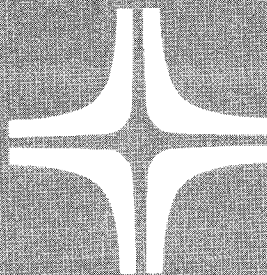


Menu Services

OS/3



Introduction

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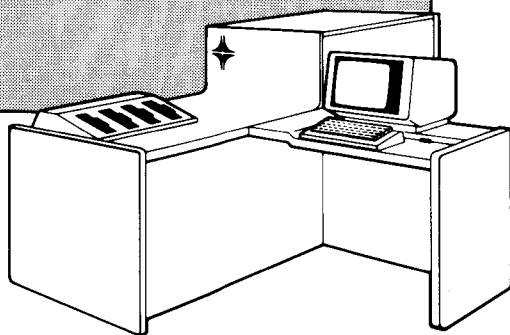
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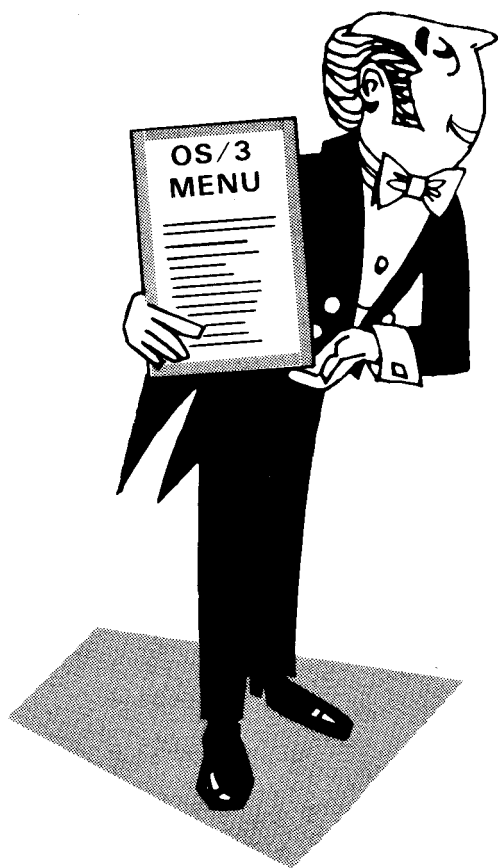
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**OS/3 MENU SERVICES LET YOU CREATE
AND USE MENUS, WHICH HELP SIMPLIFY
THE JOB OF A WORKSTATION OPERATOR.**





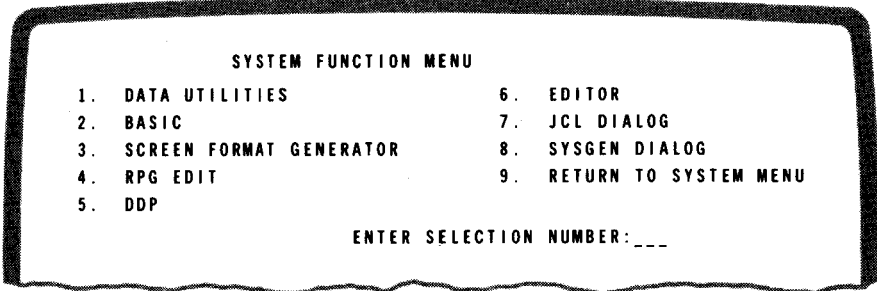
OS/3 menu services



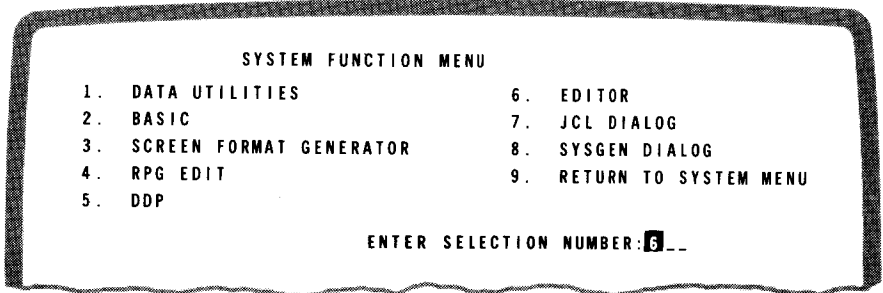
Everyone has seen menus in restaurants. Menus make it convenient for diners to choose their courses before ordering, and tell them about new and unfamiliar dishes. Now, the ease of use and convenience of menus are available to OS/3 workstation users with *menu services*.

Menu services are OS/3 routines that create and manage menus for the use of OS/3 workstation operators. This introduction briefly describes how to use menus, how OS/3 handles menus, and how you can create your own menus.

When you use a menu, you get a screen with a numbered list of items, usually actions of some kind. You choose an item and enter its corresponding number in the space provided, after which the action is performed. Usually, the menu screen reappears when the action finishes so that you can make another entry. One menu supplied by Sperry Univac that you'll often see is the system function menu:



We'll tell you shortly how to call this menu. For now, assume that it's already on the screen and that you want to run the general editor (EDITOR). You enter 6 after ENTER SELECTION NUMBER, then press the XMIT key:



(In this and all following screens, operator entries are shown as white characters against a black background.) The next screen you see is the general editor screen. When you finish using the editor and exit from it, the menu reappears so that you can make another entry.

Multiple-choice screens are not the only feature of menu services. If you are unfamiliar with an item or need to jog your memory about how to use it, you can call one or more *help screens* to explain it. You can even call a help screen to explain the menu itself.



Say, for example, that you want to know more about BASIC, which is item 2:

SYSTEM FUNCTION MENU

- | | |
|----------------------------|--------------------------|
| 1. DATA UTILITIES | 6. EDITOR |
| 2. BASIC | 7. JCL DIALOG |
| 3. SCREEN FORMAT GENERATOR | 8. SYSGEN DIALOG |
| 4. RPG EDIT | 9. RETURN TO SYSTEM MENU |
| 5. DDP | |

ENTER SELECTION NUMBER: ___

You simply enter a question mark followed by the BASIC item number in the space provided, then press XMIT:

SYSTEM FUNCTION MENU

- | | |
|----------------------------|--------------------------|
| 1. DATA UTILITIES | 6. EDITOR |
| 2. BASIC | 7. JCL DIALOG |
| 3. SCREEN FORMAT GENERATOR | 8. SYSGEN DIALOG |
| 4. RPG EDIT | 9. RETURN TO SYSTEM MENU |
| 5. DDP | |

ENTER SELECTION NUMBER: **7?** _

You then see this screen:

BASIC (THE BEGINNER'S ALL PURPOSE SYMBOLIC INSTRUCTION CODE) COMPILER PROVIDES INSTRUCTIONAL SUPPORT AND PROBLEM-SOLVING CAPABILITIES WITH AN EASILY LEARNED LANGUAGE. BASIC PROVIDES THE CAPABILITIES OF GENERATING, MODIFYING, SAVING, AND EXECUTING PROGRAMS. BASIC SUPPORTS ADVANCED LANGUAGE FEATURES SUCH AS FILES, SUBPROGRAMS, STRING HANDLING, CHAINING, USER-DEFINED FUNCTIONS, ETC. THE PROCESS OF PROGRAM ENTRY IS INTERACTIVE: THE WORKSTATION USER IS NOTIFIED OF ANY SYNTAX ERRORS AS THE STATEMENTS ARE ENTERED.

PRESS TRANSMIT TO CONTINUE

After reading the screen, you press XMIT to return to the menu. If you want more information on the menu itself, rather than any of its items, you enter a question mark, then press XMIT:

SYSTEM FUNCTION MENU

- | | |
|----------------------------|--------------------------|
| 1. DATA UTILITIES | 6. EDITOR |
| 2. BASIC | 7. JCL DIALOG |
| 3. SCREEN FORMAT GENERATOR | 8. SYSGEN DIALOG |
| 4. RPG EDIT | 9. RETURN TO SYSTEM MENU |
| 5. DDP | |

ENTER SELECTION NUMBER: 7 _ _

You then see this screen:

A SELECTION FROM THIS MENU CAUSES THE WORKSTATION TO BE ATTACHED TO THE INTERACTIVE PROGRAM SELECTED. A SELECTION OF DATA UTILITIES OR SCREEN FORMAT GENERATOR WILL CAUSE THEIR JOB STREAM TO BE EXECUTED. THE SELECTION OF AN OPTIONAL ITEM WILL CAUSE THE WORKSTATION TO BE ATTACHED TO THAT ITEM IF THE ITEM IS PRESENT IN THE SYSTEM. OTHERWISE, AN ERROR MESSAGE WILL BE DISPLAYED.

PRESS TRANSMIT TO CONTINUE

You return to the menu by pressing XMIT.

Besides calling programs, menus can call other menus. That, in fact, is how you call the system function menu. First, you enter the workstation command MENU, causing the following menu to appear on the screen:

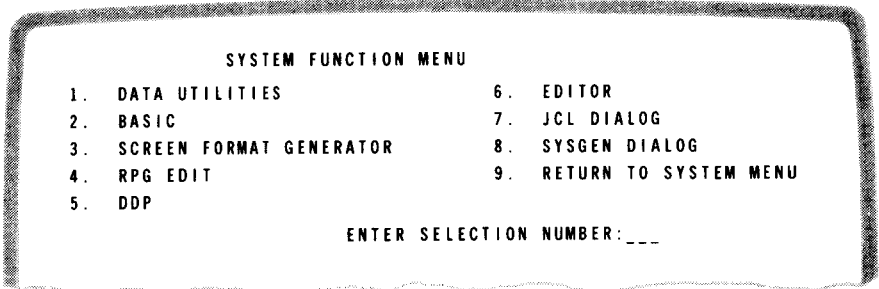
SYSTEM MENU

- | | |
|------------------------------|-------------|
| 1. RUN A JOB | 3. END MENU |
| 2. PERFORM A SYSTEM FUNCTION | 4. LOGOFF |

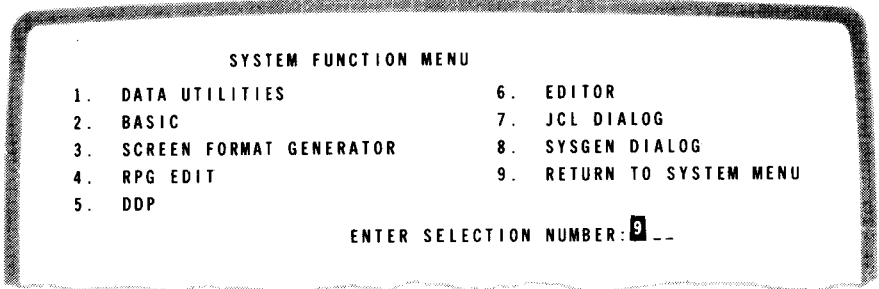
FOR HELP ON A PARTICULAR ITEM NUMBER, ENTER A QUESTION MARK FOLLOWED BY THE ITEM NUMBER (?N). HELP FOR THE ENTIRE DISPLAY CAN BE ACQUIRED BY ENTERING A QUESTION MARK (?) THEN PRESSING TRANSMIT.

ENTER SELECTION NUMBER: ___

You then select item 2, PERFORM A SYSTEM FUNCTION, calling another menu:



which is the system function menu we've been showing you. When you are finished with the system function menu, you enter 9 in the SELECTION slot:



and the system menu reappears.

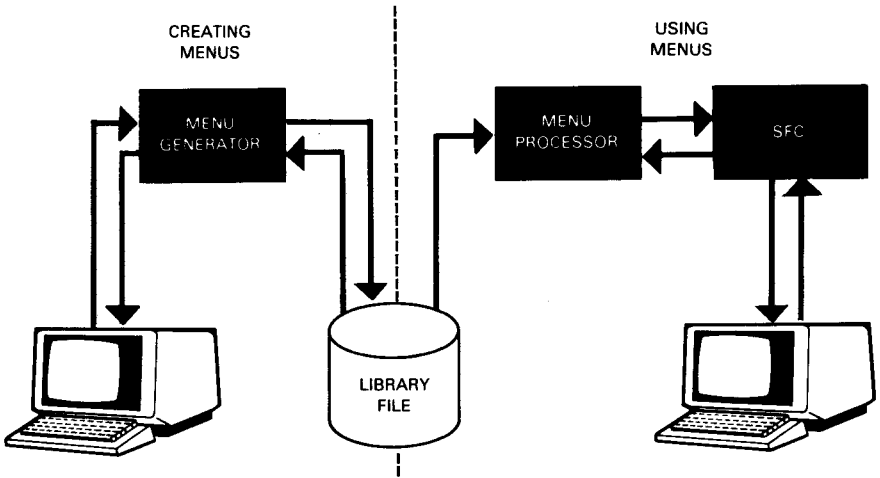
These are some of the features of menu services that you've seen so far:

- The familiar multiple-choice format of menus makes workstation use easy for an operator.
- Help screens aid inexperienced operators.
- Menus reduce operator mistakes by limiting operator entries to item numbers on a menu screen.

You can call a menu in three ways:

- With the MENU workstation command, the most common way to begin menu processing. If you enter the MENU command with no operands, you get the system menu. To get anything other than the system menu, you enter the command with one operand, the name of the menu.
- From other menus, when menu processing is underway
- From a user program. In this case, OS/3 consolidated data management and menu processing combine to treat the workstation as an input file, data being passed to the program according to the operator's reply.

Before we explain menus further, we'll show you the components of menu services because you'll be seeing more of them:



The *menu processor* is that part of interactive services that manages menus. When you call a menu, the menu processor gets the menu from a library file, displays it, accepts the operator's reply, then acts on that reply.

The *screen format coordinator* (SFC), another part of interactive services, performs the actual data display and input under direction of the menu processor.

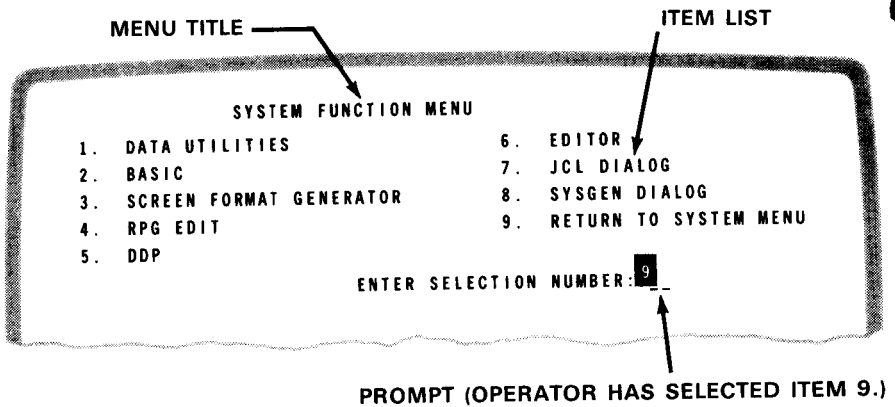
The *menu generator* lets you supplement SPERRY UNIVAC menus with menus of your own, greatly extending the range of menu services. Easy to use and flexible, the menu generator guides you through the menu creation process step by step if you're a new user, or enables you to create menus more rapidly if you're more experienced. By using the menu generator, you gain some additional advantages:

- It can take less time to train new workstation operators if you make the system itself do part of the training. This is where menus, their associated help screens, and screen format services are useful. Because the system can handle several workstations at once, each operator can learn workstation use at his own pace. Also, operators don't need to know much about OS/3 to begin with because, as you'll see, menus can themselves schedule and run programs in response to operator choices.
- Your menus need not be limited to calling programs or other menus. We've already mentioned that you can write menus that user programs call upon for certain kinds of operator input. This facility is available through job control and can be used with programs written in FORTRAN, RPG II, COBOL, and the basic assembly language (BAL).

what's in a menu?

So far we've only skimmed over menus. Let's stop and see what makes one up:

MENU SCREEN



This is the most visible part of a menu: the *menu screen*. The screen consists of:

- The menu title
- A numbered list of items. Each item describes what takes place if the item is selected.
- The prompt. Your response to the menu goes in these spaces. As noted earlier, you can reply with:

n – to perform the action associated with item #n

?n – to call the help screen for item #n

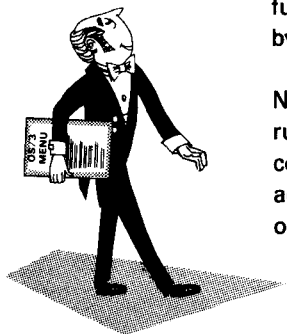
? – to call the help screen for the whole menu

ACTION TABLE

Every item on a menu performs some function when selected, such as calling a program or another menu. It's the job of the *action table*, another part of the menu, to carry out the operator's intentions. It does this with *actions*, one or more of which are associated with each menu item. An action can be a system command, a menu function command, or data.

SYSTEM COMMAND

If the menu has been called from a workstation in **SYSTEM MODE**, the command goes to interactive services exactly as if the operator had entered it in full on the workstation. Commands can be up to 72 bytes long.



Note that RV commands, which you use to call and run prefiled job control streams, are system commands. By specifying an RV command as an action item, you can call a job from a menu using only a few keystrokes.

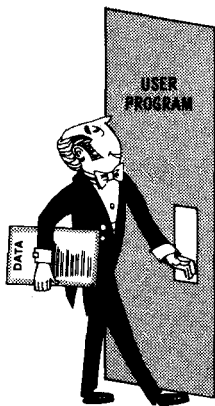
MENU FUNCTION COMMAND

These commands, which are unique to menu processing, can be used to manipulate menus or other types of screens. These include **MENU CALL**, **BACK**, **MARK**, **RETURN**, **MENU OVERLAY**, **SCREEN**, and **DISPLAY**. Some uses of these commands are to call other menu screens, return to screens previously displayed, or exit from menu processing altogether.



DATA

If the menu has been called from a user program, the data that makes up this action is simply returned to the program as input. As with system commands, you can use this facility to return up to 72 bytes of data to a program with just a few keystrokes.



Menus supplied by Sperry Univac come with their own action tables so you can use them immediately. If you plan only to use SPERRY UNIVAC menus, you don't need to concern yourself much with action tables. But, if you intend to design your own menus, the menu generator can help you construct action tables to fit your needs.

HELP SCREENS

You've already seen how to call help screens for individual menu items or for the menu itself. Like action tables, help screens come with menus supplied by Sperry Univac. And, like action tables, you can write help screens for your own menus with the menu generator.

ready-to-use menus

So far we've shown you a couple of menus supplied by Sperry Univac and some of their help screens. These two menus, the system menu and the system function menu, are called the *standard system menus*, because they are the first menus an operator usually sees. We've already told you most of what you need to know to use standard system menus. Remember that you call the system menu by entering the MENU workstation command. And, as you've seen, you call the system function menu by entering selection number 2 on the system menu.

One point to keep in mind when using standard system menus: four of the functions listed on the system function menu need complete control of the workstation; they are DATA UTILITIES, SCREEN FORMAT GENERATOR, JCL DIALOG, and SYSGEN DIALOG. If, for example, you want to run interactive data utilities from a workstation, you won't be able to until you end menu processing. You do that when the system function menu returns after you've selected DATA UTILITIES:

CALL SYSTEM FUNCTION MENU

SYSTEM FUNCTION MENU

- | | |
|----------------------------|--------------------------|
| 1. DATA UTILITIES | 6. EDITOR |
| 2. BASIC | 7. JCL DIALOG |
| 3. SCREEN FORMAT GENERATOR | 8. SYSGEN DIALOG |
| 4. RPG EDIT | 9. RETURN TO SYSTEM MENU |
| 5. DDP | |

ENTER SELECTION NUMBER: **9** __

RETURN TO SYSTEM MENU

SYSTEM MENU

- | | |
|------------------------------|-------------|
| 1. RUN A JOB | 3. END MENU |
| 2. PERFORM A SYSTEM FUNCTION | 4. LOGOFF |

FOR HELP ON A PARTICULAR ITEM NUMBER, ENTER A QUESTION MARK FOLLOWED BY THE ITEM NUMBER (?N). HELP FOR THE ENTIRE DISPLAY CAN BE ACQUIRED BY ENTERING A QUESTION MARK (?) THEN PRESSING TRANSMIT.

ENTER SELECTION NUMBER: **3** __

END MENU PROCESSING

(Execution of data utilities begins)

The system then automatically schedules data utilities, which takes control of your workstation.

want to write your own menus?

So far we've shown you how to use SPERRY UNIVAC menus. But you'll probably want to create and use menus of your own; for this purpose OS/3 has an easy-to-use program product called the menu generator. You can call the menu generator from a workstation using the command `MENUGEN`. With the generator you can create new menus, modify existing menus, or display existing menus. You do this by making menu selections or filling in blanks in response to questions the generator asks you. For any menu, you can use the menu generator to create its:

- Menu screen
- Action table
- Help screens

We won't show you all the different ways you can use the menu generator, but an example should demonstrate how easy it is to use. Let's say that you have a number of programs dealing with a company's payroll, each run from a job control stream. The job control streams include:

- **ADDPAY**, which adds new employees' records to the master payroll file;
- **UPDATPAY**, which changes employee information in the master payroll file;
- **PRINTPAY**, which prints payroll-related information; and
- **DELETPAY**, which removes employee records from the master payroll file.

You want to simplify the process by which a workstation operator calls these programs. You've already taken the first step by creating job control streams enabling an operator to call each program with a single RV statement. To call **PRINTPAY**, for example, the operator could enter:

RV PRINTPAY

But you can use a menu to simplify the process further and gain some additional benefits. Let's say you want the menu to look like this:

```
                                PAYROLL ROUTINES
1  ADD NEW EMPLOYEE RECORDS      7
2  UPDATE EMPLOYEE INFORMATION   8
3  PRINT PAYROLL INFORMATION     9
4  REMOVE EMPLOYEE RECORDS     10
5                                11
6                                12
                                ENTER SELECTION NUMBER: ___
```

To create this menu, you call the menu generator from the workstation in SYSTEM MODE:

MENUGEN

The menu generator home screen then appears:

```

      MENU GENERATOR HOME SCREEN
1.  CREATE A NEW MENU MODULE
2.  MODIFY AN EXISTING MENU MODULE
3.  DISPLAY AN EXISTING MENU MODULE
4.  END MENU GENERATOR
      ENTER SELECTION NUMBER: __

```

You want to create a menu, so you select 1 and press XMIT. The next screen to appear asks you for information the generator needs to create your menu:

```

      MENU MODULE OUTPUT INFORMATION
WHAT NAME DO YOU WANT TO GIVE THE MENU MODULE? ENTER BELOW
MENU MODULE NAME: -----
WHAT FILE LBL SHOULD THE MENU MODULE BE WRITTEN TO? ENTER BELOW
FILE LBL: -----
WHAT VSN SHOULD THE MENU MODULE BE WRITTEN TO? ENTER BELOW
VSN: -----

```

To call your menu with a MENU command, you must store it in system file \$Y\$FMT, on your SYSRES volume. Suppose you decide to call your menu PAYROLL; you would fill in the screen as follows:

MENU MODULE OUTPUT INFORMATION

WHAT NAME DO YOU WANT TO GIVE THE MENU MODULE? ENTER BELOW

MENU MODULE NAME: **PAYROLL** _

WHAT FILE LBL SHOULD THE MENU MODULE BE WRITTEN TO? ENTER BELOW

FILE LBL: **\$Y\$FMT** -----

WHAT VSN SHOULD THE MENU MODULE BE WRITTEN TO? ENTER BELOW

VSN: **RES**---

CREATING A MENU SCREEN

Menu screen creation now begins. The next menu screen to appear gives you a choice of templates, which are skeleton menus with blank items you fill in:

CREATE MENU SCREEN

1. USE THE DEFAULT MENU SCREEN TEMPLATE.
2. USE THE USER SUPPLIED MENU SCREEN.

ENTER SELECTION NUMBER: __

You choose 1, the default menu screen template provided by MENUGEN, then press XMIT. Then, you see a screen that asks you what size screen you want:

```

                WHAT SIZE SCREEN IS DESIRED?
1.  UNIVERSAL (12X64)           5.  12x80
2.  CURRENT                    6.  16x80
3.  16X64                      7.  24X80
4.  24X64

                ENTER SELECTION NUMBER:  __

```

For your purposes you need no more than 12 items, so you select the 12x80 size screen by entering 5 and pressing XMIT. Then the template itself appears:

```

                MENU SCREEN TEMPLATE
INSERT MENU SCREEN TITLE BELOW:
-----
1.  ----- 7.  -----
2.  ----- 8.  -----
3.  ----- 9.  -----
4.  ----- 10. -----
5.  ----- 11. -----
6.  ----- 12. -----
-----

```

Using the blanks you give the menu a name, PAYROLL ROUTINES, and fill in the four items we listed. The screen may look like this:

MENU SCREEN TEMPLATE

INSERT MENU SCREEN TITLE BELOW:

PAYROLL ROUTINES

1.	ADD NEW EMPLOYEE RECORDS	7.	
2.	UPDATE EMPLOYEE INFORMATION	8.	
3.	PRINT PAYROLL INFORMATION	9.	
4.	REMOVE EMPLOYEE RECORDS	10.	
5.		11.	
6.		12.	

The data you enter on this screen is then merged with an output template of the same size to form the menu screen that will be displayed when the menu is called.

CREATING AN ACTION TABLE

When you've finished creating the menu screen, you create the action table that goes with it. The process begins with this screen:

CREATE ACTION TABLE

1. CREATE ACTION TABLE (EXPERIENCED USER).
2. CREATE ACTION TABLE (INEXPERIENCED USER).
3. DISPLAY MENU SCREEN ASSOCIATED WITH THIS ACTION TABLE.
4. OUTPUT MENU MODULE TO FILE.
5. END CREATE OPERATION.

ENTER SELECTION NUMBER: __

As a new user, you may want the menu generator to give you a little extra help in creating the action table. It does this when you select item 2, by displaying this screen:

```
CREATE ACTION ENTRY TABLE FOR ITEM# 01 ACTION# 01
1. MENU FUNCTION COMMAND
2. SYSTEM COMMAND
3. DATA
ENTER SELECTION NUMBER: _ _
```

As noted, you want each item on the PAYROLL menu to represent an RV system command. The first item, for example, is RV ADDPAY. To create the action item for item 1, you fill in the screen like this:

```
CREATE ACTION ENTRY TABLE FOR ITEM# 01 ACTION# 01
1. MENU FUNCTION COMMAND
2. SYSTEM COMMAND
3. DATA
ENTER SELECTION NUMBER: 2 _
```

After you press XMIT, this screen appears:

```

                                SYSTEM COMMANDS (PART 1)
1 ALLOCATE      8 COMMENT      15 ENTER      22 HOLD
2 ASK           9 CONNECT      16 ERASE      23 IN
3 BASIC         10 COPY         17 FILE       24 LOGON
4 BEGIN         11 DDP          18 FREE       25 LOGOFF
5 BRKPT         12 DELETE      19 FSTATUS    26 MENU
6 CANCEL        13 DISPLAY     20 GO         27 ENTER ACTION
7 CHANGE        14 EDT         21 HELP       28 NEXT MENU

                                ENTER SELECTION NUMBER: ---

```

For most of these system commands you get a help screen describing the command. But since you already know what command you want to enter, you enter selection 27, ENTER ACTION, then press XMIT. You then see this screen:

```

ENTER SYSTEM COMMAND BELOW:
-----

```

You enter the command:

```

ENTER SYSTEM COMMAND BELOW:
RV ADDPAY-----

```

then press XMIT. You have just created an action for item 1; the menu generator now asks you what to do next, using this screen:

```

                                NEXT ACTION
1.  ANOTHER ACTION FOR SAME ITEM #  5.  DISPLAY MENU SCREEN
2.  ACTION FOR NEXT ITEM #           6.  WRITE MENU MODULE TO FILE
3.  ACTION TABLE IS COMPLETE       7.  END CREATE OPERATION
4.  DISPLAY ACTION TABLE

                                ENTER SELECTION NUMBER:  __

```

By entering 2, you can create the action for the next item number; by repeating this process, you create actions for all four menu items. After finishing with the last menu item, you enter selection 3, ACTION TABLE IS COMPLETE, and proceed to the next stage of menu generation, help screens.

CREATING HELP SCREENS

So far, you've created a menu in which each item gives a brief narrative description of its payroll-related program. But workstation operators, especially new ones, may need more help in understanding what each program does, when to run it, how to run it, and so on. You can give them that help by creating help screens for each item on the menu, and for the menu itself. Help screen creation begins when MENUGEN displays this screen:

```
ENTER SELECTION NUMBER: ---  
  
CREATE HELP SCREEN FOR ITEM# 00  
1. USE DEFAULT HELP SCREEN TEMPLATE  5. DISPLAY ACTION TABLE  
2. USE AN EXISTING HELP SCREEN        6. WRITE MENU MODULE TO FILE  
3. NO HELP FOR ITEM                   7. HELPS ARE COMPLETE.  
4. DISPLAY MENU SCREEN                END CREATE  
  
ENTER SELECTION NUMBER: __
```

Item 00 means that this help screen is the one that tells you about the entire menu (which you get, remember, by entering only a question mark in the ENTER SELECTION slot). Suppose you want to use MENUGEN itself to write the help screen. You do so by entering selection 1, then pressing XMIT, after which this screen appears:

WHAT SIZE HELP SCREEN TEMPLATE?

- | | |
|----------------------|----------|
| 1. UNIVERSAL (12X64) | 5. 12X80 |
| 2. CURRENT | 6. 16X80 |
| 3. 16X64 | 7. 24X80 |
| 4. 24X64 | |

ENTER SELECTION NUMBER: __

This screen serves the same purpose as the screen size menu seen when creating the menu screen. You choose a size for the help screen, enter its item number, and press XMIT. Since you chose a 12x80 menu, you can also choose 12x80 help screens by entering selection 1. When you've done so, you get a blank screen upon which to write your menu. For our payroll example, a help screen for the PAYROLL menu could go something like this:

THIS MENU LISTS JOBS YOU CAN CALL TO MAINTAIN THE MASTER PAYROLL FILE. EACH JOB HAS A DIFFERENT FUNCTION - ADDING NEW EMPLOYEE RECORDS, UPDATING EXISTING RECORDS, ETC. YOU CALL A JOB BY KEYING IN ITS ITEM NUMBER WHERE THE MENU ASKS YOU TO, THEN PRESSING XMIT. IF YOU NEED MORE INFORMATION ABOUT ANY OF THESE ITEMS, KEY IN A QUESTION MARK FOLLOWED BY THE ITEM NUMBER. WHEN YOU ARE FINISHED USING THIS MENU, LEAVE IT BY HOLDING DOWN THE FUNCTION KEY WHILE PRESSING THE F14 KEY. THIS RETURNS THE WORKSTATION TO SYSTEM MODE.

PRESS XMIT TO CONTINUE.

Your workstation has several editing and cursor control keys with which you can move screen text around until the screen appears just the way you want it to. When it does, you finish creating it by pressing XMIT. MENUGEN then displays this screen:

CREATE HELP SCREEN (CONT'D)

1. ANOTHER HELP SCREEN FOR SAME ITEM
2. HELP SCREEN FOR NEXT ITEM
3. HELP SCREENS ARE COMPLETE, END CREATE OPERATION

ENTER SELECTION NUMBER: __

You can create more help screens for the current item (selection 1) or go on to a help screen for the next item (selection 2). After the help screen for the menu itself, the menu generator asks for help screens for item 1, item 2, and so on. When you've created all the help screens you're going to, you've finished the menu and are now ready to use it. First terminating MENUGEN, you call your payroll menu by entering:

MENU PAYROLL

and pressing XMIT. The payroll menu then appears:

```

                                PAYROLL ROUTINES
1. ADD NEW EMPLOYEE RECORDS    7.
2. UPDATE EMPLOYEE INFORMATION 8.
3. PRINT PAYROLL INFORMATION   9.
4. REMOVE EMPLOYEE RECORDS    10.
5.                               11.
6.                               12.

                                ENTER SELECTION NUMBER: ___
```

And you use it as we described earlier. To call program ADDPAY, for example, you enter:

```

                                PAYROLL ROUTINES
1. ADD NEW EMPLOYEE RECORDS    7.
2. UPDATE EMPLOYEE INFORMATION 8.
3. PRINT PAYROLL INFORMATION   9.
4. REMOVE EMPLOYEE RECORDS    10.
5.                               11.
6.                               12.

                                ENTER SELECTION NUMBER: 1 ___
```

When you press XMIT, the system gets job control stream ADDPAY and submits it to the run processor, all with only a few keystrokes.

summary

You've seen how easy it is to use menus to call SPERRY UNIVAC system programs. And, as our payroll example shows, you can extend menu services to your own programs, with these benefits:

- You can simplify the process by which an operator can call programs.
- You can program the system itself to teach new operators and to provide immediate, on-the-spot help to any operator who wants it.

Each of these benefits alone increases productivity. Together they make menu services a powerful and easy-to-use programming tool.

Want more information about menu services? Ask your Sperry Univac representative to order you a copy of the menu services concepts and facilities, UP-9317 (current version). It gives you detailed information about all aspects of menu services, as well as practical examples and illustrations.





