLOW (SET UPL)	- Keep the case of all letters as entered
SET UPPER (SET UPP)	- Translate all letters to upper case
SHOW CASE (SH CASE)	- Display which mode (UPPER, UPLOW or LOWER) is being used using the active file
SHOW DSNAMEs (SH DSNS)	- Display names of permanent data sets
USE	- Copy text stored on an online volume to your default active file

Now you know enough to begin using WYLBUR to help with your work. The more you use it, the easier it will seem. To learn more about WYLBUR and discover some of the other things it can do, you can take any of three different approaches:

1. Take the computer-assisted (Assisted By Computer, or ABC) course on WYLBUR, "ABC Introduction to WYLBUR." It includes both online and printed tutorials. Anyone can order the first nine short written modules from the DCRT Technical Information Office (TIO). If you are registered to use WYLBUR (you have an assigned set of registered initials and an account number), you can get copies of all 40 printed lessons. To use the online tutorial, log on to WYLBUR and use the ENTER ABC command. The lessons will tell you what to do.
2. Take a WYLBUR classroom course. Several are available at no charge. If you are interested in classroom instruction, ask the DCRT Technical Information Office to send you a Computer Training Courses and Seminars brochure.

3. You can also learn more by using the WYLBUR Fundamentals manual, available from the DCRT Technical Information Office. The manual explains many useful features, such as copying and moving groups of lines, other ways to make changes within lines and how to use tabs.

To order a manual from the DCRT Technical Information Office, type ENTER PUBWARE at WYLBUR's ? prompt and follow the instructions. You can also call the DCRT Technical Information Office for a copy, at 4-DCRT or 4-3278 (on campus), (301) 594-3278 (commercial), 594-3278 (FTS), (301) 496-8294 (TDD), or (301) 402-0537 (FAX), or write to Technical Information Office, Customer Services Branch, DCRT, National Institutes of Health, Building 12A, Room 1017, 12 South Drive MSC 5603, Bethesda, Maryland 20892-45603.

Also, the Computer Center provides consulting help in using WYLBUR. For phone assistance, call the Technical Assistance and Support Center (TASC) at 4-DCRT or (301) 594-3278, weekdays from 9AM to 4 PM.

The last section shows you how to send and receive electronic mail using WYLBUR. You may want to read that section, then use one of the methods noted above to learn more about how to use WYLBUR.



## 6. Sending and Receiving Electronic Mail

As a WYLBUR user, you can exchange electronic mail with any other WYLBUR user. You can also exchange mail with users of NIHnet, the NIH network; BITNET, the network that links universities and other research institutions; and Internet, which links academic, research, and commercial institutions.

By using WYLBUR's ENTER MAIL command procedure and the special mail commands, you can:

- . Read and respond to mail you receive
- . Discard mail or hold it for future reference
- . Create and send your own mail
- . Get an offline listing of your mail or list it on an attached printer

This section shows you the basic commands you'll need to send and receive electronic mail with WYLBUR. To give you some practice in handling mail, you'll create three pieces of mail, send them to yourself, and then process them as mail you received.

You'll get the most out of the section if you sit down at the keyboard and do this as you're reading. Log on, and let's get started!

## 6.1 Accessing the Mail Facility

To access WYLBUR's mail facility, type ENTER MAIL after the question mark prompt and press the ENTER key.

ENTER MAIL will welcome you. If you have any incoming mail waiting, ENTER MAIL normally displays a mail index summarizing each item of mail. You'll learn more about the index soon, when we cover receiving mail.

Meanwhile, note that a new prompt has appeared on your screen. When you are using ENTER MAIL, a special command prompt asks what you want to do. It looks like this:

Command?

## 6.2 Accessing Help

ENTER MAIL puts help at your fingertips. To see the basic Help menu, type HELP and press ENTER after the Command? prompt. ENTER MAIL responds as follows:

Command? **HELP(ENTER)**

The following commands are available in ENTER MAIL:

ARCHIVE FILE	COMMENT	PRINT	SET TERSE	SHOW NOTIFY
CHANGE MAIL	CREATE	READ	SET SIGNATURE	SHOW PROFILE
CHANGE NOTIFY	DISCARD	REPLY	SET WIDTH	SHOW TERSE
CLEAR ARCHIVE	END	SELECT	SHOW ARCHIVE	SHOW SIGNATURE
CLEAR AUTOFILE	FILE	SEND	SHOW AUTOFILE	SKIP
CLEAR FILE	FORWARD	SET ARCHIVE	SHOW BITNET	STORE
CLEAR FORWARD	GET FILE	SET AUTOFILE	SHOW WIDTH	SUBJECT
CLEAR LOG	GET MAIL	SET FILE	SHOW FILES	TRANSMIT
CLEAR NAME	GET FROM	SET FORWARD	SHOW FORWARD	WYLBUR
CLEAR NOTIFY	GROUP	SET LOG	SHOW INDEX	
CLEAR PROFILE	HELP	SET NAME	SHOW INITIALS	
CLEAR TERSE	HOLD	SET NOTIFY	SHOW LOG	
CLEAR SIGNATURE	LIST	SET PROFILE	SHOW NAME	

Specify which Help facility you wish to invoke

- 1 -- Basic Mail Handling
- 2 -- Advanced Mail Handling
- 3 -- BITNET Help
- 4 -- Display NIHnet, BITNET, and Internet address forms
- 5 -- Terminate Help

Menu:

Type 5 and press ENTER to exit HELP and go back to the Command? prompt.

## Quick Introduction to WYLBUR

You can also display help on any ENTER MAIL command by typing a question mark followed by the command name. For example, to display help on the SEND command, type ?SEND and press ENTER:

Command? **?SEND(ENTER)**

Information on the SEND command appears on your screen:

The SEND command allows you to create mail and transmit it to users or groups of users (see the GROUP command for details of creating and using mailing groups). If you do not specify a mail source, you will be put into WYLBUR mode to create the mail. If you do not specify a "TO" option, then you will be prompted for all other options. If you do specify the "TO" option, then you will not be prompted for any mailing options.

Press Carriage Return/Enter to see information about the mail source

Press the BREAK key to return to the Command? prompt.

### 6.3 Creating and Sending Mail

To create and send mail, you will take the following steps:

1. Create the mail. This is just like creating a memo (see section 3, "Preparing a Memo".) However, instead of the WYLBUR COLLECT command, we use the ENTER MAIL SEND command.
2. Signal ENTER MAIL that you have finished creating mail. Use the END (E) command.
3. Identify the person(s) to whom you want to send mail. You can send the same mail to more than one person.
4. There are other options available. For example, you can type in the subject of the mail.

To provide some mail to read, you're going to send three pieces of mail to yourself. Of course, you wouldn't normally send mail to yourself. However, the process of creating and sending mail works in exactly the same way, whether you send the mail to yourself or to somebody else.

Let's begin by telling ENTER MAIL that you want to send some mail. Start by typing SEND after the Command? prompt and pressing ENTER. Your command line should read:

Command? **SEND(ENTER)**

ENTER MAIL will acknowledge your instruction by displaying this message:

Create your mail line by line, press BREAK when finished

1. ?

The next step is to type in the text of your mail, just as you would a memo. Type in "Hi!," press ENTER and then press the BREAK key. ENTER MAIL prompts you to either edit your mail (change something) or type END if you are done:

1. ? **Hi!(ENTER)**  
 2. **(BREAK)\*\*\***

Edit your mail, type END in response to >? when you are done:  
 >?

A new prompt has appeared: >?. This is a prompt ENTER MAIL gives you for editing mail. You can use the >? prompt to enter any of the standard WYLBUR commands you use to edit text: CHANGE, MODIFY, LIST, and so on.

## Quick Introduction to WYLBUR

Let's assume you do not want to change anything. After the >? prompt, type END (E) and press ENTER. This tells ENTER MAIL you've finished creating the mail item. ENTER MAIL will prompt you for the recipient's ID:

```
>? END(ENTER)  
Enter the list of ids to receive the mail, or ? to display groups  
To?
```

Send this mail to yourself by typing your own registered initials after the To? prompt. In these examples, III appears in place of your registered initials.

```
To? III(ENTER) [Type your own registered initials in place of III.]
```

The next three prompts allow you to enter other IDs to receive copies, replies and acknowledgments. Since we don't want to send this mail to anyone else, press ENTER at each prompt. This is the same as saying "no":

```
Enter the list of ids to receive copies of the mail, or ? to display groups  
cc? (ENTER)  
Enter id or ids if someone else is to receive replies  
Reply-to? (ENTER)  
Enter the userid to receive an acknowledgement  
Acknowledge-to? (ENTER)
```

The next prompt allows you to type in the subject of your mail item. Let's identify the subject. That way, the person who receives your mail can see what the mail is about on the mail index, before looking at the mail item itself.

Type "GREETINGS" after the Subject? prompt, then press ENTER:

```
Enter the subject of the message  
Subject? GREETINGS(ENTER)
```

Press ENTER after the next two prompts. This is the same as entering "No:"

```
If addresses at NIHCU should be notified that this mail is waiting, reply YES  
Notify? (ENTER)  
If you wish to review the message before it is sent, reply YES  
Verify? (ENTER)
```

ENTER MAIL now sends the mail and confirms that it has been sent. Press ENTER at the next prompt. This signals ENTER MAIL that you do not want to file a copy of this mail item:

```
MAIL SENT TO III  
To file this, type one or more file names (separated by &), else press ENTER  
Filename? (ENTER)  
Command?
```

Before you look at the mail you've just sent, send two more pieces of mail to yourself. Then you'll have three mail items to process in different ways.

At the Command? prompt, type in the SEND command and press ENTER. The first line number appears. Type the following two-line message. When you press the BREAK key, ENTER MAIL will prompt you for the END command:

Command? **SEND(ENTER)**

Create your mail line by line, press BREAK when finished

1. ? **This is my second message.(ENTER)**
2. ? **Greetings again!(ENTER)**
3. ? **(BREAK)\*\*\***

Edit your mail, type END in response to >? when you are done  
>?

Type END (E) after the >? prompt, and press ENTER. ENTER MAIL will prompt you for the recipient's registered initials; type in your own registered initials after the To? prompt and press ENTER:

>? **END(ENTER)**

Enter the list of ids to receive the mail, or ? to display groups

To? **III(ENTER)**

Press ENTER at the next three prompts. This tells ENTER MAIL that you do not want to send copies, replies or acknowledgments to anyone else.

Type in the following subject after the Subject? prompt, and press ENTER:

Subject? **MESSAGE TWO(ENTER)**

Press ENTER at the Notify?, Verify? and Filename? prompts:

If addresses at NIHCU should be notified that this mail is waiting, reply YES

Notify? **(ENTER)**

If you wish to review the message before it is sent, reply YES

Verify? **(ENTER)**

MAIL SENT TO III

To file this, type one or more file names (separated by &), else press ENTER

Filename? **(ENTER)**

Command?

NOTE: If you have a printer attached to your NIH8188 terminal or PC, and have printer support set, you may also see

If you wish to produce a local hardcopy listing of the mail, reply YES.  
Hardcopy?

## Quick Introduction to WYLBUR

One more piece of mail. Type SEND after the Command? prompt and press ENTER. Then create the following mail item:

Command? **SEND(ENTER)**

Create your mail line by line, press BREAK when finished

1. ? **This is the last message.(ENTER)**
2. ? **Did you receive it?(ENTER)**
3. ? **(BREAK)\*\*\***

Edit your mail, type END in response to ? when you are done

>?

Since you've finished creating this mail, type in END (E) and press ENTER:

>? **END(ENTER)**

Type your own registered initials at the To? prompt and press ENTER. At the Subject? prompt, type LAST MESSAGE and press ENTER. Press ENTER at all the other prompts, until the Command? prompt reappears:

Enter the list of ids to receive the mail, or ? to display groups

To? **III(ENTER)**

Enter the list of ids to receive copies of the mail, or ? to display groups

cc? **(ENTER)**

Enter ids or ids if someone else is to receive replies

Reply-to? **(ENTER)**

Enter the userid to receive an acknowledgement

Acknowledge-to? **(ENTER)**

Subject? **LAST MESSAGE(ENTER)**

If addresses at NIHCU should be notified that this mail is waiting, reply YES

Notify? **(ENTER)**

If you wish to review the message before it is sent, reply YES

Verify? **(ENTER)**

MAIL SENT TO III

To file this, type one or more file names (separated by &), else press ENTER

Filename? **(ENTER)**

Command?

## 6.4 Receiving Mail

Now you have mail waiting. We'll use the mail you have sent yourself to show you how to process incoming mail.

To see a list of your incoming mail (your "mail index"), use the GET MAIL command:

Command? **GET MAIL(ENTER)**

You only need to use the GET MAIL command to see your mail index after you've been creating mail. When you first come into ENTER MAIL, ENTER MAIL will automatically bring in any pending mail and display your mail index.

Your mail index should look like this:

No.	Day	Date	Time	Lines	From and Subject
1	Tue	03/28/95	12:49 PM	9	III GREETINGS
2	Tue	03/28/95	12:54 PM	10	III MESSAGE TWO
3	Tue	03/28/95	12:58 PM	9	III LAST MESSAGE

Time is the time the mail was received by the computer. Mail items appear in the order in which they were sent to you.

Now you're ready to begin reading your mail. Once you have read your mail, you must tell ENTER MAIL what to do with it. You can discard your mail, or hold it for future reference. You can also try ENTER MAIL's REPLY (R) command, which allows you to respond to an incoming mail item immediately.

Begin by looking at the first mail item. Type READ and press ENTER to see the first item on the list. It should look like this:

Command? **READ(ENTER)**

== Mail item 1 of 3 -- contains 9 lines, press BREAK to stop listing ==

MAIL FROM III TUESDAY 03/28/95 12:49:59 P.M.

To: III  
 From: III  
 Date: Tue, 28 Mar 95 12:49:55 EST  
 Subject: GREETINGS

Hi!

Command?

Since you've read the item and don't need to reply, you can discard the item now. Type in DISCARD (D) after the Command? prompt and press ENTER. ENTER MAIL notes that the item will be discarded:

Command? **DISCARD(ENTER)**

Mail will be discarded.

## Quick Introduction to WYLBUR

The next mail item is automatically listed on your screen:

== Mail item 2 of 3 -- contains 10 lines, press BREAK to stop listing ==

MAIL FROM III TUESDAY 03/28/95 12:53:58 P.M.

To: III  
From: III  
Date: Tue, 28 Mar 95 12:53:58 EST

Subject: MESSAGE TWO

This is my second message.  
Greetings again!

Command?

Let's assume you want to keep this one so you can look at it another time. You will "hold" it; it will remain in your mail until you discard it. This mail will appear next time you view your mail index, marked with an "h" for "hold."

To hold this mail, type HOLD (H) after the Command? prompt and press ENTER. ENTER MAIL confirms that you have marked this item for hold:

Command? **HOLD(ENTER)**  
Mail set to HOLD status.

The third mail item is automatically listed on your screen.

You have now learned two ways to dispose of a mail item:

- . Discard the item, and
- . Hold it for future action

ENTER MAIL also makes it easy for you to reply to incoming mail. To reply to this last mail item, type REPLY (R) after the Command? prompt and press ENTER. ENTER MAIL will ask if you want to send a copy of the incoming message with your reply. Type YES and press ENTER:

Command? **REPLY(ENTER)**  
Do you wish to have the original mail included with your reply?  
Original? **YES(ENTER)**  
Create your reply line by line, press BREAK when finished

11. ?

Since the original item had 9 lines, ENTER MAIL skips a line and prompts you to begin your reply on line 11.

Now you can create your reply, just as though you were creating mail from scratch. Create the reply, "Yes, it came through loud and clear." ENTER MAIL will prompt you to either edit your reply or type END. Instead, to see your entire reply, including the copy of the original you are sending back, type LIST (L) and press ENTER:

Create your reply line by line, press BREAK when finished

- 11. ? **Yes, it came through loud and clear.(ENTER)**
- 12. ? **(BREAK)\*\*\***

Edit your reply, type END in response to >? when you are done.

>? **LIST(ENTER)**

- 1. > MAIL FROM III TUESDAY 03/28/95 3:33 P.M.
  - 2. >
  - 3. > To: III
  - 4. > From: III
  - 5. > Date: Tue, 28 Mar 95 15:33:50 EST
  - 6. > Subject: LAST MESSAGE
  - 7. >
  - 8. > This is the last message.
  - 9. > Did you receive it?
  - 10.
  - 11. Yes, it came through loud and clear.
- >?

Now type END (E) and press ENTER. ENTER MAIL prompts you for the mailing IDs to whom you're replying:

>? **END(ENTER)**

Type Reply-to ids, CCs, and mail options, or press ENTER to see a menu Mailing IDs and Options (Type \* to reply-to III):

Since you are replying to yourself, type \* and press ENTER. ENTER MAIL confirms that the mail is sent:

Mailing IDs and Options (Type \* to reply-to III): **\*(ENTER)**  
MAIL SENT TO III  
Command?

## Quick Introduction to WYLBUR

The last step is to discard the item to which you just responded: after the Command? prompt, type DISCARD (D) and press ENTER. Since you are now ready to exit ENTER MAIL, type END (E) and press ENTER. Since you've marked items for discard, ENTER MAIL checks to make sure you really want to discard them:

Command? **DISCARD(ENTER)**  
Mail will be discarded.

End of mail, type END to terminate mail handling  
Command? **END(ENTER)**

From 3 mail items, 2 are to be discarded. Is this OK? Reply YES or NO.  
OK to discard?

The mail you marked for "discard" won't be discarded until you confirm that you do want to discard it. Type YES (Y) and press ENTER.

Almost done. But wait! Because you've just sent yourself mail (the reply), ENTER MAIL will give you the chance to process that as well.

There is new mail pending, do you wish to read it? Reply YES or NO.  
Process?

Type YES (Y) and press ENTER. Your mail index appears, with the new item added. Note that the mail item you put on hold a few minutes ago now has an "h" after the item number, to show its hold status:

No.	Day	Date	Time	Lines	From and Subject
1 h	Tue	03/28/95	12:54 PM	10	III MESSAGE TWO
2	Tue	03/28/95	1:17 PM	17	III RE: LAST MESSAGE

Command?

To select mail item 2 for processing, type 2 after the Command? prompt and press ENTER.

Command? **2(ENTER)**

ENTER MAIL displays the mail you selected. Mark the item for discard: type DISCARD (D) and press ENTER:

Command? **DISCARD(ENTER)**  
Mail will be discarded.

End of mail, type END to terminate mail handling  
Command?

To leave ENTER MAIL, type END (E) and press ENTER. Answer YES (Y) to confirm the discard. ENTER MAIL will let you know that you've processed all your mail:

Command? **END(ENTER)**

From 2 mail items, 1 is to be discarded. Is this OK? Reply YES or NO.

OK to discard? **YES(ENTER)**

Processing completed -- mail contains 10 lines

?

The question mark prompt is back; you have left ENTER MAIL and returned to WYLBUR itself.

## 6.5 Summary and Next Steps

To summarize, you've been introduced to the following ENTER MAIL commands:

HELP	- See a Help menu, which you use to select the kind of help you want
?(ENTER MAIL command)	- See information about using that command
DISCARD (D)	- Discards a mail item
END (E)	- When used at the >? prompt after creating mail, signals ENTER MAIL the mail is ready to be sent. When used at the Command? prompt, allows you to exit ENTER MAIL.
ENTER MAIL	- Gives you access to WYLBUR's mail facility
GET MAIL	- Displays your mail index
HOLD (H)	- Keeps a mail item for future disposition
READ	- Allows you to read and process your mail
REPLY (R)	- Allows you to respond to incoming mail
SEND	- Tells ENTER MAIL you want to send mail. Allows you to enter your text and specify recipient, subject and other mail options.

To learn more about WYLBUR's electronic mail and the BITNET network, see the following manuals, available from the DCRT Technical Information Office:

- . ENTER MAIL at NIH
- . Using BITNET at NIH

To order a manual from the DCRT Technical Information Office, type ENTER PUBWARE at WYLBUR's ? prompt and follow the instructions. You can also call the DCRT Technical Information Office for a copy, at 4-DCRT or 4-3278 (on campus), (301) 594-3278 (commercial), 594-3278 (FTS), (301) 496-8241 (TDD), or (301) 402-0537 (FAX), or write to Technical Information Office, Customer Services Branch, DCRT, National Institutes of Health, Building 12A, Room 1017, 12 South Drive MSC 5603, Bethesda, Maryland 20892-5603.

Also, the Computer Center provides consulting help in using WYLBUR. For phone assistance, call the Technical Assistance and Support Center (TASC) at 4-DCRT or (301) 594-3278, weekdays from 9AM to 4 PM.

## Appendix - Logging On From Other Terminals

Section 3 ("Getting Started") shows you the steps to take to access WYLBUR using a PC. This appendix shows you how to access WYLBUR using other kinds of terminals.

### 1. NIH8188 Terminal and AT&T 2224B Modem

The following procedure describes how to connect to WYLBUR using a NIH8188 terminal with an AT&T 2224B modem (labeled Dataphone II). These instructions

assume that NIH8188 terminal parameters have already been set up. This is normally done by the person who delivered your equipment. Follow these steps:

1. Make sure the green modem light is on. It stays on all the time, indicating that the modem is powered on and functioning properly. All other lights should be off.
2. Turn the power on at the terminal. The green TR light on the modem will then come on.
3. Press the SETUP key on the keyboard to display the setup names on the status line at the top or bottom of the screen, then enter the digit for WYLBUR. (If standard settings are used, press the SETUP key, then press "1" to dial WYLBUR). The NIH8188 will be in dial mode (with "Dial" displayed on the status line) until the call is completed. The AUTOCALL light on the modem will come on while the modem is placing the call. The speaker will also be on while the call is being placed.
4. When the connection is completed, "On-line" is displayed on the status line at the top of the screen.

If the call doesn't go through the first time you try, then:

1. Press any key. "Dial" will disappear from the status line on your screen.
2. Repeat Step 3 above.

## 2. PSC-3101 or 5320 Terminal and Bell 212A Modem

The following procedure describes how to connect to WYLBUR using a PSC-3101 or 5320 hardcopy terminal with a Bell 212A modem (a Dataphone 300/1200). The description also explains what to do if you have a different kind of terminal. The steps will vary slightly, but not much. The steps are:

1. Turn on power to the terminal.
2. Press the DIAL button (sometimes labeled LINE or TALK) on the Dataphone and dial 4022221. The area code is 301.
3. Press the DATA button on the Dataphone when you hear a high-pitched tone or squeal.
4. Hang up the phone. (The DATA button is like a HOLD button - the connection to the computer is not lost when the DATA button is pushed and the phone is hung up.)
5. On a PSC-3101 or 5320, wait for the LINE light to turn green. This light indicates that the connection to WYLBUR is ready. The first clear light on the phone set will also be lit. Lights on other kinds of terminals may be labeled differently.
6. On a PSC-3101 or 5320, type comma (,) and then press the ENTER key. The comma begins your conversation with WYLBUR. ,GEN1 or ,37 will usually work for other kinds of terminals (see the WYLBUR Fundamentals manual for a list of terminals and what to use when signing on).

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# *Quick Introduction to WYLBUR*

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### Comments:

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