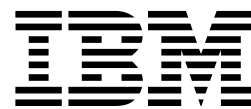


IBM VSE/Enterprise Systems Architecture

Operation

Version 2 Release 4



IBM VSE/Enterprise Systems Architecture

Operation

Version 2 Release 4

Note!

Before using this information and the product it supports, be sure to read the general information under "Notices" on page xiii.

Second Edition (June 1999)

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Year 2000 Ready

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This manual provides information about I/O devices which are supported by VSE/ESA. Some of these devices are no longer available or would not be able to handle the Year 2000 dates correctly, although they can still be used, for example, in emulation mode. Providing support for those devices does not mean that the real devices are still available or that they are Year 2000 ready.

About This Book

This manual describes the main operation tasks in VSE/ESA. It contains information on system startup and shutdown as well as on how to run and control system processing of VSE/ESA.

The manual is divided into five parts:

- **Part 1** gives an overview of common operator tasks and contains information you may need for getting started. It contains, for instance, supplemental information on basic terms and system use of VSE/ESA.
- **Part 2** shows various methods you can use to communicate with VSE/ESA.
- **Part 3** has information about system startup and shutdown.
- **Part 4** deals with operator commands that can be entered from the VSE/ESA console. Information on the VM/VSE interface is also provided here.
- **Part 5** describes operator tasks that can be performed by using Interactive Interface dialogs.

Please note that the panels in this manual are examples only. They operate with numbers that do not necessarily reflect realistic values.

Who Should Use This Book

This manual is intended for operators who perform tasks such as:

- Starting up the system
- Operating and controlling the system
- Shutting down the system.

Knowledge of the system hardware (for example, how to operate the console, the tape devices, and the printers) is needed. The hardware publications delivered with your equipment contain the necessary information.

Where to Find More Information

The following IBM VSE/ESA manuals contain further information on aspects covered in this manual:

- *VSE/ESA Administration*, SC33-6705
- *VSE/ESA Diagnosis Tools*, SC33-6614
- *VSE/ESA Guide for Solving Problems*, SC33-6710
- *VSE/ESA Installation*, SC33-6704
- *VSE/ESA System Upgrade and Service*, SC33-6702
- *VSE/ESA Planning*, SC33-6703
- *VSE/ESA System Control Statements*, SC33-6713
- *VSE/ESA System Utilities*, SC33-6717
- *VSE/ESA Guide to System Functions*, SC33-6711

- *VSE/ESA Networking Support*, SC33-6708

The following IBM manuals may also be helpful:

- *VSE/POWER Administration and Operation*, SC33-6733.
- *VTAM Operation*, SC31-6495
- *CICS Report Controller Planning Guide*, SC33-1009
- *CICS CICS-Supplied Transactions*, SC33-0710
- *VSE/ICCF Administration and Operation*, SC33-6738.

VSE/ESA Home Page

VSE/ESA has a home page on the World Wide Web, which offers up-to-date information about VSE-related products and services, new VSE/ESA functions, and other items of interest to VSE users.

You can find the VSE/ESA home page at:

<http://www.ibm.com/s390/vse/>

Summary of Changes

This manual has been updated to reflect changes and enhancements for VSE/ESA 2.2, VSE/ESA 2.3, and VSE/ESA 2.4. It also includes terminology, maintenance, and editorial changes.

Getting Ready to Operate VSE/ESA

Chapter 1. Basic Operation Tasks

Your equipment will be delivered with operating instructions. You should study those instructions and become familiar with your hardware before using this manual.

Once you have done this, you are ready to start performing VSE/ESA operation tasks. These tasks include:

- Starting up the system.
- Operating and controlling the system.
- Shutting down the system.

If you experience a problem that you cannot solve using this manual, consult the *VSE/ESA Guide for Solving Problems* manual or notify your system administrator.

Starting the System

Before starting up the system, you should do the following to prepare it for operation:

1. Switch On the Hardware

Turn on the power for the processor and any other attached I/O devices. Then perform *power-on reset* (on earlier processors *Initial Microprogram Load*, or IML). Once power-on reset is finished, you can start up VSE/ESA.

2. Start Up VSE/ESA

To get the system running, you perform a *system startup*. You initiate the startup by performing IPL. During startup the following message may appear:

```
IESI0211I  ALL PARTITIONS WILL BE INITIALIZED IN WARM START MODE
```

A WARM startup is the normal way to bring up the system and in most cases you will not want to interrupt this procedure.

In addition to a WARM startup there are other startup modes. All startup modes are described in detail under "Using VSE/ESA Startup Modes" on page 71.

Once system startup has finished, the system is "up" (ready for work).

Operating and Controlling the System

When the system is running, your intervention may be required on some occasions.

Controlling System Hardware

You may have to change printer forms or mount magnetic tapes or cartridges. You may want to keep an installation log sheet with status information, reports of errors, and so on, depending on procedures established at your installation.

Controlling System Processing

A running VSE/ESA system usually needs little attention. If the system does need additional information before it can continue (for instance, more input or a response) a *message* will appear on the console screen. Such system messages are the main way by which VSE/ESA communicates with you. You will find these messages and the actions to take in response to them in the *VSE/ESA Messages and Codes* manual.

You have to answer some of these messages by entering a *response* or one or more *commands*. Through commands you control operations such as scheduling jobs for execution or for printing, and stopping or restarting operations.

You may also see messages issued from application programs. Please consult your system administrator for information on responding to these types of messages.

Shutting Down the System

Maybe at the end of the day, or possibly for system maintenance, VSE/ESA will be shut down. Chapter 6, "Shutting Down the System" on page 75 describes how to do this. After the shutdown procedure has finished, you can turn off the equipment.

Chapter 2. What You Should Know Before Starting

Hardware Configuration List

Your VSE/ESA system administrator provides you with a hardware *configuration list*. This is a list of all *input/output (I/O)* devices attached to your processor. It should include the address of each device, its location, and other applicable information. Be sure to have this list available when you operate your VSE/ESA system.

Each I/O device in your system's configuration has an I/O device address (also called *device number*) which consists of three characters in the range 0 to 9 and A to F. It is a good practice to write down the address of a particular device on an external label and to attach this label at the device.

The I/O device address is created by the system. As a result, the three characters form an arbitrary number.

In this and other publications, the I/O device address is often represented by the placeholders *cuu*. This was the common representation in earlier releases when *cuu* meant to reflect the three entities Channel, control Unit, device Unit.

Online and Batch Processing

VSE/ESA supports two methods of processing data: batch processing and online processing.

In *batch* processing, all data for a job is gathered before the processing (or execution) of that data is requested. Normally, several batch jobs can be processed concurrently. In most cases, you are not required to attend the system during processing of the job.

In *online* processing (also called *interactive* processing), the system processes data as it is being entered. A program running under this method may stop to request an answer from you and then proceed based on your reply. You will normally be working at a display station.

Static and Dynamic Partition IDs

VSE/ESA supports two types of partitions: *static* and *dynamic* partitions.

While the system is up and running, static partitions are continuously present. Dynamic partitions are created and activated only as needed. Also, the space which dynamic partitions occupy during job processing is released when processing is finished.

Some batch jobs may be restricted to either static or dynamic partitions. Your system administrator will tell you which batch jobs require specific partitions to run.

You can distinguish between static and dynamic partitions by their differing partition identifiers (IDs).

Predefined VSE/POWER Queues

Static Partition IDs

VSE/ESA supports up to 12 static partitions. These are indicated by the following identifiers:

BG
F1 to F9
FA, FB.

Dynamic Partition IDs

Dynamic partitions have their own partition identifiers. These are indicated by the following identifiers:

- The first character may be any alphabetic character **except A, B, F**. The first character shows the class to which a dynamic partition belongs.
- The second character (1-9 or A-W) identifies a dynamic partition within a class.

For example, **P1, W3, KL** could be dynamic partitions IDs.

Dynamic partitions are grouped into classes which correspond to VSE/POWER execution job classes. Your system administrator defines dynamic classes and the number of dynamic partitions running in each dynamic class in tables called *Dynamic Class Tables*. Ask your system administrator for a list of your specific partition configuration.

Because some operator commands are restricted or not valid for dynamic partitions, you should distinguish between static and dynamic partitions carefully. For a list of valid and restricted operator commands, see Figure 50 on page 217.

For further details on how to control batch jobs in dynamic partitions, see Chapter 9, "Controlling Job Execution" on page 85.

Predefined VSE/POWER Queues

VSE/ESA uses the *batch queues* provided by VSE/POWER to process batch program input and output:

- *Reader (RDR) queue*

All input for batch processing (jobs) is stored in this queue and waits there to be processed.

- *List (LST) queue*

This is the primary output queue. The output of jobs is stored here.

- *Punch (PUN) queue*

This is another output queue, which stores punch output such as:

- Output produced by compilers (object decks, for example).
- Output produced by application programs.
- Data sent from other systems to be placed in a VSE/ICCF library.
- Output for card punches of RJE (Remote Job Entry) workstations.

- *Transmit (XMT) queue*

The transmit queue is primarily used if you are part of a network. This queue stores data (both input and output) to be sent to another system in the network.

- *Wait for Run Subqueue*

This is a subqueue of the RDR queue. The Wait for Run Subqueue only contains jobs scheduled for run time events to come.

VSE/POWER Queue Entries

A collection of related data identified by name and number in one of the queues is called a *queue entry*. Each queue entry also has characteristics like

Priority
Disposition
Class.

VSE/POWER processes the queue entries automatically. Normally, you do not have to intervene. However, some queue entries are held in a queue and not processed (entries with disposition H, for example). In order to release such a queue entry for processing, you will have to change the disposition.

You may have to change the priority of a queue entry in the list queue to expedite printing. You may also have to change the disposition or class to hold a queue entry from processing or printing until a printer or printer forms are available. In order to perform such tasks, you must know which queue entries need rescheduling.

Priority

When two queue entries have the same class and are both available for processing, the one with the higher priority will be processed. The priority of a queue entry can vary from 0 to 9. Normally you should only use priority 0 to 8, because VSE/ESA uses priority 9 for some system queue entries that must be processed as soon as possible. The default priority, as specified in the POWER generation macro, is 3.

Disposition

Each queue entry in a VSE/POWER queue has a disposition assigned. Following are the dispositions that occur most frequently:

D (dispatch)	The queue entry is available for immediate processing. It is deleted from the queue after being processed.
H (hold)	The queue entry remains in the queue until you change its disposition or delete it.
K (keep)	The queue entry is available for immediate processing. It stays in the queue with disposition L after being processed.
L (leave)	The queue entry remains in the queue until you change its disposition or delete it.

VSE/POWER Queue Entries

Other dispositions that occur less frequently are:

Y (fail)	The queue entry is held by a subsystem or application program request because output processing failed. The entry cannot be processed until changed.
X (incomplete)	The queue entry is incomplete because of a system or program failure. It is unavailable for normal processing and cannot be processed until the disposition is changed.
A (append)	Spool data may be added to the queue entry via spool-access support.

Note: An asterisk (*) means that the entry is being processed.

Class

Classes are used to group queue entries with similar requirements. For example, all queue entries in the reader queue with class 0 are normally processed in partition BG. By convention, all queue entries with class Q are designed to be viewed at a display station instead of being printed. A special output class may also be used to group all queue entries in the list queue that require a specific form.

Classes used for dynamic partitions may also be used for static partitions. If both a *dynamic class* and a static partition with the same class are ready to receive a job, a dynamic partition will be started *first* to process the job. You can use the **SET DYNAL=LOW** command to specify that a static partition will be started first to process the job.

For more information about disposition, priority, and class, refer to the chapter "Planning for VSE/POWER" in the IBM manual *VSE/POWER Administration and Operation*.

Error Situations

Errors may occur during operation. There may be errors in control statements or programs, or a device may have a read or write error. You may have mounted a wrong tape for a program, or data required for processing may not be found on the specified disks.

If further processing is not possible because of an error condition, you should collect as much information as possible on the status of the program and the system at the time the error occurred. This helps the system administrator or the programmer to analyze and solve the problem.

The *VSE/ESA Guide for Solving Problems* manual describes what you can do to collect information when an error occurs.

Some useful utilities you can use to gather information are listed under Appendix E, “Available VSE/ESA Utilities” on page 221 in this manual.

The *VSE/ESA Messages and Codes* manual gives you the actions to take in response to messages that the system may issue. The introduction to the messages manual contains a description of the meaning of message numbers and action indicators associated with messages. Also, from a VSE/ESA console, you can go into *explanation mode* to obtain **online** the same information that is provided in the *VSE/ESA Messages and Codes* manual. See also section “Displaying Message Explanations” on page 41.

If a console message tells you to enter a certain command, you can find details in the *VSE/ESA System Control Statements* manual or the respective component manual.

Error Situations

Chapter 3. Operating a Turbo Dispatcher Environment

Activating the Turbo Dispatcher

In releases prior to VSE/ESA 2.4, the Turbo Dispatcher had to be activated by specifying "T" in the fifth position of the IPL load parameter. With VSE/ESA 2.4 this is no longer true, since the Turbo Dispatcher is the only dispatcher available and always active.

During IPL, the Turbo Dispatcher is loaded into shared storage above the supervisor ready to take over control for dispatching.

Notes:

1. The Turbo Dispatcher assumes that job accounting is active (JA=YES in the IPL SYS command).
2. After IPL, only the CPU from which IPL was performed is active. Other CPUs are in stop status (unless they are automatically activated by // SYSDEF TD,START statements in the \$0JCL startup procedure of the BG partition). To activate the other CPUs, you must use the SYSDEF TD,START command.
3. VSE/POWER parallel processing is active only when its activation has been requested in the VSE/POWER startup procedure POWSTRn.

When parallel processing for VSE/POWER has been activated, the second line of the PDISPLAY STATUS command shows the following information:

```
PRESENT SESSION START (TURBO-DISP.-PA) ON mm/dd/yyyy TIME hh/mm/ss
```

Using the SYSDEF TD Command

With the SYSDEF TD command or statement, you can start and stop CPUs and reset Turbo Dispatcher information. Refer to the manual *VSE/ESA Guide to System Functions* for the format and syntax of the various SYSDEF TD commands and statements.

Starting CPUs

There are two ways to start CPUs:

1. In the startup procedure \$0JCL of the BG partition you can include statements such as the following:

```
// SYSDEF TD,START=ALL
// SYSDEF TD,START=cpuaddr
```

2. At the VSE/ESA console you can enter attention routine (AR) commands such as the following:

```
SYSDEF TD,START=ALL
SYSDEF TD,START=cpuaddr
```

ALL means that all CPUs of a multiprocessor that are not yet active are to be activated. *cpuaddr* means that a single CPU identified by *cpuaddr* is to be activated.

Operation

Note: To find out the CPU addresses, you can use the QUERY TD command for VSE/ESA. The corresponding VM command is QUERY CPUS.

Stopping CPUs

You can stop all CPUs, except for the CPU from which IPL was performed, or a single CPU identified by *cpuaddr*. The following attention routine (AR) commands are available:

```
SYSDEF TD,STOP=ALL
SYSDEF TD,STOP=cpuaddr
```

Refer also to “The SYSDEF TD,STOPQ Command.”

Resetting Turbo Dispatcher Information

You can reset Turbo Dispatcher information with the following attention routine (AR) command:

```
SYSDEF TD,RESETCNT
```

This command is executed automatically when a CPU is stopped or started. It should be used, for example, by the operator before issuing a QUERY TD command to get a defined starting point.

Using the SYSDEF Command in a VM/ESA Environment

If the VSE console is also the CP console (not dialed), it is recommended to first issue the CP command SET EMSG OFF before issuing the SYSDEF command. This is to reduce heavy message traffic that may occur.

The SYSDEF TD,STOPQ Command

Instead of simply stopping a CPU, it can also be quiesced as explained below. The format of the corresponding attention routine (AR) command is as follows:

```
SYSDEF TD,STOPQ=ALL
SYSDEF TD,STOPQ=cpuaddr
```

The STOPQ operand does not really stop a CPU (as the STOP operand does), but suspends a CPU from task selection. A quiesced CPU which is not needed during a certain period of time (for example during off-shift) helps to minimize the overhead caused by idle additional CPUs. The STOPQ operand applies especially for VSE/ESA systems running as guests under VM because the STOP operand excludes the guest from I/O Assist, which may cause performance degradation.

If a CPU has been quiesced, the character string “QUIESCED” is displayed in the corresponding row of the QUERY TD output. Note that the time values of quiesced CPU will still grow as elapsed time goes by. This is because quiesced CPU does not process any work unit but does still receive and handle interrupts.

In a system with absolutely no work load, the time values of a quiesced CPU may increase as if the CPU were active. This is because, in this case, both active and quiesced CPUs do not process a single work unit. However, in a system with high work load the time values for active CPUs increase much faster than for quiesced CPUs.

The three different states of a CPU and the possible transitions from one state to another are shown in the Figure below.

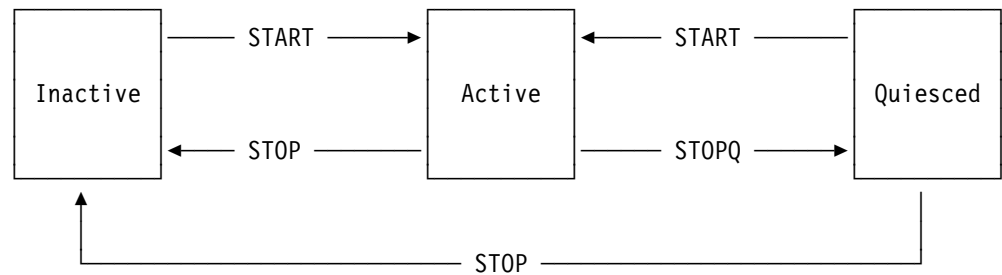


Figure 1. CPU States and their Transitions

Other transitions are not allowed and result in error messages if attempted.

Using the PRTY and PRTY SHARE Command for Partition Balancing

This section demonstrates the use of the PRTY and PRTY SHARE command. The example is valid for a multiprocessor or a uniprocessor environment. See the manual *VSE/ESA Guide to System Functions* for the command syntax.

Displaying the Current Partition Priority Sequence

When entering the **PRTY** command without operands, VSE/ESA displays the partition priority sequence as shown in Figure 2 where partition F1 has the highest and partition BG the lowest priority.

```

PRTY
AR 0015 PRTY BG,C,FB,FA,F5,F9,F8,F7,F6,F4,F2,F3,F1
AR 0015
AR 0015 1I40I  READY
  
```

Figure 2. PRTY Command: Displaying Partition Priorities

The following system programs and workloads are assumed for the sample environment:

- VSE/POWER runs in F1
- CICS runs in F2
- VTAM runs in F3

For partition F2 a heavy workload is assumed likely to monopolize the system by consuming most of the CPU time.

Because of the F2 workload, the batch partitions to the left of F2 in the priority sequence (BG, C, FB, FA, F5, F9, F8, F7, F6, F4) will receive very few time slices if at all. Let us assume that you want to improve the poor performance of F4, F8, and dynamic class C. You can achieve this by creating a balanced group (consisting of F4, F8, F2, and class C) in a way that limits F2 in throughput and response time.

Creating a Balanced Group

You establish the balanced group with the **PRTY** command as shown in Figure 3.

```
PRTY F4=F8=C=F2,BELOW,F3
AR 0015 PRTY BG,FB,FA,F5,F9,F7,F6,F4=F8=C=F2,F3,F1      (1)
AR 0015
AR 0015 SHARE F4= 100, F8= 100, C= 100, F2= 100          (2)
AR 0015
AR 0015 1I40I  READY
```

Figure 3. PRTY Command: Creating a Balanced Group

The meaning of the display is as follows:

1. The system displays the priority sequence with the newly established balanced group including partitions F4,F8, dynamic class C, and F2. Highest priority has the VSE/POWER partition F1 and the VTAM partition F3 followed by the balanced group.

The available CPU time is distributed as follows:

- a. Partitions F1 and F3 get the CPU time (cycles) they request.
 - b. The partitions of the balanced group get all the remaining CPU time (which they do not necessarily use up completely).
 - c. The partitions to the left of the balanced group get the CPU time (cycles), if any, not consumed by F1, F3, and the balanced group.
2. The system displays the share values for each partition and class belonging to the balanced group. The initial value for each member of the balanced group is 100. This is the default value as set by the system for partition balancing. You may increase this initial value up to a maximum of 9999 or decrease it down to a minimum of 1. You can remove a partition or class from balancing by specifying a share value of 0.

When entering the PRTY command without parameters you get a display with the newly set values and priorities:

```
PRTY
AR 0015 PRTY BG,FB,FA,F5,F9,F7,F6,F4=F8=C=F2,F3,F1
AR 0015
AR 0015 SHARE F4= 100, F8= 100, C= 100, F2= 100
AR 0015
AR 0015 1I40I  READY
```

Figure 4. PRTY Command: Displaying Partition Priorities

Each static partition and dynamic class included in the PRTY sequence has an initial share value of 100. The share value, however, affects dispatching only if the corresponding partition or class is *part of the balanced group*. For this reason, only the share values of the members of the balanced group are displayed.

Changing the Relative Share of CPU Time

In our example, F4, F8, F2 and class C have equal rights in terms of their dispatching order, that is, they get time slices of the same size allocated. This, however, may lead to a poor CICS performance in F2. To reduce the performance degradation, you can give F2 a higher relative share of CPU time compared to the other members of the balanced group. You can do this with the **PRTY SHARE** command as shown in Figure 5.

```
PRTY SHARE, F2=600
AR 0015 PRTY BG,FB,FA,F5,F9,F7,F6,F4=F8=C=F2,F3,F1
AR 0015
AR 0015 SHARE F4= 100, F8= 100, C= 100, F2= 600
AR 0015
AR 0015 1I40I  READY
```

Figure 5. *PRTY SHARE Command: Changing the Share of CPU Time (Example 1)*

Partition F2 gets now a six times higher share of CPU time than the other members of the balanced group.

Let us assume there are two dynamic partitions active in class C: C1 and C2. Dynamic partitions of the same class will receive the share value of the corresponding dynamic class. So the current distribution of workload within the balanced group is as follows:

The share values for F4, F8, C1, and C2 are 100 each; for F2 the share value is 600 resulting in a total of 1000. F2 will receive 60% of the CPU time for the balanced group whereas F4, F8, C1 and C2 will receive 10% each. This means that F2 still receives a high amount of CPU time but without the danger of monopolizing the system. The batch partitions F4 and F8 and the dynamic class C also receive a proper portion of CPU time ensuring a certain amount of throughput for these partitions.

The shares of CPU time for the balanced group as shown in Figure 6 are equivalent to those shown in Figure 5, since what we define are *relative* shares.

```
PRTY SHARE, F4=10, F8=10, C=10, F2=60
AR 0015 PRTY BG,FB,FA,F5,F9,F7,F6,F4=F8=C=F2,F3,F1
AR 0015
AR 0015 SHARE F4= 10, F8= 10, C= 10, F2= 60
AR 0015
AR 0015 1I40I  READY
```

Figure 6. *PRTY SHARE Command: Changing the Share of CPU Time (Example 2)*

Adding a Partition to a Balanced Group

Finally, we want to add partition FB to the balanced group using the **PRTY** command as shown in Figure 7 on page 16.

```
PRTY FB,EQUAL,F2
AR 0015 PRTY BG,FA,F5,F9,F7,F6,FB=F4=F8=C=F2,F3,F1
AR 0015
AR 0015 SHARE FB= 100, F4= 10, F8= 10, C= 10, F2= 60
AR 0015
AR 0015 1I40I  READY
```

Figure 7. PRTY Command: Adding a Partition to a Balanced Group

Note, that FB still has its initial share value of 100, since there was no other share value assigned for FB. Now, the sum of all share values is 200 (FB having 100, F4, F8, C1, C2 having 10 each, and F2 having 60). This means FB will receive 50% and F2 30% of the CPU time for the balanced group.

Displaying Partition Activity and Balancing Data

You can use the *Display System Activity* dialog to display partition activity and balancing data. An example is shown under “Partition Balancing Display” on page 18.

Controlling CPU Activity

Querying CPUs

To query the status of a VSE/ESA multiprocessor environment, you can use the following attention routine (AR) command:

```
QUERY TD
```

Refer to “Interpreting the QUERY TD Display” in the manual *VSE/ESA Turbo Dispatcher Guide and Reference* for details about the information displayed and how to interpret it.

Using the Display System Activity Dialog

The dialog displays information about CPU usage in a VSE/ESA multiprocessor environment as shown in Figure 8 on page 17 and Figure 9 on page 18. The display is updated by default in 15 seconds intervals. The activity display is also available for workstation users via folder *VSE Workdesk*. Refer to “Monitoring CPU Activity” on page 19 for details.

Note: The display does not provide workload details such as the ratio of parallel and non-parallel processing. For such details you must use the QUERY TD command.

In Figure 8 on page 17, the second line shows the number of CPUs activated, while the third line displays the CPU usage (127%) which is the sum of the individual partition utilizations. The value of 127% reflects the total CPU activity of all active CPUs (all active static and dynamic partitions). The individual partition values that result in 127% are shown in column %CPU.

The maximum value that can be reached by a single CPU is naturally 100%.

IESADMDA		DISPLAY SYSTEM ACTIVITY		15 Seconds 09:	
----- SYSTEM (CPUs: 2 / 0) -----		*-----*		CICS : DBDCCICS -----*	
CPU	: 127%	I/O/Sec:	1	No. Tasks:	118
Pages In :	0	Per Sec:	*	Per Second :	0.1
Pages Out:	0	Per Sec:	*	Dispatchable:	0
				Suspended :	2
				Peak Active :	6
				MXT reached:	0

Priority: Z,Y,P,BG,F8,C,FB,FA,F9,F7,F6,F5,F4,F2,F3,F1					
ID S	JOB NAME	PHASE NAME	ELAPSED	CPU TIME	OVERHEAD
F1 1	POWSTART	IPWPOWER	18:38:30	8.11	6.13
F3 3	VTAMSTRT	ISTINCVT	18:38:09	23.89	37.36
F2 2	CICSICCF	DFHSIP	18:38:06	65.50	88.66
F4 4	REXXSAA		02:45:44	12.38	5.04
F5 5	<=WAITING FOR WORK=>			.51	.15
F6 6	<=WAITING FOR WORK=>			.51	.15
F7 7	<=WAITING FOR WORK=>			.51	.15
F9 9	<=WAITING FOR WORK=>			.51	.15
FA A	<=WAITING FOR WORK=>			.52	.16
FB B	<=WAITING FOR WORK=>			.51	.15
F8 8	SUBCPUPU	TOOL	00:06:09	128.16	16.47
BG 0	<=WAITING FOR WORK=>			.00	.00
PF1=HELP	2=PART.BAL.	3=END	4=RETURN	5=DYN.PART	6=CPU

Figure 8. Example of a System Activity Display

When pressing PF5, the percentage of CPU time used up by dynamic partitions is displayed (the time shown is summarized on the class level).

When pressing PF6, a summary chart is displayed showing the CPU and partition activity. In case of dynamic partitions, the CPU activity is not shown for single dynamic partitions but is summarized on the class level (C) as shown in Figure 9 on page 18.

When pressing PF9, details on balanced partitions (if defined) are shown. Refer to “Partition Balancing Display” on page 18 for an example.

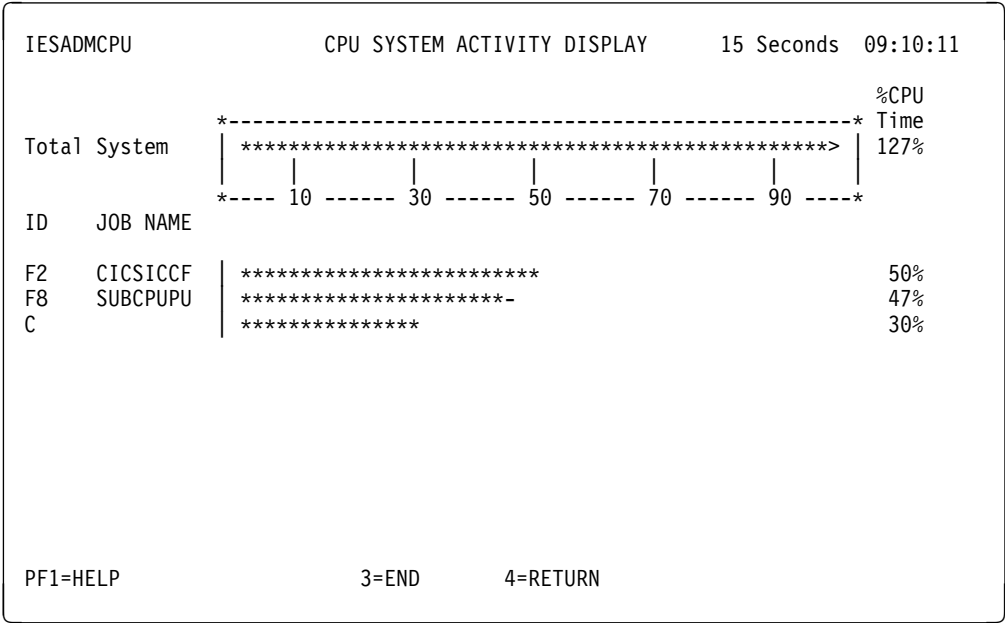


Figure 9. Example of a System Activity Display (Summary Chart)

Partition Balancing Display

The *Display System Activity* dialog offers via PF9 a summary display of all active static partitions and dynamic classes, together with their CPU utilization, their share values, and whether they belong to a balanced group or not. Partitions or classes belonging to a balanced group are identified by an asterisk (*). Figure 10 on page 19 shows a sample display.

For more information about share values and balanced groups refer to the section “Using the PRTY and PRTY SHARE Command for Partition Balancing” on page 13.

```

IESADMPB      Display Partition Activity and Balancing      15 Seconds 14:20:20
*----- SYSTEM ( CPUs active: 1 / CPUs quiesced: ) -----*
| CPU       : 122%   Non-par. : 3%   | Pages In : 0   Per Sec : *   |
| I/O/Sec   : 5     Spin      : 2%   | Pages Out: 0   Per Sec : *   |
*-----*
Priority: Z, Y, P, BG,FA,F5,F9,F7,F6,FB=F4=F8=C=F2,F3,F1

ID B JOB NAME                %CPU SHARE | ID B JOB NAME                %CPU SHARE
F1  POWSTART                  5    100   | FA  <=WAITING FOR WORK=>      100
F3  VTAMSTRT                  5    100   | BG  <=WAITING FOR WORK=>      100
F2  * CICSICCF                45    400   | P   <=====ENABLED=====>    100
C   * <=====ENABLED=====>  20    100   | Y   <=====ENABLED=====>    100
F8  * BATCHLM3                10    100   | Z   <=====ENABLED=====>    100
F4  * CICS2                   25    200
FB  * BATCHLM4                10    100
F6  <=WAITING FOR WORK=>      100
F7  <=WAITING FOR WORK=>      100
F9  <=WAITING FOR WORK=>      100
F5  <=WAITING FOR WORK=>      100

PF1=HELP      3=END      4=RETURN

```

Figure 10. Example of an Activity Display with Balanced Partitions

Note that the total CPU usage of 122% includes the 2% Spin time during which the CPU was waiting for resources.

Monitoring CPU Activity

The monitoring function for the CPU activity is available under OS/2 and Windows. For the data transfer between host and workstation, the function uses the File Transfer support. Under OS/2, the monitoring function also works if an APPC connection exists. The following sections introduce the panels that appear when selecting the function.

For a workstation user, the folder *VSE Workdesk* offers the icon *VSE CPU Activity*. When selected, it allows you to monitor CPU activity by displaying data in the form of a "snapshot" (bar chart) or measured over a longer period of time (line graph).

The system first displays the panel shown in Figure 12 on page 21 as empty panel. When selecting *Options* from this panel, you can display and modify either the timer options or the display options. The window shown in Figure 11 on page 20 shows the *Display Options* available.

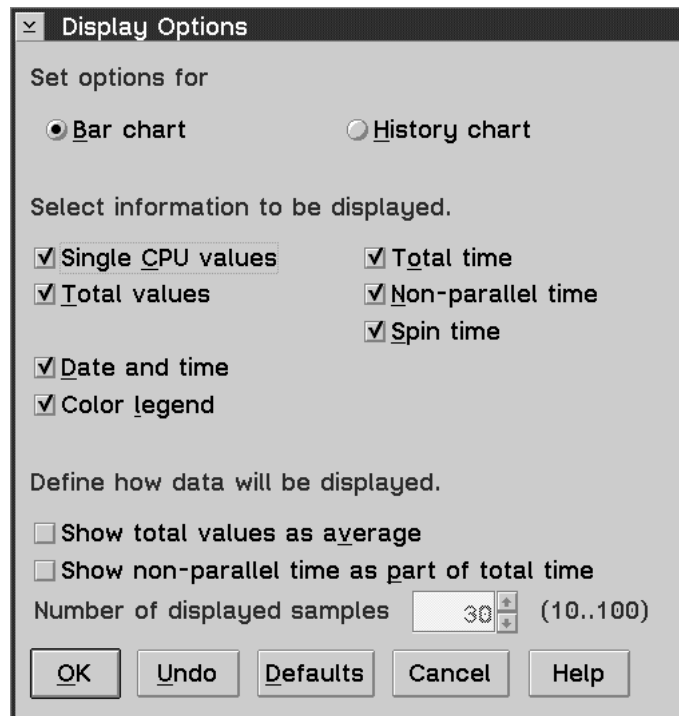


Figure 11. Display Options for a CPU Activity Display

The display in Figure 12 on page 21 (Bar Chart) shows for two active CPUs the spin time (optional), the non-parallel time, and the total time (from left to right). The display is a snapshot taken at the *Time* shown. The *Interval* shows the time in milliseconds between two measurements. The interval time is part of the timer options and can be modified through the corresponding window.

The CPU times (spin, non-parallel, and total) shown in Figure 12 on page 21 are identical to those provided by the QUERY TD command and are discussed in more detail under “Interpreting the QUERY TD Display” in the manual *VSE/ESA Turbo Dispatcher Guide and Reference*.

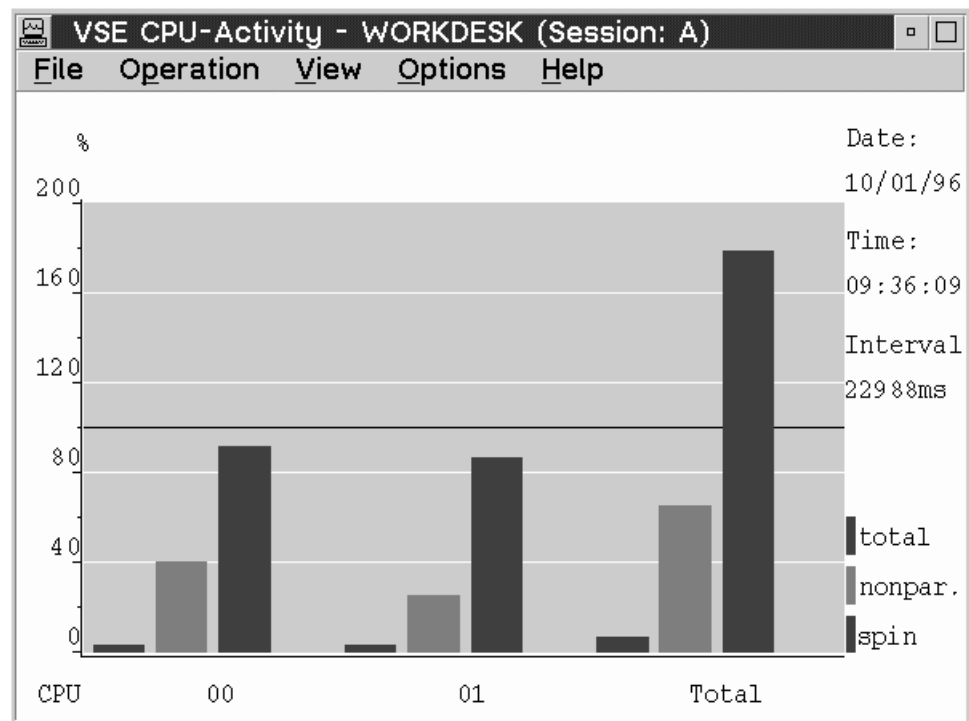


Figure 12. Example of a CPU Activity Display (Bar Chart)

The display in Figure 13 (History Chart) is based on 30 measurements (number of displayed samples) taken for the two CPUs of Figure 12. The display shows the total time, the non-parallel time, and the spin time (from top to bottom). The number of displayed samples (30) can be modified via the *Display Options* window (Figure 11 on page 20).

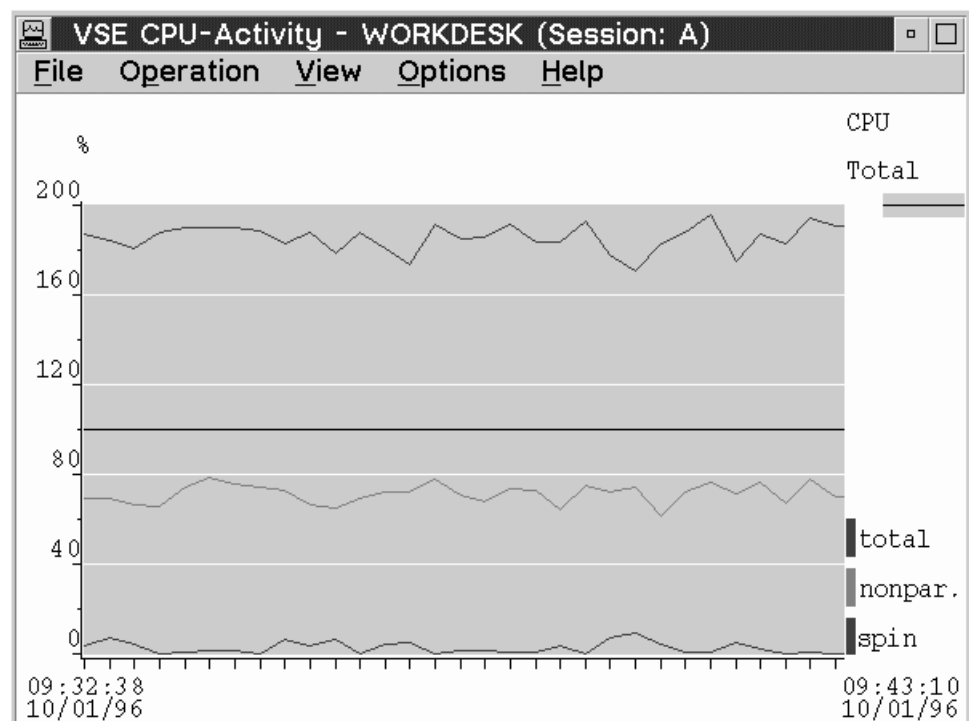


Figure 13. Example of a CPU Activity Display (History Chart)

The Console Dialog

The panel you get when using the *Console* dialog shows in the first line the number of active CPUs: (02).

```
SYSTEM:  VSE/ESA          VSE/ESA 2.4  TURBO (02)          USER:  PUBS
                                           TIME:  14:27:02

BG 0000 EOJ IESBLDUP  MAX.RETURN CODE=0000
      DATE 05/11/1998, CLOCK 09/43/52, DURATION   00/00/13
F1 0001 1Q34I  BG WAITING FOR WORK
S RDR,00C
AR 0015 IC39I  COMMAND PASSED TO POWER
F1 0001 1R58I  S DEVICE 00C IS IN USE
F1 0001 1Q34I  RDR WAITING FOR WORK ON 00C

==>

1=HLP 2=CPY 3=END 4=RTN 5=DEL 6=DELS 7=RED 8=CONT 9=EXPL 10=HLD          12=RTRV
ACT_MSG: HOLD          PAUSE: 01  SCROLL: 1          MODE:  CONSOLE
```

Figure 14. Example of a Console Panel Display

Restricted Use of the DSPLY and the ALTER Command

In a multiprocessor environment, each processor has a prefix register which the processor uses to relocate addresses between X'0' and X'FFF' to another page frame in storage. The prefix register enables each processor to use a different page frame to avoid conflicts with other processors for activities such as interrupt code recording. Thus, the address range X'0' through X'FFF' (which in this context is called prefix page) refers to different areas of storage, depending on which processor generates the address.

DSPLY Command

The DSPLY command allows the operator to display 16 bytes of virtual storage, starting at the specified hexadecimal address. The data is displayed on the device assigned to SYSLOG which is usually the system console.

If at least one additional CPU is started, the address range from X'0' to X'FFF' is no more unique. Thus, if the hexadecimal address specified with the DSPLY command is below X'1000', the output of the DSPLY command is random; it shows storage belonging to any of the active CPUs.

This ambiguity can be avoided only if the system runs in uniprocessor mode.

ALTER Command

The ALTER command allows the operator to alter 1 to 16 bytes of virtual storage, starting at the specified hexadecimal address.

If at least one additional CPU is started, the address range from X'0' to X'FFF' is no more unique. Therefore, if the hexadecimal address specified with the ALTER command is below X'1000', the storage area that is to be altered is randomly selected depending on which CPU is momentarily active. It also involves the risk that system-relevant data is destroyed. Therefore, ALTER is not allowed if the following two conditions are true:

- At least one additional CPU has been started.
- The specified hexadecimal address for ALTER is below X'1000'.

This status is also indicated by the following message:

```
1I37I  UPDATE ON PREFIX PAGE NOT POSSIBLE IN MP ENVIRONMENT
```

In this message, MP stands for multiprocessor.

However, the ALTER command can be used in "uniprocessor mode" by stopping all additional CPUs first. When later returning to "multiprocessor mode", the changed information is automatically transferred to the other CPUs.

For a detailed syntax and operand description of the commands refer to the manual *VSE/ESA System Control Statements*.

Communicating with VSE/ESA

Chapter 4. How To Operate Your System

Most VSE/ESA operation tasks are done by using the **VSE/ESA console**. This chapter, therefore, concentrates on the VSE/ESA console: its functions and how you operate from it.

You can also perform some operation tasks by using the System Management dialogs of the VSE/ESA Interactive Interface. There are dialogs, for example, for managing the VSE/POWER queues and backing up data. These dialogs are described in "Performing Tasks via Dialogs" on page 125.

This chapter has information on how to communicate with the system using VSE/ESA console functions. For a device description of a given console itself and for information on how to handle its hardware functions, refer to the appropriate hardware documentation.

The chapter has three major parts:

1. Some conceptual information about the VSE/ESA console
2. Operation in **full-screen** mode.

This is considered as the normal (or the primary) mode of operation.

3. Special considerations for **line-mode** operation.

The VSE/ESA Console

Regarding the VSE/ESA console, you should keep the following distinctions in mind:

- **master console** versus **user console**
- **master console** versus **system console**.

Master Console versus User Console

The system communicates with the operator by way of

- Messages
- Command responses
- Output of system functions that was requested from the console.

The distinction between master and user console has to do with the **amount** of those data that the system sends to the console:

Master Console

A master console receives **all system messages** that are not directed to a specific console. These include so-called *unsolicited messages*: messages that make some event of system-wide relevance known, as shown in the following three examples:

```
IST020I VTAM INITIALIZATION COMPLETE FOR ...
DFH1923 - TERMINAL DATA SETS ARE BEING OPENED
K042I   VSE ACCESS CONTROL NOT ACTIVE, VSE/ICCF ACCESS CONTROL ACTIVE
```

The VSE/ESA Console

In addition, the master console receives data that have to do with its own activities, for example responses to commands it had issued, or specific output it had requested (output of commands MAP, LISTIO etc.).

Please note that **one or more master consoles** can be active at the same time. The *Console* dialog of the VSE/ESA Interactive Interface lets you perform all operation tasks (except for IPLing the system) from a normal display station. Therefore, any number of Interactive Interface users can have a master console.

User Console

This console receives only messages that are specifically directed to it. These are, as is the case for the master console, messages that relate to its own activities. For example,

- The system response to the REPLID command (to list the messages that indicate an outstanding action or reply) is sent only to the console that issued the REPLID command.
- Job-related messages are sent to the console that is designated as the recipient of those messages, most likely the console which submitted the job.

User Profile Definitions

Whether you get a master console or a user console is determined by the type of your user ID under which you are logged on to the Interactive Interface.

After selecting the *Console* dialog, your terminal is a

master console

if your's is a SYSA user ID (administrator - type 1 user) or an OPER user ID (operator - type 2 user), or is a

User console

if your's is a PROG user ID (programmer - again type 2 user) or *general user* user ID (type 3 user).

These are default definitions. The administrator can override these definitions via the MASTER CONSOLE parameter when defining a user profile.

The console of a CMS user who communicates with VSE/ESA through the VM/VSE Interface is a VSE/ESA **user console**. The CMS user's console can be made a VSE/ESA **master console** via the attention routine (AR) command SYSECHO. (The VM/VSE Interface is described in detail in Chapter 14, "Operating VSE/ESA under VM" on page 113.) Also, the NetView operator's console becomes a VSE/ESA **master console** after a QLOGON command has been issued.

Note that the system console (see below) is always a master console.

Command Authorization

A master console has unrestricted authorization to reply to all outstanding messages and to enter any kind of system command.

On the other hand, a user console with **restricted command authority** can respond only to the messages that are directed to it. Also, it can enter only a

restricted set of system commands: just enough to perform operation tasks within its own scope and without impacting system wide operation.

By default, a user under the VSE/ESA Interactive Interface who is not of type SYSA or OPER has a user console and only restricted command authority. Your administrator can define this user's profile (parameter MASTER CONSOLE=ON) to establish a master console and unrestricted command authority.

CMS User under the VM/VSE Interface: In a VSE/ESA system with security not active (SEC=NO), a CMS user under the VM/VSE Interface has unrestricted command authority.

In a VSE/ESA system with security active (SEC=YES), this CMS user has unrestricted command authority only if the profile in the access control table DTSECTAB has parameter specifications MCONS=YES or AUTH=YES.

This subject is discussed in more detail in section “VSE System Control Commands” on page 44.

The preceding discussion is summarized in Figure 15.

Figure 15. Master/User Consoles and Command Authorities		
User	Master versus User Console	Command Authority
System Console		
	master	unrestricted
Interactive Interface		
SYSA and OPER	master (default)	unrestricted
	user (MASTER CONSOLE=OFF)	unrestricted
PROG and general	user (default)	restricted
	master (MASTER CONSOLE=ON)	unrestricted
VM/VSE Interface		
	user (default)	
	master (SYSECHO)	
SEC=NO		unrestricted
SEC=YES (MCONS=YES or AUTH=YES)		unrestricted
SEC=YES (MCONS=NO and AUTH=NO)		restricted

Master Console versus System Console

The system console has all the characteristics of a master console. In addition, it is the **only console from where you can IPL** the system.

The system console is either a

- Locally-attached non-SNA 3270 terminal, or the
- Integrated console

The VSE/ESA Console

This is the console of the service processor (available on ES/9000 processors). When you have designated the integrated console as your VSE/ESA system console, you use it typically for

- **IPL** After IPL, for your normal day-to-day work, you would most likely use another terminal as system console, for example a terminal where you logged on to the VSE/ESA Interactive Interface.
- **Recovery** The integrated console resumes the system console function when no other console is available.

Section “How to Access an Integrated Console” on page 60 describes for two particular processors, IBM ES/9121 and IBM ES/9221, how you access the integrated console.

After IPL has completed, the 3270 system console works like any other master console, thus receives all system messages. The integrated console, on the other hand, is shut off from the normal message traffic. It serves only as the “last-resort” console to receive all critical messages that cannot be routed to any other console.

The VSE/ESA Console in Various Environments

The figure below shows where, in a given VSE/ESA system, the above-presented console types fit in.

The left part of the figure addresses a VSE/ESA system under VM, the right part a stand-alone (“native”) VSE/ESA system. Letters **F** or **L** indicate whether a console works in full-screen mode or in line-mode, respectively.

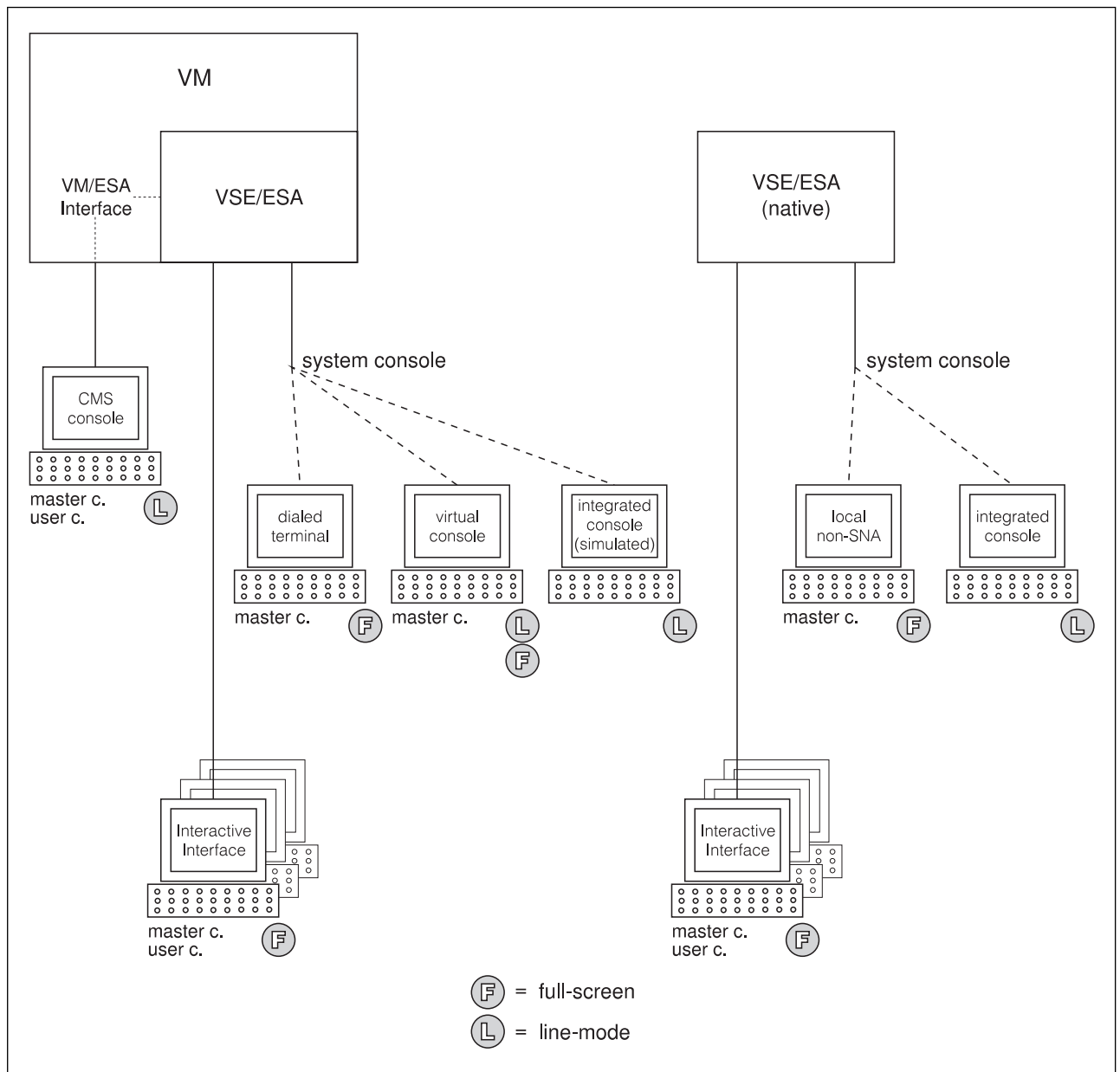


Figure 16. VSE/ESA Consoles

Notes:

1. The VSE/ESA system console under VM operates either in line mode or in full-screen mode. You set the mode with the CP command **TERMINAL CONMODE**. Be aware of some risks when operating in full-screen mode. This is discussed later in this chapter in section "Considerations for **TERMINAL CONMODE 3270**" on page 56.
A dialed terminal always operates in full-screen mode.
2. A NetView operator station can also serve as a VSE/ESA master console. Its presentation characteristics are controlled by NetView.
3. The VSE/ESA console is also available with the VSE/ESA Distributed Workstation Feature (DWF). Its function is described in the IBM manual *VSE/ESA Distributed Workstation Feature - User's Guide (OS/2 Support)*.

The VSE/ESA Console in Full-Screen Mode

The system communicates with the operator by way of **messages**. It is the operator's task to **interpret** these messages and react to them through message replies and operator commands. **Explanations** which help to interpret a message are available to be displayed at the console. The operator can **redisplay messages** that have disappeared from (scrolled off) the display screen.

Interactions of the above kind will be discussed in detail in the following sections. Here the emphasis is on operating in full-screen mode. A later section ("Special Considerations for Line-Mode Operation" on page 56) points to some specialties for line-mode operation.

A full-screen console is typically available at the system console and at a VSE/ESA console under the VSE/ESA Interactive Interface. The system console obtains its full-screen console automatically through IPL. Under the Interactive Interface, you have to specifically select the dialog. This is described in the following section.

Accessing the Console Dialog

For user ID **OPER**, VSE/ESA predefines the *VSE/ESA Function Selection* panel shown in Figure 17. The system displays the panel after a user with a profile like that of OPER signs on.

IESADMSL.IESEOPER

VSE/ESA FUNCTION SELECTION

APPLID: DBDCCICS

Enter the number of your selection and press the ENTER key:

1 Program Development Library

2 Console

3 Manage Batch Queues

4 Message and News Handling

5 Backup/Restore

6 CICS-Supplied Transactions

7 System Status

8 Maintain Synonyms

PF1=HELP

3=SIGN OFF

6=ESCAPE(U)

9=Escape(m)

==>

Figure 17. Example of VSE/ESA Function Selection Panel

In this manual, the panel is used as the starting point for many of the operation tasks shown.

Note: Your administrator may change the default panel to fit your particular system more closely.

A selection in the above panel leads to a particular dialog. Each dialog is described in a separate chapter, except for the first dialog *Program Development Library*. This selection allows you to handle jobs stored in a VSE/ICCF library. For a detailed description about the use of program development libraries, see the *VSE/ESA Programming and Workstation Guide* manual.

To access the *VSE/ESA Console* dialog, in the *VSE/ESA Function Selection* panel shown in Figure 17 on page 32, select:

2 (Console)

Operator Fast Path: 2	Synonym Default: console Yours:
---------------------------------	---

Invoking the dialog displays the *VSE/ESA Console* panel. Figure 18 shows an example.

SYSTEM: VSE/ESA	VSE/ESA CONSOLE	USER: GAND TIME: 14:27:02
BG 0000 EOJ IESBLDUP MAX.RETURN CODE=0000 DATE 05/11/94,CLOCK 09/43/52,DURATION 00/00/13 F1 0001 1Q34I BG WAITING FOR WORK S RDR,00C AR 0015 IC39I COMMAND PASSED TO POWER F1 0001 1R58I S DEVICE 00C IS IN USE F1 0001 1Q34I RDR WAITING FOR WORK ON 00C		
==>		
1=HLP 2=CPY 3=END 4=RTN 5=DEL 6=DELS 7=RED 8=CONT 9=EXPL 10=HLD 12=RTRV		
ACT_MSG: HOLD	PAUSE: 1	MODE: CONSOLE

Figure 18. Example Display of VSE/ESA Console Panel

Handling System Messages

On a full-screen *VSE/ESA Console* display, you will see basically two types of messages:

- System messages
- Local messages.

Local messages have to do with the dialog that is currently taking place. They appear by themselves in the lower portion of the screen (note that this is not true for a line-mode display where local messages are intermixed with system

System Messages

messages). Local messages frequently relate to **local commands** which are discussed in “Local Commands” on page 47.

System messages are, in general, displayed on the system console screen and on any screen that is occupied by the *VSE/ESA Console* function of the Interactive Interface.

These messages are issued by the supervisor, by one of the other components of VSE/ESA, or by a program running in a batch partition. Most of the messages just inform you about some activity in the system. For example, an information message like:

```
F1 0001 1Q47I BG SAVELIB 00478 FROM (VSE1), TIME=10:02:57
```

tells you that the job SAVELIB has been selected for batch processing in partition BG.

Other messages ask you to take an action, or make a decision. In the message:

```
F1 0001 1Q40A ON 01E FORMS F001 NEEDED FOR PRTJOB 00298
```

you are asked to check that the correct forms are mounted in the printer with address 01E.

In some cases, part of the required action is to enter a reply to the message. An example is message:

```
F1-0001 1C10D PLEASE ASSIGN SYSRDR
```

For detailed information about these messages refer to the *VSE/ESA Messages and Codes* manual.

Before you answer a message, further messages requiring your reply may be issued. And, you normally do not have to answer system messages in the order that they are displayed. For this reason the system adds a prefix to each message. The prefix consists of:

1. The partition identifier.
2. One of the following three characters:
 - Blank (space) which indicates that no direct reply is required for the message. However, the message may tell you to perform some action.
 - Minus sign (–) which indicates that a reply is required.
 - Plus sign (+) which indicates that not only a reply is required but also a system resource (I/O device or partition) cannot continue until the message is answered. In addition, other system actions may be stopped until the message is answered.
3. The reply identifier (reply ID), a four-digit number that you use to answer the message. Leading zeroes in the reply ID may be omitted.

In the last example above, the message was issued by a program running in partition F1, and the reply ID is 0001. To answer a message, you first type the reply ID followed by one space, and then the actual answer.

To display the partition identifiers and prefixes of messages that still need replies, enter the command:

REPLID

The REPLID command displays outstanding replies for both static and dynamic partitions. The lines below show an example of the **REPLID** command and how you might respond to the command's output.

```
replid
AR 0015 1I87I REPLY TO : F2-0002 BG-0000
2 cent i te
.
.
.
```

Figure 19 on page 36 illustrates the communication between you and your VSE/ESA system. Notice how the system marks reply IDs by minus (–) or plus (+) signs, as was outlined above.

System Messages

```
sdaid
AR 0015 4C05I PROCESSING OF SDAID  COMMAND SUCCESSFUL
AR 0015 1I40I  READY
trace
AR 0015 4C08D SPECIFY TRACE TYPE.+
AR+0015
15 io
AR 0015 4C08D SPECIFY ONE OF THE KEYWORDS AREA OR JOBNAME.+
AR+0015
15 area
AR 0015 4C08D SPECIFY TRACE AREA.+
AR+0015
15
AR 0015 4C08D SPECIFY ONE OF THE KEYWORDS UNIT,CU,OR CHANNEL.+
AR+0015
15 unit
AR 0015 4C08D SPECIFY UNIT ADDRESS(ES).+
AR+0015
15 480
AR 0015 4C08D SPECIFY OUTPUT.+
AR+0015
15
AR 0015 4C08D SPECIFY OPTIONS.+
AR+0015
15
AR 0015 4C05I PROCESSING OF TRACE  COMMAND SUCCESSFUL
AR 0015 1I40I  READY
endsd
AR 0015 4C05I PROCESSING OF ENDS  COMMAND SUCCESSFUL
AR 0015 1I40I  READY
r rdr,pausebg
AR 0015 1C39I COMMAND PASSED TO VSE/POWER
F1 0001 1R88I  OK
BG 0001 1Q47I  BG PAUSEBG 00855 FROM (SYSA) , TIME=16:01:36
BG 0000 // JOB PAUSEBG
          DATE 01/13/95,CLOCK 16/01/36
BG 0000 // PAUSE
BG-0000
0
BG 0000 EOJ PAUSEBG
          DATE 01/13/95,CLOCK 16/01/45,DURATION  00/00/09
BG 0001 1Q34I  BG WAITING FOR WORK
```

Figure 19. Answering System Messages

Notes:

1. Messages during the very early part of IPL do not have reply IDs.
2. Replies to VSE/POWER messages (1Q-, 1R- and 1V-prefix messages) are often VSE/POWER commands (for example, PGO). These replies do not require a reply ID.

Redisplaying Messages

Because the console screen can display only a limited number of messages, old messages will disappear from the screen as new ones appear. If you want to see a particular message again, you can redisplay it by using the **REDISPLAY** command as described below.

This section shows examples about how you use the **REDISPLAY** command. For the full description of this command refer to Appendix B, “REDISPLAY Command” on page 211.

Additional Information...

When you are actually doing work with your VSE/ESA system, you are encouraged to make use of the online HELP facility. Just press the PF1 (=HLP) key and you will get plenty of information, including examples, on how to work with the redisplayed data.

You enter the REDISPLAY command in one of two ways:

- As **local command**

In this case, you have to prefix the percent character: %REDISPLAY. It is advisable to assign a PF key to the %REDISPLAY command. The set of predefined key settings that is used in this manual has PF7 assigned to the %REDISPLAY command. When using the PF key, you may or may not supply some operand(s) in the input line.

When the %REDISPLAY command is given in console mode, the console goes into **redisplay mode**. While in redisplay mode, you may issue additional %REDISPLAY commands, preferably by using some predefined key.

- As **system command**

This form is used for *line-mode* display (as opposed to full-screen display). Special Considerations for line-mode display are discussed in section “Special Considerations for Line-Mode Operation” on page 56.

The data being redisplayed, in general, is taken from the hardcopy file. Due to the fact that it is only **one** hardcopy file that records the console traffic of **all** consoles, on a master console you might see more records redisplayed than originally appeared on that console. The redisplay at a **user console** (assuming the user has restricted command authority) shows only console traffic to or from this console.

The **REDISPLAY** command has parameters for reducing the amount of logging items to be redisplayed. This is shown in the following examples (where the short form %REDI of the %REDISPLAY command is used).

Filtering (by Partition, Commands etc.)

To select data for a particular **partition**, F3 for example, you type

F3 in the input line and press PF7. This is equivalent to entering the local command

```
%REDI F3
```

Redisplaying Messages

Here are a few more examples. In console mode, you type (and then press PF7)

BG to redisplay logging items from partition BG only,

P1 to redisplay logging items from dynamic partition P1 only,

P* to redisplay messages from all dynamic partitions that belong to dynamic class P.

Other filtering criteria are the following:

CMD All entered commands and responses

AR Attention routine commands and responses

IPL IPL messages

'string' messages and replies which contain a given character string.

For example, enter **'CODE='** and press PF7 to redisplay messages that present a return code.

Specifying **ALL** or ***** causes resetting to 'no-filter.'

Subfilter

This is a second filter which can be specified with or without the above-described filter. The subfilter is specified by one character to select

S Messages that had been suppressed or automatically been replied to (by VSE/OCCF for example)

N All logging items directed to or entered at an automation console such as a NetView operator station

A Action messages.

You can reset a subfilter by entering one of the above-described filters.

Working in Redisplay Mode

As mentioned above, when the **local command** %REDISPLAY is entered in console mode, your console goes into **redisplay mode**.

Once you are in redisplay mode, you can page back and forth (that is, look for earlier or later messages), change filters, and finally leave redisplay mode.

Using Predefined Key Settings

For the following discussion, you should be aware of the use of PF (and other) keys in redisplay mode. The predefined PF keys together with their labels are the following (please refer also to Figure 21 on page 48):

1=HLP 2=CPY 3=END

6=CNCL 7=BWD 8=FWD 9=EXPL 10=INP

12=INFO

Each PF key having a label is associated with a local command. For example pressing (PF key) 12=INFO initiates the local command %CHANGE INFO. This command changes a variety of "extras" in your message area. It changes, for example, the request to display the date/time for **redisplayed** messages from 'Show' to 'Do not show', or from 'Do not show' to 'Show'. All predefined key settings (PF, ENTER, CLEAR) are shown in Figure 23 on page 52 through Figure 26 on page 54.

Note in particular that, in redisplay mode, the ENTER key works like a %REDISPLAY command. You can, for example, move the cursor to any line in the message area. Pressing ENTER would make this line the *current line*.

Do not mistake the PF10 (=INP) key to be the ENTER key. The INP key causes the content of the input line to be processed as a command, for example a VSE/ESA system command. The ENTER key, on the other hand, is actually the %REDISPLAY command and uses the content of the input line as parameter(s) for this command.

Setting a Starting Position

The REDSIPLAY command offers several means of setting a new starting position. For example:

Type **-500** in the input line and repeatedly press PF8 to page forward through the last 500 logging items.

Type **-5D** and press PF7 to skip all logging items of the last five days and to continue paging backward. You can make a similar selection based on minutes (M) or hours (H).

Type **02/15/1995** and press PF7 to skip logging items between now and 15 Feb 1995.

A new starting position is determined relative to the

Current **filter**, and the
Current **line**.

The current line is visible by strong highlighting: color and solid bar **reverse video**. When your redisplay is set to BWD (backward) scanning, as indicated at the very bottom of your screen

FILTER: ALL **BWD** **MODE: REDISPLAY**

the current line is at the bottom of the message area. Conversely, when FWD (forward) scanning is set, the current line is at the top of the message area.

An 'R' as input lets the display return to the original starting position.

Entering System and Command Input

While you are in redisplay mode you can enter system input (commands and replies) and local commands. Note that a **user console** cannot issue a **system command** while in redisplay mode.

Type your input into the input area and press PF10=INP (be careful not to press the ENTER key because this key normally serves as another %REDISPLAY command).

Use this function with care. Because any system messages resulting from this input are not received by the console as long as it is in redisplay mode, system performance may be affected. When the MESSAGE indicator at the bottom starts flashing, you should return to console mode as soon as possible.

Redisplaying Messages

Be Aware of Special Situations...

1. The REDISPLAY command uses the hardcopy file as input source. If a filter was specified, searching through the hardcopy file may take a while. During the time of searching, the

REDISPLAY

indicator flashes in the status line.

2. When in the bottom line of your screen, the

MESSAGE

indicator appears, one or more messages are waiting to be displayed. This indicator is a warning that your console may be in danger of getting SUSPENDED (see the following item). The indicator starts flashing once a critical number of waiting messages is exceeded. Leaving redisplay mode will allow the message that is waiting to be displayed.

3. When in the bottom line of your screen, the

SUSPEND

indicator flashes, your console has temporarily been cut off from receiving new messages. You do not lose these messages because all messages are recorded in the hardcopy file from where you can redisplay them anytime later.

The system console can never be SUSPENDED.

4. **Terminate redisplay mode before you walk away from the console** (this is particularly true for the system console). If you fail to do this, your entire system processing may be affected.

Leaving Redisplay Mode

To terminate redisplay mode, use the command **%REDI E**. It is customary to have PF3 assigned to this function.

The **%REDI C** (PF6) immediately cancels any REDISPLAY command that is currently in process. You may want to use this command when searching for a given argument seems unusually long (the REDISPLAY indicator keeps flashing in the status line; see the first of the Notes above).

Redisplaying Messages about Outstanding Replies/Actions

You can redisplay messages from all static and dynamic partitions that tell you about outstanding replies or actions. To do this, enter the **REDISPLAY** command with 'H' as input.

Combining Input Parameters

The REDISPLAY command allows you to enter several parameters in one command. For example, entering

H,P1

plus pressing PF7, requests to have outstanding messages of dynamic partition P1 displayed.

Displaying Message Explanations

You can request an online explanation of a message from the *VSE/ESA Console* display. This function is available both at a locally-attached system console and at any *VSE/ESA Console* panel under the Interactive Interface. It is **not** available at the *integrated console* of the ES/9000 service processor or at a VSE/ESA console under VM that you operates in CONMODE 3215 (*line-mode*).

The online-explanation function accesses the online message file of VSE/ESA.

Note: The online message file, as delivered to you, only has the messages that are included in the *VSE/ESA Messages and Codes* manual. The file does not have messages, for example, of optional programs that you may install.

Support for online explanation must be activated by issuing the command

EXPLAIN ON

This command causes the online message file to be opened.

The OFF parameter causes online explanation support to be deactivated.

You can inquire about the current status by entering the command without a parameter. The initial status after IPL is OFF. EXPLAIN ON may be included in the BG ASI procedure, to activate the support as part of the IPL process.

There are two ways of requesting a message explanation (the following discussion assumes that PF9 is defined as EXPLAIN key):

1. Move the cursor to the message ID of the message for which you need the explanation. Press PF9.
2. Type the message number in the input line (==>). Press PF9.

If a message explanation references another message number, you can display information about this message, too. Move the cursor to the referenced message number or type the message number into the input line. Then press PF9 or the ENTER key.

Please note that you cannot get an online explanation while the **attention routine** (AR) has a **reply outstanding**. The reply must first be given, and then online explanations will be available again.

Notes:

If you enter a message number which is incorrect or which cannot be found, the dialog will do one of two things:

1. Display information about a message number that closely matches the one you entered.
2. Display a message telling you that the number cannot be found.

Message Explanations

VSE/VSAM and AMS Return Codes

You can also display message information about VSE/VSAM return and error codes and Access Method Services (AMS) return and reason codes. The following keywords must be used for VSE/VSAM return and error codes:

VSAMOPEN - for OPEN macro
VSAMCLOS - for CLOSE and TCLOSE macro
VSAMREQU - for request macros like GET and PUT
VSAMXXCB - for GENCB, MODCB, SHOWCB, and TESTCB macro

The following keyword must be used for AMS return and reason codes:

VSAMRESN - for catalog management requests

The following example shows a portion of a message display with a VSE/VSAM error code. You get this display after pressing PF9. In the online message explanation, the message variables are shown just in lowercase, not lowercase and italicized as they are in the hardcopy manual.

```
SYSTEM  VSE/ESA          VSE/ESA CONSOLE          USER:  LUKN
                                     TIME:  15:01:04
4228I   FILE filename macro ERROR X'nn' (nnn) CAT=ddddddd (rr,mm,ss)
        (moduleid) (text)
        EXPLANATION:  The ACB error flag was set to X'nn' (given in decimal
        notation in parentheses) during the indicated VSAM operation (exe-
        cution of OPEN, CLOSE, or TCLOSE).  See error codes; they are listed
        in "VSAMOPEN/VSAMCLOS/VSAMREQU/ VSAMXXCB via EXPLAIN-key."
        ddddddd is the filename of the catalog being searched for the object.
        A filename of '..N/A..' means that no catalog was yet active;
        '..INT..' indicates a filename internally created by VSAM.
        If an error was detected within the catalog management routines,

        rr = catalog management return code,
        mm = suffix of catalog management module detecting the error,
        ss = catalog management reason code.

        See "VSAMRESN via EXPLAIN-key."
        (moduleid) is the name of the VSAM OPEN/CLOSE module that detected
        the error.
        text is additionally created text that may assist service personnel
        in problem determination.  If the text is "Internal IKQOCMSG error"
        the messages routine has received inconsistent information.  Report
        the problem to IBM.
        .
        .
        .
==>
1=HLP 2=CPY 3=END          7=BWD 8=FWD 9=EXPL 10=INP

                                     MODE:  EXPLANATION
```

The explanation tells you how to proceed to display the description of the error code. Type VSAMOPEN and press ENTER or PF9 to get a display similar to the one shown below:

```

SYSTEM: VSE/ESA          VSE/ESA CONSOLE          USER: LUKN
                                           TIME: 15:04:00
VSAMOPEN  - Error Codes from OPEN

Register 15 contains X'00': All ACBs were opened successfully. OPEN
processing continues.

-----
ERROR CODE
Dec  Hex  Explanation
-----
113  71  OPEN tried to execute the Catalog Check Service Aid in order
      to check the validity of this file's catalog records.
      Either the CDLOAD failed, or the service aid encountered I/O
      errors. The file has been opened successfully.
      Programmer Response: Run the Catalog Check Service Aid; it
      will identify catalog errors for you. Follow the directions
      for the error messages that it issues.
114  72  The catalog Check Service Aid was invoked during OPEN proc-
      essing and detected a catalog irregularity, or there was
      insufficient storage for Catalog Check processing.
      Programmer Response: This access to the data is allowed,
      but there are errors in the catalog structure that you
      should find. Because this information was collected during
      OPEN processing, it cannot be printed. Run the Catalog
      Check Service Aid against the entire catalog; it will iden-
      tify catalog errors for you. Follow the directions for the

==>

1=HLP 2=CPY 3=END          7=BWD 8=FWD 9=EXPL 10=INP

                                           MODE:  EXPLANATION

```

Entering System and Command Input

While you are in explanation mode you can enter system input (commands and replies) and local commands. Note that a **user console** cannot issue a **system command** while in explanation mode.

Type your input into the input area and press PF10=INP (be careful not to press the ENTER key because this key normally serves as another %EXPLAIN command).

Use this function with care. Because any system messages resulting from this input are not received by the console as long as it is in explanation mode, system performance may be affected. When the MESSAGE indicator at the bottom starts flashing, you should return to console mode as soon as possible.

Getting HELP Information

You request HELP information by pressing PF1 (%HELP command). This function is available in any operation mode and transfers your console into **help mode**.

HELP information is of two kinds:

1. Panel help

This provides assistance in using the panel.

Console Commands

2. Message help

This provides detailed explanations about a local message currently being displayed.

In a HELP panel, you can enter commands (including system commands, such as MAP) and have the result displayed at the console.

Console Commands

From your console, you can issue two types of commands:

- VSE system control commands

These commands are directed toward the operating system as a whole.

- Local commands

These commands have to do with what is happening on your screen. They are mostly screen control commands.

VSE System Control Commands

These commands fall into several groups according to their function, such as commands for

- **IPL** (Initial Program Load) - commands ADD, DPD, SET, SVA etc.
- **JCL** (Job Control Language) - commands ASSGN, JOB, DLBL, EXEC etc.
- **AR** (Attention Routine) and system commands - commands MAP, REDISPLAY, DUMP, GETVIS etc.
- **Security Server**— commands (see “Security Server Commands” on page 46).

Master versus User Console

Your console is defined either as **master console** or as **user console**.

A master console **receives all messages** that are not directed to a specific console. A user console, on the other hand, receives only those messages that are specifically directed to it, for example responses to system commands or messages issued from a job which was submitted from that console.

Likewise, the master console has unrestricted authority to **issue commands** whereas the user console is somewhat limited. This is discussed in more detail in the following section.

Command Authorization

Commands under consideration here are

JCL (Job Control Language)

AR (Attention Routine) and other system commands not processed by Attention Routines (for example REPLID).

These commands fall into three categories according to the level of authorization the issuing user must have:

- **Restricted commands**

can be entered only from the system console and from other master consoles. The majority of **AR commands and system commands** belong to this category, for example DUMP and BATCH.

Authorization is required for the following **Job Control commands**:

- ALLOC
- DVCDN
- DVCUP
- HOLD
- JCLEXIT
- MSECS
- NPGR
- PRTY
- ROD
- SET
- SIZE
- START
- STOP
- SYSDEF
- UCS
- UNBATCH

- **Semi-restricted commands**

can be entered from a user console only for two special purposes:

1. To communicate with the partition where a job is running that was submitted from the user console. The VSE/POWER * \$\$ JOB statement must be specified with the ECHO option. The commands are the following:

- CANCEL
- MSG
- PAUSE
- REPLID
- REDISPLAY

2. Querying

Only the query-format may be used; for example the PRTY command to enquire about the partition priority (that is, the PRTY command to **set a new partition priority** would not be allowed from a user console). The commands are the following:

- AUTOIPL
- CACHE
- EXPLAIN
- HCLOG
- MSECS
- PRTY
- PRTYIO
- TPBAL
- SYSECHO

Console Commands

- **General-use commands**

can be entered from any console. The commands are the following:

GETVIS
MAP
STATUS
VOLUME

Commands of VSE/POWER and VSE/ICCF are restricted in a similar fashion.

Security Server Commands

The Security Server provides a set of commands to control its operation and display server status information.

These commands can be entered from the system console through:

MSG **xx**,DATA=**command**

where **xx** indicates the selected server partition (default FB) and **command** can be one of the following:

HELP, ?, or blank

obtains a list of possible commands.

STATUS

displays some information about the server's internal status.

DBSTARTCACHE

starts caching records read from the VSE.CONTROL.FILE.

DBSTOPCACHE

stops caching.

LOGTIME=*n*

sets the logtime interval time.

OPENCNTL

opens the VSE.CONTROL.FILE.

CLOSECNTL

closes the VSE.CONTROL.FILE.

RESET

resets the server to its initial state.

STOP

stops the server.

Getting Help: The Help command displays a list of available server commands. For example:

```
msg fb,data=?
AR 0015 1I40I  READY
FB 0011 BST221I POSSIBLE SECURITY SERVER COMMANDS ARE:
FB 0011  DBSTARTCACHE.....: STARTS DATABASE CACHING
FB 0011  DBSTOPCACHE.....: STOPS DATABASE CACHING
FB 0011  STATUS[=ALL].....: SHOWS TOTAL SERVER STATUS
FB 0011  STATUS=[MAIN PS DB]..: SHOWS SELECTED STATUS
FB 0011  LOGTIME=N.....: SETS LOGTIME TO N MINUTES (1..9)
FB 0011  RESET.....: CLEANUP EVERYTHING
FB 0011  STOP.....: STOPS THE SERVER (USE WITH CAUTION!)
FB 0011  OPENCNTL.....: OPENS THE II CONTROL FILE
FB 0011  CLOSECNTL.....: CLOSSES THE II CONTROL FILE
```

See the *VSE/ESA Planning* manual for an overview and planning information, the *VSE/ESA Administration* manual for using information of the security server.

Local Commands

These commands, in general, control the dialog and how you operate your screen. This is in contrast to commands that control the primary computing tasks at your central processor.

Before you get to know these commands, you may want to learn a little about the layout of the *VSE/ESA Console*.

The VSE/ESA Console Panel

The *VSE/ESA Console* panel has slightly different appearances, depending on the mode that your console is in.

The primary mode is **console mode**. Figure 20 shows an example.

The other three modes are

- Redisplay mode
- Explanation mode
- Help mode.

An example of a redisplay is shown in Figure 21 on page 48.

```

SYSTEM:  VSE/ESA                VSE/ESA CONSOLE                USER:  PETE
                                           TIME:  17:57:33

BG 0000 PUNCHES=  FED
BG 0000 -----V-----VVVV-----VVVVV--VVVVV--VVV--VVVVVVVV--VV-----V-----
BG 0000 CLASS=   Z           5      1024   128   50  STDPROF 03      Y
BG 0000                POWER SPOOLED DEVICES
BG 0000 -----V---V---V---V---V---V---V---V---V---V---V---V---V---V---V-----
BG 0000 READER=   FEC
BG 0000 PRINTERS= FEE
BG 0000 PUNCHES=  FED
BG 0000 -----
BG 0000 L113I RETURN CODE OF LIST IS  0
BG 0000 L001A ENTER COMMAND OR END
BG-0000
0 end
BG 0000 1S55I  LAST RETURN CODE WAS 0000
BG-0000 1I00D  READY FOR COMMUNICATIONS.
0
BG 0000 EOJ PAUSEBG  MAX.RETURN CODE=0000
          DATE 10/26/94,CLOCK 16/46/31,DURATION  00/09/19
BG 0001 1Q34I  BG WAITING FOR WORK
* cp disc
AR 0015 DISCONNECT AT 17:46:39 CET WEDNESDAY 10/26/94
AR 0015 1I40I  READY
F2 0002 DFH0801 - C.I.C.S. TIME ALTERED FROM 24.00.000 TO 00.00.006

==>

1=HLP 2=CPY 3=END 4=RTN 5=DEL 6=DELS 7=RED 8=CONT 9=EXPL 10=HLD          12=RTRV

ACT_MSG: HOLD                PAUSE:      1                MODE:  CONSOLE

```

Figure 20. VSE/ESA Console: Console Mode

Console Commands

```
SYSTEM:  VSE/ESA                      VSE/ESA CONSOLE                      USER:  HAUS
                                           TIME:  14:25:32

Z1 0045 0S30I DUMP STARTED. MEMBER=DZ100001.DUMP IN SUBLIB=SYSDUMP.DYN
Z1 0045 1I49I DUMP LIBRARY FULL
Z1 0045 1I51I DUMP COMPLETE
Z1 0045 4A87I AUTOMATIC CLOSE HAS BEEN STARTED
Z1 0045 4A88I AUTOMATIC CLOSE FOR 1 FILE(S) COMPLETED
Z1 0045 1S78I JOB TERMINATED DUE TO PROGRAM ABEND
Z1 0045 EOJ MIGRAT
      DATE 10/25/94,CLOCK 16/39/36,DURATION 00/00/16
Z1 0001 1Q3EI DYNAMIC CLASS 'Z' WAITING FOR WORK
F2 0002 DFH0801 - C.I.C.S. TIME ALTERED FROM 24.00.000 TO 00.00.004
BG 0001 1Q47I BG UPDSECT 00354 FROM (VOLK) , TIME=12:54:28
BG 0000 // JOB UPDSECT UPDATE SECURITY TABLE
      DATE 10/26/94,CLOCK 12/54/32
BG 0000 // EXEC PROC=IESGENST
BG 0000 // EXEC LIBR,PARM='MSHP'
BG 0000 // EXEC IESSECU,SIZE=AUTO
BG 0000 EOP IESGENST
BG 0000 // IF $RC > 8 THEN
BG 0000 1S46I ONE STATEMENT SKIPPED DUE TO IF CONDITION
BG 0000 // EXEC PROC=IESBLDST
BG 0000 // EXEC IESINSRT

==>

1=HLP 2=CPY 3=END                      6=CNCL 7=BWD 8=FWD 9=EXPL 10=INP      12=INFO
FILTER:  ALL                          BWD                      MODE:  REDISPLAY
```

Figure 21. VSE/ESA Console: Redisplay Mode

The VSE/ESA Console panel basically has 6 sections:

1. Two header lines
2. A large portion for system-message lines (depending on the terminal type, there is space for 17, 20, 25, or 36 message lines).
3. An input line (indicated by an arrow ==>), plus one continuation line
4. One line for PFkey labels
5. One message line, for notification and error information related to this console's operation only
6. One line for various status indicators.

Entering a Local Command

This section shows by way of examples how you work with local commands. The entire set of local commands, together with syntax rules, is described in reference-format in the following section, "Local Commands - Reference Summary" on page 50.

Local commands may be assigned to PF keys (this is true for local commands as well as for VSE system control commands). For example, PF12 is occupied by the command

%RETRIEVE

Pressing PF12 then would cause the last-entered command to be displayed in the input line (you must press ENTER to have the command processed).

Your VSE/ESA system as delivered to you has predefined key settings (PFs, ENTER, CLEAR). In fact, there are four sets of key settings, one for each mode: **console** mode, **redisplay** mode, **explanation** mode, **help** mode. Predefined key settings (which are similar to the ones delivered with your VSE/ESA system) are listed in Figure 23 on page 52 through Figure 26 on page 54.

Note: The examples in this manual are based on these key settings.

Your administrator has the tools to establish other key settings. These tools are described in the IBM manual *VSE/ESA Administration*. The key settings are valid for the entire system, they cannot be set for an individual user.

Four local commands will now be explained:

- %COPY
- %DELAY
- %DELETE
- %CHANGE HOLD

The %COPY Command

This command copies a message line from within the current display to the input line.

Assume you want to copy line number 12. You either type

%COPY 12

and press ENTER. Or, you move the cursor to that line and press PF2.

The %COPY command is useful, for example, when you want to correct a JCL command which you had misspelled. Simply move the cursor to the line where the system had displayed (*echoed*) the incorrect statement and then press PF2.

Note that the copied data remains in the input line after you return to console mode. This allows you to copy (while you are in redisplay mode) an entire command from the redisplayed data and have it executed by simply pressing ENTER once you are back in console mode.

The %DELAY Command

This command places a character string in the input line with the cursor positioned right behind the string. It allows you, for example, to have a partial command displayed. You may then type in the missing data.

Assume

- PF11 is set to %DELAY D NET,ACT,ID=
- You are in console mode.

When you press PF11, the partial command

D NET,ACT,ID=

is displayed in the input line whereupon you may type the net ID and send off the command to the VSE/ESA system.

The %DELETE Command

This command **removes the highlighting** from an action message that is currently displayed on your console screen. In other words, the command **cannot truly delete** an arbitrary line from the screen, no matter if it is highlighted or not.

It is most practical to use the setting of PF5 as shown in Figure 23 on page 52:

```
%DELETE ?CL,?IN
```

You simply move the cursor to the highlighted message and press PF5.

The variable ?CL (*cursor location*) is set equal to the line number of the message. The variable ?IN (*input line*) picks up the content of the input line. Note that the message is deleted only from the one console where you are working. Pressing PF6 would replace the variable ?IN by the keyword SYSTEM:

```
%DELETE ?CL,SYSTEM
```

This ensures that the highlighting disappears on **all VSE/ESA consoles** that are currently active.

An alternate way of entering the command would be to specify the line number explicitly, for example if the action message is displayed on line 11:

```
%DELETE 11
```

The %CHANGE HOLD Command

As the console screen fills up again and again, the vast majority of messages disappears. Only those messages that require your attention are collected in highlighted form at the top of the screen.

You have the option of annulling this HOLDing of messages: enter the command

```
%CHANGE HOLD
```

This command works like a toggle switch: you may revert back to HOLDing of action messages by entering the command again.

For console mode, the set of predefined keys used in this manual has the %CHANGE HOLD command assigned to PF10.

Local Commands - Reference Summary

The table below shows the syntax of all local commands and the corresponding functional descriptions. It also lists the modes where the command is valid.

Please observe the following syntax rules:

- The local command must be the first string. It can be abbreviated to five characters (including the leading %).
- One or more blanks separate the local command from the first parameter.
- All other parameters are separated by a comma.

If a local command is assigned to a PF key, you may use variables as parameters. When the command is processed, the variable takes on a value as listed below:

?CL - number of the message line the cursor is pointing to
 ?TK - message ID of the message the cursor is pointing to
 ?IN - the data in the input line.

Assume, for example, that

- PF7 is set to
 %REDISPLAY ?IN
- With your console in console mode, in the input line you type
B,06/12/1995

When you press PF7, logging items will be redisplayed beginning with 12 June 1995 in a backward direction.

The four tables beginning with Figure 23 on page 52, which list the predefined key settings, have more examples of the use of variables.

Figure 22 (Page 1 of 2). Local Commands - Reference Summary		
Command	Function	Modes
%BACKward	Pages backward.	Explanation Help
%CHANGe ALARM	Enables/disables the alarm sound that is generated when a local message is displayed or when the corresponding VSE/OCCF ALARM option is effective.	All
%CHANGe HOLD	Changes the HOLDing of action messages on the console from 'HOLD' to 'Do not HOLD,' or from 'Do not HOLD' to 'HOLD.'	All
%CHANGe INFO	Changes the request to display additional items (the time stamp, for example) for redisplayed messages from 'Show' to 'Do not show,' or from 'Do not show' to 'Show.'	All
%CLEAR	Clears the portion of the message area that is eligible for being scrolled off. MORE and HOLD states are also removed.	Console
%CLEAR	Causes the screen to be refreshed.	Redisplay Explanation Help
%CONTInue	Continues with console display. MORE and HOLD states are also removed.	Console
%COPY nn	Copies one message line to the input line.	All
%DELAy string	Displays a command string in the input line and positions the cursor at the end of the string.	All
%DELEte nn,string	Dehighlights message line 'nn' on all consoles currently active in the system if string is set to SYSTEM; otherwise only at the local console.	Console
%END	Returns to previous mode. Note that the row following this one, with no entry in the Command column, also applies to the %END command.	Explanation Help
%END	Returns to the panel from where the current panel had been accessed, or: if entered at the system console, deactivates the console (see also the Note below).	Console

Console Commands

Figure 22 (Page 2 of 2). Local Commands - Reference Summary

Command	Function	Modes
%EXPLain msgID	Displays explanations for the message identified by 'msgID' by using the <i>online message explanation</i> file as input.	Console Explanation Redisplay
%FORWard	Pages forward.	Explanation Help
%HELP	Provides help information for current display, either about using the panel or explaining a local message.	All
%REDISplay string	Redisplays logging items in accordance with the given 'string' of redisplay parameters.	Console Redisplay
%RETRieve	Displays a previously entered command in the input line.	Console
%RETUrn	Returns to <i>VSE/ESA Function Selection</i> panel, or: if entered at the system console, deactivates the console (see also the Note below).	Console
%SET PAUSE nn	Sets the time for the console display's time of pausing before displaying another page. nn indicates the number of seconds ranging between 00 and 99 .	All
%SET SCROLL n	Changes (for console mode) the number of non-highlighted messages that is carried over on a turnover to the next screen. n has a value between 0 and 9.	All

Note: When %END or %RETURN is entered at the system console, you receive the message

CONSOLE DEACTIVATED, HIT ENTER TO RESUME

After you press ENTER, your console screen is refreshed. You may have a need for this if the picture is scrambled or otherwise corrupted.

The diagram below shows the predefined default values of the ALARM, HOLD, INFO, PAUSE and SCROLL settings.

Parameter	Default Value
ALARM	YES
HOLD	YES
INFO	NONE
PAUSE	1
SCROLL	1

These settings are defined in the IBM-supplied source members IJBxDEF (system wide) and IESxDEF (for users of the VSE/ESA Interactive Interface). They can be changed by updating and assembling those members (as described in section "Using Macro IJBDEF" of the IBM manual *VSE/ESA Administration*).

Figure 23. Predefined Key Settings - Console Mode

Type	PFkey	PFkey label	Command
PFKEY	01	'1=HLP'	'%HELP'
PFKEY	02	'2=CPY'	'%COPY '?CL'
PFKEY	03	'3=END'	'%END'
PFKEY	04	'4=RTN'	'%RETURN'
PFKEY	05	'5=DEL'	'%DELETE '?CL','?IN'
PFKEY	06	'6=DELS'	'%DELETE '?CL','SYSTEM'
PFKEY	07	'7=RED'	'%REDISPLAY '?IN'
PFKEY	08	'8=CONT'	'%CONTINUE'
PFKEY	09	'9=EXPL'	'%EXPLAIN '?TK'
PFKEY	10	'10=HLD'	'%CHANGE 'HOLD'
PFKEY	12	'12=RTRV'	'%RETRIEVE'
ENTER		'INPUT'	'?IN'
CLEAR		'CLEAR'	'%CLEAR'

Figure 24. Predefined Key Settings - Redisplay Mode

Type	PFkey	PFkey label	Command
PFKEY	01	'1=HLP'	'%HELP'
PFKEY	02	'2=CPY'	'%COPY '?CL'
PFKEY	03	'3=END'	'%REDISPLAY E'
PFKEY	06	'6=CNCL'	'%REDI C'
PFKEY	07	'7=BWD'	'%REDI '?CL','B','?IN'
PFKEY	08	'8=FWD'	'%REDI '?CL','F','?IN'
PFKEY	09	'9=EXPL'	'%EXPLAIN '?TK'
PFKEY	10	'10=INP'	'?IN'
PFKEY	12	'12=INFO'	'%CHANGE INFO'
ENTER		'REDISPLY'	'%REDI '?CL','?IN'
CLEAR		'CLEAR'	'%CLEAR'

Controlling the Screen

Figure 25. Predefined Key Settings - Explanation Mode

Type	PFkey	PFkey label	Command
PFKEY	01	'1=HELP'	'%HELP'
PFKEY	02	'2=CPY'	'%COPY '?CL'
PFKEY	03	'3=END'	'%END'
PFKEY	07	'7=BWD'	'%BACKWARD'
PFKEY	08	'8=FWD'	'%FORWARD'
PFKEY	09	'9=EXPL'	'%EXPLAIN '?TK'
PFKEY	10	'10=INP'	'?IN'
ENTER		'EXPLAIN'	'%EXPLAIN '?TK'
CLEAR		'CLEAR'	'%CLEAR'

Figure 26. Predefined Key Settings - Help Mode

Type	PFkey	PFkey label	Command
PFKEY	01	'1=HLP'	'%HELP'
PFKEY	03	'3=END'	'%END'
PFKEY	07	'7=BWD'	'%BACKWARD'
PFKEY	08	'8=FWD'	'%FORWARD'
PFKEY	10	'10=INP'	'?IN'
ENTER		'HELP'	'%HELP'
CLEAR		'CLEAR'	'%CLEAR'

Controlling the Screen

This section gives a few hints and tips about using the console screen. Most of this information should be intuitively clear when you are actually working at your console.

In the following discussion, a PF key is shown whenever a predefined PFkey setting exists for a local command.

Console Mode Only

The following items are applicable to console mode only. The next section addresses also other modes.

- Action messages are highlighted. Messages indicating a system failure appear in color (the default color is red). They will not leave the screen, rather will be collected at the top of the screen.
- You may change this mechanism by issuing the command %CHANGE HOLD (PF7). All highlighted messages now are allowed to roll off the screen, and new highlighted messages will not stay on the screen until %CHANGE HOLD (PF7) is used again. The %CHANGE HOLD command thus works like a toggle switch.

- A highlighted message will be dehighlighted after the condition that led to the highlighting is no longer true. For example, the highlighting disappears after an action is taken that was asked for in the message.

Please note that a message requesting a reply disappears entirely when the job that issued the message gets cancelled.

- A message can manually be dehighlighted by issuing the %DELETE (PF5 or PF6) command. This message will then automatically roll off the screen. This function can be used for messages which cannot be automatically deleted by the system.
- Whenever the screen is completely filled, the message display stops; '..MORE' is displayed in the status line (which is the bottom line), for example like this:

```
ACT_MSG: HOLD                PAUSE:    3                MODE:  CONSOLE  ..MORE
```

The screen can be turned over with the %CONTINUE command (PF8).

If you do not turn over the screen, it remains in the MORE state for a given **pause time** (the default is 1 second). After the pause time has elapsed, the display automatically turns over to the next page.

You can set the pause time with the %SET PAUSE command, in the range of 0 to 99 seconds. A pause time of 0 means that the screen automatically turns over whenever it has been filled completely. Do not use a value of 0 for a PC in 3270 compatibility mode.

The pause time is permanently displayed in the status line (see the example above).

- You can change the number of (non-highlighted) messages that are kept after a turnover to the next screen. Use the %SET SCROLL command, with a message range from 1 to 9.
- When you press ENTER without any input, no new messages will be issued. 'HOLD' is displayed in the status line (the bottom line). The %CONTINUE command (PF8) resumes the displaying of new messages.

Console or Other Modes

- You can obtain message explanations by positioning the cursor to the message ID and issuing the %EXPLAIN command (PF9).

The status indication MESSAGE appears if new messages were to be delivered in the meantime, for example like so:

```
1=HLP 2=CPY 3=END                7=BWD 8=FWD 9=EXPL 10=INP
```

MESSAGE MODE: EXPLANATION

- There may be instances where you remain on one display for a long time (for example you had set your screen into HOLD, or you are analyzing an explanation panel). For a console that is set to HOLD, the bottom of the panel would look like this:

```
==>
```

```
1=HLP 2=CPY 3=END 4=RTN 5=DEL 6=DELS 7=RED 8=CONT 9=EXPL 10=HLD                12=RTRV
```

```
ACT_MSG: HOLD                PAUSE:    1                MODE:  CONSOLE
```

During this time, you won't receive any messages that the system wants to deliver to you. When the system is getting overloaded by messages to be

Line-Mode Operation

delivered and you are one of those users who have not picked up their message(s) in a long while, your console receives an alert: the status indication MESSAGE flashes in the status line.

You should then go into console mode to handle the new messages. Failing to do so could lead you into the SUSPENDED state, which is described in the following paragraph.

- The status indication SUSPEND flashes if the console is being suspended from receiving new messages. You do not lose these messages because all messages are recorded in the hardcopy file from where you can redisplay them anytime.

Considerations for TERMINAL CONMODE 3270

When you operate your VSE/ESA system under VM from a **CP console in TERMINAL CONMODE 3270**, you should take a few precautions.

Full-Screen Refreshes Missing

If for your console the TERMINAL option BREAKIN is set to IMMED and the ENTER or ATTN key is pressed while a CP message is pending, CP overlays the screen with the message. A refresh of the screen does not necessarily follow; only the updated portions of the screen appear (however, other keys like CLEAR or PA1 do restore the screen).

To avoid problems of this kind, do either of the following:

1. Use the TERMINAL option BREAKIN GUESTCTL. In this case, CP will only signal the presence of messages by a beep, without interrupting the full-screen session on interrupts (other than the one specified as BRKKEY).
2. Use a dialed 3270 terminal rather than the CP console in 3270 mode.

Disconnect/Reconnect between Different Terminal Types

When you disconnect from a terminal and reconnect at another that has different presentation characteristics, your operation may not be successful. The screen might be scrambled, or the lines skewed.

You may try pressing PF3 and then ENTER to refresh the console. Better yet: strictly avoid this kind of disconnecting/reconnecting.

Special Considerations for Line-Mode Operation

The preceding sections focussed on operating your console in **full-screen** mode. In this mode, the contents of an entire terminal screen is displayed at once.

In **line mode**, on the other hand, the information is presented one line at a time in the message area of the terminal screen. You are in line-mode operation at a

- VSE/ESA system console under VM, when the terminal is set to CONMODE 3215
- CMS console that communicates with VSE/ESA via the VM/VSE Interface
- Integrated console as system console.

According to the above list, three line-mode displays are shown in the figures below. Notice that this type of display does not have the frame of surrounding

information that you get in full-screen mode (for comparison see Figure 21 on page 48). For example, filter, mode, or predefined PFkey settings are not available. The system cannot display highlighted messages.

The following sections describe some peculiarities of line-mode operation.

```
d q
AR 0015 1C39I COMMAND PASSED TO VSE/POWER
F1 0001 1R49I 420 FREE QUEUE RECORDS - QUEUE FILE 009% FULL
F1 0001 1R49I 241 FREE DBLK GROUPS - DATA FILE 015% FULL
F1 0001 1R49I CURRENT DBLK SIZE=04080, DBLK GROUP SIZE=00010
F1 0001 1R49I ACCOUNT FILE 26 % FULL
```

Figure 27. Example of a Line-Mode Display (CONMODE 3215)

```
vsecmd vseguest d q
READY; T=0.01/0.01 13:37:47
AR 0015 1C39I COMMAND PASSED TO VSE/POWER
F1 0001 1R49I 423 FREE QUEUE RECORDS - QUEUE FILE 008% FULL
F1 0001 1R49I 244 FREE DBLK GROUPS - DATA FILE 014% FULL
F1 0001 1R49I CURRENT DBLK SIZE=04080, DBLK GROUP SIZE=00010
F1 0001 1R49I ACCOUNT FILE 24 % FULL
```

Figure 28. Example of a Line-Mode Display (VM/VSE Interface)

Line-Mode Operation

```
#cp vinput vmsg d q
D Q
AR 0015 1C39I COMMAND PASSED TO VSE/POWER
F1 0001 1R49I 415 FREE QUEUE RECORDS - QUEUE FILE 010% FULL
F1 0001 1R49I 236 FREE DBLK GROUPS - DATA FILE 017% FULL
F1 0001 1R49I CURRENT DBLK SIZE=04080, DBLK GROUP SIZE=00010
F1 0001 1R49I ACCOUNT FILE 28 % FULL
```

Figure 29. Example of a Line-Mode Display (Integrated Console)

Note that the preceding figure shows a display from a **simulated integrated console** under VM. Here, a VSE/ESA command must be imbedded within the CP command VINPUT VMSG.

REDISPLAY Command

From a line-mode console, you do not have available the conveniences of the **local command** %REDISPLAY, such as the predefined PF keys to browse through the redisplayed data.

Instead you must use the system command REDISPLAY (without the prefix %). Assume, for example, that you want to redisplay messages of partition F3. In full-screen mode, you would type F3 and press PF7 which would place your console in **redisplay mode**. While in this mode, you could scan further through the redisplayed data via PF keys, specify new filters etc.

In line-mode operation, on the other hand, you might enter

RED F3,20L

The requested 20 lines will be displayed. The system maintains a so-called *internal redisplay mode*. Due to this mode, certain settings are being kept, such as current line, filter. Therefore, by entering the above command again, you would receive the next 20 lines for partition F3.

Internal redisplay mode ends after you enter a REDISPLAY command that includes the 'E' parameter.

Note: Under the VM/VSE interface, inclusion of the 'E' parameter is implied.

For the full description of the REDISPLAY command refer to Appendix B, "REDISPLAY Command" on page 211.

Setup for Desired Chronological Order

For a redisplay in line mode, be aware of the following. The data being redisplayed are taken, line by line, from the hardcopy file. By default, the redisplay starts at the current line in the presence and moves backward into the past. Newer messages are redisplayed ahead of the older messages. In other words, when redisplaying messages in backward direction, the output on a line-mode console appears in **reverse chronological** order.

To receive the output in **chronological** order, you should proceed as follows:

1. Set the starting position to a point farther back in the past by specifying the proper positioning operand.
2. Set the redisplay direction to 'forward' by using the direction operand F.
3. Choose the number of lines to be displayed via the 'lines' operand.

Here are a few examples.

RED -100,F,20L

RED -10M,F,10L

RED 14:55,F,20L

RED 03/09/1995,F,30L

Before you enter a new REDISPLAY command to go farther back in time, be aware that the hardcopy file is positioned at the last message displayed.

Disconnecting the System Console

VSE/ESA provides the capability to use the system console as a VTAM* or a CICS* terminal. This requires the definition of a **dummy device**. The following command, contained in the shipped IPL procedures, will do this and thus allow disconnection of the system console:

ADD FFF,CONS

(Adding a dummy device with the CONS parameter is also necessary (if your system uses an integrated console as system console).)

The **OPERATE** command allows you to switch your system console to disconnected mode. This means that the device will be released from the system console status and thus might be used as a VTAM or a CICS terminal. **No system messages will appear** on the screen after the system console has been disconnected. Enter:

OPERATE DISC

The **DISC** option will only be accepted if the hardcopy file is open at the time the command is issued.

Note that although an *integrated console* cannot be used as VTAM or CICS/VSE terminal, it can be disconnected (you may have a reason to suspend the message traffic to this console).

To return to the system console, either

Accessing the Integrated Console

- Enter the
OPERATE CONN
command, or
- Terminate your VTAM or CICS application and press ENTER. If that is not possible, switch off the terminal and switch it on again. This will return you to the system console.

When you use VSE/ESA under VM, you can use the following command to disconnect the system console:

* **CP DISC**

Resetting a Dialed System Console

The local command %RETURN (normally assigned to the PF4 key), when issued at the system console, deactivates the console; see also Figure 22 on page 51.

When your VSE/ESA is running under VM, %RETURN causes the following command to be processed:

- * CP DISCONNECT - for a console in CONMODE 3270
- * CP RESET - for a dialed console

It is recommended that you use the %RETURN command rather than one of the two commands above.

How to Access an Integrated Console

Depending on the IBM ES/9000 processor, you have to perform a number of steps to access the integrated console of your service processor. The following are examples on how to proceed to access an integrated console from IBM ES/9121 and IBM ES/9221 processors. For a detailed description, refer to the operating procedure manual shipped with your IBM ES/9000 processor.

IBM ES/9121 Processor with Integrated Console

To access the integrated processor console, proceed as follows:

1. Invoke the *System Console Index* screen.
2. Select *Operator Controls* (either by entering F OPRCTL or 11).
3. On the panel that appears, you are prompted for a device address and a LOAD parameter (PARM). Enter the required address and specify **I**. **I** indicates that you perform an IPL with an integrated console.
4. To be able to communicate with VSE/ESA, select *Operator Messages* by entering F OPRMSG (or by going back to the *System Console Index* and entering 12).
5. The VSE system console appears on your screen. You now can enter VSE commands in the field SCP COMMAND.

IBM ES/9221 Processor with Integrated Console

To access the integrated processor console, proceed as follows:

1. Select the *System Monitor and Control* panel.
2. From the selection bar, select OPERATE and RECOVER.
3. On the panel that appears, you are prompted for a device address and a LOAD parameter. Enter the required address and specify **I**. **I** indicates that you perform an IPL with an integrated console.
4. A *MESSAGES* icon flashes on your screen. To be able to communicate with VSE/ESA, select the icon (double click).
5. From the selection bar, select REQUESTS. On the resulting pop-up menu select DETAILS.
6. The VSE system console appears on your screen. You now can enter VSE commands:
 - From the selection bar, select OPTIONS
 - From the resulting pop-up menu, select SEND COMMAND.
 - Enter the VSE commands and select SEND.

Accessing the Integrated Console

Performing System Startup and Shutdown

Chapter 5. Performing System Startup and Shutdown

Starting Up the System

VSE/ESA provides you with fast and efficient facilities to start up your system.

First, you have to power on your processor. You must also ready the input/output (I/O) devices: disk drives, tape and diskette units, printers, and terminals.

VSE/ESA can be installed as either a *native* system or as a *guest system* running under VM. VSE/ESA installed as a native system means that VSE/ESA is the only operating system installed on a processor or in a logical partition (LPAR). When VSE/ESA is installed as a guest system, it runs under the control of VM, which serves as the host system.

You start your VSE/ESA by performing **Initial Program Load (IPL)**.

To allow an almost completely automated system startup, VSE/ESA provides the **Automated System Initialization (ASI)** support. For ASI to work, all information required for system startup is stored as cataloged procedures in the system sublibrary IJSYSRS.SYSLIB and is called from there during startup.

After the programs required for IPL have been loaded, the appropriate IPL procedure is processed. An IPL procedure sets or changes various characteristics of your system, for example the layout of the page data set.

After that, ASI JCL procedures and jobs are processed. These procedures contain parameters for partition allocations, library search definitions, label definitions, and others. The ASI JCL procedures start the partitions.

Startup procedures for the predefined environments are shipped with your system.

Starting VSE/ESA Native

During power-on, your processor goes through *power-on reset*. After that, you initiate an IPL. You have to specify the device address of your SYSRES volume (which customarily has volume serial number DOSRES).

You find startup examples for IBM ES/4381* and IBM ES/9221 processors in the *VSE/ESA Installation* manual, sections "Step 1 - Performing an IPL from Tape" and "Step 1 - Performing an IPL from Tape (Manual/Native)". If you use a different processor, please refer to the operating procedure manual for that particular processor.

Setting the Time-Of-Day Clock

The TOD (time-of-day) clock must be set for ASI to start up your system. If the TOD clock is not set, the system displays the following messages during IPL:

```
0I18D ENTER SET CMD
THE DATE VALUE FORMAT IS MM/DD/YY
```

Enter the **SET DATE** command.

Starting Up the System

SET DATE=mm/dd/yy,CLOCK=hh/mm/ss

For DATE= *mm* is month, *dd* is day, *yy* is year.

For CLOCK= *hh* is hour, *mm* is minutes, *ss* is seconds.

After you have entered the required information, the following message appears:

0I19A ENABLE SETTING OF TOD CLOCK

Enable the setting of the TOD clock via the enable TOD switch, the hardware selection menu, or mode select option. For detailed information, refer to the operating procedures manual for your processor.

VSE/ESA now starts ASI processing.

Starting VSE/ESA under VM

To run your VSE/ESA as a guest system under VM, you have to log on to VM using the ID and password defined for the VSE/ESA guest system. Your terminal can then serve as the VSE/ESA system console. Make sure that the hardware mode of your virtual machine is set to:

ESA

This causes VSE/ESA to run in ESA supervisor mode.

A common way of starting VSE/ESA under VM is to log on the VSE guest system to VM and then go into CP mode (you go into CP mode by pressing **PA1**). Now enter:

IPL cuu (cuu - address of your SYSRES device, which normally has volume serial number DOSRES)

VSE/ESA now starts ASI processing.

Refer to the *VSE/ESA Planning* and *VSE/ESA Installation* manuals for information about installing VSE/ESA under VM.

Setting the Mode of Communicating with the System

When starting IPL, you can indicate how you want to communicate with the system; during IPL and afterward. This involves the specification of

1. Type of system console: locally attached terminal or integrated console
2. Suppression of IPL messages and IPL command echoing
3. Prompting for IPL parameters
4. Prompting for Mode of System Startup.

You specify this information in the first four positions of the **IPL load parameter**:

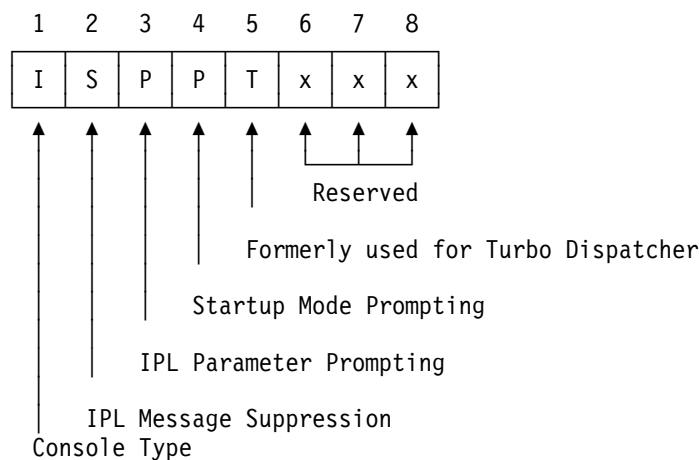


Figure 30. IPL Load Parameter Format

You enter your choices when running

- **VSE/ESA native**

in the load parameter field of the program load panel; when running

- **VSE/ESA as guest system** under VM

in the IPL command after the LOADPARM keyword, for example

```
IPL cuu LOADPARM ..P
```

Be sure to indicate an empty position by a period (.). Trailing periods can be omitted. For each empty position, a default will be chosen.

The effect of these IPL load parameters is described in the following sections.

Console Type

This is specified in the first position of the IPL load parameter:

I The system console is the *integrated console*.

This is the service processor console that is available on ES/9000 processors. When you have chosen the integrated console as your VSE/ESA system console, you would typically use it for

- **IPL** After IPL, for your normal day-to-day work, you would most likely use another terminal as system console, for example a terminal where you logged on to the VSE/ESA Interactive Interface.
- **Recovery** The integrated console resumes the system console function when no other console is available.

For the integrated console, an ADD statement containing a dummy device number and the CONS parameter must be supplied at IPL time, for example

```
ADD FFF,CONS
```

period (.) Instead of a period you may code an L.

The system console is a locally-attached 3270 non-SNA terminal.

Its device number is included in the ASI IPL procedure as first operand of the Supervisor Parameters command, like so:

```
009,$A$SUPX,VSIZE=...
```

Modifying the Automated Startup Procedures

The system checks whether this device is operational. If the system finds the device not to be operational, it waits for an interrupt from a local console.

Suppression of IPL Messages and Command Logging

This is specified in the second position of the IPL load parameter.

S All informational messages during IPL are suppressed. Only those error messages appear that require a response or an action.

Also, IPL commands will not be listed on the console.

period(.) All IPL messages are displayed. IPL commands are listed on the console unless the NOLOG option is specified in the Supervisor Parameters command.

IPL Prompting Code

This is specified in the third position of the IPL load parameter. Here you indicate whether you want IPL to stop for you to enter new IPL parameters. In section “Modifying the Automated Startup Procedures,” you find more information about these IPL parameters.

P IPL will stop with message

0I03D ENTER SUPERVISOR PARAMETERS OR ASI PARAMETERS

This allows you to enter new IPL parameters.

period(.) IPL will **not prompt** you for IPL parameters.

Startup Mode Prompting Code

This is specified in the 4th position of the IPL load parameter. Here you indicate whether you want IPL to stop for you to enter the startup mode. In section “Using VSE/ESA Startup Modes” on page 71, you find more information about making the startup mode known to the system.

P Startup will stop with messages

IESI0214I SELECT STARTUP MODE...

This allows you to specify the startup mode.

period(.) Startup will **not prompt** you for the system startup mode.

Former Turbo Dispatcher Activation Code

Prior to VSE/ESA 2.3 the **T** parameter in the fifth position of the IPL load parameter was used to activate the Turbo Dispatcher. It is no longer used as the Turbo Dispatcher is permanently acting.

Modifying the Automated Startup Procedures

You can interrupt the automatic startup process, for example to

- Use non-default ASI IPL or ASI JCL procedures. The default procedures are those listed in message 0J01I.
- Make temporary changes or corrections to the IPL commands contained in the ASI IPL procedure.

There are several methods for interrupting and restarting IPL, however only one method is described in this section. Your processor type will determine which of the methods you should use.

Modifying the Automated Startup Procedures

Refer to the IBM manual *VSE/ESA Guide to System Functions* for detailed information on how to:

- Interrupt and restart IPL processing,
- Enter IPL parameters,
- Stop ASI processing at specific IPL commands in the ASI IPL procedure,
- Modify IPL commands, or
- Create an ASI master procedure (\$ASIPROC).

To select an ASI IPL and/or an ASI JCL procedure other than the default procedure, you may (before you start IPL) request that IPL will stop and allow you to restart IPL by typing the name of another ASI IPL and/or ASI JCL procedure.

The following is a description of the preferred method. Proceed as follows:

- If you are running VSE/ESA as a native system, type P into the third position of the load parameter field in the *Program Load* panel.
- If your VSE/ESA runs under VM/ESA*, enter:
`IPL cuu LOADPARM ..P`
- After the message
`0I03D ENTER SUPERVISOR PARAMETERS OR ASI PARAMETERS`
enter the parameters with which you want to IPL the system.

You can now do the following:

1. use alternate ASI procedures,
2. alter IPL commands in the existing IPL procedure,
3. change the mode for adding I/O devices, or
4. perform an interactive IPL.

Using Alternate ASI Procedures

To use alternate ASI procedures, enter the names of the desired ASI IPL and JCL procedures as follows:

`IPL=IPL-procedurename,JCL=JCL-procedurename`

Message 0J01I is reissued with the new ASI procedure names and the procedures are executed automatically. If you press ENTER without supplying any input, then the default procedures are used.

Changing or Correcting IPL Commands

If you want to update the IPL commands contained in the ASI IPL procedure or enter new commands, reply as follows:

`STOP=(stoplist)`

stoplist specifies a single IPL command or a list of up to four different IPL commands, separated by commas and enclosed in parentheses, for example:

`STOP=ADD`

`STOP=(ADD,DEF,DPD,SVA)`

Modifying the Automated Startup Procedures

When an IPL command contained in the stop list is encountered during ASI IPL processing, ASI stops before processing this command. The command is saved and listed on SYSLOG and the following message is issued:

```
0J05D  ASI STOP.  ENTER COMMANDS, HIT END/ENTER TO CONTINUE
```

You can now enter one or more updated or new IPL commands from the console. To proceed with ASI, press ENTER. The saved command is now resubmitted to ASI for processing. It is recommended that you submit the **SET** command in this way.

ASI then processes the remaining IPL commands in the procedure, stopping each time a command is encountered which is contained in the stop list. If the IPL procedure contains several commands of the same type, ASI will stop only before processing the *first* of these commands. For example, if you enter **STOP=ADD**, and the procedure contains several **ADD** commands, ASI stops before the first **ADD** command. When you press ENTER, the rest of the procedure is executed without stopping. The new or updated commands will change the procedure only temporarily, that is, they are valid only until the next IPL.

Take as an example the following ASI IPL procedure:

```
009,$$A$SUPX,NOLOG
ADD 009,3277
.
.
ADD 480,3380
DEF SYSREC=150
DEF SYSCAT=150
DPD ...
DLA ...
SVA ...
```

Assume you have to change the device type for 480, add device 481, change the assignment for SYSCAT, and redefine the page data set. After message

```
0I03D  ENTER SUPERVISOR PARAMETERS OR ASI PARAMETERS
```

appears, proceed as follows:

1. Reply: STOP=(DEF,DPD).
2. ASI stops before processing DEF SYSREC and lists the **DEF** command followed by message 0J05D.
3. Now enter the following commands from SYSLOG:

```
0  DEL 480
0  ADD 480,3390
0  ADD 481,3390
```

Pressing ENTER without input results in processing DEF SYSREC.

4. ASI stops again before processing the **DPD** command and lists the **DPD** command followed by message 0J05D. In response enter:

```
0  DEF SYSCAT=151  (which overrides the DEF SYSCAT=150 specified in the
                   IPL procedure)
0  DPD ...         (which allocates the page data set as requested. Make
                   sure to respecify the complete page data set if it is
                   spread across multiple extents.)
```

When you press ENTER after allocation of the page data set, the original **DPD** command (or commands of a multi-extent page data set) is rejected with error message 0I36D. Ignore this message and press ENTER again. ASI processing continues by reading the **DLA** command from the procedure and executing it.

Changing the Mode for Adding I/O Devices

If you want to change the mode for adding I/O devices, reply:

TYPE=type

type specifies how I/O devices are to be added during IPL.

- **TYPE=SENSE** causes IPL to add the devices which support device sensing automatically.
- **TYPE=NORMAL** means that IPL only checks your ADD statements for correctness.

Performing an Interactive IPL

To perform an interactive IPL, type the supervisor parameters command:

\$\$A\$SUPX,VSIZE=...

and press ENTER. **Press ENTER again.** This will lead you into an interactive IPL.

Note: Do not forget to reset the 'IPL prompting' character of the IPL load parameter (3rd position) when you re-IPL the system. Otherwise, the IPL is performed again with IPL prompting which causes IPL to stop and the system waits with message

0I03D ENTER SUPERVISOR PARAMETERS OR ASI PARAMETERS

Using VSE/ESA Startup Modes

You initiate system startup by performing an IPL (as was described in the preceding part of this chapter). In the IPL load parameter you request 'IPL prompting' by coding a 'P' in the 4th position:

...P

After IPL is completed, you get the following messages at the system console if all partitions will be initialized in the same startup mode:

IESI0211I ALL PARTITIONS WILL BE INITIALIZED IN xxxxxx START MODE

xxxxxx represents the startup mode to be performed. If the partitions will be initialized in different startup modes, you get message IESI0221I followed by message IESI0222I:

IESI0221I PARTITIONS xx xx WILL BE INITIALIZED IN yyyyyy START MODE

IESI0222I REMAINING PARTITIONS WILL BE INITIALIZED IN xxxxxxxx START MODE

Because, in the IPL load parameter, you had requested prompting for startup mode, you will now receive the following messages:

IESI0214I SELECT STARTUP MODE FOR SYSTEM: MINI BASIC COLD

IESI0215A OR, IF NO CHANGE, ENTER: END.

Using VSE/ESA Startup Modes

You can now request one of the following startup modes:

- **MINI**
- **BASIC**
- **COLD**

MINI, BASIC, and COLD are discussed in detail in the following sections.

If no MINI, BASIC, or COLD startup is requested, the system automatically performs one of the following two startup modes:

1. **WARM** (normal startup):

A WARM startup is performed by each *partition* of the system if the latest shutdown of all partitions was completed successfully. The system is in normal, re-usable condition. It is the normal and fastest system startup.

A WARM startup can only be selected by the system.

2. **RECOV** (recovery startup):

A RECOV startup is performed for some partitions by the *system* if the latest shutdown could not be completed successfully or no shutdown was performed at all.

A RECOV startup can only be selected by the system.

If the partition which CICS and VSE/ICCF are sharing is performing a RECOV startup, it may take additional time until CICS and VSE/ICCF are available.

MINI Startup

You should perform a MINI startup only if instructed to do so.

A MINI startup does not start CICS, VSE/ICCF, and VTAM. Only the BG and F1 (VSE/POWER) partitions are activated.

A MINI startup may be used, for example, if no one needs to do online processing and you want to do batch processing only. This startup procedure is quicker than a complete startup, and is sufficient for batch processing.

Jobs that you might want to process could be maintenance jobs that can only be executed when CICS and VSE/ICCF are not running. Candidates for MINI startup could be jobs such as:

- Backing up data.
- Restoring data.
- VSE/ICCF maintenance.
- Restoring the system library.
- Performing library maintenance.

To request a MINI startup, perform the procedure described in “Using VSE/ESA Startup Modes” on page 71. Answer messages IES10214I/IES10215A by entering:

```
0 MINI
```

Now you are ready to do MINI processing.

The manual *VSE/ESA Guide for Solving Problems* has more detailed information about a MINI start.

BASIC Startup

You should perform a BASIC startup only if instructed to do so.

A BASIC startup may be used, for example, if CICS does not come up after modifying the system. The BASIC startup is designed to give you the opportunity to recover from such problems. Pregenerated system tables will be used, and none of the modifications the administrator made to the system will be effective. The following partitions are active after a BASIC startup has been completed:

- BG (available)
- F1 (VSE/POWER)
- F2 (CICS and VSE/ICCF)
- F3 (VTAM, if used)
- F4 (available)
- F5 (available)

With this basic system, erroneous system modifications can be corrected. After corrections are done, you must shut down the system and perform a new startup.

To request a BASIC startup, perform the procedure described under “Using VSE/ESA Startup Modes” on page 71. Answer messages IESIO214I/IESIO215A by entering:

```
0 BASIC
```

During a BASIC startup, you are requested to specify up to three terminal addresses. For these terminals, standard CICS and VTAM definitions are used.

For more detailed information on when to use a BASIC start, refer to the *VSE/ESA Guide for Solving Problems* manual.

Note: When you use the IBM-supplied BASIC startup, the *VSE/ESA Online* panel does not show (and you therefore cannot use) the PF3 key to return to VM.

COLD Startup

You should perform a COLD startup only if instructed to do so.

A COLD startup initializes and reformats the VSE/POWER queues and the VSE/POWER account file. COLD startup is automatically performed:

- During system installation.
- After installation of a network definition tape.
- After extending the VSE/POWER data or queue file, or after VSE/POWER generation with queue sharing.

During a COLD startup, all VSE/POWER queues are initialized. This means that all entries that are in the queues will be erased. You can save some or all entries contained in the queues by using the **POFFLOAD** command (as described in “Offloading and Loading VSE/POWER Queues” on page 83) *before* you shut down the system. Also all information in the VSE/POWER account file will be erased. To save this information, use the **PACCOUNT** command (as described in “Saving Accounting Information” on page 84) *before* you shut down the system.

After a COLD startup, VSE/ESA automatically initiates procedure COLDJOBS which reloads certain VSE/ESA-supplied jobs into the VSE/POWER reader queue.

Using VSE/ESA Startup Modes

During a COLD startup CICS is also COLD started.

To request a COLD startup, perform the procedure described under “Using VSE/ESA Startup Modes” on page 71. Answer messages IESI0214I/IESI0215A by entering:

0 COLD

Answer all messages beginning with:

F1 0001 4733D EQUAL FILE ID IN VTOC

by entering

1 DELETE

Sometimes a message will appear beginning with:

F1 0001 4244A OVERLAP ON UNEXPRD FILE

Note: If this message comes up, contact your system administrator and make sure whether this file can be safely deleted.

If you have verified this, answer by entering:

1 DELETE

The manual *VSE/ESA Guide for Solving Problems* has more detailed information on when to use a COLD start.

Chapter 6. Shutting Down the System

You can shut down the system as a whole but also single components. For example, you can shut down CICS, VSE/ICCF or VTAM independently of one another.

In the command examples shown in this chapter, the following partition assignments are assumed:

- CICS => F2
- VTAM => F3

Also, be aware that 02, the reply ID shown in the examples of CICS commands, could be different on your system.

To shut down the entire system, shut down the components as follows:

1. Shut down CICS.
2. Shut down VTAM.
3. Shut down all programs running in VSE/POWER controlled partitions using the appropriate commands.
4. Shut down VSE/POWER.

Shutting Down CICS

The following description applies to a CICS that has VSE/ICCF running under it, but also to a CICS without VSE/ICCF.

Shut down CICS by first entering:

MSG F2

to start communication with CICS (assuming that you are running CICS in the F2 partition). The **MSG** *partition-id* command starts a session between you and CICS. For more information on the MSG command, see the IBM manual *VSE/ESA System Control Statements*.

Now, to inquire if a task is still running, enter:

2 CEMT I TAS

and which users are still logged on:

2 USER

If someone is still logged on, ask the user to sign off. Use the CICS **CMSG** 'message' command, for example, to send a message to the user's terminal ID:

**2 CMSG 'Please sign off.
Shutdown in 2 minutes',R=terminal-id,S**

Be aware that the **CMSG** command may disturb the current session of the user.

System Shutdown

Note: An alternate way of performing these tasks is to use the *Display Active Users/Send Message* dialog. Details on this dialog can be found in “Displaying Active Users and Sending Messages” on page 137.

To shut down, enter:

2 CEMT P SHUT

As long as any task is in suspended mode, CICS will not terminate. In order to enable a normal shutdown, tell the users still logged on to log off and purge the suspended tasks (see “Stopping a Task” on page 110).

If there is no other choice, use the following command to shut down CICS:

2 CEMT P SHUT I

Note!

CEMT P SHUT I should *only* be issued under exceptional circumstances or on request of your **system administrator**.

It may not be possible to shut down CICS using a CEMT command. In this case use the **PFLUSH** (short form: **F**) command:

F F2

Be aware that you have to confirm your command to PFLUSH CICS when you see the following message:

F1+001 1QZ1D SUBSYSTEM RUNNING IN PARTITION F2 - REPLY 'YES' TO FLUSH PARTITION

Note: As with the **CEMT P SHUT I** command, the **PFLUSH** command should only be issued under exceptional circumstances or on request of your **system administrator**.

The display of message DFH1799 indicates that CICS has been successfully shut down. For example:

DFH1799 : DBDCCICS TERMINATION OF CICS IS COMPLETE

If you are running CICS under VSE/POWER, then you may get an additional message, for example:

1Q34I F2 WAITING FOR WORK

Shutting Down VTAM

Shut down VTAM using:

Z NET

Z is the short form of the VTAM command HALT.

To halt VTAM more quickly than with a normal **HALT** command, enter:

Z NET,QUICK

Be careful when using **Z NET,QUICK**. This command disrupts LU-LU sessions.

For a full description of **HALT** commands, refer to the *VTAM Operation* manual.

The appearance of message

```
IST102I  VTAM IS NOW INACTIVE
```

indicates that you have successfully shut down VTAM.

If you are running VTAM under VSE/POWER, then you may get an additional message, for example:

```
1Q34I  F3 WAITING FOR WORK
```

Shutting Down VSE/POWER

Shut down VSE/POWER as follows:

To see which VSE/POWER tasks are still active, enter the **PDISPLAY A** command (short form: **D A**):

```
D A
```

Use the **PSTOP** command to stop the tasks which are still active. See the IBM manual *VSE/POWER Administration and Operation* for details on using the PSTOP command.

Now you are ready to shut down VSE/POWER by entering:

```
PEND      (= VSE/POWER end)
```

You can also use the command

```
PEND cuu    (cuu = address of system printer)
```

You get a listing with the VSE/POWER status report. Your administrator may use the report for tuning of VSE/POWER.

When a VSE/POWER shutdown has been performed, a new IPL is necessary. For restarting of single partitions, refer to “Restarting VTAM” on page 80 and “Restarting CICS with VSE/ICCF” on page 79.

Issue the **MAP** command to show all other programs, not controlled by VSE/POWER, that are still active. If necessary, terminate the active programs using appropriate commands. See the IBM manual *VSE/ESA System Control Statements* for a full description of MAP command.

Shutting Down VSE/ICCF

Although VSE/ICCF runs in the same partition as CICS, you may shut down VSE/ICCF by itself, without having to shut down CICS.

Inquire which VSE/ICCF users are still logged on by entering:

```
/USERS
```

Use one of the following methods to inform the users who are still logged on that you will be shutting down VSE/ICCF:

- The *Display Active Users/Send Message* dialog, or

System Shutdown

- Enter the CICS **CMSG** command, or
- Enter the VSE/ICCF **/WARN** command (this command tells terminal users to log off soon because of VSE/ICCF's impending termination).

After a while, you may enter the **/USERS** command again to check for any users still logged on.

To shut down VSE/ICCF, enter:

/ICCFEND

Note: Those users still logged on will be disconnected.

If the **/ICCFEND** command does not completely shut down VSE/ICCF, you can enter:

MSG F2

to start communication with CICS (assuming that you are running CICS in the F2 partition) and then enter:

2 I\$SH

to shut down VSE/ICCF

Note!

2 I\$SH should *only* be issued under exceptional circumstances or on request of your **system administrator**.

The display of message

K125I ICCF HAS BEEN TERMINATED

indicates that you have successfully shut down VSE/ICCF.

For more information on the above VSE/ICCF commands, see the IBM manual *VSE/ICCF Administration and Operation*.

Remote Power-Off Control

This support is available only when your processor has the remote power on/off feature (for example an IBM ES/9221 series processor). The support allows you to switch off, via software, the power for the processor. You can use this function in one of the following ways:

- If you have a cataloged shutdown procedure, include in this procedure the statement:

// EXEC DTRPWOFF

Ensure that your system does not process the statement until for all active subsystems and partitions shutdown has been completed.

This is the preferred method of using the remote power-off function.

- Enter at the system console

EXEC DTRPWOFF

after shutdown has been completed for all active subsystems and partitions.

Chapter 7. Restarting Single Components

After a single component, controlled by VSE/POWER, has been shut down within a partition, you do not have to restart the whole VSE/ESA system in order to restart that one component.

Depending upon your needs, you can restart:

- CICS and VSE/ICCF together
- CICS alone
- VSE/ICCF when CICS is already up and running
- VTAM alone.

Restarting CICS with VSE/ICCF

After you have shut down CICS with VSE/ICCF, you can restart it in the F2 partition by using the VSE/POWER command **PRELEASE** (short form: **R**) to release jobs from the reader queue. By default, CICS with VSE/ICCF runs in the F2 partition. Enter:

R RDR,CICSICCF

Note: *CICSICCF* is the default startup job that is delivered with your system and is predefined for you by VSE/ESA. If you have your own startup job for CICS with VSE/ICCF, then use that instead.

Restarting CICS without VSE/ICCF

If you have installed a second predefined CICS (without VSE/ICCF), you can restart it by entering:

R RDR,CICS2

Note: *CICS2* is the default startup job that is delivered with your system and is predefined for you by VSE/ESA. If you have your own startup job for CICS without VSE/ICCF, then use that instead.

Restarting VSE/ICCF Only

VSE/ICCF runs under the control of CICS. You can restart VSE/ICCF just by itself, assuming that its controlling CICS is still running.

To restart VSE/ICCF only, first enter:

MSG F2

Note: If you have VSE/ICCF's CICS running in a partition other than F2, then specify that partition ID instead.

The **MSG** *partition-id* command starts a session between you and CICS.

Now enter

2 I\$T

Restarting Single Components

I\$ST is a CICS transaction ID. For more information on the use of this transaction, see the IBM manual *VSE/ICCF Administration and Operation*.

Restarting VTAM

If you have shut down VTAM, you can restart it using the command:

R RDR,VTAMSTR

Note: *VTAMSTR* is the default startup job that is delivered with your system and is predefined for you by VSE/ESA. If you have your own startup job for VTAM, then use that instead.

Assuming that CICS has not been shut down, wait for VTAM initialization to complete. Then enter:

MSG F2

AR 0015 1I40I READY

F2-0002 0D16D READY

2 CEMT SET VTAM OPEN

Note: In the above example and throughout this manual, it is assumed that you have CICS with VSE/ICCF running in the F2 partition.

The **MSG** *partition-id* command starts a session between you and CICS. The CICS command CEMT reestablishes the connection between VTAM and CICS.

CEMT commands are discussed in Chapter 13, "Controlling Online Operation" on page 109. For more detailed information about these CICS commands, see the the IBM manual *CICS CICS-Supplied Transactions*.

Performing Tasks via the VSE/ESA Console

Chapter 8. Performing Tasks via the VSE/ESA Console

Managing VSE/POWER Files

Offloading and Loading VSE/POWER Queues

You perform this task by entering commands from a VSE/ESA console.

Use the **POFFLOAD** (short form: **O**) command to save some or all jobs of the VSE/POWER queues on tape and later reload them for processing, printing, or transmitting. This is useful, for example, if you have large job outputs in the LST queue, but no printer available at the moment. Or you may want to save the jobs of the VSE/POWER queues before installing a refresh tape. You can reload the saved jobs to your system, or you can take the tape to another VSE/ESA system and reload the jobs to the VSE/POWER queues of that system.

You can save the jobs of all queues or of a particular queue. If you save the jobs of a particular queue, then you can specify the class or classes of the jobs that have to be saved.

Offloading Queues

To back up *all* entries in *all* VSE/POWER queues, first mount a tape on a tape unit (for example, the tape unit at address 300). Then enter:

O BACKUP,ALL,300

You also can back up just one queue or some entries in a queue. For example, to save only those entries in LST that have class B, you could enter:

O BACKUP,LST,300,,B

Loading Queues

To reload *all* entries for *all* queues, you would enter:

O LOAD,ALL,300

To reload *all* entries for *RDR*, you would enter:

O LOAD,RDR,300

Note: For more information about the POFFLOAD command and its operands, see the *VSE/POWER Administration and Operation* manual.

Saving Accounting Information

You perform this task by entering commands from the VSE/ESA console.

VSE/POWER collects accounting information for each job running under its control. This information is stored in the *account file*. For example, when more than 80% of this file's space is full, VSE/POWER warns you by issuing the following message:

```
1Q31I ACCOUNT FILE (IJAFIL) MORE THAN 80% FULL
```

This message is issued every 60 seconds as a reminder to the operator that immediate action is required. You should then enter one of the forms of the **PACCOUNT** command (short form: **J**) to empty the account file and optionally save its contents.

Some examples of the **PACCOUNT** command are:

- | | |
|--------------|---|
| J 300 | Saves the contents of the account file on a tape mounted on tape unit with address 300 and then empties the account file. |
| J PUN | Saves the contents of the account file to the punch queue in job PACCOUNT and then empties the account file. |
| J DEL | Empties the account file. Its contents are lost. |

The administrator of your VSE/ESA system will tell you which form of the **PACCOUNT** command to use.

After saving the account file, VSE/POWER displays the following message:

```
1Q79I ACCOUNT FILE SAVED
```

You do not have to wait for message 1Q31I to be displayed to enter the **PACCOUNT** command. For example, you may want to save the account file each day before shutting down your VSE/ESA system. Use the **PDISPLAY** command (short form: **D**) to find out how much of the account file has already been used.

Enter the command:

```
D Q
```

The system displays four messages. The fourth one looks like:

```
1R49I ACCOUNT FILE 27 % FULL
```

and gives you the needed information.

Note: If the account file becomes full, VSE/POWER displays a message like:

```
1Q32A NO MORE ACCOUNT FILE (IJAFIL) SPACE FOR LST,02E
```

and stops processing jobs until you use the **PACCOUNT** command to empty the account file.

Chapter 9. Controlling Job Execution

The tasks described in this chapter can be performed at the VSE/ESA console. To process jobs that are in the RDR queue, refer to Chapter 17, “Managing VSE/POWER Queues” on page 141. It shows how to use the *Manage Batch Queues* dialog of the Interactive Interface. You do not have to use the *Manage Batch Queues* dialog; you can also use regular VSE/POWER commands entered at the VSE/ESA console.

Most batch jobs in your VSE/ESA system are created by users working at display stations. These jobs are directly submitted to the reader queue. Other jobs may come from users at RJE workstations. Or they are sent from other nodes if your system is part of a network.

Starting a Job in a Static and Dynamic Partition

You start a VSE/POWER job by releasing the job from the VSE/POWER reader queue. You proceed in the same way for static or dynamic partitions. Assuming a job *PAUSEW* with a dynamic (or static) class *W* is in the RDR queue, you would enter:

R RDR,PAUSEW

To process a VSE/POWER job in a dynamic partition, the processing class of that job must be defined as *enabled* in the active Dynamic Class Table. For details on how to enable/disable dynamic classes, refer to the following section Additional Considerations on Dynamic Partitions.

The **MAP** command tells you which classes, static and dynamic partitions are active and which jobs are running. For details on the MAP command, refer to the IBM manual *VSE/ESA System Control Statements*.

Additional Considerations on Dynamic Partitions

After you have started *PAUSEW*, that job normally starts executing in a dynamic partition that belongs to *PAUSEW*'s dynamic class *W*, for instance partition *W1*. But it may happen that *PAUSEW* does not start. In this case, you should check the status of dynamic class *W* by using the **PDISPLAY DYNC** (short form: **D DYNC**) command. To do this, enter:

D DYNC,W

To display all dynamic classes, enter:

D DYNC,ALL

Note: Before using the **PDISPLAY DYNC** command, ensure that the selected Dynamic Class Table has been loaded. If no Dynamic Class Table has been loaded, the system issues the message:

1Q6CI D NO ACTIVE DYNAMIC CLASS TABLE LOADED

Use the **PLOAD** command to load a Dynamic Class Table.

Displaying Active Jobs

The result of PDISPLAY DYNC,ALL - it might look as shown below - displays the current active **Dynamic Class Table** with the following information for all dynamic classes (CLS):

- Current state of each class (STATE: ENAB, DISAB, SUSPEND)
- Number of currently active partitions within one class (ACT)
- User specified attributes (MAX, ALLOC, SIZE, SP-GETV, PROFILE, LUBS).

```
1Q6AI ***** ACTIVE DYNAMIC CLASS TABLE DTR$DYNC.Z *****
1Q6AI CLS STATE ACT/MAX ALLOC SIZE SP-GETV PROFILE LUBS
1Q6AI G ENAB 6 32 1M 200K 128K ASIPRCG 15
1Q6AI W DISAB 0 15 2M 300K 200K ASIX 15
1Q6AI P ENAB 4 8 1M 150K 128K ASIPROCP 15
1Q6AI Q ENAB 0 5 1M 100K 128K ASICQ 12
1Q6AI M SUSPEND 8 8 1M 100K 128K ASIPROCM 15
```

As you see, the state of a dynamic class is either *ENABLED*, *DISABLED* or *SUSPENDED*. But the state of a dynamic class **must be enabled** (for allocation of dynamic partitions) so that jobs can be processed in this class. If the state is *DISABLED* or *SUSPENDED*, a job having this VSE/POWER job class cannot be executed.

You can change the state *ENABLED* or *DISABLED* (see example below); you cannot change the state *SUSPENDED*.

You can change the state by using the **PVARY DYNC** (short form: **V DYNC**) command. Assuming you have found out that the state of dynamic class *W* is *DISABLED*, you can change the state of the class to *ENABLED* (this would then start your job PAUSEW):

V DYNC,ENAB,W

or

V DYNC,,W

You cannot influence the state suspended because this indicates shortage of resources, for example that the highest possible number of jobs running in this class has already been reached. VSE/POWER resumes suspended classes *automatically* when lacking resources become available again.

In the example above, class M - although enabled - is currently suspended for further partition allocation because the number of currently active partitions (ACT = 8) has reached the maximum size (MAX = 8). The state of class M automatically changes again to *ENABLED* when a job with this job class finishes and returns its partition used for processing.

For further details on how to use the PDISPLAY, PLOAD and PVARY commands, refer to the IBM manual *VSE/POWER Administration and Operation*.

Displaying Active Jobs

To find out from the console which jobs are currently executing, use the **PDISPLAY A** command (short form: **D A**). In addition to showing the active VSE/POWER tasks, this command also displays the jobs being executed, printed, punched, or transmitted.

Notes:

1. **PDISPLAY A** differs from **PDISPLAY ALL**.
2. You can also use the *Manage Batch Queues* dialog to show active jobs. These jobs have an asterisk (*) in the DIS column.

The result of **PDISPLAY A** might look as follows:

```
AR 0015 1C39I COMMAND PASSED TO POWER
F1 0001 1R48I LST,00E,A,1          INACTIVE
F1 0001 1R48I BG,FEC,A0I,  PAUSEBG ,01382,0
F1 0001 1R48I F2,FEC,L2,  CICSICCF,01337,2
F1 0001 1R48I F3,FEC,K3,  VTAMSTRT,01335,3
F1 0001 1R48I F4,FEC,J4,          INACTIVE
F1 0001 1R48I F3,FEE,,  VTAMSTRT,01335,A      10 LINES SPOOLED
F1 0001 1R48I F2,FEE,,  CICSICCF,01337,A      667 LINES SPOOLED
F1 0001 1R48I F2,FEF,,  CICSICCF,01338,A       0 LINES SPOOLED
F1 0001 1R48I BG,FEE,,  PAUSEBG ,01332,A       4 LINES SPOOLED
```

For example, the fields of the second line show:

- The VSE/POWER list task (*LST*).
- The device address associated with the task (*00E*).
- The classes that can be handled by the task in the order of processing (*A*).
- The number of buffers that a list task uses (*1*).
- The list task is not active (*INACTIVE*).

For more examples and details of **PDISPLAY** commands refer to the *VSE/POWER Administration and Operation* manual.

Stopping Job Execution

You may have to terminate a job that has been executing too long. For example, a program that is looping never normally comes to an end. In addition, a programmer or the system administrator may ask you to stop a job's execution.

Use the **PFLUSH** command (short form: **F**) or the **PCANCEL** command (short form: **C**) to stop a job that is executing.

For example, to stop job **LOOP** that is executing in partition **F4**, you would enter:

```
F F4      or      C LOOP
```

When the job is terminated, the system will issue message 0V16I:

```
F4 0004 0V16I JOB LOOP CANCELED. REQUEST FROM VSE/POWER
```

Reading In Batch Jobs from Tape or Diskette

You may want to execute jobs that you received on tape or on diskette. The **PSTART** command (short form: **S**) tells VSE/POWER to place incoming jobs into the reader queue.

To tell VSE/POWER to:

1. Read jobs from a tape that is mounted on drive 301,
2. Assign class A to those jobs if they do not have a class already assigned.

you would enter:

S RDR,301,A

To tell VSE/POWER to read jobs in file TESTJOBS from the diskette mounted on diskette drive with address 024, you would enter:

S RDR,024,, 'TESTJOBS'

By default, class A is assigned to the jobs if they do not have a class already assigned.

Chapter 10. Controlling Printer Output

The tasks described in this chapter are performed at the VSE/ESA console.

Check with your administrator about use of your system's printers. For example, some may be automatically started during ASI processing. Or you may have output printed on various types of forms. If so, then your installation may submit jobs using certain print classes, one class of jobs to be printed on form A, the next class on form B, and so on. Or you may have different printers for each class of job.

These arrangements vary from one installation to another. The administrator of your VSE/ESA system should give you instructions about using printers.

Note: If the printer output is not readable, or the skipping or spacing is incorrect, a wrong train image buffer or a wrong forms control buffer may be loaded. You may also refer to the IBM manual *VSE/ESA Guide for Solving Problems* for additional information

Starting a Printer

To start printing job output on the printer, you enter a **PSTART** command (short form: **S**), like:

```
S LST,02E
```

LST indicates spooled list output, 02E is the address of the printer.

The output of jobs that have output class A (the default) will begin to print.

Jobs with other output classes may need special forms. To print jobs with output class B on the printer at address 02E, first enter the **PSTOP** command (short form: **P**):

```
P 02E,E0J
```

This will stop the printer after it finishes printing the current job. Then mount the forms needed for class B jobs. Start the printer again by entering:

```
S LST,02E,B
```

To print all output with classes C and F, you can have class C output printed first using:

```
S LST,02E,CF
```

You can specify up to four classes in a **PSTART** command.

If message

```
1Q40A ON cuu FORMS ffff NEEDED FOR jobname jobnumber
```

appears, and after you have mounted special forms on the printer, you can check the alignment the printed output will have. The **PSETUP** command (short form: **U**) prints pages of listing output with the letter **X** in place of all printable characters.

Starting a Printer

This command can only be used after message 1Q40A has been received. For example, to print 10 setup pages on printer with address 02E, wait for message 1Q40A, and then enter:

U 02E,10

To print two setup pages, enter:

U 02E,2

The output might look like this:

Page 1

XXXX	XXXXXX	XXXXXX
XX XXXXXX	XXXXX	XXXXXXXXXX
XX XXXXXXXX	XXXXX	XXXXXX

Page 2

XXXX	XXXXXX	XXXXXX
XX XXXXX	XXXXX	XXXXXX
XX XXXX	XXXXX	XXXXXX

If the alignment of the output does not match the lines on the paper, stop the printer by pressing its STOP key. Then adjust the forms, and restart the printer. Repeat this procedure until the forms are properly aligned. When the setup process is finished, enter the **PGO** command (short form: **G**) for the printer:

G 02E

The pages are then printed from the beginning with their original contents.

Page 1

NAME	NUMBER	AMOUNT
L. KEEFFE	69060	1,080.05
N. REYNOLDS	41240	798.83

Page 2

NAME	NUMBER	AMOUNT
D. HALEY	33110	497.11
A. WATT	76779	699.42

By convention, Class Q is used for job output that is to be viewed at a display station before further processing. If you start a printer to print jobs with output class Q, the output may be printed and deleted from the queue without being reviewed at a display station.

Changing Forms

Most of the printers use a forms control buffer (FCB) to control the skipping of forms. The manual *VSE/ESA Administration* describes the dialog for maintaining printer FCBs.

If you have changed forms, it may be necessary to change skipping or spacing. You can do that by reloading the forms control buffer (FCB) using the **LFCB**

command. This command causes the system to load a buffer image, stored as a phase, into the FCB of the specified printer. You can use the **LFCB** command for any printer on which forms skip operations are controlled by an FCB.

►—LFCB *cuu,phasename* —┐,FORMS=xxxx┐ —┐,NULMSG┐ —►

cuu

Specifies the address of your printer.

phasename

Indicates the name of the phase which contains the required buffer image. The phasenames for different printer types are shown in Figure 31 on page 92.

FORMS=xxxx

Specifies the installation-defined forms number *xxxx* of the paper that is to be used with the new FCB image. You have to specify this operand if the new FCB image requires a change of forms.

NULMSG

Suppresses the printing of a buffer load verification message. If you specify NULMSG, the system continues processing immediately after completion of the FCB load operation. You will not be able to verify if the contents of the FCB match the forms to be used.

If output printing starts under control of the wrong FCB image, do the following:

1. Stop the printer using the **PFLUSH** command (short form: **F**):
F 02E,HOLD
2. Load the correct FCB.
3. Change forms if necessary.
4. Use the **PALTER** command or **PRELEASE** command or the dialog to change the disposition of the print job. For a full description of the PALTER and PRELEASE commands, see the *VSE/POWER Administration and Operation* manual.
5. Restart the printer.
6. Enter the **LFCB** command.

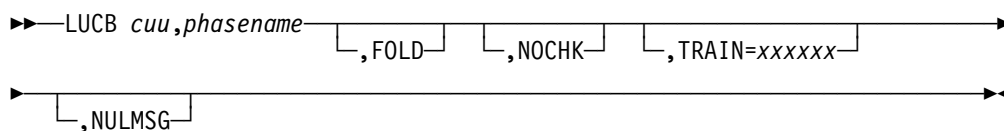
You can now check the alignment the printed output will have with the **PSETUP** command. See “Starting a Printer” on page 89 how to do this.

Changing Print Trains

The universal character set buffer (UCB) allows you to choose such options as different print trains or upper and lower case printing.

You can take advantage of these options by using the **LUCB** command. This command causes the system to load the buffer image, contained in the phase (see Figure 31 on page 92 for phasenames) into the UCB of the printer you specified. The printer must be ready or in operation.

Starting a Printer



cuu

specifies the address of the printer whose UCB is to be loaded.

phasename

Indicates the name of the phase which contains the required buffer load image. The phasenames for different printer types are shown in Figure 31.

FOLD

Causes lowercase characters to be printed as uppercase characters.

NOCHK

Suppresses data checks resulting from mismatches between printline characters and the UCB.

TRAIN=xxxxxx

Indicates the train or chain identification. The system inserts this operand in an action message.

NULMSG

Suppresses the printing of a buffer load verification message. If you specify NULMSG, the system continues processing immediately after completion of the UCB load operation. You will not be able to verify if the contents of the UCB match the print train mounted on the printer.

If output printing starts under control of the wrong UCB, do the following:

1. Stop the printer using the **PFLUSH** (short form: **F**) command:
F 02E,HOLD
2. Load the correct UCB.
3. Change forms if necessary.
4. Use the **PALTER** command or **PRELEASE** command to change the disposition of the print job to *D*. The disposition must be changed to *D* to allow printing.
5. Restart the printer.
6. Enter the **LUCB** command.

Figure 31. Printers and Phasenames

IBM Printers	Phasenames	
3211	\$\$BUCB	\$\$BFCB
3203-5	\$\$BUCB00	\$\$BFCB00
3262 (48 CHARACTER)	\$\$BUCB22	\$\$BFCB22
3262 (63 CHARACTER)	\$\$BUCB22	\$\$BFCB22
3262 (96 CHARACTER)	\$\$BUCB22	\$\$BFCB22
3289-4	\$\$BUCB10	\$\$BFCB10
1403U	\$\$BUCB4	\$\$BFCB4
4248	NOT APPLICABLE	\$\$BFCBWM
6262-014	NOT APPLICABLE	\$\$BFCBWM

Terminating a Printout

To terminate a running printout, use the **PFLUSH** (short form: **F**) command. For example, to stop the job currently printing and place it in disposition **H** (hold) or disposition **L** (leave), enter the **PFLUSH** command with the HOLD operand:

F 02E,HOLD

You may now continue with the next list queue entry.

Jobs with a disposition of **D** (dispatch) will be deleted from the queue unless you specify **HOLD**. Jobs with a disposition of **K** (keep) will be placed in **L** (leave) disposition. Job dispositions are explained under "Disposition" on page 7. To print a flushed job later, use either **PALTER** or **PRELEASE**.

Stopping the Printer

If you tell VSE/POWER to stop printing from the list queue, output execution is stopped before its normal end. However, the output is not deleted from the list queue.

When you restart list queue execution, printing starts from the beginning of the entry that was stopped.

For example, to stop a running printout immediately on the printer at address 014, you would enter the **PSTOP** command (short form: **P**):

P 014

When you start the printer again (**PSTART LST,014**), printing will begin at the *first* record of the same job output.

If you use the option **RESTART** of the **PSTOP** command, printing restarts where it was interrupted:

P 014,RESTART

You can specify that printing from the list queue is to stop when printing of the current output is complete by entering:

P 014,E0J

Restart Printing from a Different Output Page

You can restart a *running* printout from either the beginning or from a specified page by using the **PRESTART** command (short form: **T**). For example, if you have a forms jam and want to reprint the previously printed ten pages and then continue on printer 02E, enter:

T 02E,-10

You can specify a signed or unsigned value up to 999,999. The default value is 1. If you specify a value that is too large forward, that value will be ignored. If you specify a value that is too large backward, printing will start again from the first record. If you just specify a number, the printer will start printing at the page you specify.

Printer Train Cleaning for 1403 and 3203 Printers

The following command will cause printing to begin at page 20:

PRESTART 02E,20

To skip 13 pages from the page currently being printed and continue, enter:

T 02E,+13

If you try to use this command after the printout has already finished, you will get message 1R57I, and the command will be ignored.

Printer Train Cleaning for 1403 and 3203 Printers

To preserve the quality of the printed output on your system, it is necessary to clean the printer train from time to time. The IBM 3211 Printer has an integrated train cleaning mechanism, but IBM 1403 and 3203 (model 5) printers require the following cleaning procedure.

First, ensure that the printer to be cleaned is not in use as a spooling device for VSE/POWER.

Then, start the procedure by entering

```
// ASSGN SYS000,cuu
// EXEC CLEANER
```

(For *cuu*, enter the unit address of the printer you want to clean.)

The CLEANER procedure prompts you for the required activities, as follows:

System prompt: 8C01A STOP THE PRINTER (SYS000) AND PRESS END-KEY

Operator action: Press STOP on the printer and press ENTER at the console. Ignore any INTERVENTION REQUIRED condition until you have replaced the paper.

System prompt: 8C021 IN ORDER TO CLEAN THE PRINTER TRAIN REMOVE THE RIBBON AND REPLACE THE PAPER ON THE PRINTER WITH IBM CLEANING PAPER (PART NO: 451529)

Operator action: Remove the ribbon, replace the paper and ready the printer.

System action: The system prints a pattern which brings all the characters of the train in contact with the cleaning paper several times.

System prompt: 8C06A SPECIFY CIL-NAME OF TRAIN IMAGE PHASE OR PRESS END TO GET IPL UCB LOADED

Operator action: Enter the UCB phase name you require. If you just press END/ENTER, the UCB defined at IPL is loaded.

System prompt: 8C01A STOP THE PRINTER (SYS000) AND PRESS END-KEY.

Operator action: Press STOP on the printer and ENTER at the console.

System prompt: 8C031 THE PRINTER TRAIN HAS BEEN CLEANED
REPLACE THE RIBBON AND THE ORIGINAL PAPER

Operator action: Insert the ribbon, thread the desired paper, and ready the printer.

The cleaning procedure is now complete, and the printer can be assigned for normal output.

Print Band Handling on IBM 4248 Printers

If you have an IBM 4248 printer in native mode, you may have to change the print band, or check that the correct band is mounted. (A 4248 is in native mode if it was ADDED at IPL with the device type 4248 and is switched to 4248 operation mode. It is also possible to ADD an IBM 4248 with the device type PRT1 and set the switch to 3211 operation mode.)

The attention routine (AR) command **BANDID** gives you the information you need.

To check which band is mounted, enter the command:

BANDID cuu

where *cuu* is the physical unit address of the 4248 printer (for example, 00E). You then get a console message giving you the band identifier of the print band presently on the printer. If a different band is required for the next job, change the band and check that you have mounted the right one by entering the **BANDID** command again.

Setting Defaults for an IBM 3800 Printing Subsystem

If your computing system includes an IBM 3800 Printing Subsystem, you can set and/or reset the 3800 system default parameters by using the **SETDF** operator command. Issuing the **SETDF** command does not change the settings of the 3800. Instead, the parameters are saved such that when the user specifies DFLT=Y or keyword=* in a SETPRT statement, the SETPRT routine sets the 3800 with the predefined defaults.

The following examples illustrate uses of the **SETDF** command:

Example 1: To set selected default parameters for a 3800 and reset the others, enter the command:

SETDF 018,BURST=Y,FLASH=AC01,FORMS=8X11,RESET

This command sets the 3800 printer whose address is 018 with the default of bursting=yes, forms overlay name=AC01, and forms name=8X11. It resets the values for CHARS, FCB, and MODIFY. If all 3800 printers at your location are to be set with these defaults, specify 3800 instead of a single printer address.

Example 2: To set or reset selected defaults, and list the defaults, enter the command:

SETDF 3800,BURST=,FCB=AC02,FORMS=,MODIFY=AC03,LIST

This command resets the system default values for the BURST and FORMS parameters. The FCB default is specified as AC02 and the default copy modification is AC03. The LIST parameter then causes a display of the defaults on the operator console.

For detailed information, see the description of the SETDF command in the *VSE/ESA System Control Statements* manual.

Setting Defaults for an IBM 3800 Printing Subsystem

Chapter 11. Communications and Networking Operation

This chapter provides information on single processor and networking (two or more processors) environments. In addition, for each environment there is information on communicating with display stations, terminal printers, and workstations. Working with Binary Synchronous Communication (BSC) connections is also discussed.

For detailed information on a networking environment, refer to *VSE/ESA Networking Support*.

Single Processor Environment

Single processor environment means that your system is not in a network with other systems. In addition to its *local* communication devices, however, it can have a number of *remote* communication devices attached to it. Such devices can include:

- Display stations and terminal printers (attached via an integrated adapter of a processor or one or more control units on leased or switched lines).
- Remote Job Entry (RJE) workstations (attached on leased or switched lines).
- IBM 3600 and IBM 4700 Finance Communications Systems (attached on leased or switched lines).

Communicating with Display Stations and Terminal Printers

Each local or remote display station or terminal printer in your system's configuration has a unique *terminal identifier (ID)*.

Your VSE/ESA system administrator should prepare a list of all display stations and printers attached to your system. This list should include their locations, VTAM netnames, CICS terminal identifiers, and other applicable information. *Be sure to have this list available when controlling communications and networking operation.*

Displaying Device Status

To request a status display for a display station or terminal printer, use the **DISPLAY NET** command (short form: **D NET**). For example, to request a status display for the display station with the VTAM netname D1020001, enter:

D NET, ID=D1020001

To request a status display for the line L0300001, enter:

D NET, ID=L0300001

To request a status display for all display stations and terminal printers, enter:

D NET, TERMS

Besides the local and remote display stations and terminal printers, this last status display will also include information about RJE workstations.

Note: To make sure that no VTAM messages will be suppressed, enter:

MODIFY NET, SUPP=NOSUP

Single Processor Environment

Activating or Deactivating a Device

To activate or deactivate a display station or terminal printer, use the **VARY NET** command (short form: **V NET**). For example, to deactivate the display station with VTAM netname D1020001, enter:

```
V NET,INACT,ID=D1020001
```

To reactivate this display station, enter the following commands:

```
V NET,ACT,ID=D1020001
MSG F2
02 CEMT SET TERM(D102) INSERVICE ACQUIRED
```

Notice that the CICS identifier of the display station (**CEMT** command above) is different from the VTAM identifier (**VARY NET** command). The reply ID 02 used in the example above could be different on your system.

VSE/POWER RJE Workstations

RJE workstations are defined by a unique ID of up to three digits called a *remote identifier (remid)*. The remid has to be in the range of 1 to 250. Your VSE/ESA system administrator should prepare a list of all RJE workstations attached to your system. This list should include their locations, remote identifiers, and other applicable information. *Be sure to have this list available when controlling communications and networking operation.*

Requesting Device Status

To request a status display for all RJE workstations, use the **PINQUIRE** command (short form: **I**):

```
I ALL
```

Sending a Message to an RJE Workstation

Use the **PBRDCST** command (short form: **B**) to send a message to the operator of an RJE workstation. For example, to tell the operator at the RJE workstation with remote identifier (remid) 31 that you will stop all connections to RJE workstations in about half an hour, enter:

```
B 31,'RJE will shut down in 30 minutes'
```

Starting and Stopping SNA Connections

Use the **PSTART** command (short form: **S**) to start the connections to all RJE SNA workstations:

```
S RJE,SNA
```

Use the **PSTOP** command (short form: **P**) to stop all RJE SNA connections. The option EOJ allows the current jobs to finish before the connection is stopped:

```
P RJE,SNA,E0J
```

Starting and Stopping BSC Connections

To start the RJE connection to a BSC workstation on the line with address 032, enter:

```
S RJE,032
```

To end the RJE connection to a BSC workstation on the line with address 032, enter:

P 032

Add the option EOJ to allow the current jobs to finish before the connection is stopped:

P 032,EOJ

Networking Environment

In a *networking environment* two or more processors are connected via telecommunication lines or channel-to-channel adapters (CTCA). In addition, the same I/O devices as in a single processor environment can be remotely attached to your VSE/ESA system.

Each data processing system in a networking environment is called a *node*. A node is defined by a unique *node identifier (node ID)* and a *subarea number*. The path travelled by information from one node to another is called a *route*.

Programs, display stations, and terminal printers are called *resources*. A resource at one node can communicate with a resource at another node. This is called *cross-domain communication*. Cross-domain communication is controlled by programs called *cross-domain resource managers (CDRMs)*.

Display Stations and Terminal Printers

In a networking environment, each display station or terminal printer is defined to VTAM by an 6-8 character *netname*.

The administrator of your VSE/ESA system should prepare a list of all display stations and printers attached to your system. This list should include their locations, VTAM netnames, CICS terminal identifiers, and other applicable information. *Be sure to have this list available when controlling communications and networking operation.*

Displaying Device Status

To request a status display for a remote display station or terminal printer, use the **DISPLAY NET** command (short form: **D NET**). For example, to request a status display for the display station R1230001 in a networking environment, enter:

D NET,ID=R1230001

To request a status display for all remote display stations and terminal printers attached to the line that has the identifier L0300001, enter:

D NET,ID=L0300001

To request a status display for all display stations and terminal printers, enter:

D NET,TERMS

Networking Environment

Activating or Deactivating a Device

To activate or deactivate a display station or terminal printer, use the **VARY NET** command (short form: **V NET**). For example, to deactivate the display station R1230001 in a networking environment, enter:

```
V NET,INACT,ID=R1230001
```

To reactivate this display station enter:

```
V NET,ACT,ID=R1230001
```

```
MSG F2
```

```
02 CEMT SET TERM(R001) INSERVICE ACQUIRED
```

Notice that the CICS identifier of the display station (**CEMT** command above) is different from the VTAM identifier (**VARY NET** command). The reply ID 02 used in the example above could be different on your system.

VSE/POWER RJE Workstations

The commands that you use to control the RJE workstations are the same as in a single processor environment (see “VSE/POWER RJE Workstations” on page 98).

Note: The status display in answer to the command **PINQUIRE ALL** also will include information about the nodes of the network.

SNA Network Connections

A network session for job and file transfer between your VSE/ESA system and another node is started by means of the **PSTART** command. Both nodes must issue a **PSTART** command (or an equivalent command if the system with which you are communicating is not a system using VSE/POWER) to activate the connection.

Normally, **PSTART** commands for all connections between your node and other nodes in the network are automatically issued at startup. Your VSE/ESA system administrator should prepare a list of all nodes in the network. This list should include their locations, node identifiers, and other applicable information (whether, for example, the connection to that node is automatically started). *Be sure to have this list available when controlling network operation.*

Note that network problems may occur that you cannot solve using the commands and procedures described in this section. If this happens, first contact your local VSE/ESA system administrator. If your VSE/ESA system is connected to a central host, you may also contact the network administrator there.

Requesting Device Status

Use the **PINQUIRE** command (short form: **I**) to request a status display for a node in the network. For example, to request a status display for the node with node identifier (nodeid) VSESA2, enter:

```
I NODE=VSESA2
```

If the system answers with message:

```
1R56I SNA PROCESSING NODE VSESA2
```

the connection between your node and node VSESA2 is established.

Connection Problems

If the connection to node VSESA2 is not yet established and your node is waiting for activity from node VSESA2, you will get message

```
1R56I SNA NODE=VSESA2 SESSION PENDING
```

Maybe the other processor is not yet active, or the operator there has not yet started the connection. Or perhaps the corresponding cross-domain resource manager (CDRM) is not active.

Collect additional information using the commands **D NET** and **D PNET**. Enter one or more of the following commands:

D NET,CDRMS	Displays the status of all cross-domain resource managers known at your node.
D NET,CDRSCS	Displays information about all cross-domain resources known at your node.
D NET,CLSTRS	Displays the status of all physical units known at your node.
D NET,PATHTAB	Displays the routes currently known to your node together with their status.
D NET,ROUTE,DESTSUB=	Displays the status of routes to a destination subarea.
D NET,LINES	Displays the status of the lines and channel links in the domain.
D NET,STATIONS	Displays the status of all cross-subarea link stations within each node.
D PNET,ALL	Displays the node identifier of all nodes known to PNET at your system.
D PNET,LINKS	Displays the node identifier of all nodes known to PNET with which your node has a direct session defined.

Note: Refer to the IBM manual *VSE/ESA Messages and Codes* for a detailed explanation of the items in the messages. You may also want to check with the operator of the other node.

If a network resource that is needed for the pending connection is inactive, you can activate it with the **VARY NET,ACT** command (short form: **V NET,ACT**). For example, to activate the cross-domain resource manager VSE3CDRM, enter:

```
V NET,ACT,ID=VSE3CDRM
```

Use the **VARY NET,INACT** command (short form: **V NET,INACT**) if you want to deactivate a network resource. For example, to deactivate the cross-domain resource manager VSE3CDRM, enter:

```
V NET,INACT,ID=VSE3CDRM
```

Note: Before you enter a **VARY NET** command, you should check with the operator of the other node.

Sending Messages to Another Node

Use the **PBRDCST** command (short form: **B**) to send a message to the operator at another node. For example, to ask the operator at node VSESA2 when the system will be shut down, enter:

```
B VSESA2,'At what time will you shut down?'
```

Routing Operator Commands to Another Node

To enter commands as if you were the operator at *another* node within the network, use the **PXMIT** command (short form: **X**). For example, to display all entries from the transmission queue of node VSESA2 which are destined for node VSESA1, enter:

```
X VSESA2,D XMT,TNODE=VSESA1
```

The answer to the **D XMT** command will be displayed at your console.

Note: You can only specify those commands for which your node has been given authority by the other node.

Stopping Transmission of a Job or Output

Sometimes you may be asked to stop the transmission of a job or of output that is currently being sent to or received from another node. The following example assumes that you were asked to stop the transmission of job NETJOB from your node to node VSESA2.

The transmission of jobs and outputs is handled by *transmitters* (send jobs or output from one node to another one) and *receivers* (receive jobs or output from another node). Each transmitter has an identifier of the form **TR n** , where n is a digit. Each receiver has an identifier of the form **RV n** , where n is a digit.

To stop the transmission of a job or output, you first have to find out which transmitter or receiver handles the transmission. To do so, use the command:

```
D A,PNET
```

In the system answer to this command, find the line that looks like the following:

```
1R48I J-TR1,SNA,*, NETJOB ,00238,A LEFT=00047 OF 00083
      NODE=VSESA2
```

In this example, your job is being handled by job transmitter number 1 (J-TR1). Now you can stop the transmission of NETJOB by entering the **PFLUSH** command (short form: **F**):

```
F PNET,VSESA2,TR1,JOB
```

The transmission of job NETJOB is stopped. The job will be erased from the transmission queue if its disposition was D. If the job's disposition was K, the job will stay in the queue with disposition L.

You can also use the option **HOLD** of the **PFLUSH** command:

```
F PNET,VSESA2,TR1,JOB,HOLD
```

In this case, the job will stay in the queue. The disposition will be H if the job's disposition was D. It will be L if it was K before transmission started.

If you want to stop transmission of an output, you have to enter *OUT* instead of *JOB* in the **PFLUSH** command. Message 1R48I in answer to your **D A,PNET** command will show you which transmitter or receiver handles the transmission of your output.

Stopping Job and Output File Transfer

The network may be shut down during the system shutdown process. If you have to stop job and output file transfer while continuing batch operation, you must issue **PSTOP** commands for all active nodes. Be sure to use the *EOJ* option to allow the current activity to complete.

To stop job and output file transfer to another node in the network, use the **PSTOP** command (short form: **P**). For example, if you want to stop job and file transfer to node VSESA2, enter:

```
P PNET,VSESA2,E0J
```

This will stop all job and output file transfer activity to node VSESA2 when transmission of the current job or file is complete.

Use the **PSTART** command (short form: **S**) to restart the connection for job and output file transfer to a node in the network. For example, to restart the connection for job and output file transfer to node VSESA2, enter:

```
S PNET,VSESA2
```

Note: If the operator at the other node deactivated the connection for job and file transfer to your node, you will get message:

```
1RC6I CONNECTION PENDING FOR NODE VSESA2,  
      TIME=hh:mm:ss RC=cccc
```

If you need to know the meaning of the return code (*RC=cccc*), refer to the explanation of message 1RC6I in the *VSE/ESA Messages and Codes* manual.

The operator at node VSESA2 has to enter a **PSTART** command for *your* node to complete the connection. For example, if your node is VSESA1, the operator at node VSESA2 has to enter the following command:

```
S PNET,VSESA1
```

BSC Network Connections

When BSC line control is used to communicate between your system and another processor, VSE/POWER alone handles the transmission of jobs and output. Therefore, you *cannot* use VTAM commands (**D NET**, **V NET**) to request a status display of the connection or to activate or deactivate the connection.

To start the connection between your system and node VSEBSC (if it was not started automatically at system startup) using BSC line control and the line with address 032, enter:

```
S PNET,VSEBSC,,032
```

The other VSE/POWER commands that you use to control job and file transfer between your system and another node in the network with BSC line control are the same as those described under “SNA Network Connections” on page 100.

Networking Environment

For example, you may request a status display for node VSEBSC by entering:

I NODE=VSEBSC

or stop all job and file transfer activity to node VSEBSC at the end of the current transmission with:

P PNET,VSEBSC,E0J

Chapter 12. Handling Magnetic Tapes

Initializing Magnetic Tapes

When you get a magnetic tape new from the factory, you must *initialize* it before it can be used. Initializing the tape writes a label and a tape mark or just a tape mark onto it. VSE/ESA recognizes the tape as either labeled or unlabeled.

Also, if you have a tape that was used on an IBM 3420, IBM 3424 or IBM 3430 tape device with a density of 6250 BPI, you cannot use that tape on IBM 9347 tape drives unless you re-initialize it. Likewise, if you have a cartridge that was created on an IBM 3490E, it cannot be read on an IBM 3480 or 3490 tape device.

In both of the above cases, a message such as:

```
0P32 NON COMPAT SYS012=480
```

will be issued.

Labeled Tapes

To initialize a magnetic tape with a label from the console:

1. Mount your tape.
2. Note the address of the tape drive (480 in this example).
3. Enter the following set of commands (Figure 32 on page 106 shows the system answers to these commands):

```
R RDR,PAUSEBG
0 EXEC DITTO
0 INT,480,VSE001,,N
0 REW,480
```

(Repeat the preceding two commands if you want to initialize more tapes. Instead of VSE001, enter the volume identifier of the next tape.)

```
0 E0J
```

(To exit from DITTO)

```
0
```

(To exit the PAUSE job)

Figure 32 on page 106 shows your entries along with the system messages that will appear.

When this job has finished, you have an initialized tape with a label. The volume identifier (volume serial number) for the first tape is VSE001. Write this volume identifier (VSE001) on an external label, and attach the label to the tape reel.

Note: Your administrator may also make the DITTO program available to you via the Interactive Interface. For more information on the DITTO program refer to the IBM manual *DITTO/ESA for VSE, User's Guide and Reference*, SH19-8221.

Initializing Magnetic Tapes

```
r rdr,pausebg
AR 0015 1C39I COMMAND PASSED TO VSE/POWER
F1 0001 1R88I OK
BG 0001 1Q47I BG PAUSEBG 00029 FROM BOEVSE16(SYSA) , TIME=10:25:16
BG 0000 // JOB PAUSEBG
        DATE 01/27/95,CLOCK 10/25/16
BG 0000 // PAUSE
BG-0000
0 exec ditto
BG 0000 *** DITTO/ESA active ***
BG 0000 When prompted, enter GO to skip optional prompts, or U to exit from
function
BG 0000 DITTO function ?
BG-0000
0 int
BG 0000 Output tape ? Enter device number (CUU or CUUMM)
BG-0000
0 480
BG 0000 VOLSER ?
BG-0000
0 VSE001
BG 0000 Enter new data set name
BG-0000
0
BG 0000 Enter Y for ANSI/ASCII label or N for IBM standard/EBCDIC label
BG-0000
0 N
BG 0000 Writing...
BG 0000 New VOLSER is VSE001
BG 0000 DITTO function ?
BG-0000
0 REW,480
BG 0000 Rewinding...
BG 0000 REW completed
```

Note: DITTO has prompted you in initializing this tape. But there is a faster way to do that.

```
BG 0000 DITTO function ?
BG-0000
0 INT,480,VSE001,,N
BG 0000 Writing...
BG 0000 New VOLSER is VSE001
BG 0000 DITTO function ?
BG-0000
0 REW,480
BG 0000 Rewinding...
BG 0000 REW completed
BG 0000 DITTO function ?
BG-0000
0 EOJ
BG 0000 DITTO processing completed
BG 0000 1S55I LAST RETURN CODE WAS 0000
BG-0000 1I00D READY FOR COMMUNICATIONS.
0
BG 0000 EOJ PAUSEBG MAX.RETURN CODE=0000
```

Figure 32. Initializing a Tape with a Label

Non-Labeled Tapes

To initialize a magnetic tape without a label, use the *Write Tape Mark (WTM)* option of the **MTC** command.

1. Enter the **PRELEASE** command (short form: **R**):

```
R RDR,PAUSEBG
```

Wait for the system messages:

```
BG 0000 // PAUSE
```

2. Mount your tape.
3. Note the address of the tape drive (1A0 in this example).
4. Enter the following commands:

```
0 MTC WTM,1A0
```

```
0 MTC REW,1A0
```

The system will answer each of these commands with message:

```
BG-0000
```

Repeat steps 2 to 4 for each tape to be initialized.

5. To exit, enter:

```
0
```

Handling of Specific IBM Tape Devices

Setting Modes for IBM 9347 Tape Devices

IBM 9347 magnetic tape devices can operate in different *modes*. These modes are speed settings and gap size settings for the tape drive. With VSE/ESA you should use one of the following values: 60 or 90. Mode 90 (the fastest speed) can only be used for certain jobs, such as library backup (copy) jobs. In general, mode 90 (streaming mode) is used to read in large data blocks. Mode 60 is the normal (default) setting. You can change modes during processing.

To find out the current mode, enter:

```
SETMOD 1A0
```

```
AR 0015 1P43I TAPE MODE 60 HAS BEEN SET FOR DEVICE 1A0
```

IBM 9347 magnetic tape devices can operate in the following modes:

- | | |
|----|--|
| 90 | High speed, long gap: streaming Use this mode to produce tapes with FASTCOPY and to restore those tapes again on the IBM 9347. |
| 50 | Low speed, long gap: start-stop |
| 60 | Low speed, short gap: start-stop Use this mode for reading only. |

The mode currently in effect is probably wrong if you notice that your IBM 9347 magnetic tape device is winding quickly backward, and then forward for up to 3 or 4 minutes.

Use the **SETMOD** command to change the mode setting. To change the mode to 60, you would enter:

IBM Tape Devices

SETMOD 1A0,60

When you enter the **SETMOD** command, VSE/ESA replies with a message informing you of the current mode setting. To change the mode for the tape drives at addresses 1A0 and 2A0, enter the **SETMOD** command as shown:

SETMOD 1A0,90

AR 0015 1P43I TAPE MODE 90 HAS BEEN SET FOR DEVICE 1A0

SETMOD 2A0,90

AR 0015 1P43I TAPE MODE 90 HAS BEEN SET FOR DEVICE 2A0

Setting the Streaming Count for IBM 9346 Tape Devices

The **SETMOD** command also allows you to set or change the forced streaming count of an IBM 9346 tape device in order to keep the device streaming. By entering a repetition factor from 00 to FF, you can force streaming and thus adjust the tape performance to your actual work load. The repetition factor specifies the number of extra blocks to be written if the device buffer becomes empty. The default is 00.

For example, to specify a repetition factor of FF, you would enter:

SETMOD 1A0,FF

IDRC for IBM 3480, 3490, 3490E, and 3590 Tape Devices

IDRC means Improved Data Recording Capability for 3480, 3490, 3490E, and 3590 tape devices and supports additional mode specifications in the **ADD** command and in the ASSGN statement.

The following mode settings can be specified:

X'00'	Buffered Write Mode
X'20'	Unbuffered Write Mode
X'28'	IDRC with unbuffered Write
X'08'	IDRC with buffered Write

See the manual *VSE/ESA System Control Statements* for detailed information about the ADD command, the ASSGN statement and device type code for the IBM 3480, 3490, 3490E, and 3590 tape devices.

Chapter 13. Controlling Online Operation

In a VSE/ESA system, CICS and VTAM control online processing. This includes control over the status of display stations, data, and programs.

You can enter *CICS Master Terminal (CEMT)* commands from the system console or from any other VSE/ESA master console. With CEMT commands, you can modify the operational status of programs or display stations that are under the control of CICS.

For detailed information about CEMT commands, refer to the IBM manual *CICS CICS-Supplied Transactions*.

Entering CEMT Commands from the VSE/ESA Console

To start a *session* with CICS from the VSE/ESA console, you first enter a **MSG** *partition-id* command. Then you can enter one or a sequence of CEMT commands. Precede each CEMT command by the *reply ID* that VSE/ESA issues for the message:

0D16D READY

If one or more replies are still outstanding when **MSG** *partition-id* is entered, the message(s) which require a response will be displayed in highlighted form.. Multiple reply IDs are made unique through a count in the first position:

F2-0002

.

F2-1002

To illustrate the use of the reply ID, the commands in the examples below use the reply ID **2**. Please note that this reply ID could be different on your system.

You may abbreviate the operands of the CEMT command to the shortest unique set of characters. This means that you can enter TASK, TAS, or TA, but not T, because T can be confused with TERMINAL, TRANSACTION, and so on.

CICS completes its response to a CEMT command in the following manner:

F2 0002 RESPONSE: NORMAL TIME: DATE:
F2-0002 APPLID=DBDCCICS

To end the CICS session, type the reply ID and press the ENTER key. *Do not forget to end a CICS session, otherwise online processing could lock up.*

Tasks

Controlling CICS Tasks

A CICS *task* is the actual execution of a user request.

The CICS task shown in the following example was performed at the system console. Handling of this example CICS task would be different if you used the display station.

Controlling Display Stations

Inquiring Status

In CICS, you have some control over task execution via commands such as the CEMT **INQUIRE** command. Enter:

```
2 CEMT INQUIRE TASK          or
2 CEMT I TA
```

```
MSG F2
AR 0015 1I40I READY
F2 0002 0D16D READY
2 CEMT I TA
F2 0002
F2 0002      TAS(06226)  TRA(CEMT)  FAC(CNSL)  ACT   TER
F2 0002      TAS(06173)  TRA(MOON)  FAC(D009)  SUS   TER
F2 0002  RESPONSE:  NORMAL TIME:    9.48.34    DATE:  94.137
F2-0002  APPLID=DBDCCICS
```

The individual items of the above display are explained in the IBM manual *CICS CICS-Supplied Transactions*. You may need this form of the CEMT command, for example, to find out if a CICS task is in a *SUS*pended condition and blocks the terminal. If required, you can stop such a task with the procedure described in the following section.

Stopping a Task

To stop a task, first find out its task number by entering an **INQUIRE** command like the one shown above.

As shown, the result will give you the task number of all tasks. Note the number assigned by CICS to the task that you want to stop (06173 in the example). Now enter a **SET** command to stop the task:

```
2 CEMT SET TAS(06173) PURGE
```

If this command is not successful, enter:

```
2 CEMT SET TAS(06173) FORCE
```

In both cases CICS will answer with the following message which tells you that the task is being purged.

```
F2 0002
F2 0002      Tas(06173) Tra(MOON) Fac(D009) Sus Ter  BEING PURGED
F2 0002  RESPONSE:  NORMAL TIME:    9.56.40    DATE:  94.137
F2-0002  APPLID=DBDCCICS
```

Controlling Display Stations

With the CEMT commands **INQUIRE TERMINAL** and **SET TERMINAL** you can:

- Find out the status of a display station.
- Change the priority of one display station relative to another.
- Change a display station's status to "in service" (the display station is available for use by transactions) or "out of service" (the display station can no longer be used by transactions).
- Acquire a display station from VTAM and put it in session with CICS.

Inquiring Status

If you want to find out the status of *all* display stations and terminal printers, although you would normally specify a *single* terminal ID, you can do so by entering:

```
2 CEMT INQUIRE TERMINAL          or
2 CEMT I TE
```

This gives you information about the status of *all* the display stations and terminal printers. The system answer looks like the following:

```
F2 0002  TER(CNSL)  TRA(CEMT)  PRI( 000 )  PAG INS ATI TTI
F2 0002  TER(D008)                PRI( 000 )  PAG INS ATI TTI
F2 0002  NET(D0080001 )  ACQ CRE
F2 0002  TER(D009)                PRI( 000 )  PAG INS ATI TTI
F2 0002  NET(D0090001 )  ACQ CRE
F2 0002  TER(D01A)                PRI( 000 )  PAG INS ATI TTI
F2 0002  NET(D01A0001 )  ACQ CRE
F2 0002  RESPONSE:  NORMAL TIME:  7.47.48  DATE:  94.239
F2-0002  APPLID=DBDCCICS
```

To find out about the status of a *specific* display station or terminal printer, enter:

```
2 CEMT INQUIRE TERMINAL (term ID)          or
2 CEMT I TE (term ID)
```

term ID is the 4-character name of the display station or terminal printer.

The system answer looks like the following:

```
F2 0002  TER(D008)                PRI( 0000)  PAG INS ATI TTI
F2 0002  NET(D0080001 )  ACQ CRE
F2 0002  RESPONSE:  NORMAL TIME:  7.48.25  DATE:  94.239
F2-0002  APPLID=DBDCCICS
```

The meaning of the items is explained in the *CICS CICS-Supplied Transactions* manual.

Changing Status

You can change the status of a display station by using the **SET TERMINAL** command. For example, to change the status of display station D009 so that it is out of service, enter:

```
2 CEMT SET TERMINAL(D009) OUTSERVICE
```

You may need this command if a display station or the related task are locking up the CICS system. After the display station is disabled, you still have to terminate the task:

```
2 CEMT SET TASK(06173) PURGE
```

You may accomplish both of these by entering:

```
2 CEMT S TE(D009) OUT PUR
```

This sets the display station out of service *and* terminates the task at the same time.

Now you can put the display station back in service and acquire it for VTAM:

```
2 CEMT SET TERMINAL(D009) INSERVICE ACQUIRED
```

You may abbreviate this:

```
2 CEMT S TE(D009) INS ACQ
```

After you enter the command to put the display station in service, check its access by VTAM by entering:

```
02 CEMT INQ TE(D009)
```

The report should indicate that the display station has been acquired (ACQ). If it does not, enter:

```
02 CEMT SET TE(D009) ACQ
```

Chapter 14. Operating VSE/ESA under VM

This chapter discusses the communication of a VM user with a VSE/ESA system under VM. In particular, it discusses the following topics:

- Accessing a VSE/ESA guest system
- Commands of the VM/VSE Interface
- Other facilities of communication, not dependent on the VM/VSE interface.

Accessing a VSE/ESA Guest System

There are several methods to access a VSE/ESA guest system that is installed under VM when you are a terminal user. You can either use:

- The CP **DIAL** command
- **VTAM cross domain**
- **VM/Pass-Through Facility** (which is an optional VM licensed program)
- Terminals attached to the VSE/ESA guest system.

Dialing into the System

Assuming you are the user of a terminal that is connected to a VM system. You can access a VSE/ESA guest system using the CP command

DIAL user cuu

where *user* stands for the name of a virtual machine defined in the VM directory for the VSE/ESA system, and *cuu* stands for the terminal address to be used. If you do not enter the address, you will get the first free virtual terminal address.

Before you can DIAL to a VSE system, the operator must have performed a logon of the VSE/ESA guest system and an IPL of the VSE system. The DIAL command is issued from the VM screen. When the *VSE/ESA Online* panel appears, sign on to the VSE/ESA system using an ID and password known to it.

After completing your work, return to the *VSE/ESA Online* panel and press **PF3** (TO VM). This terminates the session and returns you to CP mode. You can then log on to the VM system, if you wish.

VTAM Cross Domain Logon

The cross domain relation under consideration here consists of a

- VTAM under VM, and a
- VTAM under the VSE/ESA guest system.

By using the VTAM cross domain logon, you have a direct access to VSE/ESA.

Accessing a VSE/ESA Guest System

Using PASSTHRU

You can also access the VSE/ESA guest system if your VM system has the VM/Pass-Through Facility optional licensed program installed. The following example of using VM/Pass-Through Facility to access a VSE/ESA guest system assumes that:

- You have a user ID for the VM system **nodvm1**.
- You work from an IBM 3278 terminal with a 24 X 80 screen.
- **nodvm1** is in a network with another VM system **nodvm2**.
- The VSE/ESA guest system **vseesa1** is installed and running on the **nodvm2** system.

To access the VSE/ESA guest system, you would:

1. Log on to **nodvm1** with your VM user ID and password.
2. Enter the following command when in CMS:

PASSTHRU nodvm2 3 PVM 11 24 80 \$\$

The command parameters specify:

- **nodvm2** as the VM system you want to access.
 - **3** as the port of access.
 - **PVM** as the name of the PASSTHRU virtual machine.
 - **PF11** as the PF key to be used for the Notepad ("capture") facility. Pressing PF11 will save a copy of what is shown on the entire terminal screen. The copied data is saved in the CMS file PASSTHRU DATA A.
 - **24** as the number of lines per screen to be captured.
 - **80** as width of the lines.
 - **\$\$** as character strings for temporary disconnect.
3. Enter the following CP command after reaching **nodvm2** (which shows the VM entry panel):
DIAL vseesa1 xxx
You can replace **xxx** with a predefined virtual terminal address. If you do not enter a number, the first free virtual terminal address will be taken.
 4. Enter your VSE/ESA user ID and password from the *VSE/ESA Online* panel.

Once you have signed on to the VSE/ESA system, you can easily switch back and forth between it and CMS. To return to CMS, just enter the character string **\$\$** after the arrow (==>) in any selection panel of the Interactive Interface. To return from CMS to VSE/ESA, enter the PASSTHRU command exactly as shown above. This redisplay the selection panel where you made the temporary disconnect.

Notes:

1. It is recommended that you sign off from the Interactive Interface (return to the *VSE/ESA Online* panel) **before** you perform a permanent disconnect. If you do not sign off first, the terminal remains dialed into the VSE/ESA system, waiting for a reconnect.
2. You may have problems with the use of the Interactive Interface if you use

PASSTHRU and extended data streams. The problems may arise when you save a screen (for example, if you press PF1 for HELP or if you send a message to another user). In these cases, the screen may not be redisplayed.

3. If you use a PF key for the capture facility that VSE/ESA defines for one of its functions, **your** setting will override the setting in the Interactive Interface. For example, if you use PF5 for the capture facility, you cannot use the function which PF5 represents in the Interactive Interface.

Therefore, if your keyboard has more than twelve PF keys, use a PF key greater than PF12 for the Notepad facility.

VM/VSE Interface - Command Descriptions

The following is assumed:

1. Your administrator has made the necessary changes to both the host (VM) and guest (VSE/ESA) system. This is discussed in detail in the manual *VM Running Guest Operating Systems*.
2. Your VM and VSE/ESA systems are up and running. The VSE/ESA system was IPLed with SYS option VMCF=YES.
3. Your administrator has installed the service modules of the VM/VSE Interface. These modules are a set of VSE phases and CMS* modules provided by VSE/ESA. The VM/VSE Interface routines let CMS users operate VSE/ESA systems. The manual *VSE/ESA Installation* provides detailed information how to install the VM/VSE Interface.

It is also assumed that your administrator has given you the right to access any of those CMS modules that you need.

Command Facilities of the VM/VSE Interface

When you use a VSE/ESA system with the VM/VSE Interface, you can do the following from your VM user ID:

- **Execute VSE/ESA commands** on a VSE/ESA virtual machine and have the resulting responses echoed to your VM user ID. You use the **VSECMD** command.

VSECMD also serves to

- Reply to messages that result from the execution of a job. The job must have a unique job owner ID (your VM user ID, for example).
- Issue CP commands for execution in the VSE/ESA virtual machine and have the resulting messages routed to your VM user ID.

Two facilities are available that let you issue CP commands:

- *Enter CP commands (* **CP command**)* from your VSE/ESA console
- *Execute CP commands (// **EXEC CPCMD**)* within JCL statements.

These two facilities are described at the end of this chapter. Note that they are not part of the VM/VSE Interface.

- **Submit jobs** from a CMS terminal to a VSE/ESA virtual machine and have messages from the job echoed to a specific user ID (provided the

VM/VSE Interface - Command Descriptions

ECHO/ECHOU parameter in the * \$\$ JOB statement had specified that user ID). You use the **SUBVSE** command.

Command Authority

Your *command authority* that is given to you via your user profile determines the scope of commands that you may enter:

- If you have **unrestricted command authority**, you may enter any command, and reply to any outstanding message whether or not it is routed to your VM user ID.
- If your command authority is restricted, you can only enter a subset of commands as described in “Command Authorization” on page 44. And you may only reply to messages that were exclusively routed to your VM user ID.

Within the VM/VSE Interface, you can restrict command authority only in a system with security active (that is, the system was IPLed with SEC=YES). Unrestricted command authority is established through the MCONS or AUTH parameters, within a user profile, of the VSE/ESA Access Control table DTSECTAB. This table is described in the IBM manual *VSE/ESA Guide to System Functions*.

All Master Console Messages to One User - SYSECHO

Via the Attention Routine command SYSECHO, your VM user ID can be authorized to receive all master console messages and to issue commands without restriction (provided your VSE/ESA system was IPLed with SYS option VMCF=YES). This function allows to automate VSE/ESA operations from a CMS program.

The SYSECHO command is described in the IBM manual *VSE/ESA System Control Statements*.

Note: In the following sections the example user ID of the VSE/ESA virtual machine will be *VSEQUEST*.

VSECMD: Send Commands and Replies to the VSE/ESA Virtual Machine

VSECMD allows you to send commands to the VSE/ESA virtual machine for execution. These can be attention routine commands such as **MAP**, **PRTY**, VSE/POWER commands, VTAM commands etc.

If you send, for example, the **MAP** command to the VSE/ESA virtual machine VSEQUEST, all messages issued from the attention routine and resulting from the **MAP** command will be routed to your VM user ID.

The command format of **VSECMD** is:

►►VSECMD vse_id input
NOPROMPT ◄◄

where:

vse_id

is the VM user ID of the VSE/ESA guest virtual machine.

input

is the VSE/ESA command or the reply to be sent to the VSE/ESA virtual machine. If this operand is omitted, you will be prompted for it.

NOPROMPT

requests that prompting should not occur, that is, the input is requested without a preceding prompt message.

Optionally, you can enter **VSECMD** or **VSECMD HELP** or **VSECMD ?** to have the command format explained.

You can issue the following command, for example:

VSECMD VSEQUEST D A

The result is shown below. It is assumed that the VSE/ESA guest system is authorized for the MSGNOH command (otherwise every line would be prefixed by a MSG FROM VSEQUEST header).

```
vsecmd vsequest d a
Ready; T=0.01/0.01 11:12:16
AR 0015 1C39I COMMAND PASSED TO VSE/POWER
F1 0001 1R48I BG,FEC,A0I, INACTIVE,
F1 0001 1R48I F2,FEC,L2, CICSICCF,00021,2
F1 0001 1R48I F3,FEC,K3, VTAMSTRT,00003,3
F1 0001 1R48I F4,FEC,J4, INACTIVE,
F1 0001 1R48I F5,FEC,H5, INACTIVE,
F1 0001 1R48I F6,FEC,M6, INACTIVE,
F1 0001 1R48I F7,FEC,N7, INACTIVE,
F1 0001 1R48I F8,FEC,P8, INACTIVE,
F1 0001 1R48I F9,FEC,R9, INACTIVE,
F1 0001 1R48I FA,FEC,S, INACTIVE,
F1 0001 1R48I FB,FEC,T, INACTIVE,
F1 0001 1R48I F3,FEE,, VTAMSTRT,00003,A 20 LINES SPOOLED
F1 0001 1R48I F2,FEE,, CICSICCF,00021,A 173 LINES SPOOLED
F1 0001 1R48I RDR,00C,A, INACTIVE,
```

The system response is displayed only on the CMS console.

As another example, a dialog is shown below where a CMS user requests the execution of a librarian job.

VM/VSE Interface - Command Descriptions

vsecmd vsegment r rdr,pausebg

```
AR 0015 1C39I COMMAND PASSED TO VSE/POWER
Ready; T=0.01/0.01 10:20:58
F1 0001 1R88I OK
BG 0001 1Q47I BG PAUSEBG 01148 FROM (SYSA) , TIME= 9:20:58
BG 0000 // JOB PAUSEBG
        DATE 10/25/94,CLOCK 09/20/58
BG 0000 // PAUSE
BG-0000
```

vsecmd vsegment 0 exec librbg

```
Ready; T=0.01/0.01 10:21:05
BG-0000 1U52A PROGRAM NOT FOUND.
```

vsecmd vsegment 0 exec libr

```
Ready; T=0.01/0.01 10:21:12
BG 0000 L001A ENTER COMMAND OR END
BG-0000
```

vsecmd vsegment 0 acc s=prdl.base

```
Ready; T=0.01/0.01 10:21:22
BG 0000 L113I RETURN CODE OF ACCESS IS 0
BG 0000 L001A ENTER COMMAND OR END
BG-0000
```

Return Codes and Error Messages

VSECMD may fail immediately with one of the following error messages and return codes:

```
0D14I    COMMAND IGNORED (4)
0D11I    INVALID REPLY-ID (8)
0D10I    COMMAND OR REPLY NOT AUTHORIZED (12)
0D86I    NO REDISPLAY COMMAND/MODE IS ACTIVE, COMMAND IGNORED (16)
0D92I    REDISPLAY MODE ALREADY ACTIVE FOR ANOTHER USER (20)
0D21I    INPUT REJECTED BY EXTERNAL EXIT (24)
0D18I    INVALID INPUT (28)
0D19I    ATTENTION ROUTINE NOT ACTIVE (32)
0D24I    REDISPLAY PROCESSOR NOT ACTIVE (32)
VMCF13I  VM/VSE SERVICE ROUTINE FAILURE (32)
VMCF14D  ENTER VSE INPUT
VMCF36I  VMCF ENABLED FOR SYSECHO ONLY (36)
VMCF40I  PROGRAM LOGIC ERROR nn (40)
VMCF44I  TARGET USERID NOT AVAILABLE FOR VMCF (44)
VMCF48I  VMCF MESSAGE LIMIT EXCEEDED, RETRY (48)
VMCF52I  VMCF ERROR nnnn WHILE SENDING (52)
VMCF56I  INCOMPATIBLE VERSIONS OF VMCF (56)
VMCF60I  PROCESSING SUSPENDED BY USER (60)
VMCF64I  NO HELP AVAILABLE (64)
VMCF68I  NO DATA ENTERED (68)
VMCF72I  VMCF ERROR nnnn WHILE AUTHORIZING THIS USERID (72)
VMCF76I  INPUT DATA TOO LONG (76)
```

Additional Considerations

End of Redisplay Enforced: Be aware that, under the VM/VSE Interface, a CMS user's console does not remain in *redisplay mode* after the REDISPLAY command is processed. For any REDISPLAY command, the 'E' (END) parameter is forced:

```
RED xxxx...,E
```

Line-Mode Considerations: A CMS console under the VM/VSE Interface operates in line mode. Please be aware of some peculiarities that apply for line-mode operation. They are described in “Special Considerations for Line-Mode Operation” on page 56.

SUBVSE: Submit a Job to the VSE/ESA Guest System

The *SUBVSE* command allows a CMS user to submit jobs to a VSE/ESA virtual machine.

Before a VM user can successfully do this, the VSE/ESA operator at the VSE/ESA console has to do the following:

1. Specify the class of the virtual reader:

```
* CP SPOOL RDR CL c1 CONT NOHOLD EOF
```

The value of *c1* can be A through Z, or 0 through 9. You can also issue this command from the PROFILE EXEC of the VSE/ESA virtual machine.

Make the class that the virtual reader is started with known to all VM users who are expected to use SUBVSE. The class parameter that is used in the SUBVSE command must match the class of the virtual reader.

2. Use the **PSTART** command (short form: **S**) to start the VSE/POWER reader task for the virtual reader from the VSE/ESA console:

```
S RDR,cuu,c1
```

VSE/POWER assigns the class specified in the **PSTART** command to jobs which have been submitted without specification of the *CLASS* operand in their
* \$\$ JOB card.

The address of the virtual reader is specified in the directory entry for the VSE/ESA machine and is the same address as the VSE reader address.

After the above steps have been done, SUBVSE may be used by any CMS user.

Notes:

1. *SUBVSE* does not automatically route job-related messages to the submittor. To achieve this, the ECHO parameter of the VSE/POWER * \$\$ JOB statement must name the submittor's user ID (see also the following section “The ECHO Option of the VSE/POWER * \$\$ JOB Statement” on page 120).
2. *SUBVSE* does not automatically route job output back to you. You should add the LDEST/PDEST operand to the VSE/POWER JOB card or add the DEST operand to the VSE/POWER LST/PUN cards in order to get job output routed back to your VM user ID.

The LST and/or PUN task must be started for the respective VM devices:

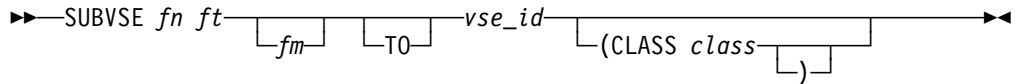
```
S LST,cuu,c1,,VM
```

```
S PUN,cuu,c1,,VM
```

VM/VSE Interface - Command Descriptions

It is recommended to start LST/PUN for a class other than A to avoid routing of such output back to VM that uses the default class A and does not specify a VM user ID as destination.

The format of **SUBVSE** is:



where:

fn ft

are the CMS filename and filetype of the job to be submitted.

fm is the CMS filemode. If *fm* is omitted or specified as '*', all accessed disks are searched and the first file found is submitted.

vse_id

is the VM user ID of the VSE/ESA guest virtual machine.

class

is the class to be assigned to the submitted job in the virtual reader. If this parameter is omitted, default class A is used.

Optionally, you can enter **SUBVSE** or **SUBVSE HELP** or **SUBVSE ?** to have the command format explained.

Return Codes and Error Messages

SUBVSE may succeed or fail with one of the following return codes and error messages.

Job *fn ft* submitted to *vse_id* (0)
Incomplete fileid (8)
Invalid filemode *fm* (12)
Disk *mode* not accessed (16)
File *fn ft* not found (20)
No user ID specified (24)
Invalid class *class* (28)
No virtual punch available (32)
Virtual punch not ready (36)
Some records exceed 80 characters (40)
User ID *vse_id* not in CP directory (44)
Invalid user ID *vse_id* (48)
Invalid option (52)
Too many parameters (56)
Undetermined error (100)

The ECHO Option of the VSE/POWER * \$\$ JOB Statement

ECHO (or ECHOU) is an optional parameter of the VSE/POWER * \$\$ JOB statement. It is coded in the submitted job stream as an output routing option, just like LDEST or PDEST. (Prior to VSE/ESA 2.1, this option was available as an operand of SUBVSE.)

The ECHO (or ECHOU) parameter names a user ID: either a VSE user ID (defined in the VSE/ESA Interactive Interface) or a CMS user ID. When the ECHO option is

specified for the submitted job, all messages related to the execution of that job are routed to the console of the ECHO user ID. If **no VSE console** is active for that user ID, an attempt is made to route such messages to a CMS user with that user ID (typically the job submitter).

ECHO (without U) causes the messages **also** to be routed to all active master consoles. ECHOU, on the other hand, requests that they are routed **only** to the named user ID.

Messages that were delivered to a CMS user and need a reply can then be answered via VSECMD, provided the user is authorized for the reply. Unrestricted command authority is required for replies to messages that are routed to master consoles.

You code the ECHO/ECHOU parameter either as

```
ECHO=(ALL,user ID)
ECHOU=(ALL,user ID)
```

to request that all eligible messages are to be routed, or as

```
ECHO=(REPLY,user ID)
ECHOU=(REPLY,user ID)
```

to request that only messages requiring a reply or an action, plus the first and last job message, are to be routed. Information messages will not be sent.

The * \$\$ JOB statement is described in the IBM manual *VSE/POWER Administration and Operation*.

Example

Assume that you have a file PRINTLOG JOB with the following content:

```
* $$ JOB JNM=PRINTLOG,CLASS=0,DISP=D,ECHO=(ALL,CMSUSER)
// JOB PRINTLOG
// EXEC PRINTLOG
/*
/&
* $$ E0J
```

After you enter

subvse printlog job a to vsequest

the following output is displayed:

```
Job printlog job submitted to vsequest
Ready; T=0.02/0.03 09:34:41
BG 0001 1Q47I BG PRINTLOG 00590 FROM LOCAL , TIME= 9:34:42
BG 0000 // JOB PRINTLOG
DATE 01/19/95,CLOCK 09/34/42
BG-0000 0D57A ENTER OPTIONS FOR PRINTLOG OR A LIST OF OPTIONS:
```

```
.
.
.
```

Issuing CP Commands

Use the **VSECMD** command to respond to the outstanding requests you will receive. For example:

```
VSECMD VSEGUEST 0 ALL
```

Additional Considerations

The attention routine command SYSECHO, which is introduced on page 116, allows a VM user ID to operate as a VSE/ESA master console (provided your VSE/ESA system was IPLed with SYS option VMCF=YES). If the ONLY parameter was included in the SYSECHO command, the console will be **the only CMS console** that is able to communicate with VSE/ESA.

In this case, a dialog between the VSE/ESA guest and a non-master console is not possible. Therefore, the system cannot request input from a (non-master) user who had submitted a job. Instead, this job would be canceled.

Issuing CP Commands (not Depending on VM/VSE Interface)

Two facilities are available to issue CP commands, independent of the VM/VSE Interface:

- * **CP** command, to issue CP commands from the VSE/ESA console
- // **EXEC CPCMD** statement, to include CP Commands in a VSE/ESA job stream.

* CP Command: Issue CP Commands from a VSE/ESA Console

The * **CP** command allows you to issue CP commands from a VSE/ESA console. This way you may perform tasks like:

- Spooling virtual devices
- Attaching tapes
- Detaching tapes
- Resetting terminals.

For example, to free a not required device, you would enter:

```
* CP DETACH 281
```

You may use any CP command your VSE/ESA machine is authorized to execute (note that on a VSE/ESA system with security active, AUTH=YES or MCONS=YES must have been specified in the DTSECTAB). You may, for example, use the * **CP DISC** command to disconnect the VSE/ESA system console. This command, however, does not apply to a VSE/ESA dedicated console.

The response to the CP command is displayed at the console of the user who entered the command.

CPCMD: Include CP Commands in the VSE/ESA Job Stream

// **EXEC CPCMD** enables you to include CP commands in the VSE/ESA job stream, and execute them when the job is running in a VSE/ESA partition. Using // **EXEC CPCMD** allows you to predefine many actions.

For example, if you detach a device with the real address 10E, the VSE/ESA job stream could look like the following:

```
* $$ JOB JNM=DETDEV,CLASS=0,DISP=D
// JOB DETDEV
// EXEC CPCMD
DETACH 10E
/*
/&
* $$ E0J
```

Only the following CP commands are allowed:

- ATTACH
- CHANGE
- CLOSE
- DEFINE
- DETACH
- LINK
- MESSAGE
- MSGNOH
- ORDER
- PURGE
- RESET
- REWIND
- SET
- SPOOL
- TAG
- TRANSFER

Issuing CP Commands

Performing Tasks via Dialogs

Chapter 15. Performing Tasks via Dialogs

Dialogs for Displaying System Status

VSE/ESA provides three dialogs for displaying the status of the system:

- *Display System Activity*
- *Display Channel and Device Activity*
- *Display Storage Layout*

This chapter describes the first two dialogs, *Display System Activity* and *Display Channel and Device Activity*. These dialogs dynamically provide system status information for daily operation.

The third dialog, *Display Storage Layout*, allows users such as you or the administrator to view the partition and SVA layout of the active system. Since this information is of particular interest to the system administrator, the dialog is described in the *VSE/ESA Administration* manual. Refer to this manual for details about this dialog.

The dialogs *Display System Activity* and *Display Channel and Device Activity* allow users such as you or the administrator to see and understand what is happening in the system. Each dialog interactively displays general information about current system activity. This includes such things as:

- CPU use
- Paging
- I/O activity
- Status of CICS tasks

The following section describes general considerations about how the dialogs work and how you might use them. It outlines various things you should consider when using the data.

For specific information about using each dialog, refer to:

- “Displaying System Activity” on page 128.
- “Displaying Channel and Device Activity” on page 133.

When to Use the Dialogs

The information available through these dialogs can be used to:

- Observe system behavior.

The data shows:

- How much CPU and I/O resources are used by CICS compared to batch activity.
- How well disk I/O activity is balanced.
- How rapidly each partition is progressing.

Displaying System Activity

- Diagnose initial problems or performance.

The information may indicate high paging rates or that the CPU is being used too heavily.

When the system has poor response times although paging and CPU use are relatively low, the *Display Channel and Device Activity* dialog may show where I/O problems are located.

- Understand the effect of tuning actions.

For example, you may use the **PRTY** command to:

- Modify partition priorities.
- Activate/deactivate the *partition balancing*.

You can then monitor the new resource distribution.

Review I/O activity and CPU use on a job basis to approximate the resources you need.

- Consider CICS load to prevent Short-on-Storage (SOS) conditions at another time.
- Follow the progress of test runs for application programs.
- Follow the progress of important batch applications.
- Observe what the system is doing.

The *Display System Activity* dialog provides summary information for questions like:

- What jobs are active?
- Are any replies outstanding?
- What is the current priority order of the partitions?

Displaying System Activity

From the *VSE/ESA Function Selection* panel as shown in Figure 17 on page 32 you can access the *Display System Activity* dialog as follows:

7 (System Status)

1 (Display System Activity)

Operator Fast Path: 71	Synonym Default: da Yours:
----------------------------------	--------------------------------------

The *Display System Activity* panel shows current system activity. An example of the panel is shown in Figure 33 on page 129.

IESADMDA DISPLAY SYSTEM ACTIVITY 15 Seconds 09:							
----- SYSTEM (CPUs: 2 / 0) ----- *----- CICS : DBDCCICS -----*							
CPU	:	127%	I/O/Sec:	1	No. Tasks:	118	Per Second : 0.1
Pages In :		0	Per Sec:	*	Dispatchable:	0	Suspended : 2
Pages Out:		0	Per Sec:	*	Peak Active :	6	MXT reached: 0
----- *-----*							
Priority: Z,Y,P,BG,F8,C,FB,FA,F9,F7,F6,F5,F4,F2,F3,F1							
ID	S	JOB NAME	PHASE NAME	ELAPSED	CPU TIME	OVERHEAD	%CPU
F1	1	POWSTART	IPWPOWER	18:38:30	8.11	6.13	
F3	3	VTAMSTRT	ISTINCVT	18:38:09	23.89	37.36	
F2	2	CICSICCF	DFHSIP	18:38:06	65.50	88.66	50%
F4	4	REXXSAA		02:45:44	12.38	5.04	
F5	5	<=WAITING FOR WORK=>			.51	.15	
F6	6	<=WAITING FOR WORK=>			.51	.15	
F7	7	<=WAITING FOR WORK=>			.51	.15	
F9	9	<=WAITING FOR WORK=>			.51	.15	
FA	A	<=WAITING FOR WORK=>			.52	.16	
FB	B	<=WAITING FOR WORK=>			.51	.15	
F8	8	SUBCPUPU	TOOL	00:06:09	128.16	16.47	47%
BG	0	<=WAITING FOR WORK=>			.00	.00	
PF1		HELP	2=PART.BAL.	3=END	4=RETURN	5=DYN.PART	6=CPU

Figure 33. Example of System Activity Display

From this panel, you can obtain further information about dynamic classes, dynamic partitions, and CPU activity.

Press PF5 (DYN.PART) to display system activity of dynamic classes and partitions. For details on the *Display Dynamic Classes* panel refer to “Displaying Dynamic Class Information” on page 131.

Note: PF5 does not appear if no dynamic classes are defined or if no dynamic partitions are active.

- Press PF6 (CPU) to display the system's CPU activity. For details on the *CPU System Activity Display* panel refer to “Displaying CPU Information” on page 132.

The dialog interactively updates the information on your terminal screen at fifteen second intervals. The administrator can change the interval time. The dialog can also be changed to update the display only when you press ENTER. See “Automatic Redisplay” on page 133 for information.

The panel shows the activity which has taken place since the last display of the screen.

Notes:

- The calculations are done only for the current time interval and are rounded to whole numbers. The values are only indicators of system use. They should not be used to measure the actual performance of the system.
- An asterisk (*) or zero appears in fields that either cannot be calculated or that have no significance, for example, the Pages In/Out value for a system without a page data set (NOPDS).
- If a numeric calculation overflows, the field is filled with nines (9).

Displaying System Activity

The information below describes the entries on the panel. You can refer to Figure 33 when you review this information. The top line of the panel shows two important values at the right of the screen:

1. The interval (in seconds) which the calculations are based upon. This is the elapsed time since the panel was last displayed.
2. The current display time in hours:minutes:seconds.

In Figure 33, the interval is 15 seconds and the time is 08:13:42.

SYSTEM Section

The SYSTEM section is at the upper left of the panel. It shows summary information about system use.

- The percentage of CPU use is only an indicator of the overall system load. The maximum value is 100% multiplied by the number of active CPUs. If a new job is loaded while a time interval is taken, an asterisk in the display indicates no percentage.
- The start I/O rate is given for the total system.

For VM users, the I/O per sec rate may seem unusually high. The dialog calculates the total I/O rate on the system. Therefore, this rate includes unit record virtual I/O. You can specifically monitor disk or tape device activity using the *Display Channel and Device Activity* dialog.

CICS Section

The CICS section is at the upper right of the panel. It shows summary information concerning the CICS under which the **dialog** is running:

- The number of CICS tasks that have been attached since system startup (No. Tasks). The number is reset to zero after 100,000.
- The number of CICS tasks attached during the current interval (Per Sec). This is the task rate.
- The number of CICS tasks active (Active Tasks) and suspended (Suspended).
- The maximum length of the active chain for the day (Most Active).
- The number of pages of memory (Pages Avail) before CICS goes Short-on-Storage (SOS).

PARTITION Section

Information about the individual static partitions is shown below the SYSTEM and CICS sections.

The information below describes the fields:

ID

The **ID** field shows the VSE static partition identifications. They are displayed in descending, dispatching order; high to low.

An * in front of a partition ID indicates at least one outstanding system message reply for this partition (see Figure 33 on page 129).

S

This column shows address spaces. Characters 0-9, A, B indicate the address spaces in which the partitions are allocated. Character S indicates partitions in the shared area.

JOB/PHASE NAME

This is the VSE job name and phase name. If no job is running in the partition, the dialog displays one of the following under these two columns. The panel does not display partitions which are not in use.

- WAITING Not under control of VSE/POWER and inactive.
- WAITING FOR WORK Under control of VSE/POWER and inactive.
- DEACTIVATED Temporarily deactivated.

A partition is temporarily deactivated because the system is experiencing high paging.

ELAPSED TIME

The elapsed time is shown in hours:minutes:seconds (HH:MM:SS).

CPU TIME and OVERHEAD PER STEP

These values are shown in hundredths of a second.

% CPU TIME

This is only an indicator of each partition's use of system resources. Because of the rounding of values, the time intervals, and *the distribution of system overhead among the active partitions*, the percentage number can be more than 100.

I/O PER STEP

The total number of start I/O's for the currently active job step, including the related system task activity. Consequently, the number of start I/O's for a job step can be greater than the total number of device I/O requests found on the *Display Channel and Device Activity* panel. The number of records spooled by VSE/POWER is not included in Figure 33.

Displaying Dynamic Class Information

From the *Display System Activity* panel as shown in Figure 33 on page 129, you can display dynamic class information by pressing PF5.

An example of the *Display Dynamic Classes* panel is shown in Figure 34 on page 132.

Displaying System Activity

IESADMDDC		DISPLAY DYNAMIC CLASSES				15 Seconds	09:46:33
Enter selected class and press ENTER:							
DYNAMIC CLASS	NUMBER OF PARTITIONS	ACTIVE PARTITIONS	CPU TIME	OVERHEAD	%CPU	I/O	
V	<=DISABLED=>						
W	19	2	1.22	.12	3%	4	
E	5	0					
H	<=INVALID==>						
K	5	1	.56	.19	1%	10	
Q	32	9	.45	.11	1%	789	
Select Dynamic Class:							
PF1=HELP		3=END	4=RETURN				

Figure 34. Example of Dynamic Class Display

This panel shows current activity of all dynamic classes. At this point, you can also display system activity of *all dynamic partitions* that belong to one dynamic class. To do this, enter the dynamic class ID on the "Select Dynamic Class" line shown in the panel above and press ENTER.

Note: You *cannot* specify dynamic classes that are classified INVALID (see example above).

Displaying CPU Information

From the *Display System Activity* panel as shown in Figure 33 on page 129, you can separately display CPU information by pressing PF6.

The *CPU System Activity Display* panel has the following information:

CPU activity is displayed for the *whole system*.

CPU activity is displayed for *single static partitions*.

CPU activity is displayed for *single dynamic classes only* (not for each dynamic partition within a class).

Only the ten most active static partitions and dynamic classes are displayed. The dialog automatically updates the display at 15 second intervals.

The panel may display no percentages if the dialog records no activity for the system or the partitions. If a new job is loaded while a time interval is taken, an asterisk in the display indicates no percentage. This is because inactive or total CPU percentage cannot be calculated.

Automatic Redisplay

The *Display System Activity* dialog automatically redisplay current system activity every 15 seconds.

The administrator may create new application profiles using those provided by VSE/ESA as models and:

- Change the default time interval.
- Have the display updated only when ENTER is used.

The manual *VSE/ESA Administration* provides details about implementing such changes.

Displaying Channel and Device Activity

The *Display Channel and Device Activity* dialog lets you monitor the use of I/O devices. You can select information about a single device address or about a range of device addresses. Like the *Display System Activity* dialog, it can highlight areas where performance tools like CICS/PARS or VSE/PT may be used.

At the beginning of this chapter (on page 127) you will find information on how to use the *Display Channel and Device Activity* dialog and the *Display System Activity* dialog to understand system activity.

To access the dialog, start with the *VSE/ESA Function Selection* panel as shown in Figure 17 on page 32 and select:

- 7 (System Status)
- 2 (Display Channel and Device Activity)

Operator Fast Path: 72	Synonym Default: sio Yours:
----------------------------------	---------------------------------------

The *Display Channel and Device Activity* panel shows current device activity. An example of the panel is shown in Figure 35 on page 134.

How to Evaluate Information Provided

IESADMSIOS		DISPLAY CHANNEL AND DEVICE ACTIVITY			Page 1 of 2	
DEVICE ADDRESS RANGE FROM: 00E TO: 121				15 Seconds 09:46:48		
DEVICE	PART ID	JOB NAME	CHANNEL I/O REQUESTS	CONTROL UNIT I/O REQUESTS	DEVICE I/O REQUESTS	
00E	BG	PAUSEBG	230	129	129	
	F2	CICSICCF	25	20	11	
	JE	KELLER01	30	19	16	
	* F4	MATTLIBR	2	1	1	
	MD	WAGNER01	521	330	120	
	F3	VTAMSTART	208	670	329	
120	QE	ABR0190	19,453	10,555	10,555	
	F1	IPWPOWER	1,071	690	210	
	ME	SCHOEN	320	174	123	
	MF	ABR0290	175	120	19	
	M3	ABR0390	23	21	5	
	QA	ABR0490	576	221	121	
	QB	ABR0590	22,828	12,456	734	
PF1=HELP		3=END	4=RETURN			
8=FORWARD						

Figure 35. Example of Display Channel and Device Activity Panel

The panel displays information as of the time you selected the dialog. You can refresh the panel by pressing ENTER. This updates the display to show the most current information. To browse through the entries, use PF7 and PF8.

Note: An '*' preceding a 'PART ID' entry indicates that the number of I/O REQUESTS may not refer to physical I/Os.

How to Evaluate Information Provided

Relative Values

Because the calculations are rounded and based on a short time interval, the values should be considered *indicators* of system use. They should not be used as a precise source of measurement. However, they do give you a good idea of what the system is doing.

Misinterpreting Data

You should not misinterpret, for example, very high or low values. They may be displayed because the time interval is very small. Before you make any decisions, monitor the system for longer periods of time. You should also consider other aspects, such as:

- System response time
- Types of activities in various partitions

For example, if the panel displays CPU use of 100% or more, this does not always mean that the CPU is used too heavily. A batch job may be using large amounts of CPU resources whenever CICS does not need it.

Similar situations may also cause very low figures to be displayed.

The I/O per sec rate and the I/O per active job step rate calculated by the *Display System Activity* dialog do not contain the number of records spooled by VSE/POWER. The number of records spooled by VSE/POWER is calculated by the *Display Channel and Device Activity* dialog. You can use this dialog to specifically monitor disk or tape device activity.

Comparing Similar Work Loads

If you compare similar work loads, the values for each may be different. Even if you monitor the same environment twice, the time intervals may be slightly different and display different data.

Effect on the System

When you display system or device information, the dialog itself uses system resources. If there is no other activity on the system, the resources which the dialog uses are shown for the CICS partition.

If you use a short time interval, the system interaction significantly increases. By using a longer interval (for example, 60 seconds), the interaction is almost negligible, and the dialog uses less system resources.

Performance Monitoring

The two dialogs should not be considered as replacements for performance monitoring tools. The type of data which the dialogs display is different. For example, they do not provide:

- Reporting
- Percentage of channel or device use
- SEEK information
- Average time to complete I/O operation
- Average queuing time

The dialogs only help you determine where some problems are. They *cannot* perform system tuning.

How to Evaluate Information Provided

Chapter 16. Dialogs for Communicating with Other Users

Displaying Active Users and Sending Messages

The *Display Active Users/Send Message* dialog displays the users who are logged on. From the dialog, you can send a message to selected users or to all users who are logged on.

To access the dialog, start with the initial *VSE/ESA Function Selection* panel shown in Figure 17 on page 32 and select:

- 4 (Message and News Handling)
- 1 (Display Active Users/Send Message)

Operator Fast Path: 41	Synonym Default: message Yours:
----------------------------------	---

A panel displays the users who are signed on at the time you accessed the dialog. You can press PF2 to refresh the panel and display the most current information.

The following information is displayed for each user:

USER	This is either the user ID of the user signed on to the Interactive Interface or the operator ID of a user who is working with CICS in "native" mode.
TERM	Terminal ID.
TRANS	The name of the transaction the user is currently running or is about to run.
TIME	The time the user signed on.
DATE	The current date.
INPUTS	The number of input messages received from the user's terminal.
OUTPUTS	The number of output messages sent to the user's terminal.

Note: You can also display users who are signed on to CICS by entering the **USER** command from the VSE/ESA console. For more information about this command, see Appendix C, "USER Command" on page 215.

Sending a Message

You can send a message by pressing PF6. On the next panel, type in your message. When you are done, press PF5. This tells the system you have finished typing the message.

The dialog redisplay the first panel. Use the column to the left of the user IDs to select the users who will receive the message.

If you want to send the message to all users signed on, press PF9.

Entering News

If you want to select the users who will receive the message, enter:

3

in the OPT column to the left of each user ID to be selected. When you are done, press PF10 to send the message to the selected users.

When your message is sent, the dialog displays the following message:

MESSAGE NUMBER x WAS SCHEDULED FOR y DESTINATION(S)

Signing Off a User

If your user profile is based on SYSA, the FULIST displays option 2 (SIGN OFF A USER). You can select this option to sign off particular users from the system.

If a user is still logged on to VSE/ICCF, you should use the **/DISC** command from the VSE/ESA console to also terminate the VSE/ICCF session for this user. To perform the disconnect, enter:

/DISC USER user-id

See the *VSE/ICCF Administration and Operation* manual for detailed information on VSE/ICCF commands.

Hardware Restrictions

You can only send a message to IBM 3270 compatible displays. The dialog will not send a message to a user who does not have one of these displays.

Receiving a Message from Another User

Sometimes another user who is signed on to CICS will send you a message. If the message is sent by the *Display Active Users/Send Message* dialog, the system displays the *Message Delivery* panel on your terminal. The panel shows the message and the user ID of the person who sent the message.

You can send a reply to the user. Type in your reply on the panel and press PF10. The system sends the reply to the user.

You do not have to send a reply. Press PF3 (NO REPLY). The system redisplay your last panel.

Entering News

You use the *Enter News* dialog to enter a *news item*. This is a message that is displayed to users when they sign on to the Interactive Interface. The news is also displayed to users already signed on to the system. You can add, change, or delete news items.

To access the dialog, start with the *VSE/ESA Selection Panel* shown in Figure 17 on page 32 and select:

4 (Message and News Handling)

2 (Enter News)

Operator Fast Path: 42	Synonym Default: news Yours:
----------------------------------	--

The *Enter News* panel displays the current news entry. You can have up to four lines of information. On the panel, you can:

1. Add a line

Type in the information on a blank line.

2. Change a current line

Type over the current information.

3. Delete a line

Use the space bar and blank out the line or use the ERASE EOF key to erase the line.

When you are done, press PF5. The dialog files the news information in the VSE/ESA control file and makes it available to all users who are authorized to receive news.

Retrieving Messages

The *Retrieve Message* dialog displays messages that the system has sent to you; for example, messages that give you information about return codes or job status, or messages sent to you by other users of the online system (VSE/ICCF).

The messages are held in a queue. When you access the dialog, it displays the messages in the queue on your terminal screen. The queue is deleted whenever the Interactive Interface system is shut down.

If you access the dialog and no messages have been sent to you, the system displays the following message on the selection panel:

THERE ARE NO MESSAGES AVAILABLE

To access the *Retrieve Message* dialog, start with the *VSE/ESA Function Selection* panel shown in Figure 17 on page 32 and select:

4 (Message and News Handling)

3 (Retrieve Message)

Operator Fast Path: 43	Synonym Default: retrieve Yours:
----------------------------------	--

The *Retrieve Message* panel displays the messages. Use the appropriate *PF* keys to scroll forward, backward, left, or right. The *PF* keys are described at the bottom of the panel.

You can delete individual message lines. Use the ERASE EOF key or blank out the line using the space bar and then press ENTER.

Retrieving Messages

If you want to delete all messages in the queue, press PF5.

While you review the panel, it is possible that the system will send new messages to you. You can update the panel display to see any new messages by pressing PF9. If the system has not sent any new messages to you, it displays the following:

NO NEW MESSAGES WERE RETURNED

You can end the dialog by pressing PF3.

Chapter 17. Managing VSE/POWER Queues

The tasks described in this chapter are performed by using the *Manage Batch Queues* dialog of the Interactive Interface. If you wish, you may also perform these tasks by entering commands from the VSE/ESA console. For information about the commands, see the *VSE/POWER Administration and Operation* manual.

Accessing the Dialog for Managing Queues

With the *Manage Batch Queues* dialog, you can display and process entries in the LST, RDR, PUN, and XMT queues. The dialog interactively displays the entries using a FULIST like the one shown in Figure 36 on page 143.

If you are a *type 1* user (like the predefined system administrator SYSA), you can use all FULIST functions and access entries in all the queues. As a *type 2* user (like the predefined OPER and PROG), you can handle all batch queue entries if your system administrator has authorized you to do so (via the *User Profile Maintenance* dialog). Otherwise, you can only handle entries which you have submitted or which are destined for you.

To access the dialog, start with the *VSE/ESA Function Selection* panel and select:

3 (Manage Batch Queues)

Operator Fast Path: 3	Synonym Default: power Yours:
---------------------------------	---

On the *Manage Batch Queues* panel, enter the number for the queue you want to display:

- 1** (List Queue)
- 2** (Reader Queue)
- 3** (Punch Queue)
- 4** (Transmit Queue)
- 5** (Wait for Run Subqueue)

You do not have to display the entire queue. You can display entries that:

- Begin with certain characters.
Enter the prefix in the PREFIX field (Only valid for selections 1-4 above).
- Are in a certain class.
Enter the class in the CLASS field.

LST Queue

- Belong to certain user IDs.

Enter the user ID in the USER field. This displays all jobs originated by or destined for this user. For users with programmer (type 2) authorization, the USER field shows their own user ID by default. This may be blanked out to get a display of all users' jobs.

A FULIST displays the entries in the queue as of the time you made your selection. Press PF2 to refresh the panel. This updates the FULIST and displays the most current information.

If you want to locate a particular queue entry, enter the job name in the LOCATE JOBNAM field. The dialog searches the queue. If the entry is found, it is displayed with an * in the OPT column. If it is not in the queue, the dialog displays the message:

JOBNAM NOT FOUND

Note: To locate a particular entry, enter the entire name of the job. You cannot just enter a prefix.

The options you can select are shown at the top of the FULIST. For example,

1 = DISPLAY
2 = CHANGE
4 = COPY TO PRIMARY LIBRARY
5 = DELETE
6 = HOLD
7 = RELEASE

Note: The DELETE option does not issue a confirmation message when you select it. However, your user profile can be changed so that the DELETE option will issue a confirmation message. Information on changing user profiles can be found in the *VSE/ESA Administration* manual. If you would like to receive a confirmation message from the DELETE option ask your system administrator to change your user profile for you.

List Queue

Selecting **1** (List Queue) from the *Manage Batch Queues* panel displays a FULIST of the entries currently in LST. For example:

IESBQUL		LIST QUEUE										Page 14 of 28	
OPTIONS:		1 = DISPLAY		2 = CHANGE		3 = PRINT		5 = DELETE					
OPT	JOBNAME	NUMBER	SFX	S	PRI	DIS	CL	PAGES	CC	FORM	TO	FROM	
-	VTAM33	00988			3	D	A	121	1		ANDR	.ANDR	
-	VTAMSTR	00991			3	D	A	6	1		SYSA	.SYSA	
-	VTAM33	00993			3	D	A	1227	1		ANDR	.ANDR	
-	VTAMSTR	00995			3	D	A	6	1		SYSA	.SYSA	
-	VTAM33	00997			3	D	A	69	1		ANDR	.ANDR	
-	VTAM33	00999			3	D	A	1227	1		ANDR	.ANDR	
-	VTAM33	01001			3	D	A	334	1		ANDR	.ANDR	
-	VTAM33	01003			3	D	A	4	1		ANDR	.ANDR	
-	CICSICCF	00996			3	D	A	4	1		SYSA	.SYSA	
-	VTAMSTR	01007			3	D	A	4	1		SYSA	.SYSA	
-	CICSICCF	01008			3	D	A	4	1		SYSA	.SYSA	
-	VTAM33	01009			3	D	A	4	1		ANDR	.ANDR	
-	VTAM33	01011			3	D	A	4	1		ANDR	.ANDR	

PF1=HELP 2=REFRESH 3=END 4=RETURN
PF7=BACKWARD 8=FORWARD

LOCATE JOBNAME ==> _____

Figure 36. List Queue Panel

The information below describes the entries on this panel. See the next three sections for a description of the options you can select.

Jobname, Number

VSE/POWER uses the jobname and the number to identify the job output.

Job Suffix Number (SFX)

Shows the segment number if job output is segmented.

System ID (S)

This parameter is relevant if your system is running with *POWER shared spooling*. It informs you which CPU is assigned to this entry.

See "VSE/POWER Queue Entries" on page 7 for an explanation of **Priority (PRI)**, **Disposition (DIS)** and **Class (CL)**.

Pages

Indicates the number of pages of the job output.

CC

This parameter allows you to specify the number of copies to be printed.

Form

Depending on the output classes, you may need special forms to print your jobs. These forms can be named here.

To

Destination user ID.

From

Origin node and user, separated by a period ('.').

LST Queue

Enter the option number in the OPT column to the left of the entry you want to process.

Display Option

The DISPLAY option displays the list output of the job on the terminal screen. The PF keys have specific settings, which are shown in Figure 37.

You can locate a particular character string. Type in the character string letters and press either PF5 (search columns 1 - 9) or PF6 (search all columns). Depending if the data you want to locate is in lower- or uppercase, you have to key it in lower- or uppercase.

If the character string has embedded blanks, you must enter a slash (/) before and after the string. For example, to locate the character string *ABC DEF*, type in:
/ABC DEF/

Press PF5 or PF6.

Figure 37. PF Key Settings for DISPLAY Option in List Queue

PF Key	PF Key Setting
PF1	Show PF Key setting
PF2	Redisplay current page
PF3	End
PF4	End
PF5	Locate the character string entered. Search columns 1 - 9 only.
PF6	Locate the character string entered. Search all columns.
PF7	Scroll backward
PF8	Scroll forward
PF9	Top
PF10	Shift left
PF11	Shift right
PF12	Bottom

Note: The settings for the PF13-PF24 keys correspond to the settings for PF1-PF12.

Change Option

The CHANGE option allows you to change the system ID, priority, disposition, class, number of copies, or destination user ID. Enter the option number, key over the value of the characteristic you want to change (S, PRI, DIS, CL, CC, or TO), and press ENTER. If, however, other queue entries have the same jobname, jobnumber, jobsuffix, and class as the entry you want to change, these queue entries will be changed, too.

The CHANGE option can also be used to make list output available for printing. You can choose between three different types of printers:

1. A local or system printer.

2. A terminal printer.
3. A remote printer.

The following attributes are to be changed for printing:

DISPOSITION Change to disposition D or K. If you change disposition to K, the job remains in the List queue with disposition L after being printed.

CLASS Change to a class for which a printer has been started.

TO USER ID System printer :

- Change either to LOCAL or SYSTEM or leave it blank.

Terminal printer and remote printer:

- Change to the appropriate printer/destination ID.

Print Option

The PRINT option allows you to print the list output of the job entry selected.

Note: The system changes both the class and disposition entries automatically: the class (CLASS) entry changes to A, the disposition (DIS) entry changes to D. To get the job printed, you have to ensure that the printer is started for class A.

Delete Option

The DELETE option deletes the entry from the queue.

Note: Other queue entries having the same jobname, jobnumber, jobsuffix, and class as the entry you want to delete, will be deleted, too.

Reader Queue

If you select **2** (Reader Queue) from the *Manage Batch Queues* panel, the system displays a FULIST panel that shows all entries in RDR.

RDR Queue

IESBQUR		READER QUEUE							Page 1 of 5	
1 = DISPLAY 2 = CHANGE 4 = COPY TO PRIMARY LIBRARY 5 = DELETE 7 = RELEASE										
OPT	JOBNAME	NUMBER	S	PR	DIS	CLASS	CARDS	FROM	RUN TIME	
—	BACKUP	00063		8	K	0	91	.SYSA	10:00	01/01
—	BACKUP	00064		8	K	0	91	.SYSA	00:00	01/02
—	ADDINFO	00065		9	L	0	65	.SYSA		
—	DTRFSU23	00269		9	L	0	90	.SYSA		
—	DTRFSU4A	00270		9	L	0	50	.SYSA		
—	DTRFSU4B	00271		9	L	0	37	.SYSA		
—	DTRFSU4C	00272		9	L	0	88	.SYSA		
—	DTRFSU4D	00273		9	L	0	46	.SYSA		
—	DTRFSU26	00274		9	L	0	44	.SYSA		
—	DTRFSU27	00275		9	L	0	41	.SYSA		
—	DTRSTFSU	00277		9	L	0	22	.SYSA		
—	DTRFSU22	00268		9	L	0	28	.SYSA		
—	DTRFSUAB	00276		9	L	0	12	.SYSA		
PF1=HELP		2=REFRESH		3=END			4=RETURN			
		8=FORWARD								
LOCATE JOBNAME ==> _____										

Figure 38. Reader Queue Panel

Change Option

The CHANGE option allows you to change the system ID, priority, disposition, or class. Enter the option number, key over the value of the characteristic you want to change (S,PRI, DIS, or CLASS), and press ENTER.

The sysid parameter (S) can be used if your system is running with *POWER Shared Spooling*. Enter a blank and the system will distribute the jobs for you. To assign a required CPU to a job enter a number from 1 to 9. If there is no *Shared Spooling* ignore the sysid parameter.

Copy Option

The COPY TO PRIMARY LIBRARY option copies the job to your default primary library (as specified in your user profile). The dialog does **not** delete the job from the reader queue. The library member name is the same name as the job name in the queue. If member name already exists, the following message is displayed:

MEMBER ALREADY EXISTS IN YOUR PRIMARY LIBRARY

This means that no copy is performed.

Delete Option

The DELETE option deletes the job from the queue. If the job is currently active, you cannot delete it.

Release Option

This option makes the job available for processing. When the RELEASE option has been issued, VSE/POWER will assign a new job number to the selected job.

Note: For jobs with **dynamic classes**, you have to ensure that the selected Dynamic Class Table has been loaded and that the dynamic classes are *enabled*. For further details refer to “Additional Considerations on Dynamic Partitions” on page 85.

Punch Queue

If you select **3** (Punch Queue) from the *Manage Batch Queues* panel, the system displays a FULIST panel that shows all entries in PUN. The FULIST is similar to the one for RDR (Figure 38 on page 146).

Change Option

The CHANGE option allows you to change the system ID, priority, disposition, class, number of copies, or destination user ID. Enter the option number, key over the value of the characteristic you want to change (S, PRI, DIS, CL, CC or TO), and press ENTER. If, however, other queue entries have the same jobname, jobnumber, jobsuffix, and class as the entry you want to change, these queue entries will be changed, too.

The CHANGE option may also be used to make the punch output available for punching at the local system. The following attributes can be changed:

- CLASS** Change to a class for which the system punch has been started.
- DISPOSITION** Change to disposition D or K. If you change DISPOSITION to K, the job remains in the Punch Queue with disposition L after being punched out.
- TO USER ID** Change to the name of a RJE puncher (Rnnn), LOCAL, SYSTEM or leave it blank.

Copy Option

The COPY TO PRIMARY LIBRARY option copies the punch output to your default primary library (as specified in your user profile). The dialog does **not** delete the entry from the punch queue. The library member name is the same name as the job name in the queue. If the member name already exists, the following message is displayed:

MEMBER ALREADY EXISTS IN YOUR PRIMARY LIBRARY

No copy is performed.

Delete Option

The DELETE option deletes the entry from the queue.

Note: Other queue entries having the same jobname, jobnumber, jobsuffix, and class as the entry you want to delete, will be deleted, too.

Wait for Run Subqueue

Transmit Queue

If you select **4** (Transmit Queue) from the *Manage Batch Queues* panel, the system displays a FULIST panel that shows all entries in XMT. The FULIST is similar to the one for LST (Figure 36 on page 143).

Hold Option

The HOLD option holds the job, list output, or punch output in your local queue. It is not forwarded to its final destination.

Release Option

The RELEASE option makes the job, list output, or punch output eligible to be forwarded to its destination.

Wait for Run Subqueue

IESBQUR		READER QUEUE		Page 1 of 1	
Wait for Run Subqueue					
OPTIONS: 2 = CHANGE 4 = COPY TO PRIMARY LIBRARY 5 = DELETE 7 = RELEASE					
OPT	JOBNAME	NUMBER	S	PRI	DIS CLASS CARDS FROM RUN TIME
	CATTEST	00242	3	K	8 23 .SYSA 14:00 03/02
PF1=HELP 2=REFRESH 3=END 4=RETURN					
LOCATE JOBNAME ==> _____					

Figure 39. Wait for Run Subqueue Panel

The *Wait for Run Subqueue* panel displays all jobs which will be processed at the time shown. These jobs have been assigned time event scheduling operands. These operands can be specified in the *Job Disposition* panel and allow you to determine the day and time a job is scheduled for processing. If a job has to be scheduled once, you specify the time and the date. If a job has to be scheduled repetitively, you can specify that the job is scheduled:

1. Daily
2. Every weekday (for example, every Monday)
3. Every specific day of every month (for example, every first day)
4. Every specific day of certain months (for example, every first of January, June and December).

The manual *VSE/POWER Administration and Operation* provides detailed information about time event scheduling.

The information below describes the RUN TIME fields on the *Wait for Run Subqueue* panel.

RUN TIME	The time and date when a timer-controlled job will be dispatched. An '*' indicates that the run time has already been reached but the job is still waiting for processing because, for example, there is no free partition. '--' is displayed for jobs with a disposition of H, L, or X.
----------	--

Wait for Run Subqueue

Chapter 18. Controlling Printer Output via CICS

Using the CICS Report Controller

Note: The *CICS Report Controller User's Guide* manual has detailed information about the Report Controller. Use that manual if you often work with this CICS feature.

“Report” is the CICS term for an entry in the LST queue. You can use the Report Controller of CICS to manage entries stored in the LST queue. The Report Controller helps you to organize printing of reports and to manage CICS-attached terminal printers.

The *Invoke CEOS* dialog lets you use the CICS Report Controller. To access this dialog, start with the *VSE/ESA Function Selection* panel shown in Figure 17 on page 32 and select:

- 6 (CICS-Supplied Transactions)
- 2 (Invoke CEOS)

Operator Fast Path: 62	Synonym Default: ceos Yours:
----------------------------------	--

Every time you use the Report Controller, you get the *CICS Report Controller* panel (Figure 40).

```

CEOS: 1                      CICS REPORT CONTROLLER

Select one of the following options:

      1 Report selection.
      2 Printer selection.

Selection ==>

PF1=Help PF3=End ENTER=Continue.

```

Figure 40. CICS Report Controller Panel

Report Selection

Typing 1 in the *CICS Report Controller* panel displays the *Report Selection* panel (Figure 41). This panel allows you to create a list of all or selected reports.

```
CEOS: 11                                REPORT SELECTION

You may list all reports or only those reports that match
your selection criteria.

Type your selection criteria:
Report number ==>
Report name   ==>
Destination   ==>
Forms         ==>
Class         ==>
From date     ==>
To date       ==>

                                A-Z
                                mm/dd/yy
                                mm/dd/yy

To select Status type a Y against one, or more of the following:
Held          ==>
Ready         ==>
In use        ==>
Resume        ==>
Error creating ==>
Error printing ==>

PF1=Help PF3=End ENTER=Continue.
```

Figure 41. Report Selection Panel

You request a list of *all reports* by simply pressing ENTER without entering any selection criteria.

You may view a *subset* of the complete report list by specifying the following selection criteria:

Report number	The number assigned to a report.
Report name	The short name by which a report is known.
Destination	A name for a printer or a group of printers. Destination can be: 1. Destination name of up to eight characters associated with the terminal identifier of the printer. 2. A user ID. 3. A system printer.
Forms	The name or code of the type of form or paper on which the report will be printed.
From date	If entered, the list will not contain reports generated before the specified date.
To date	If entered, the list will not contain reports generated later than the specified date.

You can also list reports according to their *Status* by typing a **Y** (for yes) against each status you want. *Status* describes what is currently happening to them.

Status:

Held	Created but not printed or printed and not deleted.
Ready	Report is ready to print at the destination.
In use	Report is currently being printed.
Resume	Report is temporarily complete, but may be added to later.
Error creating	An error occurred during creation of a report.
Error printing	Indicates that a printer failure occurred.

To list reports beginning with the same characters, use an asterisk (*) like this:

Report name ==> CVK*

This will provide you with a list of all reports beginning with **CVK**.

Using the Report List Panel

Pressing ENTER in the *Report Selection* panel displays the *Report List* panel.

CEOS: 111			REPORT LIST				1 TO		18 OF		348	
Enter Options(1=See/Change Characteristics 3=Print 5=Delete 6=Hold)												
OPT	NAME	USERDATA	NUMBER	STATUS	FORMS	CLS	PAGES	CPY	PRI	DEST		
	INSTALL		00002	READY		A	4	1	9	SYSA		
	SADMPDSK		00097	READY		A	3	1	9	**SYSPRT		
	SADMPDSK		00098	READY		A	1	1	9	**SYSPRT		
	SADMPDSK		00099	READY		A	3	1	9	**SYSPRT		
	SADMPDSK		00100	READY		A	3	1	9	**SYSPRT		
	SADMPDSK		00101	READY		A	3	1	9	**SYSPRT		
	SADMPDSK		00102	READY		A	2	1	9	**SYSPRT		
	SADMPDSK		00106	READY		A	2	1	9	**SYSPRT		
	SADMPDSK		00131	READY		A	2	1	9	**SYSPRT		
	SADMPDSK		00132	READY		A	2	1	9	**SYSPRT		
	SCANDMPD		00133	READY		A	2	1	9	**SYSPRT		
	REMDMP		00144	READY		A	7	1	9	**SYSPRT		
	SADMPDSK		00146	READY		A	2	1	9	**SYSPRT		
	REMDMP		00151	READY		A	7	1	9	**SYSPRT		
	PRINTDOC		00261	READY		A	71	1	9	**SYSPRT		
	SADMPDSK		00351	READY		A	3	1	9	**SYSPRT		
	DTRAB10		00834	READY		A	3	1	9	**SYSPRT		
	DTRAB10		00834	READY		A	3	1	9	**SYSPRT		
PF1=Help PF3=End PF6=Bulk Change PF8=Forward ENTER=Continue.												

Figure 42. Report List Panel

You can see the total number of reports in the top right hand corner of the panel.

The *Report List* panel informs you about:

NAME	The name of the report.
USERDATA	A short description of the report that is sometimes given to the report when it is created.
NUMBER	VSE/POWER automatically gives a number to each report.
STATUS	See report selection criteria on page 152.

Using the CICS Report Controller

FORMS	The type of paper on which you want to print your reports. Leave this field blank if you want to use your standard paper.
CLS	The class of a report.
PAGES	The number of pages in the report.
CPY	The number of copies to be printed.
PRI	The priority with which this report will be printed. It ranges from 9 (very high) to 1 (very low).
DEST	For the definition of <i>destination</i> , see page 152.

You may use the *Report List* panel in order to see or change report characteristics, to make a report ready for printing, to delete a report or to keep a report in the LST queue.

Option 1 (See/Change Characteristics)

You will mainly use this option to *prepare* a report for printing. By selecting this option, you get a panel which shows you the characteristics of your report. You can change the class and destination of the report, the number of copies you want to have printed, the page number your report starts printing and the page number it finishes printing. You can also specify that a separator page is to be printed.

Make sure that the class of the report you want to print matches the class given to your printer and enter the destination of your printer. If your printer does not start printing, check the *Printer List* panel for the printer status. See page 155 for a definition of *status*.

Option 3 (Print)

Use this option to make your report *ready* for printing.

Option 5 (Delete)

Use this option to delete a report.

Option 6 (Hold)

Use this option to change the status of a report to HELD. It will stay in the LST queue and will not be printed until it is made ready for printing. Use Option 3 to perform this.

Press PF6 to get the *Bulk Change* panel. It allows you to change the characteristics of many reports together.

Printer Selection

Entering 2 in the *CICS Report Controller* panel displays the *Printer Selection* panel (Figure 43 on page 155). This panel allows you to see a list of *terminal printers* attached to CICS.

```

CEOS: 12                PRINTER SELECTION

You may list all printers or only those printers that match
your selection criteria.

Type your selection criteria:

Printer name  ==>
Destination  ==>
Class        ==>          A-Z
Forms        ==>

To select Status type a Y against one, or more of the following:
Printing      ==>
Waiting       ==>
Stopped       ==>
Aligning      ==>
Unavailable   ==>
Out of service ==>
Paused        ==>

PF1=Help PF3=End ENTER=Continue.

```

Figure 43. Printer Selection Panel

You can request a list of *all terminal printers* by simply pressing ENTER without entering any selection criteria.

If you know that several printers have names beginning with the same characters, you can list them together. To do this, you use an asterisk (*) like this:

Printer name ==> **CP***

This will provide you with a list of printer names beginning with **CP**.

Enter specific selection criteria to choose the printers you want to see on a list.

Selection criteria:

Printer name	The four-character name of a printer.
Destination	The location name given to one or a group of printers. It is used to direct the reports to where they are to be printed.
Class	The class of reports which may be printed on a printer.
Forms	The type of forms or paper currently loaded on a printer.

Status:

Printing	A report is currently being printed.
Waiting	A printer is waiting for reports to print.
Stopped	A printer is stopped, but available.
Aligning	Forms are being aligned on a printer.
Unavailable	A printer is being used by another application.

Using the CICS Report Controller

Out of service A printer is out of service and can only be brought back into service by an authorized person.

Paused A printer has been paused and needs to be resumed before printing will continue.

Pressing ENTER in the *Printer Selection* panel displays the *Printer List* panel.

```
CEOS: 121                PRINTER LIST                1 TO      2 OF      1
Enter Options(1=See/Change Characteristics  2=Start  3=Restart  4=Align
          5=Stop now  6=Stop after copy  7=Stop after report  8=Pause  9=Resume)
OPT PRINTER DESTINATION STATUS CLASS FORMS REPORT NAME NUMBER
   RA05     LAWI      STOPPED      C  STORE  STORES      D8666
   L870     FIBU      WAITING      D  ACC1  ACCOUNT      D4292

PF1=Help PF3=End ENTER=Continue.
```

Figure 44. Printer List Panel

You may use this panel in order to start, stop, and align terminal printers as well as set them up with the right class, forms, and destination identifier so that certain reports will be printed.

For any given printer, you can use Option 1 (See/Change Characteristics) to get the *Printer Characteristics* panel (not shown here). The information displayed on that panel allows you to see whether the printer is printing, and if it is, which report, and how much of that report it has printed. You can see whether the **Destination**, **Class** or **Forms** that you specified for the report you want to print are the same as those on the printer. If they are different, you can change them. Press ENTER and you get the *Printer List* panel with your changes displayed.

Starting a Terminal Printer

Option 2 Start when printer is stopped.

Option 3 Restart when printer is paused - reprint several pages. Set the page from which printing will restart when the printer is resumed.

Option 9 Resume printing when paused - start where it stopped or as specified by Option 3 (Restart).

Stopping a Terminal Printer

Option 5 Stop printer immediately.

If you use **Stop now** before all copies of a report have been printed, the printer will enter STOPPED status. Use Option 2 (Start) to start the printer again.

Option 6 Stop printer after current copy is completed.

Option 7 Stop after all copies have been printed.

Option 8 Pause - interrupt printing without affecting the report currently being printed.

Use Option 3 (Restart), to set the page from which printing will restart, followed by Option 9 (Resume). Or, select Option 9 (Resume) only to resume printing where it stopped.

Aligning Paper

You use Option 4 (Align) to set up the paper for correct margins after a new batch of paper has been loaded into the printer.

The printer must be paused. On the *Printer Characteristics* panel you can specify the number of pages you want for alignment. Select Option 9 (Resume) to resume printing after alignment has been completed.

For more information, see the *CICS Report Controller User's Guide* manual.

Using the CICS Report Controller

Chapter 19. Backing Up and Restoring Data

All tasks described in this chapter are done using dialogs of the Interactive Interface.

Overview

At various times, you should back up all or part of your system.

When you *back up* data, you save a copy of the data on magnetic tape or disk. If the data is later damaged on your system, you can *restore* the data to the system by reading the copy from the tape or disk. You can also let various programs *reorganize* your data when you do a backup or restore of them.

VSE/ESA uses various data and library formats. Because of this, VSE/ESA also offers different backup and restore programs (or dialogs) which are designed to fit those different formats. Figure 45 lists the main data and library formats and gives recommendations on how to save the respective data.

If you want to do a backup of specific data, such as VSE/POWER queues, VSE/VSAM data, or VSE/ICCF libraries, it is recommended to use the backup utilities (or dialogs) provided for these programs. For a description, refer to the IBM manuals indicated in the following figure.

For the major backup/restore tasks, VSE/ESA has dialogs under the Interactive Interface. These dialogs create jobs that invoke a particular backup or restore program. The description of these dialogs is the main subject of this chapter.

Quite a few of the save/restore tasks listed below can also be performed with **DITTO/ESA for VSE** program. For details refer to the IBM manual *DITTO/ESA for VSE, User's Guide and Reference*.

Backing Up/Restoring Data

Figure 45. Overview on Programs for Saving/Restoring Data

Kind of data	Backup	Restore	Reorganize	Recommended	Where described
Total volumes (for example, DOSRES, SYSWK1)	VSE/Fast Copy	VSE/Fast Copy	(See note)	VSE/Fast Copy	<i>VSE/ESA System Utilities</i>
VSE libraries	Librarian BACKUP	Librarian RESTORE	Librarian BACKUP/RESTORE	Librarian or Interactive Interface dialogs	<i>VSE/ESA Guide to System Functions</i> <i>VSE/ESA System Control Statements</i>
Non-VSE/VSAM data	VSE/Fast Copy	VSE/Fast Copy	–	VSE/Fast Copy	<i>VSE/ESA System Utilities</i>
VSE/VSAM data	VSE/VSAM, Backup	VSE/VSAM, Restore	VSE/VSAM, Export and Import	VSE/VSAM, Backup/Restore or Interactive Interface dialogs	<i>VSE/VSAM Commands</i> <i>VSE/ESA Administration</i>
VSE/ICCF libraries	DTSUTIL, Backup	DTSUTIL, Restore	DTSUTIL, Backup Format and restore	DTSUTIL	<i>VSE/ICCF Administration and Operation</i>
VSE/POWER queue	POFFLOAD, SAVE	POFFLOAD, LOAD	–	POFFLOAD or Interactive Interface dialogs	<i>VSE/POWER Administration and Operation</i>
SQL/DS	ARCHIVE	ARCHIVE	–	ARCHIVE	<i>System Administration for VSE</i>
DL/I	IMAGE COPY	IMAGE COPY	Reorganization UNLOAD and RELOAD	DL/I	<i>DL/I Resource Definition and Utilities</i>
System History File	MSHP or VSE/Fast Copy	MSHP or VSE/Fast Copy	–	MSHP	<i>VSE/ESA System Control Statements</i>
Note: Reorganizing data means a change of the physical arrangement of data to obtain a better correspondence of physical and logical structures in order to speed up access and to utilize storage more efficiently. The VSE/Fast Copy parameter REORGANIZE only relocates a file and does not rearrange data in general.					

Backup Considerations

Backing Up the Entire System

You should first back up the entire system immediately after you install VSE/ESA. You should also perform a backup before you extend space that is reserved for VSE/VSAM.

The preferred method is to copy your **volumes** using the Fastcopy utility. When you later restore the volumes, the disks must be of the same device type as the original ones. To copy them to disks of different device type, you must do an initial installation and then restore the individual parts, such as VSE libraries, VSE/ICCF libraries, VSE/VSAM files.

Backing Up Parts of the System

Periodically, you should back up individual parts of the system. How often you should perform any backups depends on how the system is used and how frequently it is updated. By frequently backing up your data, you can minimize the impact of lost or damaged data.

You should consider backing up the system libraries at various intervals. You should also frequently back up:

- VSE/VSAM files
- VSE/ICCF libraries
- User libraries

If data is lost or damaged, you should restore the libraries and/or files using the backup tapes. After the restore is complete, you can re-enter any changes which were made since the backup was done.

When you back up data, you should carefully label the backup tape. This helps ensure that you do not restore an incorrect version of your data.

Backing Up Selected VSE/ESA Files

You should back up the following VSE/ESA files:

1. VSE/ESA Control File

You should back up the VSE/ESA control file IESCNTRL immediately after initial installation and at frequent intervals. The frequency of your backups depends on how much user profiles, synonyms, selection panels, and application profiles are updated.

You can back up the control file using one of two dialogs:

- *Backup VSAM File* (see page 166).
- *Backup a Volume or File* (see page 192).

2. Message File

You should back up the message file IESMSGSG after initial installation. You can back up the file in the same way as the VSE/ESA control file.

3. System Text File

You should back up the system text file IESTRFL after initial installation. The file contains Interactive Interface messages and HELP information. It also contains any HELP text that is created by system users and integrated by your system administrator. How often you back up the file after installation depends on the amount of HELP text that they create.

You can back up the file in the same way as the VSE/ESA control file and message file.

4. VSE/ICCF DTSFILE

You should back up the DTSFILE after initial installation and at regular intervals. The frequency of backups depends on your system's VSE/ICCF activity.

You can back up the DTSFILE using one of two dialogs:

- *Backup ICCF Library* (see page 183).

Exporting VSE/VSAM Files

- *Backup a Volume or File* (see page 192).

Exporting VSE/VSAM Files

The *Export VSAM File* dialog exports VSE/VSAM files. To access the dialog, start with the *VSE/ESA Function Selection* panel and select:

- 5 (Backup/Restore)
- 1 (Backup/Restore VSAM Objects)
- 1 (Export VSAM File)

Operator Fast Path: 511	Synonym Default: Yours:
----------------------------	----------------------------

The information you need depends on whether you export a file to disk or tape. The information in “Input for Exporting to Disk or Tape” is for both types of export. Following this section is the additional input for exporting to disk or tape.

Input for Exporting to Disk or Tape

For exporting a VSE/VSAM file to disk or tape, you need the following information:

IDENTIFICATION

The identification of the VSE/VSAM file you are exporting.

OUTPUT MEDIUM

Specify the type of device to which the file is exported:

- 1 - DISK
- 2 - TAPE

CATALOG TYPE

Specify where the file is defined:

- 1 - MASTER
- 2 - USER

If you specify USER, enter the identification of the user catalog which owns the cluster.

If you export a file to disk, continue with “Additional Input for Exporting to Disk.”

If you export a file to tape, continue with “Additional Input for Exporting to Tape” on page 163.

Additional Input for Exporting to Disk

If you export a file to disk, you also need the following information:

OUTPUT VOLUME SERIAL NUMBER

The six character volume serial number.

STARTING POINT and LENGTH

The starting track (block) and the number of tracks (blocks) for the output file.

Note: The *help function* of the dialog has complete information about valid starting points and lengths for each device type you might use for export to disk.

RETENTION PERIOD

The number of days (**0 - 9999**) that you want to keep the output file, or the output file expiration date in the form **YYYY/DDD** or **YY/DDDD** where **YYYY** or **YY** is the year and **DDD** is the day of the year).

FILE IDENTIFICATION

The identification of the output file where you export the VSE/VSAM file.

The dialog creates a job with the default name EXPORT. On the *Job Disposition* panel, you can submit the job to batch, file it in your default primary library, or both.

Additional Input for Exporting to Tape

If you export a file to tape, you also need the following information:

TAPE ADDRESS

The address (*cuu*) of the tape unit.

VOLUME SERIAL NUMBER

Six-character tape volume serial number.

DENSITY/MODE

For IBM 3480, 3490, 3490E, or 9347 tape units, enter the mode. For other tape units, specify the density.

RETENTION PERIOD

The number of days (**0 - 9999**) that you want to keep the output file, or the output file expiration date in the form **YYYY/DDD** or **YY/DDDD** where **YYYY** or **YY** is the year and **DDD** is the day of the year).

REWIND OPTION

Specify:

- 1 - REW (Rewind at EOJ)
- 2 - NREW (No rewind)
- 3 - UNLD (Rewind and unload)

LABEL PROCESS

Specify the type of label processing:

- 1 - LABELED
- 2 - UNLABELED TAPES

LABEL CHECK

If you enter **1** for the tape label processing, specify whether you want label checking:

- 1 - YES (Label is checked)
- 2 - NO (Label is not checked)

If you specified label checking 1 = YES:

TAPE FILE ID

The name of the tape file for the TLBL statement.

The dialog creates a job with the default name EXPORT. On the *Job Disposition* panel, you can submit the job to batch, file it in your default primary library, or both.

Importing VSE/VSAM Files

When you submit the job, mount the tape. Use the *same* tape address you specify in the dialog.

Importing VSE/VSAM Files

The *Import VSAM File* dialog imports VSE/VSAM files. To access the dialog, start with the *VSE/ESA Function Selection* panel and select:

- 5 (Backup/Restore)
- 1 (Backup/Restore VSAM Objects)
- 2 (Import VSAM File)

Operator Fast Path: 512	Synonym Default: Yours:
-----------------------------------	---

The information you need depends on whether you import a file from disk or tape. The information in "Input for Importing from Disk or Tape" is for both types of import. Following this section is the additional input for importing from disk or tape.

Input for Importing from Disk or Tape

For importing a VSE/VSAM file from disk or tape, you need the following information:

IDENTIFICATION

The identification of the file that you are importing.

FILE TYPE

Specify the type of file:

- 1 - KSDS
- 2 - OTHERWISE

OUTPUT VOLUME SERIAL

The volume serial number of the disk where you store the file.

INPUT MEDIUM

Specify:

- 1 - DISK
- 2 - TAPE

NEW CATALOG TYPE

Specify either:

- 1 - MASTER
- 2 - USER

If you specify USER, enter the identification of the user catalog which owns the cluster.

TYPE OF IMPORT

Specify:

- 1 - Import with new name
- 2 - Import with same name (conditional purge)
- 3 - Import with same name (unconditional purge)

If you enter 1 (import with new name), you need a new file identification.

If you import a file from disk, continue with Additional Input for Importing from Disk.
If you import a file from tape, continue with Additional Input for Importing from Tape.

Additional Input for Importing from Disk

If you import a file from disk, you also need the following information:

IDENTIFICATION

Identification of the disk file from where the VSE/VSAM file was originally exported.

VOLUME SERIAL

Six-character volume serial number of the disk.

The dialog creates a job with the default name IMPORT. On the *Job Disposition* panel, you can submit the job to batch, file it in your default primary library, or both.

Additional Input for Importing from Tape

If you import a file from tape, you also need the following information:

TAPE ADDRESS

The address (*cuu*) of the tape unit.

VOLUME SERIAL NUMBER

The volume serial number of the input tape.

REWIND OPTION

Specify:

- 1 - REW (Rewind at EOJ)
- 2 - NREW (No rewind)
- 3 - UNLD (Rewind and unload)

LABEL PROCESS

Specify the type of label processing:

- 1 - LABELED
- 2 - UNLABELED TAPES

LABEL CHECK

If you entered 1 for the type of label processing, specify whether you want label checking:

- 1 - YES (Label is checked)
- 2 - NO (Label is not checked)

TAPE FILE ID

The name of the tape file for the TLBL statement.

The dialog creates a job with the default name IMPORT. On the *Job Disposition* panel, you can submit the job to batch, file it in your default primary library, or both.

When you submit the job, mount the tape. Use the *same* tape address you specified in the dialog.

Backing Up VSE/VSAM Files

The *Backup VSAM File* dialog backs up VSE/VSAM files. You can back up all files in a catalog or select the files you want to back up. To access the dialog, start with the *VSE/ESA Function Selection* panel and select:

- 5 (Backup/Restore)
- 1 (Backup/Restore VSAM Objects)
- 3 (Backup VSAM File)

Operator Fast Path: 513	Synonym Default: Yours:
-----------------------------------	---

Note: You cannot use the VSE/VSAM backup utility to back up a file in VSAM-managed space with the record format NOCIFORMAT. Use the *Backup VSE Library on Tape* dialog to back up a library. Refer to “Backing Up VSE Libraries” on page 177.

You need the following information:

CATALOG TYPE

Specify where the files are defined:

- 1 - MASTER
- 2 - USER

If you specify 2, enter the identification of the user catalog.

BACKUP WHOLE CATALOG

Specify whether you want to back up all files or selected files in the catalog.

- 1 - Back up all files
- 2 - Back up selected files

If you enter 2, the dialog displays an additional panel. Specify the identification of the individual files you want to back up. You can also enter a generic identification to back up groups of files.

After you specified all your files, enter 2 in the MORE FILES field. The dialog continues.

OUTPUT MEDIUM

Specify:

- 1 - DISK
- 2 - TAPE

Additional Input for Backup to Tape

If you back up to tape, you also need the following information:

TAPE ADDRESS

The address (*cuu*) of the tape unit used for the backup.

VOLUME SERIAL NUMBER

Specify a volume serial number for the tape.

DENSITY/MODE

For IBM 3480, 3490, 3490E, and 9347 tape units, enter the mode. For other tape units, specify the density.

RETENTION PERIOD

The number of days (**0 - 9999**) that you want to keep the output file, or the output file expiration date in the form **YYYY/DDD** or **YY/DDDD** where **YYYY** or **YY** is the year and **DDD** is the day of the year).

REWIND OPTION

Specify:

- 1** - REW (Rewind at EOJ)
- 3** - UNLD (Rewind and unload)

COMPACT

Enter:

- 1** - compaction
- 2** - no compaction (this is the default)

If you specify **1**, the VSE/VSAM files will be backed up in packed form, thus using less space.

If you specify **2**, the VSE/VSAM files will not be backed up in packed form. Enter **2** if you want to restore data on a system older than VSE/ESA 1.3.0.

LABEL PROCESS

Specify the type of label processing:

- 1** - LABELED
- 2** - UNLABELED TAPES

LABEL CHECK

If you enter **1** for the tape label processing, specify whether you want label checking:

- 1** - YES (Label is checked)
- 2** - NO (Label is not checked)

If you specified label checking **1 = YES**:

TAPE FILE ID

The name of the tape file for the TLBL statement.

The dialog creates a job with the default name VSAMBKUP. On the *Job Disposition* panel, you can submit the job to batch, file it in your default primary library, or both.

When you submit the job, mount the backup tape. Use the *same* tape address you specified in the dialog.

Note: The file you are backing up must be available for an INPUT OPEN. The OPEN *might* fail if the file is currently opened for input or output by another partition or system. Because the OPEN might not *always* fail, it is strongly recommended that the file which is being backed up should not be opened for output by any other partition or system. Otherwise, the resulting backup copy might not represent the actual state of the original file.

Additional Input for Backup to Disk

If you back up to disk, you also need the following information:

VOLUME SERIAL NUMBER

The volume serial number of the backup disk.

STARTING POINT

Enter the starting track (or block if using an FBA device).

LENGTH

Enter the total number of tracks (or blocks if using an FBA device).

RETENTION PERIOD

The number of days (**0 - 9999**) that you want to keep the output file, or the output file expiration date in the form **YYYY/DDD** or **YY/DDDD** where **YYYY** or **YY** is the year and **DDD** is the day of the year).

COMPACT

Enter:

1 - compaction

2 - no compaction (this is the default)

If you specify **1**, the VSE/VSAM files will be backed up in packed form, thus using less space.

If you specify **2**, the VSE/VSAM files will not be backed up in packed form. Enter **2** if you want to restore data on a system older than VSE/ESA 1.3.0.

FILE IDENTIFICATION

The identification of the output file being used for the backup.

The dialog creates a job with the default name VSAMBKUP. On the *Job Disposition* panel, you can submit the job to batch, file it in your default primary library, or both.

Note: The file you are backing up must be available for an INPUT OPEN. The OPEN *might* fail if the file is currently opened for input or output by another partition or system. Because the OPEN might not *always* fail, it is strongly recommended that the file which is being backed up should not be opened for output by any other partition or system. Otherwise, the resulting backup copy might not represent the actual state of the original file.

Restoring VSE/VSAM Files

The *Restore VSAM File* dialog restores VSE/VSAM files from tape or disk. You can restore all files or select the files you want to restore. You can also restore some or all files to a different volume than the volume from which they were backed up.

To access the dialog, start with the *VSE/ESA Function Selection* panel and select:

5 (Backup/Restore)

1 (Backup/Restore VSAM Objects)

4 (Restore VSAM File)

Operator Fast Path: 514

Synonym Default: Yours:

The dialog displays different panels depending on the values you specify. For all types of restore, you need the information in “Input for All Types of Restores” on page 169. Following this section is the additional input for restoring all files or selected files.

Input for All Types of Restores

Regardless of whether you restore all or some files or whether you restore files to different volumes, you need the following information:

CATALOG TYPE

Specify where the files will be defined:

- 1 - MASTER
- 2 - USER

If you specify **2**, enter the identification of the user catalog.

RESTORE ALL

Specify whether you want to restore all files on the tape or you want to select the files:

- 1 - Restore all files

Refer to “Additional Input for Restoring All Files” on page 170.

- 2 - Restore selected files

Refer to “Additional Input for Restoring Selected Files” on page 170.

INPUT MEDIUM

Specify:

- 1 - DISK
- 2 - TAPE

Additional Input for Restore from Tape

If you restore from tape, you also need the following information:

TAPE ADDRESS

The address (*cuu*) of the tape unit used for the restore.

VOLUME SERIAL NUMBER

Six-character volume serial number of the input tape.

REWIND OPTION

Specify:

- 1 - REW (Rewind at EOJ)
- 3 - UNLD (Rewind and unload)

LABEL PROCESS

Specify the type of label processing:

- 1 - LABELED
- 2 - UNLABELED TAPES

LABEL CHECK

If you enter **1** for the tape label processing, specify whether you want label checking:

- 1 - YES (Label is checked)
- 2 - NO (Label is not checked)

If you specified label checking **1** = YES:

Restoring VSE/VSAM Files

TAPE FILE ID

Specify the name corresponding to the file ID on the TLBL statement.

Additional Input for Restore from Disk

If you restore from disk, you also need the following information:

IDENTIFICATION

Identification of the disk file that holds the file(s) to be restored.

VOLUME SERIAL NUMBER

Six-character volume serial number of the input disk.

Additional Input for Restoring All Files

VOLUME SERIAL NUMBER

This field is optional; you must enter the six character volume serial number only if you want to restore VSAM files to a disk other than the one from which you created the backup.

If you do not specify this, the dialog restores each file to the disk it resided on when it was backed up.

The dialog creates a job with the default name VSAMREST. On the *Job Disposition* panel, you can submit the job to batch, file it in your default primary library, or both.

If you are restoring from tape, mount the tape when you submit the job. Use the *same* tape address you specify in the dialog.

Additional Input for Restoring Selected Files

If you select the files, you can restore some or all files to different volumes. A panel displays the CHANGE VOLUME field.

You have three choices.

1. Press ENTER.

The dialog restores each file you select to the same volume it resided on when it was backed up.

Specify the identification of each individual file or the generic identification for a group of files.

2. Enter 1.

You can specify the volume where *all* files you select are restored. You need:

VOLUME SERIAL NUMBER

Six-character volume serial number of the output disk.

FILE IDENTIFICATION

Identification of each file or generic identification for a group of files you want restored.

3. Enter 2.

If you choose this option, you can:

- a. Restore *some* files to a different volume.
- b. Move a file's data component to a different volume than the index component.

FILE IDENTIFICATION

Specify the files you want restored. Enter individual file IDs or a generic identification for a group of files.

INDEX VOLSER

Indicate whether you want separate volumes for the data and index components. If you specify separate volumes, you will be requested to supply separate volume serial numbers for the index and data components. This is valid for key-sequenced data sets (KSDS) or alternate indexes (AIX*).

DATA VOLUME NUMBER

Enter new volume serial numbers for the files if you want to restore the data component to a disk other than the one from which you created the backup.

These panels are redisplayed until you indicate you have no more files to restore.

The dialog creates a job with the default name VSAMREST. On the *Job Disposition* panel, you can submit the job to batch, file it in your default primary library, or both.

If you are restoring from tape, mount the tape when you submit the job. Use the *same* tape address you specify in the dialog.

Export-Disconnect a User Catalog

The *Export-Disconnect a User Catalog* dialog disconnects (*exports*) a catalog from a system (use the *Import-Connect a User Catalog* dialog to reconnect the catalog).

To access the dialog, start with the *VSE/ESA Function Selection* panel and select:

- 5 (Backup/Restore)
- 1 (Backup/Restore VSAM Objects)
- 5 (Export-Disconnect a User Catalog)

Operator Fast Path: 515	Synonym Default: Yours:
-----------------------------------	---

The following panel is displayed:

Import Catalogs

CAT\$TPT2	EXPORT-DISCONNECT A USER CATALOG
Enter the required data and press ENTER.	
Enter the identification of the user catalog to be exported.	
PF1=HELP 2=REDISPLAY 3=END	

Figure 46. Example Display of Export-Disconnect User Catalogs Panel

Enter the identification of the user catalog you want to export.

The dialog creates a job with the default name TPTUCAT. On the *Job Disposition* panel, you can submit the job to batch, file it in your default primary library, or both.

Import-Connect a User Catalog

The *Import-Connect a User Catalog* dialog connects (*imports*) a catalog, for example a catalog that had previously been disconnected elsewhere.

To access the dialog, start with the *VSE/ESA Function Selection* panel and select:

- 5 (Backup/Restore)
- 1 (Backup/Restore VSAM Objects)
- 6 (Import-Connect a User Catalog)

Operator Fast Path: 516	Synonym Default: Yours:
-----------------------------------	---

The following panel is displayed:

CAT\$TPT3

IMPORT-CONNECT A USER CATALOG

Enter the required data and press ENTER.

VOLUME NUMBER.....

Enter the VOLUME NUMBER of the disk on which this catalog resides.

Enter the IDENTIFICATION of the USER CATALOG to be imported.

PF1=HELP

2=REDISPLAY

3=END

Figure 47. Example Display of Import-Connect User Catalogs Panel

You need the following information:

VOLUME SERIAL NUMBER

The six character volume serial number of the disk where the catalog resides (DOSRES, for example).

CATALOG IDENTIFICATION

The identification of the user catalog to be imported.

The dialog creates a job with the default name TPTUCAT. On the *Job Disposition* panel, you can submit the job to batch, file it in your default primary library, or both.

Copying In Catalogs

The *Copy In Catalog* dialog restores either the master catalog or a user catalog from tape or disk. To access the dialog, start with the *VSE/ESA Function Selection* panel and select:

- 5 (Backup/Restore)
- 1 (Backup/Restore VSAM Objects)
- 7 (Copy In Catalog)

Operator Fast Path: 517	Synonym Default: Yours:
----------------------------	----------------------------

A panel displays four selections:

1. Restore the Master Catalog from Tape
2. Restore the Master Catalog from Disk

Copying In Catalogs

3. Restore a User Catalog from Tape
4. Restore a User Catalog from Disk

The input you need differs depending on whether you are restoring the catalog from disk or tape. The two methods are described below.

Restore Master or User Catalog from Tape

If you restore the master catalog or a user catalog from tape (selections 1 or 3), you need the following information:

CATALOG IDENTIFICATION

You need this if you restore a user catalog. Specify the identification of the user catalog.

TAPE ADDRESS

The address (*cuu*) of the tape unit used for the restore.

VOLUME SERIAL NUMBER

The six character volume serial number of the tape.

REWIND OPTION

Specify:

- 1 - REW (Rewind at beginning and end of job)
- 2 - NREW (No rewinding at either beginning or end of job)
- 3 - UNLD (Rewind at beginning, rewind and unload at end of job)

If VSE Access Control is active, you must specify **1** for unlabeled tapes.

LABEL PROCESS

Specify the type of label processing.

- 1 - LABELED
- 2 - UNLABELED TAPES

LABEL CHECK

If you entered **1** for the tape label processing, specify whether you want label checking:

- 1 - YES (Label is checked)
- 2 - NO (Label is not checked)

If you specified label checking 1 = YES:

TAPE FILE ID

Specify the name of the tape output file.

The dialog creates a job with the default name RESTCAT. On the *Job Disposition* panel, you can submit the job to batch, file it in your default primary library, or both.

Restore Master or User Catalog from Disk

If you restore the master catalog or a user catalog from disk (selections 2 or 4), you need the following information:

CATALOG IDENTIFICATION

You need this if you restore a user catalog. Specify the identification of the user catalog.

VOLUME SERIAL NUMBER

The six character volume serial number of the disk where the backup copy of the catalog resides.

FILE ID

Identification of the disk file which contains the backup copy.

The dialog creates a job with the default name RESTCAT. On the *Job Disposition* panel, you can submit the job to batch, file it in your default primary library, or both.

Copying Out Catalogs

The *Copy Out Catalog* dialog backs up either the master catalog or a user catalog to tape or disk. To access the dialog, start with the *VSE/ESA Function Selection* panel and select:

- 5 (Backup/Restore)
- 1 (Backup/Restore VSAM Objects)
- 8 (Copy Out Catalog)

Operator Fast Path: 518	Synonym Default: Yours:
-----------------------------------	---

A panel displays four selections:

1. Backup the Master Catalog to Tape
2. Backup the Master Catalog to Disk
3. Backup a User Catalog to Tape
4. Backup a User Catalog to Disk

The input you need differs depending on whether you back up the catalog to disk or tape. The two methods are described below.

Back Up Master or User Catalog to Tape

If you back up the master catalog or a user catalog to tape (selections 1 or 3), you need the following information:

CATALOG IDENTIFICATION

You need this if you back up a user catalog. Specify the identification of the user catalog.

TAPE ADDRESS

The address (*cuu*) of the tape unit used for the backup.

VOLUME SERIAL NUMBER

The six character volume serial number of the tape unit.

DENSITY/MODE

For IBM 3480, 3490, 3490E, and 9347 tape units, enter the mode. For other tape units, specify the density.

RETENTION PERIOD

The number of days (**0 - 9999**) that you want to keep the output file, or the output file expiration date in the form **YYYY/DDD** or **YY/DDDD** where **YYYY** or **YY** is the year and **DDD** is the day of the year).

Copying Out Catalogs

REWIND OPTION

Specify:

- 1 - REW (Rewind at EOJ)
- 2 - NREW (No rewind)
- 3 - UNLD (Rewind and unload)

If VSE Access Control is active, you must specify **1** for unlabeled tapes.

LABEL PROCESS

Specify the type of label processing:

- 1 - LABELED
- 2 - UNLABELED TAPES

LABEL CHECK

If you entered **1** for the tape label processing, specify whether you want label checking:

- 1 - YES (Label is checked)
- 2 - NO (Label is not checked)

If you specified label checking 1 = YES:

TAPE FILE ID

Specify the name of the tape output file.

The dialog creates a job with the default name BKUPCAT. On the *Job Disposition* panel, you can submit the job to batch, file it in your default primary library, or both.

Back Up Master or User Catalog to Disk

If you back up the master catalog or a user catalog to disk (selections 2 or 4), you need the following information:

CATALOG IDENTIFICATION

You need this if you back up a user catalog. Specify the identification of the user catalog.

OUTPUT VOLUME SERIAL NUMBER

The six character volume serial number of the disk where the backup copy will reside.

STARTING POINT and LENGTH

The starting track (block) and the number of tracks (blocks) to be allocated for the catalog. The sum of the first starting point and the last starting point amount to the capacity of the device. The sum of the starting point and length chosen must not be greater than the capacity of the device.

Note: The *help function* of the dialog has complete information about valid starting points and lengths for each device type you might use to copy out to disk.

RETENTION PERIOD

The number of days (**0 - 9999**) that you want to keep the output file, or the output file expiration date in the form **YYYY/DDD** or **YY/DDDD** where **YYYY** or **YY** is the year and **DDD** is the day of the year).

FILE ID

Identification of the disk output file.

The dialog creates a job with the default name BKUPCAT. On the *Job Disposition* panel, you can submit the job to batch, file it in your default primary library, or both.

Backing Up VSE Libraries

The *Backup VSE Library on Tape* dialog backs up VSE libraries from disk to tape. You can back up either libraries, sublibraries, or members. To access the dialog, start with the *VSE/ESA Function Selection* panel and select:

- 5 (Backup/Restore)
- 2 (Backup/Restore Library Objects)
- 1 (Backup VSE Library on Tape)

Operator Fast Path: 521	Synonym Default: Yours:
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Specify the library (sublibrary) you want to back up. You can back up several libraries or sublibraries in the same step. Type in the name(s) and press ENTER. The dialog stores the information and redisplay the panel. Specify the next entry.

When you finish, press PF5 to process the information. The dialog continues and displays the next panel.

If there is a need to perform a *stand-alone* backup, use the BACKUP command as described in the *VSE/ESA System Control Statements* manual.

For a single backup task, you can specify several libraries, sublibraries or members. However, you *cannot* mix them. You have to back up either entire libraries, sublibraries, *or* members.

You need the following information:

LIBRARY NAME

The name of the library you want to back up. If you back up a sublibrary, this is the first qualification level.

SUBLIBRARY NAME

The name of the sublibrary you want to back up. If you leave this field blank, the dialog backs up the entire library.

MEMBER NAME/MEMBER TYPE

This identifies the member within the specified sublibrary. The member name and member type may be generic. If you leave this field blank, the entire sublibrary will be backed up.

IDENTIFICATION

This is the ID that identifies the backup when it is restored. The restore process checks for the ID, if you specify it.

TAPE ADDRESS

The address (*cuu*) of the tape unit used for the backup.

VOLUME SERIAL NUMBER

The six character volume serial number of the tape unit.

Restoring VSE Libraries

DENSITY/MODE

For IBM 3480, 3490, 3490E, and 9347 tape units, enter the mode. For other tape units, specify the density.

RETENTION PERIOD

The number of days (**0 - 9999**) that you want to keep the output file, or the output file expiration date in the form **YYYY/DDD** or **YY/DDDD** where **YYYY** or **YY** is the year and **DDD** is the day of the year).

LABEL PROCESS

Specify the type of label processing:

- 1** - LABELED
- 2** - UNLABELED TAPES

LABEL CHECK

If you entered **1** for the tape label processing, specify whether you want label checking:

- 1** - YES (Label is checked)
- 2** - NO (Label is not checked)

If you specified label checking **1** = YES:

TAPE FILE ID

This is an optional name associated with the tape file. It protects the file from being overwritten and helps ensure that the correct file is processed.

You should write down the ID that you enter. You need to know it, when the file is processed.

The dialog creates a job with the default name VSESAV. On the *Job Disposition* panel, you can submit the job to batch, file it in your default primary library, or both.

When you submit the job, mount the backup tape. Use the *same* tape address you specify in the dialog.

Restoring VSE Libraries

The *Restore VSE Library from Tape* dialog restores VSE libraries from tape to disk. You can restore libraries, sublibraries, or members. To access the dialog, start with the *VSE/ESA Function Selection* panel and select:

- 5** (Backup/Restore)
- 2** (Backup/Restore Library Objects)
- 2** (Restore VSE Library from Tape)

Operator Fast Path: 522	Synonym Default: Yours:
-----------------------------------	---

Specify the library (sublibrary or member) you want to restore. You can restore several libraries, sublibraries, or members in the same step. Type in the name(s) and press ENTER. The dialog stores the information and redisplay the panel. Specify the next entry.

When you finish, press PF5 to process the information. The dialog continues and displays the next panel.

For a single restore task, you can specify several libraries, sublibraries, or members. However, you *cannot* mix them. You have to restore either entire libraries, sublibraries, *or* members only.

For information on restoring online SYSRES files, libraries, and sublibraries, refer to the IBM manual *VSE/ESA Guide to System Functions*.

You need the following information:

LIBRARY NAME

The name of the library you want to restore. When restoring a sublibrary or members, this is the first qualification level.

If you enter an asterisk (*), the dialog restores all libraries and sublibraries from the current backup file. In this case, you cannot specify sublibrary or member names. For restoring all libraries and sublibraries from multiple backup files on the backup tape, enter an asterisk (*) in the IDENTIFICATION field also.

If you enter 1 (YES) in the OLD FORMAT field, you can *only* enter a library name on the panel. The OLD FORMAT field is described below.

If the library does not exist, it will be created if a label exists for the library.

SUBLIBRARY NAME

The name of the sublibrary you want to restore. If you leave this field blank, the dialog restores the entire library.

When you restore a sublibrary with the same name as an existing sublibrary, the existing sublibrary is overwritten.

If the sublibrary does not exist, it will be created if the library exists.

MEMBER NAME/MEMBER TYPE

This identifies the member you want to restore. It is qualified by the library and sublibrary names. If you leave these fields blank, the dialog restores the entire sublibrary (library).

IDENTIFICATION

This is the *mnemonic ID* that identified the backup file when it was backed up. The restore process checks for the ID, if it was specified.

An asterisk (*) in this field causes the entire backup tape to be searched from the current position to the end of the tape.

If you enter 1 (YES) in the OLD FORMAT field, you *cannot* enter a value in this field. The OLD FORMAT field is described below.

NEWNAME

Specify whether you want to restore the library and/or sublibrary under a new name.

1 - YES

2 - NO

If you specify 1 (YES), the dialog displays a second panel. Enter the new name for the library (sublibrary). If you only specify a library name on the first panel, you *cannot* enter a new sublibrary name on the second panel.

Restoring VSE Libraries

If you enter 1 (YES) in the OLD FORMAT field, you *cannot* enter 1 (YES) in this field. The OLD FORMAT field is described below.

TIME STAMP

Specify whether you want to keep the original date.

- 1 - the original date is kept.
- 2 - the present date is used.

LIST

Specify whether you want a listing of the restored library, sublibrary, or member(s).

- 1 - YES
- 2 - NO

OLD FORMAT

For restoring a tape that was created using the BACKUP function (pre-Version 2 VSE/Advanced Functions), you *must* enter 1 (YES). Otherwise, enter 2 (NO).

If you enter 1 (YES), consider the following:

1. You can only enter a library name on the panel. Do *not* enter a sublibrary or member name.
2. You *cannot* specify a value for the IDENTIFICATION field on the panel.
3. You *cannot* enter 1 (YES) for the NEWNAME field. You must enter 2 (NO).
4. You must specify a new library structure. The dialog displays a second panel. You *must* enter a sublibrary name. You cannot change the name of the library.

TAPE ADDRESS

The address (*cuu*) of the tape unit used for the restore.

VOLUME SERIAL NUMBER

This identifies the tape. Specify the same value that was used when the library was backed up. The job has comments and a PAUSE statement requesting that you mount the tape with this ID.

LABEL PROCESS

Specify the type of label processing:

- 1 - LABELED
- 2 - UNLABELED TAPES

LABEL CHECK

If you entered 1 for the tape label processing, specify whether you want label checking:

- 1 - YES (Label is checked)
- 2 - NO (Label is not checked)

If you specified label checking 1 = YES:

TAPE FILE ID

This is an optional name associated with the tape file. It protects the file from being overwritten and helps ensure that the correct file is processed.

The dialog creates a job with the default name VSERES. On the *Job Disposition* panel, you can submit the job to batch, file it in your default primary library, or both.

When you submit the job, mount the backup tape. Use the *same* tape address you specify in the dialog.

Scanning a VSE Library Backup Tape

The *Scan VSE Library Backup Tape* dialog scans a tape containing the backup of a VSE library. It prints information about the contents of the tape on the system printer. To access the dialog, start with the *VSE/ESA Function Selection* panel and select:

- 5 (Backup/Restore)
- 2 (Backup/Restore Library Objects)
- 3 (Scan VSE Library Backup Tape)

Operator Fast Path: 523	Synonym Default: Yours:
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Specify the library (sublibrary or member) you want to scan. You can scan several libraries, sublibraries, or members in the same job step. Type in the name(s) and press ENTER. The dialog stores the information and redisplay the panel. Specify the next entry.

When you finish, press PF5 to process the information. The dialog continues and displays the next panel.

For a single scan task, you can specify several libraries, sublibraries, or members. However, you *cannot* mix them. You can scan either entire libraries, sublibraries, *or* members only.

You need the following information:

LIBRARY NAME

The name of the library you want to scan. If you scan a sublibrary or members, this is the first qualification level.

If you enter an asterisk (*), the dialog scans all libraries and sublibraries in the current backup file. In this case, you cannot specify sublibrary or member names. If you want to scan all libraries and sublibraries in multiple backup files on the backup tape, then enter an asterisk (*) in the IDENTIFICATION field also.

If you enter 1 (YES) in the OLD FORMAT field, you can *only* enter a library name on the panel. The OLD FORMAT field is described below.

SUBLIBRARY NAME

The name of the sublibrary you want to scan. If you leave this field blank, the dialog scans the entire library.

MEMBER NAME/MEMBER TYPE

This identifies the member you want to scan. It is qualified by the library and sublibrary names. If you leave this field blank, the dialog scans the entire sublibrary (library).

Scanning a Backup Tape

IDENTIFICATION

This is the *mnemonic ID* that identified the backup file when it was backed up. The scan process checks for the ID, if it was specified.

If you enter an asterisk (*) in this field, the entire backup tape is searched from the current position to the end of the tape.

If you enter 1 (YES) in the OLD FORMAT field, you *cannot* enter a value in this field. The OLD FORMAT field is described below.

OLD FORMAT

If the tape you scan was created using the BACKUP function (pre-Version 2 VSE/Advanced Functions), you *must* enter 1 (YES). Otherwise, enter 2 (NO).

If you enter 1 (YES), consider the following:

1. You can only enter a library name on the panel. Do *not* enter a sublibrary or member name.
2. You *cannot* specify a value for the IDENTIFICATION field on the panel.

TAPE ADDRESS

The address (*cuu*) of the tape unit used for the scan.

VOLUME SERIAL NUMBER

This identifies the tape. Specify the same value that was used when the library was backed up. The job has comments and a PAUSE statement requesting that you mount the tape with this ID.

LABEL PROCESS

Specify the type of label processing:

- 1 - LABELED
- 2 - UNLABELED TAPES

LABEL CHECK

If you entered 1 for the tape label processing, specify whether you want label checking:

- 1 - YES (Label is checked)
- 2 - NO (Label is not checked)

If you specified label checking 1 = YES:

TAPE FILE ID

This is an optional name associated with the tape file. It protects the file from being overwritten and helps ensure that the correct file is processed.

The dialog creates a job with the default name LIBSCN. On the *Job Disposition* panel, you can submit the job to batch, file it in your default primary library, or both.

When you submit the job, mount the backup tape you want to scan. Use the *same* tape address you specify in the dialog.

Backing Up VSE/ICCF Libraries

The *Backup ICCF Library on Tape* dialog backs up VSE/ICCF libraries from disk to tape. To access the dialog, start with the *VSE/ESA Function Selection* panel and select:

- 5 (Backup/Restore)
- 2 (Backup/Restore Library Objects)
- 4 (Backup ICCF Library on Tape)

Operator Fast Path: 524	Synonym Default: Yours:
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A panel displays three selections:

1. Backup the DTSFILE (all VSE/ICCF libraries)
2. Archive all VSE/ICCF libraries on tape
3. Export VSE/ICCF library members to tape.

Backing Up the DTSFILE

This task backs up all VSE/ICCF libraries to tape. The job that the dialog creates can only run when VSE/ICCF is *not* active. The job contains a PAUSE statement to let you disconnect the DTSFILE. To perform the disconnect, enter:

/DISC DTSFILE

Run the job, then connect the DTSFILE again. Enter:

/CON DTSFILE

You need the following information:

TAPE ADDRESS

The address (*cuu*) of the tape unit used for the backup.

VOLUME SERIAL NUMBER

The label that is written on the tape. It uniquely identifies the tape and provides protection. When the job runs, it checks the label to make sure you mounted the correct tape.

You should write the ID on the tape itself, so you can easily locate it. The job has comments and a PAUSE statement requesting that you mount the tape with this ID.

You should also write down the ID you use. You need to know it, when you restore the tape.

DENSITY/MODE

For IBM 3480, 3490, 3490E, and 9347 tape units, enter the mode. For other tape units, specify the density.

RETENTION PERIOD

The number of days (**0 - 9999**) that you want to keep the output file, or the output file expiration date in the form **YYYY/DDD** or **YY/DDDD** where **YYYY** or **YY** is the year and **DDD** is the day of the year).

Backing Up VSE/ICCF Libraries

LABEL PROCESS

Specify the type of label processing:

- 1 - LABELED
- 2 - UNLABELED TAPES

LABEL CHECK

If you entered **1** for the tape label processing, specify whether you want label checking:

- 1 - YES (Label is checked)
- 2 - NO (Label is not checked)

If you specified label checking 1 = YES:

TAPE FILE ID

This is an optional name associated with the tape file. It protects the file from being overwritten and helps ensure that the correct file is processed.

You should write down the ID that you enter. You need to know it, when the file is processed.

The dialog creates a job with the default name ICFSAV. On the *Job Disposition* panel, you can submit the job to batch, file it in your default primary library, or both.

When you submit the job, mount the backup tape. Use the *same* tape address you specify in the dialog.

Archiving All VSE/ICCF Libraries

This task is a different form of a backup task. It backs up on a new tape the entire current VSE/ICCF library plus members from a previous backup tape. Members from the previous backup tape are included in the new backup tape if they are not in the current VSE/ICCF library.

By using this dialog, you can keep copies of inactive VSE/ICCF members on a backup tape, when you do not need them online. This can help save library space. You can restore members from the tape using the *Restore ICCF Library from Tape* dialog.

You need two tape units for this task, one for the input tape and another unit for the output tape. The input tape is the tape that contains the previous backup. The output tape is the new backup tape which the dialog creates.

The dialog displays two panels for you to enter information about the tapes. On the *Define Input Tape* panel, enter the values for the input tape. On the *Define Output Tape* panel, specify the values for the output tape.

The job can only run when VSE/ICCF is *not* active. The job contains a PAUSE statement to let you disconnect the DTSFILE. To perform the disconnect, enter:

/DISC DTSFILE

Run the job, then connect the DTSFILE again. Enter:

/CON DTSFILE

You need the following information:

TAPE ADDRESS

The address (*cuu*) of both tape units for the input and output tapes.

VOLUME SERIAL NUMBER

Enter the tape label for both the input and output tapes.

For the input tape, this is the label that was written on the tape when it was backed up.

For the output tape, this specifies the label that is written on the new backup tape. It uniquely identifies the tape and provides protection. It is recommended that you write the ID on the tape itself, so you can easily locate it. You should also write down the ID you use. You need to know it, when you restore the tape.

The job has comments and a PAUSE statement requesting that you mount the tapes with these IDs. It checks both labels to make sure you mounted the correct tapes.

DENSITY/MODE

Enter the density or mode for the output tape unit.

For IBM 3480, 3490, 3490E, and 9347 tape units, enter the mode. For other tape units, specify the density.

TAPE FILE ID

This is an optional name associated with the tape file.

For the input tape, enter the name that was used when the tape was backed up, if one was specified.

For the output tape, you can specify an ID. It protects the file from being overwritten and helps ensure that the correct file is processed. It is recommended that you write down the ID that you enter. You need to know it, when the file is processed.

The dialog creates a job with the default name ICFSAV. On the *Job Disposition* panel, you can submit the job to batch, file it in your default primary library, or both.

When you submit the job, mount both tapes. Use the *same* tape addresses you specify in the dialog.

Exporting VSE/ICCF Library Members

This task backs up VSE/ICCF library members on tape so you can *import* them into another system.

It writes control statements on the tape which identify the members and the VSE/ICCF library in which they reside. You can only use one tape for this task.

The output data includes the library number, member names, member data, and user IDs of the member owners. Because this information is available on the tape, you do not have to specify it when you import the members. However, the user IDs of the owners of the exported VSE/ICCF members must *also* be defined to the importing VSE/ESA system. Additionally, when you import member(s) on another system, you could have problems when imported and existing library members have the same name. One way to avoid members being overwritten is to use a specific library in each system to temporarily store all members that are being moved from one system to another.

Restoring VSE/ICCF Libraries

On the first panel, enter the following information:

TAPE ADDRESS

The address (*cuu*) of the tape unit used for the export.

VOLUME SERIAL NUMBER

Specify an identifier for the tape that is processed. This value is *not* related to the tape label. A tape label is *not* used for this task.

It is recommended that you write the ID on the outside of the tape. This helps the operator locate the correct tape. The job has comments and a PAUSE statement requesting that you mount the tape with this ID.

You should also write down the name you use. You need to know it when you import the members into another system.

DENSITY/MODE

For IBM 3480, 3490, 3490E, and 9347 tape units, enter the mode. For other tape units, specify the density.

On the second panel, specify the VSE/ICCF library and the names of up to ten members you want to export. Enter your data and press ENTER. The dialog redisplay the panel. You can specify additional member names in the same library or in a different library.

When you finish, leave the fields for the member names *blank* and press ENTER. The dialog then continues.

You need the following information:

LIBRARY NUMBER

The number of the library where the members are stored.

MEMBER NAME

There are ten fields at the bottom of the panel. Enter up to ten names of the members you want to export.

The dialog creates a job with the default name ICFSAV. On the *Job Disposition* panel, you can submit the job to batch, file it in your default primary library, or both.

When you submit the job, mount the tape. Use the *same* tape address you specify in the dialog.

Restoring VSE/ICCF Libraries

The *Restore ICCF Library from Tape* dialog restores VSE/ICCF libraries from tape to disk. To access the dialog, start with the *VSE/ESA Function Selection* panel and select:

- 5 (Backup/Restore)
- 2 (Backup/Restore Library Objects)
- 5 (Restore ICCF Library from Tape)

Operator Fast Path: 525	Synonym Default: Yours:
-----------------------------------	---

A panel displays four selections:

1. Restore the DTSFILE (all VSE/ICCF Libraries)
2. Restore one VSE/ICCF Library
3. Restore a Member of a VSE/ICCF Library
4. Import VSE/ICCF Library Member.

Restoring the DTSFILE (All VSE/ICCF Libraries)

This task restores all VSE/ICCF libraries from a backup tape (the DTSFILE). The job that the dialog creates can only run when VSE/ICCF is *not* active. The job contains a PAUSE statement to let you disconnect the DTSFILE. To perform the disconnect, enter:

/DISC DTSFILE

Run the job, then connect the DTSFILE again. Enter:

/CON DTSFILE

You need the following information:

TAPE ADDRESS

The address (*cuu*) of the tape unit used for the restore.

VOLUME SERIAL NUMBER

The label that was written on the tape when it was backed up. The job has comments and a PAUSE statement requesting that you mount the tape with this ID. It checks the label to make sure you mounted the correct tape.

LABEL PROCESS

Specify the type of label processing:

- 1 - LABELED
- 2 - UNLABELED TAPES

LABEL CHECK

If you entered 1 for the tape label processing, specify whether you want label checking:

- 1 - YES (Label is checked)
- 2 - NO (Label is not checked)

If you specified label checking 1 = YES:

TAPE FILE ID

This is an optional name associated with the tape file. Enter the name that was used when the tape was backed up, if one was specified.

The dialog creates a job with the default name ICFRES. On the *Job Disposition* panel, you can submit the job to batch, file it in your default primary library, or both.

When you submit the job, mount the backup tape. Use the *same* tape address you specify in the dialog.

Restoring One VSE/ICCF Library

This task restores an entire VSE/ICCF library from a backup tape. The dialog creates a job that can only run when VSE/ICCF is *not* active. The job contains a PAUSE statement to let you disconnect the DTSFILE. To perform the disconnect, enter:

/DISC DTSFILE

Run the job, then connect the DTSFILE again. Enter:

/CON DTSFILE

If the tape you restore was created using the *Archive* function, it contains both active and inactive copies of library members.

Inactive copies are members that were *not* resident in the VSE/ICCF library when the archiving was done. They were copied from the previous backup tape. Active copies are members that *were* resident in the VSE/ICCF library when the archiving was done. They were copied directly from the VSE/ICCF library.

This task restores the active VSE/ICCF members *only*.

You need the following information:

TAPE ADDRESS

The address (*cuu*) of the tape unit used for the restore.

VOLUME SERIAL NUMBER

The label that was written on the tape when it was backed up. The job has comments and a PAUSE statement requesting that you mount the tape with this ID. It checks the label to make sure you mounted the correct tape.

LABEL PROCESS

Specify the type of label processing:

- 1 - LABELED
- 2 - UNLABELED TAPES

LABEL CHECK

If you entered 1 for the tape label processing, specify whether you want label checking:

- 1 - YES (Label is checked)
- 2 - NO (Label is not checked)

If you specified label checking 1 = YES:

TAPE FILE ID

This is an optional name associated with the tape file. Enter the name that was used when the tape was backed up, if one was specified.

LIBRARY ON TAPE

Enter the number of the library you want restored from the tape.

RECEIVING LIBRARY

Enter the number of the library into which the data is to be restored. If you leave this field blank, the dialog restores the data into the library specified in the LIBRARY ON TAPE field.

The dialog creates a job with the default name ICFRES. On the *Job Disposition* panel, you can submit the job to batch, file it in your default primary library, or both.

When you submit the job, mount the backup tape. Use the *same* tape address you specify in the dialog.

Restoring a VSE/ICCF Library Member

This task restores a VSE/ICCF member from a backup tape. The dialog creates a job that can only run when VSE/ICCF is *not* active. It contains a PAUSE statement to let you disconnect the DTSFILE. To perform the disconnect, enter:

/DISC DTSFILE

Run the job, then connect the DTSFILE again. Enter:

/CON DTSFILE

You need the following information:

TAPE ADDRESS

The address (*cuu*) of the tape unit used for the restore.

VOLUME SERIAL NUMBER

The label that was written on the tape when it was backed up. The job has comments and a PAUSE statement requesting that you mount the tape with this ID. It checks the label to make sure you mounted the correct tape.

LABEL PROCESS

Specify the type of label processing:

- 1 - LABELED
- 2 - UNLABELED TAPES

LABEL CHECK

If you entered 1 for the tape label processing, specify whether you want label checking:

- 1 - YES (Label is checked)
- 2 - NO (Label is not checked)

If you specified label checking 1 = YES:

TAPE FILE ID

This is an optional name associated with the tape file. Enter the name that was used when the tape was backed up, if one was specified.

MEMBER NAME

Enter the name of the member you want restored from the tape.

RECEIVING LIBRARY

Enter the number of the library into which the member is to be restored.

If you leave this field blank, the dialog restores the member into the library it was in when it was backed up. If the library does *not* exist anymore, you *must* specify the receiving library.

The dialog creates a job with the default name ICFRES. On the *Job Disposition* panel, you can submit the job to batch, file it in your default primary library, or both.

When you submit the job, mount the backup tape. Use the *same* tape address you specify in the dialog.

Importing VSE/ICCF Library Members

This task imports (loads) VSE/ICCF library members that were written on tape using the *Export* function. You can load the members into one or more VSE/ICCF libraries.

The export tape includes library numbers, member names, member data, and the user IDs of the member owners.

Note: If the user IDs of the exported member owners are not defined to the importing VSE/ESA system, then these members cannot be imported.

The dialog loads the exported library members with the same names they had in the original system. You should make sure that any existing VSE/ICCF members are not overwritten. One way to avoid problems is to use a specific library in the system to temporarily store all members that are being moved from one system to another. You need the following information:

TAPE ADDRESS

The address (*cuu*) of the tape unit used for the import.

TAPE VOLUME ID

Specify the identifier that was used when the tape was exported. This identifier serves to recognize the tape that is processed. This value is *not* related to the tape label. A tape label is *not* used for this task.

The volume serial number helps the operator locate the correct tape. The job has comments and a PAUSE statement requesting that you mount the tape with this ID.

The dialog creates a job with the default name ICFRES. On the *Job Disposition* panel, you can submit the job to batch, file it in your default primary library, or both.

When you submit the job, mount the tape. Use the *same* tape address you specify in the dialog.

Backing Up or Restoring the System History File

The Interactive Interface has two dialogs to back up or restore the system history file:

- *Backup History File*
- *Restore History File*

Backing Up the History File

To access the *Backup History File* dialog, start with the *VSE/ESA Function Selection* panel and select:

- 5 (Backup/Restore)
- 3 (Backup History File)

Operator Fast Path: 53	Synonym Default: Yours:
---------------------------	----------------------------

To back up the system history file you need the following information:

TAPE ADDRESS

The address (*cuu*) of the tape unit.

VOLUME SERIAL NUMBER

The six character volume serial number of the tape unit.

DENSITY/MODE

For IBM 3480, 3490, 3490E, and 9347 tape units, enter the mode. For other tape units, specify the density.

RETENTION PERIOD

The number of days (**0 - 9999**) that you want to keep the output file, or the output file expiration date in the form **YYYY/DDD** or **YY/DDDD** where **YYYY** or **YY** is the year and **DDD** is the day of the year).

LABEL PROCESS

Specify the type of label processing:

- 1 - LABELED
- 2 - UNLABELED TAPES

LABEL CHECK

If you entered **1** for the tape label processing, specify whether you want label checking:

- 1 - YES (Label is checked)
- 2 - NO (Label is not checked)

If you specified label checking 1 = YES:

TAPE FILE ID

This is an optional name associated with the tape file. Enter the name that was used when the tape was backed up, if one was specified.

Restoring the History File

To access the *Restore History File* dialog, start with the *VSE/ESA Function Selection* panel and select:

- 5 (Backup/Restore)
- 4 (Restore History File)

Operator Fast Path: 54	Synonym Default: Yours:
----------------------------------	---

To restore the system history file you need the following information:

TAPE ADDRESS

The address (*cuu*) of the tape unit.

TAPE FILE ID

This is an optional name associated with the tape file. Enter the name that was used when the tape was backed up, if one was specified.

The backup dialog creates a job with the default name BACKUP. The restore dialog creates a job with the default name RESTORE.

Volume or File Backups

On the *Job Disposition* panel, you can submit the job to batch, file it in your default primary library, or both.

When you submit the job, mount the appropriate tape (backup or restore tape). Use the *same* tape address you specify in the dialog.

Backing Up a Volume or File

The *Backup a Volume or File* dialog backs up:

- An entire volume
- Part of a volume
- An individual file

To access the dialog, start with the *VSE/ESA Function Selection* panel and select:

5 (Backup/Restore)

5 (Backup a Volume or File)

Operator Fast Path: 55	Synonym Default: Yours:
---------------------------	----------------------------

A panel displays two selections:

1. Backup a volume

This creates a Fast Copy job which backs up an entire volume or part of a volume. For VSE/VSAM integrity purposes, you can only process all VSE/VSAM files or no VSE/VSAM files.

2. Backup a file

This creates a Fast Copy job which backs up a single file.

Input for Backing Up a Volume or File

For both cases: backing up volume or file, you supply the following information:

INPUT VOLUME SERIAL (of disk)

If a volume serial number is entered which is unknown to the system or not available, you are asked for the DEVICE TYPE of the disk.

LIST

Specify whether you want the dialog to print extent information on the system printer.

- 1 - YES
- 2 - NO

CHECK

- 1 - disk checking
- 2 - no disk checking

NOPROMPT

- 1 - to suppress notification for data secured files on system console
- 2 - to get notification for data secured files on system console

TAPE ADDRESS (*cuu*)

The address (*cuu*) of the tape unit used for the backup.

ALTERNATE TAPE (*cuu*)

You can use an alternate tape unit, if the backup needs more than one tape.

VOLUME SERIAL NUMBER

The six character volume serial number of the backup tape.

DENSITY/MODE

For IBM 3480, 3490, 3490E, and 9347 tape units, enter the mode. For other tape units, specify the density.

RETENTION PERIOD

The number of days (**0 - 9999**) that you want to keep the output file, or the output file expiration date in the form **YYYY/DDD** or **YY/DDDD** where **YYYY** or **YY** is the year and **DDD** is the day of the year).

OPTIMIZE

OPTIMIZE is only valid for dump functions and it influences the amount of data taken to the target tape. It has a value of 1,2,3, or 4, where the default value is 1. See the *VSE/ESA System Utilities* manual for more details on the uses of OPTIMIZE.

LABEL PROCESS

Specify the type of label processing:

- 1 - LABELED
- 2 - UNLABELED TAPES

LABEL CHECK

If you entered **1** for the tape label processing, specify whether you want label checking:

- 1 - YES (Label is checked)
- 2 - NO (Label is not checked)

TAPE FILE ID

This is an optional name associated with the tape file. It protects the file from being overwritten and helps ensure that the correct file is processed.

You should write down the ID that you enter. You need to know it when the file is processed.

Additional Input for Backing Up a Volume

If you back up a volume, you also need the following information. For the three fields described below, enter one of the following:

- 1 - YES
- 2 - NO

NOVSAM

Specify whether you want to exclude all VSE/VSAM files from the backup.

EXCLUDE

Specify whether you want to exclude some non-VSAM files from the backup.

If you specify **1 (YES)**, enter the file IDs of the disk files you want to exclude.

NOEXPIRED

Specify whether you want to exclude all expired files from the backup.

Volume or File Restores

The dialog creates a job with the default name DUMP. On the *Job Disposition* panel, you can submit the job to batch, file it in your default primary library, or both.

Additional Input for Backing Up a File

If you back up a file, the dialog also needs the disk file ID.

The dialog creates a job with the default name DUMP. On the *Job Disposition* panel, you can submit the job to batch, file it in your default primary library, or both.

When you submit the job, mount the backup tape. Use the *same* tape address you specify in the dialog.

Restoring a Volume or File

The *Restore a Volume or File* dialog restores:

- An entire volume
- Part of a volume
- An individual file.

To access the dialog, start with the *VSE/ESA Function Selection* panel and select:

5 (Backup/Restore)

6 (Restore a Volume or File)

Operator Fast Path: 56	Synonym Default: Yours:
---------------------------	----------------------------

A panel displays two selections:

1. Restore a Volume

This creates a Fast Copy job that restores an entire volume or part of a volume. For VSE/VSAM integrity purposes, you can only process all VSE/VSAM files or no VSE/VSAM files.

2. Restore a File

This creates a Fast Copy job that restores a single file. You can:

- Restore the file to the same extents it had when it was backed up
- Relocate the file on the disk.

Input for Restoring a Volume or File

For both cases: restoring volume or file, you need the following information:

OUTPUT VOLUME SERIAL

This is the volume serial number of the output disk that will receive the restored data.

If a volume serial number is entered which is unknown to the system or not available, you are asked for the DEVICE TYPE of the disk.

LIST

Specify whether you want the dialog to print extent information on the system printer.

1 - YES

2 - NO

CHECK

1 - disk checking

2 - no disk checking

NOVERIFY

1 - to suppress verification of disk output

2 - to get verification of disk output

TAPE ADDRESS (*cuu*)

Specify the tape address of the target tape.

ALTERNATE TAPE (*cuu*)

You can use an alternate tape unit if the restore needs more than one tape.

VOLUME SERIAL NUMBER

The six character volume serial number of the backup tape.

LABEL PROCESS

Specify the type of label processing:

1 - LABELED

2 - UNLABELED TAPES

LABEL CHECK

If you entered 1 for the tape label processing, specify whether you want label checking:

1 - YES (Label is checked)

2 - NO (Label is not checked)

TAPE FILE ID

This is an optional name associated with the tape file. It protects the file from being overwritten and helps ensure that the correct file is processed.

Additional Input for Restoring a Volume

When restoring a volume, you may enter the following information:

NEW VOLUME SERIAL NUMBER

This specifies the new volume serial number of the output disk. If you leave this field blank, the volume serial number of the original source disk will be written onto the output disk.

In case you entered a volume serial number which is unknown to the system or not available, you are asked for the DEVICE TYPE of the disk.

The dialog creates a job with the default name DUMPREST. On the *Job Disposition* panel, you can submit the job to batch, file it in your default primary library, or both.

When you submit the job, mount the restore tape. Use the *same* tape address you specify in the dialog.

Copying a Volume or File

Additional Input for Restoring a File

If you restore a file, you also need the following information:

DISK FILE ID

The file ID of the disk file you are restoring.

RELOCATE

Specify whether you want to relocate the file on the disk.

- 1 - YES
- 2 - NO

If you specify 1 (YES), you need the following information about the *relocated* disk file.

RELOCATED DISK FILE ID

The file ID for the relocated disk file.

SEQUENTIAL ACCESS

Specify either sequential or direct access.

DATE

Enter the retention period of **1 - 4** digits or the Julian date in the form **YY/DDD**, where **YY** is the year and **DDD** is the day of the year.

START

Specify the starting block or track for the file.

FILE LENGTH

Enter the size of the file in blocks or tracks.

The values of START and FILE LENGTH must be numeric and *cannot* be 0. The sum of the first starting point and the last starting point amount to the capacity of the device. The sum of the starting point and length chosen must not be greater than the capacity of the device.

Note: The *help function* of the dialog has complete information about valid starting points and lengths for each device type you might use for restoring to disk.

The dialog creates a job with the default name DUMPREST. On the *Job Disposition* panel, you can submit the job to batch, file it in your default primary library, or both.

When you submit the job, mount the restore tape. Use the *same* tape address you specify in the dialog.

Copying a Volume or File

The *Copy a Volume or File* dialog copies the following from one disk to another disk:

- An entire volume
- Part of a volume
- An individual file

To access the dialog, start with the *VSE/ESA Function Selection* panel and select:

- 5 (Backup/Restore)
- 7 (Copy a Volume or File)

Operator Fast Path: 57	Synonym Default: Yours:
----------------------------------	---

A panel displays two selections:

1. Copy a Volume

This creates a Fast Copy job. The job copies an entire volume or part of a volume from one disk to another disk. *The disks must be of the same device type.* For VSE/VSAM integrity purposes, you can only process all VSE/VSAM files or no VSE/VSAM files.

2. Copy a File

This creates a Fast Copy job. The job copies a single file from one disk to another disk. *The disks must be the same device type.* You can:

- Copy the file to the same extents.
- Relocate the file on the second disk.

Input for Copying a Volume or File

For both cases: copying a volume or file, you supply the following information:

INPUT VOLUME SERIAL NUMBER

If a volume serial number is entered which is unknown to the system or not available, you are asked for the DEVICE TYPE of the disk.

OUTPUT VOLUME SERIAL NUMBER

If a volume serial number is entered which is unknown to the system or not available, you are asked for the DEVICE TYPE of the disk.

LIST

Specify whether you want the dialog to print extent information on the system printer.

- 1 - YES
- 2 - NO

INPUT DISK CHECK

- 1 - disk checking
- 2 - no disk checking

OUTPUT DISK CHECK

- 1 - disk checking
- 2 - no disk checking

NOPROMPT

- 1 - to suppress notification for data secured files on system console
- 2 - to get notification for data secured files on system console

NOVERIFY

- 1 - to suppress verification of disk output
- 2 - to get verification of disk output

Copying a Volume or File

Additional Input for Copying a Volume

When copying a **volume**, you also need the following information:

NEW VOLUME SERIAL NUMBER

This is the volume serial number that is written on the output disk. If you do not enter this number, the volume serial number of the source disk is taken as the new number.

You must specify this value if any of the parameters below (NOVSAM, EXCLUDE, NOEXPIRED) has a value of YES.

NOVSAM

Specify whether you want to exclude all VSE/VSAM files from the copy.

- 1 - YES
- 2 - NO

EXCLUDE

Specify whether you want to exclude certain non-VSAM files from the copy.

- 1 - YES
- 2 - NO

If you specify 1 (YES), enter the file IDs of the disk files you want to exclude.

NOEXPIRED

Specify whether you want to exclude expired files from the copy.

- 1 - YES
- 2 - NO

The dialog creates a job with the default name FCOPY. On the *Job Disposition* panel, you can submit the job to batch, file it in your default primary library, or both.

Additional Input for Copying a File

If you copy a file, you also need the following information:

RELOCATE

Specify whether you want to relocate the file on the target disk.

- 1 - YES
- 2 - NO

If you enter 1 (YES), you need to specify the file ID of the *relocated* disk file.

DISK FILE ID

Specify the ID of the file (input source file).

Note: The information below is for both the file you want to copy and for the new file on the second disk.

SEQUENTIAL ACCESS

Specify either sequential or direct access.

DATE

Enter the retention period of **1 - 4** digits or the Julian date in the form **YY/DDD**, where **YY** is the year and **DDD** is the day of the year.

START

Specify the starting block or track for the file.

FILE LENGTH

Enter the size of the file in blocks or tracks.

RELOCATED DISK FILE ID

The file ID for the relocated disk file.

The values of START and FILE LENGTH must be numeric and *cannot* be 0. The *help function* of the dialog has complete information about valid starting points and lengths for each device type you might use.

The dialog creates a job with the default name FCOPY. On the *Job Disposition* panel, you can submit the job to batch, file it in your default primary library, or both.

Copying a Volume or File

Chapter 20. Controlling Online Operation via CICS

Entering CEMT Commands from a Display Station

The *Invoke CEMT* dialog lets you use CICS master terminal commands from a display terminal. This terminal must be a VSE/ESA master console.

Start with the *VSE/ESA Function Selection* panel shown in Figure 17 on page 32 and select:

- 6 (CICS-Supplied Transactions)
- 1 (Invoke CEMT)

Operator Fast Path: 61	Synonym Default: mt Yours:
----------------------------------	--------------------------------------

The system displays the following information:

STATUS: ENTER ONE OF THE FOLLOWING

Add
Inquire
Perform
Remove
Set

You can issue any of the above commands by typing the command in the first line (above the STATUS line). After that, another command selection list appears on your screen and you can choose the appropriate one.

It is easier to enter CEMT commands from the display station than from the VSE/ESA console, because you do not have to know and enter the complete command.

For all the details of the CEMT transaction, refer to the manual *CICS CICS-Supplied Transactions*.

Note: The CEMT commands that you issue from the Interactive Interface are valid only for the CICS which has VSE/ICCF running under its control. For controlling any other CICS partition, you have to enter the required commands from the VSE/ESA console.

CEMT Commands

Chapter 21. Maintaining Synonyms

Maintaining Synonyms for the Dialogs

The synonym function lets you equate a selection path to a private synonym. The synonym must consist of 1-8 alphameric characters (including the characters \$, #, and &). For example, instead of specifying the fast path **61** to access the *Invoke CEMT* dialog, you could use a word that you remember better.

Figure 48 in alphabetical order lists the synonyms and fast paths supplied by VSE/ESA for user OPER. You can also define other synonyms using the *Maintain Synonyms* dialog.

SYNONYM	PATH
BACKUP	5
CEOS	6 2
CONSOLE	2
DA	7 1
ICCF	1 1
ICCF5	1
LST	3 1
MESSAGE	4 1
MT	6 1
NEWS	4 2
POWER	3
PUN	3 3
RDR	3 2
RESTORE	5
RETRIEVE	4 3
SIO	7 2
SYNONYMS	8
USERS	4 1
XMT	3 4

Figure 48. Synonyms Supplied by VSE/ESA for OPER

To access the *Maintain Synonyms* dialog, start with the *VSE/ESA Function Selection* panel shown in Figure 17 on page 32 and select:

8 (Maintain Synonyms)

Operator Fast Path: 8	Synonym Default: synonyms Yours:
---------------------------------	--

Adding Synonyms

```

IESADMSYNA                                ADD SYNONYMS

Enter up to thirteen new synonyms and associated paths, then press ENTER.

NEW SYNONYM                                NEW PATH

_____- - - - -
_____- - - - -
_____- - - - -
_____- - - - -
_____- - - - -
_____- - - - -
_____- - - - -
_____- - - - -
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_____- - - - -

PF1=HELP                                3=END                                4=RETURN                                6=SHOW LIST

```

Type in the new synonym definitions in the fields offered on the panel, and press ENTER. Pressing PF6 will take you back to the previous panel, which will show the updated list.

Changing and Deleting Synonyms

To change any of the listed synonyms, enter **2** in the option column next to the synonyms you want to change. Then type in the desired synonyms in the *New Name* column, and/or overwrite the path information, and press ENTER. If you want to locate a particular synonym, type in the name into the command line at the bottom of the panel, and press ENTER. If you decide to delete a synonym from the list, type in **5** in the option column next to the synonym you want to delete, and press ENTER.

Appendix A. Understanding Syntax Diagrams

This section describes how to read the syntax diagrams in this manual.

To read a syntax diagram follow the path of the line. Read from left to right and top to bottom.

- The ►—
- The —►
- The ►—
- The —►◄

Syntax items (for example, a keyword or variable) may be:

- Directly on the line (required)
- Above the line (default)
- Below the line (optional)

Uppercase Letters

Uppercase letters denote the shortest possible abbreviation. If an item appears entirely in uppercase letters, it can not be abbreviated.

You can type the item in uppercase letters, lowercase letters, or any combination. For example:

►—KEYWOrd—►◄

In this example, you can enter KEYWO, KEYWOR, or KEYWORD in any combination of uppercase and lowercase letters.

Symbols

You **must** code these symbols exactly as they appear in the syntax diagram

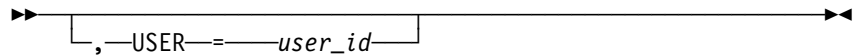
*	Asterisk
:	Colon
,	Comma
=	Equal Sign
-	Hyphen
//	Double slash
()	Parenthesis
.	Period
+	Add

For example:

* \$\$ LST

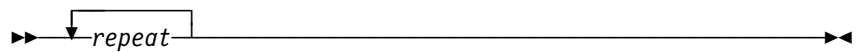
How to Read Railroad Diagrams

Variables Highlighted lowercase letters denote variable information that you must substitute with specific information. For example:

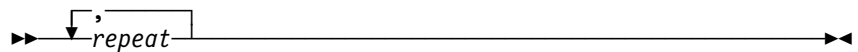


Here you must code USER= as shown and supply an ID for user_id. You may, of course, enter USER in lowercase, but you must not change it otherwise.

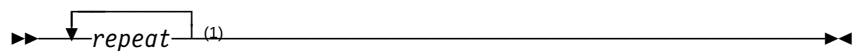
Repetition An arrow returning to the left means that the item can be repeated.



A character within the arrow means you must separate repeated items with that character.



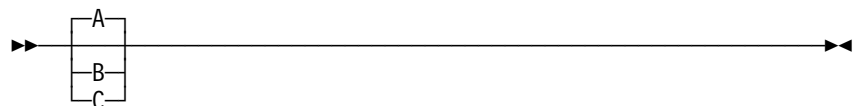
A footnote (1) by the arrow references a limit that tells how many times the item can be repeated.



Note:

¹ Specify *repeat* up to 5 times.

Defaults Defaults are above the line. The system uses the default unless you override it. You can override the default by coding an option from the stack below the line. For example:



In this example, A is the default. You can override A by choosing B or C.

Required Choices

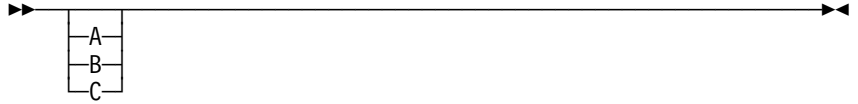
When two or more items are in a stack and one of them is on the line, you **must** specify one item. For example:



Here you must enter either A or B or C.

Optional Choice

When an item is below the line, the item is optional. Only one item **may** be chosen. For example:



Here you may enter either A or B or C, or you may omit the field.

Required Blank Space

A required blank space is indicated as such in the notation. For example:

* \$\$ E0J

This indicates that at least one blank is required before and after the characters \$\$.

How to Read Railroad Diagrams

Appendix B. REDISPLAY Command

The REDISPLAY command lets you retrieve logging information that had earlier been displayed on one or more consoles. This information consists of *logging items* such as messages issued by the system, or commands that you entered and the system's response to these commands.

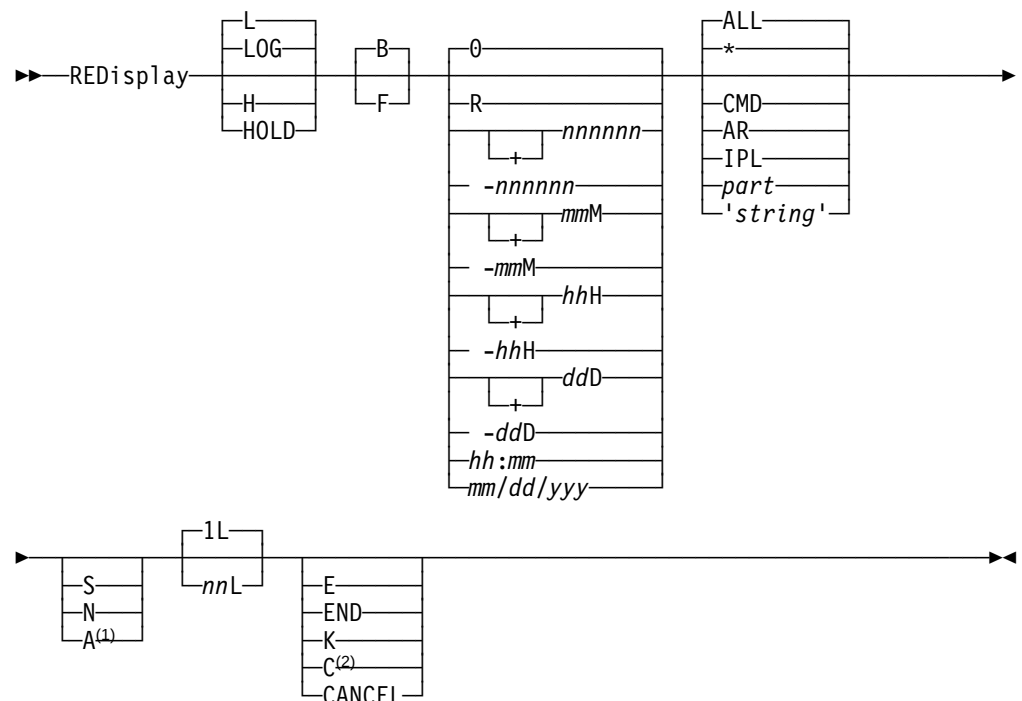
You enter the REDISPLAY command in one of two ways:

- As **system command**
- As **local command**

In this case, you have to prefix the percent character: %REDISPLAY. It is advisable to assign a PF key to the %REDISPLAY command. Normally PF7 is assigned to the %REDISPLAY command. When using the PF key, you may or may not supply some operand(s) in the input line.

When the %REDISPLAY command is given in console mode, the console goes into **redisplay mode**. While in redisplay mode, you may issue additional %REDISPLAY commands, preferably by using some PF key function.

The following section describes the syntax of the REDISPLAY command. For explanations on how to read a railroad diagram, please refer to Appendix A, "Understanding Syntax Diagrams" on page 207.



Notes:

¹ Together with H/HOLD, a subfilter cannot be specified.

² Together with C/CANCEL, no other operand can be specified.

All operands are optional. **The operands can be specified in any sequence and must be separated by a comma.**

REDISPLAY command

If a **default** is listed for an operand, it applies to the time when the console is not yet in redisplay mode. When the console is already in redisplay mode, the values of the preceding Redisplay command are taken as default. However, **startpos** (the third column in the diagram) always has a default of 0.

A change of **function** (the first column in the diagram) causes the defaults for the other operands to be chosen as if the console were not yet in redisplay mode.

The parameter values are described below. They are grouped into the following items:

- functions
- direction
- startpos
- filter
- subfilter
- lines
- action.

function

specifies the scope of data to be redisplayed:

L	
LOG	requests redisplay of any kind of logging items. This is the default.
H	
HOLD	requests only redisplay of messages that are waiting for a reply or for an action.

direction

determines whether the redisplay moves forward or backward:

B	the direction of redisplay is backward. This is the default.
F	the direction of redisplay to forward.

startpos

specifies where the redisplay is to start:

R	causes redisplay to be restarted from the point where redisplay mode was entered.
----------	--

[+]nnnnnnn	
-nnnnnnn	specifies the number of lines to be spaced forward (+) or backward (-) starting at the current position. startpos has as default a value of 0 for nnnnnn.

[+]mmM	
-mmM	specifies the number of minutes that is to be added (+) to or subtracted (-) from the time of the current position.

[+]hhH -hhH	specifies the number of hours that is to be added (+) to or subtracted (-) from the time of the current position.
[+]ddD -ddD	specifies the number of days that is to be added (+) to or subtracted (-) from the date of the current position.
hh:mm	requests that the redisplay is to start at the message with the specified time (of the current day). Leading zeros have to be specified.
mm/dd/yyyy	requests that the redisplay is to start at the message with the specified date (you may indicate the year by only two digits 'yy', leaving out the century). Leading zeros have to be specified.

filter

specifies selection criteria:

ALL	
*	requests that the set of logging items is not to be restricted in any way. This is the default.
CMD	requests redisplay of all entered commands (Attention, VSE/POWER, VM, CP, invalid commands) together with the system's responses to these commands. For example, if 'D RDR' had been entered, not only the 'D RDR' command but also the related responses are redisplayed.
AR	requests redisplay of Attention Routine commands together with the system's responses to these commands.
IPL	requests redisplay of all commands entered during IPL and their command responses. Only items up to the message 0I20I IPL COMPLETE FOR... are displayed.
part	requests redisplay of all logging items that belong to a specific partition. part designates a static partition (BG, Fn), a dynamic partition (U2, for example), or a class of dynamic partitions, which is indicated by an asterisk in the second position (U*, for example).
'string'	requests redisplay of all messages and replies that contain the specified character-string within one line. char-string may be up to 15 characters long.

subfilter

allows to specify a second selection filter in addition to the one specified in **filter**:

S	requests redisplay of all messages which were suppressed or replied to by an operator-automation product like VSE/OCCF.
----------	---

USER

- N** requests redisplay of all logging items directed to or entered at an operator-automation console, for example a NetView operator station.
- A** requests redisplay of action messages.

The subfilter can be turned off by entering a new **filter**.

Note: For the H (HOLD) function, a subfilter cannot be specified.

lines

specifies the number of lines to be redisplayed.

- nnL** for **nn** any value value between 1 and 34 is allowed. 1 is the default.
The last message is displayed in its entirety. Therefore up to 11 lines above the specified lines value may appear.

action

specifies something about ending redisplay processing:

- E**
- END** requests that the redisplay mode is to be ended.
- K** This is the **Keep** option. The position on the hardcopy file where redisplaying starts will be preserved for the next redisplay request.
- C**
- CANCEL** specifies that the Redisplay command **currently in process** is to be cancelled immediately. If no Redisplay command is in progress, this command has no effect. No other operands are allowed when the **CANCEL** action is requested.

Appendix C. USER Command

Use this transaction command to display a list of all users signed on to either VSE/ESA or CICS. This command has no operands.

USER

Example Displaying a List of All Active CICS Users

To display a list of all active CICS users, use the following set of commands.

```
MSG F2
AR 0015 1I40I  READY
F2-0002 0D16D  READY
2 USER
F2 0002 LIST OF SIGNED ON USERS:
F2 0002
```

				SIGN ON:				
F2 0002	USER	TERM	TRANS	TIME	DATE	INPUTS	OUTPUTS	STATUS
F2 0002	RENT	D009	IESI	09:34	08/26	63	72	1
F2 0002	SCHN	D015	IESO	08:08	08/27	213	224	

```
F2-0002
```

One line is displayed for each active user. For each user the following information is shown:

1. The 4-character user ID or 3-character operator ID.
2. The 4-character terminal ID.
3. The name of the transaction being used.
4. The number of inputs from the display station.
5. The number of outputs to the display station.
6. The Status of the terminal:

1 = terminal out of service.

2 = /DISCONN or SIGN OFF was issued.

Do not forget to end the CICS session by entering the reply ID (02 in the example above).

Note: This transaction can only be used from the VSE/ESA console and has its equivalent in the *Display Active Users/Send Message* dialog.

USER

Appendix D. Operator Commands and Statements

In your job you will be concerned with entering statements and commands. The statements and commands described in this chapter are also contained in the *VSE/ESA System Control Statements* manual. If you are not yet an experienced operator, you will have to refer to this manual quite frequently.

There are the following types of operator commands:

- IPL
- Job control (JCL)
- Attention routine (AR) and other system commands.

The main difference between these types of commands is:

- The time at which they can be entered, and
- The way in which they are entered.

IPL commands are accepted only during the IPL procedure.

Job control commands and **statements** may be entered in response to JCL messages only. They have to be preceded by the reply partition IDs.

Attention routine commands can be entered after IPL during system operation. If the attention routine is not available, enter the command **RC** (Request Communication). You can then enter any attention routine command.

Some commands belong to more than one type. The **SET** command, for example, can be used either as a job control command or as an attention routine command. Occasionally the effect of a command differs depending on the type used.

Likewise, certain operands are permitted or not permitted, depending on the command type used. Differences in effect and type are stated in the *VSE/ESA System Control Statements* manual.

All operator commands are fully supported in or for static partitions. They are not, however, fully supported in or for dynamic partitions; some commands are not valid, others are restricted.

Figure 50 shows to which types the commands belong, summarizes their functions, and marks restricted or not valid usage in or for dynamic partitions. Under the columns **Job Control (JCL)** and **System/Attention Rtn(AR)**, letter combinations **XR** and **XS** indicate whether a command requires unrestricted command authorization (XR) or is semi-restricted (XS). For explanations see section "Command Authorization" on page 44.

A few commands show different degrees of restriction between JCL and AR type. This has either to do with different levels of control that JCL and AR routines maintain in a given situation (CANCEL command, for example). Or, JCL and AR commands may have different scopes of function.. For example, the **JCL** command **PRTY** can only set a priority whereas the **AR** command has also the enquiry function which is not restricted.

Operator Commands and Statements

Figure 50 (Page 1 of 3). Alphabetical List of Operator Commands and Statements

Command	Meaning	Type of Command			Support in/for dynamic partitions
		IPL	Job Control (JCL)	System/Attention Rtn(AR)	
ADD	Add a device to the PUB table	X			
ALLOC	Allocate virtual or real storage to partitions		XR	XR	Not Valid
ALTER	Alter 1 to 16 bytes in virtual storage			XR	
ASSGN	Assign a logical unit		X		Restricted
AUTOIPL	Obtain IPL information in an unattended node environment			XS	
BANDID	Display or specify print band identifier on 4248 printer			XR	
BATCH	Initiate or resume processing in a partition			XR	Not valid
CACHE	Control cache operations for an IBM 3990 -3 DASD storage controller			XS	
CANCEL	Cancel execution of current job or I/O request		X	XS	
CLOSE	Close a logical unit		X		
DATE	Set a temporary date		X		
DEF	Assign SYSCAT and SYSREC	X			
DEL	Delete a device from the PUB table	X			
DLA	Define label area	X			
DLBL	Define label information for disk/diskette files		X		
DLF	Define lock file	X			
DPD	Define the page data set	X			
DSPLY	Display 16 bytes of virtual storage			XR	
DUMP	Print part or all of virtual storage			XR	
DVCDN	Make a device unavailable		XR		Not valid
DVCUP	Make a device available		XR		Not valid
EXEC	Execute a program or procedure		X		Restricted
EXPLAIN	Activate support for online explanations			XS	
EXTENT	Define an extent for disk/diskette file		X		
FREE	Free device from RESERVED status			XR	
GETVIS	Display GETVIS information			X	
GOTO	Skip following statements		X		
HCLOG	Control scope of messages in hardcopy file			XS	
HOLD	Hold unit assignments after subsequent UNBATCH until end of next job		XR		Not valid
ID	Provide user identification		X		
IF	Check condition		X		
IGNORE	Ignore indicated abnormal condition		XR	XR	
JCLEXIT	Activate or deactivate JCL exit routine		XR		
JOB	Define beginning of a job		X		
LFCB	Load forms control buffer			XR	
LIBDEF	Define library chains		X		
LIBDROP	Drop library chain definitions		X		
LIBLIST	List library chain definition		X		
LIBSERV	Control IBM 3494 Tape System		X	XR	
LISTIO	List current I/O assignments		X		
LOG	Log (print) job control statements and comments		X	XR	
LUCB	Load Universal Character Buffer			XR	
MAP	List storage allocations		X	X	
MPXGTN	Set byte multiplex gating			XR	
MSECS	Change or display time slice for partition balancing		XR	XS	
MSG	Communication with a program			XS	

Figure 50 (Page 2 of 3). Alphabetical List of Operator Commands and Statements

Command	Meaning	Type of Command			Support in/for dynamic partitions
		IPL	Job Control (JCL)	System/Attention Rtn(AR)	
MTC	Control magnetic tape operations		X	XR	Not valid
NEWVOL	Resume processing, required volume is mounted			XR	
NOLOG	Suppress logging of job control		X	XR	
NPGR	Define number of programmer logical units		XR		
OFFLINE	Simulate 'device not ready'			XR	
ON	Set global condition		X		
ONLINE	Simulate 'device and ready' status			XR	Restricted
OPERATE	Query or alter current operation mode and system console state			XR	
OPTION	Specify job control options		X		
OVEND	Indicate end of override statements for cataloged procedure		X		
PAUSE	Interrupt processing at end of job or job step		X	XS	
PROC	First statement of cataloged procedure		X		
PRTY	Modify or display partition priority		XR	XS	
PRTYIO	Set priorities for I/O requests			XS	
PWR	Passes commands to POWER. (Do not enter at the system console.)		X		
PWROFF	Power off the CPU (if the CPU has the Programmed Power Off Feature)			XR	
QUERY	Display information on data spaces		X	X	Not valid Restricted
RC	Force acceptance of attention routine commands			XR	
REDISPLAY	Display former messages			XS	
REPLID	Display prefixes of messages with outstanding responses			XS	
RESERV	Reserve device for VSAM space management usage			XR	
RESET	Reset temporary I/O device assignments		X		
ROD	Record on demand		XR		
RSTRT	Restart checkpoint programs		X		
SET	Set date, clock, and time zone	X	XR		
SET XPCC	Enable sharing of SQL/DS* databases between VSE/ESA and VM/CMS	X			
SETDF	Set and/or reset default values for the 3800 printer			XR	Not valid Not valid
SETMOD	Set mode for IBM 9347 tape			XR	
SETPARM	Define or set symbolic parameter		X		
SETPFIX	Define limits for PFIxing pages		X		
SETPRT	Set the 3800 printer		X		
SIZE	Change storage allocation		XR	XR	
START	Initiate or resume processing in a partition		XR	XR	
STATUS	Display task status			X	
STDOPT	Set standard options		X		
STOP	Stop processing in a partition		XR		
SVA	Reserve space in the shared virtual area	X			Not valid
SYS	Set system values	X			
SYSDEF	Define data space limits and defaults		XR	XR	
SYSECHO	Assign VM user ID as master console			XS	
TLBL	Define label information for tape files		X		
TPBAL	Display or modify TP balancing			XS	
UCS	Load Universal Character Set buffer		XR		Restricted

Operator Commands and Statements

Figure 50 (Page 3 of 3). Alphabetical List of Operator Commands and Statements

Command	Meaning	Type of Command			Support in/for dynamic partitions
		IPL	Job Control (JCL)	System/Attention Rtn(AR)	
UNBATCH	Deactivate a partition		XR		Not Valid
UNLOCK	Release locks set by another system			XR	
UPSI	Set program switch indicators		X		
VDISK	Define virtual disks		X		
VOLUME	Display currently mounted disk volumes			X	
ZONE	Define time zone		X		
/.	Define a label for GOTO		X		
/+	End of procedure		X		
/*	End of data		X		
/&	End of job		X		
*	Comment		X		
* CP	Submit CP command			XR	

Appendix E. Available VSE/ESA Utilities

Utilities

This section briefly tells you about some of VSE/ESA utilities. If you would like to know how to apply these utilities, refer to the *VSE/ESA System Utilities* manual.

LVTOC

The **Operator Action** for a number of system messages includes the listing of the volume table of contents (VTOC) of a certain disk pack.

Display the VTOC by using either the IBM utility program LVTOC or the *Display VTOC* dialog of the Interactive Interface (which is only available in the panel hierarchy of the system administrator).

LSERV

The **Operator Action** for a number of system messages includes the listing of the label information area. To do this, use the IBM utility program LSERV.

PRINTLOG

In some cases it might be useful to have a hardcopy record of all system messages which have been issued by the system. Each line that appears on the console is written to the hardcopy file, which resides on SYSREC. To print the hardcopy file from disk onto SYSLST, use the IBM utility program PRINTLOG.

LISTLOG

In some cases it is necessary to gather information about how a certain job has been running on the system. Job run information includes the following:

- All job control statements in the job stream
- All console messages for the job
- All operator responses for the job
- Any attention routine messages and commands issued while the job was running.

To print this job run information, use the IBM utility program LISTLOG.

221vses

Glossary

This glossary includes terms and definitions related primarily to IBM VSE/ESA. If you do not find the term you are looking for, refer to the index of this book or to the *IBM Dictionary of Computing* New York: McGraw Hill, 1994.

The glossary includes definitions with:

- Symbol * where there is a one-to-one copy from the IBM Dictionary of Computing.
- Symbol (A) from the *American National Dictionary for Information Processing Systems*, copyright 1982 by the Computer and Business Equipment Manufacturers Association (CBEMA). Copies may be purchased from the American National Standards Institute, 1430 Broadway, New York, New York 10018. Definitions are identified by the symbol (A) after the definition.
- Symbols (I) or (T) from the *ISO Vocabulary - Information Processing* and the *ISO Vocabulary - Office Machines*, developed by the International Organization for Standardization, Technical Committee 97, Subcommittee 1. Definitions of published segments of the vocabularies are identified by the symbol (I) after the definition; definitions from draft international standards, draft proposals, and working papers in development by the ISO/TC97/SC1 vocabulary subcommittee are identified by the symbol (T) after the definition, indicating final agreement has not yet been reached among participating members.

The following cross-references are used:

- Contrast with. This refers to a term that has an opposed or substantively different meaning.
- Synonym for. This indicates that the term has the same meaning as a preferred term, which is defined in its proper place in the dictionary.
- Synonymous with. This is a backward reference from a defined term to all other terms that have the same meaning.
- See. This refers the reader to multiple-word terms that have the same last word.
- See also. This refers the reader to related terms that have a related, but not synonymous, meaning.

* **abend.** 1. Abnormal end of task. 2. Synonym for *abnormal termination*.

access control. A function of VSE that ensures that the system and the data and programs stored in it can be accessed only by authorized users in authorized ways.

Access Control Logging and Reporting. An IBM licensed program to log all attempts of access to protected data and to print selected formatted reports on such attempts.

access control table (DTSECTAB). A table used by the system to verify a user's right to access a certain resource.

access method. A program, that is, a set of commands (macros), to define files or addresses and to move data to and from them; for example VSE/VSAM or VTAM.

account file. A disk file maintained by VSE/POWER containing accounting information generated by VSE/POWER and the programs running under VSE/POWER.

address space. A subdivision of the total of virtual storage.

Advanced Function Printing* (AFP). A group of IBM licensed programs that support APA printers.

AFP*. Advanced Function Printing.

* **all points addressable (APA).** In computer graphics, pertaining to the ability to address and display or not display every point on a display surface (paper).

alternate block. On an FBA disk, a block designated to contain data in place of a defective block.

alternate index. In systems with VSE/VSAM, the index entries of a given base cluster organized by an alternate key, that is, a key other than the prime key of the base cluster. For example, a personnel file primarily ordered by names can be indexed also by department number.

alternate library. A library which becomes accessible from a terminal when the user of that terminal issues a connect or switch (library) request.

alternate screen size. An option that permits the size of a display screen to be defined differently from the standard size.

* **alternate tape.** A tape drive to which the operating system switches automatically for tape read or write operations if the end of the volume has been reached on the originally used tape drive.

alternate track. On a CKD disk, a track designated to contain data in place of a defective track.

*** American National Standard Code for Information Interchange (ASCII).** The standard code, using a coded character set consisting of 7-bit coded characters (8 bits including parity check), used for information interchange among data processing systems, data communication systems, and associated equipment. The ASCII set consists of control characters and graphic characters. (A)

APA. All points addressable.

APAR. Authorized Program Analysis Report.

appendage routine. A piece of code physically located in a program or subsystem, but logically an extension of a supervisor routine.

*** application profile.** A control block in which the system stores the characteristics of one or more application programs.

application program. A program written for or by a user that applies directly to the user's work. See also *batch program* and *online application program*.

application program major node. A group of application program minor nodes. In VTAM, a member or book of the definition library that contains one or more APPL statements, which represent application programs.

*** ASCII.** American National Standard Code for Information Interchange.

ASI (automated system initialization) procedure. A set of control statements which specifies values for an automatic system initialization.

assemble. To translate a program from assembler language into object code.

assembler. A computer program used to assemble. Synonymous with *assembly program*.

assembler language. A programming language whose instructions are usually in one-to-one correspondence with machine instructions and allows to write macros.

attention routine. A routine of the system that receives control when the operator presses the Attention key. The routine sets up the console for the input of a command, reads the command, and initiates the system service requested by the command.

authorized program analysis report (APAR). A report of a problem caused by a suspected defect in a current release of a program.

*** automated system initialization (ASI).** A function that allows control information for system startup to be cataloged for automatic retrieval during system startup.

*** autostart.** A facility that starts up VSE/POWER with little or no operator involvement.

auxiliary storage. Addressable storage that is not part of the processor, for example storage on a disk unit. Synonymous with *external storage*.

*** background partition.** An area of virtual storage in which programs are executed under control of the system. By default, the partition has a processing priority lower than any of the existing foreground partitions.

*** backup copy.** A copy, usually of a file or a library member, that is kept in case the original file or library member is unintentionally changed or destroyed.

*** base cluster.** In systems with VSAM, a key-sequenced or entry-sequenced file over which one or more alternate indexes are built.

basic telecommunications access method (BTAM). An access method that permits read and write communication with remote devices. Its current version is called BTAM-ES.

batch processing. 1. Serial processing of computer programs. 2. Pertaining to the technique of processing a set of computer programs in such a way that each is completed before the next program of the set is started. (A)

batch program. A program that is processed in series with other programs and therefore normally processes data without user interaction.

binary synchronous communication (BSC). Method of telecommunication using binary synchronous line discipline. Contrast with *SDLC*.

bits per second (bps). In serial transmission, the instantaneous bit speed with which a device or channel transmits a character.

block. Usually, a block consists of several records of a file that are transmitted as a unit. But if records are very large, a block can also be part of a record only. See also *control block*.

block group. In VSE/POWER, the basic organizational unit for fixed-block architecture (FBA) devices. Each block group consists of a number of 'units of transfer' or blocks.

blocking. The process of combining (or cutting) records into blocks.

* **bps.** Bits per second.

* **bringup.** The process of starting a computer system or a subsystem that is to operate under control of the system.

BSC. Binary synchronous communication.

* **BTAM-ES (Basic Telecommunication Access Method Extended Storage).** An IBM supplied telecommunication access method. It permits read and write communication with remote devices.

CA. Control area.

* **cache.** A high-speed buffer storage that contains frequently accessed instructions and data; it is used to reduce access time.

cache storage. A random access electronic storage in selected storage controls used to retain frequently used data for faster access by the channel. For example, the IBM 3990 Model 3 contains cache.

CA splitting. In VSE/VSAM, to double a control area dynamically and distribute its CIs evenly when the specified minimum of free space gets used up by more data.

catalog. 1. A directory of files and libraries, with reference to their locations. A catalog may contain other information such as the types of devices in which the files are stored, passwords, blocking factors. (I) (A)
2. To store a library member such as a phase, module, or book in a sublibrary.

* **cataloged procedure.** A set of control statements placed in a library and retrievable by name.

* **CDRM.** Cross-domain resource manager.

CDRSC. Cross-domain resource.

* **central location.** The place at which a computer system's control device, normally the system console in the computer room, is installed.

Central Processing Complex. A segment of the physical resources of a system configuration.

central processing unit (CPU). The hardware component that interprets and executes instructions. Synonym for *processor*.

* **channel adapter.** A communication controller hardware unit used to attach the controller to a data channel.

channel-attached. Pertaining to the attachment of devices directly by data channels (I/O channels) to a

computer. Contrast with link-attached. Synonymous with *locally attached*.

channel program. One or more channel command words that control a sequence of data channel operations. Execution of this sequence is initiated by a single start I/O (SIO) instruction.

* **channel scheduler.** The part of the supervisor that controls all input/output operations.

channel-to-channel attachment (CTCA). A function that allows data to be exchanged (1) under the control of VSE/POWER between two virtual VSE machines running under VM or (2) under the control of VTAM between two processors.

channel subsystem. A feature of 370-XA and Enterprise Systems Architecture that provides extensive additional channel (I/O) capabilities over the System/370*.

character-coded request. A request encoded and transmitted as a character string. Contrast with *field-formatted request*.

checkpoint. 1. A point at which information about the status of a job and the system can be recorded so that the job step can be restarted later. 2. To record such information.

CI. Control interval.

CICS. Customer Information Control System.

CKD device. Count-key-data device.

class. In VSE/POWER, a group of jobs that either come from the same input device or go to the same output device.

cluster controller. A hardware unit to control the input/output operations of more than one device connected to it. A cluster controller may be run by a program stored and executed in the unit; for example, the IBM 3601 Finance Communication Controller. Or it may be controlled entirely by hardware; for example, the IBM 3272 Control Unit.

CMS. Conversational monitor system.

COBOL. Common business-oriented language.

common business-oriented language (COBOL). A high-level programming language based on English used primarily for business application programs.

common library. A library that can be interactively accessed by any user of the (sub)system that owns the library.

* **communication adapter.** A circuit card with associated software that enables a processor, controller, or other device to be connected to a network.

* **communication controller.** 1. A device that directs transmission of data over the links of a network; its operation is controlled by a program executed in a processor to which the controller is connected or it may be controlled by a program executed within the device. (T)2. A type of communication control unit whose operations are controlled by one or more programs stored and executed in the unit. It manages the details of line control and the routing of data through a network.

communication line. See *telecommunication line*.

* **compaction.** In SNA, the transformation of data by packing two characters in a byte so that only a subset of the allowable 256 characters is used. The most frequently sent characters are compacted.

* **compile.** To translate a source program into an executable program (object program). See also *assembler*.

compiler. A program used to compile.

component. 1. Hardware or software that is part of a computer system. 2. A functional part of a product, identified by a component identifier. 3. In VSE/VSAM, a named, cataloged group of stored records, such as the data component or index component of a key-sequenced file or alternate index.

component identifier. A 12-byte alphanumeric string, uniquely defining a component to MSHP.

conditional job control. The capability of the job control program to process or to skip one or more statements based on a condition that is tested by the program.

configuration. The devices and programs that make up a system, subsystem, or network.

connect. To authorize library access on the lowest level. A modifier such as "read" or "write" is required for the specified use of a sublibrary.

control block. An area within a program or a routine defined for the purpose of storing and maintaining control information.

control interval (CI). A fixed length area of disk storage where VSE/VSAM stores records and distributes free space. It is the unit of information that VSE/VSAM transfers to or from disk storage. For FBA,

it must be an integral multiple, to be defined at cluster definition, of the block size.

control program. A program to schedule and supervise the running of programs in a system.

control unit. See *communications controller* and *cluster controller*. Synonymous with *controller*.

* **conversational monitor system (CMS).** A virtual machine operating system that provides general interactive time sharing, problem solving, and program development capabilities.

* **corrective service.** The installation of a PTF or an APAR fix that corrects a specific problem.

count-key-data (CKD) device. A disk device that stores data in the record format: count field, key field, data field. The count field contains, among others, the address of the record in the format: cylinder, head (track), record number and the length of the data field. The key field, if present, contains the record's key or search argument. CKD disk space is allocated by tracks and cylinders. Contrast with *FBA disk device*. See also *extended count-key-data device*.

CPU. Central processing unit.

Customer Information Control System (CICS/VSE). An IBM program that controls online communication between terminal users and a database. Transactions entered at remote terminals are processed concurrently by user-written application programs. The product includes facilities for building, using, and servicing databases.

Its current version is called CICS.

DASD. Direct access storage device.

DASD sharing. An option that lets independent computer systems use common data on shared disk devices.

database. A set of data available online that is organized by a common system and used for a common purpose.

* **data block (DBLK).** In VSE/POWER, the unit of transfer for spooling job input and job output.

data block group. The smallest unit of space that can be allocated to a VSE/POWER job on the data file. This allocation is independent of any device characteristics.

data conversion descriptor file (DCDF). With a DCDF you can convert individual fields within a record during data transfer between a PC and its host. The DCDF defines the record fields of a particular file for both, the PC and the host environment.

* **data entry panel.** A panel in which the user communicates with the system by filling in one or more fields. See also *panel* and *selection panel*.

data file. See *file*.

data import. The process of reformatting data that was used under one operating system such that it can subsequently be used under a different operating system.

* **Data Interfile Transfer, Testing and Operations (DITTO) utility.** An IBM program that provides file-to-file services for card I/O, tape, and disk devices.

Data Language/I (DL/I). A database access language used with CICS.

data link. In SNA, the combination of the link connection and the link stations joining network nodes, for example, a System/370 channel and its associated protocols. A link is both logical and physical.

In SNA, synonym for *link*.

* **data management.** A major function of the operating system. It involves organizing, storing, locating, and retrieving data.

data processing system. Synonym for *computer system*.

data security. See *access control*.

data set. See *file*.

data set header record. In VSE/POWER abbreviated as DSHR, alias NDH or DSH. An NJE control record either preceding output data or, in the middle of input data, indicating a change in the data format.

* **data terminal equipment (DTE).** In SNA, the part of a data station that serves as a data source, data sink, or both. (I) (A)

* **DBLK.** Data block.

DCDF. Data conversion descriptor file.

* **DCE.** Data circuit-terminating equipment.

deblocking. The process of making each record of a block available for processing. Contrast with *blocking*.

* **dedicated (disk) device.** A device that cannot be shared among users.

default value. A value assumed by the program when no value has been specified by the user.

definition statement. In VTAM, the means of describing an element of the network.

* **device address.** 1. The identification of an input/output device by its channel and unit number. 2. In data communication, the identification of any device to which data can be sent or from which data can be received.

* **device class.** The generic name for a group of device types, for example, all display stations belong to the same device class. Contrast with *device type*.

* **Device Support Facilities.** An IBM supplied SCP for performing operations on disk volumes so that they can be accessed by IBM and user programs. Examples of these operations are initializing a disk volume and assigning an alternate track.

* **device type code.** The four- or five-digit code to be used for defining an I/O device to a computer system.

DFT mode. Distributed function terminal (DFT) mode.

* **dialog.** 1. In an interactive system, a series of related inquiries and responses similar to a conversation between two people. 2. For VSE/ESA, a set of panels that can be used to complete a specific task, for example, defining a file.

dialog manager. The program component of VSE/ESA that provides for ease of communication between user and system.

direct access. Accessing data on a storage device using their address and not their sequence. This is the typical access on disk devices as opposed to magnetic tapes. Contrast with *sequential access*.

Direct access storage device. A device in which access time is effectively independent of the location of the data.

directory. 1. A table of identifiers and references to the corresponding items of data. (I) (A) 2. In VSE, specifically, the index for the program libraries. See also *library directory* and *sublibrary directory*.

disk operating system residence volume (DOSRES). The disk volume on which the system sublibrary IJSYSRS.SYSLIB is located including the programs and procedures required for system startup.

disk sharing. An option that lets independent computer systems use common data on shared disk devices.

display station. A display screen with attached keyboard for communication with the system or a network. See also *terminal*.

disposition. A means of indicating to VSE/POWER how job input and output is to be handled. A job may, for example, be deleted or kept after processing.

distributed function. The use of programmable terminals, controllers, and other devices to perform minor data processing operations.

distributed function terminal (DFT) mode. IBM PCs operating in DFT mode make use of the extended data stream facility allowing simultaneous host sessions by using screen windows.

*** distribution tape.** A magnetic tape that contains, for example, a preconfigured operating system like VSE/ESA. This tape is shipped to the customer for program installation.

DITTO/ESA for VSE. Data Interfile Transfer, Testing, and Operations utility. An IBM program that provides file-to-file services for disk, tape, and card devices.

DL/I. Data Language/I.

domain. The network resources under the control of a particular SSCP.

DOSRES. Disk operating system residence volume.

double-byte character set (DBCS). A character set which allows Korean, Japanese, and Chinese languages to be internally represented by two bytes per character.

DSF. Device Support Facilities.

DSH(R). Data set header record.

*** DTE.** Data terminal equipment.

dummy device. A device address with no real I/O device behind it. Input and output for that device address are spooled on disk.

dump. 1. Data that has been dumped. (I) (A) 2. To write at a particular moment some contents of storage to another data medium for the purpose of safeguarding or debugging the data. (T)

*** duplex.** Pertaining to communication in which data can be sent and received at the same time.

dynamic partition. A partition created and activated on an 'as needed' basis that does not use fixed static allocations. After processing, the occupied space is released. Contrast with *static partition*.

*** dynamic partition balancing.** A VSE facility that allows the user to specify that two or more or all partitions of the system should receive about the same amount of time on the processor.

dynamic space reclamation. A librarian function that makes space freed by the deletion of a library member reusable.

EBCDIC. Extended binary-coded decimal interchange code.

ECKD* device. Extended count-key-data device.

emulation. The use of programming techniques and special machine features that permit a computer system to execute programs written for another system or for the use of I/O devices different from those that are available.

emulation program (EP). An IBM control program that allows a channel-attached 3705 or 3725 communication controller to emulate the functions of an IBM 2701 Data Adapter Unit, or an IBM 2703 Transmission Control.

end user. 1. A person who makes use of an application program. 2. In SNA, the ultimate source or destination of user data flowing through an SNA network. May be an application program or a terminal operator.

Enterprise Systems Architecture (ESA). See *ESA/370** and *ESA/390**.

*** entry-sequenced file.** A VSE/VSAM file whose records are loaded without respect to their contents and whose relative byte addresses cannot change. Records are retrieved and stored by addressed access, and new records are added to the end of the file.

environmental record editing and printing (EREP) program. The program that makes the data contained in the system recorder file available for further analysis.

EREP program. Environmental record editing and printing program.

error recovery procedures (ERP). Procedures to help isolate and, where possible, to recover from errors in equipment.

ESA mode. An operation mode of the supervisor (generated with MODE=ESA) of a VSE system. Such a supervisor will run on Enterprise Systems Architecture processors (ESA/370 and ESA/390) and provides support for multiple virtual address spaces, the channel subsystem, and more than 16MB of real storage.

ESA/370. IBM Enterprise Systems Architecture/370. The extension to the IBM System/370 architecture which includes the advanced addressability feature that provides access registers.

ESA/390. IBM Enterprise Systems Architecture/390. The latest extension to the IBM System/370 architecture

which includes the advanced addressability feature and advanced channel architecture.

* **escape.** To return to the original level of a user interface.

ESDS. Entry-sequenced data set. See *entry-sequenced file*. See also *SAM ESDS*.

exit. A routine, normally user-supplied, that receives control from the system when a certain event occurs (abnormal-end exit, for example).

extended count-key-data (ECKD) device. A disk storage device that has a data transfer rate faster than some processors can utilize. A specialized channel program is needed to convert ordinary CKD channel programs for use with an ECKD device.

extent. Continuous space on a disk or diskette occupied by or reserved for a particular file or VSAM data space.

extended binary-coded decimal interchange code (EBCDIC). A coded character set consisting of 8-bit coded characters.

extended recovery facility (XRF). In VSE/ESA, a feature of CICS that provides for enhanced availability of CICS by offering one CICS system as a backup of another.

external storage. Storage that is not part of the processor.

fast copy data set program (VSE/Fast Copy). See *VSE/Fast Copy*.

fast service upgrade (FSU). A service function of VSE/ESA for the installation of a refresh release without regenerating control information such as library control tables.

FBA disk device. Fixed-block architecture disk device.

* **FCB.** Forms control buffer.

FCOPY. See *VSE/Fast Copy*.

* **feature code.** A code used by IBM to process hardware and software orders.

* **fence.** A separation of one or more components or elements from the remainder of a processor complex. The separation is by logical boundaries. It allows simultaneous user operations and maintenance procedures.

fetch. 1. To locate and load a quantity of data from storage. (A) 2. To bring a program phase into virtual storage from a sublibrary and pass control to this

phase. 3. The name of the macro instruction (FETCH) used to accomplish 2. See also *loader*.

file. A named set of records stored or processed as a unit. (T) Synonymous with *data set*.

fixed-block architecture (FBA) disk device. A disk device that stores data in blocks of fixed size. These blocks are addressed by block number relative to the beginning of the file. Contrast with *CKD device*.

* **foreground partition.** A space of virtual storage in which programs are executed under control of the system. By default, a foreground partition has a higher processing priority than the background partition.

* **forms control buffer (FCB).** In the 3800 Printing Subsystem, a buffer for controlling the vertical format of printed output.

FORTRAN (formula translation). A programming language primarily used for applications involving numeric computations.

FSU. Fast service upgrade.

FULIST (Function LIST). A type of selection panel that displays a set of files and/or functions for the choice of the user.

GB. Gigabyte.

generate. To produce a computer program by selecting subsets of standardized code under the control of parameters. (A)

generation. See *macro generation*.

generation feature. An IBM licensed program order option used to tailor the object code of a program to user requirements.

* **GETVIS space.** Storage space within a partition or the shared virtual area, available for dynamic allocation to programs.

gigabyte (GB). 1,024MB or 1,073,741,824 bytes of storage.

global command. A command typed into the global command area, which is usually located at the top of the screen. It allows a user to change or delete the same word or character string throughout a library member.

guest system. A data processing system that runs under control of another (host) system.

* **half-duplex.** In data communication, pertaining to transmission of data in only one direction at a time. Contrast with *duplex*.

hardcopy file. A system file on disk, used to log all lines of communication between the system and the operator at the system console, to be printed on request.

hard wait. The condition of a processor when all operations are suspended. System recovery from a hard wait is impossible without performing a new system startup.

hardware. Physical equipment used in data processing, as opposed to programs, procedures, rules, and associated documentation. (I) (A) Contrast with *software*.

help panel. A display of information provided by the system in response to a user's help request.

host mode. In this operating mode, a PC can access a VSE host. For programmable workstation (PWS) functions, the Move Utilities of VSE can be used.

host processor. 1. In a network, the processor in which the access method for the network resides. 2. In an SNA network, the processor that contains a system services control point (SSCP).

*** host system.** The controlling or highest level system in a data communication configuration.

ICCF. See *VSE/ICCF*.

index. In data management, a table used to locate the records of a file.

*** initial program load (IPL).** The process of loading system programs and preparing the system to run jobs.

input/output control system (IOCS). A group of IBM supplied routines that handle the transfer of data between main storage and auxiliary storage devices.

interactive. A characteristic of a program or system that alternately accepts input and then responds. An interactive system is conversational, that is, a continuous dialog exists between user and system. Contrast with *batch*.

Interactive Computing and Control Facility (ICCF). An IBM program that serves as interface, on a time-slice basis, to authorized users of terminals linked to the system's processor.

interactive interface. A system facility which controls how different users see and work with the system by means of user profiles. When signing on, the interactive interface makes available those parts of the system authorized by the profile. The interactive interface has sets of selection- and data-entry panels through which users communicate with the system.

interactive partition. An area of virtual storage for the purpose of processing a job that was submitted interactively via VSE/ICCF.

interface. A shared boundary between two hardware or software units defined by common functional or physical characteristics. It might be a hardware component or a portion of storage or registers accessed by several computer programs.

*** intermediate storage.** Any storage device used to hold data temporarily before it is processed. See also *buffer storage*.

IOCS. Input/output control system.

IPL. Initial program load.

*** irrecoverable error.** An error for which recovery is impossible without the use of recovery techniques external to the computer program or run. (T)

IUCV. Interactive User Communication Vehicle.

JCL. Job control language.

JECL. Job entry control language.

job accounting. A system function that lists how much every job step uses of the different system resources.

job accounting interface. A function that accumulates accounting information for each job step, to be used for charging the users of the system, for planning new applications, and for supervising system operation more efficiently.

*** job accounting table.** An area in the supervisor where accounting information is accumulated for the user.

job catalog. A catalog made available for a job by means of the file name IJSYSUC in the respective DLBL statement.

job control language (JCL). A language that serves to prepare a job or each job step of a job to be run. Some of its functions are: to identify the job, to determine the I/O devices to be used, set switches for program use, log (or print) its own statements, and fetch the first phase of each job step.

job control statement. A particular statement of JCL.

job entry control language (JECL). A control language that allows the programmer to specify how VSE/POWER should handle a job.

job step. One of a group of related programs complete with the JCL statements necessary for a particular run. Every job step is identified in the job

stream by an EXEC statement under one JOB statement for the whole job.

job stream. The sequence of jobs as submitted to an operating system.

Kanji. A set of symbols used in Japanese ideographic printing. Every symbol is represented by two bytes.

KB. Kilobyte.

key. In VSE/VSAM, one or several characters taken from a certain field (key field) in data records for identification and sequence of index entries or of the records themselves.

key sequence. The collating sequence either of records themselves or of their keys in the index or both. The key sequence is alphanumeric.

key-sequenced file. A VSE/VSAM file whose records are loaded in key sequence and controlled by an index. Records are retrieved and stored by keyed access or by addressed access, and new records are inserted in the file in key sequence.

*** kilobyte (KB).** 1024 bytes of storage.

KSDS. Key-sequenced data set. See *key-sequenced file*.

label. 1. An identification record for a tape, disk, or diskette volume or for a file on such a volume. 2. In assembler programming, a named instruction generally used for branching.

label information area. An area on a disk to store label information read from job control statements or commands. Synonymous with *label area*.

*** LAN.** Local area network.

language translator. A general term for any assembler, compiler, or other routine that accepts statements in one language and produces equivalent statements in another language.

LEN. Low-entry networking.

*** librarian.** The set of programs that maintains, services, and organizes the system and private libraries.

library. See *VSE library* and *VSE/ICCF library*.

*** library block.** A block of data stored in a sublibrary.

*** library directory.** The index that enables the system to locate a certain sublibrary of the accessed library.

*** library member.** The smallest unit of data to be stored in and retrieved from a sublibrary.

*** licensed program.** A separately priced program and its associated materials that bear an IBM copyright and are offered to customers under the terms and conditions of the IBM Customer Agreement (ICA).

line. Short for telecommunication line. Any physical medium such as a wire or microwave beam, that is used to transmit data. Synonymous with *transmission line*.

line commands. In VSE/ICCF, special commands to change the declaration of individual lines on your screen. You can copy, move, or delete a line declaration, for example.

line printer. A device that prints a line of characters as a unit. (I) (A) Contrast with *character printer* or *page printer*.

link. 1. To connect items of data or portions of programs, for example linking of object programs by the linkage editor or linking of data items by pointers. 2. In SNA, the combination of the link connection and the link stations joining network nodes, for example, a System/370 channel and its associated protocols. A link is both logical and physical. Synonymous with *data link*.

linkage editor. A program to build a phase (executable code) from one or several independently translated object modules or existing phases or both. In creating the phase, the program resolves cross references among the modules and phases available as input. The program can catalog the newly built phases.

*** link-attached.** Pertaining to devices connected to a control unit by a data link. Synonymous with *remote*. Contrast with *channel-attached*.

link connection. Physical medium of transmission, for example a telephone wire or a microwave beam. In SNA, the physical communication equipment between link stations, for example a line and a DCE. Synonymous with *data circuit*.

link-edit. To create a loadable computer program by having the linkage editor process compiled (assembled) source programs.

*** link station.** In SNA, the combination of hardware and software that allows a node to attach to and provide control for a link.

loader. A routine, commonly a computer program, that reads data or a program into processor storage. See also *relocating loader*.

*** local address.** In SNA, an address used in a peripheral node in place of an SNA network address and transformed to or from an SNA network address by the boundary function in a subarea node.

* **local area network (LAN).** A data network located on the user's premises in which serial transmission is used for direct data communication among data stations. (T)

* **lock file.** In a shared disk environment under VSE, a system file on disk used by the sharing systems to control their access to shared data.

* **logging.** The recording of data about specific events.

logical unit (LU). 1. A name used in programming to represent an I/O device address. 2. In SNA, a port through which a user accesses the SNA network, a) to communicate with another user and b) to access the functions of the SSCP. An LU can support at least two sessions -- one with an SSCP and one with another LU -- and may be capable of supporting many sessions with other LUs.

logical unit name. In programming, a name used to represent the address of an input/ output unit.

logo. A trademark or other art work that is associated with a firm or product. A logo often appears as the first screen of an interactive program.

* **logon-interpret routine.** In VTAM, an installation exit routine, associated with an interpret table entry, that translates logon information. It may also verify the logon.

* **logon mode.** In VTAM, a subset of session parameters specified in a logon mode table for communication with a logical unit. See also *session parameters*.

* **logon-mode table.** In VTAM, a set of entries for one or more logon modes. Each logon mode is identified by a logon mode name.

low-entry networking (LEN). In SNA, a capability in type 2.1 nodes allowing them to be directly attached to one another using peer-to-peer protocols and allowing them to support multiple and parallel sessions between logical units (LUs).

LU. Logical unit.

* **LU-LU session.** In SNA, a session between two LUs in an SNA network. It provides communication between two users, or between a user and an LU services component.

magnetic ink character recognition (MICR). The recognition of characters printed with ink that contains particles of a magnetic material.

* **maintain system history program (MSHP).** A program used for automating and controlling various

installation, tailoring, and service activities for a VSE system.

major node. In VTAM, a set of minor nodes that can be activated as a group. See *node* and *minor node*.

master console. In VSE/ESA, one or more consoles that receive all system messages, except for those that are directed to one particular console. Contrast this with the *user console* which receives only those messages that are specifically directed to it, for example messages issued from a job that was submitted with the request to echo its messages to that console. The operator of a master console can reply to all outstanding messages and enter all system commands.

* **MB.** Megabyte.

* **megabyte (MB).** 1,024KB or 1,048,576 bytes of storage.

* **member.** The smallest unit of data that can be stored in and retrieved from a sublibrary.

message. 1. In VSE, a communication sent from a program to the operator or user. It can appear on a console, a display terminal or on a printout. 2. In telecommunication, a logical set of data being transmitted from one node to another.

* **microcode.** 1. A code written using the instructions of a specific instruction set and implemented in a part of storage that is not program-addressable. 2. To design write, and test one or more micro instructions.

* **migrate.** To move to a changed operating environment, usually to a new release or version of a system.

minor node. In VTAM, a uniquely-defined resource within a major node. See *node* and *major node*.

* **module.** A program unit that is discrete and identifiable with respect to compiling, combining with other units, and loading; for example, the input to, or output from, an assembler, a compiler, linkage editor, or executive routine. (A)

* **MSHP.** Maintain system history program.

Multiple Virtual Storage/Extended Architecture (MVS/XA*). A licensed IBM program providing operating system support. It is a follow-on development of MVS/SP*.

* **multiprogramming.** 1. A mode of operation that provides for interleaved execution of several programs by a single processor. (I) (A) 2. Pertaining to concurrent execution of several programs by a computer. (A)

multitasking. Concurrent running of one main task and one or several subtasks in the same partition.

* **nest.** To incorporate a structure or structures of some kind into a structure of the same kind. For example, to nest one loop (the nested loop) within another loop or to nest one subroutine (the nested subroutine) within another subroutine. (T)

NetView. An IBM licensed program to monitor a network, manage it, and diagnose its problems.

network. 1. An arrangement of nodes (data stations) and connecting branches. 2. The assembly of equipment through which connections are made between data stations.

network address. In SNA, an address, consisting of subarea and element fields, that identifies a link, link station, or NAU. Subarea nodes use network addresses; peripheral nodes use local addresses. The boundary function in the subarea node to which a peripheral node is attached transforms local addresses to network addresses and vice versa. See *local address*.

Network Communications Control Facility (NCCF). An IBM licensed program; the base for command processors that can monitor, control, and improve the operations of a network. Its function is included and enhanced in NetView's command facility. A traditional, alternative name for the command facility of NetView.

Network Control Program (NCP). An IBM licensed program that provides communication controller support for single-domain, multiple-domain, and interconnected network capability.

network definition table (NDT). In VSE/POWER networking, the table where every node in the network is listed.

networking. Making use of the services of a network program.

network operator. The person or program responsible for controlling the operation of all or part of a network.

* **node.** 1. In SNA, an end point of a link or junction common to several links in a network. Nodes can be distributed to host processors, communication controllers, cluster controllers, or terminals. Nodes can vary in routing and other functional capabilities. 2. In VTAM, a point in a network defined by a symbolic name. Synonymous with *network node*. See *major node* and *minor node*.

* **node name.** In VTAM, the symbolic name assigned to a specific major or minor node during network definition.

* **object code.** Output from a compiler or assembler which is itself executable machine code or is suitable for processing to produce executable machine code. (A)

object module (program). A program unit that is the output of an assembler or compiler and is input to a linkage editor.

OCCF. See VSE/OCCF.

OLTEP. Online test executive program.

online application program. An interactive program used at display stations. When active, it waits for data. Once input arrives, it processes it and sends a response to the display station or to another device.

online processing. Processing by which the input data enters the computer directly from a display station and the output data is transmitted directly to the display station.

online test executive program (OLTEP). A program that controls the activities on the online-test system and provides communication with the operator. This test system (called VSE/OLTEP) can be used to test I/O devices, control units, and channels while programs are running.

* **operating system.** Software that controls the running of programs; an operating system may provide services such as resource allocation, scheduling, input/output control, and data management. (I) (A)

* **operator command.** A statement to a control program, issued via a console or terminal. It causes the control program to provide requested information, alter normal operations, initiate new operations, or end existing operations.

Operator Communication Control Facility (OCCF). An IBM licensed program that helps reduce operator interaction in the operation of a VSE controlled installation and helps centralize data processing skills.

optical reader/sorter. A device that reads hand written or machine printed symbols on a voucher and, after having read the voucher, can sort it into one of the available stacker-select pockets.

optional program. An IBM program that a user can install on VSE by way of available installation-assist support.

* **outboard recorder (OBR).** A VSE feature that records error data on the system recorder file when an irrecoverable I/O error occurs.

* **packet.** In data communication, a sequence of binary digits, including data and call control signals, that is transmitted and switched as a composite whole. (I) The

data, call control signals, and, possibly, error control information are arranged in a specific format.

* **packet switching.** The processing of routing and transferring data by means of addressed packets so that a channel is occupied only during transmission of a packet. On completion of the transmission, the channel is made available for transfer of other packets. (I)

page. 1. In a virtual storage system, the unit of code or data or both which is transferred between processor storage and the PDS as needed for processing. 2. To transfer pages between processor storage and the page data set.

page data set (PDS). One or more extents of disk storage in which pages are stored when they are not needed in processor storage.

page fault. A program interruption that occurs when a program page marked "not in processor storage" is referred to by an active page.

* **page fixing.** Marking a page so that it is held in processor storage until explicitly released. Until then, it cannot be paged out.

page frame. An area of processor storage that can contain a page.

page-in. The process of transferring a page from the PDS to processor storage.

page I/O. Page-in and page-out operations.

page-out. The process of transferring a page from processor storage to the PDS.

* **page pool.** The set of page frames available for paging virtual-mode programs.

panel. The complete set of information shown in a single display on a terminal screen. Scrolling back and forth through panels is like turning manual pages. See also *selection panel* and *data entry panel*.

partition. A division of the virtual address area available for running programs. See also *dynamic partition*, *static partition*.

* **partition balancing, dynamic.** A VSE facility that allows the user to specify that two or more or all partitions of the system should receive about the same amount of time on the processor.

* **path.** 1. In VTAM, the intervening nodes and data links connecting a terminal and an application program in the host processor. 2. In VSAM, a named logical entity providing access to the records of a base cluster either directly or through an alternate index.

PDS. Page data set.

personal computer (PC). A microcomputer for individuals or small businesses.

* **phase.** The smallest unit of executable code that can be loaded into virtual storage.

PL/I. A programming language designed for use in a wide range of commercial and scientific computer applications.

PLU. Primary logical unit.

PNET. Programming support available with VSE/POWER; it provides for the transmission of selected jobs, operator commands, messages, and program output between the nodes of a network.

polling. In telecommunication, the process of inviting linked stations to transmit, one after the other.

port. 1. An access point for data entry or exit. 2. A connector on a device to which cables for other devices (display stations, printers) are attached. Synonymous with *socket*.

POWER. See *VSE/POWER*.

* **pregenerated operating system.** An operating system such as VSE/ESA that is shipped by IBM mainly in object code. IBM defines such key characteristics as the size of the main control program, the organization and size of libraries, and required system areas on disk. The customer does not have to generate an operating system.

* **preventive service.** The installation of one or more PTFs on a VSE system to avoid the occurrence of anticipated problems.

* **primary library.** A VSE library owned and directly accessible by a certain terminal user.

primary logical unit. In SNA, the LU that contains the primary half-session for a particular LU-LU session. A particular LU may contain both primary and secondary half-sessions for different active LU-LU sessions. Contrast with *SLU*.

printer/keyboard mode. Refers to 1050 or 3215 console mode (device dependent).

priority. A rank assigned to a partition or a task that determines its precedence in receiving system resources.

* **private library.** A user-owned library that is separate and distinct from the system library.

*** private partition.** Any of the system's partitions that are not defined as shared. See also *shared partition*.

procedure. See *cataloged procedure*.

*** processing.** The performance of logical operations and calculations on data, including the temporary retention of data in processor storage while this data is being operated upon.

processor. The hardware component that interprets and executes instructions. (I) (A)

processor storage. The storage contained in one or more processors and available for running machine instructions. Synonymous with *real storage*.

*** production library.** 1. In a pre-generated operating system (or product), the program library that contains the object code for this system (or product). 2. A library that contains data needed for normal processing. Contrast with *test library*.

profile. A description of the characteristics of a user or a computer resource.

*** programmer logical unit.** A logical unit available primarily for user-written programs. See also *logical unit name*.

program product. See *licensed program*.

program service. The customer- or program-related IBM service of correcting design or implementation errors via APARs and PTFs.

program temporary fix (PTF). A solution or by-pass of one or more problems documented in APARs. PTFs are distributed to IBM customers for preventive service to a current release of a program.

prompt. To issue messages to a terminal or console user, requesting information necessary to continue processing.

protocol. In SNA, the set of rules for requests and responses between communicating nodes that want to exchange data.

PTF. Program temporary fix.

punch. 1. To make holes in some data medium according to a signal code and thus save data on that medium. 2. A machine (output device) to punch 80-column punch cards.

*** punch card.** A card into which hole patterns can be punched; normally, it is characterized by 80 columns and 12 rows of punch positions.

*** queue.** 1. A line or list formed by items in a system waiting for service; for example, tasks to be performed or messages to be transmitted in a network. 2. To arrange in, or form, a queue.

queue file. A disk file maintained by VSE/POWER that holds control information for the spooling of job input and job output.

queue record. A record in the queue file containing descriptive information about a job or job output.

*** random processing.** The treatment of data without respect to its location on disk storage, and in an arbitrary sequence governed by the input against which it is to be processed.

real address. The address of a location in processor storage.

*** real address area.** In VSE, the area of virtual storage where virtual addresses are equal to real addresses.

real mode. In VSE, a processing mode in which a program may not be paged. Contrast with *virtual mode*.

real storage. See *processor storage*.

recovery management support (RMS). System routines that gather information about hardware failures and that initiate a retry of an operation that failed because of processor, I/O device, or channel errors.

*** reentrant.** The attribute of a program or routine that allows the same copy of the program or routine to be used concurrently by several tasks.

refresh release. An upgraded VSE system with the latest level of maintenance for a release.

relative-record file. A VSE/VSAM file whose records are loaded into fixed-length slots and accessed by the relative-record numbers of these slots.

relocatable module. In VSE, a library member of type object. It consists of one or more control sections cataloged as one member.

relocating loader. A function that modifies addresses of a phase, if necessary, and loads the phase for running into the partition selected by the user.

*** remote job entry (RJE).** Submission of jobs through an input unit that has access to a computer through a data link.

remote spooling communications subsystem (RSCS). The licensed program that transmits spool files between VM users, remote stations, and remote

and local batch systems via its telecommunication facilities.

*** restore.** To write back on disk data that was previously written from disk to an intermediate storage medium such as tape.

RJE. Remote job entry.

RJE workstation. Any workstation that is used for remote job submission and for the remote retrieval of output.

RMS. Recovery management support.

*** routine.** Part of a program, or a sequence of instructions called by a program, that may have some general or frequent use. (I) (A)

*** routing.** The assignment of the path by which a message will reach its destination.

RPG II. A commercially oriented programming language suitable for writing application programs that meet common business data processing requirements.

RRDS. Relative-record data set. See *relative-record file*.

RSCS. remote spooling communications subsystem.

*** run.** 1. A performance of one or more jobs. (I) (A) 2. A performance of one or more programs. (I) (A) 3. To cause a program or job to be performed.

SAM. Sequential access method.

SAM ESDS file. A SAM file managed in VSE/VSAM space, so it can be accessed by both SAM and VSE/VSAM macros.

schedule. To select a program or task for getting control over the processor.

SCP. System control programming.

SDL. System directory list.

SDLC. Synchronous data link control.

SDR. Statistical data recorder.

*** search chain.** The order in which chained sublibraries are searched for the retrieval of a certain library member of a specified type.

secondary logical unit. In SNA, the LU that contains the secondary half-session for a particular LU-LU session. An LU may contain secondary and primary half-sessions for different active LU-LU sessions. Contrast with *PLU*.

security. See *access control*.

segmentation. In VSE/POWER, a facility that breaks list or punch output of a program into segments so that printing or punching can start before this program has finished generating such output.

*** selection panel.** A displayed list of items from which a user can make a selection. Synonymous with *menu*.

sense. Determine, on request or automatically, the status or the characteristics of a certain I/O or communication device.

sequential access. The serial retrieval of records in their entry sequence or serial storage of records with or without a premeditated order. Contrast with *direct access*.

sequential access method (SAM). A data access method that writes to and reads from an I/O device record after record (or block after block). On request, the support performs device control operations such as line spacing or page ejects on a printer or skip a certain number of tape marks on a tape drive.

sequential file. A file in which records are processed in the order in which they are entered and stored.

service node. Within the VSE unattended node support, a processor used to install and test a master VSE system which is copied for distribution to the unattended nodes. Also, program fixes are first applied at the service node and then sent to the unattended nodes.

*** service program.** A program in general support of computer processes, for example, a diagnostic program, a trace program, or a sort program. (T) Synonymous with *utility program*.

session parameters. In SNA, the parameters that specify or constrain the protocols (such as bracket protocol and pacing) for a session between two NAUs. See also *logon mode*.

shared disk option. An option that lets independent computer systems use common data on shared disk devices.

*** shared partition.** In VSE, a partition allocated for a program that provides services for and communicates with programs in other partitions of the system's virtual address spaces.

*** shared spooling.** A function that permits the VSE/POWER account file, data file, and queue file to be shared among several computer systems with VSE/POWER.

*** shared virtual area (SVA).** In VSE, a high address area that contains a list system directory list (SDL) of frequently used phases, resident programs shared between partitions, and an area for system support.

skeleton. A set of control statements and/or instructions that requires user-specific information to be inserted before it can be submitted for processing.

SLU. Secondary logical unit.

SNA. Systems Network Architecture.

SNA network. The part of a user-application network that conforms to the formats and protocols of SNA.

*** software.** Programs, procedures, rules, and any associated documentation pertaining to the operation of a computer system.

source member. A library member containing source statements in any of the programming languages supported by VSE.

*** source program.** A computer program expressed in a source language. (I) (A) Contrast with *object module*.

source statement. A statement written in symbols of a programming language.

*** spool access support.** A function of VSE/POWER that allows user programs or subsystems running on VSE to access the spool files of VSE/POWER.

*** spool file.** 1. A file that contains output data saved for later processing. 2. One of three VSE/POWER files on disk: queue file, data file, and account file.

*** spooling.** The use of disk storage as buffer storage to reduce processing delays when transferring data between peripheral equipment and the processor of a computer. In VSE, this is done under the control of VSE/POWER.

SQL/DS. Structured Query Language/Data System.

*** stacked tape.** An IBM supplied product-shipment tape containing the code of several licensed programs.

stand-alone program. A program that runs independently of (not controlled by) the VSE system.

*** standard label.** A fixed-format record that identifies a volume of data such as a tape reel or a file that is part of a volume of data.

*** start option.** In VTAM, a user-specified or IBM specified option that determines conditions for the time an VTAM system is operating. Start options can be predefined or specified when VTAM is started.

start-stop (SS) system. A data transmission system in which each character is preceded by a start signal and is followed by a stop signal. (T)

startup. The process of performing IPL of the operating system and of getting all subsystems and application programs ready for operation.

static partition. A partition, defined at IPL time and occupying a defined amount of virtual storage that remains constant. Contrast with *dynamic partition*.

station. 1. One of the input or output points of a network that uses communication facilities; for example, the telephone set in the telephone system or the point where the business machine interfaces with the channel on a leased private line. 2. One or more computers, terminals, or devices at a particular location.

statistical data recorder (SDR). A feature that records the cumulative error status of an I/O device on the system recorder file.

storage control unit. A piece of hardware equipment that controls the reading and writing of data at one or more disk devices.

storage director. An independent component of a storage control unit; it performs all of the functions of a storage control unit and thus provides one access path to the disk devices that are attached to it. A storage control unit has two storage directors.

storage dump. See *dump*.

storage fragmentation. Inability to allocate unused sections (fragments) of storage in the real or virtual address range of virtual storage.

Structured Query Language/Data System. An IBM licensed program for using a database in an online, interactive, or batch environment.

*** subarea.** A portion of the SNA network consisting of a subarea node, attached peripheral nodes, and associated resources. Within a subarea node, all NAUs, links, and adjacent link stations in attached peripheral or subarea nodes that are addressable within the subarea share a common subarea address and have distinct element addresses.

*** subarea address.** In SNA, a value in the subarea field of the network address that identifies a subarea.

sublibrary. In VSE, a subdivision of a library. Members can only be accessed in a sublibrary.

sublibrary directory. An index for the system to locate a member in the accessed sublibrary.

submit. A VSE/POWER function that passes a job to the system for processing.

* **subsystem.** A secondary or subordinate system or program, usually capable of operating independently of, or asynchronously with, the operating system.

subtask. A task that is initiated by the main task or by another subtask.

* **supervisor.** The part of a control program that coordinates the use of resources and maintains the flow of processor operations.

supervisor mode. See *ESA mode*.

SVA. Shared virtual area.

switched line. A telecommunication line in which the connection is established by dialing.

* **switched SNA major node.** In VTAM, a major node whose minor nodes are PUs and LUs attached by switched SDLC links.

switched virtual circuit. An X.25 NPSI circuit that is dynamically established when needed. The X.25 equivalent of a switched line.

Synchronous Data Link Control (SDLC). A discipline for managing synchronous, code-transparent, serial-by-bit information transfer over a link connection. Transmission exchanges may be duplex or half-duplex over switched or non-switched links. The configuration of the link connection may be point-to-point, multipoint, or loop.

SYSRES. System residence volume.

* **system console.** A console, usually equipped with a keyboard and display screen for control and communication with the system.

system directory list (SDL). A list containing directory entries of frequently-used phases and of all phases resident in the SVA. The list resides in the SVA.

* **system file.** In VSE, a file used by the operating system, for example, the hard-copy file, the recorder file, the page data set.

system logical unit. A logical unit available primarily for operating system use. See also *logical unit name*.

system recorder file. The file that is used to record hardware reliability data. Synonymous with *recorder file*.

system refresh release. See *refresh release*.

system residence volume (SYSRES). The disk volume on which the system sublibrary is stored and

from which the hardware retrieves the initial program load routine for system startup.

system sublibrary. The sublibrary that contains the operating system. It is stored on the system residence volume (SYSRES).

System Support Program (SSP). An IBM licensed program, made up of a collection of utilities and small programs, that supports the operation of the NCP.

Systems Network Architecture (SNA). The description of the logical structure, formats, protocols, and operational sequences for transmitting information units through and controlling the configuration and operation of networks.

* **tailor.** A process that defines or modifies the characteristics of the system.

* **task.** The basic unit of synchronous program execution. A task competes with other tasks for system resources such as processing time and I/O channels.

task management. The functions of a control program that control the use, by tasks, of the processor and other resources (except for input/output devices).

TCT. Terminal control table.

* **telecommunication.** Transmission of data between computer systems and between such a system and remote devices.

telecommunication line. Any physical medium such as a wire or microwave beam, that is used to transmit data. Contrast with *data link*.

terminal. A point in a system or network at which data can either enter or leave. (A) Usually a display screen with a keyboard.

terminal control table (TCT). A control block in which the system stores information about the characteristics and modes of operation of the terminals defined to the system.

* **throughput.** 1. A measure of the amount of work performed by a computer system over a given period of time, for example, jobs per day. (I) (A) 2. In data communication, the total traffic between stations per unit of time.

time event scheduling support. In VSE/POWER, the time event scheduling support offers the possibility to schedule jobs for processing in a partition at a predefined time once or repetitively. The time event scheduling operands of the * \$\$ JOB statement are used to specify the desired scheduling time.

*** time slicing.** A mode of operation in which several processes are assigned quanta of time on the same processor. (I) (A)

*** token.** In a local area network, the symbol of authority passed among data stations to show the station temporarily in control of the transmission medium. (T)

token-ring. A network configuration where series of attaching devices are connected by unidirectional transmission links to form a closed path. Tokens are passed from adapter to adapter.

trace. 1. To record a series of events as they occur. 2. A record of specified events during the run of a program. 3. A program to produce such a record.

*** track.** A circular path on the surface of a disk or diskette. Smallest unit of physical disk space.

track group. In VSE/POWER, the basic organizational unit of a file for CKD devices.

track hold. A function that protects a track while it is being updated by one program from being accessed by another program.

transaction. 1. In a batch or remote batch entry, a job or job step. 2. In CICS, an application program (or programs) that can be used by a display station operator. A given transaction can be used concurrently from one or more display stations. The execution of a transaction for a certain operator is also referred to as a task. A given task can relate only to one operator.

*** transient area.** An area within the control program used to provide high-priority system services on demand.

*** transmit.** To send data from one place for reception elsewhere. (A)

UCB. Universal character set buffer.

*** UCS.** Universal character set.

*** unattended mode.** A mode in which no operator is present or in which no operator station is included at system generation.

unattended node support. In VSE, a set of functions allowing one or more VSE systems to run without an operator being present. The systems are connected to a single central host.

*** unique file.** A VSE/VSAM file that occupies a data space of its own. The data space is defined at the same time as the file and cannot contain any other file. Contrast with *suballocated file*.

universal character set (UCS). A printer feature that permits the use of a variety of character arrays.

universal character set buffer (UCB). A buffer to hold UCS information.

user console. In VSE/ESA, a console that receives only those system messages that are specifically directed to it. These are, for example, messages that are issued from a job that was submitted with the request to echo its messages to that console. Contrast with *master console*.

user exit. A programming service provided by an IBM software product that may be requested during the execution of an application program for the purpose of transferring control back to the application program upon the later occurrence of a user-specified event.

*** utility program.** 1. A program in general support of computer processes, for example, a diagnostic program, a trace program, or a sort program. (T) Synonymous with *service program*. 2. A program that performs an everyday task such as copying data from one storage device to another. (A)

VAE. Virtual addressability extension.

variable-length relative-record file. A VSE/VSAM relative-record file with variable-length records. See also *relative-record file*.

virtual address. An address that refers to a location in virtual storage. It is translated by the system to a processor storage address when the information stored at the virtual address is to be used.

virtual addressability extension (VAE). A storage management support that gives the user of VSE/ESA multiple address spaces of virtual storage.

virtual address area. The virtual range of available program addresses.

virtual address space. In VSE, a subdivision of the virtual address area available to the user for the allocation of private (non-shared) partitions.

*** virtual I/O area (VIO).** An extension of the page data set; used by the system as intermediate storage, primarily for control data.

*** virtual machine.** A functional simulation of a computer system and its associated devices.

Virtual Machine/Enterprise Systems Architecture (VM/ESA). An IBM program providing operating system support. Among other services, it manages the resources of a single computer so that multiple computing systems seem to exist. Each of those virtual

machines is the functional equivalent of an IBM computer system.

* **virtual mode.** The operating mode of a program which may be paged.

* **virtual partition.** In VSE, a division of the dynamic area of virtual storage.

virtual storage. Addressable space image for the user from which instructions and data are mapped into processor storage locations.

VM/ESA. Virtual Machine/Enterprise Systems Architecture*.

volume. A data carrier that is mounted and demounted as a unit, for example, a reel of tape or a disk pack. (I) Some disk units have no demountable packs. In that case, a volume is the portion available to one read/write mechanism.

volume ID. The volume serial number, which is a number in a volume label assigned when a volume is prepared for use by the system.

volume table of contents (VTOC). A table on a disk volume that describes every file on it.

VRDS. Variable-length relative-record data set. See *variable-length relative record file*.

VSAM. See *VSE/VSAM*.

VSE (Virtual Storage Extended). A system that consists of a basic operating system and any IBM supplied and user-written programs required to meet the data processing needs of a user. VSE and the hardware it controls form a complete computing system. Its current version is called VSE/ESA.

VSE/Advanced Functions. As part of VSE Central Functions, a base program of VSE/ESA.

VSE/ESA (VSE/Enterprise Systems Architecture). The most advanced VSE system currently available.

VSE/Fast Copy. A utility program for fast copy data operations from disk to disk and dump/restore operations via an intermediate dump file on magnetic tape or disk.

* **VSE/ICCF (VSE/Interactive Computing and Control Facility).** An IBM program that serves as interface, on a time-slice basis authorized users of terminals linked to the system's processor.

VSE/ICCF library. A file composed of smaller files (libraries) including system and user data which can be accessed under the control of VSE/ICCF.

VSE library. A collection of programs in various forms and storage dumps stored on disk. The form of a program is indicated by its member type such as source code, object module, phase, or procedure. A VSE library consists of at least one sublibrary which can contain any type of member.

VSE/OCCF (Operator Communication Control Facility). An IBM program that helps reduce operator interaction in the operation of a VSE-controlled installation and helps centralize data processing skills.

* **VSE/OLTEP (VSE/Online Test Executive Program).** An IBM program for managing the online tests that are available for preventive service for I/O devices. Normally, only IBM service representatives use this program.

* **VSE/POWER.** An IBM program primarily used to spool input and output. The program's networking functions enable a VSE system to exchange files with or run jobs on another remote processor.

VSE/SP Unique Code. A component of VSE/ESA.

VSE/VSAM (VSE/Virtual Storage Access Method). An IBM access method for direct or sequential processing of fixed and variable length records on disk devices.

VSE/VSAM catalog. A file containing extensive file and volume information that VSE/VSAM requires to locate files, to allocate and deallocate storage space, to verify the authorization of a program or an operator to gain access to a file, and to accumulate use statistics for files.

* **VSE/VSAM managed space.** A user-defined space on disk placed under the control of VSE/VSAM.

VTAM (Virtual Telecommunications Access Method). An IBM program which controls communication and the flow of data in an SNA network. It provides single-domain, multiple-domain, and interconnected network capability; it supports application programs and subsystems (VSE/POWER, for example).

VTAM application program. A program that has opened an ACB to identify itself to VTAM and can now issue VTAM macro instructions.

* **VTAM definition library.** The VSE files that contain the VTAM definition statements and start options filed during VTAM definition.

VTOC. Volume table of contents.

wait for run subqueue. In VSE/POWER, a subqueue of the reader queue with dispatchable jobs ordered in execution start time sequence.

wait state. The condition of a processor when all operations are suspended. System recovery from a hard wait is impossible without performing a new system startup. Synonym for *hard wait*.

XA channel subsystem. See *channel subsystem*.

XRF. Extended recovery facility.

*** X.21.** In data communication, a recommendation of the CCITT that defines the interface between data terminal equipment and public data networks for digital leased and circuit switched synchronous services.

*** X.21 feature.** A feature that allows a system to be connected to an X.21 network.

X.25. In data communication, a recommendation of the CCITT that defines the interface between data terminal equipment and packet switching networks.

*** X.25 feature.** A feature that allows a system to be connected to an X.25 network.

X.25 NCP Packet Switching Interface (NPSI). An IBM licensed program that allows SNA programs to communicate with SNA equipment or non-SNA equipment over packet-switched data networks. In addition, the product may be used to attach native X.25 equipment to SNA host systems without a packet network.

This glossary includes terms and definitions related primarily to IBM VSE/ESA. If you do not find the term you are looking for, refer to the index of this book or to the *IBM Dictionary of Computing* New York: McGraw Hill, 1994.

The glossary includes definitions with:

- Symbol * where there is a one-to-one copy from the IBM Dictionary of Computing.
- Symbol (A) from the *American National Dictionary for Information Processing Systems*, copyright 1982 by the Computer and Business Equipment Manufacturers Association (CBEMA). Copies may be purchased from the American National Standards Institute, 1430 Broadway, New York, New York 10018. Definitions are identified by the symbol (A) after the definition.
- Symbols (I) or (T) from the *ISO Vocabulary - Information Processing* and the *ISO Vocabulary - Office Machines*, developed by the International Organization for Standardization, Technical Committee 97, Subcommittee 1. Definitions of published segments of the vocabularies are identified by the symbol (I) after the definition; definitions from draft international standards, draft proposals, and working papers in development by

the ISO/TC97/SC1 vocabulary subcommittee are identified by the symbol (T) after the definition, indicating final agreement has not yet been reached among participating members.

The following cross-references are used:

- Contrast with. This refers to a term that has an opposed or substantively different meaning.
- Synonym for. This indicates that the term has the same meaning as a preferred term, which is defined in its proper place in the dictionary.
- Synonymous with. This is a backward reference from a defined term to all other terms that have the same meaning.
- See. This refers the reader to multiple-word terms that have the same last word.
- See also. This refers the reader to related terms that have a related, but not synonymous, meaning.

*** abend.** 1. Abnormal end of task. 2. Synonym for *abnormal termination*.

access control. A function of VSE that ensures that the system and the data and programs stored in it can be accessed only by authorized users in authorized ways.

Access Control Logging and Reporting. An IBM licensed program to log all attempts of access to protected data and to print selected formatted reports on such attempts.

access control table (DTSECTAB). A table used by the system to verify a user's right to access a certain resource.

access method. A program, that is, a set of commands (macros), to define files or addresses and to move data to and from them; for example VSE/VSAM or VTAM.

account file. A disk file maintained by VSE/POWER containing accounting information generated by VSE/POWER and the programs running under VSE/POWER.

address space. A subdivision of the total of virtual storage.

Advanced Function Printing* (AFP). A group of IBM licensed programs that support APA printers.

AFP*. Advanced Function Printing.

*** all points addressable (APA).** In computer graphics, pertaining to the ability to address and display or not display every point on a display surface (paper).

alternate block. On an FBA disk, a block designated to contain data in place of a defective block.

alternate index. In systems with VSE/VSAM, the index entries of a given base cluster organized by an alternate key, that is, a key other than the prime key of the base cluster. For example, a personnel file primarily ordered by names can be indexed also by department number.

alternate library. A library which becomes accessible from a terminal when the user of that terminal issues a connect or switch (library) request.

alternate screen size. An option that permits the size of a display screen to be defined differently from the standard size.

* **alternate tape.** A tape drive to which the operating system switches automatically for tape read or write operations if the end of the volume has been reached on the originally used tape drive.

alternate track. On a CKD disk, a track designated to contain data in place of a defective track.

* **American National Standard Code for Information Interchange (ASCII).** The standard code, using a coded character set consisting of 7-bit coded characters (8 bits including parity check), used for information interchange among data processing systems, data communication systems, and associated equipment. The ASCII set consists of control characters and graphic characters. (A)

APA. All points addressable.

APAR. Authorized Program Analysis Report.

appendage routine. A piece of code physically located in a program or subsystem, but logically an extension of a supervisor routine.

* **application profile.** A control block in which the system stores the characteristics of one or more application programs.

application program. A program written for or by a user that applies directly to the user's work. See also *batch program* and *online application program*.

application program major node. A group of application program minor nodes. In VTAM, a member or book of the definition library that contains one or more APPL statements, which represent application programs.

* **ASCII.** American National Standard Code for Information Interchange.

ASI (automated system initialization) procedure. A set of control statements which specifies values for an automatic system initialization.

assemble. To translate a program from assembler language into object code.

assembler. A computer program used to assemble. Synonymous with *assembly program*.

assembler language. A programming language whose instructions are usually in one-to-one correspondence with machine instructions and allows to write macros.

attention routine. A routine of the system that receives control when the operator presses the Attention key. The routine sets up the console for the input of a command, reads the command, and initiates the system service requested by the command.

authorized program analysis report (APAR). A report of a problem caused by a suspected defect in a current release of a program.

* **automated system initialization (ASI).** A function that allows control information for system startup to be cataloged for automatic retrieval during system startup.

* **autostart.** A facility that starts up VSE/POWER with little or no operator involvement.

auxiliary storage. Addressable storage that is not part of the processor, for example storage on a disk unit. Synonymous with *external storage*.

* **background partition.** An area of virtual storage in which programs are executed under control of the system. By default, the partition has a processing priority lower than any of the existing foreground partitions.

* **backup copy.** A copy, usually of a file or a library member, that is kept in case the original file or library member is unintentionally changed or destroyed.

* **base cluster.** In systems with VSAM, a key-sequenced or entry-sequenced file over which one or more alternate indexes are built.

basic telecommunications access method (BTAM). An access method that permits read and write communication with remote devices. Its current version is called BTAM-ES.

batch processing. 1. Serial processing of computer programs. 2. Pertaining to the technique of processing a set of computer programs in such a way that each is completed before the next program of the set is started. (A)

batch program. A program that is processed in series with other programs and therefore normally processes data without user interaction.

binary synchronous communication (BSC). Method of telecommunication using binary synchronous line discipline. Contrast with *SDLC*.

bits per second (bps). In serial transmission, the instantaneous bit speed with which a device or channel transmits a character.

block. Usually, a block consists of several records of a file that are transmitted as a unit. But if records are very large, a block can also be part of a record only. See also *control block*.

block group. In VSE/POWER, the basic organizational unit for fixed-block architecture (FBA) devices. Each block group consists of a number of 'units of transfer' or blocks.

blocking. The process of combining (or cutting) records into blocks.

* **bps.** Bits per second.

* **bringup.** The process of starting a computer system or a subsystem that is to operate under control of the system.

BSC. Binary synchronous communication.

* **BTAM-ES (Basic Telecommunication Access Method Extended Storage).** An IBM supplied telecommunication access method. It permits read and write communication with remote devices.

CA. Control area.

* **cache.** A high-speed buffer storage that contains frequently accessed instructions and data; it is used to reduce access time.

cache storage. A random access electronic storage in selected storage controls used to retain frequently used data for faster access by the channel. For example, the IBM 3990 Model 3 contains cache.

CA splitting. In VSE/VSAM, to double a control area dynamically and distribute its CIs evenly when the specified minimum of free space gets used up by more data.

catalog. 1. A directory of files and libraries, with reference to their locations. A catalog may contain other information such as the types of devices in which the files are stored, passwords, blocking factors. (I) (A) 2. To store a library member such as a phase, module, or book in a sublibrary.

* **cataloged procedure.** A set of control statements placed in a library and retrievable by name.

* **CDRM.** Cross-domain resource manager.

CDRSC. Cross-domain resource.

* **central location.** The place at which a computer system's control device, normally the system console in the computer room, is installed.

Central Processing Complex. A segment of the physical resources of a system configuration.

central processing unit (CPU). The hardware component that interprets and executes instructions. Synonym for *processor*.

* **channel adapter.** A communication controller hardware unit used to attach the controller to a data channel.

channel-attached. Pertaining to the attachment of devices directly by data channels (I/O channels) to a computer. Contrast with link-attached. Synonymous with *locally attached*.

channel program. One or more channel command words that control a sequence of data channel operations. Execution of this sequence is initiated by a single start I/O (SIO) instruction.

* **channel scheduler.** The part of the supervisor that controls all input/output operations.

channel-to-channel attachment (CTCA). A function that allows data to be exchanged (1) under the control of VSE/POWER between two virtual VSE machines running under VM or (2) under the control of VTAM between two processors.

channel subsystem. A feature of 370-XA and Enterprise Systems Architecture that provides extensive additional channel (I/O) capabilities over the System/370*.

character-coded request. A request encoded and transmitted as a character string. Contrast with *field-formatted request*.

checkpoint. 1. A point at which information about the status of a job and the system can be recorded so that the job step can be restarted later. 2. To record such information.

CI. Control interval.

CICS. Customer Information Control System.

CKD device. Count-key-data device.

class. In VSE/POWER, a group of jobs that either come from the same input device or go to the same output device.

cluster controller. A hardware unit to control the input/output operations of more than one device connected to it. A cluster controller may be run by a program stored and executed in the unit; for example, the IBM 3601 Finance Communication Controller. Or it may be controlled entirely by hardware; for example, the IBM 3272 Control Unit.

CMS. Conversational monitor system.

COBOL. Common business-oriented language.

common business-oriented language (COBOL). A high-level programming language based on English used primarily for business application programs.

common library. A library that can be interactively accessed by any user of the (sub)system that owns the library.

*** communication adapter.** A circuit card with associated software that enables a processor, controller, or other device to be connected to a network.

*** communication controller.** 1. A device that directs transmission of data over the links of a network; its operation is controlled by a program executed in a processor to which the controller is connected or it may be controlled by a program executed within the device. (T)2. A type of communication control unit whose operations are controlled by one or more programs stored and executed in the unit. It manages the details of line control and the routing of data through a network.

communication line. See *telecommunication line*.

*** compaction.** In SNA, the transformation of data by packing two characters in a byte so that only a subset of the allowable 256 characters is used. The most frequently sent characters are compacted.

*** compile.** To translate a source program into an executable program (object program). See also *assembler*.

compiler. A program used to compile.

component. 1. Hardware or software that is part of a computer system. 2. A functional part of a product, identified by a component identifier. 3. In VSE/VSAM, a named, cataloged group of stored records, such as the data component or index component of a key-sequenced file or alternate index.

component identifier. A 12-byte alphanumeric string, uniquely defining a component to MSHP.

conditional job control. The capability of the job control program to process or to skip one or more statements based on a condition that is tested by the program.

configuration. The devices and programs that make up a system, subsystem, or network.

connect. To authorize library access on the lowest level. A modifier such as "read" or "write" is required for the specified use of a sublibrary.

control block. An area within a program or a routine defined for the purpose of storing and maintaining control information.

control interval (CI). A fixed length area of disk storage where VSE/VSAM stores records and distributes free space. It is the unit of information that VSE/VSAM transfers to or from disk storage. For FBA, it must be an integral multiple, to be defined at cluster definition, of the block size.

control program. A program to schedule and supervise the running of programs in a system.

control unit. See *communications controller* and *cluster controller*. Synonymous with *controller*.

*** conversational monitor system (CMS).** A virtual machine operating system that provides general interactive time sharing, problem solving, and program development capabilities.

*** corrective service.** The installation of a PTF or an APAR fix that corrects a specific problem.

count-key-data (CKD) device. A disk device that stores data in the record format: count field, key field, data field. The count field contains, among others, the address of the record in the format: cylinder, head (track), record number and the length of the data field. The key field, if present, contains the record's key or search argument. CKD disk space is allocated by tracks and cylinders. Contrast with *FBA disk device*. See also *extended count-key-data device*.

CPU. Central processing unit.

Customer Information Control System (CICS/VSE). An IBM program that controls online communication between terminal users and a database. Transactions entered at remote terminals are processed concurrently by user-written application programs. The product includes facilities for building, using, and servicing databases.

Its current version is called CICS.

DASD. Direct access storage device.

DASD sharing. An option that lets independent computer systems use common data on shared disk devices.

database. A set of data available online that is organized by a common system and used for a common purpose.

* **data block (DBLK).** In VSE/POWER, the unit of transfer for spooling job input and job output.

data block group. The smallest unit of space that can be allocated to a VSE/POWER job on the data file. This allocation is independent of any device characteristics.

data conversion descriptor file (DCDF). With a DCDF you can convert individual fields within a record during data transfer between a PC and its host. The DCDF defines the record fields of a particular file for both, the PC and the host environment.

* **data entry panel.** A panel in which the user communicates with the system by filling in one or more fields. See also *panel* and *selection panel*.

data file. See *file*.

data import. The process of reformatting data that was used under one operating system such that it can subsequently be used under a different operating system.

* **Data Interfile Transfer, Testing and Operations (DITTO) utility.** An IBM program that provides file-to-file services for card I/O, tape, and disk devices.

Data Language/I (DL/I). A database access language used with CICS.

data link. In SNA, the combination of the link connection and the link stations joining network nodes, for example, a System/370 channel and its associated protocols. A link is both logical and physical.

In SNA, synonym for *link*.

* **data management.** A major function of the operating system. It involves organizing, storing, locating, and retrieving data.

data processing system. Synonym for *computer system*.

data security. See *access control*.

data set. See *file*.

data set header record. In VSE/POWER abbreviated as DSHR, alias NDH or DSH. An NJE control record either preceding output data or, in the middle of input data, indicating a change in the data format.

* **data terminal equipment (DTE).** In SNA, the part of a data station that serves as a data source, data sink, or both. (I) (A)

* **DBLK.** Data block.

DCDF. Data conversion descriptor file.

* **DCE.** Data circuit-terminating equipment.

deblocking. The process of making each record of a block available for processing. Contrast with *blocking*.

* **dedicated (disk) device.** A device that cannot be shared among users.

default value. A value assumed by the program when no value has been specified by the user.

definition statement. In VTAM, the means of describing an element of the network.

* **device address.** 1. The identification of an input/output device by its channel and unit number. 2. In data communication, the identification of any device to which data can be sent or from which data can be received.

* **device class.** The generic name for a group of device types, for example, all display stations belong to the same device class. Contrast with *device type*.

* **Device Support Facilities.** An IBM supplied SCP for performing operations on disk volumes so that they can be accessed by IBM and user programs. Examples of these operations are initializing a disk volume and assigning an alternate track.

* **device type code.** The four- or five-digit code to be used for defining an I/O device to a computer system.

DFT mode. Distributed function terminal (DFT) mode.

* **dialog.** 1. In an interactive system, a series of related inquiries and responses similar to a conversation between two people. 2. For VSE/ESA, a set of panels that can be used to complete a specific task, for example, defining a file.

dialog manager. The program component of VSE/ESA that provides for ease of communication between user and system.

direct access. Accessing data on a storage device using their address and not their sequence. This is the typical access on disk devices as opposed to magnetic tapes. Contrast with *sequential access*.

Direct access storage device. A device in which access time is effectively independent of the location of the data.

directory. 1. A table of identifiers and references to the corresponding items of data. (I) (A) 2. In VSE, specifically, the index for the program libraries. See also *library directory* and *sublibrary directory*.

disk operating system residence volume (DOSRES). The disk volume on which the system sublibrary IJSYSRS.SYSLIB is located including the programs and procedures required for system startup.

disk sharing. An option that lets independent computer systems use common data on shared disk devices.

display station. A display screen with attached keyboard for communication with the system or a network. See also *terminal*.

disposition. A means of indicating to VSE/POWER how job input and output is to be handled. A job may, for example, be deleted or kept after processing.

distributed function. The use of programmable terminals, controllers, and other devices to perform minor data processing operations.

distributed function terminal (DFT) mode. IBM PCs operating in DFT mode make use of the extended data stream facility allowing simultaneous host sessions by using screen windows.

*** distribution tape.** A magnetic tape that contains, for example, a preconfigured operating system like VSE/ESA. This tape is shipped to the customer for program installation.

DITTO/ESA for VSE. Data Interfile Transfer, Testing, and Operations utility. An IBM program that provides file-to-file services for disk, tape, and card devices.

DL/I. Data Language/I.

domain. The network resources under the control of a particular SSCP.

DOSRES. Disk operating system residence volume.

double-byte character set (DBCS). A character set which allows Korean, Japanese, and Chinese languages to be internally represented by two bytes per character.

DSF. Device Support Facilities.

DSH(R). Data set header record.

*** DTE.** Data terminal equipment.

dummy device. A device address with no real I/O device behind it. Input and output for that device address are spooled on disk.

dump. 1. Data that has been dumped. (I) (A) 2. To write at a particular moment some contents of storage to another data medium for the purpose of safeguarding or debugging the data. (T)

*** duplex.** Pertaining to communication in which data can be sent and received at the same time.

dynamic partition. A partition created and activated on an 'as needed' basis that does not use fixed static allocations. After processing, the occupied space is released. Contrast with *static partition*.

*** dynamic partition balancing.** A VSE facility that allows the user to specify that two or more or all partitions of the system should receive about the same amount of time on the processor.

dynamic space reclamation. A librarian function that makes space freed by the deletion of a library member reusable.

EBCDIC. Extended binary-coded decimal interchange code.

ECKD* device. Extended count-key-data device.

emulation. The use of programming techniques and special machine features that permit a computer system to execute programs written for another system or for the use of I/O devices different from those that are available.

emulation program (EP). An IBM control program that allows a channel-attached 3705 or 3725 communication controller to emulate the functions of an IBM 2701 Data Adapter Unit, or an IBM 2703 Transmission Control.

end user. 1. A person who makes use of an application program. 2. In SNA, the ultimate source or destination of user data flowing through an SNA network. May be an application program or a terminal operator.

Enterprise Systems Architecture (ESA). See *ESA/370** and *ESA/390**.

*** entry-sequenced file.** A VSE/VSAM file whose records are loaded without respect to their contents and whose relative byte addresses cannot change. Records are retrieved and stored by addressed access, and new records are added to the end of the file.

environmental record editing and printing (EREP) program. The program that makes the data contained in the system recorder file available for further analysis.

EREP program. Environmental record editing and printing program.

error recovery procedures (ERP). Procedures to help isolate and, where possible, to recover from errors in equipment.

ESA mode. An operation mode of the supervisor (generated with MODE=ESA) of a VSE system. Such a supervisor will run on Enterprise Systems Architecture processors (ESA/370 and ESA/390) and provides support for multiple virtual address spaces, the channel subsystem, and more than 16MB of real storage.

ESA/370. IBM Enterprise Systems Architecture/370. The extension to the IBM System/370 architecture which includes the advanced addressability feature that provides access registers.

ESA/390. IBM Enterprise Systems Architecture/390. The latest extension to the IBM System/370 architecture which includes the advanced addressability feature and advanced channel architecture.

* **escape.** To return to the original level of a user interface.

ESDS. Entry-sequenced data set. See *entry-sequenced file*. See also *SAM ESDS*.

exit. A routine, normally user-supplied, that receives control from the system when a certain event occurs (abnormal-end exit, for example).

extended count-key-data (ECKD) device. A disk storage device that has a data transfer rate faster than some processors can utilize. A specialized channel program is needed to convert ordinary CKD channel programs for use with an ECKD device.

extent. Continuous space on a disk or diskette occupied by or reserved for a particular file or VSAM data space.

extended binary-coded decimal interchange code (EBCDIC). A coded character set consisting of 8-bit coded characters.

extended recovery facility (XRF). In VSE/ESA, a feature of CICS that provides for enhanced availability of CICS by offering one CICS system as a backup of another.

external storage. Storage that is not part of the processor.

fast copy data set program (VSE/Fast Copy). See *VSE/Fast Copy*.

fast service upgrade (FSU). A service function of VSE/ESA for the installation of a refresh release without regenerating control information such as library control tables.

FBA disk device. Fixed-block architecture disk device.

* **FCB.** Forms control buffer.

FCOPY. See *VSE/Fast Copy*.

* **feature code.** A code used by IBM to process hardware and software orders.

* **fence.** A separation of one or more components or elements from the remainder of a processor complex. The separation is by logical boundaries. It allows simultaneous user operations and maintenance procedures.

fetch. 1. To locate and load a quantity of data from storage. (A) 2. To bring a program phase into virtual storage from a sublibrary and pass control to this phase. 3. The name of the macro instruction (FETCH) used to accomplish 2. See also *loader*.

file. A named set of records stored or processed as a unit. (T) Synonymous with *data set*.

fixed-block architecture (FBA) disk device. A disk device that stores data in blocks of fixed size. These blocks are addressed by block number relative to the beginning of the file. Contrast with *CKD device*.

* **foreground partition.** A space of virtual storage in which programs are executed under control of the system. By default, a foreground partition has a higher processing priority than the background partition.

* **forms control buffer (FCB).** In the 3800 Printing Subsystem, a buffer for controlling the vertical format of printed output.

FORTRAN (formula translation). A programming language primarily used for applications involving numeric computations.

FSU. Fast service upgrade.

FULIST (Function LIST). A type of selection panel that displays a set of files and/or functions for the choice of the user.

GB. Gigabyte.

generate. To produce a computer program by selecting subsets of standardized code under the control of parameters. (A)

generation. See *macro generation*.

generation feature. An IBM licensed program order option used to tailor the object code of a program to user requirements.

*** GETVIS space.** Storage space within a partition or the shared virtual area, available for dynamic allocation to programs.

gigabyte (GB). 1,024MB or 1,073,741,824 bytes of storage.

global command. A command typed into the global command area, which is usually located at the top of the screen. It allows a user to change or delete the same word or character string throughout a library member.

guest system. A data processing system that runs under control of another (host) system.

*** half-duplex.** In data communication, pertaining to transmission of data in only one direction at a time. Contrast with *duplex*.

hardcopy file. A system file on disk, used to log all lines of communication between the system and the operator at the system console, to be printed on request.

hard wait. The condition of a processor when all operations are suspended. System recovery from a hard wait is impossible without performing a new system startup.

hardware. Physical equipment used in data processing, as opposed to programs, procedures, rules, and associated documentation. (I) (A) Contrast with *software*.

help panel. A display of information provided by the system in response to a user's help request.

host mode. In this operating mode, a PC can access a VSE host. For programmable workstation (PWS) functions, the Move Utilities of VSE can be used.

host processor. 1. In a network, the processor in which the access method for the network resides. 2. In an SNA network, the processor that contains a system services control point (SSCP).

*** host system.** The controlling or highest level system in a data communication configuration.

ICCF. See *VSE/ICCF*.

index. In data management, a table used to locate the records of a file.

*** initial program load (IPL).** The process of loading system programs and preparing the system to run jobs.

input/output control system (IOCS). A group of IBM supplied routines that handle the transfer of data between main storage and auxiliary storage devices.

interactive. A characteristic of a program or system that alternately accepts input and then responds. An interactive system is conversational, that is, a continuous dialog exists between user and system. Contrast with *batch*.

Interactive Computing and Control Facility (ICCF). An IBM program that serves as interface, on a time-slice basis, to authorized users of terminals linked to the system's processor.

interactive interface. A system facility which controls how different users see and work with the system by means of user profiles. When signing on, the interactive interface makes available those parts of the system authorized by the profile. The interactive interface has sets of selection- and data-entry panels through which users communicate with the system.

interactive partition. An area of virtual storage for the purpose of processing a job that was submitted interactively via VSE/ICCF.

interface. A shared boundary between two hardware or software units defined by common functional or physical characteristics. It might be a hardware component or a portion of storage or registers accessed by several computer programs.

*** intermediate storage.** Any storage device used to hold data temporarily before it is processed. See also *buffer storage*.

IOCS. Input/output control system.

IPL. Initial program load.

*** irrecoverable error.** An error for which recovery is impossible without the use of recovery techniques external to the computer program or run. (T)

IUCV. Interactive User Communication Vehicle.

JCL. Job control language.

JECL. Job entry control language.

job accounting. A system function that lists how much every job step uses of the different system resources.

job accounting interface. A function that accumulates accounting information for each job step, to be used for charging the users of the system, for planning new applications, and for supervising system operation more efficiently.

*** job accounting table.** An area in the supervisor where accounting information is accumulated for the user.

job catalog. A catalog made available for a job by means of the file name IJSYSUC in the respective DLBL statement.

job control language (JCL). A language that serves to prepare a job or each job step of a job to be run. Some of its functions are: to identify the job, to determine the I/O devices to be used, set switches for program use, log (or print) its own statements, and fetch the first phase of each job step.

job control statement. A particular statement of JCL.

job entry control language (JECL). A control language that allows the programmer to specify how VSE/POWER should handle a job.

job step. One of a group of related programs complete with the JCL statements necessary for a particular run. Every job step is identified in the job stream by an EXEC statement under one JOB statement for the whole job.

job stream. The sequence of jobs as submitted to an operating system.

Kanji. A set of symbols used in Japanese ideographic printing. Every symbol is represented by two bytes.

KB. Kilobyte.

key. In VSE/VSAM, one or several characters taken from a certain field (key field) in data records for identification and sequence of index entries or of the records themselves.

key sequence. The collating sequence either of records themselves or of their keys in the index or both. The key sequence is alphanumeric.

key-sequenced file. A VSE/VSAM file whose records are loaded in key sequence and controlled by an index. Records are retrieved and stored by keyed access or by addressed access, and new records are inserted in the file in key sequence.

* **kilobyte (KB).** 1024 bytes of storage.

KSDS. Key-sequenced data set. See *key-sequenced file*.

label. 1. An identification record for a tape, disk, or diskette volume or for a file on such a volume. 2. In assembler programming, a named instruction generally used for branching.

label information area. An area on a disk to store label information read from job control statements or commands. Synonymous with *label area*.

* **LAN.** Local area network.

language translator. A general term for any assembler, compiler, or other routine that accepts statements in one language and produces equivalent statements in another language.

LEN. Low-entry networking.

* **librarian.** The set of programs that maintains, services, and organizes the system and private libraries.

library. See *VSE library* and *VSE/ICCF library*.

* **library block.** A block of data stored in a sublibrary.

* **library directory.** The index that enables the system to locate a certain sublibrary of the accessed library.

* **library member.** The smallest unit of data to be stored in and retrieved from a sublibrary.

* **licensed program.** A separately priced program and its associated materials that bear an IBM copyright and are offered to customers under the terms and conditions of the IBM Customer Agreement (ICA).

line. Short for telecommunication line. Any physical medium such as a wire or microwave beam, that is used to transmit data. Synonymous with *transmission line*.

line commands. In VSE/ICCF, special commands to change the declaration of individual lines on your screen. You can copy, move, or delete a line declaration, for example.

line printer. A device that prints a line of characters as a unit. (I) (A) Contrast with *character printer* or *page printer*.

link. 1. To connect items of data or portions of programs, for example linking of object programs by the linkage editor or linking of data items by pointers. 2. In SNA, the combination of the link connection and the link stations joining network nodes, for example, a System/370 channel and its associated protocols. A link is both logical and physical. Synonymous with *data link*.

linkage editor. A program to build a phase (executable code) from one or several independently translated object modules or existing phases or both. In creating the phase, the program resolves cross references among the modules and phases available as input. The program can catalog the newly built phases.

* **link-attached.** Pertaining to devices connected to a control unit by a data link. Synonymous with *remote*. Contrast with *channel-attached*.

link connection. Physical medium of transmission, for example a telephone wire or a microwave beam. In

SNA, the physical communication equipment between link stations, for example a line and a DCE. Synonymous with *data circuit*.

link-edit. To create a loadable computer program by having the linkage editor process compiled (assembled) source programs.

* **link station.** In SNA, the combination of hardware and software that allows a node to attach to and provide control for a link.

loader. A routine, commonly a computer program, that reads data or a program into processor storage. See also *relocating loader*.

* **local address.** In SNA, an address used in a peripheral node in place of an SNA network address and transformed to or from an SNA network address by the boundary function in a subarea node.

* **local area network (LAN).** A data network located on the user's premises in which serial transmission is used for direct data communication among data stations. (T)

* **lock file.** In a shared disk environment under VSE, a system file on disk used by the sharing systems to control their access to shared data.

* **logging.** The recording of data about specific events.

logical unit (LU). 1. A name used in programming to represent an I/O device address. 2. In SNA, a port through which a user accesses the SNA network, a) to communicate with another user and b) to access the functions of the SSCP. An LU can support at least two sessions -- one with an SSCP and one with another LU -- and may be capable of supporting many sessions with other LUs.

logical unit name. In programming, a name used to represent the address of an input/ output unit.

logo. A trademark or other art work that is associated with a firm or product. A logo often appears as the first screen of an interactive program.

* **logon-interpret routine.** In VTAM, an installation exit routine, associated with an interpret table entry, that translates logon information. It may also verify the logon.

* **logon mode.** In VTAM, a subset of session parameters specified in a logon mode table for communication with a logical unit. See also *session parameters*.

* **logon-mode table.** In VTAM, a set of entries for one or more logon modes. Each logon mode is identified by a logon mode name.

low-entry networking (LEN). In SNA, a capability in type 2.1 nodes allowing them to be directly attached to one another using peer-to-peer protocols and allowing them to support multiple and parallel sessions between logical units (LUs).

LU. Logical unit.

* **LU-LU session.** In SNA, a session between two LUs in an SNA network. It provides communication between two users, or between a user and an LU services component.

magnetic ink character recognition (MICR). The recognition of characters printed with ink that contains particles of a magnetic material.

* **maintain system history program (MSHP).** A program used for automating and controlling various installation, tailoring, and service activities for a VSE system.

major node. In VTAM, a set of minor nodes that can be activated as a group. See *node* and *minor node*.

master console. In VSE/ESA, one or more consoles that receive all system messages, except for those that are directed to one particular console. Contrast this with the *user console* which receives only those messages that are specifically directed to it, for example messages issued from a job that was submitted with the request to echo its messages to that console. The operator of a master console can reply to all outstanding messages and enter all system commands.

* **MB.** Megabyte.

* **megabyte (MB).** 1,024KB or 1,048,576 bytes of storage.

* **member.** The smallest unit of data that can be stored in and retrieved from a sublibrary.

message. 1. In VSE, a communication sent from a program to the operator or user. It can appear on a console, a display terminal or on a printout. 2. In telecommunication, a logical set of data being transmitted from one node to another.

* **microcode.** 1. A code written using the instructions of a specific instruction set and implemented in a part of storage that is not program-addressable. 2. To design write, and test one or more micro instructions.

* **migrate.** To move to a changed operating environment, usually to a new release or version of a system.

minor node. In VTAM, a uniquely-defined resource within a major node. See *node* and *major node*.

*** module.** A program unit that is discrete and identifiable with respect to compiling, combining with other units, and loading; for example, the input to, or output from, an assembler, a compiler, linkage editor, or executive routine. (A)

*** MSHP.** Maintain system history program.

Multiple Virtual Storage/Extended Architecture (MVS/XA*). A licensed IBM program providing operating system support. It is a follow-on development of MVS/SP*.

*** multiprogramming.** 1. A mode of operation that provides for interleaved execution of several programs by a single processor. (I) (A) 2. Pertaining to concurrent execution of several programs by a computer. (A)

multitasking. Concurrent running of one main task and one or several subtasks in the same partition.

*** nest.** To incorporate a structure or structures of some kind into a structure of the same kind. For example, to nest one loop (the nested loop) within another loop or to nest one subroutine (the nested subroutine) within another subroutine. (T)

NetView. An IBM licensed program to monitor a network, manage it, and diagnose its problems.

network. 1. An arrangement of nodes (data stations) and connecting branches. 2. The assembly of equipment through which connections are made between data stations.

network address. In SNA, an address, consisting of subarea and element fields, that identifies a link, link station, or NAU. Subarea nodes use network addresses; peripheral nodes use local addresses. The boundary function in the subarea node to which a peripheral node is attached transforms local addresses to network addresses and vice versa. See *local address*.

Network Communications Control Facility (NCCF). An IBM licensed program; the base for command processors that can monitor, control, and improve the operations of a network. Its function is included and enhanced in NetView's command facility. A traditional, alternative name for the command facility of NetView.

Network Control Program (NCP). An IBM licensed program that provides communication controller support for single-domain, multiple-domain, and interconnected network capability.

network definition table (NDT). In VSE/POWER networking, the table where every node in the network is listed.

networking. Making use of the services of a network program.

network operator. The person or program responsible for controlling the operation of all or part of a network.

*** node.** 1. In SNA, an end point of a link or junction common to several links in a network. Nodes can be distributed to host processors, communication controllers, cluster controllers, or terminals. Nodes can vary in routing and other functional capabilities. 2. In VTAM, a point in a network defined by a symbolic name. Synonymous with *network node*. See *major node* and *minor node*.

*** node name.** In VTAM, the symbolic name assigned to a specific major or minor node during network definition.

*** object code.** Output from a compiler or assembler which is itself executable machine code or is suitable for processing to produce executable machine code. (A)

object module (program). A program unit that is the output of an assembler or compiler and is input to a linkage editor.

OCCF. See VSE/OCCF.

OLTEP. Online test executive program.

online application program. An interactive program used at display stations. When active, it waits for data. Once input arrives, it processes it and sends a response to the display station or to another device.

online processing. Processing by which the input data enters the computer directly from a display station and the output data is transmitted directly to the display station.

online test executive program (OLTEP). A program that controls the activities on the online-test system and provides communication with the operator. This test system (called VSE/OLTEP) can be used to test I/O devices, control units, and channels while programs are running.

*** operating system.** Software that controls the running of programs; an operating system may provide services such as resource allocation, scheduling, input/output control, and data management. (I) (A)

*** operator command.** A statement to a control program, issued via a console or terminal. It causes the control program to provide requested information, alter normal operations, initiate new operations, or end existing operations.

Operator Communication Control Facility (OCCF). An IBM licensed program that helps reduce operator

interaction in the operation of a VSE controlled installation and helps centralize data processing skills.

optical reader/sorter. A device that reads hand written or machine printed symbols on a voucher and, after having read the voucher, can sort it into one of the available stacker-select pockets.

optional program. An IBM program that a user can install on VSE by way of available installation-assist support.

*** outboard recorder (OBR).** A VSE feature that records error data on the system recorder file when an irrecoverable I/O error occurs.

*** packet.** In data communication, a sequence of binary digits, including data and call control signals, that is transmitted and switched as a composite whole. (I) The data, call control signals, and, possibly, error control information are arranged in a specific format.

*** packet switching.** The processing of routing and transferring data by means of addressed packets so that a channel is occupied only during transmission of a packet. On completion of the transmission, the channel is made available for transfer of other packets. (I)

page. 1. In a virtual storage system, the unit of code or data or both which is transferred between processor storage and the PDS as needed for processing. 2. To transfer pages between processor storage and the page data set.

page data set (PDS). One or more extents of disk storage in which pages are stored when they are not needed in processor storage.

page fault. A program interruption that occurs when a program page marked "not in processor storage" is referred to by an active page.

*** page fixing.** Marking a page so that it is held in processor storage until explicitly released. Until then, it cannot be paged out.

page frame. An area of processor storage that can contain a page.

page-in. The process of transferring a page from the PDS to processor storage.

page I/O. Page-in and page-out operations.

page-out. The process of transferring a page from processor storage to the PDS.

*** page pool.** The set of page frames available for paging virtual-mode programs.

panel. The complete set of information shown in a single display on a terminal screen. Scrolling back and forth through panels is like turning manual pages. See also *selection panel* and *data entry panel*.

partition. A division of the virtual address area available for running programs. See also *dynamic partition*, *static partition*.

*** partition balancing, dynamic.** A VSE facility that allows the user to specify that two or more or all partitions of the system should receive about the same amount of time on the processor.

*** path.** 1. In VTAM, the intervening nodes and data links connecting a terminal and an application program in the host processor. 2. In VSAM, a named logical entity providing access to the records of a base cluster either directly or through an alternate index.

PDS. Page data set.

personal computer (PC). A microcomputer for individuals or small businesses.

*** phase.** The smallest unit of executable code that can be loaded into virtual storage.

PL/I. A programming language designed for use in a wide range of commercial and scientific computer applications.

PLU. Primary logical unit.

PNET. Programming support available with VSE/POWER; it provides for the transmission of selected jobs, operator commands, messages, and program output between the nodes of a network.

polling. In telecommunication, the process of inviting linked stations to transmit, one after the other.

port. 1. An access point for data entry or exit. 2. A connector on a device to which cables for other devices (display stations, printers) are attached. Synonymous with *socket*.

POWER. See *VSE/POWER*.

*** pregenerated operating system.** An operating system such as VSE/ESA that is shipped by IBM mainly in object code. IBM defines such key characteristics as the size of the main control program, the organization and size of libraries, and required system areas on disk. The customer does not have to generate an operating system.

*** preventive service.** The installation of one or more PTFs on a VSE system to avoid the occurrence of anticipated problems.

*** primary library.** A VSE library owned and directly accessible by a certain terminal user.

primary logical unit. In SNA, the LU that contains the primary half-session for a particular LU-LU session. A particular LU may contain both primary and secondary half-sessions for different active LU-LU sessions. Contrast with *SLU*.

printer/keyboard mode. Refers to 1050 or 3215 console mode (device dependent).

priority. A rank assigned to a partition or a task that determines its precedence in receiving system resources.

*** private library.** A user-owned library that is separate and distinct from the system library.

*** private partition.** Any of the system's partitions that are not defined as shared. See also *shared partition*.

procedure. See *cataloged procedure*.

*** processing.** The performance of logical operations and calculations on data, including the temporary retention of data in processor storage while this data is being operated upon.

processor. The hardware component that interprets and executes instructions. (I) (A)

processor storage. The storage contained in one or more processors and available for running machine instructions. Synonymous with *real storage*.

*** production library.** 1. In a pre-generated operating system (or product), the program library that contains the object code for this system (or product). 2. A library that contains data needed for normal processing. Contrast with *test library*.

profile. A description of the characteristics of a user or a computer resource.

*** programmer logical unit.** A logical unit available primarily for user-written programs. See also *logical unit name*.

program product. See *licensed program*.

program service. The customer- or program-related IBM service of correcting design or implementation errors via APARs and PTFs.

program temporary fix (PTF). A solution or by-pass of one or more problems documented in APARs. PTFs are distributed to IBM customers for preventive service to a current release of a program.

prompt. To issue messages to a terminal or console user, requesting information necessary to continue processing.

protocol. In SNA, the set of rules for requests and responses between communicating nodes that want to exchange data.

PTF. Program temporary fix.

punch. 1. To make holes in some data medium according to a signal code and thus save data on that medium. 2. A machine (output device) to punch 80-column punch cards.

*** punch card.** A card into which hole patterns can be punched; normally, it is characterized by 80 columns and 12 rows of punch positions.

*** queue.** 1. A line or list formed by items in a system waiting for service; for example, tasks to be performed or messages to be transmitted in a network. 2. To arrange in, or form, a queue.

queue file. A disk file maintained by VSE/POWER that holds control information for the spooling of job input and job output.

queue record. A record in the queue file containing descriptive information about a job or job output.

*** random processing.** The treatment of data without respect to its location on disk storage, and in an arbitrary sequence governed by the input against which it is to be processed.

real address. The address of a location in processor storage.

*** real address area.** In VSE, the area of virtual storage where virtual addresses are equal to real addresses.

real mode. In VSE, a processing mode in which a program may not be paged. Contrast with *virtual mode*.

real storage. See *processor storage*.

recovery management support (RMS). System routines that gather information about hardware failures and that initiate a retry of an operation that failed because of processor, I/O device, or channel errors.

*** reentrant.** The attribute of a program or routine that allows the same copy of the program or routine to be used concurrently by several tasks.

refresh release. An upgraded VSE system with the latest level of maintenance for a release.

relative-record file. A VSE/VSAM file whose records are loaded into fixed-length slots and accessed by the relative-record numbers of these slots.

relocatable module. In VSE, a library member of type object. It consists of one or more control sections cataloged as one member.

relocating loader. A function that modifies addresses of a phase, if necessary, and loads the phase for running into the partition selected by the user.

*** remote job entry (RJE).** Submission of jobs through an input unit that has access to a computer through a data link.

remote spooling communications subsystem (RSCS). The licensed program that transmits spool files between VM users, remote stations, and remote and local batch systems via its telecommunication facilities.

*** restore.** To write back on disk data that was previously written from disk to an intermediate storage medium such as tape.

RJE. Remote job entry.

RJE workstation. Any workstation that is used for remote job submission and for the remote retrieval of output.

RMS. Recovery management support.

*** routine.** Part of a program, or a sequence of instructions called by a program, that may have some general or frequent use. (I) (A)

*** routing.** The assignment of the path by which a message will reach its destination.

RPG II. A commercially oriented programming language suitable for writing application programs that meet common business data processing requirements.

RRDS. Relative-record data set. See *relative-record file*.

RSCS. remote spooling communications subsystem.

*** run.** 1. A performance of one or more jobs. (I) (A) 2. A performance of one or more programs. (I) (A) 3. To cause a program or job to be performed.

SAM. Sequential access method.

SAM ESDS file. A SAM file managed in VSE/VSAM space, so it can be accessed by both SAM and VSE/VSAM macros.

schedule. To select a program or task for getting control over the processor.

SCP. System control programming.

SDL. System directory list.

SDLC. Synchronous data link control.

SDR. Statistical data recorder.

*** search chain.** The order in which chained sublibraries are searched for the retrieval of a certain library member of a specified type.

secondary logical unit. In SNA, the LU that contains the secondary half-session for a particular LU-LU session. An LU may contain secondary and primary half-sessions for different active LU-LU sessions. Contrast with *PLU*.

security. See *access control*.

segmentation. In VSE/POWER, a facility that breaks list or punch output of a program into segments so that printing or punching can start before this program has finished generating such output.

*** selection panel.** A displayed list of items from which a user can make a selection. Synonymous with *menu*.

sense. Determine, on request or automatically, the status or the characteristics of a certain I/O or communication device.

sequential access. The serial retrieval of records in their entry sequence or serial storage of records with or without a premeditated order. Contrast with *direct access*.

sequential access method (SAM). A data access method that writes to and reads from an I/O device record after record (or block after block). On request, the support performs device control operations such as line spacing or page ejects on a printer or skip a certain number of tape marks on a tape drive.

sequential file. A file in which records are processed in the order in which they are entered and stored.

service node. Within the VSE unattended node support, a processor used to install and test a master VSE system which is copied for distribution to the unattended nodes. Also, program fixes are first applied at the service node and then sent to the unattended nodes.

*** service program.** A program in general support of computer processes, for example, a diagnostic program, a trace program, or a sort program. (T) Synonymous with *utility program*.

session parameters. In SNA, the parameters that specify or constrain the protocols (such as bracket protocol and pacing) for a session between two NAUs. See also *logon mode*.

shared disk option. An option that lets independent computer systems use common data on shared disk devices.

* **shared partition.** In VSE, a partition allocated for a program that provides services for and communicates with programs in other partitions of the system's virtual address spaces.

* **shared spooling.** A function that permits the VSE/POWER account file, data file, and queue file to be shared among several computer systems with VSE/POWER.

* **shared virtual area (SVA).** In VSE, a high address area that contains a list system directory list (SDL) of frequently used phases, resident programs shared between partitions, and an area for system support.

skeleton. A set of control statements and/or instructions that requires user-specific information to be inserted before it can be submitted for processing.

SLU. Secondary logical unit.

SNA. Systems Network Architecture.

SNA network. The part of a user-application network that conforms to the formats and protocols of SNA.

* **software.** Programs, procedures, rules, and any associated documentation pertaining to the operation of a computer system.

source member. A library member containing source statements in any of the programming languages supported by VSE.

* **source program.** A computer program expressed in a source language. (I) (A) Contrast with *object module*.

source statement. A statement written in symbols of a programming language.

* **spool access support.** A function of VSE/POWER that allows user programs or subsystems running on VSE to access the spool files of VSE/POWER.

* **spool file.** 1. A file that contains output data saved for later processing. 2. One of three VSE/POWER files on disk: queue file, data file, and account file.

* **spooling.** The use of disk storage as buffer storage to reduce processing delays when transferring data

between peripheral equipment and the processor of a computer. In VSE, this is done under the control of VSE/POWER.

SQL/DS. Structured Query Language/Data System.

* **stacked tape.** An IBM supplied product-shipment tape containing the code of several licensed programs.

stand-alone program. A program that runs independently of (not controlled by) the VSE system.

* **standard label.** A fixed-format record that identifies a volume of data such as a tape reel or a file that is part of a volume of data.

* **start option.** In VTAM, a user-specified or IBM specified option that determines conditions for the time an VTAM system is operating. Start options can be predefined or specified when VTAM is started.

start-stop (SS) system. A data transmission system in which each character is preceded by a start signal and is followed by a stop signal. (T)

startup. The process of performing IPL of the operating system and of getting all subsystems and application programs ready for operation.

static partition. A partition, defined at IPL time and occupying a defined amount of virtual storage that remains constant. Contrast with *dynamic partition*.

station. 1. One of the input or output points of a network that uses communication facilities; for example, the telephone set in the telephone system or the point where the business machine interfaces with the channel on a leased private line. 2. One or more computers, terminals, or devices at a particular location.

statistical data recorder (SDR). A feature that records the cumulative error status of an I/O device on the system recorder file.

storage control unit. A piece of hardware equipment that controls the reading and writing of data at one or more disk devices.

storage director. An independent component of a storage control unit; it performs all of the functions of a storage control unit and thus provides one access path to the disk devices that are attached to it. A storage control unit has two storage directors.

storage dump. See *dump*.

storage fragmentation. Inability to allocate unused sections (fragments) of storage in the real or virtual address range of virtual storage.

Structured Query Language/Data System. An IBM licensed program for using a database in an online, interactive, or batch environment.

* **subarea.** A portion of the SNA network consisting of a subarea node, attached peripheral nodes, and associated resources. Within a subarea node, all NAUs, links, and adjacent link stations in attached peripheral or subarea nodes that are addressable within the subarea share a common subarea address and have distinct element addresses.

* **subarea address.** In SNA, a value in the subarea field of the network address that identifies a subarea.

sublibrary. In VSE, a subdivision of a library. Members can only be accessed in a sublibrary.

sublibrary directory. An index for the system to locate a member in the accessed sublibrary.

submit. A VSE/POWER function that passes a job to the system for processing.

* **subsystem.** A secondary or subordinate system or program, usually capable of operating independently of, or asynchronously with, the operating system.

subtask. A task that is initiated by the main task or by another subtask.

* **supervisor.** The part of a control program that coordinates the use of resources and maintains the flow of processor operations.

supervisor mode. See *ESA mode*.

SVA. Shared virtual area.

switched line. A telecommunication line in which the connection is established by dialing.

* **switched SNA major node.** In VTAM, a major node whose minor nodes are PUs and LUs attached by switched SDLC links.

switched virtual circuit. An X.25 NPSI circuit that is dynamically established when needed. The X.25 equivalent of a switched line.

Synchronous Data Link Control (SDLC). A discipline for managing synchronous, code-transparent, serial-by-bit information transfer over a link connection. Transmission exchanges may be duplex or half-duplex over switched or non-switched links. The configuration of the link connection may be point-to-point, multipoint, or loop.

SYSRES. System residence volume.

* **system console.** A console, usually equipped with a keyboard and display screen for control and communication with the system.

system directory list (SDL). A list containing directory entries of frequently-used phases and of all phases resident in the SVA. The list resides in the SVA.

* **system file.** In VSE, a file used by the operating system, for example, the hard-copy file, the recorder file, the page data set.

system logical unit. A logical unit available primarily for operating system use. See also *logical unit name*.

system recorder file. The file that is used to record hardware reliability data. Synonymous with *recorder file*.

system refresh release. See *refresh release*.

system residence volume (SYSRES). The disk volume on which the system sublibrary is stored and from which the hardware retrieves the initial program load routine for system startup.

system sublibrary. The sublibrary that contains the operating system. It is stored on the system residence volume (SYSRES).

System Support Program (SSP). An IBM licensed program, made up of a collection of utilities and small programs, that supports the operation of the NCP.

Systems Network Architecture (SNA). The description of the logical structure, formats, protocols, and operational sequences for transmitting information units through and controlling the configuration and operation of networks.

* **tailor.** A process that defines or modifies the characteristics of the system.

* **task.** The basic unit of synchronous program execution. A task competes with other tasks for system resources such as processing time and I/O channels.

task management. The functions of a control program that control the use, by tasks, of the processor and other resources (except for input/output devices).

TCT. Terminal control table.

* **telecommunication.** Transmission of data between computer systems and between such a system and remote devices.

telecommunication line. Any physical medium such as a wire or microwave beam, that is used to transmit data. Contrast with *data link*.

terminal. A point in a system or network at which data can either enter or leave. (A) Usually a display screen with a keyboard.

terminal control table (TCT). A control block in which the system stores information about the characteristics and modes of operation of the terminals defined to the system.

*** throughput.** 1. A measure of the amount of work performed by a computer system over a given period of time, for example, jobs per day. (I) (A) 2. In data communication, the total traffic between stations per unit of time.

time event scheduling support. In VSE/POWER, the time event scheduling support offers the possibility to schedule jobs for processing in a partition at a predefined time once or repetitively. The time event scheduling operands of the * \$\$ JOB statement are used to specify the desired scheduling time.

*** time slicing.** A mode of operation in which several processes are assigned quanta of time on the same processor. (I) (A)

*** token.** In a local area network, the symbol of authority passed among data stations to show the station temporarily in control of the transmission medium. (T)

token-ring. A network configuration where series of attaching devices are connected by unidirectional transmission links to form a closed path. Tokens are passed from adapter to adapter.

trace. 1. To record a series of events as they occur. 2. A record of specified events during the run of a program. 3. A program to produce such a record.

*** track.** A circular path on the surface of a disk or diskette. Smallest unit of physical disk space.

track group. In VSE/POWER, the basic organizational unit of a file for CKD devices.

track hold. A function that protects a track while it is being updated by one program from being accessed by another program.

transaction. 1. In a batch or remote batch entry, a job or job step. 2. In CICS, an application program (or programs) that can be used by a display station operator. A given transaction can be used concurrently from one or more display stations. The execution of a transaction for a certain operator is also referred to as a task. A given task can relate only to one operator.

*** transient area.** An area within the control program used to provide high-priority system services on demand.

*** transmit.** To send data from one place for reception elsewhere. (A)

UCB. Universal character set buffer.

*** UCS.** Universal character set.

*** unattended mode.** A mode in which no operator is present or in which no operator station is included at system generation.

unattended node support. In VSE, a set of functions allowing one or more VSE systems to run without an operator being present. The systems are connected to a single central host.

*** unique file.** A VSE/VSAM file that occupies a data space of its own. The data space is defined at the same time as the file and cannot contain any other file. Contrast with *suballocated file*.

universal character set (UCS). A printer feature that permits the use of a variety of character arrays.

universal character set buffer (UCB). A buffer to hold UCS information.

user console. In VSE/ESA, a console that receives only those system messages that are specifically directed to it. These are, for example, messages that are issued from a job that was submitted with the request to echo its messages to that console. Contrast with *master console*.

user exit. A programming service provided by an IBM software product that may be requested during the execution of an application program for the purpose of transferring control back to the application program upon the later occurrence of a user-specified event.

*** utility program.** 1. A program in general support of computer processes, for example, a diagnostic program, a trace program, or a sort program. (T) Synonymous with *service program*. 2. A program that performs an everyday task such as copying data from one storage device to another. (A)

VAE. Virtual addressability extension.

variable-length relative-record file. A VSE/VSAM relative-record file with variable-length records. See also *relative-record file*.

virtual address. An address that refers to a location in virtual storage. It is translated by the system to a processor storage address when the information stored at the virtual address is to be used.

virtual addressability extension (VAE). A storage management support that gives the user of VSE/ESA multiple address spaces of virtual storage.

virtual address area. The virtual range of available program addresses.

virtual address space. In VSE, a subdivision of the virtual address area available to the user for the allocation of private (non-shared) partitions.

* **virtual I/O area (VIO).** An extension of the page data set; used by the system as intermediate storage, primarily for control data.

* **virtual machine.** A functional simulation of a computer system and its associated devices.

Virtual Machine/Enterprise Systems Architecture (VM/ESA). An IBM program providing operating system support. Among other services, it manages the resources of a single computer so that multiple computing systems seem to exist. Each of those virtual machines is the functional equivalent of an IBM computer system.

* **virtual mode.** The operating mode of a program which may be paged.

* **virtual partition.** In VSE, a division of the dynamic area of virtual storage.

virtual storage. Addressable space image for the user from which instructions and data are mapped into processor storage locations.

VM/ESA. Virtual Machine/Enterprise Systems Architecture*.

volume. A data carrier that is mounted and demounted as a unit, for example, a reel of tape or a disk pack. (I) Some disk units have no demountable packs. In that case, a volume is the portion available to one read/write mechanism.

volume ID. The volume serial number, which is a number in a volume label assigned when a volume is prepared for use by the system.

volume table of contents (VTOC). A table on a disk volume that describes every file on it.

VRDS. Variable-length relative-record data set. See *variable-length relative record file*.

VSAM. See *VSE/VSAM*.

VSE (Virtual Storage Extended). A system that consists of a basic operating system and any IBM supplied and user-written programs required to meet the

data processing needs of a user. VSE and the hardware it controls form a complete computing system. Its current version is called VSE/ESA.

VSE/Advanced Functions. As part of VSE Central Functions, a base program of VSE/ESA.

VSE/ESA (VSE/Enterprise Systems Architecture). The most advanced VSE system currently available.

VSE/Fast Copy. A utility program for fast copy data operations from disk to disk and dump/restore operations via an intermediate dump file on magnetic tape or disk.

* **VSE/ICCF (VSE/Interactive Computing and Control Facility).** An IBM program that serves as interface, on a time-slice basis authorized users of terminals linked to the system's processor.

VSE/ICCF library. A file composed of smaller files (libraries) including system and user data which can be accessed under the control of VSE/ICCF.

VSE library. A collection of programs in various forms and storage dumps stored on disk. The form of a program is indicated by its member type such as source code, object module, phase, or procedure. A VSE library consists of at least one sublibrary which can contain any type of member.

VSE/OCCF (Operator Communication Control Facility). An IBM program that helps reduce operator interaction in the operation of a VSE-controlled installation and helps centralize data processing skills.

* **VSE/OLTEP (VSE/Online Test Executive Program).** An IBM program for managing the online tests that are available for preventive service for I/O devices. Normally, only IBM service representatives use this program.

* **VSE/POWER.** An IBM program primarily used to spool input and output. The program's networking functions enable a VSE system to exchange files with or run jobs on another remote processor.

VSE/SP Unique Code. A component of VSE/ESA.

VSE/VSAM (VSE/Virtual Storage Access Method). An IBM access method for direct or sequential processing of fixed and variable length records on disk devices.

VSE/VSAM catalog. A file containing extensive file and volume information that VSE/VSAM requires to locate files, to allocate and deallocate storage space, to verify the authorization of a program or an operator to gain access to a file, and to accumulate use statistics for files.

* **VSE/VSAM managed space.** A user-defined space on disk placed under the control of VSE/VSAM.

VTAM (Virtual Telecommunications Access Method). An IBM program which controls communication and the flow of data in an SNA network. It provides single-domain, multiple-domain, and interconnected network capability; it supports application programs and subsystems (VSE/POWER, for example).

VTAM application program. A program that has opened an ACB to identify itself to VTAM and can now issue VTAM macro instructions.

* **VTAM definition library.** The VSE files that contain the VTAM definition statements and start options filed during VTAM definition.

VTOC. Volume table of contents.

wait for run subqueue. In VSE/POWER, a subqueue of the reader queue with dispatchable jobs ordered in execution start time sequence.

wait state. The condition of a processor when all operations are suspended. System recovery from a hard wait is impossible without performing a new system startup. Synonym for *hard wait*.

XA channel subsystem. See *channel subsystem*.

XRF. Extended recovery facility.

* **X.21.** In data communication, a recommendation of the CCITT that defines the interface between data terminal equipment and public data networks for digital leased and circuit switched synchronous services.

* **X.21 feature.** A feature that allows a system to be connected to an X.21 network.

X.25. In data communication, a recommendation of the CCITT that defines the interface between data terminal equipment and packet switching networks.

* **X.25 feature.** A feature that allows a system to be connected to an X.25 network.

X.25 NCP Packet Switching Interface (NPSI). An IBM licensed program that allows SNA programs to communicate with SNA equipment or non-SNA equipment over packet-switched data networks. In addition, the product may be used to attach native X.25 equipment to SNA host systems without a packet network.

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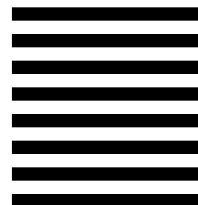
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