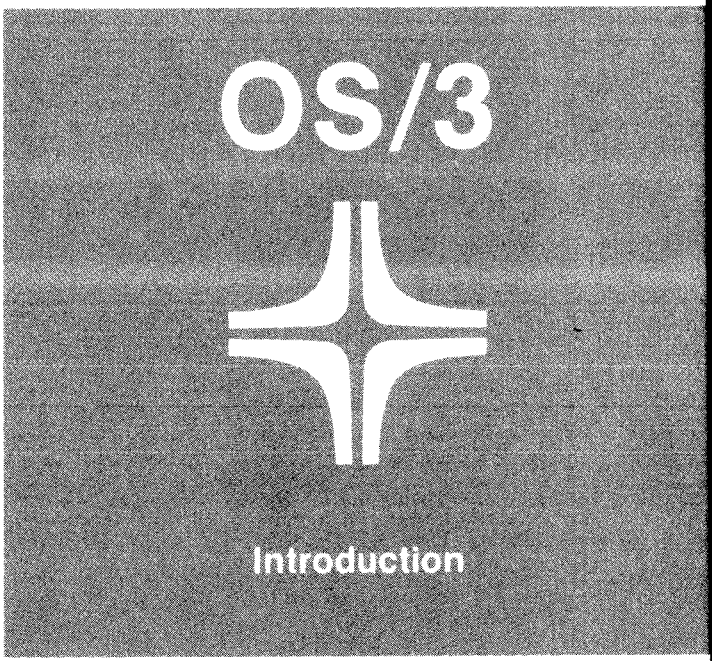
System Service Programs



SPERRY UNIVAC

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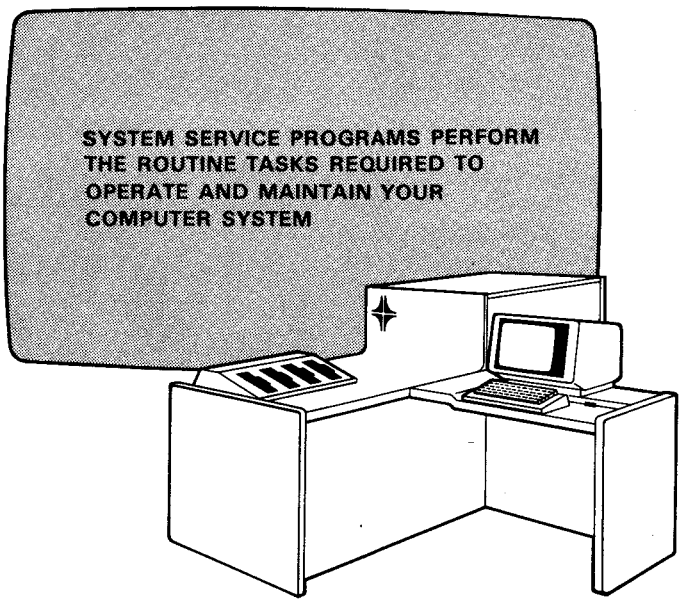

SYSTEM SERVICE PROGRAMS PERFORM
THE ROUTINE TASKS REQUIRED TO
OPERATE AND MAINTAIN YOUR
COMPUTER SYSTEM

performing routine maintenance tasks

Precious time, money, and manpower would be wasted if your skilled professionals, in addition to their regular duties, had to perform some of the routine tasks required to operate and maintain a business. The same is true in your data processing efforts. Your programming personnel would not be using their skills efficiently if they had to spend hours each day writing programs to support the operation and organization of your computer system.

To free your personnel from these routine yet essential chores, SPERRY UNIVAC Operating System/3 (OS/3) provides a set of easy-to-use routines, called system service programs, that perform many of these tasks for you.

The system service programs fall into three categories:

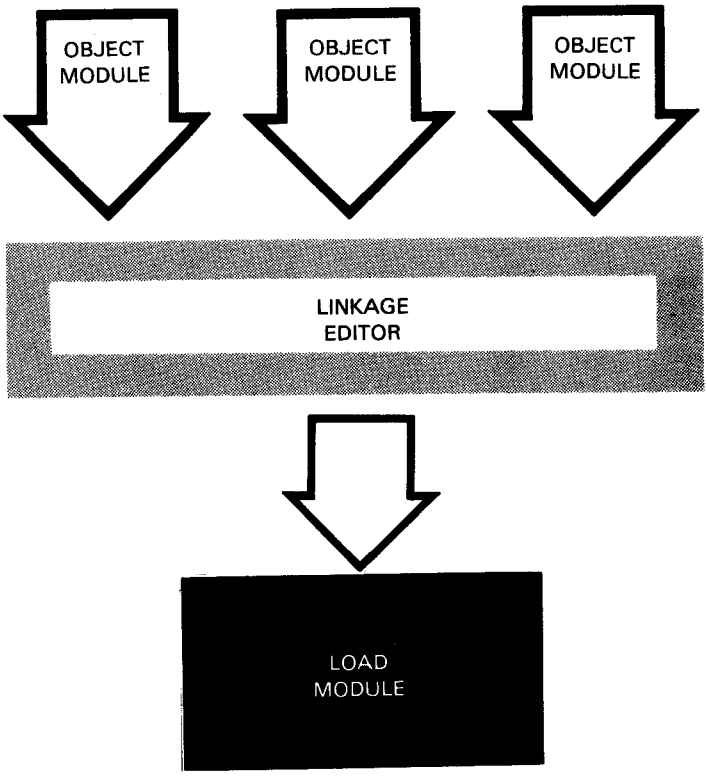
- The linkage editor
- The librarians
- The system utilities

linkage editor

A series of logically related instructions, such as a COBOL or RPG program, is referred to as a *source module.* Before this source module can actually be executed, however, it must undergo two important changes.

First, the source module must be translated into a language the computer understands. This step is performed by the system's compiler, which produces an object module. Secondly, the object module must be converted into a module that can be loaded into the system and executed. This is where the OS/3 linkage editor takes over. The linkage editor converts the object module into an executable *load* module.

THE LINKAGE EDITOR CONVERTS OBJECT MODULES INTO EXECUTABLE LOAD MODULES



The linkage editor is easy to use because it is initiated through simple control statements that are submitted to the system as part of your job's control stream. These control statements enable you to structure the load modules by providing the linkage editor with such information as: which object modules are to be processed by the linkage editor, what type of load module is to be created, and where the load module is stored.

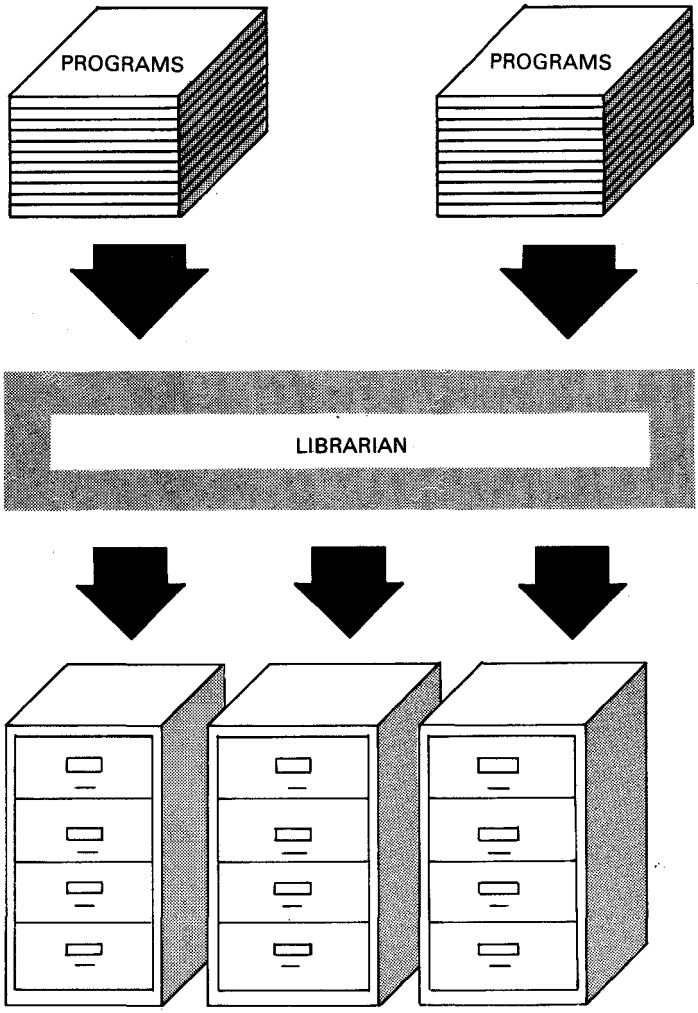
Using the linkage editor, you can combine a number of object modules to form a single load module that is executed in one step. You can also use the linkage editor to create a load module that is loaded into main storage and executed one section, or *phase*, at a time. This *multiphase* load module occupies less main storage space, leaving more space for other processing requirements.

librarians

Imagine the difficulty you would have trying to find a book in your public library if the thousands of volumes stored there were placed randomly on shelves with no systematic method of referencing them. You could end up spending hours, even days, searching for the information you need. Without a librarian to manage and maintain this vast amount of information, a library would be impossible to use effectively.

Your system's program library files would be just as difficult to use if they were not maintained properly. Therefore, Sperry Univac has developed the OS/3 librarians to help you perform any required maintenance tasks.

THE LIBRARIANS MANAGE AND MAINTAIN YOUR PROGRAM LIBRARY FILES



You direct the operation of the librarians by submitting control statements to the system through your job's control stream. These control statements can instruct the librarians to add, compress, duplicate, or delete selected portions of your program library files. The librarians can also help you correct and rename programs within your library files, and print listings of the contents of each file, the entries you made, and all of the operations performed by the librarians.

system utilities

The main function of any computer system is to convert raw data into useful, organized information. However, various utility operations are often required to support this function. To save you the time and trouble of writing programs to perform these minor operations, Sperry Univac provides a number of system utility programs that are easy to use. The system utilities are:

- the disk prep routine;
- the assign alternate track routine;
- the tape prep routine;
- the disk dump/restore routine;
- the system utility patch routine; and
- print utilities.

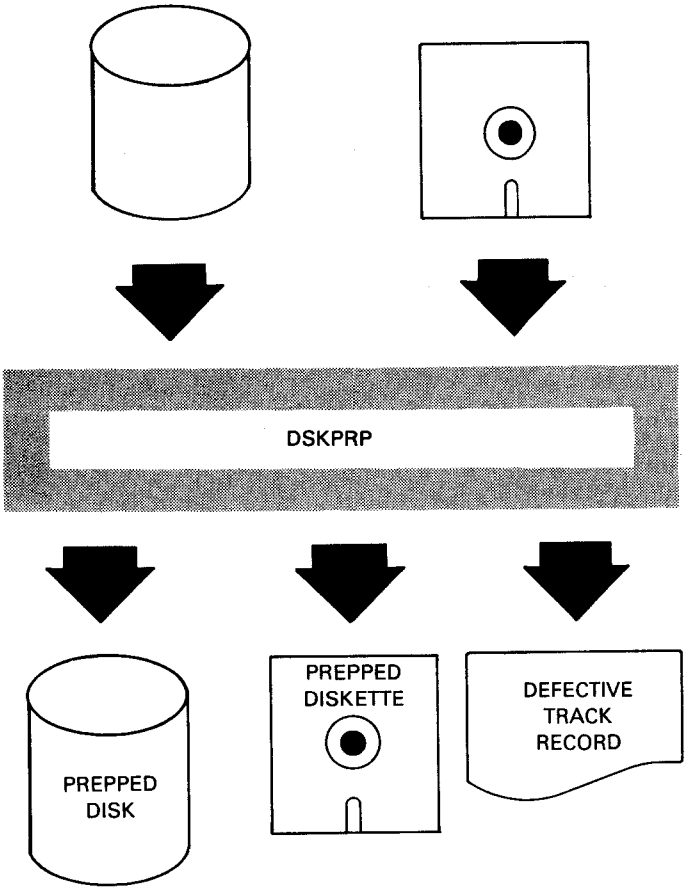
DISK PREP ROUTINE

Before any of your disks can be used to store information, they must first be initialized, or *prepped.* You perform this prepping operation by using the disk prep (DSKPRP) routine.

The disk prep routine has two major functions. First, the data storing areas, or *tracks*, on the surface of your disk must be checked for defects. The disk prep routine performs this surface check for you, keeps a record of any defective tracks, and, if necessary, assigns alternate tracks to replace the defective tracks. The disk prep routine's second function is assigning a volume serial number for identification purposes, allocating an area for the volume's table of contents, and specifying whether the disk is to be used as a system resident or data file volume.

In addition to prepping disks, you can use the disk prep routine to prep diskettes. When you're prepping the diskette, you specify how records are to be written and formatted on the diskette as well as whether the diskette is to be used as a system resident device or a card image device.

THE DISK PREP ROUTINE CAN INITIALIZE EITHER DISKS OR DISKETTES



ASSIGN ALTERNATE TRACK ROUTINE

The assign alternate track routine allows you to assign alternate tracks to suspected defective tracks without affecting any data currently on your disk. Once an alternate track is assigned, records from the defective track are copied to the alternate track, and any records in error are listed on the printer. You can correct these errors by keypunching the correct records on cards and running the assign alternate track routine again.

TAPE PREP ROUTINE

When magnetic tapes are shipped to you from the factory, they are blank. Therefore, before you can use them, you must prep them by assigning a volume serial number and a unique file name. Sperry Univac provides you with two methods of prepping your tapes. You can prep a single tape by specifying the prep option on the VOL job control statement, or you can use the tape prep routine. The tape prep routine can prep up to 36 tapes in one execution.

DISK DUMP/RESTORE ROUTINE

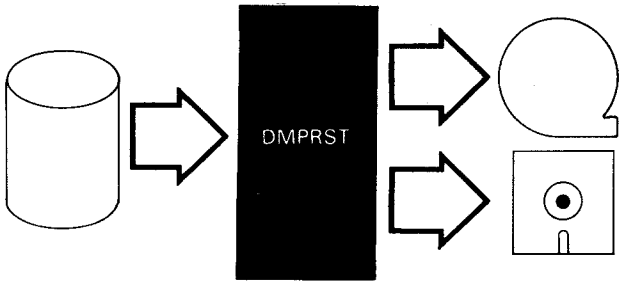
During the course of your system's operation, you will probably want to create backup copies of your data files or program libraries. You could build these backup files from scratch, but this procedure is tedious and time-consuming. The best way to create backup files is to copy them directly from existing files. The disk dump/restore routine offers just such a capability.

Using the disk dump/restore routine, you can:

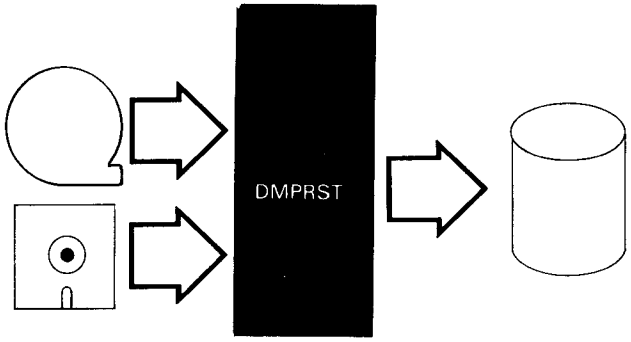
- Copy all or any part of a disk to a magnetic tape or diskette (a dump operation)
- Copy a magnetic tape or diskette to a disk (a restore operation)
- Copy all or part of a disk to another disk (a disk copy operation)
- Copy a tape created by a previous dump/restore operation to another tape (a tape copy operation)
- Copy a diskette created by a previous dump/restore operation to another diskette (a diskette copy operation)

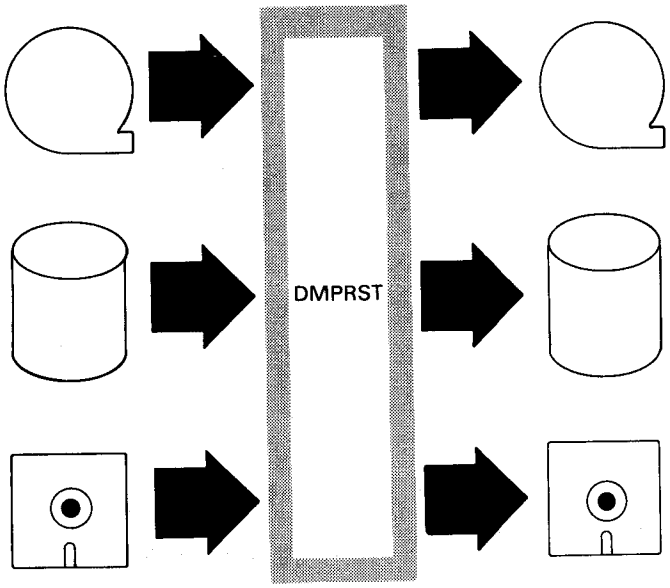
THE DUMP/RESTORE ROUTINE ALLOWS YOU TO DUMP, RESTORE, AND COPY DISKS, TAPES, AND DISKETTES

DUMP OPERATION



RESTORE OPERATION





COPY OPERATION

You can perform the dump, restore, and copy operations on either a volume or file basis. The dump/restore routine is controlled by certain parameters that you specify in your job control stream.

SYSTEM UTILITY PATCH ROUTINE

Many system-supplied routines do not reside in your system's main storage area while the system is operating. These routines, called *transients*, are located on you system resident volume and are loaded into main storage when needed.

Whenever a transient routine for a particular release is in error or needs to be modified, Sperry Univac supplies changes, or *patches*, to correct the problem area. The system utility patch routine enables you to make the necessary changes to the transient routines.

To submit the supplied patches, you execute the system utility patch routine by just keying in a 1-word command on the system console or workstation.

PRINT UTILITIES

Sperry Univac provides you with two print utilities that will generate listings of important information contained on your system resident disk pack. These print utilities are:

- PTLIST utility
- PRTSRD utility

You can use the PTLIST utility to print a record of every patch made on your system. This record, called a patch history table, appears in two sections: a listing of the patches in the order they were applied, and a numerically sorted listing of the patches.

The PRTSRD utility enables you to print a software release description (SRD) that describes the current functionality of your OS/3 system software.

Both of these utilities are simple to use. They are executed by keying in their respective program names on the system console or workstation.

batch or interactive environment?

You can use the OS/3 system service programs interactively or in a batch processing environment.

In a typical batch environment, you construct a job control stream by coding your program on a keypunch form, keypunching the statements, and then giving the punched cards or diskettes to a computer operator, who submits the job to the computer.

In an interactive environment, you communicate directly with the computer through a workstation. In this environment, you build a job control stream from the workstation, run the job from the workstation, and, if you want, have the results of the job displayed on the workstation screen. No operator intervention is required. You can also store a job created at the workstation in a library file. Later, you run it by keying in a simple run command.

other system facilities

There are a number of other system facilities that Sperry Univac provides to make your system easier to use. They are:

- the system log accumulation utility;
- the JOBLOG report program;
- the catalog manipulation utility; and
- dump routines.

The system log accumulation utility and the JOBLOG report program are optional facilities that extend your system's software.

SYSTEM LOG ACCUMULATION UTILITY

If your system includes the spooling option, two kinds of logs can be recorded on your system spool file – a console log (containing an exact copy of the messages displayed on your system console) and a job log (containing job-related information). The system log accumulation utility allows you to transfer job log or console log records from your system spool file to a disk or tape where it can be used as data for bookkeeping and accounting purposes.

JOBLOG REPORT PROGRAM

Once a job log file is transferred from the spool file to disk or tape using the system log accumulation utility, you can use the JOBLOG report program to produce an accounting report. This accounting report shows such job-related information as the run time, account number, elapsed time, and name of the job.

CATALOG MANIPULATION UTILITY

The catalog manipulation utility enables you to maintain the system catalog file. This file contains file information needed by a job to access user files on disk or tape. You can use the catalog manipulation utility to: obtain a printout of the contents of the catalog file; assign, delete, or change a catalog password; or copy the catalog manipulation utility to another tape or disk volume.

DUMP ROUTINES

The dump routines provide you with a means of locating the software or hardware error within your system that may have caused the abnormal termination of your job or a system crash. There are three dump routines available for you to use:

- the system dump routine;
- the job dump routine; and
- the user end-of-job (EOJ) dump routine.

The system dump routine translates and prints a listing describing the state of your operating system in the event of an abnormal termination. Once this listing is generated, you can analyze it to determine the cause of the termination.

The job dump routine, a scaled-down version of the system dump routine, prints a listing describing the state of the area of main storage a particular job was using at the time of an abnormal termination. You can use this listing to determine what caused the job to terminate abnormally.

If your job terminates abnormally, the user end-of-job (EOJ) dump routine will automatically print a dump listing for you. Like the system and job dump routines, the user EOJ dump routine provides information about the state of your operating system that you use to determine the cause of the termination.

summary

The SPERRY UNIVAC OS/3 System Service Programs handle the day-to-day maintenance of your computer system. These easy-to-use programs

- linkage editor
- librarians
- system utilities

save time, money and manpower by freeing your data processing personnel from routine maintenance tasks.