

Chapter
2

USAGE

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Objectives

You will learn:

- C TSO Interface.
- C Common screen fields.
- C Command entry.
- C COBOL compiler options.
- C Fast-path access to Source Listing Screen.
- C Direct access.

1 TSO Interface

Toggle Between Sessions

Once under CICS, you can execute most CICS commands, including XPEDITER/CICS, while keeping your TSO session active.

It is possible to toggle back and forth between sessions by pressing one key. This affords the capability to debug a program under CICS, toggle over to TSO, make source changes, and toggle back to the CICS test session.

Browse the Source File

The TSO interface affords the capability to let you browse the source listing file online.

Applications programs that are processed with the Compuware language postprocessors can be browsed. This allows the status of application program source to be checked without having to run batch jobs. Source listings can be browsed, printed, locked, unlocked, or deleted.

The XPEDITER/CICS TSO interface is an optional facility. Select the TSO interface option from the ISPF Primary Menu. The XPEDITER/CICS/SETUP Main Menu appears as shown on the following page.

XPEDITER/CICS - SETUP/MAIN MENU

```
XPEDITER/CICS - SETUP/MAIN MENU -----
OPTION ==>

Select a testing environment:

  0 PARAMETERS      - Specify XPEDITER/CICS Parameters
  1 CICS             - Test a CICS Transaction or Program
  2 TSO              - Test a Batch STEP
  3 BATCH            - Test a Batch JOB
  4 BROWSE           - Browse the XPEDITER/CICS Source Library
  X Exit             - Terminate XPEDITER/CICS

Enter END command to terminate XPEDITER/CICS

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```

CICS Applid Selection Screen

```
XPEDITER/CICS - INTERFACE/SETUP/CICS/APPLID SELECTION -----
--
COMMAND ==>

Please enter the CICS applid:
      APPLID ==> TESTCICS

Please enter a TOGGLE pf key:
      TOGGLE ==> PF 13
```

2 Help Facility

These screens are available from any product screen by pressing <PF1>.

XPEDITER/CICS HELP primary command can be used to request XPEDITER's Interactive HELP facility.

The options which can be used with HELP are:

BREAKS	Displays information about breakpoints.
CHANGES	Displays information about the CHANGES in the current release.
COMMANDS	Displays summary of all primary and line commands.
CUSTINFO	Displays customer information including product release and licensed options, licensed CPUs' security release, tape creation date, and load library name.
DL/I	Displays information about DL/I and I/O command available.
DL/I-return-code	Displays causes and action information about the DL/I return code.
MODULE	Provides product and module information.
NEWS	Displays the new features for this XPEDITER/CICS release.
NOSOURCE	Displays probable causes to help determine why a source listing cannot be displayed for a program.
primary-command	An XPEDITER/CICS primary command.
PROGRAM	Describes PROGRAM field.
RANGES	Displays information about the RANGE parameter.
SCROLL	Describes the SCROLL field.
SLSERR	Displays information what action to take if a SLS (source level support) error occurs on any source listing screen.
SQLERROR	Displays additional text regarding the current value of the SQL return code.
SQLCODE	Displays information about SQL codes.
SRC	Provides an overview of the Source Listing screen.

3 Common Screen Fields

Each screen is identified on the top line by a title or a screen ID.

You can navigate from one XPEDITER/CICS screen to another using menus, screens ID (fast path), or commands.

```
----- XPEDITER CICS - LIST BREAKPOINTS (1.1) -----
COMMAND ==> PEEK WA-TAX-RAT                SCROLL ==> CSR
PROGRAM: CWDEMCB2  MODULE: CWDEMCB2  COMP DATE: 09/25/93  COMP TIME: 15.32.03
```

Screen Title and ID	Each screen title and ID is unique. You specify the screen ID in the COMMAND field to display that screen; e.g., =1.1 displays the List Breakpoints screen.
COMMAND field	Type primary commands and screen IDs in the COMMAND field. Some PF keys also depend on the parameters that you enter in this field.
SCROLL field	Sets the scroll value for screens that permit scrolling.
PROGRAM field	Identifies the program that is being debugged, including called programs. To change to another program, simply type the new program name. Current breakpoints and keeps are retained for the new program until they are deleted or the session is ended.
MODULE field	Identifies the main program when debugging a selected CSECT within a module.
COMP DATE/COMP TIME Fields or Message	Displays the date and time the program was compiled. When XPEDITER/CICS issues a diagnostic or informational message, the message displays instead of the compilation date and time.

4 Command Entry

There are three ways of entering commands.

Primary Commands	These commands are entered in the COMMAND field of any screen.
Line Commands	A subset of the primary commands; the line commands are typed in the line number area of the display.
PF Keys	Set by default to the most commonly used commands; the PF key assignments can be set as part of the user profile.

4.1. Common Primary Commands

Some commonly used XPEDITER/CICS primary commands are:

Primary Command	Description
ACCESS	Allows you to display user-written BMS maps and mapsets.
AFTER	Sets or deletes breakpoints (stops) after the execution of an instruction.
ANALYZE	Gathers statistics about program execution to check program efficiency and pinpoint unused code and loops.
BEFORE	Sets or deletes breakpoints (stops) before the execution of an instruction.
CALC	Performs hexadecimal/decimal calculations and displays the results online.
COUNT	Sets execution counts and gathers test coverage statistics. Same as the ANALYZE command.
EXCLUDE	Excludes specified lines from display. You see only the lines of code in which you are interested. When you step through a program, lines are added as they are executed so you can see the logic flow of the program. Symbolic label support is provided so that you can exclude a range of lines.
EXIT <PF4>	Transfers to the EXIT SESSION screen.
FIND	Positions the cursor on a specified string. Can be used in conjunction with the EXCLUDE command.
GO <PF4>	Executes program logic by the specified parameter. If no parameters are specified, resumes execution from the current location. GO 5 1 will execute five statements, pausing one second between each statement. GO UNTIL WA-HOURS executes until the value of WA-HOURS changes.
HELP <PF1>	Displays online help. HELP COMMANDS displays a list of the available commands. HELP NEWS gives information about the current release. Entering HELP on a particular screen will display information about that screen.
KEEP	Selects the contents of a data item to be viewed in the scrollable and sizable keep window. To change displayed data, overtype it with a new value.
LOCATE <PF6>	Locates an abend, breakpoint, line number, or other program element.
REPEAT	Re-executes the last primary command.
SET	Changes debugging parameters.
KEEPS	Changes the size of the keep window.

Primary Command	Description
JUSTIFICATION	Clips the current source listing so that extraneous data in the source is removed from the display. SET JUSTIFICATION ON clips the lines and suppresses all lines before the first and after the last source line in the display.
SOURCE	Provides either a source or stop/abend focus.
FOOT	Changes the data displayed in the FOOTING.
KEYS	Displays the PF key settings.
SOURCE	Displays five lines of source.
STATUS	Displays status of current task.
SHOW	Modifies the format of selected screens to display data in different forms.
SKIP	Temporarily bypasses the execution of a statement.
USING	Maps data according to a record format from a COBOL program.

4.2. Common Line Commands

Some commonly used XPEDITER/CICS line commands are:

Line Command		Description
A	AFTER	Sets or deletes breakpoints after an instruction.
AN/ANN	Analyze	Sets an execution analysis/count for a statement or range of statements.
B	Before	Sets an unconditional breakpoint before a statement.
C/CC	Count	Sets an execution analysis/count for a statement or range of statements.
GT	Goto	Changes the current execution pointer.
K	Keep	Selects data names to be kept.
SA/SB	Set After/ Before	Sets execution breakpoints after or before the specified line.
SAC/SBC	Set After/ Before Conditional	Sets conditional execution breakpoints after or before the specified line.
SK/SKK	Skip	Indicates that the selected line is to be skipped.
SKC	Skip Conditional	Indicates that the selected line is to be skipped if the specified condition is true.
X/XX	Exclude	Excludes a line or range of lines.

Default PF Key Settings		
Function	PF Key	Description
HELP	PF1	Provides help information on the function currently in use.
MENU	PF2	Ends the current XPEDITER/CICS function and transfers to the highest level system Menu.
END	PF3	Ends current function and returns to the next higher level screen. For DB2 screens only, returns to previous screen.
= X	PF4	Transfers to the EXIT SESSION screen.
RFIND	PF5	When used with a previously issued FIND command, searches for the next occurrence of the specified data.
LOCATE	PF6	Locates an abend, breakpoint, line number, listing area, offset, paragraph, or data name on the SOURCE LISTING screen. Locates a file resource on File Utility screens.
UP	PF7	Scrolls up through the data portion of a screen or the Help facility.
DOWN	PF8	Scrolls down through the data portion of a screen or the Help facility.
GO 1	PF9	Resumes program execution for one instruction or statement, then halts the program.
LEFT	PF10	Scrolls the data portion of the screen to view data to the left of the current display. On the MEMORY DISPLAY screens, PF10 acts as the PREV command.
RIGHT	PF11	Scrolls the data portion of the screen to view data to the right of the current display. On the MEMORY DISPLAY screens, PF11 acts as the NEXT command.
GO	PF12	Steps through program logic by the specified parameters. If no parameters are specified, resumes program from current location. This key is available in all situations where resuming is allowed.

Function	PF Key	Description
SOURCE	PF13	Transfers to the SOURCE LISTING screen.
MEMORY	PF14	Transfers to the MEMORY DISPLAY screen.
SELECT	PF15	Selects a function from a menu or selection screen, or lists the sixteen most recently accessed addresses from the MEMORY DISPLAY screens.
WS	PF16	Transfers to the VARIABLE STORAGE screen.
= 2.4	PF17	Transfers to the PROGRAM TRACE screen.
= 2.8	PF18	Transfers to the Last 3270 screen.
UP MAX	PF19	Scrolls down the maximum amount possible.
DOWN MAX	PF20	Scrolls up the maximum amount possible.
FILE	PF21	Transfers to the FILE UTILITY MENU.
= 2.20	PF22	Transfers to the ASSEMBLER STOP/ABEND screen.
RETRIEVE	PF23	Displays the last command entered in the COMMAND field, allowing it to be changed or reissued.
= 7.1	PF24	Transfers to the ISSUE CICS ABEND-AID SNAP DUMP screen.

5 Preparing a Program for Execution

- C Source program must be run through COMPUWARE's Language Processor which provides the following capabilities during interactive debugging.
- C Set breakpoints to stop execution at any statement.

There are two types of break points:

Unconditional	Halts program execution at the selected statement.
Conditional	Halts program execution only if the specified condition is met.

- C Select data fields for viewing during program execution.
- C Resume execution at any statement.
- C Change the execution point by statement number.
- C Examine the statement-level trace during or after execution.
- C Map file records to COBOL data structures.

6 COBOL Compiler Options

COBOL/370 Options:		
OFFSET or LIST	SOURCE	NOWORD
MAP	XREF	NOTERM

VS COBOL II Options:		
OFFSET or LIST	SOURCE	NOWORD
MAP	XREF	NOTERM

VS COBOL Options:		
OFFSET or LIST	SOURCE	NOWORD
MAP	XREF	NOTERM

OS/VS COBOL II Options:		
CLIST or PMAP	NOBATCH	NOSYMDMP
DMAP	NOCDECK	NOTERM
SOURCE	NOFDECK	VERB
XREF OR SCREF	NOLST	SUPMAP

7 Newcopy

Whenever a program is recompiled or reassembled, a new copy of the program must be loaded in CICS.

XPEDITER/CICS has a transaction that can be used in place of the CSMT or CEMT transactions to load a new copy of a program to CICS. The NEWC transaction loads a new copy and resets breakpoints.

To use the NEWC transaction, type NEWC followed by the program name on a blank CICS screen. If the newcopy is successful, the following message is displayed:

```
PROGRAM program-name NEWCOPY SUCCESSFUL..time date
```

8 Fast-Path Access to Source Listing Screen

1. To directly access the SOURCE LISTING screen, enter an XPEDITER/CICS transaction, followed by the program name.

For example, by typing **XPED CWDEMCBL** and pressing <ENTER>, the SOURCE LISTING screen is displayed for the XPEDITER/CICS COBOL demonstration program.

2. From here you can set breakpoints in your programs, select variables to keep for viewing, set up an execution analysis, specify statements to be skipped, or transfer to another screen.

C Transfer between screens by typing = followed by the screen ID.

For example, type = 5.1 in the COMMAND field and press <ENTER> to transfer to the CICS DATASETS MENU.

- C Use PF keys to transfer to the following commonly used screens:

PF2	SYSTEM MENU
PF13	SOURCE LISTING
PF14	MEMORY DISPLAY
PF16	VARIABLE STORAGE
PF17	PROGRAM TRACE
PF21	FILE UTILITY MENU

8.1. Direct Access

If you know the screen ID that you want to access, enter XPEDITER/CICS transaction, followed by the Screen ID.

For example:

XPED 5

To display file utility menu.

8.2. Exiting XPEDITER/CICS

To end the XPEDITER/CICS session, type =X in the command field of any XPEDITER/CICS screen.

If you are currently not in the EXPEDITER/CICS, type XPED X on a blank screen.