

MVS

GC28-1448-01

OLTEP



MVS

GC28-1448-01

OLTEP

Note

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

Second Edition, June 1995

This is a major revision of, and obsoletes, GC28-1448-00.

This edition applies to Version 5 of MVS/ESA System Product (5655-068 or 5655-069) and to all subsequent releases and modifications until otherwise indicated in new editions or technical newsletters. See the Summary of Changes for the changes made to this manual. Technical changes or additions to the text and illustrations are indicated by a vertical line to the left of the change. Make sure you are using the correct edition for the level of the product.

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About This Book

This book provides IBM customer engineers, other qualified personnel, and operators with the information required to use the online test executive program (OLTEP).

OLTEP runs online test programs, under MVS, for the testing of I/O equipment.

Who Should Use This Book

The entire book is designed for use by the IBM customer engineer. Information for operators is contained in Chapter 3 and the appendix.

Although the term customer engineer is referred to throughout the book, execution of online tests is not limited to IBM customer engineers. The information in Chapters 1-3 of this book is for all qualified personnel who need to use OLTEP.

How This Book Is Organized

This book is divided into three chapters, an appendix, and a glossary.

Chapter 1 is an introduction to OLTEP concepts and terminology. OLTEP system requirements and restrictions are described.

Chapter 2 deals with the methods of creating and modifying OLTEP data sets, cataloging an OLTEP procedure, and defining an OLTEP job.

Chapter 3 details OLTEP operating procedures.

Appendix A illustrates the format and syntax of a test definition and explains OLTEP options.

The **Glossary** defines terms used in the book.

Related Information

The following table lists books that contain information related to the information contained in this book.

The list of publications pertains to MVS/ESA SP 5.2. If you are using a different version or release of MVS, refer to the appropriate library guide for the correct titles and order numbers.

When this book references information in other books, the shortened version of the book title is used. The following table shows the shortened titles, complete titles, and order numbers of the books that you might need while you are using this book.

Short Title Used in This Book	Title	Order Number
<i>MVS/ESA SP V5 JCL Reference</i>	<i>MVS/ESA JCL Reference</i>	GC28-1479
<i>MVS/ESA SP V5 JES3 Commands</i>	<i>MVS/ESA JES3 Commands</i>	GC28-1444
<i>MVS/ESA SP V5 System Messages, Vol 1 (ABA-ASA)</i>	<i>MVS/ESA System Messages, Volume 1 (ABA-ASA)</i>	GC28-1480
<i>MVS/ESA SP V5 System Messages, Vol 2 (ASB-EWX)</i>	<i>MVS/ESA System Messages, Volume 2 (ASB-ERB)</i>	GC28-1481
<i>MVS/ESA SP V5 System Messages, Vol 3 (GDE-IEB)</i>	<i>MVS/ESA System Messages, Volume 3 (GDE-IEB)</i>	GC28-1482
<i>MVS/ESA SP V5 System Messages, Vol 4 (IEC-IFD)</i>	<i>MVS/ESA System Messages, Volume 4 (IEC-IFD)</i>	GC28-1483
<i>MVS/ESA SP V5 System Messages, Vol 5 (IGD-IZP)</i>	<i>MVS/ESA System Messages, Volume 5 (IGD-IZP)</i>	GC28-1484
<i>MVS/ESA SP V5 System Commands</i>	<i>MVS/ESA System Commands</i>	GC28-1442
<i>MVS/ESA SP V5 Initialization and Tuning Reference</i>	<i>MVS/ESA Initialization and Tuning Reference</i>	SC28-1452
<i>MVS/ESA SP V5 Using the Subsystem Interface</i>	<i>MVS/ESA Using the Subsystem Interface</i>	SC28-1502
<i>MVS/ESA SP V5 Diagnosis: Tools and Service Aids</i>	<i>MVS/ESA Diagnosis: Tools and Service Aids</i>	LY28-1845
<i>MVS/DFP Utilities</i>	<i>MVS/DFP V3 Utilities</i>	SC26-4559
	<i>DFSMS/MVS Version 1 Release 1 Utilities</i>	SC26-4926

Summary of Changes

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**Summary of Changes
for GC28-1448-01
MVS/ESA System Product Version 5 Release 2**

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This major revision contains changes to support MVS System Product Version 5 Release 2.

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Changed Information

- |
- MVS/ESA SP 5.2 does not support multiple exposure devices.

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|
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This revision also includes maintenance and editorial changes. Technical changes or additions to the text and illustrations are indicated by a vertical line to the left of the change.

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**Summary of Changes
for GC28-1448-00
as Updated June, 1994**

This book contains information previously presented in *MVS/ESA OLTEP*, GC28-1618-01, which supports MVS/ESA System Product Version 4 Release 3.

Technical changes or additions to the text and illustrations are indicated by a vertical bar to the left of the change.

Chapter 1. Introduction

The online test executive program (OLTEP) enables you to run online test programs under MVS. These programs test control units, I/O devices and teleprocessing terminals. You can use online test programs to:

- Perform preventive maintenance checks.
- Diagnose equipment malfunctions.
- Obtain printed diagnostic information.
- Verify repairs.
- Test engineering changes.
- Exercise a device while checking it with an oscilloscope.
- Analyze error records contained in SYS1.LOGREC, or in a history data set.

OLTEP acts as an interface, or adapter, to let you run online test programs under the operating system.

Online test programs are also known as “unit tests” or “OLT programs.” With OLTEP, they form the online test system (OLTS). Figure 1-1 shows how the online test system relates to the operating system.

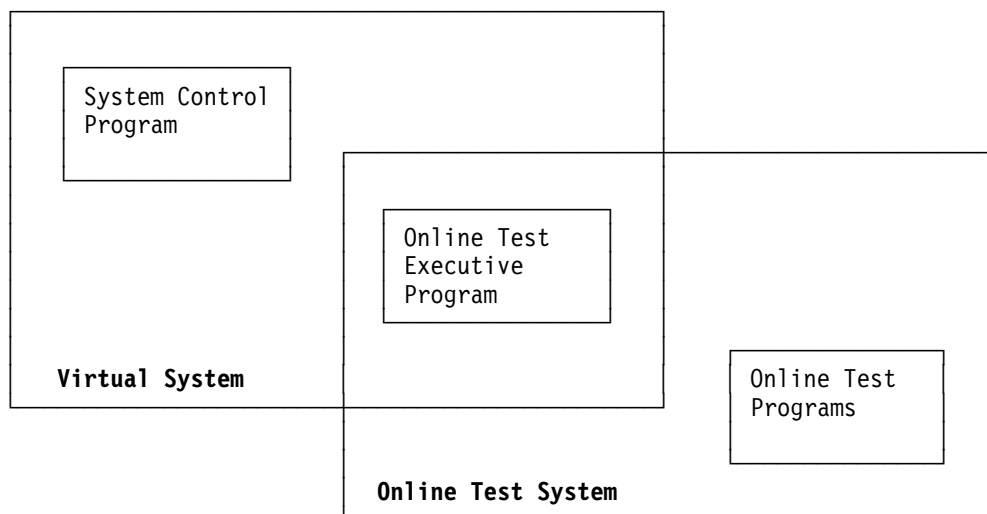


Figure 1-1. The Online Test System

OLTEP is the link between the operating system and OLTs. It is a standard component of the operating system. It runs as a job under the system control program, and acts as a control program for the online test system.

As a component of MVS, OLTEP resides in the system libraries SYS1.LINKLIB, SYS1.LPALIB, and SYS1.NUCLEUS. OLT programs reside in a private data set, which you must create before you can use OLTEP. (See “How to Create OLTEP Data Sets” in Chapter 2.) Once you have created this data set, you must add its name to the IEAAPF00 member of SYS1.PARMLIB before OLTEP will be able to access it.

To start an OLTEP run, use job control language (JCL), or enter a START command at the console. Tell OLTEP what tests to run by entering test definitions,

Introduction

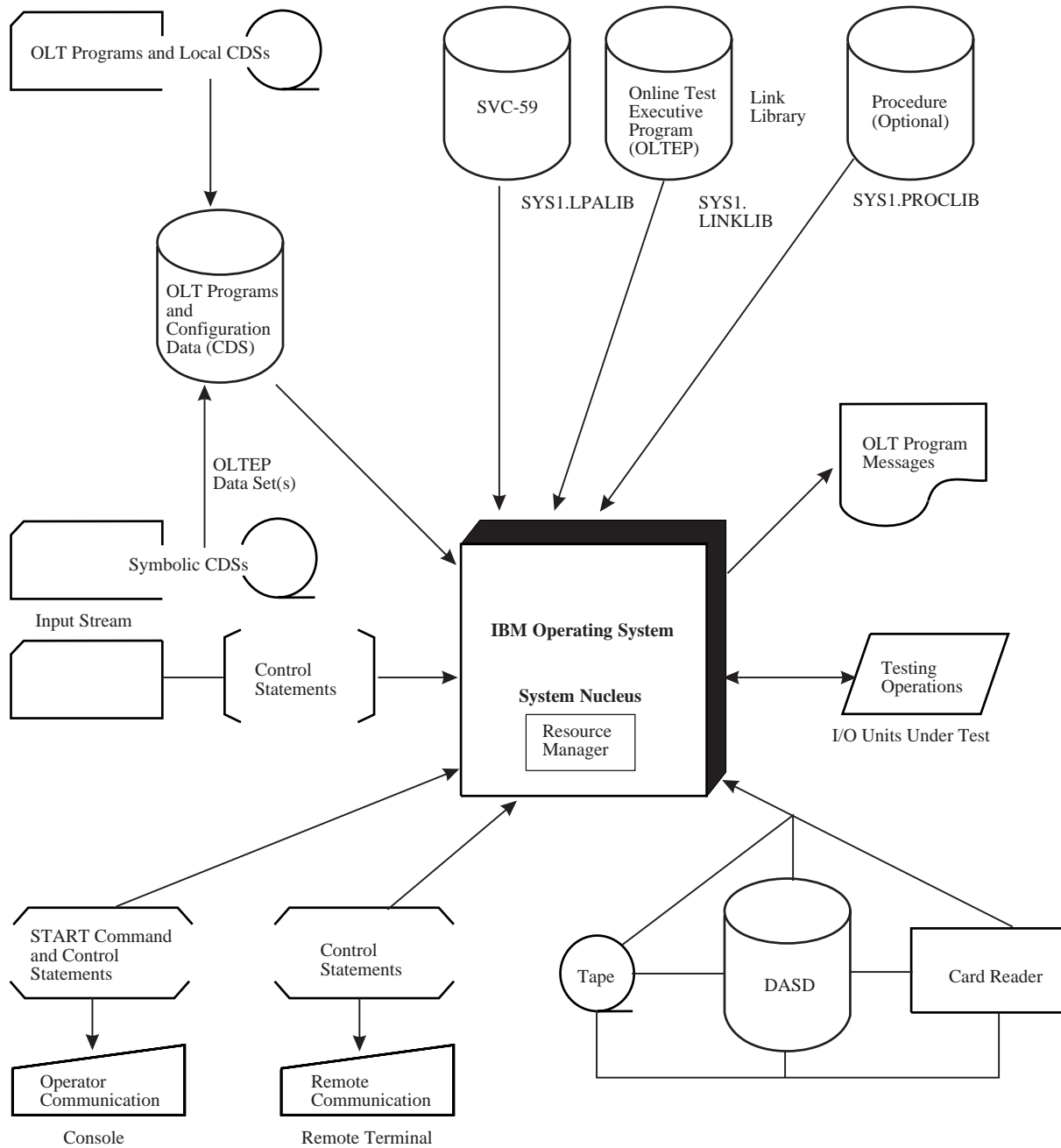
either at the console or with your JCL. OLTEP responds to each test definition by loading and executing the appropriate OLT programs.

Because OLTEP is run as a system job, competing with other problem programs for control of system resources on the basis of priority, there is minimum interference with normal system operation:

- When MVS is being run on a system, tests can be run without having to first stop MVS and then re-IPL when testing is completed.
- The system operator can run other jobs while you are running OLTEP.

(See Figure 1-2 on page 1-3 for the relationship between the elements of OLTEP and the operating system.)

The operator can also help run OLTEP, and in some cases can run OLTEP by himself. Because OLTEP channels all messages and replies through the control program, communications are in the standard format. If you tell him what tests to run, the operator should be able to run OLTEP just as he would run any other job. For help, he can refer to Chapter 3 of this manual.



- Supplementary Data:
- I. Error Recording
 - A. History Data Set - ACCIN DD
 - B. Logrec Data Set
 - II. Data Pattern Input
 - INPUT DD
 - A. Tape
 - B. Cards
 - III. Test Definitions
 - CNTRLIN DD

Figure 1-2. The Relationship of the Elements of OLTEP to the Operating System

A Summary of the OLTEP Run

Chapter 2 of this book explains how to set up an OLTEP run. The general procedure, described in 4 steps, is as follows:

1. **Create OLTEP Data Sets:** Run the OLTEP editor program to create a data set containing online test programs and system configuration data for locally attached devices. If you intend to test remote teleprocessing terminals, create a second data set containing configuration data for these symbolically named units.
2. **Modify OLTEP Data Sets:** If you used the OLTEP editor to create OLTEP data sets, use the OLTEP punch program to obtain a punch-card copy of a member of the data set that needs to be modified. Then, using REP cards to make the desired changes, replace the member in the OLTEP data set by running the OLTEP editor.
3. **Catalog an OLTEP Procedure:** Run the IEBUPDTE utility program to create and catalog an OLTEP procedure. Then, to run OLTEP, enter a START command at the console, referring to the OLTEP procedure.
4. **Define an OLTEP Job:** If the START command will not be used to run OLTEP, code JCL statements to define the OLTEP run as a job. To run OLTEP, enter the JCL in the job stream.

Chapter 3 explains how to run OLTEP. The general procedure, described in 4 steps, is as follows:

1. **Set up the Console:** In a system with MCS (multiple console support), you can run OLTEP from either the master console or the service console. Decide which console to use; then ensure that it is properly set up for running OLTEP.
2. **Vary Devices Offline:** Before you can test most I/O devices, they must be offline to the operating system. Select the devices to be tested; then use the VARY command to place them offline.
3. **Invoke OLTEP:** Enter JCL in the job stream, or enter a START command at the console.
4. **Define and Run Tests:** Define tests at the console, or include OLTEP control statements with your JCL. Or do both: after running tests defined by control statements, define additional tests at the console.

See Figure 1-3 on page 1-5 for a graphic representation of the OLTEP Run.

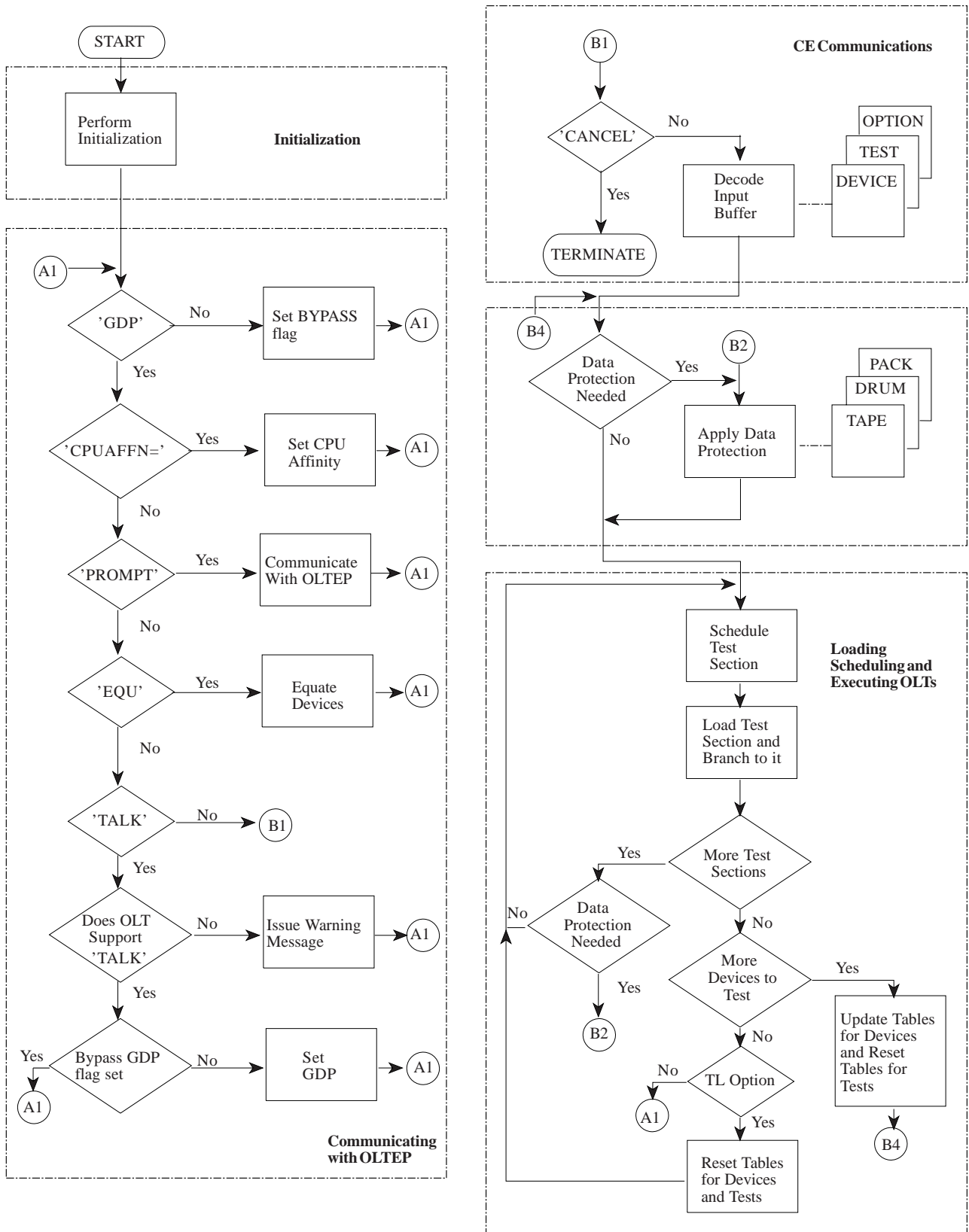


Figure 1-3. Summary of the OLTEP Run

Data Protection and Security Provided by OLTEP

OLTEP often uses malfunctioning devices when it is being run. Therefore, while it is running, OLTEP must assume much of the responsibility for the operating system's data protection and security. Included in this responsibility are the following:

- Security and privacy of the operating system.
- Security and privacy of the users' data.
- Allowance of effective testing within the constraints of data protection.
- Minimum number of manual interventions.
- Assurance that the devices that have to be offline/unallocated to be tested have been placed offline/unallocated to the operating system before testing begins.
- Performance of a ready check on all devices to be tested to make sure that they are ready for testing.

OLTEP Requirements and Restrictions

OLTEP is a standard component of the operating system which runs as a job under the control program. Only one OLTEP job may be run on a system at any given time, and the CPU being used by that OLTEP job cannot be varied offline.

To allow OLTEP to make itself nonswappable, OLTEP must be listed in the PPT with PPT1LPU and PPT2LPU set to one and PPTN2LP set to zero. For specific information on the OLTEP entry in the PPT, see "Entry in Program Properties Table" on page 1-8.

OLTEP can always be run in virtual (V=V) storage. However, not all OLTs run in virtual storage. OLTs that are supported in virtual storage are identified by the letter V following the test ID in a TSOSPC compute listing. When OLTs not so identified are forced to run in virtual storage, problems could occur. When OLTEP encounters such an OLT, it will issue a warning message (message IFD248I) and then execute the test in virtual storage. If valid results are required, such a test can be rerun later with OLTEP restarted in real (V=R) storage.

When the OLTEP data set is being used, OLTEP in real storage requires a minimum of 76K bytes to run most OLTs, and a minimum of 96K bytes to run OLTs that are larger than 12K bytes. When being run in virtual storage, OLTEP has no special storage requirements.

OLTEP imposes certain requirements on devices to be tested such as using the system VARY command to vary devices offline. For example:

- Dynamic Pathing Devices - to disband path groups
- Buffered Error Logging Devices - to save logging information on SYS1.LOGREC.

While OLTEP has a device allocated, no other user can access it. Specific requirements for each device type are defined in Figure 1-4 on page 1-8.

When devices are placed offline for testing, enough devices must remain online to make up the minimum MVS device configuration. There must also be enough

devices to meet OLTEP data set requirements. The data sets required by OLTEP are as follows:

- OLTEP data set, which contains OLT programs and system configuration data.
- Output data set (printed output; usually a SYSOUT data set).

Other data sets are optional, or required by certain OLT programs. These are as follows:

- Control data set (OLTEP control statements, usually entered with JCL in the system input stream).
- Input data set (test input, on magnetic tape or cards).
- SYS1.LOGREC (log data set on system residence volume).
- History data set (accumulated input from SYS1.LOGREC; may be on tape or in direct access storage).
- Data set of configuration data for symbolically addressed units (teleprocessing terminals), the name of which must be added to the IEAAPF00 member of SYS1.PARMLIB before OLTEP accesses the data set. This configuration data must be in a separate data set.

The OLTEP data set (and, when applicable, its companion data set of configuration data for remote teleprocessing devices) must be properly authorized before they can be accessed. To authorize these data sets, you must add or update an APF member (IEAAPFxx) in SYS1.PARMLIB. (The specific name of this APF member is installation dependent.)

Example

```
//PARMJOB      JOB      parameters
//STEP1       EXEC     PGM=IEBUPDTE
//SYSPRINT    DD       SYSOUT=A
//SYSUT1      DD       DSN=SYS1.PARMLIB,DISP=OLD
//SYSUT2      DD       DSN=SYS1.PARMLIB,DISP=OLD
//SYSIN       DD       *
./ CHANGE NAME=IEAAPF00,LIST=ALL
OLTLIB OLTVOL,
CDSLIB OLTVOL,
./ ENDUP
/*
```

This example changes member IEAAPF00 in the SYS1.PARMLIB. The data set of online tests, OLTLIB, and the data set of configuration data for remote teleprocessing devices, CDSLIB, both reside on a DASD volume having the VOLID OLTVOL.

Any graphics, communications, or unit record device may be online and unallocated in the operating system when presented to OLTEP for testing. OLTEP will attempt to vary these devices offline. Message IFD1401 will be issued at the system console indicating which devices OLTEP has varied offline. If there are any devices that OLTEP cannot vary offline (such as those having diagnostic buffers), the operator must place them offline before they can be tested.

Entry in Program Properties Table

Specify a PPT statement for the OLTEP program in a SCHEDxx parmlib member to get the appropriate program attributes. Specify at least the following PPT program for the OLTEP program:

```
PPT PGMNAME(IFDOLT) SPREF LPREF
```

For details on creating PPT entries, see the description of SCHEDxx in *MVS/ESA SP V5 Initialization and Tuning Reference*.

Figure 1-4 (Page 1 of 2). Requirements for Devices to be Tested

Device Type	Test Requirements
IBM 2250-3	In addition to the devices you will test, all other devices on the same control unit must be offline. ¹
IBM 2305-II ²	<p>Full Test: Data stored on the device must be dumped. The device must be offline; if shared, the device must be offline to MVS in all systems that share the device. The operator must give permission for OLTEP to write on the device. When testing is completed, the volume must be reinitialized, and dumped data must be stored.</p> <p>Partial Test: If the device is online, OLTEP will ask the system to allocate space on the device. If space is allocated, OLTEP will test the device, but testing will not include write Home Address or write R0 operations. If space is not allocated, OLTEP will test the device in File Protect Mode: there will be no write testing, and no data will be destroyed. OLTEP will test the device in file protect mode if:</p> <ul style="list-style-type: none"> • The device is online or offline and shared in another system. • The operator denies permission for OLTEP to write on the device.
IBM 3330 IBM 3330-1 ³	<p>Full Test: The device must be offline; if shared, the device must be offline to MVS in all systems that share the device. A C.E. volume or scratch volume must be mounted. If a scratch volume is mounted, the operator must give permission for OLTEP to write on the device. The scratch volume must be reinitialized when testing is completed.</p> <p>Partial Test: If the device is online, OLTEP will test it in File Protect Mode: there will be no write testing, and no data will be destroyed. Test routines that require an offline device will not be executed. OLTEP will test the device in file protect mode if:</p> <ul style="list-style-type: none"> • The device is online or offline and shared in another system. • The operator denies permission for OLTEP to write on the device.
<p>¹See "OLTEP Requirements and Restriction," in this chapter.</p>	
<p>²MVS/ESA SP 5.2 does not support multiple exposure devices, such as the 2305, 3350P, and 3351P.</p>	
<p>³The JCL designation for the IBM 3330 Model 11 is 3330-1.</p>	

Figure 1-4 (Page 2 of 2). Requirements for Devices to be Tested

Device Type	Test Requirements
IBM 3340 IBM 3344 IBM 3350 IBM 3375 IBM 3380	<p>Full Test: Data stored on the device must be dumped. The device must be offline. If shared, the volume must be offline to all operating systems that share the device. The operator must give permission to write on the volume.</p> <p>Partial Test: If the device is online, or the operator denies permission to write on the volume, OLTEP will test it in File Protect Mode.</p>
IBM 3420 IBM 3430 IBM 3480	<p>The device must be offline,⁴ and a scratch volume must be mounted. If the scratch volume does not have standard labels, or if OLTEP is unable to read the labels, the operator must give permission for OLTEP to write on the volume.</p> <p>Testing destroys both labels and data. If a volume initially has standard labels, OLTEP saves the volume serial number and relabels the volume when testing is completed, with the exception of SOSP. If a volume does not have standard labels, or if OLTEP cannot read the labels, the volume will have no labels when testing is completed.</p>
IBM 2701 IBM 3270 IBM 3830 IBM 3851 Remote TP Terminals ⁵	<p>Telecommunications lines must be OFFLINE⁴ and UNALLOCATED in order to be tested by OLTEP. Also, all users of the lines (applications programs and program access methods) must have completed their use of the lines and given the lines that they were using back to the operating system prior to testing.</p> <p>Locally attached 3270 devices can be tested by OLTEP while they are online or allocated only if they have been allocated to BTAM (Basic Telecommunications Access Method). Otherwise, these devices must be offline⁵ to the operating system and not allocated to any user.</p> <p>Data protection requires that all unit addresses accessed through the 3830 to be tested must be offline. All shared units must be offline to the sharing user.</p> <p>Unlike other devices in the unit record class, the 3851 need not be tested offline.</p> <p>The remote terminals must be attached to an IBM 2701, 3704, 3705, or 3725 control unit in order to be tested by OLTEP. The TP line from the control unit to the remote terminals must be OFFLINE⁴ and UNALLOCATED in the operating system. Once OLTEP has control of the line, no other user should access it. The line will remain under OLTEP control until testing on the remote terminal has been completed and another device has been selected at a ENTER-DEV/TEST/OPT/ communication interval, or OLTEP is canceled.</p> <p>A special OLTEP data set of data for symbolically named devices must exist prior to testing of the remote named terminals (see "How to Create OLTEP Data Sets" in Chapter 2).</p>
<p>⁴See "OLTEP Requirements and Restrictions" in this chapter.</p> <p>⁵Refer to the remote teleprocessing terminals OLT description or user's guide for information regarding testing support under OLTEP.</p>	

OLTEP Performance Aids

When you invoke OLTEP, there are several things that you can do to make it run faster and more efficiently:

- Use JCL to invoke OLTEP, and save execution time by entering test definition statements in the input stream. This keeps OLTEP from requesting test definitions at the console, so the operator need only respond to data protection messages. To enter test definitions in the input stream, include the //CNTRLIN DD statement in your JCL; see “How to Define an OLTEP Job” in Chapter 2.
- When you cannot enter test definitions in the input stream, invoke OLTEP from the console to avoid waiting for an initiator. See “How to Catalog an OLTEP Procedure” in Chapter 2 and “How to Invoke OLTEP” in Chapter 3.
- When you use JCL to invoke OLTEP, minimize the wait for an initiator by assigning OLTEP to an infrequently used job class, and a system performance group with a high priority. To assign job class and performance group status to an OLTEP job, include the CLASS and PERFORM parameters on the JOB statement.

When you define tests, keep in mind the following points, which will help to improve OLTEP’s performance:

- Most OLT programs must test offline devices. If you test too many devices at once, total system performance will be seriously degraded because the resources available to other users will be greatly reduced.
- Since OLTEP must execute OLT programs sequentially, you can reduce OLTEP’s total processing time by limiting the number of OLT programs to be run. To do this, be specific when defining the section and routine of the test you want to run; for example, in replying to message IFD105D ENTER DEV/TEST/OPT/, enter 282/3420A,2// rather than simply entering 282/3420//. See Figure A-1 on page A-2 for more information on specifying test sections.
- Avoid requesting the EL (error loop) or TL (test loop) option, except when you have detected and isolated an error and are prepared to monitor the device during testing; these options involve looping on an event, and may unnecessarily prolong OLTEP processing. When you request EL(n) or TL(n), be careful to limit the number of loops (n) to a reasonable figure; remember that the default number of loops is 500 for EL and 10 for TL.
- When you are going to test a device by looping through on an error many times, you should suppress all messages in order to save I/O time. To do this, request the NPR (no print) option whenever you request EL(n) or TL(n).
- Avoid requesting the MI (manual intervention) option, except when you are prepared to stay at the console and respond promptly to OLTEP’s needs. If you do not, OLTEP’s performance will be seriously degraded because of needlessly long wait states.

- Avoid requesting the PP (parallel print) option, except when the SYSOUT device is inoperative or distant from the console, or when you also request the MI option; PP causes all output messages from OLT programs to be routed to the console as well as the SYSOUT device, and may result in a large backlog of messages at the console. See Figure A-2 on page A-4 for more information about the PP option.
- Avoid requesting the FE (first error communication) option, except when you are expecting a particular error for which you are prepared to define a special test. Using the FE option indiscriminately can result in unnecessary repetitions of the sequence:

```
IFD129I  FIRST ERROR COMMUNICATION ...  
IFD107I  OPTIONS ARE ...  
IFD105D  ENTER DEV/TEST/OPT/
```

which can prolong OLTEP processing time and tie up the console.

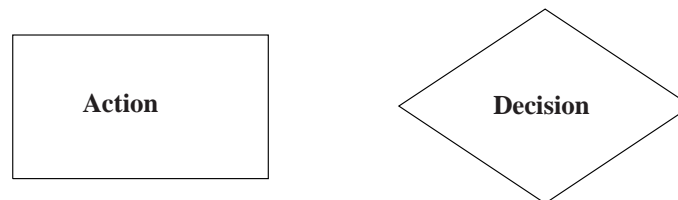
Introduction

Chapter 2. Setup Procedure

This chapter explains how to set up an OLTEP run. The general procedure, described in 4 steps, is as follows:

1. **Create OLTEP Data Sets:** Run the OLTEP editor program to create the required OLTEP data sets. One of these data sets will contain online test programs and system configuration data for locally attached devices; and if you intend to test remote teleprocessing terminals, the second data set will contain configuration data for these symbolically named units. All configuration data, for both local devices and remote terminals, is supplied by the IBM National Service Division.
2. **Modify OLTEP Data Sets:** Use the OLTEP punch program to obtain a punch-card copy of a member of the data set that needs to be modified. Then, using REP cards to make the desired changes, replace the member in the OLTEP data set by running the OLTEP editor.
3. **Catalog an OLTEP Procedure:** Run the IEBUPDTE utility program to create and catalog an OLTEP procedure. Then, to run OLTEP, enter a START command at the console, referring to the OLTEP procedure.
4. **Define an OLTEP Job:** If the START command will not be used to run OLTEP, code and punch JCL (job control statements) to define OLTEP as a system job. Then, to run OLTEP, enter the JCL in the jobstream. Optionally, include OLTEP control statements with your JCL to define some or all of the tests you want to run.

This procedure is described in detail on the following pages. Each step is numbered as above, and related to other steps by a flowchart (Figure 2-1 on page 2-2). The flowchart uses the following symbols:



Note that no action is required if an OLTEP library has been created and an OLTEP procedure has been cataloged. In this case, you can go immediately to Chapter 3: Operating Procedure.

Setup Procedure

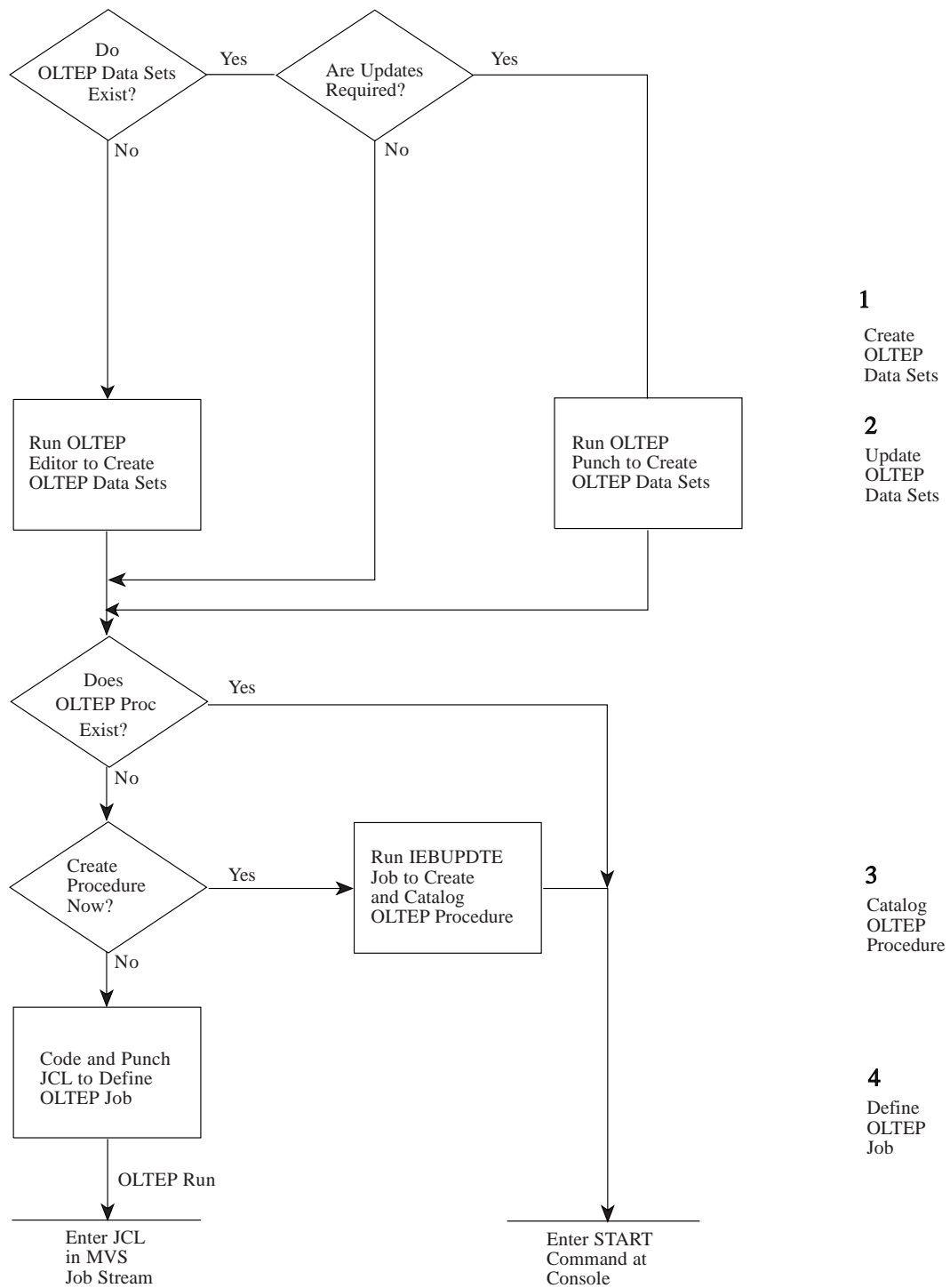


Figure 2-1. How to Set Up an OLTEP Run

Step 1 - How to Create OLTEP Data Sets

You must create OLTEP data sets. To create OLTEP data sets, run the OLTEP editor in place of the system linkage editor.

The OLTEP editor program creates a partitioned data set (PDS), or adds/replaces entries to an already existing PDS, by putting online tests and local and symbolic configuration data set load modules in the format required by the OLTEP loader and the OLTEP punch programs. The OLTs and local CDSs are placed in the data set specified on the OLTCDSDD DD card, and the CDSs for remote devices are placed in the data set specified on the SYMSYM DD card. (CDS modules can be obtained from IBM customer engineers.) The editor program accepts as input ESD cards, TEXT (TXT) cards, RLD cards, and END cards. (All of these cards must contain a 12-2-9 punch in column one.)

Notes:

1. The OLTCDSDD or SYMSYM DD statements must not refer to a linkage editor type of data set. The editor utility will destroy such a data set and thereby render it unusable by the system loader.
2. If the editor program is used to create new data sets of OLTs and local and symbolic CDSs, the names of these data sets must be added to the IEAAPFxx member of SYS1.PARMLIB before they can be accessed by OLTEP. If these names are not in IEAAPFxx when OLTEP attempts to access these data sets, an initialization conflict will occur and message IFD899I will be issued.

The following JCL and control statements are used to invoke the editor routine. When adding members to a remote symbolic CDS data set, the bracketed information must be included.

```
//jobname      JOB      parameters
//             EXEC     PGM=IFDOLT99
//DIAGMSG      DD      SYSOUT=A
{ //OLTCDSDD   DD      parameters}
{ //SYMSYM     DD      parameters}
//CNTRLIN     DD      parameters

Object deck for OLTn
Object deck for Local CDSn
{SYMBOLIC CDS      }
{Object deck for symbolic CDSn}
/*
```

Figure 2-2. JCL for Creating OLTEP Data Sets

When the input is from cards, the SYMBOLIC CDS control card must be manually inserted between the last OLT or local CDS load module and the symbolic CDS load modules. Its format consists of the words 'SYMBOLIC CDS' beginning in column 1.

3. OLTEP data sets created by the OLTEP editor are not valid input to the IEBCOPY compress function. To reclaim dead member space, the data set must be either moved/copied to a direct access device or unloaded to a tape and then loaded back onto the original disk.

Setup Procedure - Step 1

As the editor performs its function, appropriate messages will be sent to the system printer (the device specified on the DIAGMSG DD card) and to the operator's console. Some of these messages will indicate which of the OLTs being processed can run in virtual storage.

There are several statements for which you must choose parameters. These statements are described below. Code all underlined characters, including slashes and spaces, exactly as shown. Substitute letters or digits, not blank spaces, for items that are not underlined.

JOB Statement

```
//jobname JOB parameters
```

This statement defines the job. You must give the job a name of from 1 to 8 letters and digits, beginning with a letter. You must provide parameters as required by the installation.

OLTCDSDD DD Statement

```
//OLTCDSDD DD parameters
```

This statement defines an OLTEP data set which is on a direct access volume and contains OLTs and local CDS modules.

Example 1

```
//OLTCDSDD DD DSN=OLTLIB,DISP=(NEW,KEEP),  
// UNIT=3330,VOL=(PRIVATE,SER=OLTVOL),  
// SPACE=(1024,(140,120,40))
```

This statement defines a new OLTEP data set (OLTLIB) to contain online test programs and configuration data for units which will not be named symbolically. The data set is to reside on a private direct access volume (OLTVOL).

Example 2

```
//OLTCDSDD DD DSN=OLTLIB,DISP=(NEW,CATLG),  
// UNIT=3330,VOLUME=(PRIVATE,SER=OLTVOL),  
// SPACE=(1024,(140,120,40))
```

This statement defines the same OLTEP data set (OLTLIB). It also catalogs the data set (DISP=(NEW,CATLG)). Later jobs can refer to OLTLIB without giving unit and volume information.

Note: The values in the SPACE parameter will vary with the number of OLTs and the type of DASD being used.

Example 3

```
//OLTCDSDD DD DSN=OLTLIB,DISP=(OLD,KEEP),
// UNIT=3330,VOL=(PRIVATE,SER=OLTVOL)
```

This statement refers to an existing OLTEP data set (OLTLIB) containing OLTEP programs and configuration data for units which are not named symbolically. The job adds programs to the data set.

SYMSYM DD Statement

```
//SYMSYM DD parameters
```

This statement defines an OLTEP data set that is on a direct access volume and which contains remote symbolic CDS modules.

Example 1

```
//SYMSYM DD DSN=CDSLIB,DISP=(NEW,KEEP),
// UNIT=3330,VOL=(PRIVATE,SER=OLTVOL),
// SPACE=(1024,(25,10,5))
```

This statement defines a new OLTEP data set (CDSLIB) to contain configuration data for symbolically named remote teleprocessing terminals. The data set is to reside on a private direct access volume (OLTVOL).

Example 2

```
//SYMSYM DD DSN=CDSLIB,DISP=(NEW,CATLG),
// UNIT=3330,VOLUME=(PRIVATE,SER=OLTVOL),
// SPACE=(1024,(25,10,5))
```

This statement defines the same data set (CDSLIB). It also catalogs the data set (DISP=(NEW,CATLG)). Later jobs can refer to CDSLIB without giving unit and volume information.

Note: The values of the SPACE parameter will vary with the number of OLTs and the type of DASD being used.

CNTRLIN DD Statement

```
//CNTRLIN DD parameters
```

This statement indicates whether input to the OLTEP editor is being supplied through a card reader or through a tape device.

```
//CNTRLIN DD DATA
```

This statement indicates that input to the OLTEP editor is being supplied through a card reader. It is immediately followed by the actual object decks for the desired OLTs and CDS modules, in the following order:

```
Object deck for OLT1  
Object deck for OLTn  
Object deck for local CDS1  
Object deck for local CDSn  
SYMBOLIC CDS  
Object deck for symbolic CDS1  
/*
```

When object decks for OLTs, local CDS modules, and symbolic CDS modules are all being used as input, those for the OLTs and local CDS modules must come before those for the symbolic CDS modules (as shown above). The /* indicates the end of the input being supplied. The SYMBOLIC CDS control statement must begin in column 1.

```
//CNTRLIN DD UNIT=(3420,,DEFER),DISP=OLD,DSN=NOLABL,  
// LABEL=(,NL),VOL=SER=DATA
```

This statement indicates the parameters needed when a SOSP EDITOS tape is used as input to the OLTEP editor. The parameters must be coded in this manner with the exception of UNIT= which will vary according to the tape device being used.

DIAGMSG DD Statement

```
//DIAGMSG DD SYSOUT=A
```

This statement defines the output data set for the editor diagnostic messages; IFD9001, IFD9011, IFD9021, IFD9031, IFD9041, IFD9061, IFD9071, IFD9081, and IFD9091.

Step 2 - How to Modify OLTEP Data Sets

To modify an OLTEP data set created by the OLTEP editor, you must first run the OLTEP punch program to obtain a punch-card copy of the members of the data set that need to be modified. Input to the punch program must be from a card reader and must directly follow the CNTRLIN DD JCL statement. This input consists of NAME control cards specifying the members to be punched. The punch program then searches the data set defined on the OLTCDSDD DD card (or the SYMSYM DD card in the case of a symbolic CDS data set) and punches out the specified members of the data set at the card punch defined by the PUNCHDD DD statement.

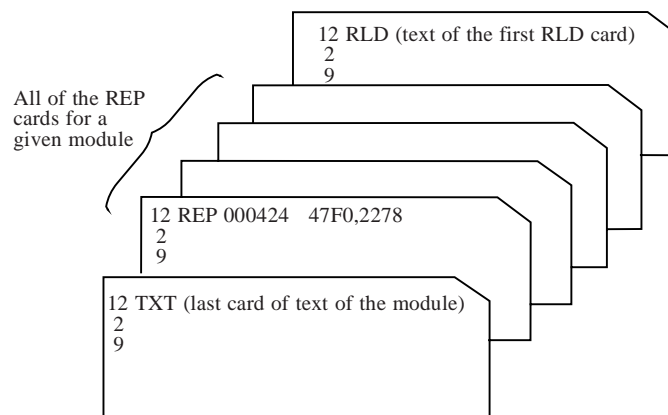
Once you have the necessary copy of the members of the data set to be modified, you can insert REP cards in front of the RLD cards for each module that is to be changed. The modified members can then be placed back into the original OLTEP data set by running the OLTEP editor (see "How to Create OLTEP Data Sets").

The format for the REP cards is as follows:

Columns Description

1	12,2,9 punch.
2-4	The characters REP.
5-6	Unused; should be left blank
7-12	The assembled six digit location, as shown in the listing, of the text data that is to be changed.
13-16	Unused; should be left blank.
17-71	At least two bytes of text data (4 columns) must be included. A comma must be used to separate every 2 bytes of data and the additional data must also be in increments of 2 bytes. A blank delimiter signifies the end of data on the REP card.

Example



The following JCL is required when using the punch program. When members to a remote symbolic CDS data set are referenced, the bracketed information must be included.

Setup Procedure - Step 2

```
//PUNCHOUT      JOB   parameters
//              EXEC  PGM=IFDOLT98
//DIAGMSG       DD    SYSOUT=A
//PUNCHDD       DD    parameters
//OLTCDSDD      DD    parameters
{ //SYMSYM      DD    parameters}
//CNTRLIN      DD    DATA

NAME olt1
NAME olt2
NAME locc1
{SYMBOLIC CDS }
{NAME symname1}
{NAME symname2}
/*
```

Figure 2-3. JCL for Punching OLTEP Data Sets

Note: There is only one blank after the E in NAME on the control card.

The parameters for the PUNCHDD, DIAGMSG, and OLTCDSDD (and SYMSYM when used) DD statements should be used to describe the respective card punch or tape device, SYSOUT device, and OLTEP data sets that will be used when the punch program is run. (See “How to Create OLTEP Data Sets” for more information about the DIAGMSG, OLTCDSDD, SYMSYM, and CNTRLIN DD statements.)

PUNCHDD DD Statement

```
//PUNCHDD DD parameters
```

This statement defines the output device on which the OLT/CDS to be modified will be written.

Example 1

```
//PUNCHDD DD SYSOUT=B
```

This statement defines the card punch at which the OLT/CDS to be modified will be punched out.

Note: Four blank cards will automatically be punched out after each OLT/CDS that is punched at the card punch.

Example 2

```
//PUNCHDD DD UNIT=(3420,,DEFER),DISP=OLD,DSN=NOLABL,
// LABEL=(,NL),VOL=SER=DATA
```

This statement defines a tape on which the OLT/CDS to be modified will be written.

Step 3 - How to Catalog an OLTEP Procedure

To catalog an OLTEP procedure:

- Code the statements listed in the box below. The statements bracketed define the OLTEP procedure. The other statements define a job that puts the procedure in SYS1.PROCLIB.
- Run the job. Because the job modifies SYS1.PROCLIB, jobs that use SYS1.PROCLIB cannot be run concurrently.

The OLTEP procedure lets you invoke OLTEP from the console. You do this by entering the START command, as explained in Chapter 3: Operating Procedure. Chapter 3 gives detailed directions for using the START command; these directions are based on the procedure defined below, and will be valid only if you define the procedure exactly as shown.

```

//jobname      JOB      parameters
//            EXEC      PGM=IEBUPDTE,PARM=NEW
//SYSPRINT     DD      SYSOUT=A
//SYSUT1       DD      DSN=SYS1.PROCLIB,DISP=OLD
//SYSUT2       DD      DSN=SYS1.PROCLIB,DISP=OLD
//SYSIN        DD      DATA
./  ADD        LIST=ALL,NAME=OLTEP
./  NUMBER     NEW1=10,INCR=10

{ //OLTEP      PROC JOBSTEP=,OUTDATA=,ADDRSPX='ADDRSPC=VIRT,',  }
{ //  RGN='REGION=76K,',INPUT='DUMMY,',  }
{ //  HISTORY='DUMMY,',SERLOG='DUMMY,',ABDUMP='DUMMY',PRM='NULL' }
{ //TEST      EXEC      PGM=IFDOLT,&JOBSTEP&ADDRSPX&RGN.PARM=&PRM }
{ //OLTCDSD   DD      parameters  }
{ //DIAGMSG   DD      &OUTDATA.SYSOUT=A  }
{ //INPUT     DD      &INPUT.UNIT=(3420,,DEFER)  }
{ //SYMSYM    DD      parameters  }
{ //SERLOG    DD      &SERLOG.DSN=SYS1.LOGREC,DISP=SHR  }
{ //ACCIN     DD      &HISTORY.parameters  }
{ //SYSABEND  DD      &ABDUMP.SYSOUT=A  }

/*

```

Figure 2-4. JCL for Cataloging an OLTEP Procedure

Setup Procedure - Step 3

The bracketed statements on the previous page define the OLTEP procedure. The //OLTEP PROC statement gives default values for optional parameters of the START command. If the operator omits all optional parameters, the OLTEP job step will be defined as follows:

```
//TEST      EXEC  PGM=IFDOLT,ADDRSPC=REAL,REGION=76K,  
//  PARM=NULL  
//OLTCDSD  DD    parameters  
//DIAGMSG  DD    SYSOUT=A  
//INPUT    DD    DUMMY,UNIT=(3420,,DEFER)  
//SYMSYM   DD    parameters  
//SERLOG   DD    DUMMY,DSN=SYS1.LOGREC,DISP=SHR  
//ACCIN    DD    DUMMY,parameters  
//SYSABEND DD    DUMMY,SYSOUT=A
```

The JCL statements in the OLTEP procedure are, for the most part, fixed. However, the OLTCDSD, SYMSYM, and ACCIN statements will contain variable information that is installation dependent. These statements must be completed for a particular installation before the procedure is added to SYS1.PROCLIB.

The OLTEP procedure also contains symbolic parameters that allow data set definitions and the sequence of statements to be varied during the invocation of the procedure. Default values for these symbolic parameters are assigned in the procedure's PROC statement.

The JCL statements for which you must choose parameters are described below. Code all **underlined** characters, including spaces, exactly as shown. Substitute letters or digits, not blank spaces, for items that are not underlined.

JOB Statement

```
//jobname JOB parameters
```

This statement defines the job that puts the OLTEP procedure in SYS1.PROCLIB. You must give this job a name of from 1 to 8 letters and digits, beginning with a letter. You must provide parameters only if required by the installation.

Examples

```
//A134P407  JOB  
  
//OLTJOB    JOB  5412678,IBMFED
```

EXEC Statement

```
//TEST EXEC PGM=IFDOLT,&JOBSTEP&ADDRSPX&RGN.  
// PARM=NULL
```

This statement means "execute OLTEP (IFDOLT) as a job step (when the OLTEP procedure is invoked by the START command)."

ACCIN DD Statement

```
//ACCIN DD &HISTORY. parameters
```

This statement defines a history data set created by EREP. This data set contains accumulated input from SYS1.LOGREC. It may be on tape or on a direct access volume.

Specify parameters based on what you know about the way history data sets are created at the installation. If history data sets are not always created in the same way, you may have to leave out some necessary parameters, and have the operator enter them through the START command. If you leave out parameters, be sure to tell the operator which parameters he will have to enter.

Example 1

```
//ACCIN DD &HISTORY.DISP=SHR
```

This statement implies that nothing is known in advance about the way a history data set will be created. The operator must specify the data set name in the START command; if the data set is not cataloged, he must also specify unit and volume information. For example:

```
s oltep,history='DSN=ACCDATA,UNIT=3420,VOL=SER=137429,'
```

This entry gives the original ACCIN DD statement the following form:

```
//ACCIN DD DSN=ACCDATA,UNIT=3420,VOL=SER=137429,
// DISP=SHR
```

Example 2

```
//ACCIN DD &HISTORY.DSN=HISTDATA(0),DISP=SHR
```

This statement implies that history data sets are created as successive generations of a generation data group (HISTDATA). It indicates that the current generation (HISTDATA(0)) is to be retrieved through the catalog. To let OLTEP read this data set, the operator should enter:

```
s oltep,history='DSN=ACCDATA,UNIT=3420,VOL=SER=137429'
```

This entry gives the original ACCIN DD statement the following form:

```
//ACCIN DD DSN=ACCDATA,UNIT=3420,VOL=SER=137429,
// DISP=SHR
```

Setup Procedure - Step 3

Example 3

```
//ACCIN DD &HISTORY.UNIT=3420,VOL=SER=HISTRY,  
// LABEL=(,NL),DISP=OLD
```

This statement implies that a history data set will always be written on nonlabeled 9-track tape. To define the data set for OLTEP, the operator should enter:

```
s oltep,history=
```

This entry gives the original ACCIN DD statement the following form:

```
//ACCIN DD UNIT=3420,VOL=SER=HISTRY,LABEL=(,NL),  
// DISP=OLD
```

The system will allocate an IBM 3420 magnetic tape unit, and ask the operator to mount the HISTRY volume. The operator must ensure that the correct volume is mounted, because the system cannot verify it. Because the tape is not labeled, HISTRY does not appear on the tape, and does not identify any specific volume.

INPUT DD Statement

//INPUT DD parameters	(optional)
-----------------------	------------

This statement defines a data set that contains test input data. Include this statement if you will run OLT programs that indicate a need for such input data.

Example 1

```
//INPUT DD UNIT=(3420,,DEFER)
```

This statement defines a data set on a standard-label 9-track magnetic tape (1600 bpi). (Tapes that fit this description are supplied with the online test programs that require input data.) When an OLT program is ready to use the data set, it will specify the correct volume serial number, and the system will ask for the volume on an IBM 3420 magnetic tape unit.

Example 2

```
//INPUT DD UNIT=2540,DISP=OLD
```

This statement defines a card data set. The system will select an IBM 2540 card read punch and allocate it to OLTEP. The card reader will not be available for testing or for use by other jobs while OLTEP is running.

Example 3

```
//INPUT DD DATA  
data set  
/*
```

This statement defines a data set that immediately follows the //INPUT DD statement in the input stream.

SYMSYM DD Statement

```
//SYMSYM DD parameters
```

This statement defines a data set which contains configuration data for symbolically named units (remote teleprocessing terminals). It should be included only if symbolically named units are going to be tested. The DSN,UNIT, and VOL parameters for this statement should be based on those specified in the SYMSYM DD statement used when the data set was created (see Figure 2-2 on page 2-3).

Example 1

```
//SYMSYM DD DSN=CDSLIB,DISP=SHR,UNIT=3330,  
// VOL=(PRIVATE,SER=OLTVOL)
```

This statement defines a data set CDSLIB on volume OLTVOL.

Example 2

```
//SYMSYM DD DSN=CDSLIB,DISP=SHR
```

This statement refers to the data set CDSLIB. The data set is cataloged so no unit or volume information is given.

OLTCDSDD DD Statement

```
//OLTCDSDD DD parameters
```

This statement defines a data set which contains online tests and configuration data for local devices. The DSN, UNIT, and VOL parameters should be based on those specified in the OLTCDSDD DD statement used when the data set was created.

Example 1

```
//OLTCDSDD DD DSN=OLTLIB,DISP=SHR,UNIT=3330  
// VOL=(PRIVATE,SER=OLTVOL)
```

This statement defines the data set, OLTLIB, on volume OLTVOL.

Example 2

```
//OLTCDSDD DD DSN=OLTLIB,DISP=SHR
```

This statement also refers to the data set OLTLIB but in this case, the data set is cataloged so no unit or volume information is given.

DIAGMSG DD Statement

```
//DIAGMSG DD parameters
```

Setup Procedure - Step 3

This statement defines the OLTEP output data set, which will contain diagnostic messages issued by OLTEP and the online test programs.

Example 1

```
//DIAGMSG DD SYSOUT=A
```

This statement defines a system output data set. This data set is printed **after** testing has been completed.

Example 2

```
//DIAGMSG DD UNIT=3211
```

This statement defines a data set that will be printed on an IBM 3211 while testing is in progress.

Note: The printer cannot be used by other jobs while OLTEP is running, and is not available for testing.

SERLOG DD Statement

```
//SERLOG DD DSN=SYS1.LOGREC,DISP=SHR
```

 (optional)

This statement refers to the SYS1.LOGREC data set on the system residence volume. Include this statement if you will run OLT programs that use SYS1.LOGREC for input. If SYS1.LOGREC does not reside on the system residence volume, UNIT and VOLUME parameters should be included indicating the device and volume serial number on which SYS1.LOGREC does reside.

SYSABEND DD Statement

```
//SYSABEND DD &ABDUMP.SYSOUT=A
```

This statement defines a data set in which a dump will be written if an ABEND (abnormal termination) condition occurs while OLTEP is running. This statement is optional but if it is omitted, no ABEND dumps will be available for investigating the cause of an ABEND situation should one occur. To get the default for this function, the operator should enter:

```
s oltep,abdump=
```

This entry gives the original SYSABEND DD statement the following form:

```
//SYSABEND DD SYSOUT=A
```

Step 4 - How to Define an OLTEP Job

Define an OLTEP job by coding the JCL listed below. Bracketed statements are optional.

```
//jobname    JOB    parameters
//          EXEC   PGM=IFDOLT,parameters
//OLTCDSDD   DD    parameters
//DIAGMSG    DD    parameters
{ //SERLOG    DD    DSN=SYS1.LOGREC,DISP=SHR}
{ //ACCIN     DD    parameters }
{ //INPUT     DD    parameters }
{ //SYMSYM    DD    parameters }
{ //SYSABEND  DD    parameters }
{ //CNTRLIN DD   DATA }
[OLTEP control statements]
/*
```

Figure 2-5. JCL for Defining an OLTEP Job

Each statement is described below. Code all underlined characters, including spaces and slashes, exactly as shown. Substitute letters or numbers, not blank spaces, for items that are not underlined.

JOB Statement

```
//jobname JOB parameters
```

This statement defines the job. You must give the job a name of from 1 to 8 letters and digits, beginning with a letter. You must provide parameters only if required by the installation.

The CLASS and PERFORM parameters can be coded on the JOB statement when you want to expedite the running of an OLTEP job. The CLASS parameter will determine which job class the job will be placed in; and the PERFORM parameter will determine into which system performance group the job will be placed. Both of these parameters are installation dependent.

Example

```
//JOBTEST JOB CLASS=K,PERFORM=200
```

This statement defines a job named JOBTEST which has been assigned to job class K, and has been placed in the performance group 200 (the highest priority performance group that has been established by this installation). With these parameters, the job will be scheduled fairly rapidly, and will have very little trouble in obtaining system resources as they are needed while the job is being run.

EXEC Statement

```
// EXEC PGM=IFDOLT, parameters
```

This statement means “execute OLTEP (IFDOLT) as a job.” Significant parameters include:

TIME=1440

Include this parameter to specify “no time limit” for the job. It should be used whenever an OLT will be issuing WAITs for thirty minutes or more.

ADDRSPC=REAL or ADDRSPC=VIRT

Include this parameter to determine whether OLTEP is to be run in real or virtual storage. Virtual storage is the default value for this parameter when the OLTEP procedure is being used. (Real storage is required for some OLTs.)

REGION=size

Include this parameter when ADDRSPC=REAL. The default is 76K when the OLTEP procedure is being used. OLTEP requires a minimum of 76K bytes to run most OLTs, and a minimum of 96K bytes to run OLTs that are larger than 12K bytes.

PERFORM=groupnr

Include this parameter to determine the performance group that the job step is to be placed into. (If a PERFORM parameter has been specified in the job statement, use this parameter only if you want to override this value which is automatically given to the job step).

DPRTY=(13,15)

This parameter gives OLTEP the highest dispatching priority of any task in the system.

Example 1

```
// EXEC PGM=IFDOLT,TIME=1440,ADDRSPC=REAL,REGION=76K
```

This statement means “execute OLTEP with no time limit.” (OLTEP will run in real storage in this case as ADDRSPC= is specified, and will be placed in the performance group specified in the job statement as PERFORM= is not specified.)

Example 2

```
// EXEC PGM=IFDOLT,TIME=1440,ADDRSPC=VIRTUAL,PERFORM=50
```

This statement means “execute OLTEP as a member of performance group 50, run OLTEP in virtual storage, and have no time limit placed on its execution.”

Example 3

```
// EXEC PGM=IFDOLT,TIME=1440,DPRTY=(13,15)
```

This statement means “execute OLTEP with no time limit and with top priority in virtual storage.”

OLTCDSDD DD Statement

```
//OLTCDSDD DD parameters
```

This statement defines the data set which contains system configuration data for local devices, and online test (OLT) programs. It must be created before you run OLTEP. If no data set has been created, go back to “How to Create OLTEP Data Sets” in this chapter.

The parameters for this statement must define the data set as a partitioned data set on a direct access device. The UNIT and VOLUME parameters should be used to indicate the direct access device and the serial number of the volume on which the OLT data set resides if it is not a cataloged data set.

Example 1

```
//OLTCDSDD DD DSN=OLTLIB,DISP=SHR
```

This statement refers to the data set OLTLIB, which must be cataloged since no unit or volume information is given.

Example 2

```
//OLTCDSDD DD DSN=OLTLIB,DISP=SHR,UNIT=194
```

This statement refers to the same data set (OLTLIB), and specifies a unit (194). Since some units are going to be tested, the UNIT parameter is used here to select a specific unit and thus ensure that the system does not select a unit that will be tested.

Example 3

```
//OLTCDSDD DD DSN=OLTS,DISP=SHR,UNIT=3330,  
// VOL=(PRIVATE,SER=OLTVOL)
```

This statement refers to the data set OLTS on the volume OLTVOL. The system will select an IBM 3330 and ask for OLTVOL on the selected unit.

DIAGMSG DD Statement

```
//DIAGMSG DD parameters
```

This statement defines the OLTEP output data set, which will contain diagnostic messages issued by OLTEP and the online test programs.

Setup Procedure - Step 4

Example 1

```
//DIAGMSG DD SYSOUT=A
```

This statement defines a system output data set. This data set is printed **after** testing has been completed.

Example 2

```
//DIAGMSG DD UNIT=3211
```

This statement defines a data set that will be printed on an IBM 3211 while testing is in progress.

Note: The printer cannot be used by other jobs while OLTEP is running, and is not available for testing.

SERLOG DD Statement

```
//SERLOG DD DSN=SYS1.LOGREC,DISP=SHR
```

 (optional)

This statement refers to the SYS1.LOGREC data set on the system residence volume. Include this statement if you will run OLT programs that use SYS1.LOGREC for input. If SYS1.LOGREC does not reside on the system residence volume, UNIT and VOLUME parameters should be included indicating the device and volume serial number on which SYS1.LOGREC does reside.

ACCIN DD Statement

```
//ACCIN DD parameters
```

 (optional)

This statement defines a history data set created by the EREP. (A history data set contains accumulated input from SYS1.LOGREC, and may be on a tape or a direct access volume.) Include this statement if you will run OLT programs that use a history data set for input. The UNIT and VOLUME parameters, when used, should agree with the device and volume serial number where the history data set resides. If the data set has been cataloged, only the DSNAME and DISP parameters are required.

Example 1

```
//ACCIN DD DSN=HISTORY,DISP=SHR
```

This statement refers to the data set HISTORY, which must be cataloged because no unit or volume information is given.

Example 2

```
//ACCIN DD DSN=ACCDATA,DISP=SHR,UNIT=3330,  
// VOL=(PRIVATE,SER=711111)
```

This statement refers to the data set ACCDATA on volume 711111. The system will select an IBM 3330 direct access storage drive and ask for volume 711111 on that device.

Example 3

```
//ACCIN DD DSN=LOGDATA,DISP=OLD,UNIT=3420,
// VOL=SER=T79641
```

This statement refers to the data set LOGDATA on a standard-label 9-track tape. The system will select an IBM 3420 magnetic tape unit and ask the operator to mount volume T79641.

INPUT DD Statement

<code>//INPUT DD parameters</code>	(optional)
------------------------------------	------------

This statement defines a data set that contains test input data. Include this statement if you will run OLT programs that indicate a need for such input data.

Example 1

```
//INPUT DD UNIT=(3420,,DEFER)
```

This statement defines a data set on a standard-label 9-track magnetic tape (1600 bpi). (Tapes that fit this description are supplied with the online test programs that require input data.) When an OLT program is ready to use the data set, it will specify the correct volume serial number, and the system will ask for the volume on an IBM 3420 magnetic tape unit.

Example 2

```
//INPUT DD UNIT=2540,DISP=OLD
```

This statement defines a card data set. The system will select an IBM 2540 card read punch and allocate it to OLTEP. The card reader will not be available for testing or for use by other jobs while OLTEP is running.

Example 3

```
//INPUT DD DATA
      data set
/*
```

This statement defines a data set that immediately follows the //INPUT DD statement in the input stream.

SYMSYM DD Statement

```
//SYMSYM DD parameters (optional)
```

This statement defines a data set which contains configuration data for symbolically named units (remote teleprocessing terminals). The data set is created by running the OLTEP editor (see "How to Create OLTEP Data Sets").

Example 1

```
//SYMSYM DD DSN=CDSLIB,DISP=SHR,UNIT=3330,  
// VOL=(PRIVATE,SER=OLTVOL)
```

This statement defines a data set CDSLIB on the volume OLTVOL.

Example 2

```
//SYMSYM DD DSN=CDSLIB,DISP=SHR
```

This statement refers to the data set CDSLIB. The data set is cataloged so no unit or volume information need be given.

SYSABEND DD Statement

```
//SYSABEND DD parameters (optional)
```

This statement defines a data set in which an abnormal termination dump will be written.

Example

```
//SYSABEND DD SYSOUT=A
```

This statement defines a dump data set to be routed through the output stream. The dump is stored on a direct access device and later written to the system output device.

CNTRLIN DD Statement

```
//CNTRLIN DD DATA (optional)  
[OLTEP control statements]  
/*
```

This sequence defines a data set that contains OLTEP control statements. Include this sequence if you want to predefine some or all of the tests to be run. The control statements, which must begin in column 1, can be either a test definition statement (devices/tests/options/) specifying the devices to be tested, tests to be run, and options to be used; a CANCEL statement, terminating the job step; or a PROMPT, EQU, TALK, CPUAFFN, or GDP verb (see Step 4, "How to Define and Run Tests" in Chapter 3).

You should use the CANCEL statement only if you want to predefine all of the online tests to be run. When it is used, the CANCEL statement should be placed directly after the last test definition statement that is specified. The job step will then terminate upon completion of the tests defined in that statement. If the CANCEL statement is not used, OLTEP will ask the operator to define additional tests at the console once the testing defined in your last test definition statement has been completed. The operator can then define additional tests or enter CANCEL to terminate the job step.

Note that a CANCEL statement may terminate the job step before all OLTEP messages have been written on the console. When this happens, the //DIAGMSG data set will include test results and other messages that do not appear in the console listing. Be sure to check the //DIAGMSG listing to ensure that you do not miss any important information.

Example 1

```
//CNTRLIN DD DATA
181-188/3420//
131-134/3330//
CANCEL
/*
```

This sequence asks OLTEP to run basic tests for IBM 3420 magnetic tape units 181 to 188 and IBM 3330 direct access storage drives 131 to 134. OLTEP uses standard options (since none are specified), and terminates the job step after testing unit 134.

Example 2

```
//CNTRLIN DD DATA
1D0/2305//
/*
```

This sequence asks OLTEP to run basic tests for IBM 2305 drum storage device 1D0. When this test is completed, OLTEP will ask the operator to define additional tests at the console.

Note: MVS/ESA SP 5.2 does not support multiple exposure devices, such as the 2305, 3350P, and 3351P.

Example 3

```
//CNTRLIN DD DSNAME=CTLINPUT,DISP=OLD,UNIT=3420
// VOL=SER=T9641,LABEL=(3)
```

This statement asks OLTEP to run tests from a data set which is being read from a source outside of the input jobstream. It is the third data set on a standard label volume T9641 which has been mounted on an IBM 3420 magnetic tape unit. The UNIT, VOLUME, DISP, and LABEL parameters must be included whenever such a data set is to be used.

Setup Procedure - Step 4

Chapter 3. Operating Procedure

This chapter is a guide to running OLTEP. It gives you a step-by-step procedure to follow at the console.

The overall procedure, described in 4 steps, is as follows:

1. **Set Up a Console:** In a system with MCS (multiple console support), you can run OLTEP from either the master console or the service console. Decide which console to use; then ensure that it is properly set up for running OLTEP.
2. **Vary Devices Offline:** Before you can test most I/O devices, they must be offline to the system. Select the devices you will test; then use the VARY command to place them offline. When varying devices offline in a JES3 environment, refer to *MVS/ESA SP V5 System Commands* and to *MVS/ESA SP V5 JES3 Commands*.
3. **Invoke OLTEP:** Enter JCL in the system job stream, or enter a START command at the console.
4. **Define and Run Tests:** Define tests at the console, or include OLTEP control statements with your JCL. Or do both: after running tests defined by control statements, you can define additional tests at the console.

To terminate testing, enter CANCEL in place of a test definition. You can enter CANCEL at the console, or include a CANCEL control statement with your JCL.

Before You Begin: You will need JCL defining an OLTEP job, or a cataloged procedure that you can refer to in a START command. You will also need an OLTEP library on a direct access volume. Refer if necessary to Chapter 2, which tells you how to:

1. Create OLTEP Data Sets
2. Modify OLTEP Data Sets
3. Catalog an OLTEP Procedure
4. Define an OLTEP Job

Note that OLTEP does no testing itself. OLTEP executes OLT programs that you specify in your test definitions. OLT programs are contained in an OLTEP library.

You can specify OLT programs in several ways. You can specify them by device type, which means that OLTEP will execute all basic programs for that type of device. You can also specify programs individually (as test sections), or specify routines within a program.

To specify individual programs or routines, you must know their names and functions. For this information, you must refer to OLT program documentation provided by the IBM National Service Division. Unless you have this documentation, you will be able to specify OLT programs only by device type.

Operating Procedure

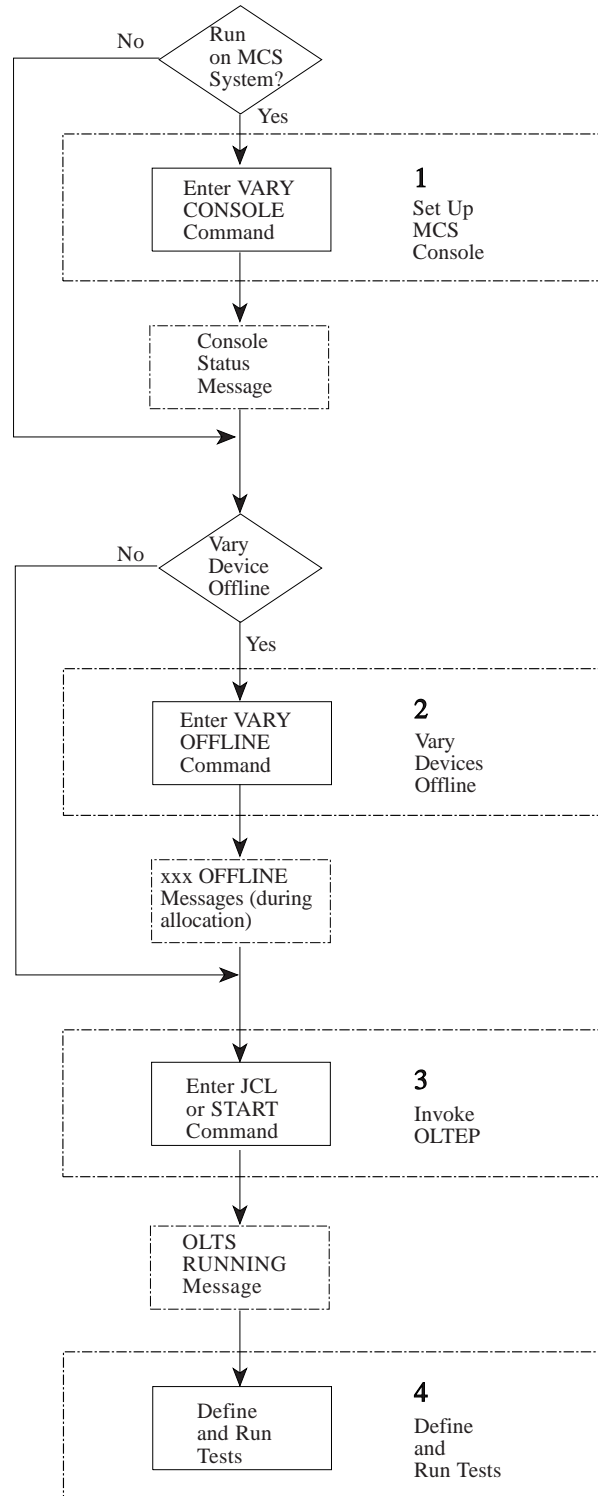


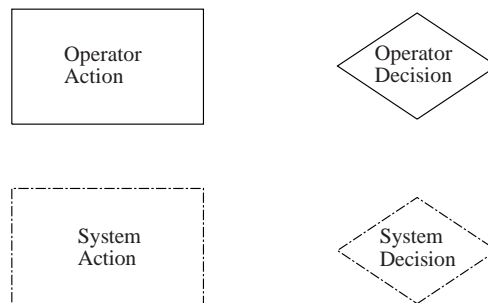
Figure 3-1. How to Run OLTEP

How to Run OLTEP

To run OLTEP, follow the procedure described below. It tells you how to:

1. Set up an MCS Console
2. Vary Devices Offline
3. Invoke OLTEP
4. Define and Run Tests
 - a. Enter Dev/Test/Opt/
 - b. Equate Device Addresses
 - c. Communicate on First Error
 - d. Force Communication
 - e. Respond to Messages

Each step is numbered (as above), and related to other steps by a flowchart (Figure 3-1 on page 3-2 and Figure 3-2 on page 3-14). Flowcharts use the following symbols:



Messages and Commands: In the procedure that follows, messages that need a reply have a message number ending with 'D' or 'E', and have a preceding reply id. For example:

```
id IFD105D ENTER-DEV/TEST/OPT/
```

Commands are shown in boxes. For example:

```
r id,CANCEL          signal EOB
```

The *r* is optional; otherwise, enter all underlined characters, including spaces and commas, exactly as shown. Substitute letters or digits, but no blank spaces, for items that are not underlined.

Complete each command by signalling EOB (end-of-block).

Multiple Console Support: In a system with multiple console support (MCS), you can run OLTEP from either the master console or the service console. OLTEP will direct all messages to the console that you select.

Step 1 - How to Set up an MCS Console

Step 1 applies only to systems with MCS (multiple console support). If you will run OLTEP on a system without MCS, go directly to Step 2.

With MCS, you can run OLTEP from either the master console or the service console. Normally, you will want to run OLTEP from the master console if you are an operator, or from the service console if you are a customer engineer. If you plan to test a device that is attached to a control unit, it is recommended that the test be run from a console that is not attached to the same control unit.

Once you decide which console to use, (the master console or the service console), you must make sure that the console is properly set up for running OLTEP.

Master Console

If you will run OLTEP from the master console, it must be set up to receive OLTEP messages (messages with MCS routing code 10). You should, therefore, determine whether the master console can receive OLTEP messages. To do this, you can use the DISPLAY CONSOLES command. Enter:

```
d consoles          signal EOB
```

MVS will send you the following message, describing each console in the system:

```
IEE250I hh.mm.ss. CONSOLES
CONSOLE/ALT COND AUTH ID AREA ROUTCD
information about hard copy device
information for one console
information for another console
...
```

Look for M under COND and 10 under ROUTCD. M identifies the master console. The master console can receive OLTEP messages if M and 10 appear together on the same line, or if 10 does not appear on any line. (Messages not specifically assigned to any console are sent to the master console.) If the master console can receive OLTEP messages, go directly to Step 2. Otherwise, enter:

```
v xxx,console,rout=(10,y1,y2...)          signal EOB
```

v -- VARY command

xxx,console -- address of master console (address listed under CONSOLE in message IEE250I)

,rout=(10,y₁,y₂...) -- routing code 10 and other routing codes previously assigned to the master console (codes listed under ROUTCD in message IEE250I)

The system will respond with the IEE349I message, which tells you that the master console can receive OLTEP messages. Go to Step 2.

```
IEE349I CONSOLES
CONSOLE/ALT COND AUTH ID AREA ROUTCD
xxx/xxx M ALL xx x,a -a 10,y,y,...
```

Service Console

If you run OLTEP from the service console, the console must be active. For your convenience, the console should be authorized to enter system and I/O control commands.

Determine whether the service console is active, and whether it is authorized to enter system and I/O control commands. To do this, you can use the DISPLAY CONSOLES command. Enter:

```
d consoles signal EOB
```

Enter this command at the service console. If there is no response, the console is inactive; enter the same command at the master console. The system will send you the following message, describing each console in the system:

```
IEE250I hh.mm.ss CONSOLES
CONSOLE/ALT COND AUTH ID AREA ROUTCD
information about hard copy device
information for one console
information for another console
...
```

Look for the service console address under CONSOLE, or for 10 under ROUTCD. Routing code 10 identifies the service console.

On the same line, look for A or A,P under COND. Look for SYS, IO, CONS, or ALL under AUTH.

A	-	console is active
A,P	-	request has been entered to make the console active
SYS	-	console can enter system control commands
I/O	-	console can enter I/O control commands
CONS	-	console can enter console control commands (can enter VARY CONSOLE and thus authorize itself to enter other control commands)
ALL	-	console can enter all the system commands (except those reserved to the master console)

Operating Procedure - Step 1

If the service console is active and is authorized to enter system and I/O control commands, go directly to Step 2. Otherwise, enter:

```
vxxx,console,auth=all
```

```
signal EOB
```

v -- VARY command (enter this command at the master console unless the service console is active and is authorized to enter console control commands.)

xxx,console -- address of service console (address listed under CONSOLE in message IEE250I)

,auth=all -- authorization for service console to enter all system commands (omit if the console is already authorized to enter system and I/O control commands.)

The system will respond with the IEE349I message:

```
IEE349I  CONSOLES
CONSOLE/ALT  COND  AUTH  ID  AREA      ROUTCD
xxx/xxx      A or  ALL   xx  x,a -a    10
              A,P
```

The IEE349I message tells you that the service console is active (A) or will become active (A,P), and that the console is authorized to enter all the system commands. It will appear at the console that you used to enter the VARY command.

Step 2 - How to Vary Devices Offline

Before they can be fully tested by OLTEP, tape and DASD devices must be offline to the system. (For exceptions and special cases, see Figure 1-4 on page 1-8.)

To vary devices offline, enter:

```
v (xxx,xxx,...),offline
```

```
signal EOB
```

v -- VARY command (MCS: enter this command at the master console unless the service console is authorized to enter I/O control commands.)

(xxx,xxx,...) -- device numbers, separated by commas and enclosed by parentheses

.offline -- "Vary units offline."

The VARY command takes effect when the system is called on to allocate or deallocate a device. For each device that is not allocated to a job or system task, the system sends you the IEE303I message, where xxx is the device number:

```
IEE303I xxx OFFLINE
```

This message will appear on the console that you use to enter the VARY command.

For each device that is allocated to a job or system task, the system will send you message IEE303I when the device is deallocated.

Enter the VARY command and invoke OLTEP as described in Step 3. For unallocated devices, the system will immediately send you message IEE303I. Begin testing with these devices; test other devices when they are deallocated and placed offline.

If you use JCL to invoke OLTEP, there may be test definition statements included in the JCL. These statements specify devices that are to be tested first. Do not invoke OLTEP until these devices are offline.

Note: Once a device has been varied offline for testing by OLTEP, it cannot be varied online until testing of the device has been completed. In systems with multiple console support, a console being tested cannot be added to the active console configuration until its testing has been completed.

Step 3 - How to Invoke OLTEP

There are two ways to invoke OLTEP:

- Enter JCL in the system job stream.
- Enter the START command at the console.

Using JCL

To use JCL:

- Go back if necessary to Chapter 2, which tells you how to define an OLTEP job.
- Enter your JCL in the system job stream.
- Go to Step 4.

Using the START Command

To use the START command:

- Go back, if necessary, to Chapter 2 which tells you how to catalog an OLTEP procedure. (An OLTEP procedure must exist in SYS1.PROCLIB before OLTEP can be invoked from the console.)
- Enter the following statement at the console:

```
s oltep,options          signal EOB
```

s -- START command (MCS: enter this command at the master console unless the service console has been authorized to enter system control commands.)

oltep -- name of OLTEP procedure in SYS1.PROCLIB. (This procedure is defined in Chapter 2.)

,options -- any, all, or none of the following (in any order):

.jobstep=params -- enter this option if you want to specify job step parameters, such as performance capabilities, job step timing, and address space.

.input=params -- enter this option if you will run tests that require input data from a tape.

.history=params -- enter this option if you will run tests that require a history data set.

.serlog=params -- enter this option if you will run tests that require the logrec data set

.outdata=params -- enter this option if you want test results printed before end-of-job.

.abdump=params -- enter this option if you want a dump if the OLTEP job terminates abnormally.

The rest of Step 3 describes these options in detail. If you don't need to specify options, go directly to Step 4.

Jobstep Option on the START Command

OLTEP runs as a one-step job under the operating system. The jobstep is defined by the following statement in the OLTEP procedure:

```
//TEST EXEC PGM=IFDOLT,ADDRSPC=REAL,REGION=76K,
// PARM=NULL
```

Use the jobstep option if you want to add or replace EXEC statement parameters. You can **add** parameters by listing them after the equal sign, for example:

```
s oltep,jobstep='params, ' signal EOB
```

The EXEC statement is changed to:

```
//TEST EXEC PGM=IFDOLT,params,ADDRSPC=REAL,
// REGION=76K,PARM=NULL
```

Note: You must put a comma after the last EXEC statement parameter, and you must use apostrophes (single quotation marks) to enclose the parameters.

You can **replace** parameters in the EXEC statement by supplying the ADDRSPC parameters and by putting a blank in place of the last comma, for example:

```
s oltep,jobstep='addrspc=virt ' signal EOB
```

The EXEC statement becomes:

```
//TEST EXEC PGM=IFDOLT,ADDRSPC=VIRT
```

To run the logout analysis program (T3155LOA), you must specify virtual storage:

```
s oltep,jobstep='addrspc=virt ' signal EOB
```

To run online test programs with no time limit, enter:

```
s oltep,jobstep='time=1440, ' signal EOB|
```

Other Options on the START Command

Options (other than jobstep) are used to define data sets. Each option includes an equal sign; for example, **input=**. If you enter **no** parameters after the equal sign, a data set is defined by a DD statement in the OLTEP procedure:

Option	DD Statement	in OLTEP Procedure
,input=	//INPUT DD	UNIT=(3420,,DEFER)
,history=	//ACCIN DD	parameters chosen by installation
,serlog=	//SERLOG DD	DSN=SYS1.LOGREC,DISP=SHR
,outdata=	//DIAGMSG DD	SYSOUT=A
,abdump=	//SYSABEND DD	SYSOUT=A

Operating Procedure - Step 3

You can **add** parameters to a DD statement by listing them after the equal sign, for example:

```
s oltep,input='params,'          signal EOF
```

The //INPUT DD statement becomes:

```
//INPUT DD params,UNIT=(3420,,DEFER)
```

Note: You must put a comma after the last DD parameter, and you must use apostrophes (single quotation marks) to enclose the parameters.

You can **replace** parameters in the DD statement by putting a blank in place of the comma, for example:

```
s oltep,input='UNIT=2540,DISP=OLD '          signal EOF
```

The //INPUT DD statement becomes:

```
//INPUT DD UNIT=2540,DISP=OLD
```

Note: **All** parameters in the DD statement are replaced. When you replace parameters, you must enter all the parameters needed to define a data set.

For a description of DD statement parameters, refer to *MVS/ESA SP V5 JCL Reference*. Following are some examples of how to use parameters:

To start OLTEP and print test results at end-of-job (SYSOUT=A), enter:

```
s oltep          or          s oltep,outdata=          signal EOF
```

To print test results during the job, enter:

```
s oltep,outdata='UNIT=xxx '          signal EOF
```

xxx -- unit type or device number (Example: 3211 (unit type), 00E (device number))

To define a standard input data set, enter:

```
s oltep,input=          signal EOF
```

The data set must be on 9-track magnetic tape (1600 bpi) with standard labels. (IBM National Service Division provides these input tapes.)

To define a standard input data set and specify a particular tape unit, enter:

`s oltep,input='UNIT=(xxx,,DEFER) '` signal EOB

xxx -- device number (Example: 181)

To define a card input data set, enter:

`s oltep,input='UNIT=xxx,DISP=OLD '` signal EOB

xxx -- unit type or device number (Example: 2540 (unit type), 00C (device number))

To define a history data set, enter:

`s oltep,history=` signal EOB

If the OLTEP procedure requires that you specify parameters, enter:

`s oltep,history='params, '` signal EOB

params -- parameters required by the OLTEP procedure

To define a history data set and the logrec data set enter:

`s oltep,history=,serlog=` signal EOB

To define a standard dump data set, enter:

`s oltep,abdump=` signal EOB

Step 4 - How to Define and Run Tests

When OLTEP is first running, it sends you the following message at both the master console and the service console:

```
IFD102I  OLTS RUNNING IN A M.P. SYSTEM
```

Then, if there are no OLTEP control statements to be processed, OLTEP sends you the messages:

```
IFD134I  WARNING- DASD VOLUME LABELED CEPACK
          NOT PROTECTED FROM WRITE
IFD107I  OPTIONS ARE zz,zz,...
id  IFD105D  ENTER-DEV/TEST/OPT/
```

zz,zz,... - options in effect (options are defined in Figure A-2 on page A-4)

Message IFD134I tells you that the direct access volume with serial number CEPACK will be treated as a scratch volume if it is mounted on the device being tested.

Message IFD107I tells you the OLTEP options which are currently in effect. In this case, the default options will be listed because you have not yet entered a test definition.

Message IFD105D asks you to define the first test; it will be repeated when the test is completed. If you receive this message, go immediately to Step 4a.

If you do not receive message IFD105D, there are OLTEP control statements to be processed. These were included with the JCL you used to invoke OLTEP. OLTEP shows you the first statement on the console:

```
devices/tests/options/
```

This is a test definition statement. It defines the first test to be run, for example:

```
180-184/3420//
```

This statement means "test units 180 to 184. Run basic IBM 3420 tape unit tests. Use standard OLTEP options."

OLTEP will run the test, then show you the next statement and run the next test. If the last statement is:

CANCEL

testing ends and the job step is terminated. If not, OLTEP sends you messages:

```
IFD107I    OPTIONS ARE zz,zz,...  
id  IFD105D    ENTER-DEV/TEST/OPT/
```

zz,zz,... - options in effect (options are defined in Figure A-2 on page A-4)

You can then define additional tests or terminate the job step.

Figure 3-2 shows the relationship of steps 4a through 4e, which are described in the following topics.

Operating Procedure - Step 4

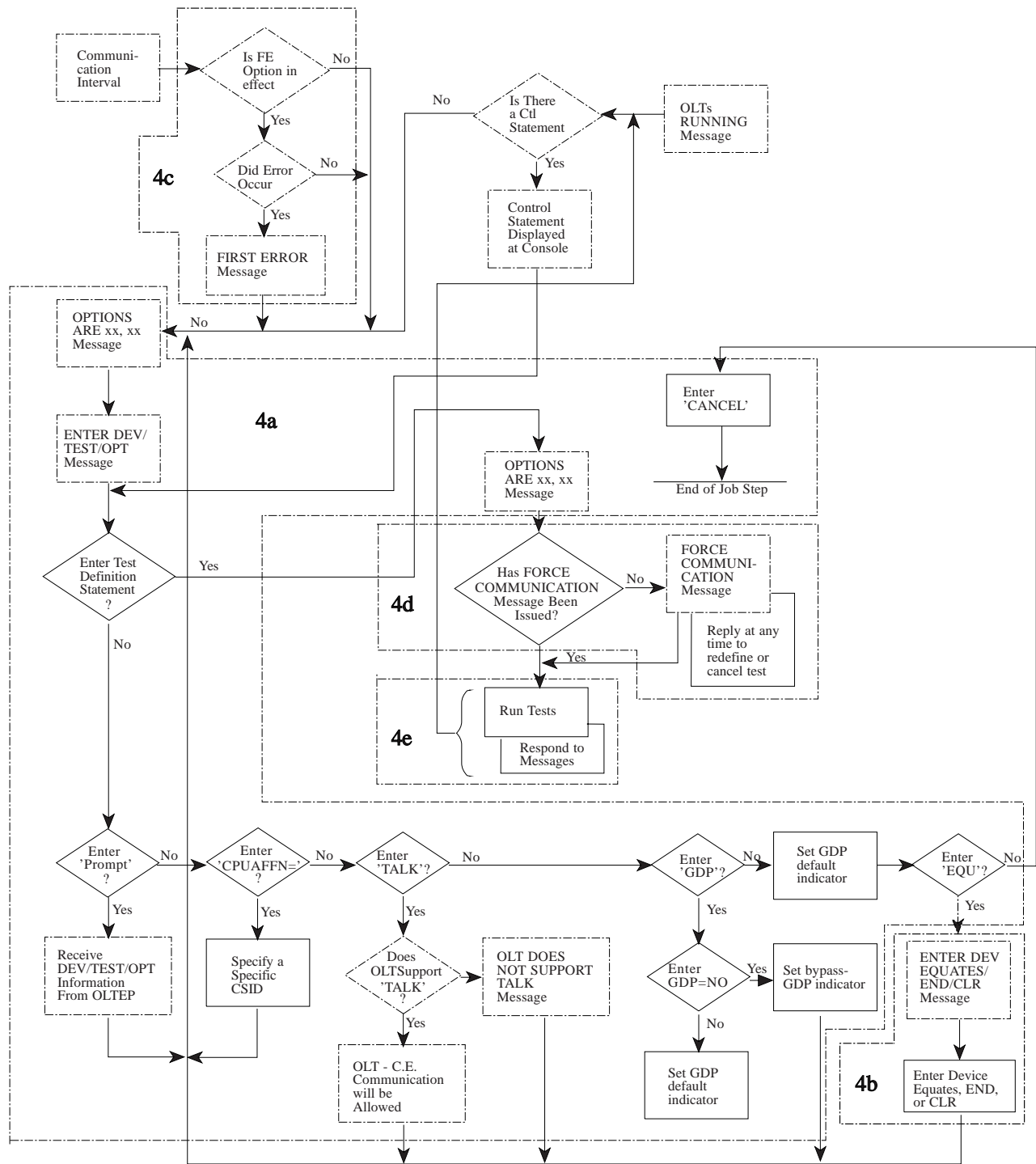


Figure 3-2. How to Define and Run Tests

Step 4a - How to Enter DEV/TEST/OPT/

When you receive the message:

```
id IFD105D ENTER-DEV/TEST/OPT/
```

during an OLTEP communication interval, you can define new devices, tests, and/or options; terminate the job step; communicate with the OLT if it permits such communication (see Step 4c); equate device numbers (see Step 4b); specify a specific CPU from which testing is to take place; or ask for help in defining the next test.

To define the next test, enter:

```
rid,devices[;chpid]/tests/options/          signal EOB
```

r -- REPLY command (optional)

id -- message identifier (id in message IFD105D)

devices[;chpid]/tests/options/ -- test definition; see Figure A-1 on page A-2.

Note: If you enter only the device number, OLTEP selects the next available chpid. So, if you want it to go down a particular channel path, you must also enter ';chpid' (for the path you want). Since a device number must begin with a numeric, device numbers which begin with an alphabetic character, such as device F80, must have a zero placed in front of it, thus F80 must be specified as 0F80.

To terminate the job step, enter:

```
r id,cancel          signal EOB
```

r -- REPLY command (optional)

id -- message identifier (id in message IFD105D)

cancel -- "Cancel tests; terminate the job step."

To specify a guaranteed data path (GDP), enter:

```
r id,GDP=YES/NO          signal EOB
```

r -- REPLY command (optional)

id -- message identifier (id in message IFD105D)

GDP=YES -- devices should be tested using the guaranteed device path facility - OLTEP selects the path.

GDP=NO -- the path used to test the devices is not important - the channel subsystem selects the path. GDP=NO is not valid for an assignable device.

Note: The default value is GDP=YES. Specific paths upon which the device is to be tested can be entered along with the device number.

Operating Procedure - Step 4

To ask for help, enter:

```
r id,promptxxxx          signal EOB
```

r-- REPLY command (optional)

id -- message identifier (id in message IFD105D)

,prompt xxxx -- "Prompt me on xxxx."

xxxx	=	<u>dev</u>	-	devices
		<u>test</u>	-	tests
		<u>opt</u>	-	options
		<u>all</u>	-	all of the above

In response to your request for help, OLTEP will send you messages that give examples of correct device, test, and option specifications as shown in the following examples.

OLTEP will then repeat message IFD105D (ENTER-DEV/TEST/OPT/) to let you define the next test.

Examples of Help Messages

```

00 IFD105D ENTER-DEV/TEST/OPT/
r 00,'prompt all'
IFD147I EXAMPLES OF DEVICE FIELD
IFD147I 0181/          TEST DEVICE 181
IFD147I 0185-187/     TEST DEVICES 185,186 AND 187
IFD147I CHICAGO1,TP2/ TEST SYMBOLIC TP DEVICES
IFD147I              CHICAGO1 AND TP2
IFD147I .NDR/        NO DEVICE REQUIRED FOR TEST
IFD147I / (SLASH ALONE) TEST PREVIOUSLY SELECTED DEVICE(S)
IFD148I EXAMPLES OF TEST FIELD
IFD148I 3420/        TAPE TESTS (T3420A-T3420Z)
IFD148I 3420A/       SEC. A OF TAPE TEST 3420
IFD148I 3420C,2/     RTN 2, SEC. C, TEST 3420
IFD148I 3420A-C,E,G/ SEC. A,B,C,E, AND G OF TEST 3420
IFD148I IOEPZZ/      SEC. ZZ OF EDIT-PRINT FUNCTION
IFD148I R2540AA/     SEC. AA OF READER TEST 2540
IFD148I / (SLASH ALONE) RUN PREVIOUSLY SELECTED TESTS
IFD149I              TABLE OF OPTIONS
IFD149I              TO REQUEST   TO OMIT   BY
IFD149I              OPTION      OPTION    OPTION  DEFAULT
IFD149I TESTING LOOP            TL        NTL     NTL
IFD149I                      TL(VALUE) VALUE=1-32767
IFD149I ERROR LOOP              EL        NEL     NEL
IFD149I                      EL(VALUE) VALUE=1-32767
IFD149I ERROR PRINT             EP        NEP     EP
IFD149I CONTROL PRINT           CP        NCP     CP
IFD149I PARALLEL PRINT          PP        NPP     NPP
IFD149I                      PP(LEVEL) LEVEL=0-3
IFD149I PRINT                   PR        NPR     PR
IFD149I FIRST ERROR             FE        NFE     NFE
IFD149I COMMUNICATION
IFD149I MANUAL INTERVENTION     MI        NMI     NMI
IFD149I REMOTE FE CONTROL       RE        NRE     NRE
IFD149I TRACE                   TR        NTR     NTR
IFD149I EXTERNAL DATA          EXT=
IFD149I EXAMPLES OF OPTION FIELD
IFD149I PP,NMI,RE/
IFD149I EP,TL(50),FE,EXT=A,B/
IFD146I SEE SRL - ONLINE TEST EXECUTIVE PROGRAM
IFD107I OPTIONS ARE NFE,NMI,NPP,NTL,NEL, CP, EP, PR,NRE,NTR
01 IFD105D ENTER-DEV/TEST/OPT/

```

Note: In this example, if “dev” had been specified instead of “all” only the IFD147I messages would have appeared; if “test” had been specified, only the IFD148I messages would have appeared; if “opt” had been specified, only the IFD149I messages would have appeared.

Step 4b - How to Equate Devices

If you have a CDS for a device and a system change has given that device a new device number, or you want to use the same CDS for a different device, you can equate the new device number to the given one using the CDS equate facility. This facility has the same effect, on a temporary basis, as literally changing all device number references to that of the new device number throughout the entire CDS.

To access the equate facility, enter:

```
r id, equ          signal EOB
```

r-- REPLY command (optional)

id -- message identifier (id in message IFD105D)

,equ' -- "I want to enter equated device numbers."

OLTEP will send you the message:

```
id   IFD394D   ENTER DEV EQUATES/END/CLR
```

OLTEP sends message IFD394D to let you enter the device numbers to be equated. Any three or four digit device number may be entered as long as each entry, with the exception of END and CLR, contains an equal sign followed by a device number. However, symbolic device numbers or embedded blanks are not allowed in an entry. Invalid responses will cause appropriate error messages to be issued. After a response has been completed, message IFD105D will be repeated.

For example:

```
r id,180=280          signal EOB
```

You can define a range of devices equated to a single device as long as the difference in the range does not exceed 16, for example:

```
r id,180-18F=280          signal EOB
```

You can define a series of devices equated to a single device. However, the series cannot be intermixed with a range in the same entry, for example:

```
r id,180,181,183=280          signal EOB
```


You can define multiple entries as long as they are separated by slashes, and the total number of equates does not exceed 16, for example:

<code>r id,180-183=190/280,281,282=380</code>	signal EOB
---	------------

You can remove a device from the equate table by equating it to itself, for example:

<code>r id,180=180</code>	signal EOB
---------------------------	------------

You can redefine an entry to the table by reequating the left side device number, for example:

<code>r id,180=280</code>	signal EOB
<code>r id,180=380</code>	signal EOB

This sequence of entries leaves device number 180 equated to device number 380.

You can also redefine entries to the table by entering CLR to clear the entire equate table, making your new entries, and then entering END to obtain a copy of these new entries to the table, for example:

<code>r id,CLR/180=280/END</code>	signal EOB
-----------------------------------	------------

This statement removes all existing entries from the equate table, equates device number 180 to device number 280, and then prints out a copy of the entries in the table (which would be 180=280).

You can make additional entries to the table at a later time by reinvoking the EQU verb and repeating the equate procedure.

When you make an incorrect entry, it will invalidate itself and any multiple entries that follow it. However, any valid entries that preceded it will remain in the table, and an error message containing all data entered between slashes or implied slashes of the entry in error, will be printed out. (For actual messages put out by the equate module, see *MVS/ESA SP V5 System Messages, Vol 2 (ASB-EWX)*).

Step 4c - How to Communicate on First Error

If one of the OLTEP options in effect is FE (first error communication), OLTEP will send you the following messages when the first I/O error occurs:

```

IFD129I      FIRST ERROR COMMUNICATION ttttsss
              rrrr UNIT xxxxxxxx aaaaaaaa
IFD107I      OPTIONS ARE zz,zz,...
id  IFD105D  ENTER-DEV/TEST/OPT/
    
```

tttt - test type (device type) name of OLT program

sss - test section

rrrr - routine of OLT program ttttsss

xxxxxxx - device number of unit on which error occurred

aaaaaaa - symbolic address of teleprocessing terminal on which error occurred (if applicable)

zz,zz,... - options in effect (options are defined in Figure A-2 on page A-4.)

When you get these messages, you can resume testing from the point at which the error occurred, or enter 'talk' to communicate with the OLT (if the OLT permits such communication); or define a new test or terminate the job step, (see Step 4a).

- To resume testing with the same options in effect, enter:

```

r id,///      signal EOB
    
```

r -- REPLY command (optional)

id -- message identifier (id in message IFD105D)

,/// -- "Resume testing from point of error."

The first error communication option remains in effect. When an I/O error occurs in a later test section, OLTEP will send you the same messages again.

To resume testing with different options, enter:

```

r id,'//options/'  signal EOB
    
```

r -- REPLY command (optional)

id -- message identifier (id in message IFD105D)

,//options/' -- "Resume testing with new options as specified." See Figure A-1 on page A-2 for format of option field.

Any option that is not specifically changed remains in effect. Thus, the FE option remains in effect unless you specify NFE.

- To define a new test or terminate the job step, go to Step 4a.

- To communicate with the OLT, enter:

```

r id,talk          signal EOB
  
```

If the OLT supports 'talk', it will send a series of informative messages to the console indicating OLT progress at the point when 'talk' was entered. If the OLT does not support 'talk', OLTEP will send you the following sequence of messages:

```

IFD166I  OLT DOES NOT SUPPORT TALK
IFD107I  OPTIONS ARE zz,zz,...
id  IFD105D  ENTER-DEV/TEST/OPT/
  
```

zz,zz,... - options in effect (options are defined in Figure A-2 on page A-4.)

Step 4d - How to Force Communication

After you have defined the first test, OLTEP sends you the message:

```

id  IFD104E  TO FORCE COMMUNICATION WITH OLTEP
EXECUTIVE, ENTER ANY CHAR
  
```

This message permits you to interrupt testing. Do **not** reply immediately. Reply when and if you want to stop a test in order to define a new test or terminate the job step. Before you reply to this message, you must reply to any immediate reply message (IFDxxxD) which you have received.

To stop the running of a test, enter:

```

r id,x          signal EOB
  
```

r-- REPLY command (optional)

id -- message identifier (id in message IFD104E)

'x' -- any character on the console keyboard

OLTEP will suspend testing and send you the message:

```

id  IFD105D  ENTER-DEV/TEST/OPT/
  
```

When you get this message you can resume testing (see Step 4b), define a new test (see Step 4a), enter 'talk' to communicate with the OLT (see Step 4c), or terminate the job step (see Step 4a). Unless you terminate the job step, message IFD104E will be reissued.

Note that you can reply to message IFD104E at any time before the end of the job step. If you don't reply, the message is not repeated.

Step 4e - How to Respond to Messages

OLTEP messages are explained in the publication *MVS/ESA SP V5 System Messages, Vol 3 (GDE-IEB)*.

Operating Procedure - Step 4

Appendix A. The Test Definition

This appendix consists of three figures:

- Figure A-1 on page A-2. The Test Definition
- Figure A-2 on page A-4. OLTEP Options
- Figure A-3 on page A-7. Messages Resulting from Combinations of OLTEP Options

Figure A-1 shows how to enter a test definition. It refers to Figure A-2, which defines OLTEP options, and to Figure A-3, which describes the effects of certain option combinations.

To define a test, enter:

```
devices[;chpid]/tests/options/
```

following the syntax shown at the top of Figure A-1 on page A-2.

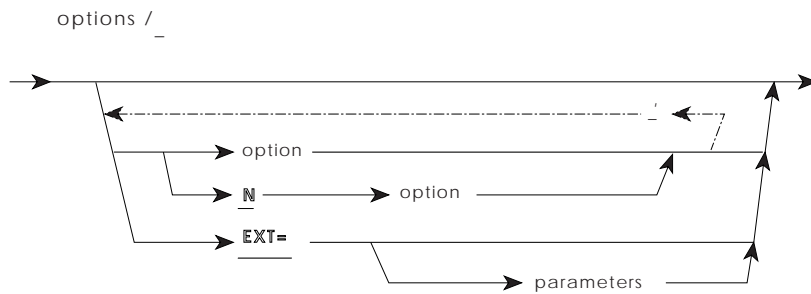
Starting at the left, follow the arrow to the right, choosing your own direction at each branch point. You can go to the left only along a dotted line. A dotted line with an arrow pointing to the left indicates that you can repeat the item on the line below the number of times specified in the expanded description. Enter **all** underlined characters including slashes and commas, exactly as shown. For items that are not underlined, substitute letters or digits, but **not** blank spaces.

Test Definition

Figure A-1 (Page 1 of 2). Test Definition

devices/	tests/
<p>Devices Field: Specify from one to 16 devices.</p> <p>unit₁ – a device number (“Test device₁”)</p> <p>unit₁-unit₂ – a range of device numbers (“Test all devices from device₁ to device₂ inclusive.” Device number₂ must be greater than device number₁.)</p> <p>chpid – channel path id required for test (optional).</p> <p>symbolic name – a name of up to eight letters and digits beginning with a letter. The name represents a remote teleprocessing terminal. (Symbolic names and device numbers can not be intermixed in the same DEV/TEST/OPT entry.)</p> <p>.NDR – (“No devices required.” NDR is valid only for OLTEP utility functions.)</p> <p>1 – device number delimiter (Use a comma to specify more than one range of devices.)</p> <p>/ – device field delimiter</p> <p>;</p> <p>Note: Some installations may use characters other than ‘;’ as delimiters.</p>	<p>Test Field: Specify from one to 26 test sections.</p> <p>type – test type (usually a device type. If you specify type alone. OLTEP will execute all available test sections in the range A to Z.)</p> <p>section₁ – test section identifier (“Execute section₁.” A section identifier consists of one to three letters; a functional description of each section is provided by IBM Field Engineering for each test type.)</p> <p>section₁-section₂ – a range of test sections (“Execute all test sections from section₁ to section₂ inclusive.” Specify sections in order: A to Z, AA to ZZ, AAA or ZZZ.)</p> <p>routine₁ – a test routine number (“Execute routine₁ of section₁.” A routine number consists of one to three digits.)</p> <p>routine₁-routine₂ – a range of test routines (“Execute all section₁ routines from routine₁ to routine₂, inclusive.” Specify routines in ascending numeric order.)</p> <p>1 – test section or routine delimiter (Specify sections or routines in the order that you want them to be executed. You can specify a section more than once; it will be executed once for each time it is specified.)</p> <p>/ – test field delimiter</p>
<p>Examples</p> <p>181/ – Test device 181.</p> <p>181;04/ – Test device 181 on channel path 04.</p> <p>0F80/ – Test device F80.</p> <p>282-284/ – Test devices 282, 283, and 284.</p> <p>181, 282-284; 07/ – Test device 181 on any channel path, test devices 282-284 on channel path 07.</p> <p>CHICAGO/ – Test the remote teleprocessing terminal which has been symbolically named CHICAGO. (Symbolic names and device numbers cannot be intermixed in the same DEV/TEST/OPT entry.)</p> <p>.NDR/ – - No device required (OLTEP utility function).</p> <p>/ – No change; test devices specified in previous Test Definition.</p>	<p>Examples</p> <p>3420/ – Execute test for IBM 3420, sections A to Z (basic test).</p> <p>3350PSA/ – Execute test for IBM 3350, section PSA only.</p> <p>3350Z-AB/ – Execute test for IBM 3350, sections Z, AA, and AB.</p> <p>3350A, Z-AB, J-L, ZZZ/ – Execute test for IBM 3350, sections A, Z, AA, AB, J, K, L, and ZZZ.</p> <p>2305A, 1/ – Execute test for IBM 2305, routine 1 of section A.</p> <p>2305A, 12-14/ – Execute test for IBM 2305, section A, routines 12, 13, and 14.</p> <p>2305, 1, 12-14, 6, 17-19/ – Execute test for IBM 2305, section A, routines 1, 12, 13, 14, 6, 17, 18, and 19.</p> <p>/ – No change; execute test specified in previous Test Definition.</p>
<p>Note: MVS/ESA SP 5.2 does not support multiple exposure devices, such as the 2305, 3350P, and 3351P. Also, OLTEP does not support 4-digit device numbers or above 16 megabyte UCBs.</p>	

Figure A-1 (Page 2 of 2). Test Definition



Option Field: Specify OLTEP options and OLT program parameters.

option – any of the following OLTEP options

- PR** – Print
- CP** – Control Print
- EP** – Error Print
- FE** – First Error Communication
- PP** or **PP(n)** – Parallel Print (0 ≤ n ≤ 3; **PP=PP(2)**)
- TL** or **TL(n)** – Test Loop (1 ≤ n ≤ 32767; **TL=TL(10)**)
- EL** or **EL(n)** – Error Loop (1 ≤ n ≤ 32767, or n=i; **EL=EL(500)**)
- MI** – Manual Intervention
- TR** – Trace

These options are explained in Figure 14. Each option that you specify remains in effect until you change it. PR, CP, EP, and NFE are standard options; unless you negate them, they take effect automatically at the beginning of the job step. The NFE negated becomes FE. The effects of certain option combinations are defined in Figure 16.

Noption – negative option (Example: **NPP**-No Parallel Print
The option remains negative until respecified.

EXT=parameters – external parameters required by OLT programs (test sections). Descriptions of OLT programs and their parameters are provided by IBM Field Engineering. (Parameters can include any character except a slash (/). They remain in effect until you change or cancel them.)

EXT= – no external parameters. (To cancel previously defined parameters, enter **EXT=** without parameters (**EXT=/**)).

, – option delimiter (Use a comma to specify more than one option, and to separate options from parameters. If you change your mind about an option after you have entered it, you can change the option within the same test definition. Example: **FE, EL, NFE/=EL, NFE/**)

/ – option field delimiter, must be specified as last character in input-buffer input.

Examples

FE/ – First Error Communication.

NFE/ – No First Error Communication.

EP, PP(1), TL(5), NEL/
– Error Print, Parallel Print (level 1 output), Test Loop (repeat 5 times), No Error Loop.

MI, NMI/ – No Manual Intervention (If you specify contradictory options, OLTEP accepts the last option specified.)

EXT=parameters/
– External parameters.

PR, CP, EXT=parameters/
– Print, Control Print, External parameters.

EXT=/ – No external parameters.

/ – First Definition: **/=PR, CP, EP, NFE, NPP, NTL, NEL, NMI, NRE/** Thereafter, **/** means “no change; use options and parameters already in effect.”

Test Definition

Figure A-2 (Page 1 of 3). OLTEP Options

OPTIONS

OLTEP issues two types of messages:

- DPRINT function messages, which are issued to the SYSOUT device and which indicate either error or non-error test results.
- CECOM function messages, which are issued to both the console and the SYSOUT devices.

The first five of the following options (CP,PP,EP,FE,PR) control the issuing of these messages.

CP (Control Print)

OLTEP issues a console and SYSOUT message (IFD158I) to let you know when a test section (OLT program) has been started or terminated. If an asterisk appears in the termination message, the test section detected an error. If the CP option is in effect, this message will be printed out. However, if NCP is in effect, the printing of this message will be suppressed.

PP or PP(n) (Parallel Print)

OLTEP sends DPRINT messages to the console as well as to the SYSOUT device if this option is specified. You can control console output as follows:

```
PP(0)    -- header only
PP(1)    -- header, description, comments
PP(2) or PP -- header, results
PP(3)    -- all of the above
```

This option can reduce system performance; use it only when necessary.

Example 1: The only printer at the installation is not working properly, so there is no way to print the //DIAGMSG data set. Define a dummy data set (//DIAGMSG DD DUMMY), and use the PP option to print test output at the console.

Example 2: The //DIAGMSG data set is a SYSOUT data set; it will not be printed until the OLTEP job has terminated. Use the PP option to print test output that you want to see before terminating the job.

EP (Error Print)

This option controls only **error** DPRINT messages. If you specify EP, all DPRINT error messages will be printed out, (see PR option). If you specify NEP, (No Error Print), you will limit these messages to, at most, two DPRINT error messages per test section; one at first error time, and one when the first catastrophic error occurs - unless they occur simultaneously.

FE (First Error Communication)

When an OLT program detects a device error, OLTEP suspends testing and asks for a new test definition at the console. You can then define a new test, resume testing from the point at which the error occurred, or terminate the jobstep. If you choose to resume testing, you can change the OLTEP options that apply to the test.

First error communication occurs once per test section (on the first error detected by an OLT program). To suppress first error communication, you can default to NFE (No First Error Communication), or specify either NPR (No Print) with the TL (Test Loop) or EL (Error Loop) option. (The combination NPR,TL or NPR,EL also suppresses messages requested by the PR (Print) and EP (Error Print) options; see Figure A-3.)

Example: You are testing several tape drives. If a device error occurs, you want to check the device with an oscilloscope while repeating the routine that produced the error. Specify the FE option, as in the following sequence:

```
...
01 IFD105D  ENTER-DEV/TEST/OPT/
r 01,'181-183/3420/FE/'
...
    IFD129I  FIRST ERROR COMMUNICATION T3420J 7
            UNIT 00000181
01 IFD105D  ENTER-DEV/TEST/OPT/
...
```


Figure A-2 (Page 2 of 3). OLTEP Options

Message IFD129I tells you that an error occurred on unit 181 during execution of the IBM 3420 test, section J, routine 7. Message IFD105D asks for a new test definition; you could enter any of the following:

/// -- resume testing. Request a new test definition if an error occurs during execution of a later test section.

//EL/ -- resume testing and execute error loop.

//EL,NFE/ -- resume testing and execute error loop, but suppress first error communication if an error occurs during execution of a later test section.

181/3420J,7/TL(499)/ -- execute 500 times the routine that caused the error. Request a new test definition if an error occurs; allow one F.E. communication during each test section run.

181/3420J,7/TL(499),NPR/ -- execute 500 times the routine that caused the error. Suppress first error communication. Do not print messages requested by the EP option.

CANCEL -- terminate the jobstep.

PR (Print)

This option affects DPRINT messages and messages IFD129I (first error message), and IFD157 (catastrophic error messages). If it is specified, these messages will be issued to the SYSOUT device. If you specify NPR (No Print), with EL (Error Loop) or TL (Test Loop), it will override the EP (Error Print) and FE (First Error) Options. By doing this, it suppresses the printing of messages IFD129I and IFD157I, and all error and non-error DPRINT messages.

TL or TL(n) (Test Loop)

OLTEP executes the test that you have defined; it then repeats the test **n** times. The number **n** can be any integer from one to 32767; if you specify no value for **n**, OLTEP assumes **n** = 10 (TL = TL(10)).

With TL or TL(n), you can specify NPR (No Print) to suppress messages requested by the PR (Print), EP (Error Print), and FE (First Error Communication) options. (See Figure A-3.)

Example: You want to exercise a device and check it with an oscilloscope. Specify the TL option to keep the device active for as much time as you require. Specify the NPR option to suppress unwanted messages.

You may want to terminate a test loop before it is completed. You can do so by canceling the job, or by entering a new test definition at the console. *Example:* The following sequence shows how to terminate a test loop:

```

...
00 IFD105D  ENTER-DEV/TEST/OPT/
r 00,'181/3420/TL(100)/'
...
00 IFD104E  TO FORCE COMMUNICATION WITH OLTEP
            EXECUTIVE, ENTER ANY CHAR
...
test loop
...
r 00,6
00 IFD105D  ENTER-DEV/TEST/OPT/
r 00,'182///'
...

```

The initial test definition is 181/3420/TL(100)/. After accepting the definition, OLTEP sends you message IFD104E (assuming it has not already done so). You reply to this message when you want to terminate the test loop.

Test Definition

Figure A-2 (Page 3 of 3). OLTEP Options

When you reply, OLTEP suspends testing and sends you message IFD105D. You then enter a new test definition, such as 182///, which ends testing of unit 181 and starts testing of unit 182. Since 182/// is here equivalent to 182/3420/TL(100)/, the test loop is restarted on unit 182. Note that you could also enter any of the following:

182//NTL/ -- the test loop is stopped completely; each 3420 test section is executed only once for unit 182.

/3420F// -- the test loop is stopped and a new test loop is started on the same unit (181); section F of the 3420 test will be executed 101 times.

//NTL/ -- testing is resumed from the point of interruption. Testing will end when the current loop has been completed.

//TL(5)/ -- testing is resumed; testing will end when the current loop and five additional loops have been completed.

//NPR/ -- testing is resumed, and will end when the original 100 loops have been completed. During the remaining loops, messages requested by the PR, EP, and FE options will not be printed. **EL or EL(n) (Error Loop)**

When an OLT program detects an I/O error, OLTEP repeatedly executes the program that produced the error. Execution is repeated **n** times, where **n** is any integer from one to 32767, or **i** for infinite looping. If you specify no value for **n**, OLTEP assumes **n = 500** (EL = EL(500)).

With EL or EL(n), you can specify NPR (No Print) to suppress messages requested by the PR (Print), EP (Error Print), and FE (First Error Communication) options. (See Figure A-3.)

Example: You are searching for an intermittent device error. When the error occurs, you want to determine the frequency of the error by repeating the same I/O operation a number of times. Specify the EL option to repeat any I/O operation that causes an error condition. To have this operation repeated indefinitely, specify EL = EL(i).

You may want to terminate an error loop before it is completed. You can do so in the same way that you can terminate a test loop. For example, you can terminate an error loop and resume testing by entering //NEL/. If you change the loop count (by entering //EL(n)/), the loop continues as originally defined; the new count applies only to subsequent errors.

MI (Manual Intervention)

OLTEP executes OLT program routines that require manual intervention, such as changing the carriage control tape on a printer. OLTEP bypasses these routines except when you specify the MI option. If you do not specify the MI option, you are not informed when a routine which requires manual intervention is bypassed.

TR (Trace)

OLTEP prints one line of output for every module used during a test, giving module IDs and addresses, and return codes. TR is used to debug online tests by tracing the online tests' use of OLTEP macro instructions.

OPTIONS					MESSAGES				
First Error	Communication	Error Print	Print	Test Loop	First Error	Error	OLT Program (Error)	OLT Program (Normal)	Castastrophic Error
FE	EP	PR	...	...	+	•	•	+
FE	EP	PR	...	...	+	•	•	+
FE	EP	...	NTL	NEL	+	•	•	+	
FE	NEP	PR	...	...	+	+	•	+
FE	NEP	...	NTL	NEL	+	+	•	+	
-----					-----				
NFE	EP	PR	...	...	-	•	•	+
NFE	EP	...	NTL	NEL	-	•	•	+	
NFE	NEP	PR	...	...	-	+	•	+
NFE	NEP	...	NTL	NEL	-	+	•	+	
-----					-----				
...	...	NPR	TL	...	-	-	-	-	
...	...	NPR	...	EL	-	-	-	-	

Key

- ... Option may have either value. For example: TL or NTL.
- Message is printed.
- + Message is printed (limited to one message per test section).
- Message is suppressed.

For a description of each type of message, refer to description of the corresponding option in Figure 15.

- First Error Message: First Error Communication Option
- OLT Program Message (Error): Error Print Option
- OLT Program Message (Normal): Print Option
- Catastrophic Error Message: Print Option

Figure A-3. Messages Resulting from Combinations of OLTEP Options

Test Definition

Glossary

The following terms are defined as they are used in this manual. If you do not find the term you are looking for, refer to the Index.

CE bit. A bit that indicates whether a CE volume is mounted.

CE volume. A specialized direct access volume used for testing by customer engineers.

configuration data set (CDS). A data set contained in the OLTEP library which contains descriptive information about the devices attached to a system.

DASD. A direct access storage device.

editor program. A program that creates or updates partitioned data sets which contain OLTs and CDSs.

file protect mode (FPM). A mode in which online direct access storage devices are tested. No writing is done on the device in order to protect data.

first error communication. An OLTEP option (FE) which, when specified, enables the operator or customer engineer to enter a new test definition when an input/output error occurs.

GDP (guaranteed device path). Device will be tested using only one channel path.

master console. In a system with multiple consoles, the basic console used for communication between the operator and the system.

multiple console support (MCS). A standard feature of MVS that permits selective message routing to up to 32 operator's consoles.

OLT program (online test program). A program which tests control units, or I/O devices under MVS.

OLTEP provides the interface between OLT programs and the operating system.

OLTEP (online test executive program). A facility that schedules and controls activities on the online test system (OLTS) and provides communication with the operator. This program is part of a set of programs that can be used to test I/O devices, and control units, concurrently with the execution of programs.

OLTEP data sets. Data sets which contain OLT programs and system configuration data. These data sets must be created and maintained by the OLTEP editor and punch facilities.

online test system (OLTS). A system that allows a user to test I/O devices concurrently with execution of programs. Tests may be run to diagnose I/O errors, verify repairs and engineering changes, or to periodically check devices. See also OLTEP.

punch program. The program used to punch OLTs and/or CDSs from OLTEP data sets. It is used in the process for modifying OLTEP data sets.

service console. In a system with multiple consoles, an alternate console that receives system error maintenance messages. Contrast with master console.

SOSP (stand-alone online test support processor). A utility program which provides the means for generating and maintaining a master tape or disk file of OLTs used to update the OLTEP data sets.

test definition. Information entered by an OLTEP user which specifies units to be tested, test sections to be executed, and options to be used.

test section. An OLT program or the function performed by an OLT program.

unit test. (See OLT program).

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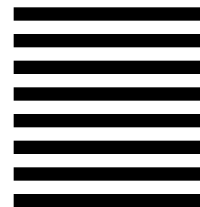
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