CA Datacom® CICS Services

User Guide

Version 14.02

ca technologies

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CA Technologies Product References

This document references the following CA products:

- CA ACF2™
- CA Datacom® CICS Services
- CA Datacom® Datadictionary ™
- CA Datacom®/DB
- CA Datacom® Server
- CA Dataquery™ for CA Datacom® (CA Dataquery)
- CA Ideal™ for CA Datacom® (CA Ideal)
- CA InterTest™ for CICS
- CA SYSVIEW® Performance Management (CA SYSVIEW)
- CA Top Secret®

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Chapter 1: Introduction

The purpose of this guide is to provide the basic principles and examples on how to use the online facilities of CA Datacom CICS Services. The audience includes Database Administrators, systems programmers, and application programmers who have a working knowledge of both CA Datacom/DB and IBM CICS/TS.

For CICS/TS releases supported by CA Datacom CICS Services and compatible with other CA Datacom product releases, see the *Installation Guide for z/OS*.

CA Datacom CICS Services makes it possible for application programs which run under CICS/TS to communicate with CA Datacom/DB. The main purpose of CA Datacom CICS Services is to provide the interface between CICS/TS and the CA Datacom/DB MUF. This applies to both user application programs and the online components of such CA products as Sysview, CA Dataquery, and CA Datacom Datadictionary. Application programs and User Requirements Tables (URTs) using CA Datacom CICS Services can reside above or below the 16 MB (megabyte) line. Details about using your applications with CA Datacom CICS Services are provided in Linking Application Programs (see page 297).

This section contains the following topics:

Features

The following topics provide a brief summary of the advantages of CA Datacom CICS Services.

Supports Various Languages

Application programs can be written using the following:

- CA Ideal
- Assembler
- COBOL (with or without the use of CA MetaCOBOL+)
- PL/I using a command-level interface to CICS/TS

Selects URT for Executing Application

In the CA Datacom/DB environment, it is the URT associated with the program that communicates all program-specific information to CA Datacom/DB, such as the following:

- With which MUF (in a multiple MUFs environment) requests using this URT are processed
- Which tables the application can access and update
- Whether transaction backout is made available for any abending update transactions to the listed tables
- The relative priority within the MUF for the program-issued requests

CA Datacom/DB requires every executing program to be associated with a URT. In batch, you determine which URT a given program is to use. Under CICS, CA Datacom CICS Services handles the association of a URT with your application program for you. You define several URTs from which CA Datacom CICS Services makes a selection at execution time, depending on the database and table in which the requested data resides, and optionally (in a multiple MUFs environment) which MUF is to process the request.

Connects and Disconnects MUFs

To use system resources effectively under CICS, connect and disconnect functions are performed by CA Datacom CICS Services. The DBCSID macros specify how and when CICS Services connects to each MUF. All MUFs are disconnected during CICS Services shutdown. You can specify general exceptions through the DBCSID macro appended to the System Generation Options Table (DBCVTPR) or explicitly invoke connect or disconnect at anytime through online commands. In the DBCSID macros, you can specify that MUFs are to be connected only when their use is required or only when you enter an online command to request connect. If no DBCSID macro is coded, connect is done at PLT time. In z/VSE, there is no option other than PLT. DBCSID is not available in z/VSE because it is intended to be used in a Multi-MUF environment and Multi-MUF is not supported in z/VSE.

Opens and Closes URTs

To use system resources effectively under CICS, the Open and Close functions are performed by CA Datacom CICS Services. Unless you specify otherwise, CA Datacom CICS Services opens all URTs at CICS startup and closes all URTs at CICS shutdown. You can specify general exceptions through the System Generation Options Table (DBCVTPR) or explicitly invoke an open or close at anytime through online commands. In DBCVTPR, you can list URTs to be opened only when their use is required or only when you enter an online command to request the open.

Manages Allocated Threads

CA Datacom/DB allows applications to use multiple URTs through an extended request technique. CA Datacom CICS Services uses this technique without requiring the CICS application programmer to code extra logic. A CICS application program can be coded with the same call request format as a batch program. The extended request logic allocates for CICS usage several processing threads to CA Datacom/DB. CA Datacom CICS Services obtains and releases the allocated threads as required. This allows multi-threading of application requests. The multi-thread logic permits concurrent processing of several CICS transactions.

Update requests require sole use of a single thread. CA Datacom CICS Services optimizes thread use by placing multiple read-only transactions on the same thread, thus reserving additional threads for transactions performing update requests. Once processing on a reserved thread is complete, CA Datacom CICS Services commits resources automatically. For details, see the chapter about utilizing resources in the *System Reference Guide*.

Extends CICS Processing Functions

CA Datacom CICS Services provides other functions specifically related to CICS processing. CICS provides a trace function for CICS activities, transaction backout of abending tasks, and SYNCPOINT processing. CA Datacom CICS Services extends these CICS functions to the CA Datacom/DB processing environment as follows:

- Provides a before and after CICS trace entry on each database request. See the appendix on CICS Trace Table Entries in the *System Reference Guide*.
- Invokes a CA Datacom/DB backout for any task which updates a database, but abends before completion.
- Issues a CA Datacom/DB checkpoint to the appropriate MUF or MUFs when a transaction issues a CICS SYNCPOINT. For details on techniques for improving the operating efficiency of your online applications, see Updating Technique (see page 301).

Supports User Exits

CA Datacom CICS Services provides facilities for implementing two user exits, one before CA Datacom CICS Services issues a CA Datacom/DB call, and one both before and after accessing CA Datacom/DB. You can use these exits to tailor CA Datacom CICS Services to the requirements of your site.

Note: For more information about the requirements for these exit programs, see the *System Reference Guide*.

Displays System Resources on Request

You can monitor system resources at anytime by issuing an online inquiry command to display a selected resource. CA Datacom CICS Services displays the requested information in a formatted panel or in scrollable form, depending on the transaction ID. CA Datacom CICS Services is installed with the following CICS transaction IDs for issuing online commands to monitor system resources:

DBEX DBEC

The inquiry command invokes a scrollable display of MUFs or URTs and, if requested, the tables listed in each URT. In an MRO environment, the display can be limited to MUFs or URTs in a specified CICS, or extend to MUFs or URTs in all CICS systems.

DBIC DBOC

Twenty inquiry commands are available to invoke formatted displays of the following resources and data:

- URTs, with or without associated CA Datacom/DB table information
- Trace table, either scrollable display of entries, criteria on which trace is based, or status of Auxiliary Trace
- Statistics: Active tasks, held transactions, abending tasks, concurrent users, requests by return code
- Options currently in use (defined through System Option Table (DBCVTPR) parameter values)
- Software maintenance level

DBUT

Displays storage areas for CICS programs and system tables at specified locations.

Controls System Resources on Request

If authorized for the required transaction ID, you may alter system resources by issuing the appropriate online command. CA Datacom CICS Services displays messages on the command results. CA Datacom CICS Services is installed with the following CICS transaction IDs for issuing online commands to alter system resources:

DBEC

The scrollable display invoked by an INQuire command contains fields which are updatable when the command is issued through DBEC. In addition, several PERform commands invoke actions which alter MUF or URT resources within the local or remote CICS systems and startup/shutdown in the local or remote CICS.

DBOC

Twenty-four commands permit you to modify or control the following:

- URTs
- CA Datacom/DB tables
- CA Datacom CICS Services modules or control tables
- Trace Facility and Auxiliary Trace Facility
- CA Datacom CICS Services operation and options

DBUT

Allows you to alter CICS programs and system tables. See the *System Reference Guide*.

Facilitates Application Development

CA Datacom CICS Services facilitates application development with the following:

DBTX

Accepts read-only requests to CA Datacom/DB, allowing you to examine command syntax or simulate program logic.

DBTS

Accepts read-only and update requests to CA Datacom/DB, allowing you to examine command syntax or simulate program logic and also update the specified database.

DBUG

Intercepts CA Datacom/DB requests issued by an executing application program, allowing you to examine its processing.

Provides Means of Restricting or Extending Inquiry and Control

CA Datacom CICS Services provides multiple transaction IDs through which the security administrator can restrict the use of control commands to authorized users.

- It provides three alternate CICS transaction IDs to enable the security administrator to authorize users to invoke inquiry displays while limiting their access to control commands. Specifically, the security administrator can authorize a limited set of users the access to Operational (DBOC), Enhanced (DBEC) and Test Facility (DBTS) transaction IDs which are valid with commands which allow the control of resources. The security administrator can provide unrestricted access to the Inquiry (DBIC), Enhanced Inquiry (DBEX), and Test Facility Read-Only (DBTX) transaction IDs which can be used only with "inquiry" type commands.

- It provides a means of limiting users authorized for the DBOC transactions to initiate or terminate CA Datacom CICS Services or alter online the System Generation Options coded in DBCVTPR. This limiting is accomplished through use of the MSTOPR= parameter in the System Options Table, which accepts up to 50 operator IDs.

Provides Security for Database Access

To promote the security of database access, CA Datacom CICS Services passes CA Datacom/DB the following with each CA Datacom/DB request:

- User identification: Either the 3-byte operator ID or the 8-byte operator name from the CICS sign-on table (CESN OPERID or CESN USERID), depending on your specifications. CA Datacom/DB secures access and update to CA Datacom/DB tables, record, fields, and elements based on the ID of the request initiator. If you have CA Top Secret or IBM's RACF, these security products provide the ACEE address to CA Datacom CICS Services.
- CA ACF2 supplies the eight-byte USERID to the CESN USERID field, if available. Otherwise, your DFHSNT entry is used.

Reading Syntax Diagrams

Syntax diagrams are used to illustrate the format of statements and some basic language elements. Read syntax diagrams from left to right and top to bottom.

The following terminology, symbols, and concepts are used in syntax diagrams:

- Keywords appear in uppercase letters, for example, COMMAND or PARM. Enter these words exactly as shown.
- Variables appear in italicized lowercase letters, for example, *variable*.
- Required keywords and variables appear on a main line.
- Optional keywords and variables appear below a main line.
- Default keywords and variables appear above a main line.
- Double arrowheads pointing to the right indicate the beginning of a statement.
- Double arrowheads pointing to each other indicate the end of a statement.
- Single arrowheads pointing to the right indicate a portion of a statement, or that the statement continues in another diagram.

- Punctuation marks or arithmetic symbols that are shown with a keyword or variable must be entered as part of the statement or command. Punctuation marks and arithmetic symbols can include the following:

,	comma	>	greater than symbol
.	period	<-	less than symbol
(	open parenthesis	=	equal sign
)	close parenthesis	¬	not sign
+	addition	-	subtraction
*	multiplication	/	division

The following is a diagram of a statement without parameters:

Statement Without Parameters

```
▶▶─ COMMAND ──────────────────────────────────────────────────────────▶◀
```

For this statement, you must write the following:

```
COMMAND
```

Required parameters appear on the same horizontal line, the main path of the diagram, as the command or statement. The parameters must be separated by one or more blanks.

Statement with Required Parameters

```
▶▶─ COMMAND ─ PARM1 ─ PARM2 ──────────────────────────────────────────▶◀
```

You must write the following:

```
COMMAND PARM1 PARM2
```

Delimiters, such as parentheses, around parameters or clauses must be included.

Delimiters Around Parameters

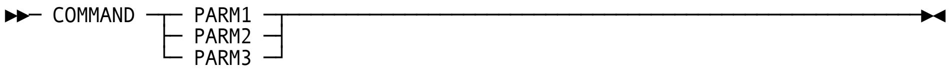
```
▶▶─ COMMAND ─ (PARM1) ─ PARM2='variable' ─────────────────────────────▶◀
```

If the word *variable* is a valid entry, you must write the following:

```
COMMAND (PARM1) PARM2='variable'
```

When you see a vertical list of parameters as shown in the following example, you must choose one of the parameters. This indicates that one entry is required, and only one of the displayed parameters is allowed in the statement.

Choice of Required Parameters

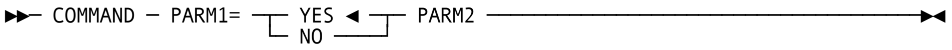


You can choose one of the parameters from the vertical list, such as in the following examples:

```
COMMAND PARM1
COMMAND PARM2
COMMAND PARM3
```

When a required parameter in a syntax diagram has a default value, the default value appears with a left-facing arrow, and it indicates the value for the parameter if the command is not specified. If you specify the command, you must code the parameter and specify one of the displayed values.

Default Value for a Required Parameter

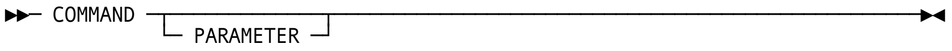


If you specify the command, you must write one of the following:

```
COMMAND PARM1=NO PARM2
COMMAND PARM1=YES PARM2
```

A single optional parameter appears below the horizontal line that marks the main path.

Optional Parameter

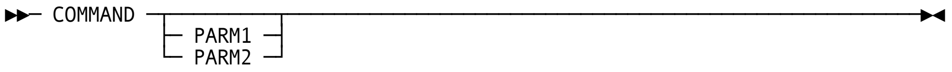


You can choose (or not) to use the optional parameter, as shown in the following examples:

```
COMMAND
COMMAND PARAMETER
```

If you have a choice of more than one optional parameter, the parameters appear in a vertical list below the main path.

Choice of Optional Parameters

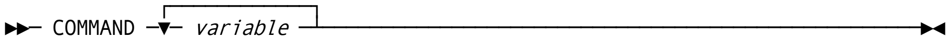


You can choose any of the parameters from the vertical list, or you can write the statement without an optional parameter, such as in the following examples:

```
COMMAND
COMMAND PARM1
COMMAND PARM2
```

In some statements, you can specify a single parameter more than once. A repeat symbol indicates that you can specify multiple parameters.

Repeatable Variable Parameter

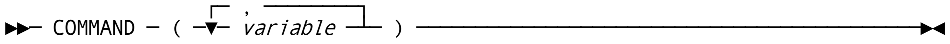


In the preceding diagram, the word *variable* is in lowercase italics, indicating that it is a value you supply, but it is also on the main path, which means that you are required to specify at least one entry. The repeat symbol indicates that you can specify a parameter more than once. Assume that you have three values named VALUEX, VALUEY, and VALUEZ for the variable. The following are some of the statements you might write:

```
COMMAND VALUEX
COMMAND VALUEX VALUEY
COMMAND VALUEX VALUEX VALUEZ
```

If the repeat symbol contains punctuation such as a comma, you must separate multiple parameters with the punctuation. The following diagram includes the repeat symbol, a comma, and parentheses.

Separator with Repeatable Variable and Delimiter

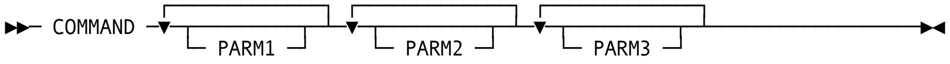


In the preceding diagram, the word *variable* is in lowercase italics, indicating that it is a value you supply. It is also on the main path, which means that you must specify at least one entry. The repeat symbol indicates that you can specify more than one variable and that you must separate the entries with commas. The parentheses indicate that the group of entries must be enclosed within parentheses. Assume that you have three values named VALUEA, VALUEB, and VALUEC for the variable. The following are some of the statements you can write:

```
COMMAND (VALUEC)
COMMAND (VALUEB,VALUEC)
COMMAND (VALUEB,VALUEA)
COMMAND (VALUEA,VALUEB,VALUEC)
```

The following diagram shows a list of parameters with the repeat symbol:

Optional Repeatable Parameters

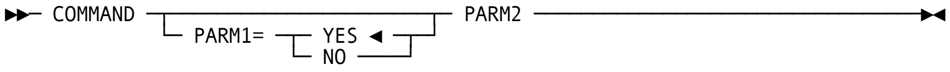


The following are some of the statements you can write:

```
COMMAND PARM1
COMMAND PARM1 PARM2 PARM3
COMMAND PARM1 PARM1 PARM3
```

The placement of YES in the following diagram indicates that it is the default value for the parameter. If you do not include the parameter when you write the statement, the result is the same as if you had actually specified the parameter with the default value.

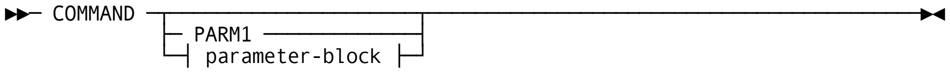
Default Value for a Parameter



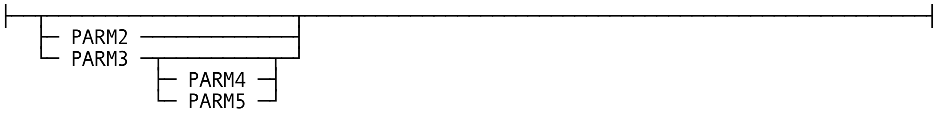
For this command, COMMAND PARM2 is the equivalent of COMMAND PARM1=YES PARM2.

In some syntax diagrams, a set of several parameters is represented by a single reference.

Variables Representing Several Parameters



Expansion of parameter-block



The *parameter-block* can be displayed in a separate syntax diagram.

Choices you can make from this syntax diagram therefore include, but are not limited to, the following:

```
COMMAND PARM1
COMMAND PARM3
COMMAND PARM3 PARM4
```

Note: Before you can specify PARM4 or PARM5 in this command, you must specify PARM3.

JCL Example Notation

This guide uses the following JCL notation.

Notation	Description
UPPERCASE	Identifies commands, keywords, and keyword values which must be coded exactly as shown.
symbols	Symbols, such as commas, equal signs, and slashes, must be coded exactly as shown.

Do not type the following when they appear in the JCL examples. They are provided to clarify the JCL syntax.

Notation	Description
lowercase	Identifies a value or values that you must supply.
. . .	Indicates the omission of one or more keywords or parameters that you must code according to the specific installation at your site.

Chapter 2: Operational Commands

This section and the Enhanced Commands (see page 33) section provide information about issuing online operational and enhanced commands.

Operational commands allow you to monitor and control system resources in a non-MRO environment. Issue a transaction ID, such as DBOC or DBIC, from a terminal to invoke the immediate processing of one or more operational commands. You can also delay processing for a determined length of time. This section provides the general syntax for issuing single commands, multiple commands, and commands for delayed execution. Paging the resulting display is also addressed.

This section contains the following topics:

Device Support

Both IBM 3270 and non-3270 type devices are supported by operational commands. The line size for 3270s is 80 characters. The line size for non-3270 type devices is 72 characters.

Overview of Operational Commands

All operational commands can be issued with a single transaction ID (the default is DBOC). Operational commands that are used for monitoring system resources can be issued with a secondary transaction ID (the default is DBIC). The secondary ID is used to extend the availability of the monitoring function to users who would typically not be authorized for control functions.

Each operational command is logged to the Message Log file with the time of day it was invoked. Included in the log is the request, comments, and response. If the command is issued from a terminal, the terminal ID and Operator ID are logged too. Transactions that are invoked internally or from the PLT (at startup or termination) are identified in the log. The default Message Log destination is DBOCPRT, the CICS message log, where CA Datacom CICS Services log entries are intermingled with CICS messages. In DBCVTPR, you can specify an alternate destination for CA Datacom CICS Services log entries. For details, see the *System Reference Guide*.

Issuing a Single Operational Command

Use the following procedure to issue an operational command from a terminal. (Some operational commands can also be invoked from an application program. See the *System Reference Guide*.)

1. Press Clear to bring up a blank screen.
2. Enter a transaction ID, a space, a command containing no embedded spaces as follows, and press Enter.

Operational Command Syntax

```
▶▶─ transaction-ID ─ command ──────────────────────────────▶◀
```

transaction-ID

Transaction ID, defined in the CICS System Definition data set (CSD), for invoking CA Datacom CICS Services functions to monitor and control resources in a non-MRO environment. Default transaction IDs follow:

DBOC

Precedes an operational command to perform an action or make an inquiry.

DBIC

Precedes an operational command to make an inquiry.

Note: To substitute other transaction IDs for DBOC or DBIC, see the *System Reference Guide* information about coding the DBOC= parameter in the System Options Table (DBCVTPR) or overriding the specified DBOC= value from the DBOC GENOPTS display.

command

Operational commands take one of the following forms:

- keyword
- keyword=value(s), which can be either a single value or a series of values that are separated by commas; a series is enclosed within parentheses.
- keyword,keyword=value(s)
- keyword,keyword,keyword=value(s)
- keyword=value,keyword=value

Keywords for operational commands to perform an action follow. For more information, see DBOC: Controlling Resources with Operational Commands (see page 135).

AUTO=	DISABLE=	RESET=
AUX=	DUMP=	RESTART=

CLOSE=	ENABLE=	SHUTDOWN
DEBUG=	LOAD=	STARTUP
DEFER=	LOG=	TRACEOFF
DELETE=	OPEN=	TRACEON
DELIM=	PREFIX=	TRACE[,DELETE],keyword=

Keywords for operational commands to invoke a formatted display follow. For details, see DBOC/DBIC: Monitoring Resources with Operational Commands (see page 61).

TASK	INQ=	INQ=TRACE,TERMID=
TRACE	TASK=	INQ=TRACE,TRANSID=

Example

```
DBIC INQ=OPENED
```

Operational Command Results

When an inquiry request made with an operational command is serviced, CA Datacom CICS Services displays a formatted screen with the requested data.

When a request to perform an action made with an operational command is serviced, CA Datacom CICS Services displays one or more messages on the results of the action. When the request is complete, the final message says:

DC00380I TRANSACTION COMPLETED

If a problem is encountered, CA Datacom CICS Services displays an error message. Error messages are documented beginning in the *CA Datacom CICS Services Messages Guide*.

Paging the Display

Some operational commands generate more lines of output than can be displayed on your terminal. The paging option, either automatic or manual, is specified in the DBCVTPR macro documented in the *System Reference Guide*. (These paging modes apply to the displays resulting from all operational commands, except INQ=TRACE. For details about paging an INQ=TRACE display, see INQ=TRACE: Displaying the Trace Table (see page 91)). If automatic paging is defined for your system, the display pages forward after the specified period of time has elapsed. If manual paging is defined for your system, use the following keys to control your display:

Enter

Page forward (continue processing)

Clear

Terminate processing at current display

Note: Paging backward is not supported.

Issuing Multiple Operational Commands

You can enter several operational commands at once using the following format. The only limitation to the number of commands which can be strung together is that the command string does not exceed 80 characters.

Multiple Operational Commands Syntax

```
                 ┌─ & ───────┐
►►─┬─ DBOC ─┬─▼─┴─ command ─┴──────────────────────────────────►◄
   └─ DBIC ─┘
```

In this example, the ampersand (&). symbol connects the commands to execute serially. You can specify a different delimiter for permanent use with the DELIM= parameter of the DBCVTPR macro (described in the *System Reference Guide*). You can change the delimiter character for the current CICS session with the command described in DELIM=: Changing the Delimiter Character (see page 144). CA Datacom CICS Services displays the delimiter character in use on the first line of every Inquiry panel.

Example:

```
DBOC CLOSE=001&INQ=002.
```

Delaying Operational Command Execution

To delay invoking any operational command for up to approximately 99 hours, issue the TIME command. The results of the delayed command appear in the Message Log File (DBOCPRT) rather than on a terminal. Once an operational command is issued with the TIME command, there is no way to suppress its execution should certain unforeseen events make backout advisable. Specify the time of day the command is to execute with the name of the command to execute as follows:

Multiple operational Commands Syntax

```
▶▶─ DBOC ─ TIME=hhmm/ command ──────────────────────────────────────────▶◀
```

DBOC

Transaction ID, which is always followed by a space and the operational command to execute.

TIME=*hhmm*

Command specifying the specific time of day, on a 24-hour clock, in hours (hh) and minutes (mm) at which the following command is issued. The time specified is measured relative to midnight before the current time and may therefore be before the current time. TIME can be either in the future or the past relative to the time at which the DBOC TIME command is executed.

Valid Entries:

a valid *hhmm* specification up to 9959

Note: Always enter a four-digit specification for hhmm. For any specification of less than four digits, results are unpredictable.

/

The slash is a separator following hhmm and preceding the command to execute at the specified time of day.

command

A command or a series of commands that are to be delayed.

Valid Entries:

Any operational command.

Example of Delaying Execution of a Command

To delay execution of a command to close URTs 1-999 at 2:00 PM (1400), issue the following command:

```
DBOC TIME=1400/CLOSE=???
```

Further Considerations for TIME= Specifications

Notes:

- If you specify a command to execute anytime within the previous six hours, it starts immediately.
- If you specify a time with an hour component greater than 23, you are specifying a time on a day following the current one. For example, TIME=2500 means 1:00 AM on the day following the current one (25 hours - 24 hours = 1 hour past midnight "tomorrow"). Similarly, TIME=4900 means 1:00 AM on the day following the day after tomorrow.

Chapter 3: Enhanced Commands

Enhanced commands allow you to monitor and control Multi-User Facilities (MUFs), User Requirements Tables (URTs), and CA Datacom Tables across multiple CICSs in a MRO/ISC environment.

All enhanced commands can be issued with a single transaction ID (the default is DBEC). Enhanced commands that are used for monitoring MUFs and URTs in read-only mode can be issued with a secondary transaction ID (the default is DBEX). The purpose of the secondary ID is to extend the availability of the monitoring function to users who are typically not authorized for control functions.

For details about using enhanced commands to monitor MUFs, URTs, and Tables, see one of the following sections:

- Local System Resources:

  DBEC/DBEX: Monitoring MUFs, URTs, and Tables (see page 103)

- Remote System Resources (MRO):

  DBEC/DBEX: Monitoring MUFs, URTs, and Tables (see page 217)

For details about using enhanced commands to control MUFs, URTs, and Tables, see one of the following sections:

- Local System Resources:

  DBEC/DBEX: Controlling MUFs, URTs, and Tables (see page 179)

- Remote System Resources (MRO):

  DBEC/DBEX: Controlling MUFs, URTs, and Tables (see page 257)

Note: When DBEC/DBEX commands are issued and invalid input is encountered with valid input and the input commands do not have conflicted meaning, the command processed is from the valid input. The invalid input is ignored.

The z/VSE DBCVTPR definition does not allow the addition of the DBCSID macro to define MUF connections. Therefore, the SIDNAME limiter with DBEC/DBEX commands is irrelevant and should not be used.

Note: The screen examples presented are not limited to either local or remote commands and can be with or without the SYSID parameter.

This section contains the following topics:

Device Support

Only IBM 3270 type devices are supported by enhanced commands. The number of displayed columns is 80 characters. The number of displayed rows is 24.

Issuing an Enhanced Command

Use the following guidelines to issue an enhanced command from the command line:

1. Press Clear.
2. Depending on your objective, enter one of the following:
   - INQuire
   - PERform

Enhanced Command Syntax (INQuire)

To make an inquiry on the specified MUFs, URTs, or on the CA Datacom/DB tables within specified URTs across CICS systems, enter an enhanced command in the following format. The command can include a CICS System ID entry (SYSid) to apply the inquiry to a remote CICS system or extend it to all systems in the MRO environment. If not specified, the command applies to the local system only. The command can also include a MUF SID name (SIDname) to apply to and limit the URT or TBL inquiry by MUF.

```
►►─ transaction-ID ─ INQuire,level-limit ─┬──────────────┬──────────────►◄
                                           └─ ,SYSid(aaaa) ─┘
```

Note: The values for SYSid,*level-limit,* and SIDname parameters can be entered in any order.

```
►►─┬─┬─ ,URT(nnnn) ─┬─┬─ AUTO ───────┬─┬─────────────────────────┬─┬──────────────►◄
   │ └─ ,TBL(nnnn) ─┘ ├─ CLOSE ──────┤ └─ ,SIDname(xxxxxxxx) ───┘ │
   │                  ├─ CLOSING ────┤                            │
   │                  ├─ DEFer ──────┤                            │
   │                  ├─ DYN ────────┤                            │
   │                  ├─ NOCSD ──────┤                            │
   │                  ├─ OPEN ───────┤                            │
   │                  ├─ OPENING ────┤                            │
   │                  ├─ PLT ────────┤                            │
   │                  └─ SQL ────────┘                            │
   └─┬─ ,MUF(nn) ───────────────┬─┬─ CONnect ──────────┬──────────┘
     ├─ MSIDname(*) ────────────┤ ├─ CONNECTING ───────┤
     └─ MSIDname(xxxxxxx*) ─────┘ ├─ DISconnect ───────┤
                                  ├─ DISCONNECTING ────┤
                                  ├─ UNConnected ──────┤
                                  └─ STATS ────────────┘
```

Note: AUTO, DEFER, and PLT are valid with all objects (MUF, MSIDname, URT, and TBL). NOCSD is not valid with a MUF (MSIDname) or TBL command.

transaction-ID

Specifies the transaction ID defined in the CICS System Definition file (CSD), for invoking CA Datacom CICS Services functions to monitor and control resources in an MRO environment. Default transaction IDs are:

DBEC

Precedes an enhanced command to perform an action or make an inquiry.

DBEX

Precedes an enhanced command to make an inquiry, which invokes a formatted display.

INQuire

Indicates the command is an inquiry. (INQ and I are valid abbreviations.)

,level-limit

Specifies whether the display is at the MUF-level, URT-level, or Table-level, and the MUFs or URTs to display.

Note: The MUF(nn) parameter or the MSIDname(xxxxxxxx) parameter should not be used to qualify the MUF. If both are specified, then the MUF object is used and MSIDname is ignored.

MUF(nn)

Specifies the display is at the MUF-level and show all matching MUFs.

MSIDname(*) or MSIDname(x*) can be used in place of MUF(??)

MSIDname(xxxxxxxx)

Specifies the display is at the MUF level and show all matching MUFs.

URT(nnnn)

Specifies the display is at the URT-level and show all matching URTs.

TBL(nnnn)

Specifies the display is at the Table-level and shows all table information for matching URTs.

The limit specifies how to limit the display in URTs, tables, or MUFs. Specify limits to the display of URTs or tables for the following categories:

AUTO	OPEN
CLOSE	OPENING
CLOSING	PLT
DEFER	SQL
DYN	UNOPENED
NOCSD (not valid with TBL)	

Limits to the display of MUFs can be specified for the following categories:

CONnect	CONNECTING
DISconnect	DISCONNECTING
UNConnected	STATS

,SIDname(*xxxxxxxx*)

(Optional) Specify one specific SID name to which the URT inquiry applies by MUF. Alternately, specify any number of leading characters of SID names followed by an asterisk (*) to specify a range of SID names to which the URT inquiry applies by MUFs. If not specified, the command applies to all MUFs. (Omit for commands with MUF(*nn*).) This option is only available with URT(*nnnn)* and TBL(*nnnn*) commands. (SID is a valid abbreviation.)

,SYSid(*aaaa*)

(Optional; not used for local systems) Specify one remote CICS system ID to which the inquiry applies or * to specify all systems in the MRO environment. (SYS is a valid abbreviation.)

Enhanced Command Syntax (PERform)

To perform the requested action on the specified MUFs or on the specified URTs and display the results, enter an enhanced command in the following format.

```
►►─ transaction-ID ─ PERform,action ─┬──────────────────┬────────────────────────►◄
                                      └─ ,SYSid(aaaa) ─┘

►►─┬─┬─ ,MUF(nn) ──────────┬─┬─ CONnect ────┬────────────────────────────────┬─►◄
   │ ├─ MSIDname(*) ───────┤ ├─ DISconnect ─┤                                │
   │ └─ MSIDname(xxxxxxxx) ┘ └─ IMMediate ──┘                                │
   ├─┬─ STARTup ──┬──────────────────────────────────────────────────────────┤
   │ └─ SHUTdown ─┘                                                          │
   └─ ,URT(nnnn) ─┬─ AUTO ─────┬─┬───────────────────────┬───────────────────┘
                  ├─ DEFer ────┤ └─ ,SIDname(xxxxxxxx) ─┘
                  ├─ CLOSE ────┤
                  ├─ NEWcopy ──┤
                  ├─ OPEN ─────┤
                  └─ REStart ──┘
```

transaction-ID

Specifies the transaction ID defined in the CICS System Definition File (CSD) for invoking CA Datacom CICS Services functions to monitor and control resources in an MRO environment.

To perform an action, DBEC is the default transaction ID that precedes an enhanced command.

PERform

Indicates the enhanced command is to perform an action. PER and P are valid abbreviations.

Note: You can issue any DBEC PERFORM command from the console.

,action

The command must include one of the following actions:

- For URTs: AUTO, DEFer, CLOSE, NEWcopy, OPEN, or REStart (DEF, NEW, and RES are valid abbreviations.)
- For Systems: STARTup or SHUTdown (START and SHUT are valid abbreviations.)
- For MUFs: CONnect, DISconnect, or IMMediate (CON, DIS, and IMM are valid abbreviations.)

MUF(*nn*)

(Optional) Identifies the MUFs on which the action is performed. This number corresponds to the relative number of the DBCSID macro that is appended to the DBCVTPR macro assembly.

Note: Omit this parameter for system actions STARTup and SHUTdown, and for URT actions AUTO, DEFer, CLOSE, NEWcopy, OPEN, and REStart. Also, omit this parameter if the MSIDNAME(xxxxxxxx) is used to qualify the MUF.

MSIDname(xxxxxxxx)

(Optional) Identifies the MUFs on which the action is performed. This value corresponds to the SIDNAME parameter of the DBCSID macro that is appended to the DBCVTPR macro assembly. The xxxxxxxx can be * for all MUFs or it can be qualified with a value that begins with a default for all matching MUFs.

Note: Omit this parameter for system actions STARTup and SHUTdown, and for URT actions AUTO, DEFer, CLOSE, NEWcopy, OPEN, and REStart. Also, omit this parameter if the MUF(nn) is used to qualify the MUF.

,SIDname(*xxxxxxxx*)

(Optional) Specify one MUF SID name on which to perform the URT or System action. Alternately, specify a generic SID name that is composed of any number of leading characters of SID names followed by an asterisk (*) to specify a range of MUFs. If not specified, the command applies to all MUFs. (Omit for commands with MUF(*nn*) or MSIDname(xxxxxxxx).) This option is only available with URT(*nnnn*) commands. (SID is a valid abbreviation.)

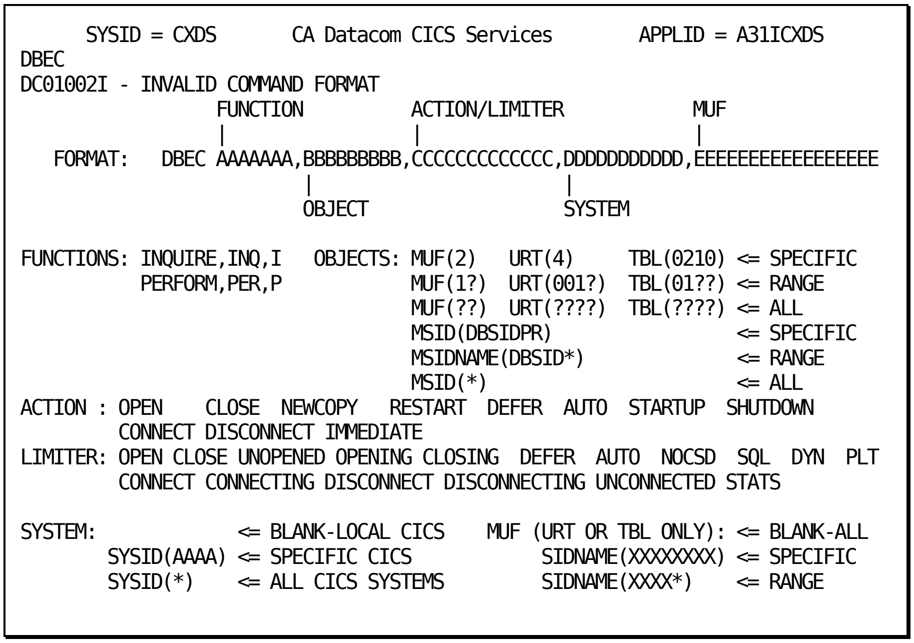
,URT(*nnnn*)

(Optional) Identifies the URT on which the action is performed. Omit for actions STARTup and SHUTdown, and for MUF actions CONnect, DISconnect, and IMMediate.

,SYSid(*aaaa*)

(Optional; only used in MRO environments) Specify one remote CICS system ID on which to perform the action, or an * (asterisk) to specify all systems in the MRO environment. If not specified, the command applies to the local system only. SYS is a valid abbreviation.

If the command, as entered, contains an error, the CA Datacom CICS Services displays the following help panel.



```
      SYSID = CXDS       CA Datacom CICS Services        APPLID = A31ICXDS
DBEC
DC01002I - INVALID COMMAND FORMAT
                  FUNCTION          ACTION/LIMITER            MUF
                  |                 |                         |
   FORMAT:   DBEC AAAAAAA,BBBBBBBBB,CCCCCCCCCCCCC,DDDDDDDDDDD,EEEEEEEEEEEEEEEEE
                          |                       |
                          OBJECT                  SYSTEM

FUNCTIONS: INQUIRE,INQ,I   OBJECTS: MUF(2)   URT(4)     TBL(0210) <= SPECIFIC
           PERFORM,PER,P            MUF(1?)  URT(001?)  TBL(01??) <= RANGE
                                    MUF(??)  URT(????)  TBL(????) <= ALL
                                    MSID(DBSIDPR)                 <= SPECIFIC
                                    MSIDNAME(DBSID*)              <= RANGE
                                    MSID(*)                       <= ALL
ACTION : OPEN    CLOSE  NEWCOPY   RESTART  DEFER  AUTO  STARTUP  SHUTDOWN
         CONNECT DISCONNECT IMMEDIATE
LIMITER: OPEN CLOSE UNOPENED OPENING CLOSING  DEFER  AUTO  NOCSD  SQL  DYN  PLT
         CONNECT CONNECTING DISCONNECT DISCONNECTING UNCONNECTED STATS

SYSTEM:             <= BLANK-LOCAL CICS    MUF (URT OR TBL ONLY): <= BLANK-ALL
        SYSID(AAAA) <= SPECIFIC CICS           SIDNAME(XXXXXXXX) <= SPECIFIC
        SYSID(*)    <= ALL CICS SYSTEMS        SIDNAME(XXXX*)    <= RANGE
```

1. If the help panel appears, enter the complete command on the command line with the displayed syntax and valid values.

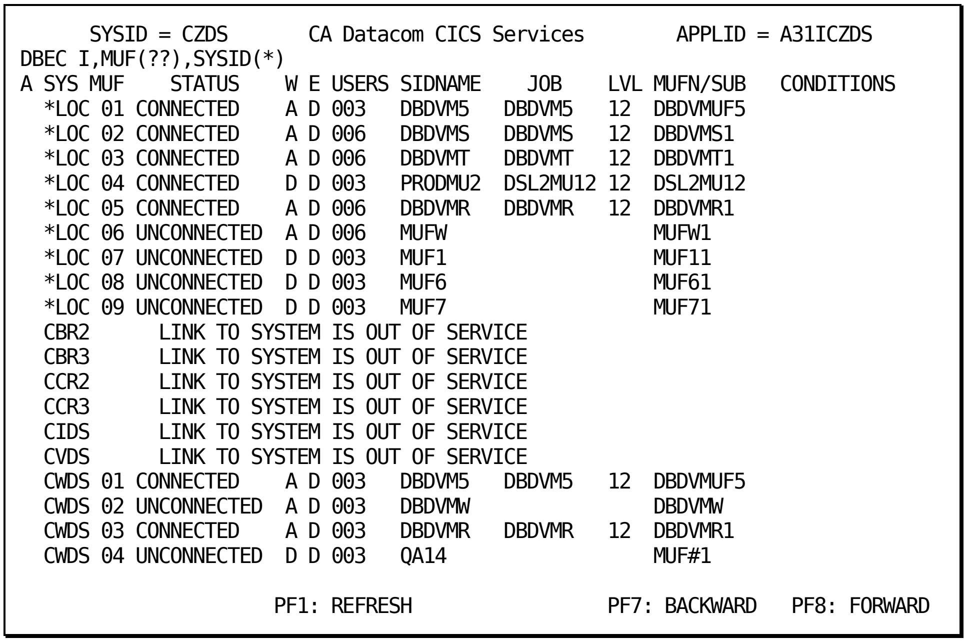
   - All enhanced commands can be invoked with the DBEC transaction ID.
   - Only those enhanced commands which include the INQUIRE function can be invoked with the DBEX transaction ID. DBEX cannot be used to invoke a command to perform an action.
   - The values for OBJECT, ACTION, SIDNAME and SYSTEM can be entered in any order.
   - For INQUIRE commands, the limiter value is supplied in the position described for ACTION(CCCCCCCCCCCCC).
   - It is important to follow the syntax diagram when entering your inquiry or perform action. Otherwise, your requested results may not yield the inquiry display or perform action that you intended to be executed.

2. When you press Enter, an Inquiry display appears. The INQ,TBL(*nnnn*) command invokes the Table-level Inquiry display. Any MUF PERform command or INQ,MUF(*nn*) or INQ,MSIDname(xxxxxxxx) command invokes the MUF-level Inquiry display.

   Note: The status of any MUF displayed in this manner is current as of the time of the last request processed by that MUF. For example, if the last request processed by a MUF was 90 seconds ago, a DBEC I,MUF (or MSIDname(xxxxxxxx)) or DBEX I,MUF (or MSIDname(xxxxxxxx)) request displays the status of that MUF as it was 90 seconds ago.

MUF-Level Inquiry Display

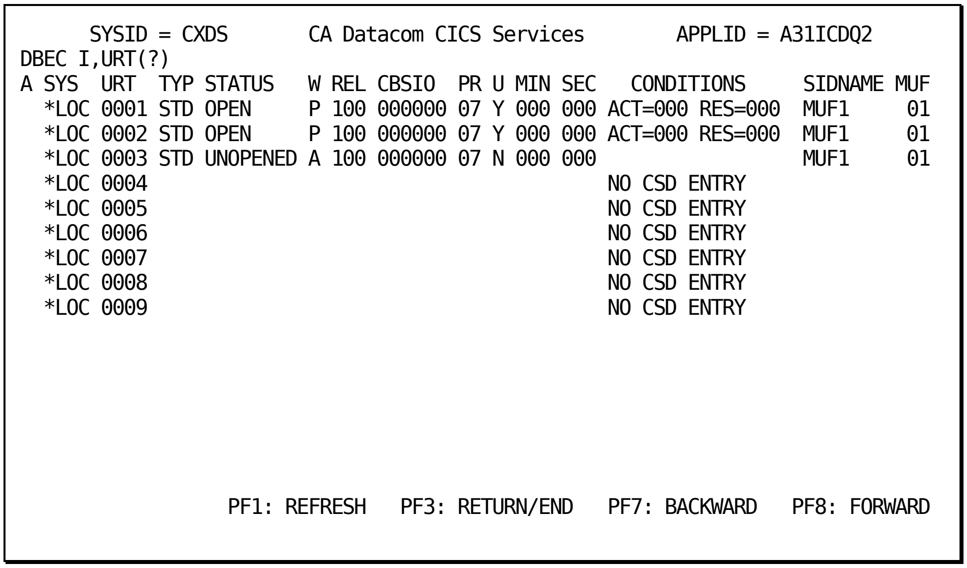
If you specify all CICS systems, the browse begins with MUFs in the local CICS system, followed by those in other CICS systems (system order is that defined within the MRO connection table). The MUFs within each CICS system appear in ascending numerical order according to the DBCSID macros appended to the DBCVTPR macro assembly.



```
      SYSID = CZDS      CA Datacom CICS Services        APPLID = A31ICZDS
DBEC I,MUF(??),SYSID(*)
A SYS MUF    STATUS    W E USERS SIDNAME    JOB    LVL MUFN/SUB   CONDITIONS
  *LOC 01 CONNECTED    A D 003   DBDVM5   DBDVM5   12  DBDVMUF5
  *LOC 02 CONNECTED    A D 006   DBDVMS   DBDVMS   12  DBDVMS1
  *LOC 03 CONNECTED    A D 006   DBDVMT   DBDVMT   12  DBDVMT1
  *LOC 04 CONNECTED    D D 003   PRODMU2  DSL2MU12 12  DSL2MU12
  *LOC 05 CONNECTED    A D 006   DBDVMR   DBDVMR   12  DBDVMR1
  *LOC 06 UNCONNECTED  A D 006   MUFW                  MUFW1
  *LOC 07 UNCONNECTED  D D 003   MUF1                  MUF11
  *LOC 08 UNCONNECTED  D D 003   MUF6                  MUF61
  *LOC 09 UNCONNECTED  D D 003   MUF7                  MUF71
  CBR2      LINK TO SYSTEM IS OUT OF SERVICE
  CBR3      LINK TO SYSTEM IS OUT OF SERVICE
  CCR2      LINK TO SYSTEM IS OUT OF SERVICE
  CCR3      LINK TO SYSTEM IS OUT OF SERVICE
  CIDS      LINK TO SYSTEM IS OUT OF SERVICE
  CVDS      LINK TO SYSTEM IS OUT OF SERVICE
  CWDS 01 CONNECTED    A D 003   DBDVM5   DBDVM5   12  DBDVMUF5
  CWDS 02 UNCONNECTED  A D 003   DBDVMW                DBDVMW
  CWDS 03 CONNECTED    A D 003   DBDVMR   DBDVMR   12  DBDVMR1
  CWDS 04 UNCONNECTED  D D 003   QA14                  MUF#1

                      PF1: REFRESH                 PF7: BACKWARD   PF8: FORWARD
```

URT-Level Inquiry Display

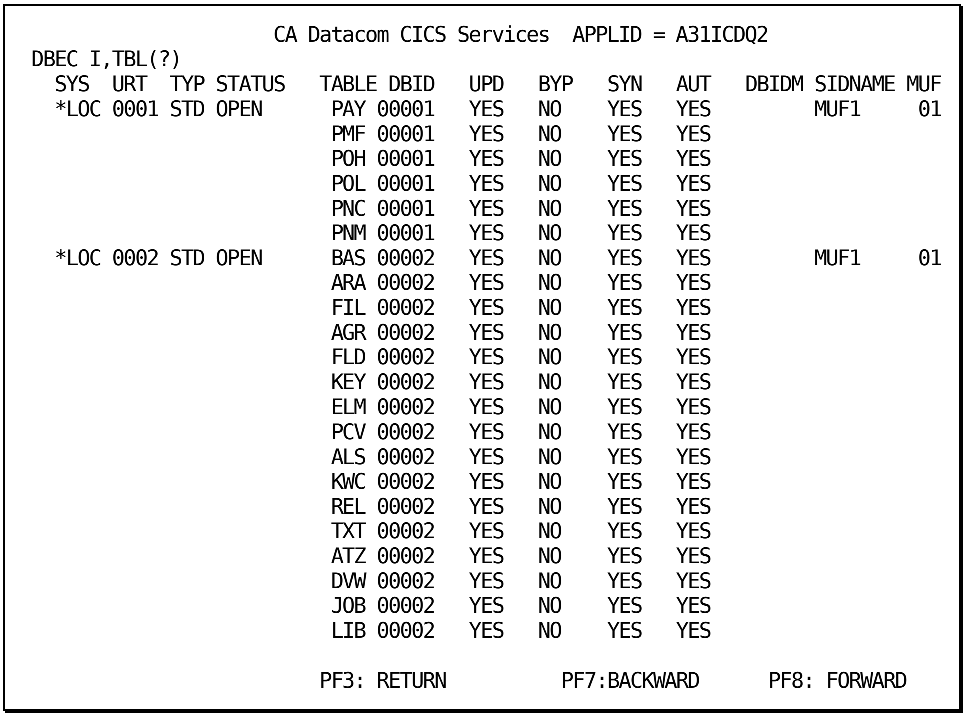
If you specify all CICS systems, the browse begins with URTs in the local CICS system, followed by those in other CICS systems (system order is that defined within the MRO connection table). The URTs within each CICS system appear in ascending numerical order.



```
      SYSID = CXDS       CA Datacom CICS Services        APPLID = A31ICDQ2
DBEC I,URT(?)
A SYS  URT  TYP STATUS   W REL CBSIO  PR U MIN SEC   CONDITIONS     SIDNAME MUF
  *LOC 0001 STD OPEN     P 100 000000 07 Y 000 000 ACT=000 RES=000  MUF1     01
  *LOC 0002 STD OPEN     P 100 000000 07 Y 000 000 ACT=000 RES=000  MUF1     01
  *LOC 0003 STD UNOPENED A 100 000000 07 N 000 000                  MUF1     01
  *LOC 0004                                        NO CSD ENTRY
  *LOC 0005                                        NO CSD ENTRY
  *LOC 0006                                        NO CSD ENTRY
  *LOC 0007                                        NO CSD ENTRY
  *LOC 0008                                        NO CSD ENTRY
  *LOC 0009                                        NO CSD ENTRY







                  PF1: REFRESH   PF3: RETURN/END   PF7: BACKWARD   PF8: FORWARD
```

Table-Level Inquiry Display

If you issue an Inquiry request at the table level without a limiter for the local CICS system or with a limiter for a remote system, the scrollable display includes all tables within all URTs for that system. The tables within each URT are listed in the order defined in that URT.



```
                     CA Datacom CICS Services  APPLID = A31ICDQ2
DBEC I,TBL(?)
  SYS  URT  TYP STATUS   TABLE DBID   UPD   BYP   SYN   AUT   DBIDM SIDNAME MUF
  *LOC 0001 STD OPEN      PAY 00001   YES   NO    YES   YES         MUF1     01
                          PMF 00001   YES   NO    YES   YES
                          POH 00001   YES   NO    YES   YES
                          POL 00001   YES   NO    YES   YES
                          PNC 00001   YES   NO    YES   YES
                          PNM 00001   YES   NO    YES   YES
  *LOC 0002 STD OPEN      BAS 00002   YES   NO    YES   YES         MUF1     01
                          ARA 00002   YES   NO    YES   YES
                          FIL 00002   YES   NO    YES   YES
                          AGR 00002   YES   NO    YES   YES
                          FLD 00002   YES   NO    YES   YES
                          KEY 00002   YES   NO    YES   YES
                          ELM 00002   YES   NO    YES   YES
                          PCV 00002   YES   NO    YES   YES
                          ALS 00002   YES   NO    YES   YES
                          KWC 00002   YES   NO    YES   YES
                          REL 00002   YES   NO    YES   YES
                          TXT 00002   YES   NO    YES   YES
                          ATZ 00002   YES   NO    YES   YES
                          DVW 00002   YES   NO    YES   YES
                          JOB 00002   YES   NO    YES   YES
                          LIB 00002   YES   NO    YES   YES

                         PF3: RETURN          PF7:BACKWARD      PF8: FORWARD
```

Options After Issuing Enhanced Inquiry Command

If you are authorized to use DBEX, but not DBEC, your options upon displaying the Inquiry panel follow:

- Scroll through the display of MUFs or URTs. Press PF8 to scroll forward and PF7 to scroll backward.
- Change the display from MUF-level to URT-level to Table-level or the reverse as follows:
  - From the MUF-level display, enter **S** in Column A to invoke the URT-level display for a specific MUF.

  - From the URT-level display, enter **S** in Column A to invoke the Table-level display beginning with a specific URT.
  - From the Table-level display, press PF3 to invoke the URT-level display. PF 3 returns to the URT-level display when the S line command is used on the URT-level display to get to the TBL-level display. Otherwise, PF3 returns to CICS and ends the DBEC transaction.
  - From the URT-level display, press PF3 to invoke the MUF-level display. PF 3 returns to the MUF-level display when the S line command is used on the MUF-level display to get to the URT-level display. Otherwise, PF3 returns to CICS and ends the DBEC transaction.
- Issue another DBEX INQ command from the command line and press Enter.
- Terminate the DBEX display by pressing Clear.

Options After Issuing Enhanced MUF Command

After performing any requested MUF action or inquiry, CA Datacom CICS Services displays a scrollable inquiry panel beginning with the first MUF defined in the DBCVTPR macro assembly (or the only default MUF defined by the DBSIDPR module), for example, MUF(1). Your options follow:

- Scroll through the display of MUFs. Press PF8 to scroll forward and PF7 to scroll backward.
- Perform one of the following actions or inquiries for any displayed MUF by entering the code corresponding to the action in Column A.

  C

  Perform CONnect to MUF.

  D

  Perform DISconnect from MUF.

  E

  Display return code summary for MUF.

  I

  Perform disconnect IMMediate from MUF.

  T

  Display task summary for MUF.

  U

  Display task usage summary for MUF.

- Override the USERS option invoked by either the DBCVTPR or DBCSID parameter values by revising the corresponding value on the MUF-level display and pressing Enter.

  Note: Before entering the MUF USERS override, first verify that the MUF is disconnected or unconnected. (If you use the "d" or "i" line command on a DBEC I,MUF(*nn*) or DBEC I,MSIDname(xxxxxxxx) screen to disconnect the MUF, press the PF1 function key to refresh the screen before implementing the override.)

- Invoke the URT-level display for a specific MUF by entering **S** in Column A.
- Override a URT option invoked by one of the following DBURSTR parameter values by revising the corresponding value on the URT-level display and pressing Enter.
  - CBSIO=
  - PRTY=
  - TIMEMIN=
  - TIMESEC=
  - TXNUNDO=
- Invoke the Table-level display beginning with a specific URT by entering S in Column A.
- Override a URT option invoked by one of the following DBURTBL parameter values by revising the corresponding value on the Table-level display and pressing Enter.
  - AUTODXC=
  - BYOPEN=
  - SYNONYM=
  - UPDATE=
- Return to URT-level display by pressing PF3.
- Return to MUF-level display by pressing PF3.
- Refresh the current display by pressing PF1.
- Issue a command from the command line.
- Terminate the DBEC display by pressing Clear.

Options After Issuing Enhanced MUF STATS Command

After performing a requested MUF statistics inquiry (DBEC I,MUF(??),STATS), CA Datacom CICS Services displays a scrollable inquiry panel beginning with the first MUF defined in the DBCVTPR macro assembly (or the one and only default MUF defined by the DBSIDPR module), for example, MUF(01). Your options follow:

- Scroll through the display of MUF statistics. Press PF8 to scroll forward and PF7 to scroll backward.
- Perform the following action for any displayed MUF by entering the code corresponding to the action in Column A.

  R

  Perform reset of the statistics counter for MUF, if you are authorized to use DBEC.

Options After Issuing Enhanced URT Command

After performing any requested URT action or inquiry with authority, CA Datacom CICS Services displays a scrollable inquiry panel beginning with the first URT, for example, DBURT001. Your options follow:

- Scroll through the display of URTs. Press PF8 to scroll forward and PF7 to scroll backward.
- Perform one of the following actions for any displayed URT by entering the code corresponding to the action in Column A.

  A

  Set URT to AUTO open.

  C

  Perform CLOSE on URT.

  D

  Set URT to DEFer open.

  N

  Perform CICS NEWcopy on URT module. (Close URT first.)

O

Perform OPEN on URT.

R

Perform REStart on URT.

Note: Before entering any of the URT overrides described on this page, verify that the URT has been closed or is unopened. If you use the "c" line command on a DBEC I,URT(*nnnn*) screen to close the URT, press the PF1 function key to refresh the screen before implementing any overrides.

- Override a URT option invoked by one of the following DBURSTR parameter values by revising the corresponding value on the URT-level display and pressing Enter.
  - CBSIO=
  - PRTY=
  - TIMEMIN=
  - TIMESEC=
  - TXNUNDO=
- Invoke the Table-level display beginning with a specific URT by entering **S** in Column A.
- Override a URT option invoked by one of the following DBURTBL parameter values by revising the corresponding value on the Table-level display and pressing Enter.
  - AUTODXC=
  - BYOPEN=
  - SYNONYM=
  - UPDATE=
- Return to URT-level display by pressing PF3.
- Refresh the current display by pressing PF1.
- Issue a command from the command line.
- Terminate the DBEC display by pressing Clear.

Note: If you make an entry on the command line simultaneously with a line entry, CA Datacom CICS Services ignores the line entry and executes the command line entry.

Function Key Summary

The following table describes function key usage from a DBEC/DBEX scrollable Inquiry display.

Key	Function
PF1	Refreshes the screen with current data for the command on the command line except for the screens that are displayed from the "e," "t," and "u" commands from the I,MUF(*nn*) or I,MSID(xxxxxxxx) screen. In those cases, the screen is refreshed with current data for that display.
PF3	From the Table-level display, returns to the URT-level display if you got to the Table-level display by entering an S in column A when you were viewing the URT-level display. From the URT-level display, returns to the MUF-level display if you got to the URT-level display by entering an S in column A when you were viewing the MUF-level display. If you used a DBEC transaction to inquire at the Table-level or URT-level, such as DBEC INQ,TBL(001), the PF3 key terminates the transaction and gives you a blank screen. If you used a DBEC transaction to inquire at the MUF-level, such as DBEC I,MUF(01) or DBEC I,MSIDname(xxxxxxxx), the PF3 key refreshes the screen with current data for the command on the command line.
PF7	Pages backward a full-screen at a time to beginning of scroll.
PF8	Pages forward a full-screen at a time to the end of the scroll.
PF10	From the second display of MUF active tasks data that you reached by scrolling right, returns to the first display of MUF active tasks with refreshed data.
PF11	From the first display of MUF active tasks data that you reached by typing a T in the action field of the MUF-level display, scrolls right to the second display of MUF active tasks data.
Clear	Clears the screen and terminates the DBEC/DBEX display.
Enter	Accepts any valid entry into an enterable field and refreshes and redisplays the current panel. For entries in column A or from the command line, accepts command and refreshes and displays appropriate panel.

Chapter 4: Monitoring and Controlling Local System Resources

To perform an inquiry on URTs for the local system, you can use either the enhanced command or the corresponding operational command. Advantages of the enhanced command over the corresponding operational command are as follows:

- Page backwards through the display
- Perform specific functions with line commands
- Issue any DBEC PERFORM command from the console

Note: For a summary of operational commands (DBOC/DBIC) you can use to monitor non-MUF resources, see DBOC/DBIC: Monitoring Resources with Operational Commands (see page 61).

To perform an inquiry on MUFs for the local system, use the enhanced command.

Note: For a summary of enhanced commands (DBEC/DBEX) you can use to monitor MUF resources, see DBEC/DBEX: Monitoring MUFs and URTs (see page 217).

To perform an action on URTs for the local system or to initiate or terminate the local system, use an enhanced command or the corresponding operational command.

Note: For a summary of operational commands with which you can perform actions on non-MUF resources, see DBOC: Controlling Resources with Operational Commands (see page 135).

To perform an action on MUFs for the local system, use an enhanced command.

Note: For a summary of enhanced commands with which you can perform actions on non-MUF resources, see DBEC/DBEX: Controlling MUFs and URTs (see page 179).

The tables on the following pages summarize command options for displaying and taking action on URTs, TBLs, and MUFs in the local CICS system.

This section contains the following topics:

URT-Level Inquiry Command Options

Objective	Command Options
Display all URTs.	DBEX INQ,URT(????) DBIC INQ=????
Display URTs within a specified numeric range, for example10—19.	DBIC INQ=1? DBEX INQ,URT(1?)
Display all URTs of a specified type.	DBEX INQ,SQL,URT(????) DBIC INQ=SQL DBEX INQ,DYN,URT(????) DBIC INQ=DYN
Display all URTs of a specified status.	DBEX INQ,OPENED,URT(????) DBIC INQ=OPENED DBEX INQ,CLOSED,URT(????) DBIC INQ=CLOSED DBIC INQ=FAIL *(Alternative:)* None DBEX INQ,CLOSING,URT(????) *(Alternative:)* None DBEX INQ,UNOPENED,URT(????)

Objective	Command Options
Display all URTs of a specified time for opening.	DBEX INQ,AUTO,URT(????) DBIC INQ=AUTO DBEX INQ,DEFER,URT(????) DBIC INQ=DEFER DBEX INQ,PLT,URT(????) DBIC INQ=PLT
Display all URTs with no CSD entry.	DBEX INQ,NOCSD,URT(????) *(Alternative:)* None
Display all URTs for a specified MUF.	DBEX INQ,URT(????),SIDNAME(DBSIDPR) *(Alternative:)* None

These commands can be further limited in a multiple MUF environment by adding the SIDNAME(xxxxxxxx) parameter to the input commands.

Table-Level Inquiry Command Options

Objective	Command Options
Display all tables for all URTs.	DBEX INQ,TBL(????) DBIC INQ=????.???
Display all tables for URT 10.	DBEX INQ,TBL(10) DBIC INQ=10.???
Limit display by table name, where display includes an entry for the designated table and any synonyms for each URT where referenced.	DBIC INQ=????.PMF *(Alternative:)* None
Limit display to a specified table in a specified URT.	DBIC INQ=58.PMF *(Alternative:)* None
Limit display to tables in a specified database, for example DBID=25.	DBIC INQ=????.???.025 *(Alternative:)* None

Objective	Command Options
Display all tables for all URTs for a specified MUF.	DBEX INQ,TBL(????),SIDNAME(DBSIDPR) *(Alternative:)* None

These commands can be further limited in a multiple MUF environment by adding the SIDNAME(xxxxxxxx) parameter to the input commands.

Initiating or Terminating CA Datacom CICS Services

Objective	Command Options
Initiate CA Datacom CICS Services.	DBEC P,STARTUP DBOC STARTUP
Terminate CA Datacom CICS Services.	DBEC P,SHUTDOWN DBOC SHUTDOWN

Opening or Closing URTs

Objective	Command Options
Open one URT, for example 123.	DBEC P,OPEN,URT(123) DBOC OPEN=123
Open multiple URTs, for example 110—119.	DBEC P,OPEN,URT(11?) DBOC OPEN=11?
Open all local URTs.	DBEC P,OPEN,URT(????) DBOC OPEN=????
Close one URT, for example 123.	DBEC P,CLOSE,URT(123) DBOC CLOSE=123
Close all local URTs.	DBEC P,CLOSE,URT(????) DBOC CLOSE=????
Close all local URTs for a range of MUFs.	DBEC P,CLOSE,URT(????),SIDNAME(DBSID*) *(Alternative:)* None

These commands can be further limited in a multiple MUF environment by adding the SIDNAME(xxxxxxxx) parameter to the input commands.

These DBEC perform functions can also be implemented by using line commands on the URT-level inquiry.

Setting or Resetting When to Open

Objective	Command Options
Set one URT for automatic opening, for example 123.	DBEC P,AUTO,URT(123) DBOC AUTO=123
Set for automatic opening URTs with a suffix equal to or greater than the specified suffix, for example 110—119.	DBEC P,AUTO,URT(11?) DBOC AUTO=11?
Set all local URTs for automatic opening.	DBEC P,AUTO,URT(????) DBOC AUTO=????
Set for deferred opening one URT, for example 123.	DBEC P,DEFER,URT(123) DBOC DEFER=123
Set for deferred opening all local URTs.	DBEC P,DEFER,URT(????) DBOC DEFER=????
Reset to original STATUS for one URT, for example 123.	DBEC P,RESTART,URT(123) DBOC RESTART=123
Reset to original STATUS for multiple URTs, for example 110—119.	DBEC P,RESTART,URT(11?) DBOC RESTART=11?
Reset to original STATUS for all local URTs.	DBEC P,RESTART,URT(????) DBOC RESTART=????
Reset to original STATUS for all local URTs for a range of MUFs.	DBEC P,RESTART,URT(????),SIDNAME(DBSID*) *(Alternative:)* None

These commands can be further limited in a multiple MUF environment by adding the SIDNAME(xxxxxxxx) parameter to the input commands.

These DBEC perform functions can also be implemented by using line commands on the URT-level inquiry.

Note: For the RESTART examples, "Reset to original STATUS" means to reset the URT STATUS to OPEN or UNOPENED from CLOSED. If TYPE is AUTO, the STATUS becomes UNOPENED. If TYPE is PLT, CA Datacom CICS Services tries to OPEN the URT and, if successful, the STATUS changes to OPEN. If TYPE is DEFER, RESTART has no impact on the STATUS of URTs.

Creating a New Copy of a URT

Objective	Command Options
Create a copy of a URT, for example 123.	DBEC P,CLOSE,URT(123) DBEC P,NEWCOPY,URT(123) DBEC P,OPEN,URT(123) DBOC CLOSE=123 DBOC DELETE=123 . . . use CEMT to newcopy DBOC OPEN=123
Create a copy of all URTs for a specific MUF.	DBEC P,CLOSE,URT(????),SIDNAME(DBSIDPR) DBEC P,NEWCOPY,URT(????),SIDNAME(DBSIDPR) DBEC P,OPEN,URT(????),SIDNAME(DBSIDPR) *(Alternative:)* None

These commands can be further limited in a multiple MUF environment by adding the SIDNAME(xxxxxxxx) parameter to the input commands.

These DBEC perform functions can also be implemented by using line commands on the URT-level inquiry.

Note: A P,NEWCOPY command results in a URT inquiry display, once the perform has been completed. In the resulting display, however, be aware that any URTs in OPEN status were not part of the NEWCOPY. The DBOCPRT file contains errors for the NEWCOPY commands that failed. You can also use the N line command from a URT inquiry display to see specific messages.

Overriding URT Attributes (DBURSTR)

Objective	Command Options
Change maximum I/O for set processing.	DBEC I,URT(nnnn) Overtype the value displayed in Column CBSIO with a value between 0 and 524287 to establish a new CBSIO= interrupt value.
Change job priority for requests processed through this URT.	DBEC I,URT(nnnn) Overtype the value displayed in Column PRTY with a value between 1 and 15 to establish a new priority level, where 1 is the lowest and 15 is the highest.
Change the maximum amount of time a program using this URT is to wait for a record held under exclusive control by another request.	DBEC I,URT(nnnn) Overtype the value displayed in Column MIN or Column SEC to change the TIMEMIN= or TIMESEC= value, respectively. Enter a value between 1 and 120 to change the elapsed time specification in minutes or seconds.
Changing the transaction backout option from off to on, or vice versa.	DBEC I,URT(nnnn) Overtype the value displayed in Column UNDO to change the TXNUNDO= specification. YES indicates that transaction backout is dynamically invoked for any program using this URT when an abend occurs. No transaction backout is indicated by a NO.

Close the URTs first. Each of the display commands may be limited to a specific MUF or range of MUFs with the addition of the SIDNAME parameter to the command.

These commands can be further limited in a multiple MUF environment by adding the SIDNAME(xxxxxxxx) parameter to the input commands.

There are no operational commands to override the URT attributes.

Overriding Table Attributes (DBURTBL)

Objective	Command Options
Changing whether exclusive control is dropped for this table when a RDUxx command is issued from the same Request Area.	DBEC I,TBL(nnnn) Overtype displayed option (YES or NO) with its alternative in Column AUTODXC for each table requiring a change.
Changing whether this table is bypassed from the opening when the URT is opened.	DBOC DISABLE=urt.table.dbid DBOC ENABLE=urt.table.dbid DBEC I,TBL(nnnn) Overtype displayed option (YES or NO) with its alternative in Column BYPOPEN for each table requiring a change.
Changing specification for whether this table name is duplicated in either this URT or another URT.	DBEC I,TBL(nnnn) Overtype displayed option (YES or NO) with its alternative in Column SYNONYM for each table requiring a change. With YES, all requests for this table must include the DBID in the Request Area.
Changing specification of whether updates are to be permitted for this table when accessed through this URT.	DBEC I,TBL(nnnn) Overtype displayed option (YES or NO) with its alternative in Column UPDATE for each table requiring a change.

Close the URTs first. Each of the display commands can be limited to a specific MUF or range of MUFs with the addition of the SIDNAME parameter to the command.

These commands can be further limited in a multiple MUF environment by adding the SIDNAME(xxxxxxxx) parameter to the input commands.

Except for BYOPEN, there are no operational commands to override the Table-level attributes.

MUF-Level Inquiry Command Options

Objective	Command Options
Display all MUFs.	DBEX INQ,MUF(??) DBEX INQ,MSIDname(*)
Display MUFs within a specified numeric range. For example, 1—9 or a specified SIDNAME (not to be confused with the SIDNAME qualifier for URTs or TBLs) range in the DBCSID macro appended to the DBCVTPR macro.	DBEX INQ,MUF(?) DBEX INQ,MSIDname(x*)
Display statistics for all MUFs.	DBEX INQ,STATS,MUF(??) DBEX INQ,STATS,MSIDname(*)
Display all MUFs of a specified status.	DBEX INQ,CONNECTED,MUF(??) DBEX INQ,CONNECTED,MSIDname(xxxxxxxx*) DBEX INQ,DISCONNECTED,MUF(??) DBEX INQ,DISCONNECTED,MSIDname(*) DBEX INQ,CONNECTING,MUF(??) DBEX INQ,CONNECTING,MSIDname(*) DBEX INQ,DISCONNECTING,MUF(??) DBEX INQ,DISCONNECTING,MSIDname(*) DBEX INQ,UNCONNECTED,MUF(??) DBEX INQ,UNCONNECTED,MSIDname(*)
Display all MUFs of a specified time for connecting.	DBEX INQ,AUTO,MUF(??) DBEX INQ,AUTO,MSIDname(*) DBEX INQ,DEFER,MUF(??) DBEX INQ,DEFER,MSIDname(*) DBEX INQ,PLT,MUF(??) DBEX INQ,PLT,MSIDname(*)

Connecting or Disconnecting MUFs

Objective	Command Options
Connect one MUF, for example 1 or the MUF whose SIDNAME is DBSIDPR in the DBCSID macro.	DBEC P,CONNECT,MUF(1) DBEC P,CONNECT,MSID(DBSIDPR)
Connect multiple MUFs, for example 1—9 or multiple MUFs of a range whose SIDNAMEs in the DBCSID macro begin with D.	DBEC P,CONNECT,MUF(?) DBEC P,CONNECT,MSID(D*)
Connect all local MUFs.	DBEC P,CONNECT,MUF(??) DBEC P,CONNECT,MSIDNAME(*)
Disconnect one MUF, for example 1 or the MUF whose SIDNAME is MUF1 in the SIDNAME parameter of the DBCSID macro appended to the DBCVTPR.	DBEC P,DISCONNECT,MUF(1) DBEC P,DISCONNECT,MSID(MUF1)
Disconnect all local MUFs.	DBEC P,DISCONNECT,MUF(??) DBEC P,DISCONNECT,MSID(*)
Immediately disconnect one MUF regardless of open URTs or active tasks, for example 2 or the MUF whose SIDNAME is MUF2 in the DBCSID macro of the DBCVTPR.	DBEC P,IMMEDIATE,MUF(2) DBEC P,IMMEDIATE,MSID(MUF2)

Resetting MUFs Statistics

Objective	Command Options
Reset statistics for any MUF.	DBEC I,MUF(??),STATS DBEC I,MSID(*),STATS

Type **R** in the Action column of the line corresponding to the number of the MUF to reset the statistics for that MUF. Statistics for multiple MUFs can be reset simultaneously on this display.

Overriding MUF USERS Attribute (DBCSID)

Objective	Command Options
Change the number of USERS allocated for a MUF.	DBEC I,MUF(??) DBEC I,MSID(*)

- For a MUF that is unconnected or disconnected, overtype the value displayed in column USERS with a value between 1 and 255 to establish a new USERS= tasks value.
- For a MUF that is connected:

  1. Type a **D** in the Action column to disconnect the MUF,
  2. Overtype the value displayed in column USERS with a valid value.
  3. Type a **C** in the Action column to connect and establish the MUF with the new USERS value. Multiple MUFs can be processed simultaneously on this display.

Chapter 5: DBOC/DBIC: Monitoring Local Resources with Operational Commands

This chapter discusses monitoring resources with operational commands.

Operational commands (see page 27) are available for both monitoring and controlling system resources. This chapter addresses the functionality of monitoring.

Certain inquiries display values accrued by counters. Use the RESET (see page 159) command to reset to zero those counters associated with systems statistics, concurrent users, and total requests.

This section contains the following topics:

INQ=urt/INQ=limiter: Displaying URT Information

You determine which URTs CA Datacom CICS Services displays on the URT Inquiry panel by your command entry. The URT Inquiry panel entries can be for specified URTs, regardless of their attributes, or limited based on URT type, URT status, or method by which opening occurs.

An alternative to the operational commands for inquiry is the enhanced commands for inquiry described in DBEC/DBEX: Monitoring Local Resources with Enhanced Commands. (see page 103) The inquiry commands described in this section invoke a display similar to that of the enhanced commands for inquiry. However, they do not include the release level of the macro used to generate the URT and the value specified for the URT parameter CBSIO=. The operational commands result in a display that can only be paged forward. The enhanced command results in a display that can be paged forward and backward.

Display Information on Specified URTs

Invoke the following transaction to display information on one or more specified URTs.

```
                          ┌ , ──┐
►►─┬─ DBOC ─┬─ INQuire= ─▼─ urt ┴──────────────────────────────────────►◄
   └─ DBIC ─┘
```

DBOC/DBIC

(Required) Specify a transaction ID valid with Operational commands used to monitor system resources. Select the transaction ID for which you are authorized. Leave a space between the transaction ID and the command.

INQuire=

(Required) Command specifying a status display. You may shorten this command to INQ=.

urt

(Required) Specify one or more URTs by the 4-digit suffix, with or without leading zeros, where the range of valid values is 0001 to the active MAXURTS= value. Use the wildcard symbol (?) to accept any valid value between 0 and 9 for any (or all) of the digits. To specify a series, separate the identifiers with commas.

Example	Description
1	URT 0001
?,20	URTs 0001 through 0009, and 0020
?,1?,2?,30	URTs 0001 through 0030
??	URTs 0001 through 0099
1??,20?,21?	URTs 0100 through 0219
????	All valid URTs

Limit Display to URTs of Specified Type

Invoke the following transaction to display information about all URTs of the specified URT type (SQL or DYN).

```
►►─┬─ DBOC ─┬─ INQuire= ─┬─ SQL ─┬─────────────────────────────────────►◄
   └─ DBIC ─┘            └─ DYN ─┘
```

DBOC/DBIC

(Required) Specify a transaction ID valid with Operational commands used to monitor system resources. Select the transaction ID for which you are authorized. Leave a space between the transaction ID and the command.

INQuire=

(Required) Command specifying a status display. You may shorten this command to INQ=.

SQL

Type of URT available to programs issuing SQL commands, that is to say one defined with DBSQL=YES in the DBUREND macro.

DYN

Type of URT created dynamically by a CA product. (Only those URT numbers up to the MAXURT= value which have no CSD entries are available for dynamic creation by CA products.)

Limit Display to URTs of Specified Status

Invoke the following transaction to display information about all URTs of either the specified URT status (OPENED or CLOSED) or all which show OPEN FAILED or CLOSE FAILED in the message area.

```
►►─┬─ DBOC ─┬─ INQuire= ─┬─ OPENED ─┬──────────────────────────────────►◄
   └─ DBIC ─┘            ├─ CLOSED ─┤
                         └─ FAIL ───┘
```

DBOC/DBIC

(Required) Specify a transaction ID valid with Operational commands used to monitor system resources. Select the transaction ID for which you are authorized. Leave a space between the transaction ID and the command.

INQuire=

(Required) Command specifying a status display. You may shorten this command to INQ=.

OPENED

Status is OPENED.

CLOSED

Status is CLOSED.

FAIL

Status is that the last attempt to open or close failed.

Limit Display to URTs Having Specified Time for Opening

Invoke the following transaction to display information about all URTs having the specified time for opening (AUTO, DEFER, PLT).

```
►►─┬─ DBOC ─┬─ INQuire= ─┬─ AUTO ─┬──────────────────────────────────────►◄
   └─ DBIC ─┘            ├─ DEFER ┤
                         └─ PLT ──┘
```

DBOC/DBIC

(Required) Specify a transaction ID valid with Operational commands used to monitor system resources. Select the transaction ID for which you are authorized. Leave a space between the transaction ID and the command.

INQuire=

(Required) Command specifying a status display. You may shorten this command to INQ=.

AUTO

To be opened automatically when an application program requiring its use begins processing, that is to say either defined through AUTO[n]= in the CA Datacom CICS Services Generation Options Table (DBCVTPR) or added through the DBOC AUTO= command.

DEFER

To be opened only when requested through the DBOC OPEN= command, that is to say either defined through DEFER[n]= in the CA Datacom CICS Services Generation Options Table (DBCVTPR) or added through the DBOC DEFER= command.

PLT

To be opened at CICS startup.

Command Examples

Command	Result
DBIC INQ=9?,10?,110	Invokes the URT Inquiry display for URTs with suffixes in the range 0090 to 0110, that is to say the field labeled (1) on the following display example would contain only numbers between 0090 and 0110.
DBOC INQ=SQL	Invokes the URT Inquiry display for URTs of the SQL type. Only those entries with SQL in the Type field would appear. (See the field labeled (2) on the following display example.)
DBOC INQ=OPENED	Invokes the URT Inquiry display for open URTs. Only those entries with OPENED in the status field would appear. (See the field labeled (3) on the following display example.)

Command	Result
DBOC INQ=PLT	Invokes the URT Inquiry display for URTs that are not defined with AUTO= or DEFER=. Only those entries with a blank in the "when to open" field would appear. (See the field labeled (4) on the following display example.)

Display Example: DBIC INQ=????

The following example illustrates the most comprehensive URT Inquiry display. You can limit the display to specified entries in the fields labeled 1—5 (see Field Descriptions). Compare this display example with Display Example: DBEC I,URT(??).

Note: For descriptions of the fields shown in these examples, see the Field Descriptions topic following Display Example: DBOC INQ=FAIL.

```
DBIC INQ=????                                                         DELIM &

    (1)  (2)      (3)    (4)         (5)               (6)    (7)     (8)
URT 0001(STD UNOPENED AUTO )                       PRTY=07 TXNUD
URT 0002(STD UNOPENED AUTO )                       PRTY=07 TXNUD
URT 0003(STD UNOPENED AUTO )                       PRTY=07 TXNUD=NO
URT 0004-0009                INVALID, DISABLED, NOT LINK EDITED OR SKIPLOAD
URT 0010(STD UNOPENED AUTO )                       PRTY=07 TXNUD
URT 0011-0013                HAVE NO CSD ENTRIES
URT 0014(STD UNOPENED DEFER)                       PRTY=07 TXNUD
URT 0015                     HAS NO CSD ENTRY
URT 0016(STD UNOPENED      ) OPEN  FAILED RC02 052 PRTY=07 TXNUD=NO
URT 0017-0019                HAVE NO CSD ENTRIES
URT 0020(SQL OPEN          ) ACTIVE=000 RESRVD=000 PRTY=07 TXNUD
URT 0021-0024                HAVE NO CSD ENTRIES
URT 0025(STD UNOPENED DEFER)                       PRTY=07 TXNUD
URT 0026-0034                HAVE NO CSD ENTRIES
URT 0035(STD UNOPENED DEFER)                       PRTY=08 TXNUD
URT 0036                     INVALID, DISABLED, NOT LINK EDITED OR SKIPLOAD
URT 0037(STD UNOPENED DEFER)                       PRTY=07 TXNUD
URT 0038-0050                HAVE NO CSD ENTRIES
URT 0051-0052                INVALID, DISABLED, NOT LINK EDITED OR SKIPLOAD
URT 0053-0100                HAVE NO CSD ENTRIES
                                           ENTER = NEXT PAGE   CLEAR = END TRANS
```

Display Example: DBIC INQ=1,2,3,7

The following example illustrates a limited URT Inquiry display, where the limitation is on the URT number.

```
DBIC INQ=1,2,3,7                                                      DELIM &

     (1)  (2) (3)    (4)        (5)                 (6)     (7)     (8)
URT 0001(STD UNOPENED AUTO )                       PRTY=07 TXNUD
URT 0002(STD UNOPENED AUTO )                       PRTY=07 TXNUD
URT 0003(STD UNOPENED AUTO )                       PRTY=07 TXNUD=NO
URT 0004-0009                INVALID, DISABLED, NOT LINK EDITED OR SKIPLOAD
DC00380I  TRANSACTION COMPLETED.
```

Display Example: DBIC INQ=SQL

The following example illustrates a limited URT Inquiry display, where the limitation is on the URT type.

```
DBIC INQ=SQL                                                          DELIM &

    (1)  (2) (3)      (4)         (5)                    (6)    (7)    (8)
URT 0020(SQL OPEN          ) ACTIVE=000 RESRVD=000 PRTY=07 TXNUD
DC00380I  TRANSACTION COMPLETED.
```

Display Example: DBIC INQ=OPENED

The following example illustrates a limited URT Inquiry display, where the limitation is on the URT status.

```
DBIC INQ=OPENED                                                       DELIM &

      (1)  (2) (3)     (4)          (5)                  (6)     (7)     (8)
URT 0014(STD OPEN          ) ACTIVE=000 RESRVD=000 PRTY=07 TXNUD
URT 0020(SQL OPEN          ) ACTIVE=000 RESRVD=000 PRTY=07 TXNUD
URT 0037(STD OPEN          ) ACTIVE=000 RESRVD=000 PRTY=07 TXNUD
URT 0067(STD OPEN          ) ACTIVE=000 RESRVD=000 PRTY=07 TXNUD
URT 0101(STD OPEN          ) ACTIVE=000 RESRVD=000 PRTY=07 TXNUD
DC00380I  TRANSACTION COMPLETED.
```

Display Example: DBOC INQ=AUTO

The following example illustrates a limited URT Inquiry display, where the limitation is on the URT "when to open" specification.

```
DBOC INQ=AUTO                                                         DELIM ;

     (1)  (2)  (3)      (4)             (5)           (6)     (7)     (8)
URT 0001(STD OPEN     AUTO ) ACTIVE=000 RESRVD=001 PRTY=07 TXNUD
URT 0002(STD UNOPENED AUTO ) CLOSE FAILED RC02 052 PRTY=07 TXNUD
URT 0010(STD CLOSED   AUTO )                       PRTY=07 TXNUD=NO
URT 0101(STD UNOPENED AUTO )                       PRTY=07 TXNUD
DC00380I  TRANSACTION COMPLETED.
```

Display Example: DBOC INQ=FAIL

The following example illustrates a limited URT Inquiry display, where the limitation is on the URTs with a failure on the last open or close.

```
DBOC INQ=FAIL                                                         DELIM &

     (1)  (2)     (3)    (4)            (5)             (6)      (7)      (8)
URT 0060(STD UNOPENED      ) CLOSE FAILED RC25 020 PRTY=07 TXNUD=NO
URT 0061(STD UNOPENED      ) CLOSE FAILED RC25 020 PRTY=07 TXNUD
URT 0062(STD UNOPENED      ) CLOSE FAILED RC25 020 PRTY=07 TXNUD
URT 0063(STD UNOPENED      ) CLOSE FAILED RC25 020 PRTY=07 TXNUD
URT 0064(STD UNOPENED      ) CLOSE FAILED RC25 020 PRTY=07 TXNUD
URT 0065(STD UNOPENED      ) CLOSE FAILED RC25 020 PRTY=07 TXNUD
URT 0066(STD UNOPENED      ) CLOSE FAILED RC25 020 PRTY=07 TXNUD
URT 0068(STD UNOPENED      ) CLOSE FAILED RC25 020 PRTY=07 TXNUD
URT 0069(STD UNOPENED      ) CLOSE FAILED RC25 020 PRTY=07 TXNUD
URT 0070(STD UNOPENED      ) CLOSE FAILED RC25 020 PRTY=07 TXNUD
URT 0072(STD UNOPENED      ) CLOSE FAILED RC25 020 PRTY=07 TXNUD
URT 0100(STD UNOPENED      ) CLOSE FAILED RC02 052 PRTY=07 TXNUD=NO
DC00380I  TRANSACTION COMPLETED.
```

Field Descriptions

The URT Inquiry panel displays one row of information per URT, where URTs are listed in ascending order by URT-suffix. Information includes URT characteristics such as type, status, and when to open, pertinent messages such as the number of active tasks for an open URT, and how the URT is defined in its DBURSTR macro.

Field	URT Characteristic	Value	Description
	URT	URT	Identifier that this is a URT.

Field	URT Characteristic	Value	Description
❶	Number	0001-nnnn	4-digit suffix of the URT name. For details about the 4-digit suffix, see the descriptions of the DBCVTPR macro parameters MAXURTS= and PREFIX= in the *System Reference Guide*.
❷	Type	STD	URT assembled for applications issuing CA Datacom/DB commands.
❷	Type	SQL	URT assembled for applications issuing SQL statements.
❷	Type	DYN	URT dynamically built by another CA product, such as CA Dataquery.
❸	Status	UNOPENED	Not yet opened through a DBOC OPEN= transaction or invoked by an application request.
❸	Status	CLOSED	Closed by CA Datacom CICS Services.
❸	Status	CLOSING	Specified with a CA Datacom CICS Services CLOSE command, but not yet closed pending completion transaction having exclusive control.
❸	Status	OPENED	Opened by CA Datacom CICS Services.
❹	When to Open	Blank	This URT has not been specified for delayed opening. It is opened during CA Datacom CICS Services startup when the PLT is processed.
❹	When to Open	AUTO	URT is defined with the AUTO= parameter. It is opened automatically when initially required by an application request.
❹	When to Open	DEFER	URT is defined with the DEFER= parameter. Its opening is deferred until opened through the DBOC OPEN= command.
❺	Message	ACTIVE=	Number of active tasks using this URT.
❺	Message	RESRVD=	Number of tasks which have read a record for update using this URT.
❺	Message	INVALID, DISABLED, NOT LINK EDITED, OR SKIPLOAD	Reasons are the following: ■ The corresponding load module is not a valid online URT. ■ Its CSD entry has been disabled. ■ Its load module is not in the load library. ■ The URT has been specified in a SKIPLOAD macro in the DBCVTPR as not be loaded at STARTUP.

Field	URT Characteristic	Value	Description
❺	Message	OPEN FAILED RC*nn*	The last open failed for this URT. The reason for this failure is indicated by CA Datacom/DB return code *nn*.
❺	Message	CLOSE FAILED RC*nn*	The last close failed for this URT. The reason for this failure is indicated by CA Datacom/DB return code *nn*.
❺	Message	HAS NO CSD ENTRY HAVE NO CSD ENTRIES	No entry for this URT in the CSD.
❻	Job priority	PRTY=*nn*	Priority level for requests processed using this URT, where nn is between 01 and 15. 01 is low, 07 is the default.
❼	Transaction backout	TXNUD	TXNUNDO=YES is specified in the DBURSTR macro defining this URT. Transaction backout is enabled for all update transactions against all tables declared in this URT.
❼	Transaction backout	TXNUD=NO	Transaction backout is not operational for tasks using this URT.
❽	Wait time for held record	ECWAIT=	ECWAIT= value from 0001 and 7200 indicates exclusive control wait time (in seconds) as specified in the TIMEMIN= or TIMESEC= DBURSTR parameters. ECWAIT=0000 (or no value) means there is no limit on the time a task may wait for a record held under exclusive control.

Interpreting Displayed Data

Use the following guidelines to interpret the display. URT characteristics are labeled by fields as they were on the report. See the information about online URTs in the *System Reference Guide*.

❶

The range of numbers which can appear as URT suffixes is limited by the MAXURTS= value specified in the System Option Table (DBCVTPR). For details on the MAXURTS= parameter, see the *System Reference Guide*.

❷

The origin of the Type characteristic is the DBUREND macro parameter DBSQL= in the URT definition. If DBSQL=YES, SQL appears. If DBSQL=NO and you defined a URT with the displayed number, STD appears. If DBSQL is NO and you have not defined a URT with a number within the range 0001-nnnn (see the *System Reference Guide* descriptions of the MAXURTS= and PREFIX= parameters for details about the nnnn 4-digit suffix), that URT number is eligible for use by a CA product for dynamic generation. If so used, DYN appears. If not so used, HAVE NO CSD ENTRIES appears in the Usage/Reason Not Used field.

Note: For more information about the DBSQL= parameter, see the chapter on defining a URT in the CA Datacom/DB *Database and System Administration Guide*.

❸

The only Status characteristic controlled by a definition is UNOPENED. Only a URT defined with AUTO= or DEFER= can exist in UNOPENED status. Once a URT is open, it remains open until CA Datacom CICS Services is shut down unless explicitly closed through a DBOC or DBEC CLOSE= command.

❹

Except for URTs specified for delayed opening, CA Datacom CICS Services opens all URTs at system startup. In the DBCVTPR macro, two lists of URTs may be identified for delayed opening with AUTO= and DEFER= respectively, those to open automatically when required by an application for its processing and those to defer opening until requested by a DBOC or DBEC OPEN= command.

To add to the list of URTs which open automatically, see AUTO= Setting URTs for Automatic Opening (see page 135). To add to the list of URTs which only open when a DBOC OPEN= command is issued, see DEFER= Setting URTs for Deferred Opening (see page 141). To return URTs to their original automatic open or deferred open state (as specified in DBCVTPR), see RESTART= Returning URTs to Initial Status (see page 164).

❺

If the table is open, its current usage can be determined by examining the ACTIVE= and RESRVD= data.

The presence of an OPEN FAILED or CLOSE FAILED entry indicates a processing failure. Take the action suggested in the CA Datacom/DB *Message Reference Guide* for the displayed CA Datacom/DB return code.

If INVALID, recompile the module to create a valid online URT. See the information about online URTs in the *System Reference Guide*.

If NOT LINK EDITED, either remove this URT name from the CICS System Definition data set (CSD) or link edit the assembled URT macros to produce a load module which resides in the searched load library.

INVALID, DISABLED, NOT LINK EDITED, or SKIPLOAD and HAVE NO CSD ENTRIES (or HAS NO CSD ENTRY) appear when the following conditions apply:

- you have disabled a CSD entry
- the load module is not in the DFHRPL
- the URT has been specified in a SKIPLOAD macro in the DBCVTPR as not to be loaded
- no entry in the CICS System Definition data set (CSD) for these or this URT within the MAXURTS= range

- This message is for information only.

Example:

```
DBOC INQ=FAIL                                                         DELIM &

       ❶   ❷        ❸      ❹              ❺               ❻        ❼         ❽
URT 0014(STD UNOPENED AUTO )                       PRTY=07 TXNUD=NO
URT 0015          HAS NO CSD ENTRY
URT 0016(STD UNOPENED AUTO )                       PRTY=07 TXNUD=NO
URT 0017-0019     HAVE NO CSD ENTRIES
```

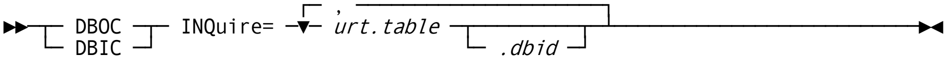
❻ ❼ ❽

The DBURSTR macro parameters PRTY=, TXNUNDO=, and TIMEMIN= or TIMESEC= can be changed by altering values and reassembling and relinking the URT. A low priority task (PRTY=1) which has a resource under exclusive control could tie up that resource indefinitely, the avoidance of which is a good reason to specify TIMEMIN= or TIMESEC= in DBURSTR rather than accepting the default of zero. If the default is used for this URT, no entry appears for ECWAIT=. A low priority task with transaction backout specified (TXNUNDO=YES), can force checkpointing in the Log Area(s).

Note: For more information, see defining the user environment in the CA Datacom/DB *Database and System Administration Guide*.

INQ=urt.table: Displaying Table-Level Options for URTs

Invoke the following transaction to display how AUTODXC=, BYPOPEN=, SYNONYM=, and UPDATE= parameters are defined by DBURTBL macros for requested tables defined to requested URTs.



DBOC/DBIC

(Required) Specify a transaction ID valid with Operational commands used to monitor system resources. Select the transaction ID for which you are authorized. Leave a space between the transaction ID and the command.

INQuire=

(Required) Command specifying a status display. You can shorten this command to INQ=.

urt.table

(Required) Indicates the tables and the URTs on which the inquiry is based, where the specified URT-table combination exists. Specify a URT with the 1- to 4-digit number that follows its prefix or substitute the wildcard symbol (?) for one or more of the digits to extend the request to any URT which contains any digit in that position. Specify a table with its 1- to 3-character table name, or substitute the wildcard symbol (?) for one or more of the characters to extend the request to a table containing any valid character in that position of its name.

Examples of these options follow:

- To invoke the display of a specific table in a specific URT, specify a 1- to 4-digit URT number followed by a period followed by a 1- to 3-character CA Datacom/DB table name. For example:

  ```
  DBIC INQ=1.PMF
  ```

- To invoke the display of any URT containing a specific table, substitute ???? for the URT number. For example:

  ```
  DBIC INQ=????.PMF
  ```

- To invoke the display of a specific URT with all the tables it contains, substitute ??? for the table name. For example:

  ```
  DBIC INQ=1.???
  ```

- To invoke the display of multiple URT-table combinations, separate the URT-table combinations with commas. For example:

  ```
  DBIC INQ=1.???,5.???,6.???,7.???
  ```

- To invoke the display of each URT with all of its tables, use the following command. For example:

  ```
  DBIC INQ=????.???
  ```

.dbid

(Optional) Used with a table name to limit the command action to that table within the specified database. Use a period as a separator between table name and the 5-digit database ID (table.dbid). To apply the named command to the listed tables in database IDs within a known range, use the wildcard symbol (?). To apply the named command to the listed tables in all databases, either omit the database ID from the operand or specify ????? for the dbid.

Example	Description
00123	Database 00123
000??	Databases 00000 through 00099
0005?	Databases 00050 through 00059
???5?	All databases with 5 as the fourth digit
?????	All databases

Command Examples

Command	Result
DBOC INQUIRE=????.???	Displays the status of all URTs and the status of all tables in each URT.
DBOC INQUIRE=????.???.00014	Displays the status of only URTs which list tables in database ID 14, with table information about only tables residing in DBID=14.
DBIC INQ=1.???,5.???,6.???,7.???	Displays the status of all tables in URTs 0001, 0005, 0006, and 0007 and also the status of the four specified URTs.

Display Example: DBOC INQ=1.???,10.???

When inquiries are made at the table level, the display includes the number and status of each URT, similar to the URT status inquiry display. In addition, the table names and database IDs are displayed for each URT.

```
DBOC INQ=1.???,10.???                                                DELIM &
      (1) (2)           (3)        (4)       (5)       (6)     (7)  (8)
URT 0001(STD OPEN     AUTO ) ACTIVE=000 RESRVD=000 PRTY=07 TXNUD
    0001 TABLE:PAY  DBID:00001  UPDATE      SYNONYM
    0001 TABLE:PMF  DBID:00001  UPDATE      SYNONYM
    0001 TABLE:POH  DBID:00001  UPDATE      SYNONYM
    0001 TABLE:POL  DBID:00001  UPDATE      SYNONYM
    0001 TABLE:PNC  DBID:00001  UPDATE      SYNONYM
    0001 TABLE:PNM  DBID:00001  UPDATE      SYNONYM
URT 0010(STD CLOSED   AUTO )                       PRTY=07 TXNUD=NO
    0010 TABLE:ACT  DBID:00010  UPDATE      SYNONYM
    0010 TABLE:CUS  DBID:00010  UPDATE      SYNONYM
    0010 TABLE:DTL  DBID:00010  UPDATE      SYNONYM
    0010 TABLE:ORD  DBID:00010  UPDATE      SYNONYM
    0010 TABLE:ITM  DBID:00010  UPDATE      SYNONYM
    0010 TABLE:NUM  DBID:00010  UPDATE      SYNONYM
    0010 TABLE:RCP  DBID:00010  UPDATE      SYNONYM
    0010 TABLE:SAL  DBID:00010  UPDATE      SYNONYM
    0010 TABLE:SHP  DBID:00010  UPDATE      SYNONYM
DC00380I  TRANSACTION COMPLETED.
```

Field Descriptions

When you specify a table, CA Datacom CICS Services displays both the status of the URT listing the specified table (as described in Field Descriptions) and the status of the table itself, using the following status designators:

Field	Value	Description
(1)	nnnn	URT suffix specified or allowed by the entered command (see the *System Reference Guide* descriptions of the MAXURTS= and PREFIX= parameters for details about the nnnn 4-digit suffix).
(2)	TABLE: aaa	Value aaa is a CA Datacom/DB table defined in the corresponding URT, as allowed by the entered command. Table names appear in the order entered in the URT.
(3)	DBID: nnnnn	Value nnnnn is the CA Datacom/DB database ID for the corresponding table, as allowed by the entered command.
(4)	UPDATE	Indicates that this URT permits applications to update the named table.
	UPDATE=NO	Indicates that update of the named table is not permitted using this URT.
(5)	SYNONYM	SYNONYM=YES is specified in the DBURTBL macro for this URT. All requests for this table must include the DBID in the Request Area.

Field	Value	Description
(6)	BYPOPEN	Indicates that this table has been disabled either because BYPOPEN=YES was coded in its URT definition, a DBOC DISABLE=urt.tbl command has been processed, or the BYPOPEN value has been overridden on the DBEC I,TBL(nnnn) display. When the URT is opened, the designated table is bypassed from the opening. Any attempt to access this table, using this URT, results in a CA Datacom/DB return code of 05. **Note:** A blank in this field indicates that either BYPOPEN=NO (the default) was used in the corresponding URT definition for this table, that the table was enabled through the DBOC ENABLE= transaction (see ENABLE= Enabling Opening for Previously Bypassed Table (see page 151)), or that the table was enabled by overriding the BYOPEN value on the DBEC I,TBL(nnnn) display (see Overriding DBURTBL Parameter Values (see page 279)).
(7)	AUTODXC=NO	For this table, AUTODXC=NO was coded in the corresponding URT. Exclusive control for this table is not automatically dropped when a second command is issued from the same Request Area. A blank in this field indicates AUTODXC=YES.
(8)	ECWAIT=	Wait time for held record. An ECWAIT= value between 0001 and 7200 indicates exclusive control wait time (in seconds) as specified in the TIMEMIN= or TIMESEC= DBURSTR parameters. ECWAIT=0000 (or no value) means there is no limit on the time a task may wait for a record held under exclusive control.

INQ=AUX: Displaying Status of Auxiliary Trace

To display the current status of the Auxiliary Trace, issue the following transaction:

```
►►─┬─ DBOC ─┬─ INQuire=AUX ──────────────────────────────────────────►◄
   └─ DBIC ─┘
```

DBOC/DBIC

(Required) Specify a transaction ID valid with Operational commands used to monitor system resources. Select the transaction ID for which you are authorized. Leave a space between the transaction ID and the command.

INQuire=

(Required) Command specifying a status display. You may shorten this command to INQ=.

AUX

(Required) Specifies that CA Datacom CICS Services is to display the status of the Auxiliary Trace.

Display Example: DBIC INQ=AUX

```
DBIC INQ=AUX                                                        DELIM &


DC00373I  CICS SERVICES AUXTRACE FACILITY IS aaa DESTID=bbbb
DC00380I  TRANSACTION COMPLETED.
```

Field Descriptions

The displayed message provides the following two pieces of information:

aaa

Auxiliary Trace Facility status. (You specify the status with the AUXTRCE= parameter when you code the DBCVTPR macro.)

ON

Indicates Auxiliary Trace is active

OFF

Indicates Auxiliary Trace is not active

bbbb

The primary or the secondary destination data set for the file receiving the Auxiliary Trace entries. The data set name displayed is the primary destination, unless a DBOC AUX=SWI command has switched destinations to the secondary data set. (You specify the primary and secondary data sets when you code the AUXTRCE= parameter for the DBCVTPR macro.)

INQ=CODES: Displaying Request Totals by Return Code

Each request made to CA Datacom CICS Services is tallied by return code. When a request is successfully serviced, the return code is blank. CA Datacom CICS Services tallies blank return codes as 00. A report showing the result of all requests issued since CICS startup (or since the last time the statistics were reset) is written automatically as part of CICS shutdown. This report enables you to monitor the frequency with which error conditions prevent successful servicing of requests and to determine the source of the errors.

As part of the procedure for solving an immediate application program problem, you may view this report online while CICS is in session. To produce this report in its current status, issue the following transaction:

Note: In a multiple MUFs environment, the CODES inquiry displays return code totals for all MUFs defined in the DBCVTPR module.

```
►►─┬─ DBOC ─┬─ INQuire=CODES ──────────────────────────────────────────►◄
   └─ DBIC ─┘
```

DBOC/DBIC

(Required) Specify a transaction ID valid with Operational commands used to monitor system resources. Select the transaction ID for which you are authorized. Leave a space between the transaction ID and the command.

INQuire=

(Required) Command specifying a status display. You may shorten this command to INQ=.

CODES

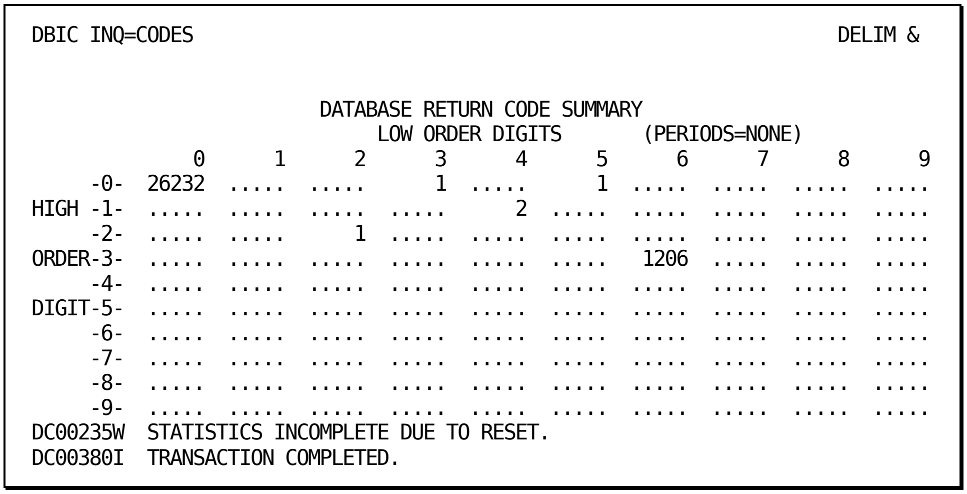
(Required) Specifies that CA Datacom CICS Services is to display total CA Datacom/DB requests by return code received. In a multi-MUF environment, this is the total of all requests by return code for all MUFs.

Note: For a description of error conditions producing non-blank return codes, see the *CA Datacom/DB Message Reference Guide*.

Return code counters are automatically reset to zero as part of CICS shutdown. Counters also can be manually reset while CICS is in session. If the return code counters are not reset periodically at sites generating a large volume of requests, the online report may not display all totals. Totals exceeding six digits are displayed with a leading plus sign (+) to indicate an overflow. For instructions on resetting return code counters, see RESET= Resetting Statistic Counters (see page 159).

Display Example: DBIC INQ=CODES

The Database Return Code Summary is formatted as a grid for 2-digit CA Datacom/DB return codes, with high-order digits on the vertical axis and low-order digits on the horizontal axis.



```
DBIC INQ=CODES                                                        DELIM &


                         DATABASE RETURN CODE SUMMARY
                              LOW ORDER DIGITS       (PERIODS=NONE)
              0      1      2      3      4      5      6      7      8      9
     -0-  26232  .....  .....      1  .....      1  .....  .....  .....  .....
HIGH -1-  .....  .....  .....  .....      2  .....  .....  .....  .....  .....
     -2-  .....  .....      1  .....  .....  .....  .....  .....  .....  .....
ORDER-3-  .....  .....  .....  .....  .....  .....   1206  .....  .....  .....
     -4-  .....  .....  .....  .....  .....  .....  .....  .....  .....  .....
DIGIT-5-  .....  .....  .....  .....  .....  .....  .....  .....  .....  .....
     -6-  .....  .....  .....  .....  .....  .....  .....  .....  .....  .....
     -7-  .....  .....  .....  .....  .....  .....  .....  .....  .....  .....
     -8-  .....  .....  .....  .....  .....  .....  .....  .....  .....  .....
     -9-  .....  .....  .....  .....  .....  .....  .....  .....  .....  .....
DC00235W  STATISTICS INCOMPLETE DUE TO RESET.
DC00380I  TRANSACTION COMPLETED.
```

Note: The total number of requests for all error codes do not match the total number of requests from DBOC INQ=STATS or DBOC INQ=USERS, because CA Datacom CICS Services either detected a condition that resulted in a return code 05 or 36, or one of the following was used: URTIN or URTGN. CA Datacom CICS Services does not pass to CA Datacom/DB requests associated with a return code 05, return code 36, or a URTIN or URTGN command, so those requests are not added into the "TOTAL NUMBER OF REQUESTS" in DBOC INQ=STATS or DBOC INQ=USERS.

Interpret the displayed data as follows: Of the requests made to CA Datacom/DB since the counter was reset, 26232 were successfully serviced and 1211 received a non-blank return code. The five non-blank return codes issued were 03, 05, 14, 22 and 36. The distribution of requests by code displayed on the Database Return Code Summary panel follows:

Return Code	Number Requests
00	26232
03	1
05	1
14	2
22	1
36	1206

Return codes 01, 02, 04, 06-13, 15-21, 23-35, 37-99 were not returned to any transaction during this period. The respective fields are displayed with periods (....).

INQ=GENOPTS: Displaying System Generation Options

To examine the values assigned to the parameters of the DBCVTPR macro, invoke the following transaction:

```
►►─┬─ DBOC ─┬─ INQuire=GENOPTS ────────────────────────────────────────►◄
   └─ DBIC ─┘
```

DBOC/DBIC

(Required) Specify a transaction ID valid with Operational commands used to monitor system resources. Select the transaction ID for which you are authorized. Leave a space between the transaction ID and the command.

INQuire=

(Required) Command specifying a status display. You can shorten this command to INQ=.

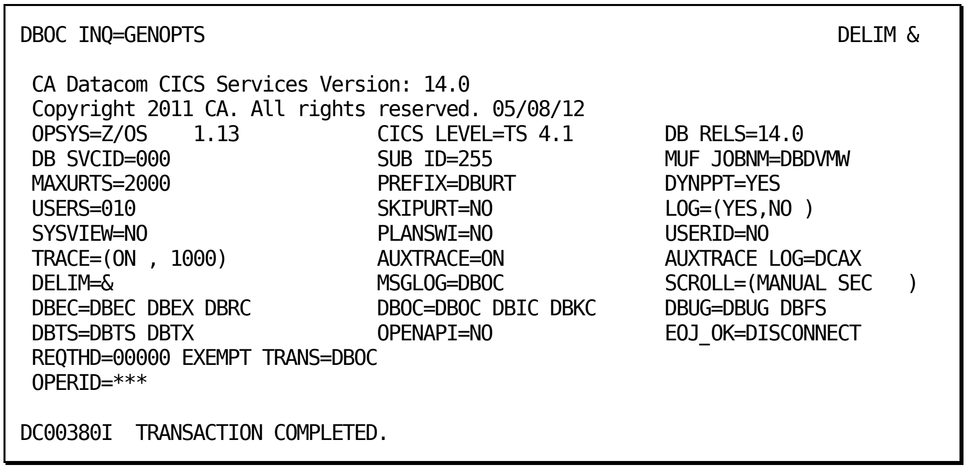
GENOPTS

(Required) Specifies that CA Datacom CICS Services display the DBCVTPR generation options.

Note: For instructions for modifying these parameter values, see the *System Reference Guide*.

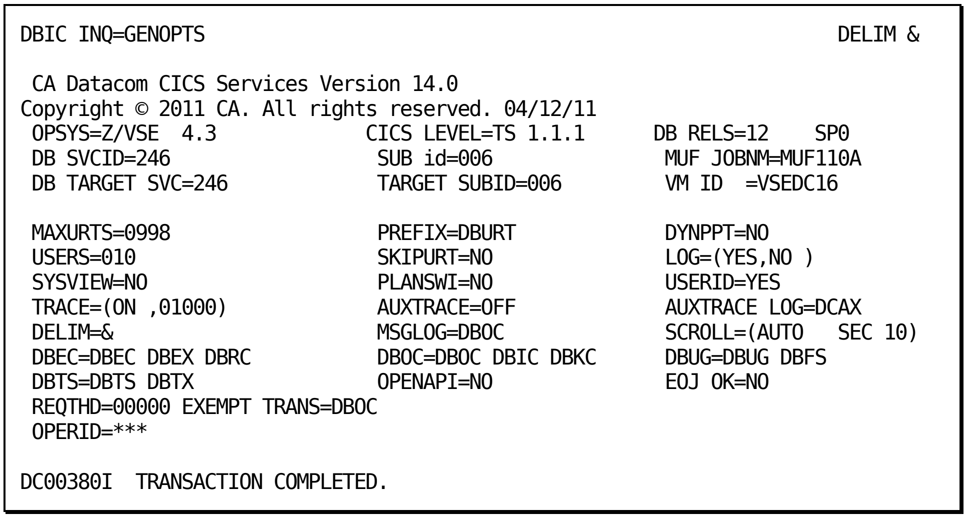
Display Examples:

z/OS Example: DBOC INQ=GENOPTS



```
DBOC INQ=GENOPTS                                                       DELIM &

 CA Datacom CICS Services Version: 14.0
 Copyright 2011 CA. All rights reserved. 05/08/12
 OPSYS=Z/OS    1.13            CICS LEVEL=TS 4.1        DB RELS=14.0
 DB SVCID=000                  SUB ID=255               MUF JOBNM=DBDVMW
 MAXURTS=2000                  PREFIX=DBURT             DYNPPT=YES
 USERS=010                     SKIPURT=NO               LOG=(YES,NO )
 SYSVIEW=NO                    PLANSWI=NO               USERID=NO
 TRACE=(ON , 1000)             AUXTRACE=ON              AUXTRACE LOG=DCAX
 DELIM=&                       MSGLOG=DBOC              SCROLL=(MANUAL SEC   )
 DBEC=DBEC DBEX DBRC           DBOC=DBOC DBIC DBKC      DBUG=DBUG DBFS
 DBTS=DBTS DBTX                OPENAPI=NO               EOJ_OK=DISCONNECT
 REQTHD=00000 EXEMPT TRANS=DBOC
 OPERID=***

DC00380I  TRANSACTION COMPLETED.
```

z/VSE Example: DBIC INQ=GENOPTS



```
DBIC INQ=GENOPTS                                                      DELIM &

 CA Datacom CICS Services Version 14.0
Copyright © 2011 CA. All rights reserved. 04/12/11
 OPSYS=Z/VSE  4.3            CICS LEVEL=TS 1.1.1      DB RELS=12    SP0
 DB SVCID=246                 SUB id=006               MUF JOBNM=MUF110A
 DB TARGET SVC=246            TARGET SUBID=006         VM ID  =VSEDC16

 MAXURTS=0998                 PREFIX=DBURT             DYNPPT=NO
 USERS=010                    SKIPURT=NO               LOG=(YES,NO )
 SYSVIEW=NO                   PLANSWI=NO               USERID=YES
 TRACE=(ON ,01000)            AUXTRACE=OFF             AUXTRACE LOG=DCAX
 DELIM=&                      MSGLOG=DBOC              SCROLL=(AUTO   SEC 10)
 DBEC=DBEC DBEX DBRC          DBOC=DBOC DBIC DBKC      DBUG=DBUG DBFS
 DBTS=DBTS DBTX               OPENAPI=NO               EOJ OK=NO
 REQTHD=00000 EXEMPT TRANS=DBOC
 OPERID=***

DC00380I  TRANSACTION COMPLETED.
```

Field Descriptions

AUXTRACE=

Indicates whether CA Datacom CICS Services Auxiliary Trace Facility is initiated.

AUXTRACE LOG=

Indicates the destination for data from the Auxiliary Trace Facility.

CICS LEVEL=

Specifies the release level of CICS in use on this system.

DB RELS=

The release level of CA Datacom/DB in use on this system.

(CA Datacom CICS Services does not display a value in this field if no MUF has been connected.)

Note: The value that is displayed for DB RELS= is fetched from the release level of program DBINRPR, which is loaded into the CICS address space. Be aware, that for the DBEC transaction, the value that is displayed for DB RELS= is fetched instead from the MUF.

DB SVCID=

The ID number of the CA Datacom/DB SVC.

DB TARGET SVC=

In z/VSE environments, specifies the SVC number of the MUF to which requests are sent. The CA Datacom/DB interface executing in the application region to establish communication with the correct MUF uses this parameter. This value must match the SVC parameter value of the DBSIDPR.

Note: For more information, see the VMSVC= information in the *CA Datacom/DB Database and System Administration Guide*.

DBEC=

Displays the transaction IDs used to initiate the CA Datacom CICS Services enhanced functions.

- The first displayed transaction is used to invoke the functions that are documented for the DBEC transaction (inquiry and operational control).
- The second displayed transaction is used to invoke the functions that are documented for the DBEX transaction (inquiry only).
- The third displayed transaction is an internal transaction that is used on a remote system to perform associated functions.

DBOC=

Displays two transaction IDs used to initiate the CA Datacom CICS Services operational functions.

- The first transaction ID is valid with commands to monitor and control system resources. (Default is DBOC)
- The second transaction ID is valid only with commands to monitor system resources. (Default is DBIC)
- The third transaction ID is for internal use to support EOJ_OK

DBTS=

Displays the transaction IDs used to initiate the Test Facility in update and read-only mode. The first displayed transaction is used to invoke the functions that are documented for the DBTS transaction (update mode). The second displayed transaction is used to invoke the functions that are documented for DBTX (read-only mode).

DBUG=

Displays the transaction IDs used to initiate the Debugging Facility. The first displayed transaction is used to invoke the functions that are documented for the DBUG transaction. The second displayed transaction is internal ID used when debugging a remote terminal.

DELIM=

The current command delimiter specification. For an explanation of the command delimiter, see Issuing Multiple Operational Commands (see page 30).

DYNPPT=

YES specifies that you want to use the program AUTOINSTALL function (PGAIPGM=ACTIVE in DFHSIT) for the URTs. NO specifies that you do not want to autoinstall URTs, but instead want them to be defined in the CSD.

EOJ OK=

This value represents CA Datacom CICS Services participation in an EOJ being issued for the default MUF. A value of No indicates that CA Datacom CICS Services does not participate in the EOJ of MUF meaning that MUF cannot EOJ until the MUF is disconnected in CA Datacom CICS Services. The value of DISCONNECT or IMMEDIATE determines the CA Datacom CICS Services action when notified of a MUF EOJ. If these two values are specified and there is no request activity within a specific time interval in CICS for this MUF, MUF severs the connection. The MUF startup option of X_EOJ_OK_S_DELAY determines this interval. This feature is not supported in DB 12.0.

EXEMPT TRANS=

A list of up to ten transaction IDs which are exempt from the previously shown limit.

LOG=

Has two fields:

First Field (log)

YES

Indicates that CA Datacom CICS Services should write DBOC, DBIC and internal DBKC command responses to the Message Log file.

NO

Indicates that CA Datacom CICS Services should not write DBOC, DBIC and internal DBKC command responses to the Message Log file.

(The specification for this parameter can also be changed through the DBOC LOG= command. For more information, see LOG= Resetting the Log Option for Operational Commands (see page 156).)

Second Field (inq)

YES

Indicates that inquiry command responses are written to the Message Log file.

NO

Indicates that inquiry command responses are not written to the Message Log file.

MAXURTS=

The maximum number of URTs that can be defined for use by CA Datacom CICS Services.

MSGLOG=

The destination for the logging of DBOC/DBIC messages.

MUF JOBNM=

The job name for this MUF.

*(*CA Datacom CICS Services *does not display a value in this field if no MUF has been connected.)*

OPENAPI=

YES specifies that CA Datacom CICS Services TRUES are enabled as API(OPENAPI) and start the execution on an OPEN TCB. In this case, it is the L8 TCB because CA Datacom CICS Services programs run with EXECKEY=CICS.

NO specifies that CA Datacom CICS Services TRUEs are enabled as API(CICSSAPI). The CA Datacom CICS Services programs run on the same TCB as the calling program runs, and that could mean a QR TCB or an OPEN TCB.

Important! Take caution in setting the proper value. Monitor and measure the system performance to adjust the value appropriately.

The MAXOPENTCBS system initialization parameter controls the number of open TCBs permitted for this purpose. The factors that determine this value include the total sum of the number of USERS defined in the DBCVTPR macro for all connections. This is in addition to the OTE TCB requirements for other applications that are running in the same CICS region. For more information, see the IBM *CICS System Definition Guide*.

Valid Entries:

YES, NO

Default Value:

No

OPERID=

Ten user IDs with authorization to initiate operational commands for controlling CA Datacom CICS Services such as STARTUP/SHUTDOWN and resources such as URTs and MUFs.

OPSYS=

The operating system in use.

PLANSWI=

YES specifies that dynamic plan selection is used. NO specifies that dynamic plan selection is not used.

PREFIX=

The prefix used for URT names.

REQTHD=

The maximum number of CA Datacom/DB requests permitted in any unit of work. If any task (not found on the exempt list) issues more than this number of CA Datacom/DB requests, it abends with abend code DC18.

If 00000 is displayed in this field, there is no limit on the number of CA Datacom/DB requests that can be issued in any single unit of work.

SCROLL=

Indicates the scrolling method for the display of DBOC/DBIC responses (except INQ=TRACE).

AUTO

CA Datacom CICS Services automatically pages forward after the displayed number of seconds.

MANUAL

Press Enter to scroll forward.

SKIPURT=

Indicates whether CA Datacom CICS Services is to ignore closed URTs when searching for a URT to satisfy a CA Datacom/DB request.

SUB id=

The SVC sub-ID number for this MUF.

SYSVIEW=

Indicates whether CA SYSVIEW is supported.

Note: In z/OS environments, only use the SYSV= parameter to specify CA SYSVIEW as YES in z/OS environments. In z/VSE environments, SYSV= is allowed to default to NO.

TARGET SUBID=

In z/VSE environments, specifies the SUBID of the MUF to which requests are sent. The CA Datacom/DB interface executing in the application region to establish communication with the correct MUF uses this parameter. This value must match the SUBID parameter value of the MUF.

Note: For more information, see VMSUBID= in the *CA Datacom/DB Database and System Administration Guide*.

TRACE=

Indicates whether the Trace Facility is initiated and the maximum number of entries to be held at one time in the CA Datacom/DB Online Trace Table.

USERID=

Indicates the format of the USER identification that is passed to CA Datacom/DB with each request.

When external security is used, specifying USERID=NO forces CA Datacom/DB to use the 3-byte operator ID (CICS OPERID) instead of the 8-byte user ID (CICS USERID).

In a RACF environment, USERID=NO means that CA Datacom/DB uses the 3-byte operator ID, not the group ID, to secure the database.

Specify USERID=YES to force CA Datacom/DB to use the 8-byte CICS USERID.

USERS=

The maximum number of concurrent CICS users of the database (users with transactions physically waiting on a read event or with requests with exclusive control, that is to say adds, writes, and reads for update).

Note: In a multiple MUF environment, this field shows the value associated with the default MUF. This is the first MUF defined by a DBCSID macro in the DBCVTPR module.

VMID=

In z/VSE environments, specifies the name of the Virtual Machine in which the MUF is executing. This parameter is used in z/VM cross-machine communication. If this parameter is not coded, it is assumed that all applications making requests to the MUF are executing in the same Virtual Machine.

Note: For more information, see VMID= in the *CA Datacom/DB Database and System Administration Guide*.

INQ=PTF: Displaying Software Maintenance Levels

To display the CA Datacom CICS Services software maintenance levels in use on your system, issue the following transaction:

```
►►─┬─ DBOC ─┬─ INQuire=PTF ──────────────────────────────────────────────►◄
   └─ DBIC ─┘
```

DBOC/DBIC

(Required) Specify a transaction ID valid with Operational commands used to monitor system resources. Select the transaction ID for which you are authorized. Leave a space between the transaction ID and the command.

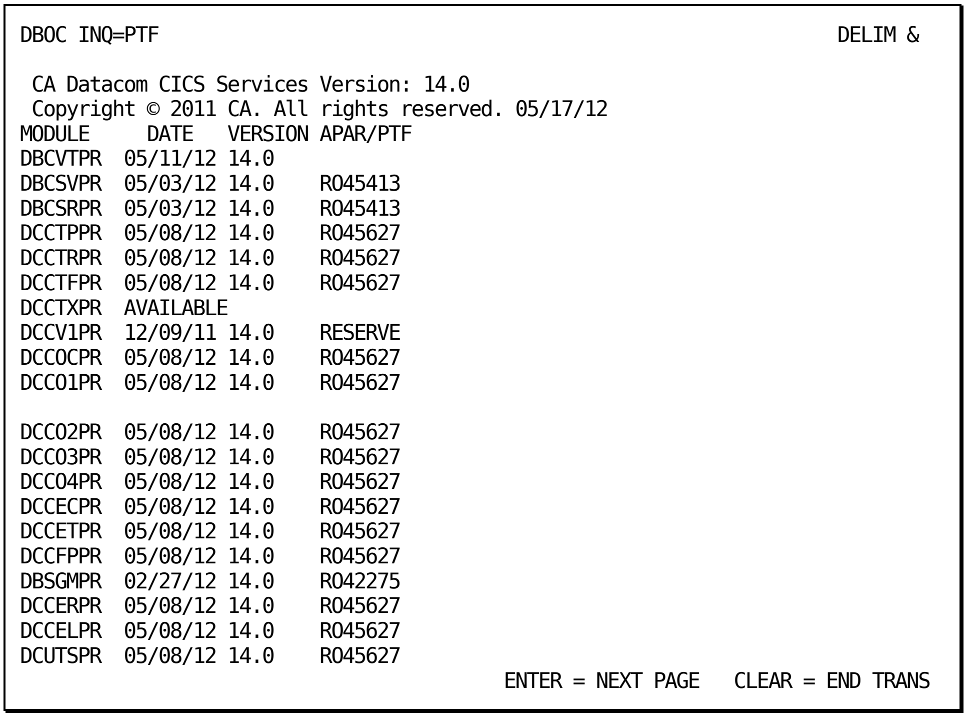
INQuire=

(Required) Command specifying a status display. You can shorten this command to INQ=.

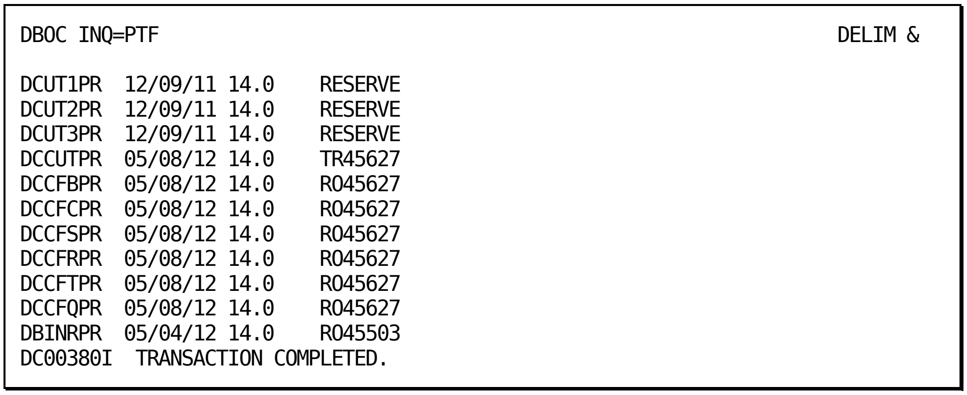
PTF

(Required) Specifies that CA Datacom CICS Services is to display its software maintenance levels.

Display Example: DBOC INQ=PTF



```
DBOC INQ=PTF                                                          DELIM &

 CA Datacom CICS Services Version: 14.0
 Copyright © 2011 CA. All rights reserved. 05/17/12
MODULE     DATE   VERSION APAR/PTF
DBCVTPR  05/11/12 14.0
DBCSVPR  05/03/12 14.0    R045413
DBCSRPR  05/03/12 14.0    R045413
DCCTPPR  05/08/12 14.0    R045627
DCCTRPR  05/08/12 14.0    R045627
DCCTFPR  05/08/12 14.0    R045627
DCCTXPR  AVAILABLE
DCCV1PR  12/09/11 14.0    RESERVE
DCCOCPR  05/08/12 14.0    R045627
DCCO1PR  05/08/12 14.0    R045627

DCCO2PR  05/08/12 14.0    R045627
DCCO3PR  05/08/12 14.0    R045627
DCCO4PR  05/08/12 14.0    R045627
DCCECPR  05/08/12 14.0    R045627
DCCETPR  05/08/12 14.0    R045627
DCCFPPR  05/08/12 14.0    R045627
DBSGMPR  02/27/12 14.0    R042275
DCCERPR  05/08/12 14.0    R045627
DCCELPR  05/08/12 14.0    R045627
DCUTSPR  05/08/12 14.0    R045627
                                          ENTER = NEXT PAGE   CLEAR = END TRANS
```



```
DBOC INQ=PTF                                                          DELIM &

DCUT1PR  12/09/11 14.0    RESERVE
DCUT2PR  12/09/11 14.0    RESERVE
DCUT3PR  12/09/11 14.0    RESERVE
DCCUTPR  05/08/12 14.0    TR45627
DCCFBPR  05/08/12 14.0    R045627
DCCFCPR  05/08/12 14.0    R045627
DCCFSPR  05/08/12 14.0    R045627
DCCFRPR  05/08/12 14.0    R045627
DCCFTPR  05/08/12 14.0    R045627
DCCFQPR  05/08/12 14.0    R045627
DBINRPR  05/04/12 14.0    R045503
DC00380I  TRANSACTION COMPLETED.
```

Field Descriptions

MODULE

CA Datacom CICS Services modules installed with the version indicated on the first line that is the version of the DBCVTPR.

DATE

One of the following:

- For DBCVTPR (for details, see the *System Reference Guide*), the System Generation Options Table, the date it was last assembled.
- For DCCTXPR (for details, see the *System Reference Guide*), the CA Datacom/DB Access Exit, whether it is available.
- For modules other than DBCVTPR and DCCTXPR, the version date in the coremark.

VERSION

- For modules other than DCCTXPR, DBSGMPR, and DBINRPR, the version reflects the version as indicated on the first line.
- For module DCCTXPR, this field is blank.
- For DBSGMPR and DBINRPR, the version reflected is the version of the CA Datacom/DB interface that is used for communication with the Multi-User.

APAR/PTF

The test APAR or published PTF level of the corresponding module. If the field specifies RESERVE, it is the base level of the module.

Note: The date in the second line of the header is your current date for entering this command.

INQ=STATS: Displaying System Statistics

Use the following transaction to display CA Datacom CICS Services system statistics:

Note: In a multiple MUF environment, the statistics that are displayed represent totals for all MUFs defined in the DBCVTPR module.

```
►►─┬─ DBOC ─┬─ INQuire=STATS ──────────────────────────────────────────►◄
   └─ DBIC ─┘
```

DBOC/DBIC

(Required) Specify a transaction ID valid with Operational commands used to monitor system resources. Select the transaction ID for which you are authorized. Leave a space between the transaction ID and the command.

INQuire=

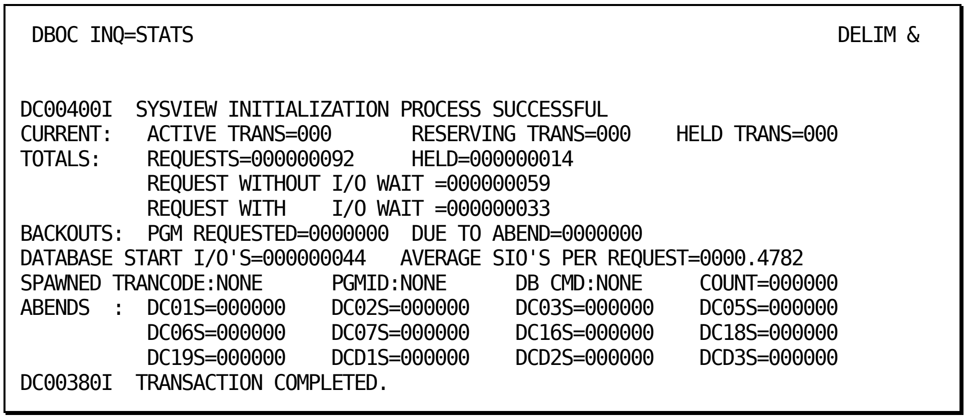
(Required) Command specifying a status display. You may shorten this command to INQ=.

STATS

(Required) Specifies that CA Datacom CICS Services is to display system statistics. In a multi-MUF environment, the statistics displayed are the totals for all MUFs.

For instructions about resetting the statistic counters to zero, see RESET= Resetting Statistic Counters (see page 159).

Display Example: DBOC INQ=STATS



```
 DBOC INQ=STATS                                                        DELIM &


DC00400I  SYSVIEW INITIALIZATION PROCESS SUCCESSFUL
CURRENT:   ACTIVE TRANS=000       RESERVING TRANS=000    HELD TRANS=000
TOTALS:    REQUESTS=000000092     HELD=000000014
           REQUEST WITHOUT I/O WAIT =000000059
           REQUEST WITH    I/O WAIT =000000033
BACKOUTS:  PGM REQUESTED=0000000  DUE TO ABEND=0000000
DATABASE START I/O'S=000000044   AVERAGE SIO'S PER REQUEST=0000.4782
SPAWNED TRANCODE:NONE      PGMID:NONE      DB CMD:NONE     COUNT=000000
ABENDS  :  DC01S=000000    DC02S=000000    DC03S=000000    DC05S=000000
           DC06S=000000    DC07S=000000    DC16S=000000    DC18S=000000
           DC19S=000000    DCD1S=000000    DCD2S=000000    DCD3S=000000
DC00380I  TRANSACTION COMPLETED.
```

Field Descriptions

CURRENT:

The following fields:

ACTIVE TRANS

Indicates the total of tasks currently waiting for CA Datacom/DB I/O to complete.

RESERVING TRANS

Indicates the number of tasks which have acquired exclusive control by issuing update requests to CA Datacom/DB.

HELD TRANS

Indicates the number of tasks waiting for access to CA Datacom/DB. If HELD TRANS is not zero (000), the maximum number of concurrent users has been reached. The maximum number of concurrent users is defined in the DBCVTPR macro (see the *System Reference Guide*).

TOTALS:

The following fields:

REQUESTS

Total number of CA Datacom/DB requests issued since CA Datacom CICS Services initiation or since a DBOC RESET=STATS transaction was issued.

HELD

Total number of requests which had to wait for CA Datacom/DB access since the initiation of CA Datacom CICS Services or since a DBOC RESET=STATS transaction was issued.

REQUEST WITHOUT I/O WAIT

Total number of requests receiving CA Datacom/DB service without an I/O wait. This number includes DBOC/DBEC OPEN and DBOC/DBEC CLOSE commands.

REQUEST WITH I/O WAIT

Total number of requests receiving CA Datacom/DB service after an I/O wait.

BACKOUTS:

The following fields:

PGM REQUESTED

Total number of CA Datacom/DB LOGTB requests issued by application programs.

DUE TO ABEND

Total number of LOGTB requests automatically issued by CA Datacom CICS Services.

DATABASE START I/O'S

Total number of start I/Os issued by CA Datacom/DB.

AVERAGE SIO'S PER REQUEST

Average number of start I/Os issued by CA Datacom/DB per request.

SPAWNED TRANCODE:

(*z/OS Multiple MUF environment only*) The last transaction that required spawning at the time of the DBOC INQ=STATS. This field could be changing all the time depending upon transaction activity. The following are spawned transactions:

PGMID:

(*z/OS Multiple MUF environment only*) The program ID associated with the SPAWNED TRANCODE. This indicates the application that needs modifying to adhere to the CICS SYNCPOINT/SYNCPOINT ROLLBACK protocol.

DB CMD:

(*z/OS Multiple MUF environment only*) The log command executed in the application specified (shown previously) that did not adhere to the CICS SYNCPOINT/SYNCPOINT ROLLBACK protocol.

COUNT=

(*z/OS Multiple MUF environment only*) The number of tasks specified by the SPAWNED TRANCODE and PGMID (shown previously) that have been spawned due to a log command specified by the DB CMD.

The SPAWNED TRANCODE and its associated program (PGMID) and COUNT fields (both are for z/OS multiple MUF environments only) contain important information for users. The goal is to have the SPAWNED TRANCODE field showing NONE and the COUNT field showing 000000. Any transaction (SPAWNED TRANCODE) that has spawned is a candidate for application (PGMID) rewrite because spawning cannot have two-phase commit protocol. Only CA Datacom/DB log commands(DB CMD) issued by a user are candidates for spawning. A spawn only occurs if a given transaction (SPAWNED TRANCODE) and program (PGMID) has a request of an update type on two or more CA Datacom/DB MUFs when the user issued the log command (DB CMD). Therefore, it is a z/OS only option because z/VSE does not support a multiple MUF environment. This condition occurs for one or two reasons.

- CA Datacom CICS Services determined that there were non-CA Datacom/DB updateable resource managers (including, for example, CA Datacom DB2 Transparency, CA Datacom VSAM Transparency, and so on) involved in this transaction. It could issue a CICS SYNCPOINT/SYNCPOINT ROLLBACK on behalf of the log command.
- CA Datacom CICS Services could not determine if there were other resource managers involved in which case, a SYNCPOINT/SYNCPOINT ROLLBACK is issued for the default MUF which is MUF(1) in a multi-MUF environment that synchronizes all MUFs involved in the transaction.

Rewrite applications (PGMID) to take advantage of standard two-phase commit protocol for integrity purposes. For more information, see Special Logging Commands (DB CMD) Considerations.

ABENDS

Total number of abends per CA Datacom CICS Services ABEND codes. For an explanation about each code, see ABEND Codes in the *Message Reference Guide*.

Note: In z/OS, the DC00400I is displayed if SYSV=YES is specified in the DBCVTPR and CA SYSVIEW is present and has started successfully.

INQ=TRACE: Displaying the Trace Table

If the CA Datacom CICS Services Trace facility is active, CA Datacom CICS Services posts each CA Datacom/DB request to an internal table. The Trace Table provides history data for at least 100 events (or for the number of events specified for DBCVTPR's TRACE= parameter). When the Trace Table is full, CA Datacom CICS Services begins writing over the recorded events, from the top. The events traced are limited to those established on the Trace Criteria List. For details on establishing trace criteria, see TRACE= Using the Trace Facility (see page 171). Invoke one of the following transactions to display the trace data in the Trace Table.

```
►►─┬─ DBOC ─┬─ INQuire=TRACE ─┬─ ,TERMID=nnnn ──┬──────────────────────────────►◄
   └─ DBIC ─┘                 └─ ,TRANSID=aaaa ─┘
```

Note: The DBOC INQ=TRACE command is not available from the console.

DBOC/DBIC

(Required) Specify a transaction ID valid with Operational commands used to monitor system resources. Select the transaction ID for which you are authorized. Leave a space between the transaction ID and the command.

INQuire=

(Required) Command specifying a status display. You may shorten this command to INQ=.

TRACE

(Required) Specifies that CA Datacom CICS Services is to display the CA Datacom/DB Trace Table. When INQ=TRACE is specified without any other operand, CA Datacom CICS Services displays all the traces in the CA Datacom/DB Trace Table.

,TERMID=*nnnn*

Specifies a 4-character terminal ID, limiting the display to Trace Table entries for requests originating from the specified terminal.

,TRANSID=*aaaa*

Specifies a 4-character CICS transaction ID, limiting the display to Trace Table entries for requests originated by the named transaction.

When you issue this inquiry, the Trace Table that appears includes the most recent entries. Use the following keys to page the display:

PF7 or PF19

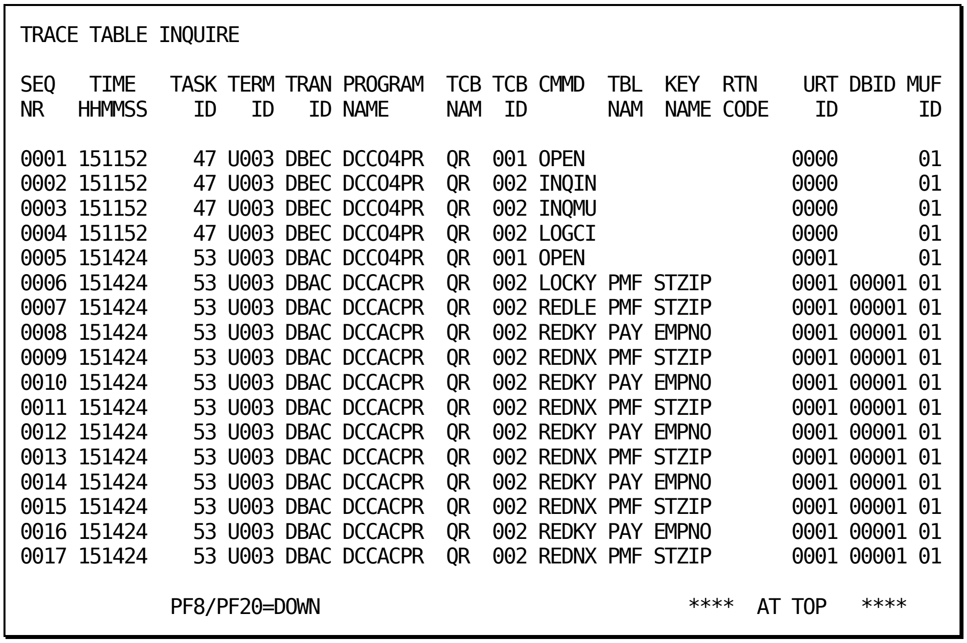
Page Backward to view earlier entries

PF8 or PF20

Page Forward to view more recent entries

To view the Trace Criteria used in generating the displayed Trace Table, use the DBOC/DBIC TRACE command (see TRACE: Displaying Trace Criteria List (see page 100)).

Display Example: DBOC INQ=TRACE



```
TRACE TABLE INQUIRE

SEQ   TIME   TASK TERM TRAN PROGRAM  TCB TCB CMMD  TBL  KEY  RTN    URT DBID MUF
NR   HHMMSS    ID   ID   ID NAME     NAM  ID       NAM  NAME CODE    ID       ID

0001 151152    47 U003 DBEC DCCO4PR  QR  001 OPEN                  0000       01
0002 151152    47 U003 DBEC DCCO4PR  QR  002 INQIN                 0000       01
0003 151152    47 U003 DBEC DCCO4PR  QR  002 INQMU                 0000       01
0004 151152    47 U003 DBEC DCCO4PR  QR  002 LOGCI                 0000       01
0005 151424    53 U003 DBAC DCCO4PR  QR  001 OPEN                  0001       01
0006 151424    53 U003 DBAC DCCACPR  QR  002 LOCKY PMF STZIP       0001 00001 01
0007 151424    53 U003 DBAC DCCACPR  QR  002 REDLE PMF STZIP       0001 00001 01
0008 151424    53 U003 DBAC DCCACPR  QR  002 REDKY PAY EMPNO       0001 00001 01
0009 151424    53 U003 DBAC DCCACPR  QR  002 REDNX PMF STZIP       0001 00001 01
0010 151424    53 U003 DBAC DCCACPR  QR  002 REDKY PAY EMPNO       0001 00001 01
0011 151424    53 U003 DBAC DCCACPR  QR  002 REDNX PMF STZIP       0001 00001 01
0012 151424    53 U003 DBAC DCCACPR  QR  002 REDKY PAY EMPNO       0001 00001 01
0013 151424    53 U003 DBAC DCCACPR  QR  002 REDNX PMF STZIP       0001 00001 01
0014 151424    53 U003 DBAC DCCACPR  QR  002 REDKY PAY EMPNO       0001 00001 01
0015 151424    53 U003 DBAC DCCACPR  QR  002 REDNX PMF STZIP       0001 00001 01
0016 151424    53 U003 DBAC DCCACPR  QR  002 REDKY PAY EMPNO       0001 00001 01
0017 151424    53 U003 DBAC DCCACPR  QR  002 REDNX PMF STZIP       0001 00001 01

             PF8/PF20=DOWN                                ****  AT TOP   ****
```

Field Descriptions

SEQ NR

The number of the trace entry within the Trace Table. Indicates where within the Trace Table the display is positioned.

TIME HHMMSS

The time of day to the tenth of a second at which each event occurred.

TASK ID

The CICS task number.

TERM ID

The ID of the terminal which initiated the listed command or ???? if no terminal was attached to the issue of the command.

TRAN ID

The CICS transaction ID associated with the listed task.

PROGRAM NAME

The name of the program which issued the listed command.

TCB NAM

Task Control Block name in which the transaction was run. This can be the QR TCB of CICS when OPENAPI=NO is specified in the DBCVTPR or in the case of running with OPENAPI=YES, the open TCB NAME where the transaction was run.

TCB ID

Task Control Block sequence number which identifies the CA Datacom thread used by the current event.

CMMD

The CA Datacom/DB command being traced.

TBL

The name of the CA Datacom/DB table accessed by the current event, if any.

KEY NAME

The name of the key for the listed CA Datacom/DB table.

RTN CODE

Interpret the return code xx.yy as follows:

xx

CA Datacom/DB external return code (decimal), return code 0 (zero) if value is blank.

yy

CA Datacom/DB internal return code (hexadecimal), '40' is a blank internal return code.

URT ID

The number of the URT accessed by the current event.

DBID

The ID of the database accessed by the current event, consisting of five numbers nnnnn, where nnnnn can be 00001 through 05000. This field is blank for commands other than actual CA Datacom/DB data requests such as locates, reads, and maintenance requests as opposed to such commands as opens, closes, and log commands.

MUF ID

The ID of the MUF accessed by the current event, consisting of two numbers nn, where nn can be 01 through 99.

INQ=USERS: Displaying Concurrent Users

Invoke the following transaction to assess the impact of the value assigned to the USERS= parameter. The value specifies the maximum number of users whose requests can be concurrently serviced. Specify a value for the USERS= parameter in DBCVTPR or through the operational command, GENOPTS. For more information, see the *System Reference Guide*.

In a multiple MUF environment, displays the USERS for the default MUF followed by the USERS for each MUF defined in the order of the DBCSID macros in the DBCVTPR module.

```
►►─┬─ DBOC ─┬─ INQuire=USERS ────────────────────────────────────────►◄
   └─ DBIC ─┘
```

DBOC/DBIC

(Required) Specify a transaction ID valid with Operational commands used to monitor system resources. Select the transaction ID for which you are authorized. Leave a space between the transaction ID and the command.

INQuire=

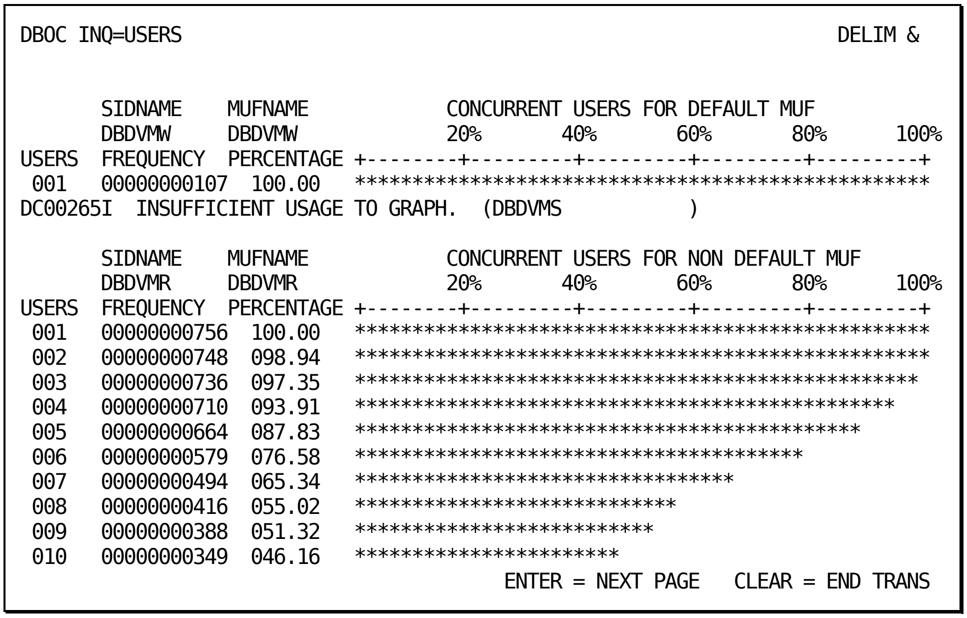
(Required) Command specifying a status display. You can shorten this command to INQ=.

USERS

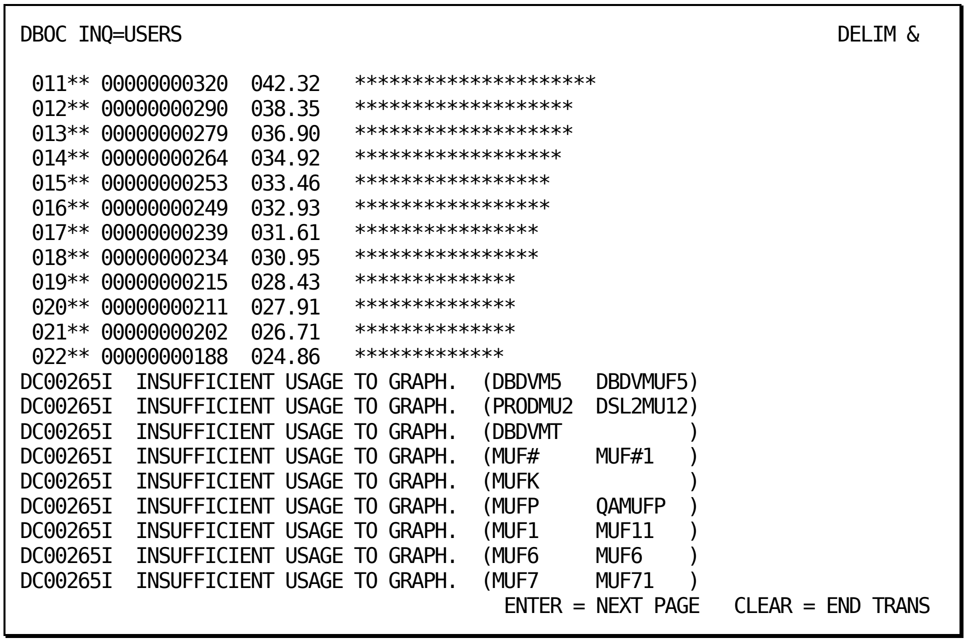
(Required) Specifies that CA Datacom CICS Services is to display concurrent users.

For instructions on resetting the usage statistics to zero, see RESET= Resetting Statistic Counters (see page 159).

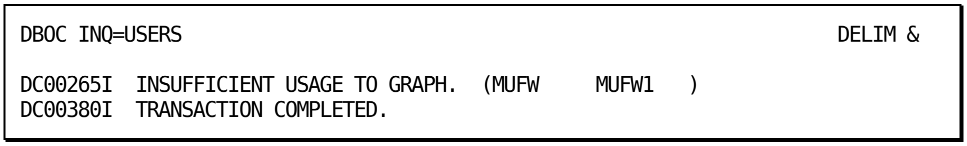
Display Example: DBOC INQ=USERS



```
DBOC INQ=USERS                                                         DELIM &


       SIDNAME    MUFNAME            CONCURRENT USERS FOR DEFAULT MUF
       DBDVMW     DBDVMW             20%       40%       60%       80%      100%
USERS  FREQUENCY  PERCENTAGE +--------+---------+---------+---------+---------+
 001   00000000107  100.00   **************************************************
DC00265I  INSUFFICIENT USAGE TO GRAPH.  (DBDVMS           )

       SIDNAME    MUFNAME            CONCURRENT USERS FOR NON DEFAULT MUF
       DBDVMR     DBDVMR             20%       40%       60%       80%      100%
USERS  FREQUENCY  PERCENTAGE +--------+---------+---------+---------+---------+
 001   00000000756  100.00   **************************************************
 002   00000000748  098.94   **************************************************
 003   00000000736  097.35   *************************************************
 004   00000000710  093.91   ***********************************************
 005   00000000664  087.83   ********************************************
 006   00000000579  076.58   ***************************************
 007   00000000494  065.34   *********************************
 008   00000000416  055.02   ****************************
 009   00000000388  051.32   **************************
 010   00000000349  046.16   ***********************
                                          ENTER = NEXT PAGE   CLEAR = END TRANS
```



```
DBOC INQ=USERS                                                         DELIM &

 011** 00000000320  042.32   *********************
 012** 00000000290  038.35   *******************
 013** 00000000279  036.90   *******************
 014** 00000000264  034.92   ******************
 015** 00000000253  033.46   *****************
 016** 00000000249  032.93   *****************
 017** 00000000239  031.61   ****************
 018** 00000000234  030.95   ****************
 019** 00000000215  028.43   **************
 020** 00000000211  027.91   **************
 021** 00000000202  026.71   **************
 022** 00000000188  024.86   *************
DC00265I  INSUFFICIENT USAGE TO GRAPH.  (DBDVM5   DBDVMUF5)
DC00265I  INSUFFICIENT USAGE TO GRAPH.  (PRODMU2  DSL2MU12)
DC00265I  INSUFFICIENT USAGE TO GRAPH.  (DBDVMT           )
DC00265I  INSUFFICIENT USAGE TO GRAPH.  (MUF#     MUF#1   )
DC00265I  INSUFFICIENT USAGE TO GRAPH.  (MUFK             )
DC00265I  INSUFFICIENT USAGE TO GRAPH.  (MUFP     QAMUFP  )
DC00265I  INSUFFICIENT USAGE TO GRAPH.  (MUF1     MUF11   )
DC00265I  INSUFFICIENT USAGE TO GRAPH.  (MUF6     MUF6    )
DC00265I  INSUFFICIENT USAGE TO GRAPH.  (MUF7     MUF71   )
                                          ENTER = NEXT PAGE   CLEAR = END TRANS
```



```
DBOC INQ=USERS                                                         DELIM &

DC00265I  INSUFFICIENT USAGE TO GRAPH.  (MUFW     MUFW1   )
DC00380I  TRANSACTION COMPLETED.
```

Field Descriptions

USERS

A sequence number for a user invoking reserving transactions or physically waiting on a read event, where asterisks following the sequence number carry the following meaning:

- The highest number without an asterisk identifies the value assigned to the USERS= parameter, for example, 3 in the display example.
- The 12 extra USERS (021**-032**) beyond the allocated USERS represent how many more USERS you could allocate to have better distribution of TCB usage.

FREQUENCY

The values shown under the FREQUENCY heading denote the total number of requests at the time a request arrives for service. CA Datacom CICS Services requires n threads (for USERS: nnn) to service the request without waiting for thread availability. For example, for USERS 006 of the default MUF in the example, this means 4545 requests were counted at a time when there were six concurrent users issuing requests.

PERCENTAGE

Indicates the percentage of time that concurrent requests are being issued by the number listed in the USERS column. That is, 6 users are attempting requests concurrently about 45 percent of the time. In the display example, USERS 006 percentage data 45.42 was computed by dividing 4545 (frequency of USERS: 006) by 10007 (frequency of USERS: 001, which was serviced 100 percent of the time).

CONCURRENT USERS

Users concurrently invoking reserving transactions or physically waiting on a read event.

Note: After statistics are captured over a longer period of time, the graphical display under "Concurrent Users" becomes more meaningful.

TASK: Displaying Active Tasks

Use the following transaction to view a "snapshot" of the Task Control Blocks (TCBs), displaying the status of all active CA Datacom/DB tasks in the current CICS environment.

Note: In a multiple MUF environment, this display only shows the TASKS for the default MUF, that is, the first MUF defined by the first DBCSID macro in the DBCVTPR module.

```
►►─┬─ DBOC ─┬─ TASK ─┬──────────┬──────────────────────────────────►◄
   └─ DBIC ─┘        └─ =xxxxx ─┘
```

DBOC/DBIC

(Required) Specify a transaction ID valid with Operational commands used to monitor system resources. Select the transaction ID for which you are authorized. Leave a space between the transaction ID and the command.

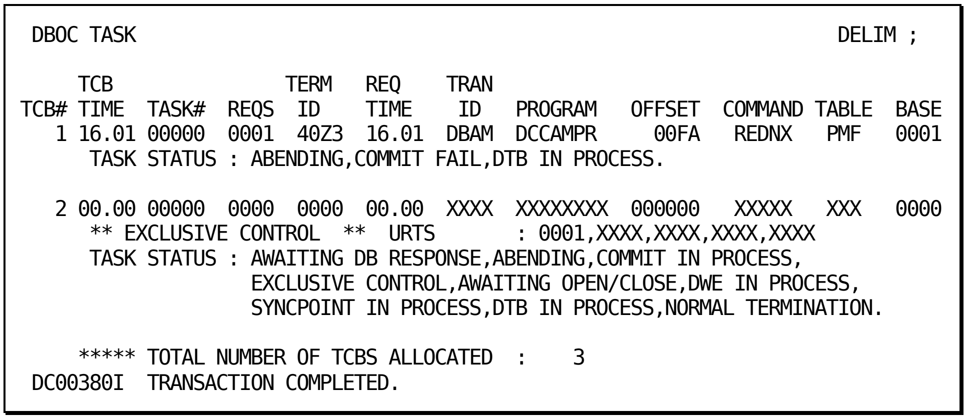
TASK

(Required) Specifies that CA Datacom CICS Services display the status of active CA Datacom/DB tasks. If entered without a task number, DBOC/DBIC TASK causes CA Datacom CICS Services to display the status for all active CA Datacom/DB tasks.

=xxxxx

(Optional) Limits the display to the identified task. Replace *xxxxx* with the CICS Task number.

Display Example: DBOC TASK



```
 DBOC TASK                                                             DELIM ;

     TCB               TERM   REQ    TRAN
TCB# TIME  TASK#  REQS  ID    TIME    ID   PROGRAM   OFFSET  COMMAND TABLE  BASE
   1 16.01 00000  0001  40Z3  16.01  DBAM  DCCAMPR     00FA   REDNX   PMF   0001
      TASK STATUS : ABENDING,COMMIT FAIL,DTB IN PROCESS.

   2 00.00 00000  0000  0000  00.00  XXXX  XXXXXXXX  000000   XXXXX   XXX   0000
      ** EXCLUSIVE CONTROL  **  URTS       : 0001,XXXX,XXXX,XXXX,XXXX
      TASK STATUS : AWAITING DB RESPONSE,ABENDING,COMMIT IN PROCESS,
                    EXCLUSIVE CONTROL,AWAITING OPEN/CLOSE,DWE IN PROCESS,
                    SYNCPOINT IN PROCESS,DTB IN PROCESS,NORMAL TERMINATION.

     ***** TOTAL NUMBER OF TCBS ALLOCATED  :    3
 DC00380I  TRANSACTION COMPLETED.
```

Field Descriptions

TCB#

Sequence number of the Task Control Block (TCB).

TCB TIME

Time of day when the task first used this Task Control Block.

TASK#

CICS Task number.

REQS

Number of CA Datacom/DB requests issued by the referenced task using the referenced TCB.

TERM ID

Terminal ID used by this task.

REQ TIME

Time of day when the task last issued a CA Datacom/DB request.

TRAN ID

Transaction ID of this task.

PROGRAM

Name of this task's application program.

OFFSET

Offset of the application program's return address (in hexadecimal).

COMMAND

The last CA Datacom/DB command used by this task.

TABLE

The last CA Datacom/DB table used by this task.

BASE

The last database used by this task.

TASK STATUS

Report indicates one of the following statuses:

ABENDING

The task has an abend condition or the MUF detected an abnormal condition.

AWAITING DB RESPONSE

A request passed control to the MUF and has not yet returned control to CA Datacom CICS Services.

AWAITING OPEN/CLOSE

The task is first in the queue, but is being held until the OPEN or CLOSE in progress concludes processing.

DB GONE

The MUF region is not in operation.

COMMIT FAIL

The task is terminating, but CA Datacom CICS Services final cleanup for the task has failed.

COMMIT IN PROCESS

The task is terminating and CA Datacom CICS Services is performing final task cleanup.

DTB IN PROCESS

The task ended abnormally and is terminating with dynamic transaction backout.

DWE IN PROCESS

The task is terminating.

ENQUEUED OPEN/CLOSE

The task is being held until the OPEN or CLOSE in progress concludes processing.

EXCLUSIVE CONTROL

The task has acquired exclusive control by reading a record for update and the TCB is dedicated to this task until it finishes.

NORMAL TERMINATION

The task has finished terminating and all requests have completed.

SYNCPOINT IN PROCESS

The task is currently in CICS SYNCPOINT processing.

TOTAL NUMBER OF TCBS ALLOCATED

Number of Task Control Blocks allocated. One thread contains one TCB.

TRACE: Displaying Trace Criteria List

The Trace Criteria List contains the following information:

- Whether the trace is on or off
- The number of entries in the Trace Table
- The Boolean relationship currently in effect for the listed criteria
- Trace criteria currently established, if any

Invoking this transaction enables you to examine the current status prior to issuing other Trace commands or viewing the Trace Table with a DBOC/DBIC INQuire=TRACE. Invoke the following transaction to display the CA Datacom/DB Trace Criteria List.

```
►►─┬─ DBOC ─┬─ TRACE ─────────────────────────────────────────►◄
   └─ DBIC ─┘
```

DBOC/DBIC

(Required) Specify a transaction ID valid with Operational commands used to monitor system resources. Select the transaction ID for which you are authorized. Leave a space between the transaction ID and the command.

TRACE

Specifies that CA Datacom CICS Services display the Trace Criteria List.

For details on viewing the trace data resulting from the displayed Trace Criteria List, see INQ=TRACE: Displaying the Trace Table (see page 91). For details on modifying the displayed Trace Criteria and on initiating and terminating the Trace Facility, see TRACE= Using the Trace Facility (see page 171).

Display Example: DBIC TRACE

```
DBIC TRACE                                                           DELIM &

DB TRACE IS ON,  NUMBER OF ENTRIES IN TRACE TABLE      100
TRACE LIST RELATIONSHIP IS BOOLEAN QUALIFIER "OR"

     TRANS ID    LIST ==>

     TERMINAL ID LIST ==>

     COMMAND     LIST ==> SELFR

     DB TABLE    LIST ==> POH

     DB ID       LIST ==> 00001

     RC BYPASS   LIST ==>


DC00380I  TRANSACTION COMPLETED.
```

Field Descriptions

DB TRACE IS

One of the following:

ON

The Trace Facility is currently active. To deactivate, issue DBOC TRACEOFF.

OFF

The Trace Facility is currently inactive. To activate, issue DBOC TRACEON.

NUMBER OF ENTRIES IN TRACE TABLE

Number between 100 and 9999, indicating the maximum number of entries that the Trace Table is to hold, which is defined by TRACE= in DBCVTPR or through DBOC GENOPTS. For more information, see the *System Reference Guide*.

TRACE LIST RELATIONSHIP IS BOOLEAN QUALIFIER "*OR*"

Where "*x*" is one of the following:

OR

The trace extends to events which meet any of the Trace Criteria.

AND

The trace is limited to events which meet all of the Trace Criteria.

TRANS ID LIST

A list of transaction IDs. The Trace Facility only views tasks associated with transactions included in this list.

TERMINAL ID LIST

A list of terminal IDs. The Trace Facility only views tasks initiated at terminals included in this list.

COMMAND LIST

A list of CA Datacom/DB commands. The Trace Facility only views tasks issuing CA Datacom/DB commands included in this list.

DB TABLE LIST

A list of CA Datacom/DB tables. The Trace Facility only views tasks accessing CA Datacom/DB tables included in this list.

DB ID LIST

A list of CA Datacom/DB database IDs. The Trace Facility only views tasks accessing CA Datacom/DB databases with IDs included in this list.

RC BYPASS LIST

A list of CA Datacom/DB return codes. The Trace Facility only views tasks *not* receiving CA Datacom/DB return codes included in this list.

Note: CA Datacom CICS Services displays 00 to represent a return code of blanks.

If all of these fields are blank, the Trace Facility traces all CA Datacom/DB requests.

Chapter 6: DBEC/DBEX: Monitoring Local Resources with Enhanced Commands

This section discusses using enhanced inquiry commands (DBEC/DBEX) in the local system.

This section contains the following topics:

Displaying MUF-Level Processing Options

Requests for information about MUF or MSIDname resources are issued with the DBEC or the DBEX transaction followed by the INQuire operand. The options enable you to invoke a display of all MUFs or selected MUFs by criteria or generic number (MUF) or MUFNAME (MSIDname). If you issue the command with the DBEX transaction ID, you cannot update any information on the resulting scrollable display. One of the only allowable entries in the Action field is an S, which toggles to the URT-level display to show all the URTs for the MUF of the selected entry. The other allowable entries are E to display the return code summary, T to display active tasks, and U to display the task usage summary. If you issue the command with DBEC, you can alter certain fields on the panel.

The following is an example of a MUF definition appended to the DBCVTPR macro. This only needs to be coded if you need to access multiple MUFs, since the basic DBCVTPR parameters define a single MUF. A MUF definition is made with a DBCSID macro, each entry appended to the DBCVTPR macro defining a particular CA Datacom/DB MUF. The MUF (or MSIDname)-level display reflects the order of the DBCSID macros. The values for the bold-faced parameters in this example are displayed on the MUF-level inquiry.

```
DBCSID SIDNAME=DBSIDPR,USERS=3,CONNECT=PLT,EOJ_OK=DISCONNECT
```

Invoke the following transaction to display the status of CA Datacom/DB MUFs.

Note: The status of any MUF displayed in this manner is current as of the time of the last request processed by that MUF. For example, if the last request processed by a MUF was 90 seconds ago, a DBEC I,MUF (or DBEX I,MUF) or DBEC I,MSIDname (or DBEX I,MSIDname) request displays the status of that MUF as it was 90 seconds ago.

```
►►─┬─ DBEC ─┬─┬─ INQuire,MUF(nn) ───────────────┬─┬────────┬─┬──────────┬──────────►◄
   └─ DBEX ─┘ └─ INQuire,MSIDname(xxxxxxxx) ─┘ └─ ,STATS ─┘ └─ ,limiter ─┘
```

DBEC/DBEX

(Required) Specify a transaction ID valid with Enhanced commands used to monitor MUFs. Select the transaction ID for which you are authorized. Leave a space between the transaction ID and the command.

INQuire

(Required) Requests a scrollable display of MUFs. (INQ and I are valid abbreviations.)

,MUF(*nn*)

(Required) Specifies the inquiry is to invoke the MUF-level display. The value within the parentheses identifies the number of the MUF relative to the order of the DBCSID macros appended to the DBCVTPR macro, if multiple MUFs are defined. MSIDname(xxxxxxxx) is ignored if it is also specified as a MUF qualifier.

nn

Specifies that you want to display *only* the MUF with the specific 2-digit number *nn*.

Alternately, instead of using the *nn* number to specify only a specific MUF, you can use the wildcard symbol ? (a question mark) to accept *any* digit 0—9 for one (or both) of the two digits of the number.

See Command Examples (see page 122).

,MSIDname(*xxxxxxxx*)

(*Required*) Specifies the inquiry is to invoke the MUF-level display. The value within the parentheses identifies the MUFs identified by the SIDNAME specified in the DBCSID macros appended to the DBCVTPR macro, if multiple MUFs are defined. The MUFs that meet the qualification of your request are presented in the order that they are defined in the DBCSID macros of the DBCVTPR. If the MSIDname(xxxxxxxx) qualifier is specified with the MUF(nn) qualifier then this parameter is ignored.

xxxxxxxx

Specifies that you want to display *only* the MUF with the SIDNAME specified as defined for the DBSIDPR module name *xxxxxxxx* for this MUF.

Alternately, instead of using the *xxxxxxxx* name to specify only a specific MUF, you can use the wildcard symbol * (asterisk) to accept SIDNAMEs that begin with a specific value. The asterisk represents any trailing characters in the SIDNAME.

See Command Examples (see page 122).

Note: Choose either MUF(nn) or MSIDname(xxxxxxxx). If they are both specified, the MSIDname(xxxxxxxx) parameter is ignored and the qualification is assumed by MUF(nn). Use the one to qualify the MUF inquiry in the manner that meets your needs.

,STATS

(Optional) Requests a scrollable display of MUF-level statistics for requested MUFs.

,limiter

(Optional) Limits the inquiry to MUFs of the designated status, how defined for opening, or to request the MUF-level statistics display. The following are the values for designating limiters of each type:

Limiter Type	Valid Values	Description
Status	DISconnect	MUFs explicitly disconnected through a DBEC command. (DIS is a valid abbreviation.
	DISCONNECTING	MUFs with a disconnect in progress, where disconnect is invoked at the completion of the current read or update.
	CONnect	MUFs that are currently connected. (CON is a valid abbreviation.)
	CONNECTING	MUFs with a connect in progress.
	UNConnected	MUFs defined as AUTO or DEFer that have not been connected by a program call, PLT, or a DBEC transaction. (UNC is a valid abbreviation.)
When	AUTO	MUFs defined to be connected when required by a program or a URT open.
	DEFer	MUFs defined to be connected only by an explicit DBEC command. (DEF is a valid abbreviation.)
	PLT	MUFs opened at CA Datacom CICS Services startup and not defined for AUTO or DEFer.

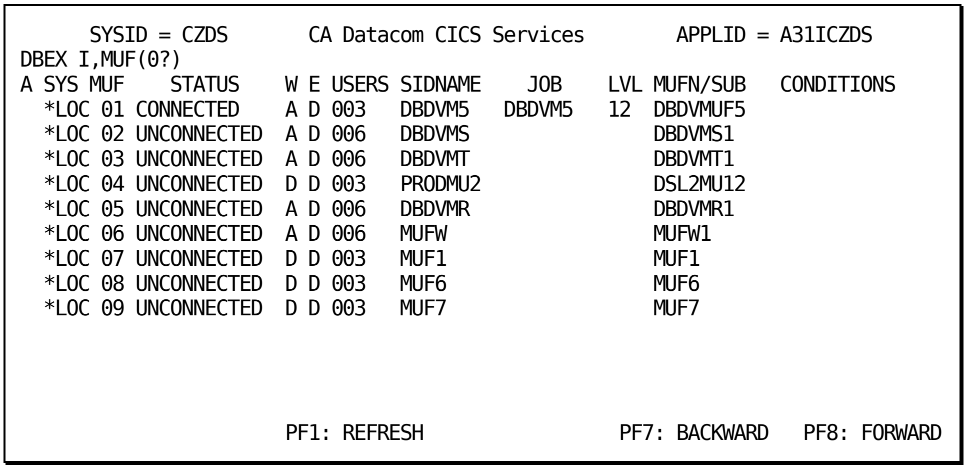
Command Examples

Each of the following commands displays scrollable MUF-level data for the specified remote system in read-only format. MUF information is presented in ascending numerical order by MUF number. Differences are presented in the "Result" column.

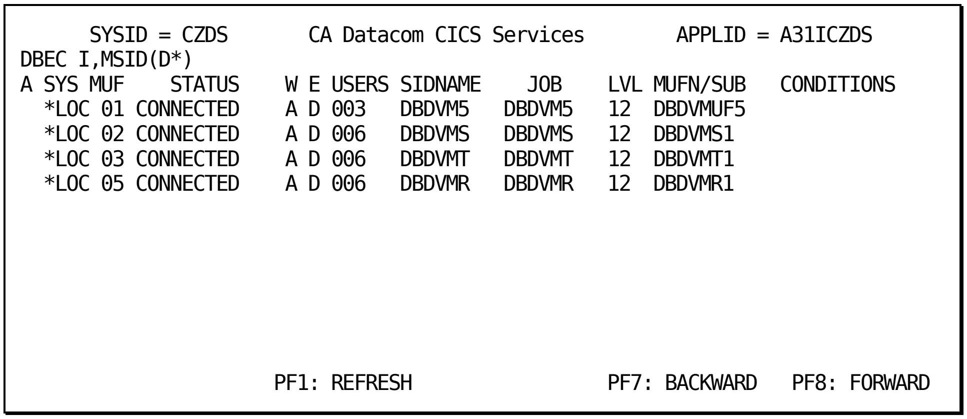
Command	Result
DBEX I,MUF(1) DBEX I,MSID(DBSIDPR)	Displays MUF number 1 (defined by the first DBSIDPR found in the DFHRPL library concatenation or as defined by the first DBCSID in the DBCVTPR. The first MUF is the default MUF to associate all non-global URTs).

Command	Result
DBEX INQ,MUF(2?)	Displays MUFs numbers 20 through 29.
DBEX INQ,MSIDNAME(DB*)	Displays all MUFs with SIDNAMEs beginning with DB in the DBCSID macros in the DBCVTPR in order of the DBCSID macros.
DBEX INQ,MUF(??) DBEX INQ,MSID(*)	Displays all MUFs.
DBEX I,MUF(1?),DISCONNECT	Limits display to MUFs that are in disconnected status and have a number from 10 and 19.
DBEX I,MSIDNAME(M*),DISCONNECT	Limits display to MUFs that are in disconnected status and have a SIDNAME beginning with M defined by the DBCSID macro in the DBCVTPR in the order of the DBCSID macros defined in the DBCVTPR.
DBEX I,MUF(??),CONNECTING DBEX I,MSIDNAME(*),CONNECTING	Limits display to MUFs in connecting status.
DBEX I,MUF(??),STATS DBEX I,MSID(*),STATS	Displays statistics for all MUFs.
DBEX I,MUF(2?),PLT	Limits display to all MUFs 20 through 29 that are connected at PLT time.
DBEX I,MSID(DB*),PLT	Limits display to all MUFs that are connected at PLT time with SIDNAMEs beginning with DB in the DBCSID macros in the DBCVTPR in order of the DBCSID macros.

Display Example: DBEC I,MUF(0?)



```
      SYSID = CZDS       CA Datacom CICS Services        APPLID = A31ICZDS
DBEX I,MUF(0?)
A SYS MUF    STATUS    W E USERS SIDNAME    JOB    LVL MUFN/SUB   CONDITIONS
  *LOC 01 CONNECTED    A D 003   DBDVM5   DBDVM5   12  DBDVMUF5
  *LOC 02 UNCONNECTED  A D 006   DBDVMS                DBDVMS1
  *LOC 03 UNCONNECTED  A D 006   DBDVMT                DBDVMT1
  *LOC 04 UNCONNECTED  D D 003   PRODMU2               DSL2MU12
  *LOC 05 UNCONNECTED  A D 006   DBDVMR                DBDVMR1
  *LOC 06 UNCONNECTED  A D 006   MUFW                  MUFW1
  *LOC 07 UNCONNECTED  D D 003   MUF1                  MUF1
  *LOC 08 UNCONNECTED  D D 003   MUF6                  MUF6
  *LOC 09 UNCONNECTED  D D 003   MUF7                  MUF7




                       PF1: REFRESH                 PF7: BACKWARD   PF8: FORWARD
```



```
      SYSID = CZDS       CA Datacom CICS Services        APPLID = A31ICZDS
DBEC I,MSID(D*)
A SYS MUF    STATUS    W E USERS SIDNAME    JOB    LVL MUFN/SUB   CONDITIONS
  *LOC 01 CONNECTED    A D 003   DBDVM5   DBDVM5   12  DBDVMUF5
  *LOC 02 CONNECTED    A D 006   DBDVMS   DBDVMS   12  DBDVMS1
  *LOC 03 CONNECTED    A D 006   DBDVMT   DBDVMT   12  DBDVMT1
  *LOC 05 CONNECTED    A D 006   DBDVMR   DBDVMR   12  DBDVMR1







                      PF1: REFRESH                 PF7: BACKWARD   PF8: FORWARD
```

Field Descriptions

All fields marked with a Y in the Chg column are updatable when the panel is invoked through a DBEC transaction. When DBEX is used, the only valid entries are an E, S, T, and U in Column A. In the following field descriptions, a reference to MUF(nn) can be replaced with MSIDname(xxxxxxxx).

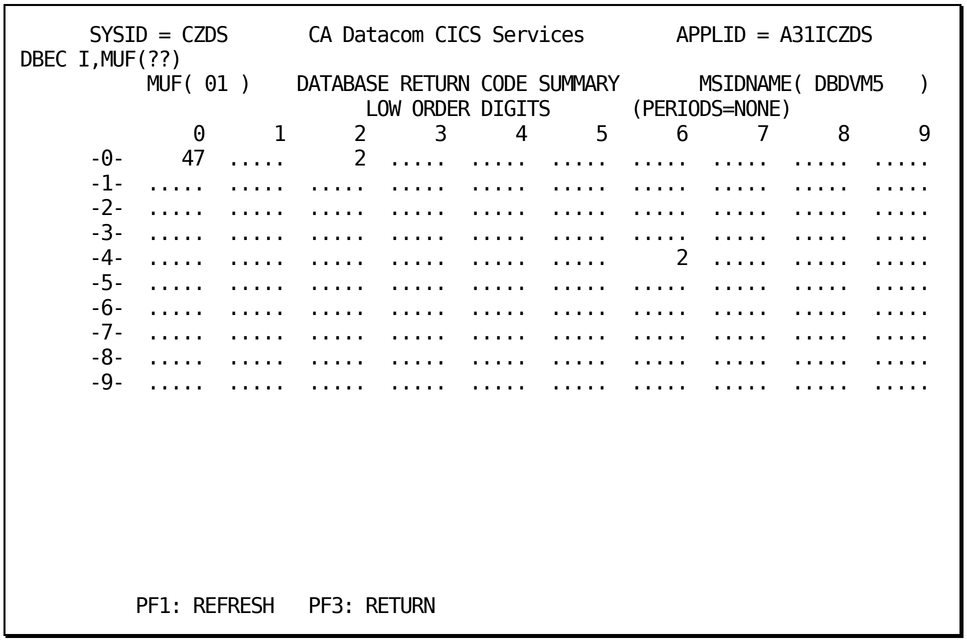
Column	Chg	Description
A	Y	Action to perform when DBEC transaction used: **C** Perform CONNECT on MUF. (Same as DBEC P,CONNECT,MUF(*nn*).) **D** Perform DISCONNECT on MUF. (Same as DBEC P,DISCONNECT,MUF(*nn*).) **E** Select and invoke return code summary display for that MUF. **I** Perform IMMEDIATE disconnect from MUF regardless of active tasks running against that MUF. (Same as DBEC P,IMMEDIATE,MUF(*nn*).) **S** Select and browse display at the URT level. **T** Select and invoke active tasks display for that MUF. **U** Select and invoke the task usage summary for that MUF.
SYS		Identifies the CICS system to which this display line refers. *LOC means local CICS or TOR.
MUF		Identifies the sequence number of the MUF relative to the position of the associated DBCSID macro that is appended to the DBCVTPR macro.

Column	Chg	Description
STATUS		Indicates the CONNECT status of the MUF at the time that the last DB request was issued: **UNCONNECTED** Not yet connected by a program call, PLT, or a DBEC transaction. **DISCONNECTED** Explicitly disconnected with a DBEC P,DISCONNECT. **DISCONNECTING** Disconnect requested by DBEC P,DISCONNECT command, but not yet disconnected pending completion of a read in progress or a transaction having exclusive control. **CONNECTED** Connected by CA Datacom CICS Services but no transaction to disconnect it has been issued. If a MUF has been canceled or abended (ABEND) and no DB request has been made, the status can still show CONNECTED when it really is not. **CONNECTING** Connect requested by DBEC P,CONNECT command, but not yet connected pending completion by CA Datacom/DB.
W		(WHEN) Indicates when CA Datacom CICS Services connects the MUF: **P** (PLT) specifies the MUF is connected by CA Datacom CICS Services at startup time. **A** (AUTO) specifies the MUF is automatically connected by CA Datacom CICS Services when an application request or a User Requirements Table open needs this MUF. **D** (DEFER) Specifies the MUF can only be connected with an explicit DBEC command.
E		The E (EOJ_OK) value represents CA Datacom CICS Services participation in an EOJ being issued for the default MUF. A value of No indicates that CA Datacom CICS Services does not participate in the EOJ of MUF. This means that MUF cannot EOJ until the MUF is disconnected in CA Datacom CICS Services. The value of Disconnect or Immediate determines the CA Datacom CICS Services action when notified of a MUF EOJ. If these two values are specified and there is no request activity within a specific time interval in CICS for this MUF, MUF severs the connection. The MUF startup option of X_EOJ_OK_S_DELAY determines this interval. This feature is not supported in CA Datacom/DB 12.0.

Column	Chg	Description
USERS	Y	The value specified in the corresponding MUF DBCSID macro in the DBCVTPR generation for the number of tasks to allocate for CA Datacom/DB threads. Specify a number from 001 and 255. If there are no DBCSID macros coded with the DBCVTPR, this is the USERS= value specified in the DBCVTPR macro. In this case, this value can also be changed by using the DBOC GENOPTS command. For more information, see the *System Reference Guide*. Before you update this value, verify that the MUF has been disconnected. If you use the d or i line command on a DBEC I,MUF(*nn*) screen to disconnect the MUF, press the PF1 function key to refresh the screen before implementing any overrides.
SIDNAME		Specified value in the relative DBCSID macro of the DBCVTPR generation for the name of the DBSIDPR macro generated module to load and use for this MUF.
JOB		The job name of the connected MUF.
LVL		The release level of the connected MUF.
MUFN/SUB		Displays the MUF name if the SIDNAME module is assembled with a name specified by MUFNAME= that matches the MUF name specified in the MUF startup option. Otherwise, this field displays the number of the SVC and SVC sub-ID associated with this MUF as defined in the SIDNAME module.
CONDITIONS		**CONN RC=xx.yyy** The last connect request for this MUF failed for the reason indicated by CA Datacom/DB return code xx(yyy). **DISC RC=xx.yyy** The last disconnect request for this MUF failed for the reason indicated by CA Datacom/DB return code xx(yyy).

Display Example: DBEC I,MUF(??)

When you key an E in the action field of the first MUF row of the MUF-level display, the return code summary for that MUF displays.

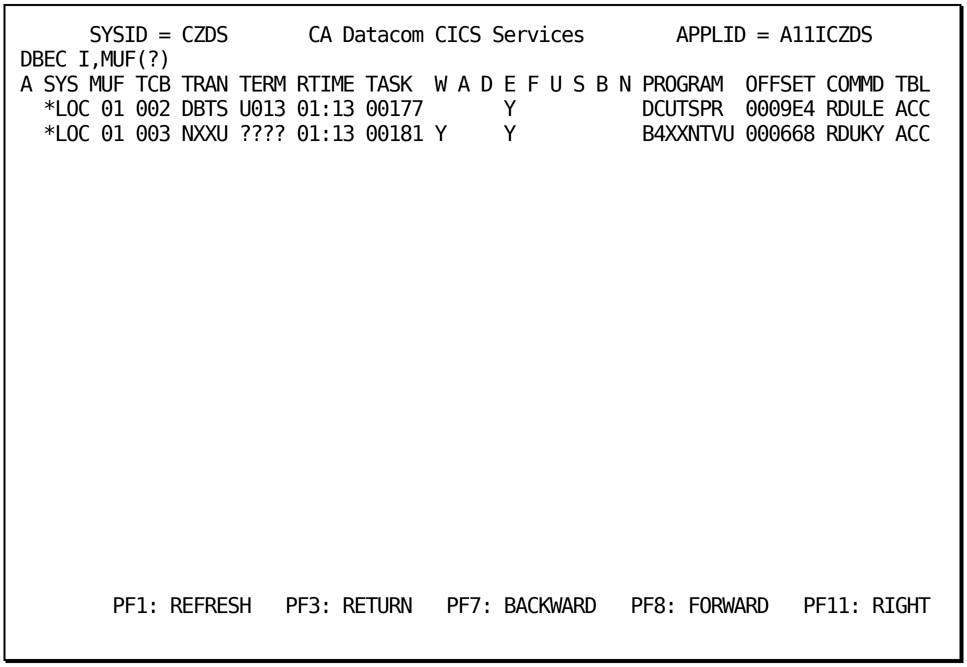


```
      SYSID = CZDS       CA Datacom CICS Services       APPLID = A31ICZDS
DBEC I,MUF(??)
           MUF( 01 )    DATABASE RETURN CODE SUMMARY      MSIDNAME( DBDVM5   )
                              LOW ORDER DIGITS       (PERIODS=NONE)
               0      1      2      3      4      5      6      7      8      9
      -0-     47  .....      2  .....  .....  .....  .....  .....  .....  .....
      -1-  .....  .....  .....  .....  .....  .....  .....  .....  .....  .....
      -2-  .....  .....  .....  .....  .....  .....  .....  .....  .....  .....
      -3-  .....  .....  .....  .....  .....  .....  .....  .....  .....  .....
      -4-  .....  .....  .....  .....  .....  .....      2  .....  .....  .....
      -5-  .....  .....  .....  .....  .....  .....  .....  .....  .....  .....
      -6-  .....  .....  .....  .....  .....  .....  .....  .....  .....  .....
      -7-  .....  .....  .....  .....  .....  .....  .....  .....  .....  .....
      -8-  .....  .....  .....  .....  .....  .....  .....  .....  .....  .....
      -9-  .....  .....  .....  .....  .....  .....  .....  .....  .....  .....







          PF1: REFRESH   PF3: RETURN
```

MUF(01) DATABASE RETURN CODE SUMMARY   MSIDNAME(DBDVMS)

The MUF and MSIDNAME values reflect the MUF from which this inquiry was selected on the MUF display screen.

From the previously shown screen, PF3 returns you to the MUF-level display where you can select another display, and PF1 refreshes the current display. From the MUF-level display, you can then key a T in the action field of a MUF row. The resulting display is the active task summary for that MUF.



```
      SYSID = CZDS       CA Datacom CICS Services       APPLID = A11ICZDS
DBEC I,MUF(?)
A SYS MUF TCB TRAN TERM RTIME TASK  W A D E F U S B N PROGRAM  OFFSET COMMD TBL
  *LOC 01 002 DBTS U013 01:13 00177       Y           DCUTSPR  0009E4 RDULE ACC
  *LOC 01 003 NXXU ???? 01:13 00181 Y     Y           B4XXNTVU 000668 RDUKY ACC









         PF1: REFRESH   PF3: RETURN   PF7: BACKWARD   PF8: FORWARD   PF11: RIGHT
```

Field Descriptions

A

Specifies that there is no available action.

SYS

Identifies the CICS system to which this display line refers. *LOC means local CICS or TOR.

MUF

Identifies the ID of the MUF accessed by the current event, consisting of two numbers nn, where nn can be 01 through 99.

TCB

The Task Control Block sequence number that identifies the thread used by the current event.

TRAN

The CICS transaction ID associated with the listed task.

TERM

The ID of the terminal that initiated the listed command, or ???? if no terminal was attached to the command that was issued.

RTIME

Time of day when the task last issued a CA Datacom/DB request.

TASK

CICS task number.

W

A WAITING DB RESPONSE - A request passed control to the MUF and has not yet returned control to CA Datacom CICS Services.

A

ABENDING - The task has an abend condition or the MUF detected an abnormal condition.

D

COMMIT IN PROCESS - The task is terminating and CA Datacom CICS Services is performing final task cleanup.

E

EXCLUSIVE CONTROL - The task has acquired exclusive control by reading a record for update and the TCB is dedicated to this task until it finishes.

F

COMMIT FAIL - The task is terminating, but CA Datacom CICS Services final cleanup for the task has failed.

U

DWE IN PROCESS - The task is terminating.

S

SYNCPOINT IN PROCESS - The task is currently in CICS SYNCPOINT processing.

B

DTB IN PROCESS - The task ended abnormally and is terminating with dynamic transaction backout.

N

NORMAL TERMINATION - The task has finished terminating, and all requests have completed.

PROGRAM

Name of the application program of this task.

OFFSET

Offset of the return address (in hexadecimal) of the application program.

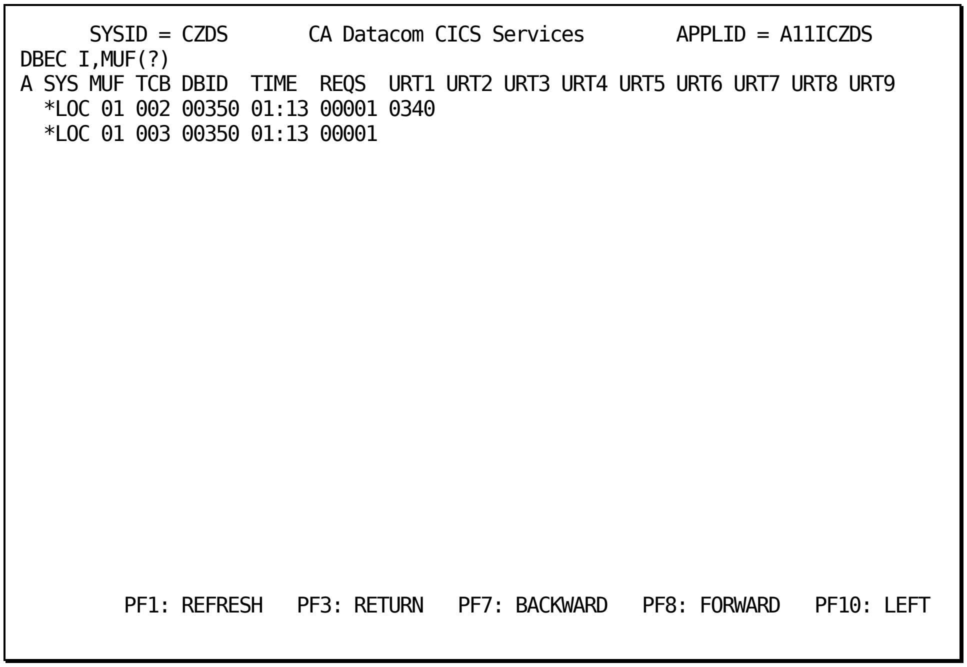
COMMD

The last CA Datacom/DB command used by this task.

TBL

The last CA Datacom/DB table used by this task.

From this screen, PF1 refreshes the active task data, PF3 returns to the MUF display, and PF11 displays the second screen of active task data.



```
      SYSID = CZDS       CA Datacom CICS Services        APPLID = A11ICZDS
DBEC I,MUF(?)
A SYS MUF TCB DBID  TIME  REQS  URT1 URT2 URT3 URT4 URT5 URT6 URT7 URT8 URT9
  *LOC 01 002 00350 01:13 00001 0340
  *LOC 01 003 00350 01:13 00001









         PF1: REFRESH   PF3: RETURN   PF7: BACKWARD   PF8: FORWARD   PF10: LEFT
```

Field Descriptions

A

Specifies that there is no available action.

SYS

Identifies the CICS system to which this display line refers. *LOC means local CICS or TOR.

MUF

Identifies the ID of the MUF accessed by the current event, consisting of two numbers nn, where nn can be 01 through 99.

TCB

The Task Control Block sequence number that identifies the thread used by the current event.

DBID

The last database used by this task.

TIME

Time of day when the task first used this Task Control Block.

REQS

Number of CA Datacom/DB requests issued by the referenced task using the referenced TCB.

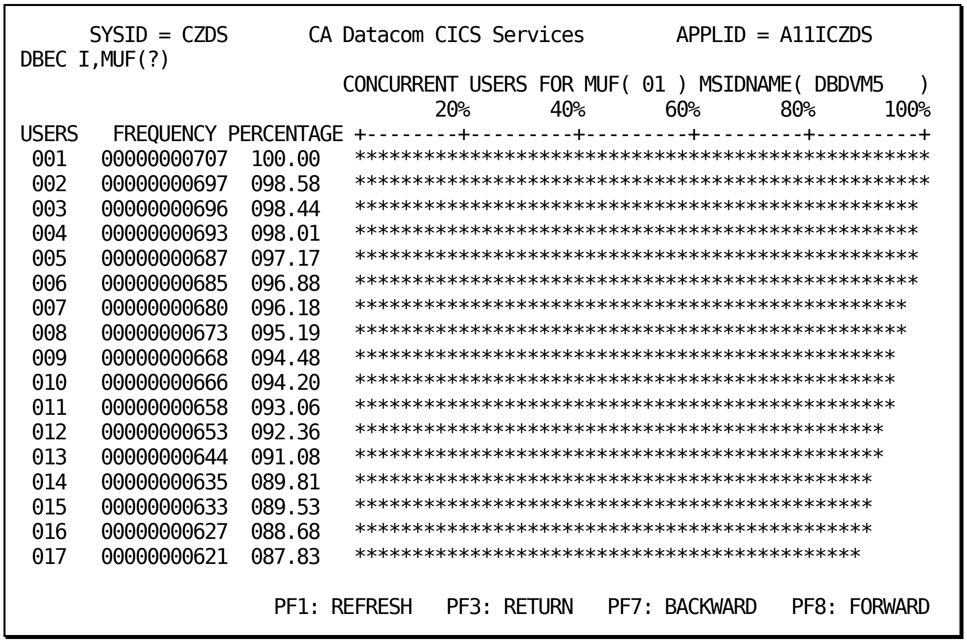
URT1-URT9

First through ninth URT used for exclusive control in this task.

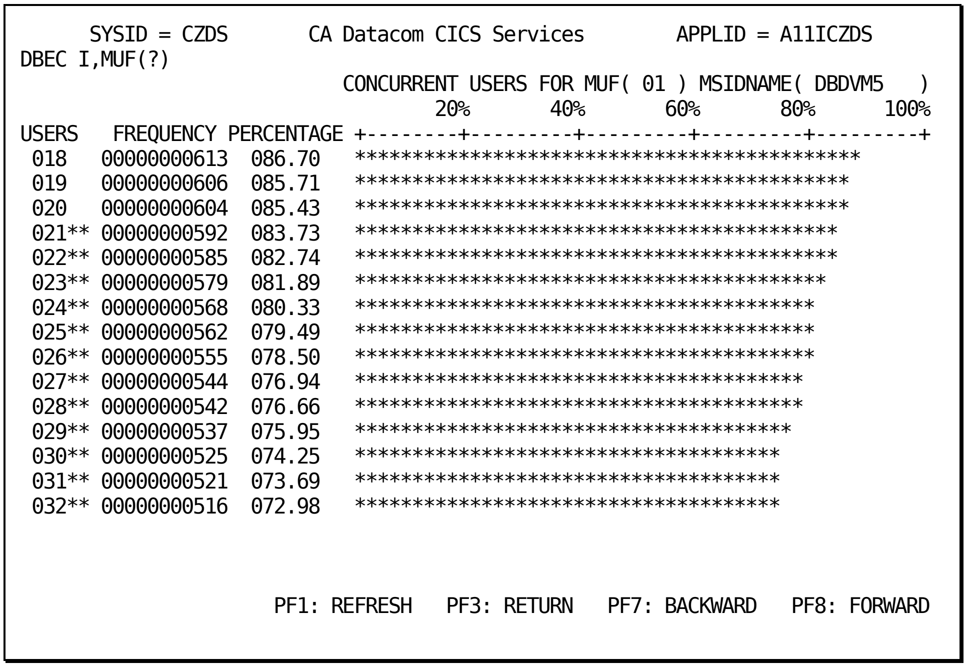
From the screen:

- PF1 refreshes the data of this screen
- PF10 returns to the first screen of active task data
- PF3 returns you to the MUF-level display where you can select another display.

From the MUF-level display, you can then key a U in the action field of a MUF row. The resulting display is the task usage summary for that MUF.



```
      SYSID = CZDS       CA Datacom CICS Services        APPLID = A11ICZDS
DBEC I,MUF(?)
                            CONCURRENT USERS FOR MUF( 01 ) MSIDNAME( DBDVM5   )
                                    20%       40%       60%       80%      100%
USERS   FREQUENCY PERCENTAGE +--------+---------+---------+---------+---------+
 001   00000000707  100.00   **************************************************
 002   00000000697  098.58   **************************************************
 003   00000000696  098.44   *************************************************
 004   00000000693  098.01   *************************************************
 005   00000000687  097.17   *************************************************
 006   00000000685  096.88   *************************************************
 007   00000000680  096.18   ************************************************
 008   00000000673  095.19   ************************************************
 009   00000000668  094.48   ***********************************************
 010   00000000666  094.20   ***********************************************
 011   00000000658  093.06   ***********************************************
 012   00000000653  092.36   **********************************************
 013   00000000644  091.08   **********************************************
 014   00000000635  089.81   *********************************************
 015   00000000633  089.53   *********************************************
 016   00000000627  088.68   *********************************************
 017   00000000621  087.83   ********************************************

                       PF1: REFRESH   PF3: RETURN   PF7: BACKWARD   PF8: FORWARD
```



```
      SYSID = CZDS       CA Datacom CICS Services        APPLID = A11ICZDS
DBEC I,MUF(?)
                            CONCURRENT USERS FOR MUF( 01 ) MSIDNAME( DBDVM5   )
                                    20%       40%       60%       80%      100%
USERS   FREQUENCY PERCENTAGE +--------+---------+---------+---------+---------+
 018   00000000613  086.70   ********************************************
 019   00000000606  085.71   *******************************************
 020   00000000604  085.43   *******************************************
 021** 00000000592  083.73   ******************************************
 022** 00000000585  082.74   ******************************************
 023** 00000000579  081.89   *****************************************
 024** 00000000568  080.33   ****************************************
 025** 00000000562  079.49   ****************************************
 026** 00000000555  078.50   ****************************************
 027** 00000000544  076.94   ***************************************
 028** 00000000542  076.66   ***************************************
 029** 00000000537  075.95   **************************************
 030** 00000000525  074.25   *************************************
 031** 00000000521  073.69   *************************************
 032** 00000000516  072.98   *************************************



                       PF1: REFRESH   PF3: RETURN   PF7: BACKWARD   PF8: FORWARD
```

Field Descriptions

USERS

Specifies a sequence number for a user invoking reserving transactions or physically waiting on a read event. Asterisks following the sequence number carry the following meaning:

- The highest number without an asterisk identifies the value assigned to the USERS= parameter, for example, 3 in the display example.
- The 12 extra USERS (021**-032**) beyond the allocated USERS represent how many more USERS you could allocate to have better distribution of TCB usage.

FREQUENCY

The values under the FREQUENCY heading denote the total number of requests at the time a request arrives for service. CA Datacom CICS Services requires n threads (for USERS: nnn) to service the request without waiting for thread availability. For example, for USERS 006 in the example, means that 685 requests were counted at a time when there were six concurrent users issuing requests.

PERCENTAGE

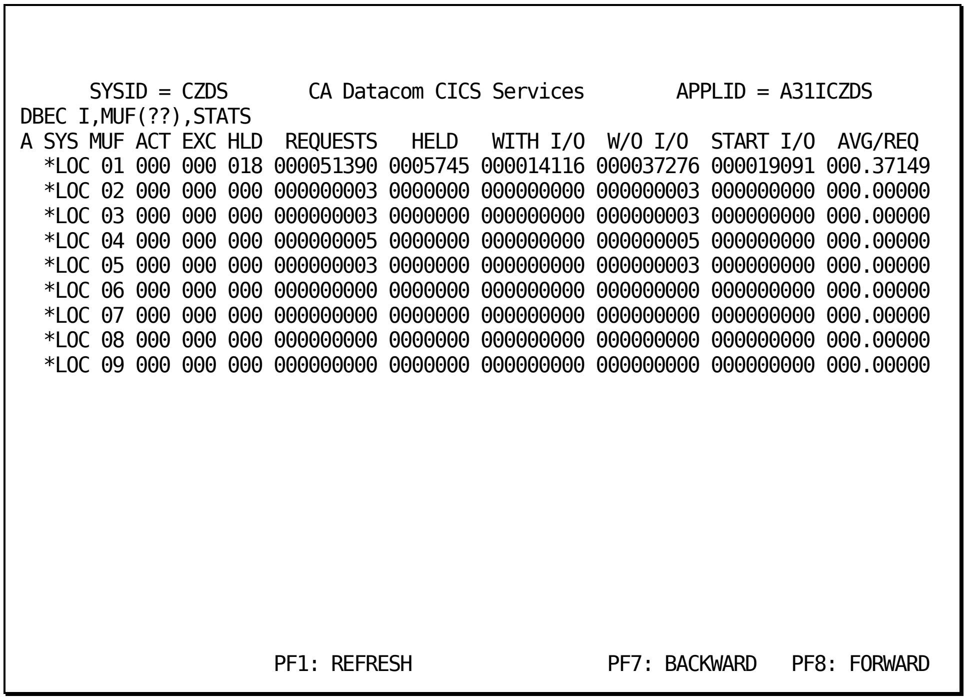
Indicates the percentage of time that concurrent requests are issued by the number listed in the USERS column. That is, 6 users are attempting requests concurrently about 97 percent of the time. In the display example, USERS 006 percentage data 96.88 was computed by dividing 685 (frequency of USERS: 006) by 707 (frequency of USERS: 001, which was serviced 100 percent of the time).

CONCURRENT USERS FOR MUF(nn) MISDNAME(xxxxxxxxx)

Users concurrently invoking reserving transactions or physically waiting on a read event. The MUF and MSIDNAME values reflect the MUF from which this inquiry was selected on the MUF display screen.

Note: After statistics are captured over a longer time period, the graphical display under "Concurrent Users" becomes more meaningful.

Display Example: DBEC I,MUF(??),STATS



```
      SYSID = CZDS       CA Datacom CICS Services        APPLID = A31ICZDS
DBEC I,MUF(??),STATS
A SYS MUF ACT EXC HLD  REQUESTS   HELD   WITH I/O  W/O I/O  START I/O  AVG/REQ
  *LOC 01 000 000 018 000051390 0005745 000014116 000037276 000019091 000.37149
  *LOC 02 000 000 000 000000003 0000000 000000000 000000003 000000000 000.00000
  *LOC 03 000 000 000 000000003 0000000 000000000 000000003 000000000 000.00000
  *LOC 04 000 000 000 000000005 0000000 000000000 000000005 000000000 000.00000
  *LOC 05 000 000 000 000000003 0000000 000000000 000000003 000000000 000.00000
  *LOC 06 000 000 000 000000000 0000000 000000000 000000000 000000000 000.00000
  *LOC 07 000 000 000 000000000 0000000 000000000 000000000 000000000 000.00000
  *LOC 08 000 000 000 000000000 0000000 000000000 000000000 000000000 000.00000
  *LOC 09 000 000 000 000000000 0000000 000000000 000000000 000000000 000.00000









                      PF1: REFRESH                 PF7: BACKWARD   PF8: FORWARD
```

Field Descriptions

A

There is no available action in read-only mode (DBEX).

SYS

Identifies the CICS system to which this display line refers. *LOC means local CICS or TOR.

MUF

Identifies the sequence number of the MUF relative to the position of the associated DBCSID macro appended to the DBCVTPR macro.

ACT

Indicates the total of tasks currently waiting for CA Datacom/DB I/O to complete.

EXC

Indicates the current number of tasks which have acquired exclusive control by issuing update requests to CA Datacom/DB.

HLD

Indicates the current number of tasks waiting for access to CA Datacom/DB. If this is not zero (000), the maximum number of concurrent users has been reached. The maximum number of concurrent users is defined in the DBCVTPR macro as described in the *System Reference Guide*.

REQUESTS

Indicates the total number of CA Datacom/DB requests issued since CA Datacom CICS Services initiation, or since a DBOC RESET=STATS transaction was issued.

HELD

Indicates the total number of requests which had to wait for CA Datacom/DB access since the initiation of CA Datacom CICS Services or since a DBOC RESET=STATS transaction was issued.

WITH I/O

Indicates the total number of requests receiving CA Datacom/DB service after an I/O wait.

W/O I/O

Indicates the total number of requests receiving CA Datacom/DB. service without an I/O wait.

START I/O

Indicates the total number of start I/Os issued by CA Datacom/DB.

AVG/REQ

Indicates the average number of start I/Os issued by CA Datacom/DB per request.

Displaying URT-Level Processing Options

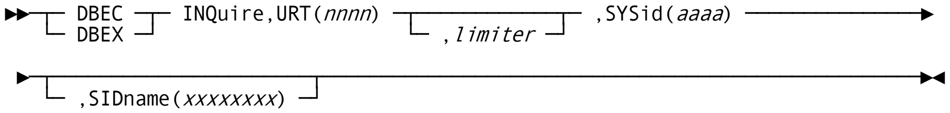
Requests for information on URT resources are issued with the **DBEC** or the **DBEX** transaction followed by the INQUIRE operand. The options enable you to invoke a display of all URTs or selected URTs by number or criteria.

If you issue the command with the DBEX transaction ID, you cannot update any information on the resulting scrollable display. The only allowable entry in the Action field is an S, which toggles to the Table-level display beginning with the URT for the row containing your entry. If you issue the command with DBEC, you can alter certain fields on the panel.

The following is an example of a URT. A URT begins with a DBURSTR macro, contains one or more DBURTBL macros, each defining a particular CA Datacom/DB table, and ends with a DBUREND macro. The values for the bold-faced parameters in this example are displayed on the URT-level inquiry.

```
URT   TITLE 'ONLINE URT FOR REQUESTS USING MULTI-USER FACILITY'

DBURSTR       MULTUSE=YES,WRITE=NO,

              CBSIO=0,PRTY=7,TXNUNDO=YES,TIMEMIN=5,TIMESEC=0

DBURTBL       TBLNAME=PAY,DBID=004,

              AUTODXC=YES,BYPOPEN=NO,SYNONYM=YES,UPDATE=YES

DBUREND       DBSQL=YES,USRINFO=CAICICS

END
```

Invoke the following transaction to display the status of CA Datacom/DB URTs.



DBEC/DBEX

(Required) Specifies a transaction ID valid with Enhanced commands used to monitor URTs. Select the transaction ID for which you are authorized. Leave a space between the transaction ID and the command.

INQuire,

(Required) Requests a scrollable display of URTs. (INQ and I are valid abbreviations.)

,URT(*nnnn*)

(Required) Specifies the inquiry is to invoke the URT-level display. The value within the parentheses identifies the suffix of the URT.

nnnn

Specifies that you want to display *only* the URT with the specific 4-digit suffix *nnnn*.

Alternately, instead of using the *nnnn* suffix to specify only a specific URT, you can use the wildcard symbol ? (a question mark) to accept *any* digit 0-9 for any (or all) of the four digits of the suffix.

See Command Examples (see page 242).

,limiter

(Optional) Limits the inquiry to URTs of designated type, status, how defined for opening or those with no CICS System Definition data set (CSD) entry. The following are the values for designating limiters of each type:

Type

DYN

URTs dynamically built by a CA product.

SQL

URTs for applications issuing SQL statements.

Status

CLOSE

URTs explicitly closed through a DBOC/DBEC command.

CLOSING

URTs with a close in progress, where close is invoked at the completion of the current read or update.

OPEN

URTs which are currently open.

OPENING

URTs with an open in progress, where open status is set at the completion of the current open in MUF.

UNOpened

URTs defined as AUTO or DEFER which have not been opened by a program call or a DBOC/DBEC transaction. (UNO is a valid abbreviation.)

When

AUTO

URTs defined to be opened when required by a program.

DEFer

URTs defined to be opened only by an explicit DBOC/DBEC command. (DEF is a valid abbreviation.)

PLT

URTs opened at CA Datacom CICS Services startup, that is to say those not defined for AUTO or DEFER.

Condition

NOCSD

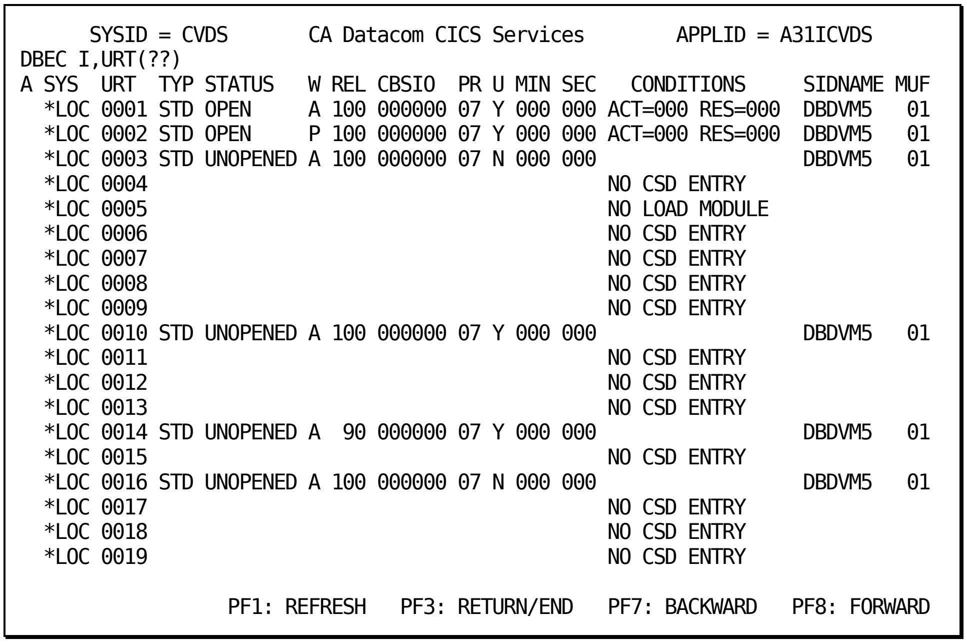
URTs have no CICS System Definition data set (CSD) entry. Such URTs are available for dynamic creation by a CA product.

Command Examples

Each of the following commands displays scrollable URT-level data in read-only format, where URT information is presented in ascending numerical order by URT suffix. Differences are presented in the result column.

Command	Result
DBEX I,URT(12)	Displays URT 0012.
DBEX INQ,URT(2?)	Displays URTs 0020 through 0029.
DBEX INQ,URT(????)	Displays all URTs.
DBEX I,URT(2?),CLOSE	Limits display to URTs that are in closed status and have a suffix between 0020 and 0029.
DBEX I,URT(????),CLOSING	Limits displays to URTs in closing status, that is to say those with CLOSING in the STATUS column.
DBEX I,URT(2?),DYN	Limits display to dynamically built (that is to say with DYN in the TYP column) URTs 0020 through 0029.
DBEX I,URT(????),NOCSD	Limits display to URTs that have no entry in the CICS System Definition data set (CSD).
DBEX I,URT(2?),PLT	Limits display to URTs 0020 through 0029 that are opened at PLT time.
DBEX I,URT(????),SQL	Limits display to URTs defined for SQL applications, that is to say those with SQL in the TYP column.
DBEX I,URT(????),SIDNAME(DBSIDPR)	Limits display to URTs that access the MUF connection defined by the SID module name of DBSIDPR for that MUF. In a single MUF environment, this would be all URTs. In a multiple MUF environment, this would be the MUF connection defined with the DBCSID macro parameter SIDNAME= (specified with a value of DBSIDPR) appended to the DBCVTPR.

Display Example: DBEC I,URT(??)



```
      SYSID = CVDS       CA Datacom CICS Services        APPLID = A31ICVDS
DBEC I,URT(??)
A SYS  URT  TYP STATUS   W REL CBSIO  PR U MIN SEC   CONDITIONS     SIDNAME MUF
  *LOC 0001 STD OPEN     A 100 000000 07 Y 000 000 ACT=000 RES=000  DBDVM5   01
  *LOC 0002 STD OPEN     P 100 000000 07 Y 000 000 ACT=000 RES=000  DBDVM5   01
  *LOC 0003 STD UNOPENED A 100 000000 07 N 000 000                  DBDVM5   01
  *LOC 0004                                        NO CSD ENTRY
  *LOC 0005                                        NO LOAD MODULE
  *LOC 0006                                        NO CSD ENTRY
  *LOC 0007                                        NO CSD ENTRY
  *LOC 0008                                        NO CSD ENTRY
  *LOC 0009                                        NO CSD ENTRY
  *LOC 0010 STD UNOPENED A 100 000000 07 Y 000 000                  DBDVM5   01
  *LOC 0011                                        NO CSD ENTRY
  *LOC 0012                                        NO CSD ENTRY
  *LOC 0013                                        NO CSD ENTRY
  *LOC 0014 STD UNOPENED A  90 000000 07 Y 000 000                  DBDVM5   01
  *LOC 0015                                        NO CSD ENTRY
  *LOC 0016 STD UNOPENED A 100 000000 07 N 000 000                  DBDVM5   01
  *LOC 0017                                        NO CSD ENTRY
  *LOC 0018                                        NO CSD ENTRY
  *LOC 0019                                        NO CSD ENTRY

                  PF1: REFRESH   PF3: RETURN/END   PF7: BACKWARD   PF8: FORWARD
```

Field Descriptions

A

The only valid entry in Column A is **S**, which selects the URT to display at the Table-level. Action to perform with DBEX:

S

Select and begin browse display at table level.

SYS

Identifies the CICS system to which this display line refers. *LOC means local CICS or TOR.

URT

Identifies sequence number of the URT.

TYP

Indicates the type of URT:

STD

URT for applications issuing CA Datacom/DB commands.

SQL

URT for applications issuing SQL statements.

DYN

URT dynamically built by another CA product.

STATUS

Indicates the OPEN status of the URT:

UNOPENED

Not yet opened by a program call or a DBEC or DBOC transaction.

CLOSED

Explicitly closed with a DBEC or DBOC CLOSE=.

CLOSING

Close requested by DBEC or DBOC CLOSE= command, but not yet closed pending completion of a read in progress or a transaction having exclusive control.

OPEN

Opened by CA Datacom CICS Services but no transaction to close it has been issued.

OPENING

Open is in progress by CA Datacom CICS Services.

W

(WHEN) Indicates when CA Datacom CICS Services opens the URT:

P

(PLT) Specifies the URT is opened by CA Datacom CICS Services at startup time.

A

(AUTO) Specifies the URT is automatically opened by CA Datacom CICS Services when an application request needs this URT.

D

(DEFER) Specifies the URT can only be opened with an explicit DBEC or DBOC command.

REL

If the URT was assembled with a release of the macros at CA Datacom/DB r10 or earlier, REL indicates the CA Datacom/DB release level of the macro used to generate the URT. Beginning with CA Datacom/DB r11 and for all following releases, the value for REL is a URT compatibility indicator and displays as 100

CBSIO

The value specified in URT generation for I/O limit interrupt for all SELxx commands except SELPR.

PR

Indicates the priority level for requests processed using this URT, where nn is between 01 and 15; 01 is low, 07 is the default (specified with PRTY= in the DBURSTR macro used in generating this URT).

U

The TXNUNDO= value in DBURSTR macro generating this URT, where:

Y

(YES) Indicates transaction backout is dynamically invoked for update requests issued by a program using this URT when an abend occurs.

N

(NO) Indicates transaction backout is not operational.

MIN*

The TIMEMIN= value in the DBURSTR macro generating this URT, where the number between 1 and 120 is the limit in minutes to wait for a record held under exclusive control by another request (alternative to TIMESEC=). Leading or trailing blanks are not allowed. When entering values into this field that are shorter than the field length, the remainder of the field can be cleared by using the EOF key at the end of the entered value.

MIN=0 with SEC=0 means unlimited wait time; MIN=0 with SEC=1 means no wait time.

SEC*

The TIMESEC= value in the DBURSTR macro generating this URT, where the number between 1 and 120 is the limit in seconds to wait for a record held under exclusive control by another request (alternative to TIMEMIN=). Leading and trailing blanks are not allowed. When entering values into this field that are shorter than the field length, the remainder of the field can be cleared by using the EOF key at the end of the entered value.

MIN=0 with SEC=0 means unlimited wait time; MIN=0 with SEC=1 means no wait time.

***If you alter either the MIN or SEC field, the value you specify is converted (if necessary) to seconds before storing in the URT. When redisplayed, if the value in seconds is greater than 60 and is evenly divisible by 60 (that is to say, the remainder is zero), the value is displayed in the MIN field; otherwise, it is shown in the SEC field.**

CONDITIONS

The following can appear:

ACT=xxx RES=xxx

Value for ACTIVE is the total number of tasks using this URT. Value for RES is the number that currently have a record locked, deleted, added or updated.

NO CSD ENTRY

The CICS System Definition data set (CSD) does not contain an entry for this URT.

NO LOAD MODULE

The URT module is not in the library.

CSD DISABLED

The entry for this URT in the CICS System Definition data set (CSD) has been disabled.

OPEN RC=xx.yyy

The last open request for this URT failed for the reason indicated by CA Datacom/DB return code xx and the internal return code yyy.

CLOS RC=xx.yyy

The last close request for this URT failed for the reason indicated by CA Datacom/DB return code xx and the internal return code yyy.

UNKNOWN MUF

The global URT module has been determined to require a MUF that has not been defined by a DBCSID macro in the DBCVTPR module.

A global URT, beginning with r10, is a CA Datacom/DB URT that either has multiple MUF support or DBID remapping support, that is to say, either the DBURSTR macro uses the SIDNAME= parameter or the DBURTBL macro uses the DBIDMUF= parameter.

URT DELETED

The URT module has been deleted by the user.

URT DELETED/SKIPPED

The user has deleted the URT module or this URT was not loaded because it was specified in a SKIPLOAD range.

SIDNAME

The value specified in the relative DBCSID macro of the DBCVTPR generation for the name of the DBSIDPR macro generated module to be loaded and used for this MUF.

MUF

Number of the MUF that contains the tables for this URT. In a single MUF environment, this number is always one.

Displaying Table-Level Processing Options

To display options for CA Datacom/DB tables accessible through URTs from a CICS system, issue an Enhanced INQuire command.

If you issue the INQ command with the DBEX transaction ID, or its substitute, you are not able to update any fields on the scrollable display. If you issue the command with DBEC, or its substitute, you may make entries in certain fields to override table options specified in the URT definition.

The following is an example of a URT definition. A URT begins with a DBURSTR macro, contains one or more DBURTBL macros, each defining a particular CA Datacom/DB table, and ends with a DBUREND macro. The values for the bold-faced parameters in this example are displayed on the Table-level inquiry.

```
URT     TITLE 'ONLINE URT FOR REQUESTS USING MULTI-USER FACILITY'

DBURSTR      MULTUSE=YES,WRITE=NO,

             CBSIO=0,PRTY=7,TXNUNDO=YES,TIMEMIN=5,TIMESEC=0

DBURTBL      TBLNAME=PAY,DBID=004,

             AUTODXC=YES,BYPOPEN=NO,SYNONYM=YES,UPDATE=YES

DBUREND      DBSQL=YES,USRINFO=CAICICS

END
```

Invoke the following transaction to display how TBLNAM=, DBID= (or alternately DBIDUSER= and DBIDMUF=), AUTODXC=, BYPOPEN=, SYNONYM=, and UPDATE= parameters are defined by DBURTBL macros for all tables within specified URT.

```
►►─┬─ DBEC ─┬─ INQ,TBL(nnnn) ─┬──────────────────────┬─┬────────────┬──────────►◄
   └─ DBEX ─┘                 └─ ,SIDname(xxxxxxxx) ─┘ └─ ,limiter ─┘
```

DBEC/DBEX

(Required) Specify a transaction ID valid with Enhanced commands used to monitor URTs. Select the transaction ID for which you are authorized. Leave a space between the transaction ID and the command.

INQ

(Required) Specifies that CA Datacom CICS Services is to perform an Inquiry.

,TBL(*nnnn*)

(Required) TBL specifies the inquiry is to invoke the Table-level display. The value within the parentheses identifies the suffix of the URT.

nnnn

Specifies that you want to display *only* the URT with the specific 4-digit suffix *nnnn*.

Alternately, instead of using the *nnnn* suffix to specify only a specific URT, you can use the wildcard symbol ? (a question mark) to accept *any* digit 0—9 for any (or all) of the four digits of the suffix.

See Command Examples (see page 129).

,SIDname(*xxxxxxxx*)

(Optional) Specify one specific SID name to which the URT inquiry applies by MUF (see the DBURSTR macro SIDNAME= parameter in the *CA Datacom/DB Database and System Administration Guide* and the DBCSID macro SIDNAME= parameter in the *System Reference Guide*) or any number of leading characters of SID names, followed by an asterisk (*) to specify a range of SID names to which the URT inquiry applies by MUFs. Omitting the SIDNAME(*xxxxxxxx*) limiter results in the command being applied to all MUFs in the remote systems. (SID is a valid abbreviation.)

,limiter

(Optional) Limits the inquiry to URTs of designated type, status, how defined for opening, or those with no CICS System Definition data set (CSD) entry. The following are values for designating limiters of each type:

Type

DYN

URTs dynamically built by a CA product.

SQL

URTs for applications issuing SQL statements.

Status

CLOSE

URTs explicitly closed through a DBOC CLOSE= command, a PERform,URT(nnnn),CLOSE, or an entry of C in the Action column of a DBEC INQ,URT(nnnn) display.

CLOSING

URTs with a close in progress, where close is invoked at the completion of the current read or update.

OPEN

URTs that are currently open.

OPENING

Open is in progress by CA Datacom CICS Services.

UNOpened

URTs defined as AUTO or DEFER that have not been opened by a program call or a DBOC/DBEC transaction. (UNO is a valid abbreviation.)

When

AUTO

URTs defined to be opened when required by a program.

DEFer

URTs defined to be opened only by an explicit DBOC/DBEC command. (DEF is a valid abbreviation.)

PLT

URTs opened at CA Datacom CICS Services startup, that is to say those not defined for AUTO or DEFer.

Condition

NOCSD

URTs that have no CICS System Definition data set (CSD) entry. Such URTs are available for dynamic creation by a CA product.

Command Examples

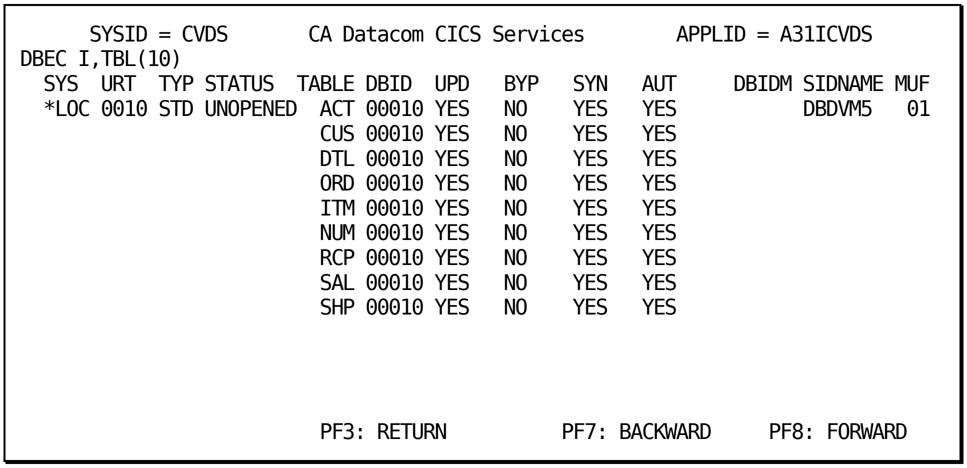
Each of the following commands displays scrollable Table-level data in read-only format, where URT information is presented in ascending numerical order by URT suffix and table information is presented in the order tables are defined to the URT. Details are presented in the "Result" column.

Command	Result
DBEX I,TBL(12)	Displays tables for URT 0012.
DBEX INQ,TBL(2?)	Displays tables for URTs 0020 through 0029.
DBEX INQUIRE,TBL(????)	Displays tables for all URTs in the system.
DBEX I,TBL(?),AUTO	Displays tables for URTs 0000 through 0009 defined for automatic opening.
DBEX I,TBL(2?),CLOSE	Displays tables for URTs 0020 through 0029 that are in closed status, that is to say with CLOSED in the STATUS column.

Command	Result
DBEX I,TBL(????),CLOSING	Displays tables for all URTs in closing status, that is to say with CLOSING in the STATUS column.
DBEX I,TBL(2?),DYN	Displays tables for dynamically built (that is to say with DYN in the TYP column) URTs 0020 through 0029.
DBEX I,TBL(??),PLT	Displays tables for URTs 0000 through 0099 that are opened at PLT time.
DBEX I,TBL(????),SIDNAME(DBSIDPR)	Displays tables for URTs that access the MUF connection defined by the SID module name of DBSIDPR for that MUF. In a single MUF environment, this would be all URTs. In a multiple MUF environment, this would be the MUF connection defined with the SIDNAME=DBSIDPR parameter of the DBCSID macro appended to the DBCVTPR.

Display Example: DBEC I,TBL(10)

When inquiries are made at the table level, the display includes the number and status of each URT, similar to the URT status inquiry display. In addition, the table names and database IDs are displayed for each URT.



```
      SYSID = CVDS       CA Datacom CICS Services        APPLID = A31ICVDS
DBEC I,TBL(10)
  SYS  URT  TYP STATUS  TABLE DBID  UPD   BYP   SYN   AUT     DBIDM SIDNAME MUF
  *LOC 0010 STD UNOPENED  ACT 00010 YES   NO    YES   YES           DBDVM5   01
                          CUS 00010 YES   NO    YES   YES
                          DTL 00010 YES   NO    YES   YES
                          ORD 00010 YES   NO    YES   YES
                          ITM 00010 YES   NO    YES   YES
                          NUM 00010 YES   NO    YES   YES
                          RCP 00010 YES   NO    YES   YES
                          SAL 00010 YES   NO    YES   YES
                          SHP 00010 YES   NO    YES   YES




                          PF3: RETURN          PF7: BACKWARD     PF8: FORWARD
```

Field Descriptions

When you specify TBL rather than URT in the command format, CA Datacom CICS Services presents a scrollable display containing 13 columns of data. The first four columns and the last two columns repeat the SYS, URT, TYP, STATUS, SIDNAME, and MUF data that is displayed on the corresponding URT-level inquiry. Data appears in these fields only once per URT. The remaining seven columns display information on the tables making up the URT definition.

SYS

Identifies the CICS system to which this display line refers. *LOC means local CICS or TOR.

URT

Identifies the sequence number of the URT.

TYP

Indicates the type of URT.

STD

URT for applications issuing CA Datacom/DB commands.

SQL

URT for applications issuing SQL statements.

DYN

URT dynamically built by another CA product.

STATUS

Indicates the OPEN status of the URT with the following values:

UNOPENED

Not yet opened by a program call or a DBEC or DBOC transaction.

CLOSED

Explicitly closed with a DBEC or DBOC CLOSE=.

CLOSING

Close requested by DBEC or DBOC CLOSE= command, but not yet closed pending completion of a read in progress or a transaction having exclusive control.

OPEN

Opened by CA Datacom CICS Services but no transaction to close it has been issued.

OPENING

Open is in progress by CA Datacom CICS Services.

TABLE

Name of the CA Datacom/DB table with the URT.

DBID

Number of the database that contains the table.

UPD

Allows the table to be updated.

YES

Indicates that this URT permits applications to update the named table.

NO

Indicates that update of the named table is not permitted using this URT.

BYP

Allows the table to be bypassed.

YES

Specifies that when the URT is opened, the designated table is bypassed (and therefore not opened) during the opening. Any attempt to access this table, using this URT, results in a CA Datacom/DB return code of 05.

NO

Specifies that when the URT is opened, the designated table is opened during the opening.

SYN

Specifies SYNONYM= in the DBURTBL macro

YES

Indicates that SYNONYM=YES is specified in the DBURTBL macro for this URT.

NO

Indicates that SYNONYM=NO is specified in the DBURTBL macro for this URT.

AUT

Specifies whether exclusive control for the table is automatically dropped.

NO

Indicates that CA Datacom/DB does not automatically drop exclusive control for this table when a second command is issued from the same Request Area.

YES

Indicates that CA Datacom/DB automatically drops exclusive control for this table when a second command is issued from the same Request Area.

DBIDM

For a global URT using DBID remapping, this is the number of the database that contains the table to be accessed in the MUF and overrides the DBID specified in the request.

SIDNAME

The value specified in the relative DBCSID macro of the DBCVTPR generation for the name of the DBSIDPR macro generated module to be loaded and used for this MUF.

MUF

Number of the MUF that contains the tables for this URT. In a single MUF environment, this number is always one.

Chapter 7: DBOC: Controlling Local Resources with Operational Commands

This section contains the following topics:

AUTO= Setting URTs for Automatic Opening

Except for URTs specified for delayed opening, CA Datacom CICS Services opens all URTs at CA Datacom CICS Services startup. In the DBCVTPR macro, you can identify two lists of URTs for delayed opening:

- A list of URTs each of which is only opened by CA Datacom CICS Services when a CA Datacom/DB application requiring its use begins processing. (AUTO= parameter)
- A list of URTs each of which is only opened when requested by a DBOC/DBEC OPEN= command. (DEFER= parameter)

Note: For more information about specifying the AUTO= and DEFER= parameters of the DBCVTPR macro, see the *System Reference Guide*.

You can issue a command to add URTs to the AUTO= and DEFER= URT lists which were specified in the DBCVTPR macro. Modifications made through a DBOC transaction remain in effect only for the life of the CICS cycle. For details on modifying the list of URTs to remain closed until a DBOC/DBEC OPEN= command is issued, see DEFER= Setting URTs for Deferred Opening (see page 141).

Any URTs which you specify for automatic opening using this command are returned to their initial status (as defined in DBCVTPR) if the DBOC GENOPTS transaction is used to change the maximum number of URTs. For more information, see the *System Reference Guide*.

To add to the list of URTs which open automatically when needed, issue the following transaction:

```
                     ┌ , ──┐
►►─ DBOC ─ AUTO= ─▼─ urt ─┴─────────────────────────────────►◄
```

DBOC

(Required) Specify the transaction ID used with Operational commands to control system resources. Leave a space between the transaction ID and the command.

AUTO=

(Required) Specifies that CA Datacom CICS Services is not to open the named URT until a CA Datacom/DB application requiring it begins processing.

urt

(Required) Specify one or more URTs by the four-digit suffix, with or without leading zeros, where the range of valid values is 0001 to the active MAXURTS= value. Use the wildcard symbol (?) to accept any valid value between 0 and 9 for any (or all) of the digits. To specify a series, separate the identifiers with commas.

Example	Description
1	URT 0001
?,20	URTs 0001 through 0009, and 0020
?,1?,2?,30	URTs 0001 through 0030
??	URTs 0001 through 0099
1??,20?,21?	URTs 100 through 219
????	All valid URTs

The total number of URTs specified cannot exceed the value specified for the MAXURTS= parameter of the DBCVTPR macro (described in the *System Reference Guide*).

Note: A URT defined with SQL=YES is not eligible for AUTO opening.

In a multiple MUF environment, where connections to MUFs are defined using DBCSID macros appended to the DBCVTPR definition, AUTO URTs should refer to a MUF connection that is defined as AUTO or PLT. If an AUTO URT refers to a MUF connection that is of a DEFER type, the manual connection command must be issued for all requests to successfully perform an AUTO open.

AUX= Resetting the Auxiliary Trace Options

The Trace Facility provides history data for the last user controlled number of events. When it is necessary to trace numerous DB request events, CA Datacom CICS Services provides the capability to write the traced request to a sequential data set. The Auxiliary file destination is defined with the AUXTRCE= parameter of the DBCVTPR. To conserve resources, use this facility sparingly. To turn on or off this facility for the current CICS session, issue the following transaction.

```
►►─ DBOC ─ AUX= ─┬─ ON ──┬──────────────────────────────────────────────►◄
                 ├─ OFF ─┤
                 └─ SWI ─┘
```

DBOC

(Required) Specify the transaction ID used with Operational commands to control system resources. Leave a space between the transaction ID and the command.

AUX=

(Required) Specifies to set the Auxiliary Trace Facility.

OFF

Specifies not to write CA Datacom/DB requests to an Auxiliary Data Set.

ON

Specifies that CA Datacom/DB requests being traced are written to the Auxiliary Trace Data Set.

SWI

Specifies that the current output data set being referenced for the Auxiliary Trace be changed to the secondary data set.

CLOSE= Closing URTs

The CLOSE command closes one or more URTs. To open a closed URT, use the OPEN= (see page 156)command. To return a URT to its status at system startup, use the RESTART= (see page 164) command.

Use the following transaction to close one or more specified URTs.

```
             ┌─ , ──┐
►►─ DBOC ─ CLOSE= ─▼─ urt ─┴──────────────────────────────────────►◄
```

DBOC

(Required) Specify the transaction ID used with Operational commands to control system resources. Leave a space between the transaction ID and the command.

CLOSE=

(Required) Changes the status of the URT to Closed if its status is Unopened or Opened and issues a CA Datacom/DB CLOSE command. If the URT is being used for update, its status is changed to Closing and new users are not allowed access to it. When the active task has terminated, CA Datacom CICS Services issues a CLOSE internally.

urt

(Required) Specify one or more URTs by the four-digit suffix, with or without leading zeros, where the range of valid values is 0001 to the active MAXURTS= value. Use the wildcard symbol (?) to accept any valid value between 0 and 9 for any (or all) of the digits. To specify a series, separate the identifiers with commas.

Example	Description
1	URT 0001
?,20	URTs 0001 through 0009, and 0020
?,1?,2?,30	URTs 0001 through 0030
??	URTs 0001 through 0099
1??,20?,21?	URTs 100 through 219
????	All valid URTs

Display Example: DBOC CLOSE=??

The specification ?? closes URTs 0001 through 0010. This limitation is set by the MAXURTS= parameter value of 10.

```
DBOC CLOSE=??                                                           DELIM &

DC00173I  URT 0001 WILL NOT BE AUTOMATICALLY OPENED.
DC00173I  URT 0002 WILL NOT BE AUTOMATICALLY OPENED.
DC00202I  URT 0003-0009 HAVE NO CSD ENTRIES
DC00173I  URT 0010 WILL NOT BE AUTOMATICALLY OPENED.
DC00380I  TRANSACTION COMPLETED.
```

If a URT has been closed with a DBOC CLOSE= command, it can only be opened by issuing a DBOC/DBEC OPEN= command, even if it was listed on the AUTO= parameter in the DBCVTPR macro. You can return it to its initial status by issuing a DBOC RESTART= command.

For example, the previous sample display states that URT 0002 is not automatically opened.

1. If we were to issue a DBOC INQ=0002, CA Datacom CICS Services would respond:

```
DBOC INQ=0002                                                           DELIM &

URT 0002(STD CLOSED   AUTO )                          PRTY=07 TXNUD
DC00380I  TRANSACTION COMPLETED.
```

   The CLOSED,AUTO status means that this URT is listed for automatic opening in DBCVTPR, but it has been closed with a DBOC/DBEC CLOSE= command. In this status, CA Datacom CICS Services does not open this URT unless a DBOC/DBEC OPEN= command is issued.

2. To return it to its initial status, we could issue a DBOC RESTART=0002.

3. If we then issued another DBOC INQ=0002 command, CA Datacom CICS Services would respond:

```
DBOC INQ=0002                                                           DELIM &

URT 0002(STD UNOPENED AUTO )                          PRTY=07 TXNUD
DC00380I  TRANSACTION COMPLETED.
```

   The UNOPENED,AUTO status indicates that CA Datacom CICS Services opens this URT when a program requires it.

DEBUG= Controlling the DBUG Environment

The DEBUG= transaction allows you to have more control over the DBUG environment.

You can use the following transactions to list or release any or all terminals currently under DBUG control.

```
►►─ DBOC ─ DEBUG= ─┬─ LIST ──────────────┬────────────────────────────────────►◄
                   └─ KILL ─┬──────────┬─┘
                            └─ =xxxx ──┘
```

DBOC

(Required) Specify the transaction ID used with Operational commands to control system resources. Leave a space between the transaction ID and the command.

DEBUG=

(Required) Specifies the DEBUG function invoked.

LIST

Provides a list showing all terminals currently under DBUG control. The list is in the form:

DEBUG ON TERMINAL "xxxx" DISPLAY ON "yyyy"

The xxxx identifies a terminal under DBUG control (the intercepted terminal) and yyyy identifies the terminal that initiated that control (the initiating terminal).

Note: You must be a master operator to use KILL (described following). One or more master operators can be defined through the MSTOPR= parameter in the DBCVTPR macro. If no master operators are specified, all users are eligible to invoke master operator-type functions. Specifications for master operators can be altered for the current CICS session through the screen displayed when you issue the DBOC GENOPTS command. For more information, see the *System Reference Guide*.

KILL

Removes DBUG from the system, meaning that it releases DBUG control from all terminals currently in intercept mode.

=xxxx

(Optional) KILL=*xxxx* removes DBUG control from a specific intercepted terminal (not an initiating terminal). You can invoke DBOC DEBUG=LIST first to determine the terminal IDs. To cancel monitor mode, specify KILL=****.

For monitor mode or remote mode DBUG: If the terminal that initiated the DBUG is in "lost session" status and DBUG is active at an intercepted terminal, perform the following steps to free the intercepted terminal:

1. Use DBOC DEBUG=KILL=*xxxx* to terminate the DBUG session on the intercepted terminal, where *xxxx* is the intercepted terminal ID.

2. You can use CEMT to purge the task which is active at the intercepted terminal.

Display Example: DBOC DEBUG=LIST

```
DBOC DEBUG=LIST                                                      DELIM ;

DC03249I  DEBUG ON TERMINAL "8077" DISPLAY ON "8077"
DC03249I  DEBUG ON TERMINAL "****" DISPLAY ON "8015"
DC03249I  DEBUG ON TERMINAL "8078" DISPLAY ON "X030"
DC00380I  TRANSACTION COMPLETED.
```

Display Example: DBOC DEBUG=KILL=xxxx

```
DBOC DEBUG=KILL=****                                                 DELIM ;

DC03247I  DEBUG ON TERMINAL "****" IS REMOVED
DC00380I  TRANSACTION COMPLETED.
```

Display Example: DBOC DEBUG=KILL

```
DBOC DEBUG=KILL                                                      DELIM ;

DC03247I  DEBUG ON TERMINAL "8077" IS REMOVED
DC03247I  DEBUG ON TERMINAL "8078" IS REMOVED
DC00380I  TRANSACTION COMPLETED.
```

DEFER= Setting URTs for Deferred Opening

Except for URTs specified for delayed opening, CA Datacom CICS Services opens all URTs at CA Datacom CICS Services startup. In the DBCVTPR macro, you can identify two lists of URTs for delayed opening:

- A list of URTs each of which is only opened by CA Datacom CICS Services when a CA Datacom/DB application requiring its use begins processing. (AUTO= parameter)
- A list of URTs each of which is only opened when requested by a DBEC or DBOC OPEN= (see page 156)command. (DEFER= parameter)

Note: For more information about specifying the AUTO= and DEFER= parameters of the DBCVTPR macro, see the *System Reference Guide*.

You can issue a DBOC transaction to add URTs to the AUTO= and DEFER= URT lists that were specified in the DBCVTPR macro. Modifications made through a DBOC transaction remain in effect only for the life of the CICS cycle. For details about modifying the list of URTs which open automatically, see AUTO= Setting URTs for Automatic Opening (see page 135).

Any URTs that you specify for deferred opening using this command are returned to their initial status (as defined in DBCVTPR) if the DBOC GENOPTS transaction is used to change the maximum number of URTs. For more information, see the *System Reference Guide*.

To add to the list of URTs which only open when a DBEC or DBOC OPEN= command is issued, use the following transaction:

```
                     ┌─ , ─┐
►►─ DBOC ─ DEFER= ─▼─ urt ─┴──────────────────────────────────────────►◄
```

DBOC

(Required) Specify the transaction ID used with Operational commands to control system resources. Leave a space between the transaction ID and the command.

DEFER=

(Required) Specifies that CA Datacom CICS Services is not to open the named URT until a user issues a DBEC or DBOC OPEN= transaction naming the URT.

urt

(Required) Specify one or more URTs by the four-digit suffix, with or without leading zeros, where the range of valid values is 0001 to the active MAXURTS= value. Use the wildcard symbol (?) to accept any valid value between 0 and 9 for any (or all) of the digits. To specify a series, separate the identifiers with commas.

Example	Description
1	URT 0001
?,20	URTs 0001 through 0009, and 0020
?,1?,2?,30	URTs 0001 through 0030
??	URTs 0001 through 0099
1??,20?,21?	URTs 100 through 219
????	All valid URTs

The total number of URTs specified cannot exceed the value specified for the MAXURTS= parameter of the DBCVTPR macro (described in the *System Reference Guide*).

DELETE= Deleting Modules and URTs

Any module or URT having an entry in the CICS System Definition data set (CSD) can be deleted through a DBOC transaction. A deleted module or URT can be reloaded using the DBOC LOAD= (see page 154) transaction

Note: An exception to a NEWCOPY of any CA Datacom CICS Services modules is that a NEWCOPY of DBCVTPR can only be done when CA Datacom CICS Services is in a shutdown status. It *cannot* be deleted when CA Datacom CICS Services is active.

Use the following transactions to delete a module or URT.

```
                      ┌─ , ──┐
►►─ DBOC ─ DELETE= ─┬─▼─ urt ─┴─┬──────────────────────────────────────►◄
                    └─ modname ─┘
```

Be attentive to the following warning:

WARNING! Do not use the clear screen function key to interrupt this DELETE process once it has been initiated.

DBOC

(Required) Specify the transaction ID used with Operational commands to control system resources. Leave a space between the transaction ID and the command.

DELETE=

(Required) Deletes the designated module or URT.

Note: When multiple operands for DELETE= include DCCOCPR, this module name must be specified last in the series.

urt

Specify one or more URTs by the four-digit suffix, with or without leading zeros, where the range of valid values is 0001 to the active MAXURTS= value. Use the wildcard symbol (?) to accept any valid value from 0 through 9 for any (or all) of the digits. To specify a series, separate the identifiers with commas.

Example	Description
1	URT 0001
?,20	URTs 0001 through 0009, and 0020
?,1?,2?,30	URTs 0001 through 0030
??	URTs 0001 through 0099
1??,20?,21?	URTs 100 through 219
????	All valid URTs

modname

Designates the name of the module on which CA Datacom CICS Services is to act. Only use in preparation for doing a NEWCOPY of a module. DELETE=???????? specifies delete all CA Datacom CICS Services modules and URTs.

The only modules available to be deleted (or loaded) with DBOC are the following: DBCSVPR, DCCTPPR, DCCTRPR, DCCTFPR, DCCTXPR, DCCV1PR, DCCOCPR, DCCO1PR, DCCO2PR, DCCO3PR, DCCO4PR, DCCECPR, DCCETPR, DCCFPPR, and DBSGMPR. Other modules, except DBCVTPR, can be newcopied without the DBOC DELETE= command (or the DBOC LOAD= command).

Command Examples

Command	Result
DBOC DELETE=1	URT 0001 is deleted.
DBOC DELETE=10,? DBOC DELETE=?,10	URTs 0001 through 0010 are deleted.
DBOC DELETE=DCCTPPR,DCCOCPR	The modules, DCCTPPR and DCCOCPR, are deleted.

DELIM= Changing the Delimiter Character

The command delimiter character is used to enter multiple Operational commands with a single transaction ID. For details about using the delimiter character, see Issuing Multiple Operational Commands (see page 30). The default delimiter character is the ampersand (&). A different delimiter character may have been specified for your system in the DBCVTPR macro (see the *System Reference Guide*). CA Datacom CICS Services displays DELIM c, where c is the delimiter character, in the upper right corner of every response to an Operational command.

You can temporarily change the command delimiter character using the following transaction:

```
▶▶─ DBOC ─ DELIM=c ──────────────────────────────────────────────▶◀
```

DBOC

(Required) Specify the transaction ID used with Operational commands to control system resources. Leave a space between the transaction ID and the command.

DELIM=

(Required) Indicates to modify the delimiter character.

c

(Required) Represents the new delimiter character. Any special (not alphanumeric) character can be used as the command delimiter except the following:

?	=	.	,

Valid values include, but are not necessarily limited to, the following:

¬	#	$	¢	\	‡
¤	&	%	*	@	Ä
'	"	:	;	>	<

Once you have issued the previous transaction, the newly specified delimiter remains in effect for all CA Datacom CICS Services users until CA Datacom CICS Services is terminated or somebody changes it again.

DISABLE= Bypassing Table Opening

When a URT is opened, every table listed in it is opened unless it has BYPOPEN=YES specified in its DBURTBL macro. For more information, see the *CA Datacom/DB Database and System Administration Guide*. The DISABLE= command suppresses the opening of a specified table listed in a URT when that URT is opened. The ENABLE= (see page 151) command resets a table so that CA Datacom/DB opens it when the URT naming it is opened. When a request references a disabled table contained in an open URT, it receives a CA Datacom/DB return code of 05.

The URT containing the tables to disable must be closed when this transaction is issued. Before issuing this command, verify that the URT is closed or invoke the transaction to close it. For more information, see CLOSE=: Closing URTs (see page 138).

Use the following format to disable the opening of a table:

```
▶▶─ DBOC ─ DISABLE= ─┬──────────┬─ table ─┬──────────┬──────────────────────▶◀
                     └─ urt. ───┘         └─ .dbid ──┘
```

DBOC

(Required) Specify the transaction ID used with Operational commands to control system resources. Leave a space between the transaction ID and the command.

DISABLE=

(Required) Indicates to bypass the tables from opening when the URT is opened.

urt.

(Required) Identifies by number one or more URTs. Separate from the table name with a period (urt.table). To specify acceptance of any value, 1—9, in one or more places within the URT name, use the wildcard symbol (?). To specify multiple URTs individually, separate members within the series with commas.

Example	Description
1	URT 0001
?,20	URTs 0001 through 0009, and 0020
??	URTs 0001 through 0099
1?	URTs with 001 as the first three digits
?1??	URTs with 1 as the second digit
????	All URTs

table

(Required) Identifies the table or tables to which the command applies. Use the wildcard symbol (?) in the first, second, or third place of the three-character table name to accept any valid character in that place. This form of DISABLE requires that it is qualified first by the URT field, either a specific URT number or a wildcard set of URTs. Use a period as a separator between URT number and the table name (urt.table).

Example	Description
010.POH	Table POH in URT 10
?.???	All tables in URTs 1 through 9
0?1?.A??	All tables beginning with A in all URTs in the range of 0010 through 0919 whose next to last digit is 1. For example: 10-19, 110-119, 210-219, and so on
????.??1	All tables with names ending with 1

.dbid

(Optional) Used with a table name to limit the command action to that table within the specified database. Use a period as a separator between table name and the five-digit database ID (urt.table.dbid). To apply the named command to the listed tables in database IDs within a known range, use the wildcard symbol (?). To apply the named command to the listed tables in all databases, either omit the database ID from the operand or specify ????? for the dbid. To use the dbid option requires that both urt and table fields be present prior to the DBID field.

Example	Description
????.???.00123	Database 00123
????.???.000??	Databases 00000 through 00099
????.???.0005?	Databases 00050 through 00059
????.???.???5?	All databases with 5 as the fourth digit
????.???.?????	All databases

Command Examples

Command	Result
DBOC DISABLE=?.AAA	Tables named AAA which are listed in URTs 0001 through 0009 are bypassed when the listed URT is opened.
DBOC DISABLE=2.AAA.1	Table AAA in database 0001 is bypassed when URT 0002 is opened.
DBOC DISABLE=1.??A	When URT 0001 is opened, all tables having an A in the third position of their table name are bypassed.

Display Example: DBOC DISABLE=?.P??

The DBOC DISABLE=?.P?? transaction limits the disabling action to tables having names beginning with P that are listed in a URT numbered 1 through 9. Since the command does not specify a database ID, the command is applied to all tables in all databases which meet the table name criteria.

```
DBOC DISABLE=?.P??                                                  DELIM &

DC00158I  URT 0001  TABLE:PAY DBID:00001         NOW BYPASSED
DC00158I  URT 0001  TABLE:PMF DBID:00001         NOW BYPASSED
DC00158I  URT 0001  TABLE:POH DBID:00001         NOW BYPASSED
DC00158I  URT 0001  TABLE:POL DBID:00001         NOW BYPASSED
DC00158I  URT 0001  TABLE:PNC DBID:00001         NOW BYPASSED
DC00158I  URT 0001  TABLE:PNM DBID:00001         NOW BYPASSED
DC00158I  URT 0002  TABLE:PCV DBID:00002         NOW BYPASSED
DC00158I  URT 0002  TABLE:PER DBID:00002         NOW BYPASSED
DC00158I  URT 0002  TABLE:PGM DBID:00002         NOW BYPASSED
DC00158I  URT 0002  TABLE:PNL DBID:00002         NOW BYPASSED
DC00158I  URT 0002  TABLE:PLN DBID:00002         NOW BYPASSED
DC00158I  URT 0002  TABLE:PRC DBID:00002         NOW BYPASSED
DC00158I  URT 0002  TABLE:PRT DBID:00002         NOW BYPASSED
DC00380I  TRANSACTION COMPLETED.
```

DUMP= Producing Dumps

Reviewing dumps often aids in debugging a problem. Use this transaction to dump a CA Datacom CICS Services module, a URT, or a control table into a CICS dump data set with the following transaction:

```
                          ┌─,───┐
►►─ DBOC ─ DUMP= ─┬─▼─ urt ─┴──┬──────────────────────────────────────────►◄
                  ├─ modname ─────┤
                  └─ control-tbl ─┘
```

Note: The DBOC DUMP= command is not available from the console.

DBOC

(Required) Specify the transaction ID used with Operational commands to control system resources. Leave a space between the transaction ID and the command.

DUMP=

(Required) Specifies to produce a dump.

urt

Specify one or more URTs by the four-digit suffix, with or without leading zeros, where the range of valid values is 0001 to the active MAXURTS= value. Use the wildcard symbol (?) to accept any valid value between 0 and 9 for any (or all) of the digits. To specify a series, separate the identifiers with commas.

Example	Description
1	URT 0001
?,20	URTs 0001 through 0009, and 0020
?,1?,2?,30	URTs 0001 through 0030
??	URTs 0001 through 0099
1??,20?,21?	URTs 100 through 219
????	All valid URTs

modname

Designates the name of the module on which CA Datacom CICS Services is to act. Valid entries include: ???????? (all CA Datacom CICS Services modules plus the CA Datacom/DB modules DBSGMPR and DBINRPR, URTs, TCBs, DEBUG criteria, and the trace table) and the CA Datacom CICS Services modules

Note: If you use the command DBOC DUMP=????????, it is important to understand that your dump dataset in CICS/TS is defined in a way that can handle all the dumps that are produced, with the appropriate formatting required by CICS/TS. The code modules are approximately 32K. The TCBS could be 17M at the maximum USERS of 255. URT modules could be significant with the increase to 9999 modules, depending on the tables defined. DEBUG can be approximated at around 600 bytes. TRACE (80 bytes each) is user-defined.

control-tbl

Designates the name of the control table on which CA Datacom CICS Services is to act. Valid entries:

TCBS

Internal TCB storage

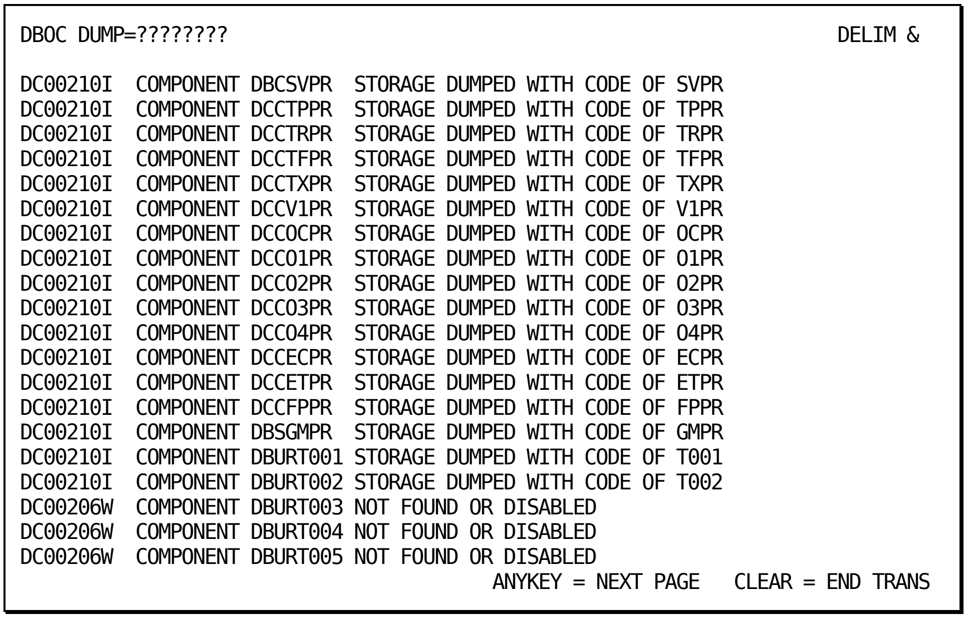
DBUG

Debugging intercept criteria storage

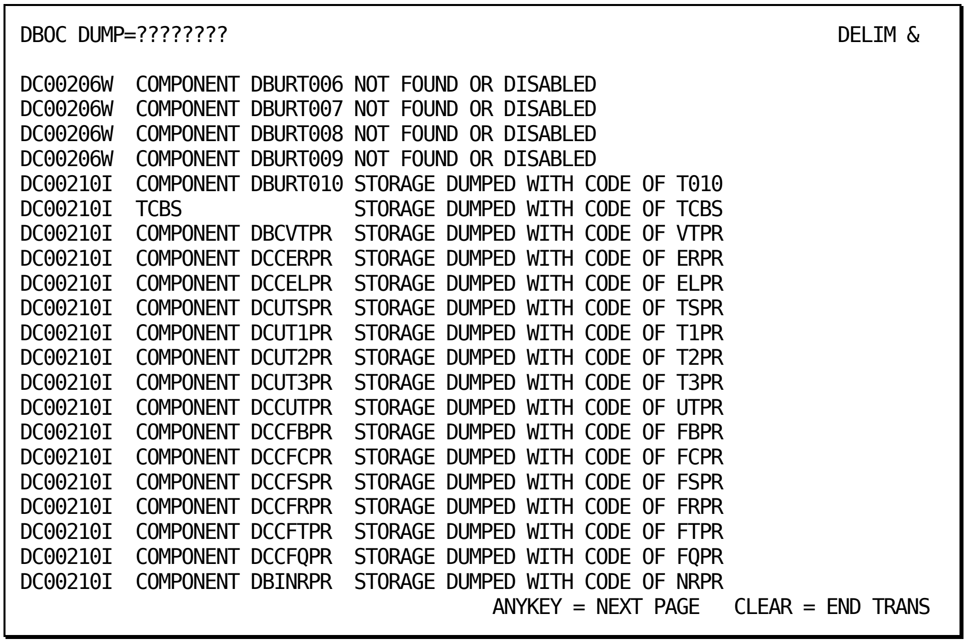
TRACE

Internal trace entries

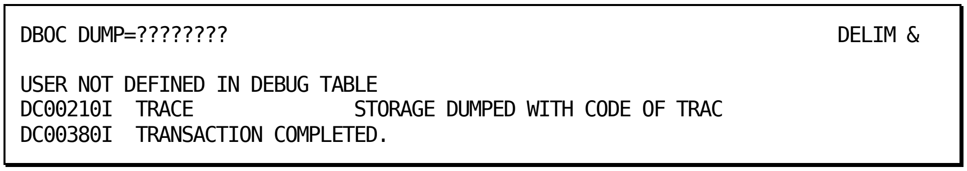
Display Example: DBOC DUMP=????????



```
DBOC DUMP=????????                                                  DELIM &

DC00210I  COMPONENT DBCSVPR  STORAGE DUMPED WITH CODE OF SVPR
DC00210I  COMPONENT DCCTPPR  STORAGE DUMPED WITH CODE OF TPPR
DC00210I  COMPONENT DCCTRPR  STORAGE DUMPED WITH CODE OF TRPR
DC00210I  COMPONENT DCCTFPR  STORAGE DUMPED WITH CODE OF TFPR
DC00210I  COMPONENT DCCTXPR  STORAGE DUMPED WITH CODE OF TXPR
DC00210I  COMPONENT DCCV1PR  STORAGE DUMPED WITH CODE OF V1PR
DC00210I  COMPONENT DCCOCPR  STORAGE DUMPED WITH CODE OF OCPR
DC00210I  COMPONENT DCCO1PR  STORAGE DUMPED WITH CODE OF O1PR
DC00210I  COMPONENT DCCO2PR  STORAGE DUMPED WITH CODE OF O2PR
DC00210I  COMPONENT DCCO3PR  STORAGE DUMPED WITH CODE OF O3PR
DC00210I  COMPONENT DCCO4PR  STORAGE DUMPED WITH CODE OF O4PR
DC00210I  COMPONENT DCCECPR  STORAGE DUMPED WITH CODE OF ECPR
DC00210I  COMPONENT DCCETPR  STORAGE DUMPED WITH CODE OF ETPR
DC00210I  COMPONENT DCCFPPR  STORAGE DUMPED WITH CODE OF FPPR
DC00210I  COMPONENT DBSGMPR  STORAGE DUMPED WITH CODE OF GMPR
DC00210I  COMPONENT DBURT001 STORAGE DUMPED WITH CODE OF T001
DC00210I  COMPONENT DBURT002 STORAGE DUMPED WITH CODE OF T002
DC00206W  COMPONENT DBURT003 NOT FOUND OR DISABLED
DC00206W  COMPONENT DBURT004 NOT FOUND OR DISABLED
DC00206W  COMPONENT DBURT005 NOT FOUND OR DISABLED
                                        ANYKEY = NEXT PAGE   CLEAR = END TRANS
```



```
DBOC DUMP=????????                                                  DELIM &

DC00206W  COMPONENT DBURT006 NOT FOUND OR DISABLED
DC00206W  COMPONENT DBURT007 NOT FOUND OR DISABLED
DC00206W  COMPONENT DBURT008 NOT FOUND OR DISABLED
DC00206W  COMPONENT DBURT009 NOT FOUND OR DISABLED
DC00210I  COMPONENT DBURT010 STORAGE DUMPED WITH CODE OF T010
DC00210I  TCBS               STORAGE DUMPED WITH CODE OF TCBS
DC00210I  COMPONENT DBCVTPR  STORAGE DUMPED WITH CODE OF VTPR
DC00210I  COMPONENT DCCERPR  STORAGE DUMPED WITH CODE OF ERPR
DC00210I  COMPONENT DCCELPR  STORAGE DUMPED WITH CODE OF ELPR
DC00210I  COMPONENT DCUTSPR  STORAGE DUMPED WITH CODE OF TSPR
DC00210I  COMPONENT DCUT1PR  STORAGE DUMPED WITH CODE OF T1PR
DC00210I  COMPONENT DCUT2PR  STORAGE DUMPED WITH CODE OF T2PR
DC00210I  COMPONENT DCUT3PR  STORAGE DUMPED WITH CODE OF T3PR
DC00210I  COMPONENT DCCUTPR  STORAGE DUMPED WITH CODE OF UTPR
DC00210I  COMPONENT DCCFBPR  STORAGE DUMPED WITH CODE OF FBPR
DC00210I  COMPONENT DCCFCPR  STORAGE DUMPED WITH CODE OF FCPR
DC00210I  COMPONENT DCCFSPR  STORAGE DUMPED WITH CODE OF FSPR
DC00210I  COMPONENT DCCFRPR  STORAGE DUMPED WITH CODE OF FRPR
DC00210I  COMPONENT DCCFTPR  STORAGE DUMPED WITH CODE OF FTPR
DC00210I  COMPONENT DCCFQPR  STORAGE DUMPED WITH CODE OF FQPR
DC00210I  COMPONENT DBINRPR  STORAGE DUMPED WITH CODE OF NRPR
                                        ANYKEY = NEXT PAGE   CLEAR = END TRANS
```



```
DBOC DUMP=????????                                                  DELIM &

USER NOT DEFINED IN DEBUG TABLE
DC00210I  TRACE              STORAGE DUMPED WITH CODE OF TRAC
DC00380I  TRANSACTION COMPLETED.
```

ENABLE= Enabling Opening for Previously Bypassed Table

When a URT is opened, every table listed in it is opened unless it has BYPOPEN=YES specified in its DBURTBL macro. For more information, see the *CA Datacom/DB Database and System Administration Guide.* The DISABLE= (see page 145) command suppresses the opening of a specified table listed in a URT when that URT is opened. The ENABLE= command resets a table so that CA Datacom/DB opens it when the URT naming it is opened. The ENABLE= command can specify any bypassed table by specification of BYPOPEN=YES in DBURTBL or by issuing a DBOC DISABLE= command.

The URT containing the tables to enable must be closed when this transaction is issued. Verify that the URT is closed or invoke the transaction to close it before issuing this command. For more information, see CLOSE= Closing URTs (see page 138).

```
▶▶─ DBOC ─ ENABLE= ─┬────────┬─ table ─┬─────────┬──────────────────────▶◀
                    └─ urt. ─┘         └─ .dbid ─┘
```

DBOC

(Required) Specify the transaction ID used with Operational commands to control system resources. Leave a space between the transaction ID and the command.

ENABLE=

(Required) Indicates to open the tables when the URT is opened.

urt

Identifies by number one or more URTs. Separate from the table name with a period (urt.table). To specify acceptance of any value, 1—9, in one or more places within the URT name, use the wildcard symbol (?). To specify multiple URTs individually, separate members within the series with commas.

Example	Description
1	URT 0001
?,20	URTs 0001 through 0009, and 0020
??	URTs 0001 through 0099
1?	URTs with 001 as the first three digits
?1?	URTs with 0 as the first digit and 1 as the third digit
????	All URTs

table

(Required) Identifies the table or tables to which the command applies. Use the wildcard symbol (?) in the first, second, or third place of the three-character table name to accept any valid character in that place.

Example	Description
POH	Table POH
???	All tables
A??	All tables with beginning with A
??1	All tables with names ending with 1

.dbid

(Optional) Used with a table name to limit the command action to that table within the specified database. Use a period as a separator between table name and the five-digit database ID (table.dbid). To apply the named command to the listed tables in database IDs within a known range, use the wildcard symbol (?). To apply the named command to the listed tables in all databases, either omit the database ID from the operand or specify ????? for the dbid.

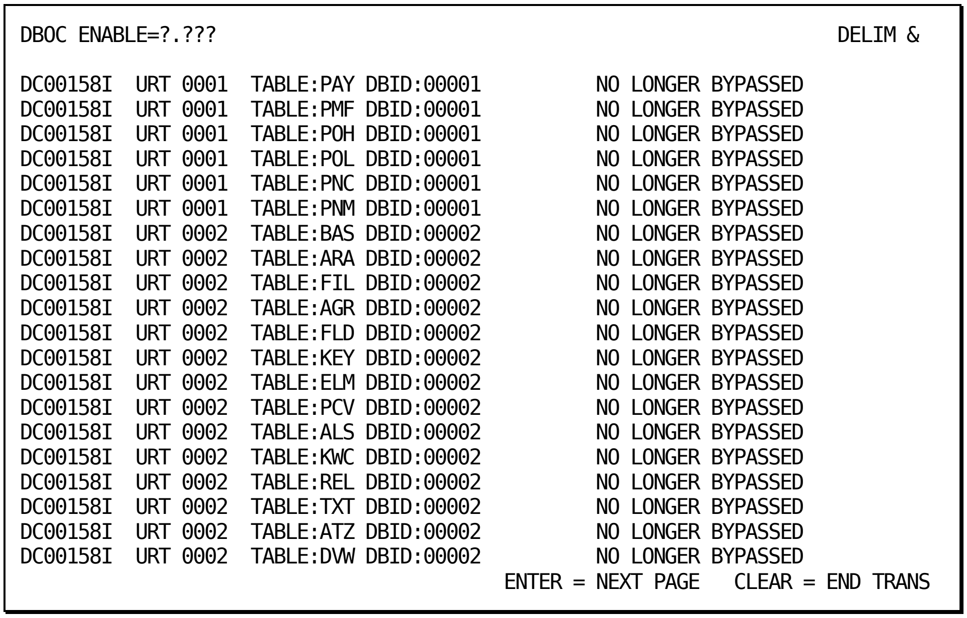
Example	Description
00123	Database 00123
000??	Databases 00000 through 00099
0005?	Databases 00050 through 00059
???5?	All databases with 5 as the fourth digit
?????	All databases

Command Examples

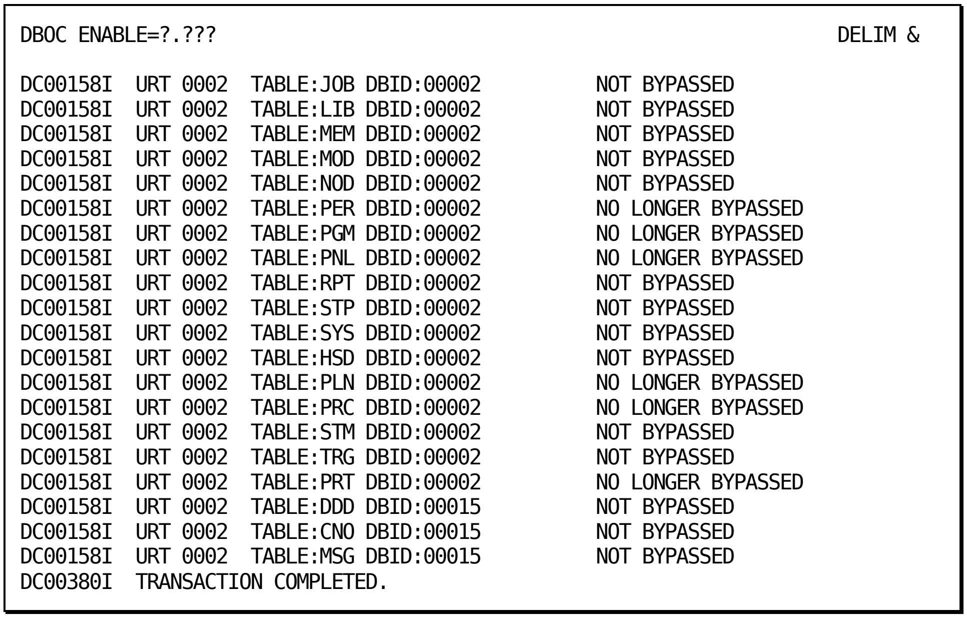
Command	Result
DBOC ENABLE=?.AAA	Enable previously disabled tables named AAA which are listed in URTs 0001 through 0009 when the listing URTs are opened.
DBOC ENABLE=2.AAA.1	Enable table AAA in database 0001 when URT 0002 is opened.

Command	Result
DBOC ENABLE=1.??A	When URT 0001 is opened, enable all previously disabled tables having an A in the third position of their table name.

Display Example: DBOC ENABLE=?.???



```
DBOC ENABLE=?.???                                                      DELIM &

DC00158I  URT 0001  TABLE:PAY DBID:00001          NO LONGER BYPASSED
DC00158I  URT 0001  TABLE:PMF DBID:00001          NO LONGER BYPASSED
DC00158I  URT 0001  TABLE:POH DBID:00001          NO LONGER BYPASSED
DC00158I  URT 0001  TABLE:POL DBID:00001          NO LONGER BYPASSED
DC00158I  URT 0001  TABLE:PNC DBID:00001          NO LONGER BYPASSED
DC00158I  URT 0001  TABLE:PNM DBID:00001          NO LONGER BYPASSED
DC00158I  URT 0002  TABLE:BAS DBID:00002          NO LONGER BYPASSED
DC00158I  URT 0002  TABLE:ARA DBID:00002          NO LONGER BYPASSED
DC00158I  URT 0002  TABLE:FIL DBID:00002          NO LONGER BYPASSED
DC00158I  URT 0002  TABLE:AGR DBID:00002          NO LONGER BYPASSED
DC00158I  URT 0002  TABLE:FLD DBID:00002          NO LONGER BYPASSED
DC00158I  URT 0002  TABLE:KEY DBID:00002          NO LONGER BYPASSED
DC00158I  URT 0002  TABLE:ELM DBID:00002          NO LONGER BYPASSED
DC00158I  URT 0002  TABLE:PCV DBID:00002          NO LONGER BYPASSED
DC00158I  URT 0002  TABLE:ALS DBID:00002          NO LONGER BYPASSED
DC00158I  URT 0002  TABLE:KWC DBID:00002          NO LONGER BYPASSED
DC00158I  URT 0002  TABLE:REL DBID:00002          NO LONGER BYPASSED
DC00158I  URT 0002  TABLE:TXT DBID:00002          NO LONGER BYPASSED
DC00158I  URT 0002  TABLE:ATZ DBID:00002          NO LONGER BYPASSED
DC00158I  URT 0002  TABLE:DVW DBID:00002          NO LONGER BYPASSED
                                             ENTER = NEXT PAGE    CLEAR = END TRANS
```



```
DBOC ENABLE=?.???                                                      DELIM &

DC00158I  URT 0002  TABLE:JOB DBID:00002          NOT BYPASSED
DC00158I  URT 0002  TABLE:LIB DBID:00002          NOT BYPASSED
DC00158I  URT 0002  TABLE:MEM DBID:00002          NOT BYPASSED
DC00158I  URT 0002  TABLE:MOD DBID:00002          NOT BYPASSED
DC00158I  URT 0002  TABLE:NOD DBID:00002          NOT BYPASSED
DC00158I  URT 0002  TABLE:PER DBID:00002          NO LONGER BYPASSED
DC00158I  URT 0002  TABLE:PGM DBID:00002          NO LONGER BYPASSED
DC00158I  URT 0002  TABLE:PNL DBID:00002          NO LONGER BYPASSED
DC00158I  URT 0002  TABLE:RPT DBID:00002          NOT BYPASSED
DC00158I  URT 0002  TABLE:STP DBID:00002          NOT BYPASSED
DC00158I  URT 0002  TABLE:SYS DBID:00002          NOT BYPASSED
DC00158I  URT 0002  TABLE:HSD DBID:00002          NOT BYPASSED
DC00158I  URT 0002  TABLE:PLN DBID:00002          NO LONGER BYPASSED
DC00158I  URT 0002  TABLE:PRC DBID:00002          NO LONGER BYPASSED
DC00158I  URT 0002  TABLE:STM DBID:00002          NOT BYPASSED
DC00158I  URT 0002  TABLE:TRG DBID:00002          NOT BYPASSED
DC00158I  URT 0002  TABLE:PRT DBID:00002          NO LONGER BYPASSED
DC00158I  URT 0002  TABLE:DDD DBID:00015          NOT BYPASSED
DC00158I  URT 0002  TABLE:CNO DBID:00015          NOT BYPASSED
DC00158I  URT 0002  TABLE:MSG DBID:00015          NOT BYPASSED
DC00380I  TRANSACTION COMPLETED.
```

LOAD= Loading Modules and URTs

Typically, you do not need to explicitly load the CA Datacom CICS Services modules and URTs required for operation. URTs are implicitly loaded when opened. CA Datacom CICS Services modules are loaded automatically the first time DCCOCPR is executed. DCCOCPR is executed when DBOC STARTUP is issued or at CICS startup, if it is listed in the Program List Table (PLT).

Use the LOAD command under the following conditions:

- As part of the procedure for replacing a loaded CA Datacom CICS Services module with a new copy after maintenance has been applied. For the complete procedure, see Replacing a Module or URT with a New Copy (see page 176). For an alternative using the Enhanced command, see Replacing a URT with a New Copy (see page 206).
- To make a new URT available for processing while CA Datacom CICS Services is active, an explicit load is required if the new URT is defined for opening during startup. (To be loaded, the URT must have an entry in the CICS System Definition data set (CSD).)
- To make available a URT that was defined to the CICS System Definition data set (CSD) since CA Datacom CICS Services startup.

Note: You do not need to explicitly load a URT you are replacing with a new copy. For that procedure, see Replacing a Module or URT with a New Copy (see page 176).

A loaded module or URT can be deleted using the DBOC DELETE= transaction. For more information, see DELETE= Deleting Modules and URTs (see page 143).

Use the following transaction to load a module or URT.

```
                    ┌─ , ──┐
▶▶─ DBOC ─ LOAD= ──┬▼─ urt ─┴─────────────────────────────────────────▶◀
                   └─ modname ─┘
```

WARNING Do not use the clear screen function key to interrupt this LOAD process once it has been initiated.

LOAD=

(Required) Loads the designated module or URT.

urt

Specify one or more URTs using up to four values which specify URT numbers from 0001 through the MAXURTS= value. Use the wildcard symbol (?) to accept any valid value from 0 through 9 for any (or all) of the digits. To specify a series, separate the identifiers with commas.

Example	Description
1	URT 0001
?,20	URTs 0001 through 0009, and 0020
?,1?,2?,30	URTs 0001 through 0030
??	URTs 0001 through 0099
1??,20?,21?	URTs 100 through 219
????	All valid URTs

modname

Designates the name of the module on which CA Datacom CICS Services is to act. LOAD=???????? indicates LOAD all modules and all URTs.

The only modules available to be loaded (or deleted) with DBOC are the following: DBCSVPR, DCCTPPR, DCCTRPR, DCCTFPR, DCCTXPR, DCCV1PR, DCCOCPR, DCCO1PR, DCCO2PR, DCCO3PR, DCCO4PR, DCCECPR, DCCETPR, DCCFPPR, and DBSGMPR. Other modules, except DBCVTPR, can be newcopied without the DBOC LOAD= command (or the DBOC DELETE= command).

Command Examples

Command	Result
DBOC LOAD=10	URT 0010 is loaded.
DBOC LOAD=????????	All CA Datacom CICS Services modules and all URTs which can be loaded are loaded.
DBOC LOAD=DCCTPPR,DCCOCPR	The modules, DCCTPPR and DCCOCPR, are loaded.

LOG= Resetting the Log Option for Operational Commands

CA Datacom CICS Services provides the capability to write the responses to Operational commands to the Message Log.

The Message Log destination is defined with the MSGLOG= parameter of the DBCVTPR or through the DBOC GENOPTS transaction. For more information, see the *System Reference Guide*. The default Message Log destination is DBOCPRT, the separate log for DBOC/DBIC messages. If MSGLOG=CSMT is specified, the CA Datacom CICS Services log entries are intermingled with CICS messages.

Logging of Operational commands can be specified for your system in the DBCVTPR macro (see the *System Reference Guide*). To change this specification for the current CICS session, issue the following transaction.

```
►►─ DBOC ─ LOG= ─┬─ YES ─┬──────────────────────────────────────────────►◄
                 └─ NO ──┘
```

DBOC

(Required) Specify the transaction ID used with Operational commands to control system resources. Leave a space between the transaction ID and the command.

LOG=

(Required) Specifies to set the logging of Operational commands.

YES

Specifies that responses to Operational commands are written to the Message Log.

NO

Specifies that responses to Operational commands are not written to the Message Log.

Note: If LOG=YES is typed correctly, YES would be in effect. If the LOG=NO or anything other than YES is typed, then LOG=NO is in effect.

OPEN= Opening URTs

The OPEN command opens one or more URTs. To close an open URT, use the CLOSE= (see page 138) command.

Use the following command to open a URT:

```
                  ┌─ , ───┐
►►─ DBOC ─ OPEN= ─▼─ urt ─┴─────────────────────────────────────────────►◄
```

DBOC

(Required) Specify the transaction ID used with Operational commands to control system resources. Leave a space between the transaction ID and the command.

OPEN=

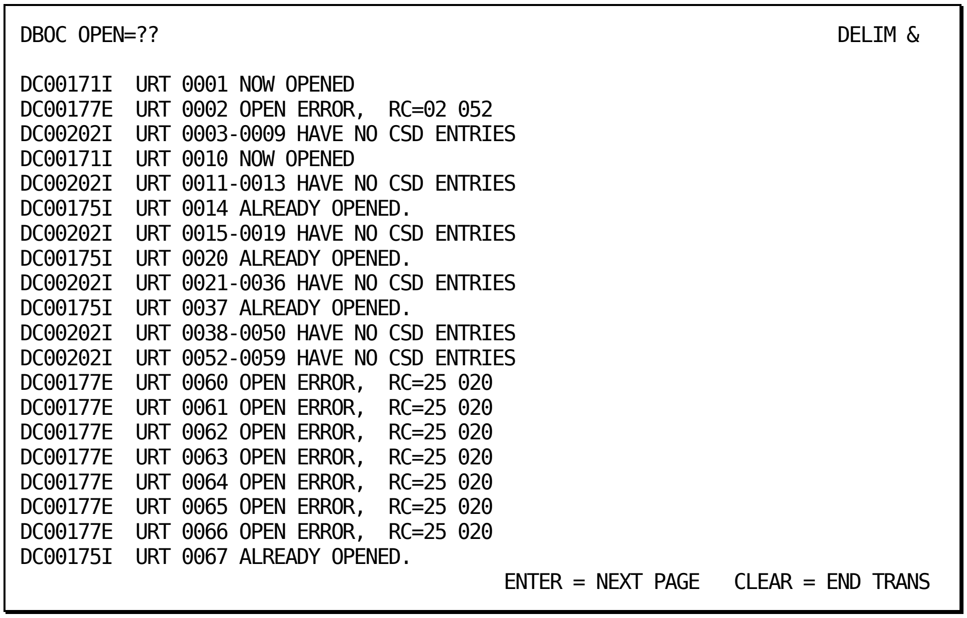
(Required) Opens the specified URT if its status is Unopened, Closed, or Closing.

urt

(Required) Specify one or more URTs by the four-digit suffix, with or without leading zeros, where the range of valid values is 0001 to the active MAXURTS= value. Use the wildcard symbol (?) to accept any valid value between 0 and 9 for any (or all) of the digits. To specify a series, separate the identifiers with commas.

Example	Description
1	URT 0001
?,20	URTs 0001 through 0009, and 0020
?,1?,2?,30	URTs 0001 through 0030
??	URTs 0001 through 0099
1??,20?,21?	URTs 100 through 219
????	All valid URTs

Display Example: DBOC OPEN=??



```
DBOC OPEN=??                                                 DELIM &

DC00171I  URT 0001 NOW OPENED
DC00177E  URT 0002 OPEN ERROR,  RC=02 052
DC00202I  URT 0003-0009 HAVE NO CSD ENTRIES
DC00171I  URT 0010 NOW OPENED
DC00202I  URT 0011-0013 HAVE NO CSD ENTRIES
DC00175I  URT 0014 ALREADY OPENED.
DC00202I  URT 0015-0019 HAVE NO CSD ENTRIES
DC00175I  URT 0020 ALREADY OPENED.
DC00202I  URT 0021-0036 HAVE NO CSD ENTRIES
DC00175I  URT 0037 ALREADY OPENED.
DC00202I  URT 0038-0050 HAVE NO CSD ENTRIES
DC00202I  URT 0052-0059 HAVE NO CSD ENTRIES
DC00177E  URT 0060 OPEN ERROR,  RC=25 020
DC00177E  URT 0061 OPEN ERROR,  RC=25 020
DC00177E  URT 0062 OPEN ERROR,  RC=25 020
DC00177E  URT 0063 OPEN ERROR,  RC=25 020
DC00177E  URT 0064 OPEN ERROR,  RC=25 020
DC00177E  URT 0065 OPEN ERROR,  RC=25 020
DC00177E  URT 0066 OPEN ERROR,  RC=25 020
DC00175I  URT 0067 ALREADY OPENED.
                                          ENTER = NEXT PAGE   CLEAR = END TRANS
```

PREFIX= Changing the URT Prefix

Invoke the PREFIX command to change the prefix of all URTs from the default prefix, DBURT, to another five-character prefix. A different default URT prefix can be defined for your site in the DBCVTPR macro. For more information, see the *System Reference Guide*. You can display the current URT prefix with the DBOC/DBIC INQ=GENOPTS command described in INQ=GENOPTS: Displaying System Generation Options (see page 78).

This command enables you to switch from one set of URTs to another. The change is only valid for the duration of the current CICS cycle.

Note: Changing the prefix does not affect specifications for opening URTs.

Follow these steps to change the URT prefix:

1. Close all URTs with the DBOC CLOSE=???? or DBEC P,CLOSE,URT(????) transaction.
2. Invoke the following command, where xxxxx is the new five-character prefix.

```
▶▶─ DBOC ─ PREFIX=xxxxx ──────────────────────────────────────────────▶◀
```

DBOC

(Required) Specify the transaction ID used with Operational commands to control system resources. Leave a space between the transaction ID and the command.

PREFIX=

(Required) Specifies a new URT prefix.

xxxxx

(Required) A five-character alphanumeric URT prefix.

When looking for a URT, CA Datacom CICS Services forms the module name by appending the URT number to this five-character prefix for URTs 1—999. For URTs 1000—9999, the URT number is appended to the first four characters of the prefix.

Verify that the resulting modules have enabled CICS System Definition data set (CSD) entries.

The URT prefix specification can also be changed using the DBOC GENOPTS command. For more information, see the *System Reference Guide*.

RESET= Resetting Statistic Counters

CA Datacom CICS Services accumulates statistics that can be viewed through several DBOC/DBIC INQuire= command options. To display the current accumulations and to reset the counters which are used in accumulating these statistics, issue the following transaction:

```
►►─ DBOC ─ RESET= ─┬─ CODES ─┬──────────────────────────────────────────►◄
                   ├─ STATS ─┤
                   └─ USERS ─┘
```

DBOC

(Required) Specify the transaction ID used with Operational commands to control system resources. Leave a space between the transaction ID and the command.

RESET=

(Required) Indicates that statistic counters are to be reset.

CODES

Specifies resetting the counters used to tally the number of CA Datacom/DB requests by CA Datacom/DB return code received. For details about displaying the statistics accumulated with these counters, without resetting them, see INQ=CODES: Displaying Request Totals by Return Code (see page 76). In a Multi-MUF environment, this resets the return code counters for all MUFs.

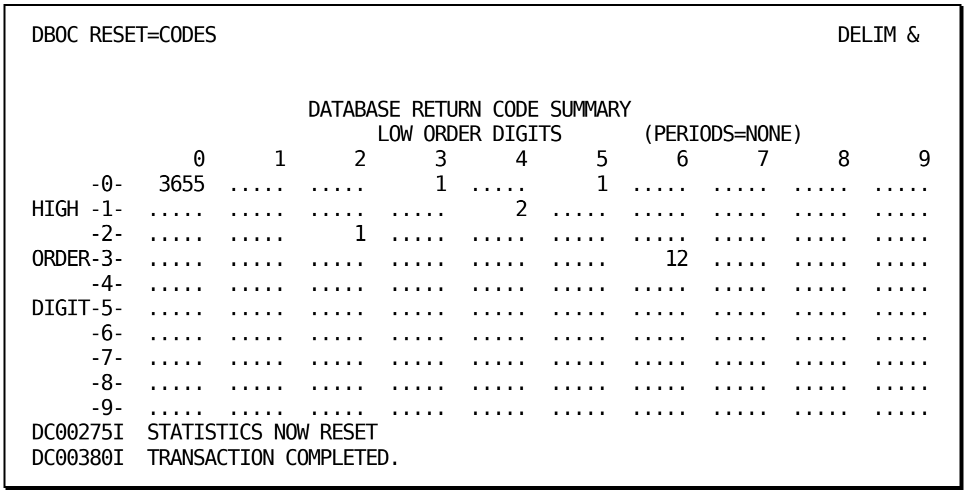
STATS

Specifies resetting the counters used to tally the system statistics described on INQ=STATS: Displaying System Statistics (see page 87) for details on displaying the statistics without resetting them.

USERS

Specifies resetting the counters used to tally statistics about the number of users serviced by CA Datacom/DB and waiting for service. For details about displaying the statistics accumulated with these counters, without resetting them, see INQ=USERS: Displaying Concurrent Users (see page 94). In a Multi-MUF environment, this resets the USER counters for all MUFs in the order of the DBCSID macros defined in the DBCVTPR.

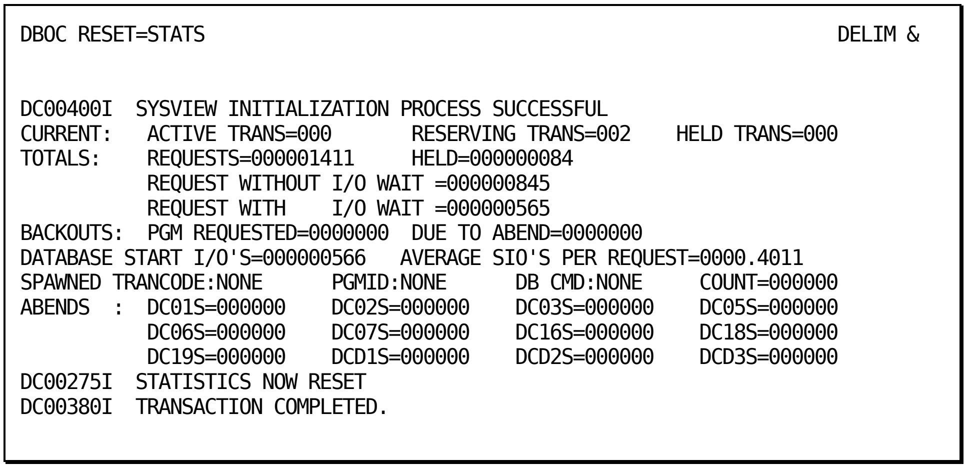
Display Example: DBOC RESET=CODES



```
DBOC RESET=CODES                                                     DELIM &


                        DATABASE RETURN CODE SUMMARY
                              LOW ORDER DIGITS       (PERIODS=NONE)
              0      1      2      3      4      5      6      7      8      9
     -0-   3655  .....  .....      1  .....      1  .....  .....  .....  .....
HIGH -1-  .....  .....  .....  .....      2  .....  .....  .....  .....  .....
     -2-  .....  .....      1  .....  .....  .....  .....  .....  .....  .....
ORDER-3-  .....  .....  .....  .....  .....  .....     12  .....  .....  .....
     -4-  .....  .....  .....  .....  .....  .....  .....  .....  .....  .....
DIGIT-5-  .....  .....  .....  .....  .....  .....  .....  .....  .....  .....
     -6-  .....  .....  .....  .....  .....  .....  .....  .....  .....  .....
     -7-  .....  .....  .....  .....  .....  .....  .....  .....  .....  .....
     -8-  .....  .....  .....  .....  .....  .....  .....  .....  .....  .....
     -9-  .....  .....  .....  .....  .....  .....  .....  .....  .....  .....
DC00275I  STATISTICS NOW RESET
DC00380I  TRANSACTION COMPLETED.
```

A description of the statistics displayed on the previous screen is in the Display Example: DBIC INQ=CODES (see page 77) explanation of the DBOC/DBIC INQ=CODES command.

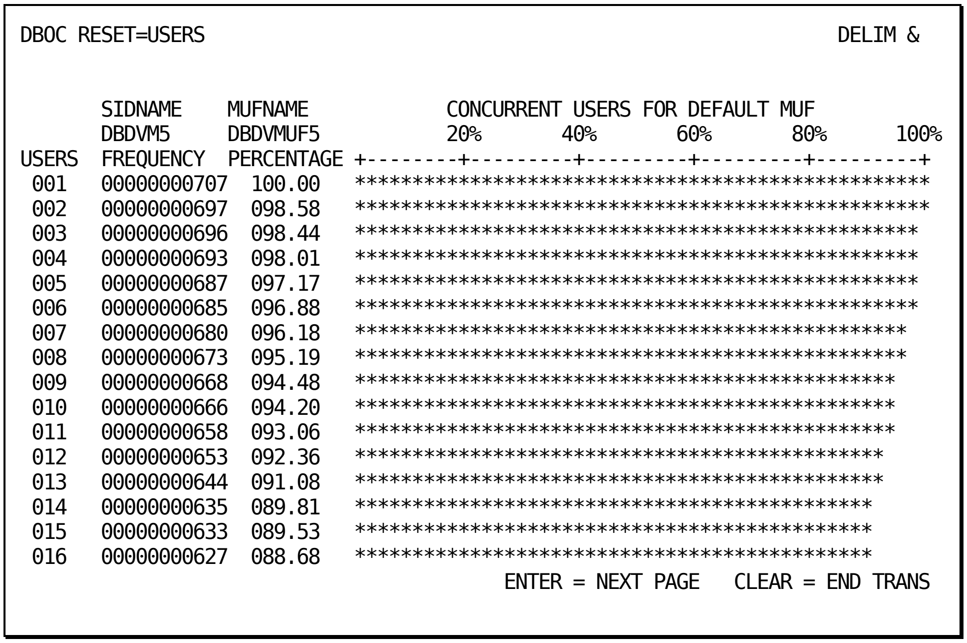
Display Example: DBOC RESET=STATS



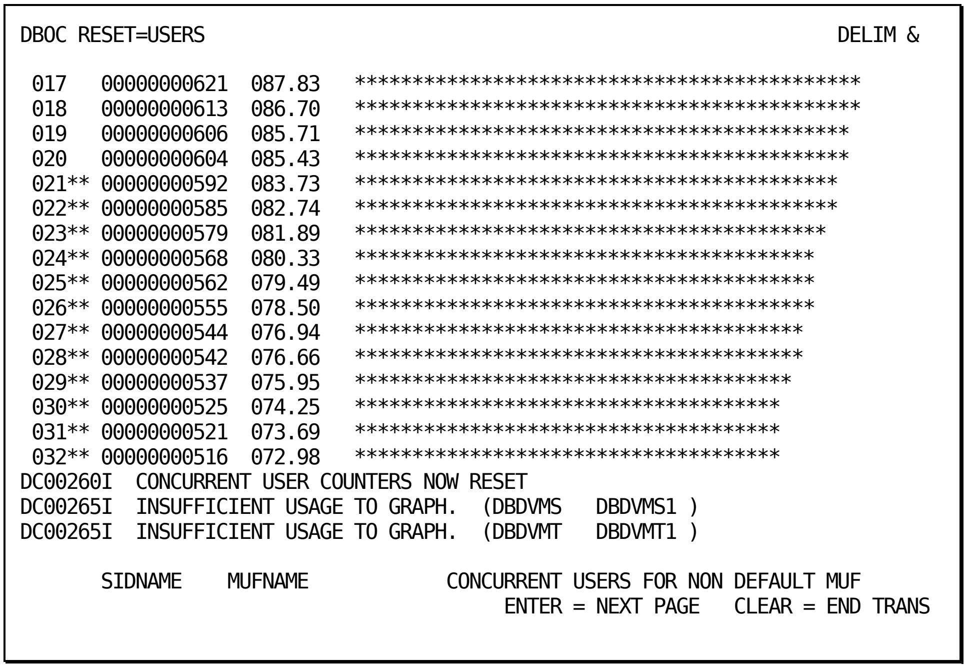
```
DBOC RESET=STATS                                                      DELIM &


DC00400I  SYSVIEW INITIALIZATION PROCESS SUCCESSFUL
CURRENT:   ACTIVE TRANS=000       RESERVING TRANS=002    HELD TRANS=000
TOTALS:    REQUESTS=000001411     HELD=000000084
           REQUEST WITHOUT I/O WAIT =000000845
           REQUEST WITH    I/O WAIT =000000565
BACKOUTS:  PGM REQUESTED=0000000  DUE TO ABEND=0000000
DATABASE START I/O'S=000000566   AVERAGE SIO'S PER REQUEST=0000.4011
SPAWNED TRANCODE:NONE      PGMID:NONE      DB CMD:NONE      COUNT=000000
ABENDS  :  DC01S=000000    DC02S=000000    DC03S=000000    DC05S=000000
           DC06S=000000    DC07S=000000    DC16S=000000    DC18S=000000
           DC19S=000000    DCD1S=000000    DCD2S=000000    DCD3S=000000
DC00275I  STATISTICS NOW RESET
DC00380I  TRANSACTION COMPLETED.
```

Field Descriptions for the statistics displayed on the previous screen are in the DBOC/DBIC INQ=STATS command.

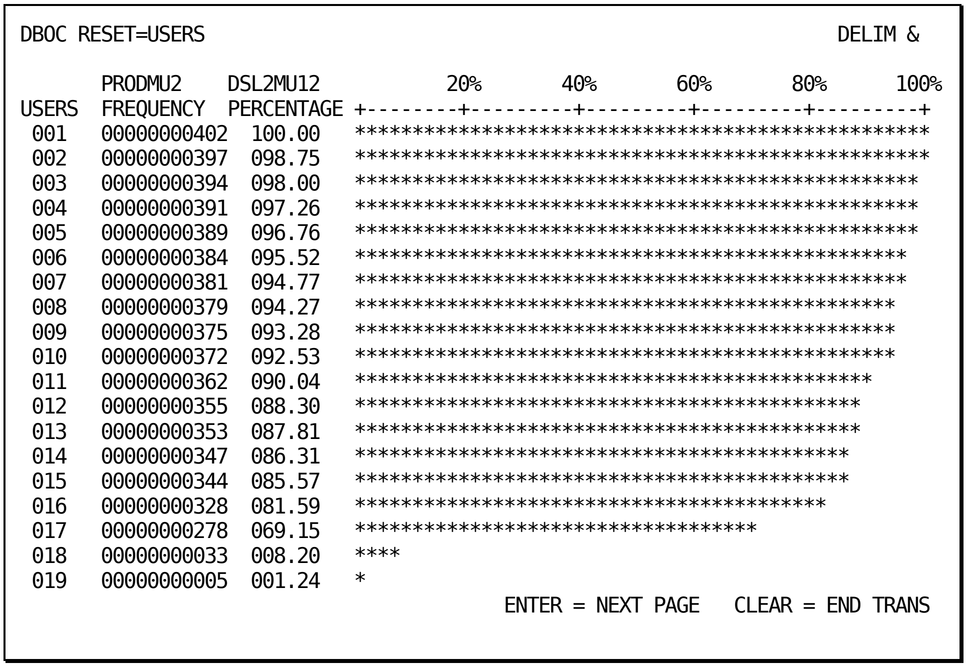
Display Example: DBOC RESET=USERS



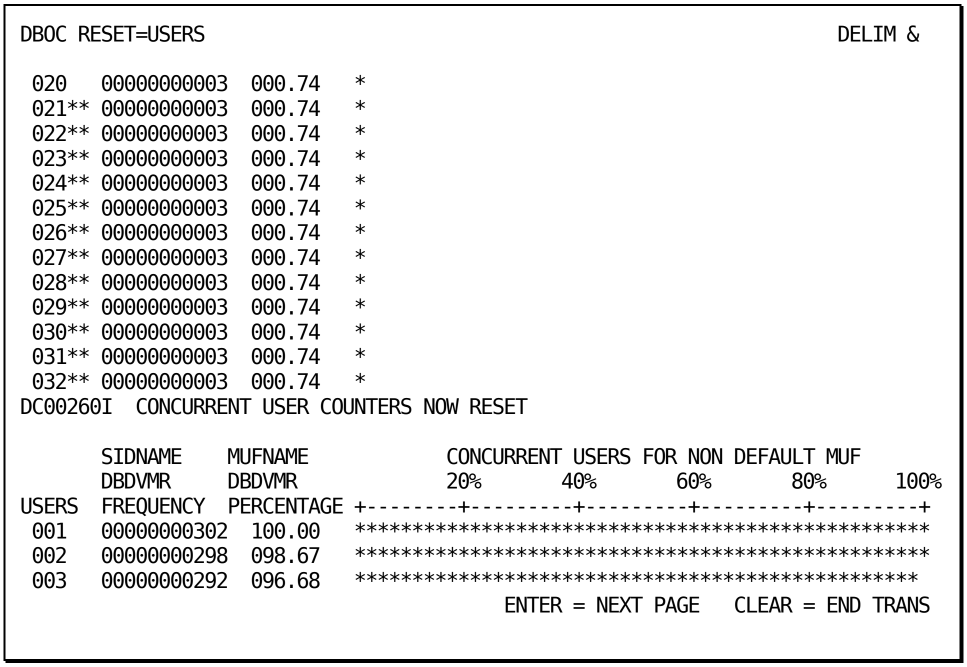
```
DBOC RESET=USERS                                                       DELIM &


       SIDNAME    MUFNAME            CONCURRENT USERS FOR DEFAULT MUF
       DBDVM5     DBDVMUF5           20%       40%       60%       80%      100%
USERS  FREQUENCY  PERCENTAGE +--------+---------+---------+---------+---------+
 001   00000000707  100.00   **************************************************
 002   00000000697  098.58   **************************************************
 003   00000000696  098.44   *************************************************
 004   00000000693  098.01   *************************************************
 005   00000000687  097.17   *************************************************
 006   00000000685  096.88   *************************************************
 007   00000000680  096.18   ************************************************
 008   00000000673  095.19   ************************************************
 009   00000000668  094.48   ***********************************************
 010   00000000666  094.20   ***********************************************
 011   00000000658  093.06   ***********************************************
 012   00000000653  092.36   **********************************************
 013   00000000644  091.08   **********************************************
 014   00000000635  089.81   *********************************************
 015   00000000633  089.53   *********************************************
 016   00000000627  088.68   *********************************************
                                          ENTER = NEXT PAGE   CLEAR = END TRANS
```



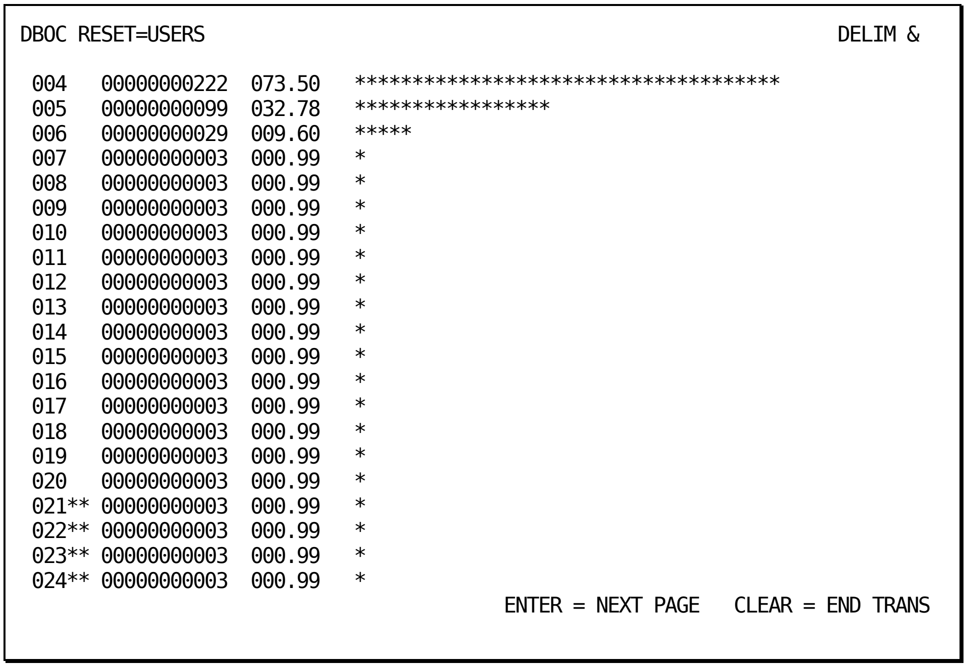
```
DBOC RESET=USERS                                                       DELIM &

 017   00000000621  087.83   ********************************************
 018   00000000613  086.70   ********************************************
 019   00000000606  085.71   *******************************************
 020   00000000604  085.43   *******************************************
 021** 00000000592  083.73   ******************************************
 022** 00000000585  082.74   ******************************************
 023** 00000000579  081.89   *****************************************
 024** 00000000568  080.33   ****************************************
 025** 00000000562  079.49   ****************************************
 026** 00000000555  078.50   ****************************************
 027** 00000000544  076.94   ***************************************
 028** 00000000542  076.66   ***************************************
 029** 00000000537  075.95   **************************************
 030** 00000000525  074.25   *************************************
 031** 00000000521  073.69   *************************************
 032** 00000000516  072.98   *************************************
DC00260I  CONCURRENT USER COUNTERS NOW RESET
DC00265I  INSUFFICIENT USAGE TO GRAPH.  (DBDVMS   DBDVMS1 )
DC00265I  INSUFFICIENT USAGE TO GRAPH.  (DBDVMT   DBDVMT1 )

       SIDNAME    MUFNAME            CONCURRENT USERS FOR NON DEFAULT MUF
                                          ENTER = NEXT PAGE   CLEAR = END TRANS
```



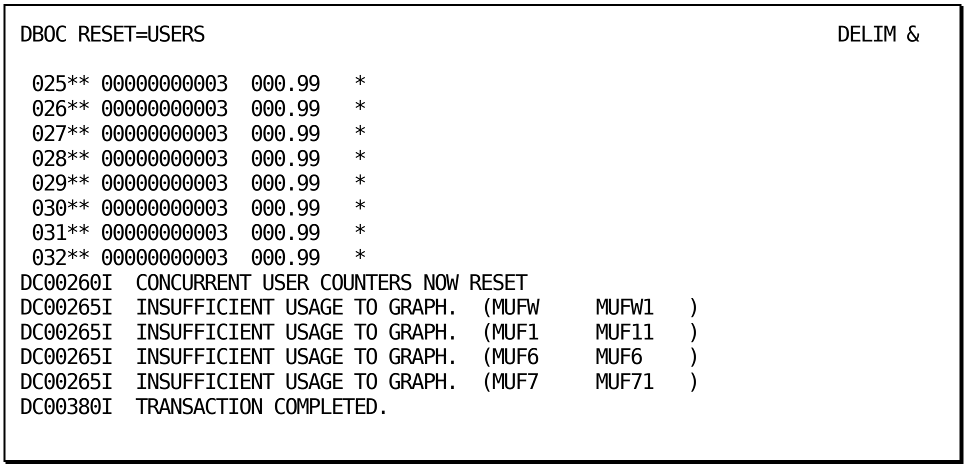
```
DBOC RESET=USERS                                                       DELIM &

       PRODMU2    DSL2MU12           20%       40%       60%       80%      100%
USERS  FREQUENCY  PERCENTAGE +--------+---------+---------+---------+---------+
 001   00000000402  100.00   **************************************************
 002   00000000397  098.75   **************************************************
 003   00000000394  098.00   *************************************************
 004   00000000391  097.26   *************************************************
 005   00000000389  096.76   *************************************************
 006   00000000384  095.52   ************************************************
 007   00000000381  094.77   ************************************************
 008   00000000379  094.27   ***********************************************
 009   00000000375  093.28   ***********************************************
 010   00000000372  092.53   ***********************************************
 011   00000000362  090.04   *********************************************
 012   00000000355  088.30   ********************************************
 013   00000000353  087.81   ********************************************
 014   00000000347  086.31   *******************************************
 015   00000000344  085.57   *******************************************
 016   00000000328  081.59   *****************************************
 017   00000000278  069.15   ***********************************
 018   00000000033  008.20   ****
 019   00000000005  001.24   *
                                          ENTER = NEXT PAGE   CLEAR = END TRANS
```



```
DBOC RESET=USERS                                                       DELIM &

 020   00000000003  000.74   *
 021** 00000000003  000.74   *
 022** 00000000003  000.74   *
 023** 00000000003  000.74   *
 024** 00000000003  000.74   *
 025** 00000000003  000.74   *
 026** 00000000003  000.74   *
 027** 00000000003  000.74   *
 028** 00000000003  000.74   *
 029** 00000000003  000.74   *
 030** 00000000003  000.74   *
 031** 00000000003  000.74   *
 032** 00000000003  000.74   *
DC00260I  CONCURRENT USER COUNTERS NOW RESET

       SIDNAME    MUFNAME            CONCURRENT USERS FOR NON DEFAULT MUF
       DBDVMR     DBDVMR             20%       40%       60%       80%      100%
USERS  FREQUENCY  PERCENTAGE +--------+---------+---------+---------+---------+
 001   00000000302  100.00   **************************************************
 002   00000000298  098.67   **************************************************
 003   00000000292  096.68   *************************************************
                                          ENTER = NEXT PAGE   CLEAR = END TRANS
```



```
DBOC RESET=USERS                                                      DELIM &

 004   00000000222  073.50   *************************************
 005   00000000099  032.78   *****************
 006   00000000029  009.60   *****
 007   00000000003  000.99   *
 008   00000000003  000.99   *
 009   00000000003  000.99   *
 010   00000000003  000.99   *
 011   00000000003  000.99   *
 012   00000000003  000.99   *
 013   00000000003  000.99   *
 014   00000000003  000.99   *
 015   00000000003  000.99   *
 016   00000000003  000.99   *
 017   00000000003  000.99   *
 018   00000000003  000.99   *
 019   00000000003  000.99   *
 020   00000000003  000.99   *
 021** 00000000003  000.99   *
 022** 00000000003  000.99   *
 023** 00000000003  000.99   *
 024** 00000000003  000.99   *
                                          ENTER = NEXT PAGE   CLEAR = END TRANS
```



```
DBOC RESET=USERS                                                      DELIM &

 025** 00000000003  000.99   *
 026** 00000000003  000.99   *
 027** 00000000003  000.99   *
 028** 00000000003  000.99   *
 029** 00000000003  000.99   *
 030** 00000000003  000.99   *
 031** 00000000003  000.99   *
 032** 00000000003  000.99   *
DC00260I  CONCURRENT USER COUNTERS NOW RESET
DC00265I  INSUFFICIENT USAGE TO GRAPH.  (MUFW     MUFW1   )
DC00265I  INSUFFICIENT USAGE TO GRAPH.  (MUF1     MUF11   )
DC00265I  INSUFFICIENT USAGE TO GRAPH.  (MUF6     MUF6    )
DC00265I  INSUFFICIENT USAGE TO GRAPH.  (MUF7     MUF71   )
DC00380I  TRANSACTION COMPLETED.
```

A description of the statistics and chart displayed on the previous screen is located in the explanation of the DBOC/DBIC INQ=USERS command. For more information, see Display Example: DBIC INQ=USERS (see page 95).

RESTART= Returning URTs to Initial Status

The RESTART= command changes the STATUS of any "closed" URT to "unopened," if the TYPE is AUTO. If the TYPE is PLT, RESTART= opens the URT, and the STATUS is changed to "opened". If TYPE is DEFER, RESTART= causes no changes to STATUS.

If a URT has been closed with a DBOC/DBEC CLOSE= command, it can be opened only by issuing a DBOC/DBEC OPEN= command. If a URT listed on the AUTO= parameter in the DBCVTPR macro has been closed, you can return it to its initial status by issuing a DBOC RESTART= command. For more information, see the Display Example: DBOC CLOSE=?? (see page 139).

Use the following command to return a URT to its initial status.

```
►►─ DBOC ─ RESTART=urt ──────────────────────────────────────────────────►◄
```

DBOC

(Required) Specify the transaction ID used with Operational commands to control system resources. Leave a space between the transaction ID and the command.

RESTART=

(Required) Does the following, depending on TYPE:

- If TYPE is AUTO, restores the specified closed URTs to their unopened status.
- If TYPE is PLT, opens closed URTs.
- If TYPE is DEFER, has no impact.

Any closed URTs not specified for deferred or automatic open are opened. Any closed URT having the automatic open option is opened the first time a CA Datacom/DB request is made to it. The RESTART command does not close any URTs which are open when it is issued.

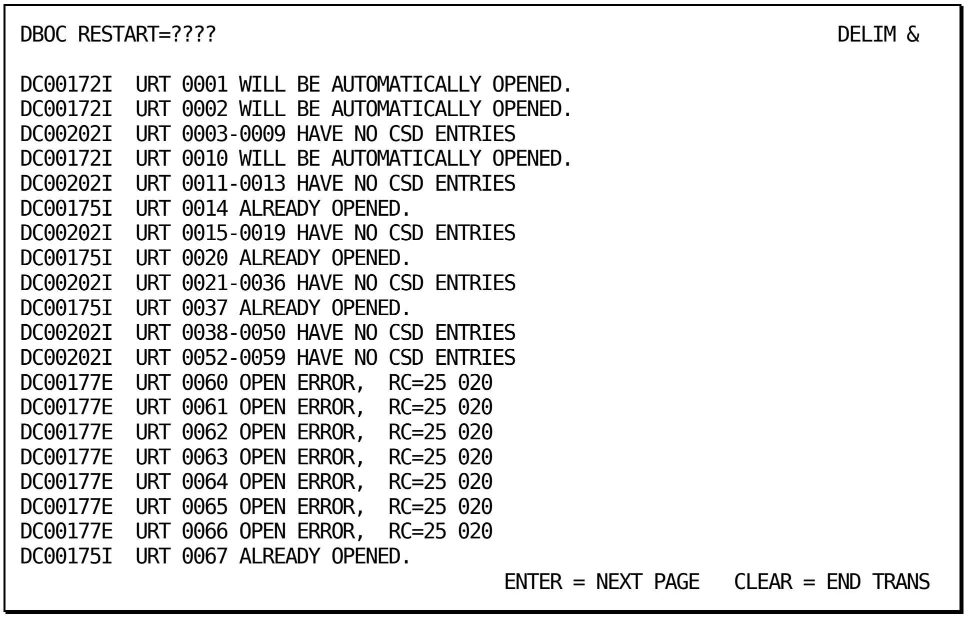
urt

(Required) Specify one or more URTs by the four-digit suffix, with or without leading zeros, where the range of valid values is 0001 to the active MAXURTS= value. Use the wildcard symbol (?) to accept any valid value between 0 and 9 for any (or all) of the digits. To specify a series, separate the identifiers with commas.

Example	Description
1	URT 0001
?,20	URTs 0001 through 0009, and 0020
?,1?,2?,30	URTs 0001 through 0030
??	URTs 0001 through 0099
1??,20?,21?	URTs 100 through 219

Example	Description
????	All valid URTs

Display Example: DBOC RESTART=????



```
DBOC RESTART=????                                                       DELIM &

DC00172I  URT 0001 WILL BE AUTOMATICALLY OPENED.
DC00172I  URT 0002 WILL BE AUTOMATICALLY OPENED.
DC00202I  URT 0003-0009 HAVE NO CSD ENTRIES
DC00172I  URT 0010 WILL BE AUTOMATICALLY OPENED.
DC00202I  URT 0011-0013 HAVE NO CSD ENTRIES
DC00175I  URT 0014 ALREADY OPENED.
DC00202I  URT 0015-0019 HAVE NO CSD ENTRIES
DC00175I  URT 0020 ALREADY OPENED.
DC00202I  URT 0021-0036 HAVE NO CSD ENTRIES
DC00175I  URT 0037 ALREADY OPENED.
DC00202I  URT 0038-0050 HAVE NO CSD ENTRIES
DC00202I  URT 0052-0059 HAVE NO CSD ENTRIES
DC00177E  URT 0060 OPEN ERROR,  RC=25 020
DC00177E  URT 0061 OPEN ERROR,  RC=25 020
DC00177E  URT 0062 OPEN ERROR,  RC=25 020
DC00177E  URT 0063 OPEN ERROR,  RC=25 020
DC00177E  URT 0064 OPEN ERROR,  RC=25 020
DC00177E  URT 0065 OPEN ERROR,  RC=25 020
DC00177E  URT 0066 OPEN ERROR,  RC=25 020
DC00175I  URT 0067 ALREADY OPENED.
                                          ENTER = NEXT PAGE   CLEAR = END TRANS
```

STARTUP/SHUTDOWN: Initiating/Terminating Services

CA Datacom CICS Services can be initiated and terminated either automatically or manually. For complete details about both methods of initiation and termination, see the *System Reference Guide*.

Initiating CA Datacom CICS Services

To initiate CA Datacom CICS Services manually, issue the DBOC STARTUP command or the DBEC P,STARTUP command. This function does initialization and resource allocation, establishes the MUF connections as required, and opens User Requirements Tables properly. For more information, see the URT Connections Table (see page 423). Alternatively, CA Datacom CICS Services can be initialized automatically by putting the DCCOCPR program in the CICS PLT startup deck.

Important! If any other commands are issued before the system is properly initialized as previously described, the result produced is a partial STARTUP. The result does not yield complete MUF connections and URT opens that you might be expecting. Partial STARTUP, as available in the previous releases, is no longer supported. Issuing any DBOC operational transaction before the automatic or manual startup causes a partial startup and therefore causes an undesirable state.

If you inadvertently issue a command causing a partial STARTUP, we recommend that you issue a DBOC SHUTDOWN followed by a DBOC STARTUP to perform a full initialization of CA Datacom CICS Services.

```
►►─ DBOC ─ STARTUP ──────────────────────────────────────────────────────►◄
```

DBOC

(Required) Specify the transaction ID used with Operational commands to control system resources. Leave a space between the transaction ID and the command.

STARTUP

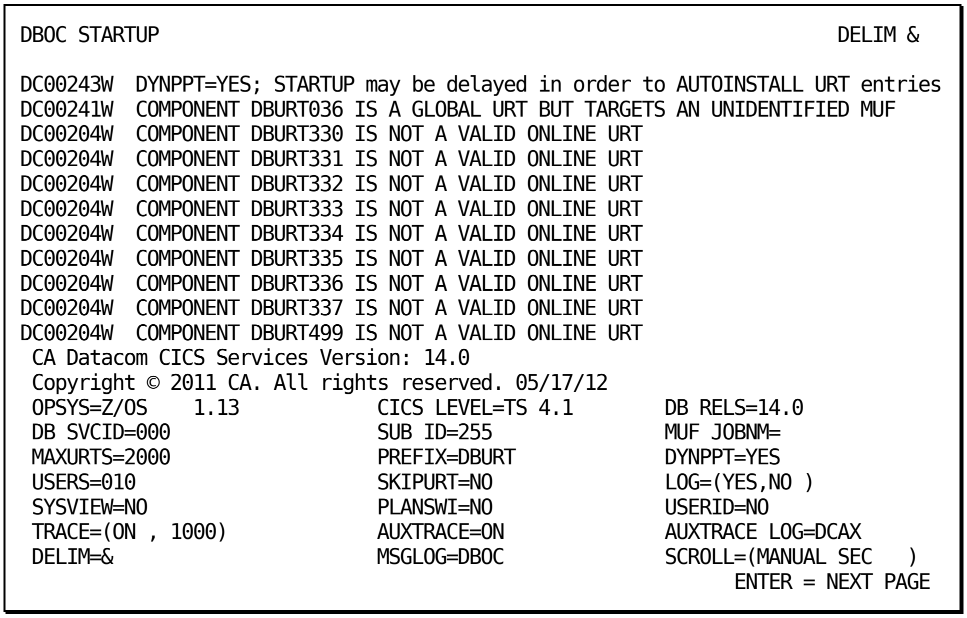
(Required) Specifies initiation of CA Datacom CICS Services.

If CA Datacom CICS Services has already been started during PLT processing, issuing DBOC STARTUP has no effect. If CA Datacom CICS Services is not active due to the processing of a DBOC SHUTDOWN command, only the master operators can reinitiate CA Datacom CICS Services by issuing a DBOC STARTUP command.

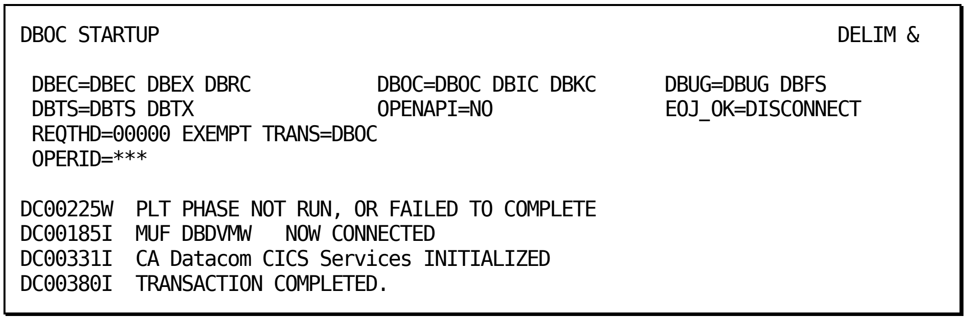
One or more master operators can be defined through the MSTOPR= parameter in the DBCVTPR macro. If undefined, all users are eligible to invoke master operator-type functions. Specifications for master operator can be altered for the current CICS session through the screen displayed when you issue the DBOC GENOPTS command.

Note: For more information about initiating CA Datacom CICS Services and the DBOC GENOPTS command, see the *System Reference Guide*.

Display Example: DBOC STARTUP



```
DBOC STARTUP                                                         DELIM &

DC00243W  DYNPPT=YES; STARTUP may be delayed in order to AUTOINSTALL URT entries
DC00241W  COMPONENT DBURT036 IS A GLOBAL URT BUT TARGETS AN UNIDENTIFIED MUF
DC00204W  COMPONENT DBURT330 IS NOT A VALID ONLINE URT
DC00204W  COMPONENT DBURT331 IS NOT A VALID ONLINE URT
DC00204W  COMPONENT DBURT332 IS NOT A VALID ONLINE URT
DC00204W  COMPONENT DBURT333 IS NOT A VALID ONLINE URT
DC00204W  COMPONENT DBURT334 IS NOT A VALID ONLINE URT
DC00204W  COMPONENT DBURT335 IS NOT A VALID ONLINE URT
DC00204W  COMPONENT DBURT336 IS NOT A VALID ONLINE URT
DC00204W  COMPONENT DBURT337 IS NOT A VALID ONLINE URT
DC00204W  COMPONENT DBURT499 IS NOT A VALID ONLINE URT
 CA Datacom CICS Services Version: 14.0
 Copyright © 2011 CA. All rights reserved. 05/17/12
 OPSYS=Z/OS    1.13          CICS LEVEL=TS 4.1        DB RELS=14.0
 DB SVCID=000                SUB ID=255               MUF JOBNM=
 MAXURTS=2000                PREFIX=DBURT             DYNPPT=YES
 USERS=010                   SKIPURT=NO               LOG=(YES,NO )
 SYSVIEW=NO                  PLANSWI=NO               USERID=NO
 TRACE=(ON , 1000)           AUXTRACE=ON              AUXTRACE LOG=DCAX
 DELIM=&                     MSGLOG=DBOC              SCROLL=(MANUAL SEC    )
                                                            ENTER = NEXT PAGE
```



```
DBOC STARTUP                                                         DELIM &

 DBEC=DBEC DBEX DBRC         DBOC=DBOC DBIC DBKC      DBUG=DBUG DBFS
 DBTS=DBTS DBTX              OPENAPI=NO               EOJ_OK=DISCONNECT
 REQTHD=00000 EXEMPT TRANS=DBOC
 OPERID=***

DC00225W  PLT PHASE NOT RUN, OR FAILED TO COMPLETE
DC00185I  MUF DBDVMW   NOW CONNECTED
DC00331I  CA Datacom CICS Services INITIALIZED
DC00380I  TRANSACTION COMPLETED.
```

Terminating CA Datacom CICS Services

To manually terminate CA Datacom CICS Services, issue the following transaction:

```
▶▶─ DBOC ─ SHUTDOWN ──────────────────────────────────────────────────────▶◀
```

DBOC

(Required) Specify the transaction ID used with Operational commands to control system resources. Leave a space between the transaction ID and the command.

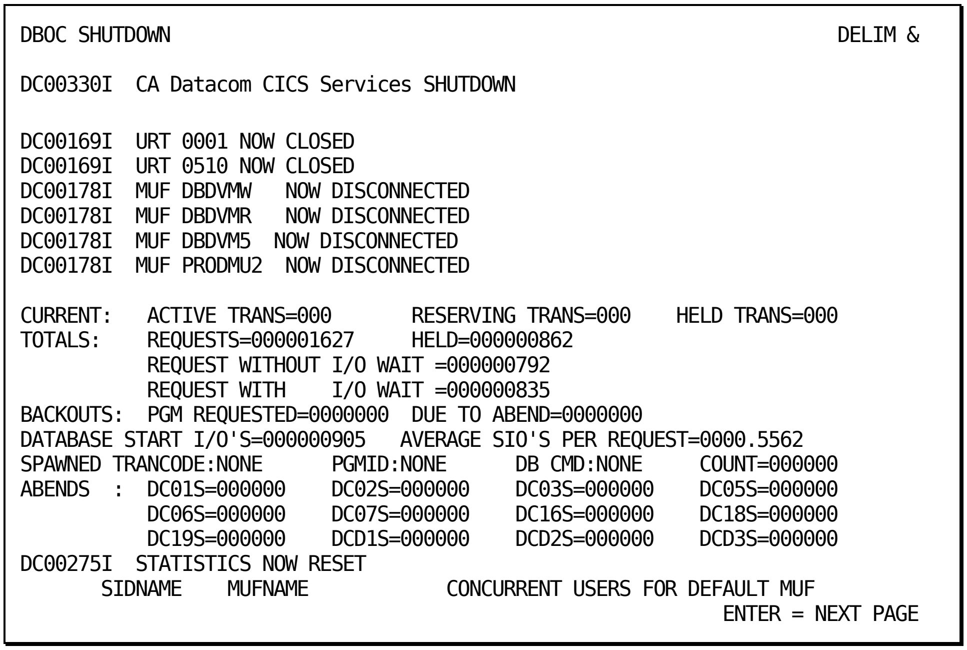
SHUTDOWN

Specifies termination of CA Datacom CICS Services. Once you have issued the DBOC SHUTDOWN command, only inquiry (DBIC) commands are allowed. Only the master operators can reinitiate CA Datacom CICS Services once a DBOC SHUTDOWN has been issued.

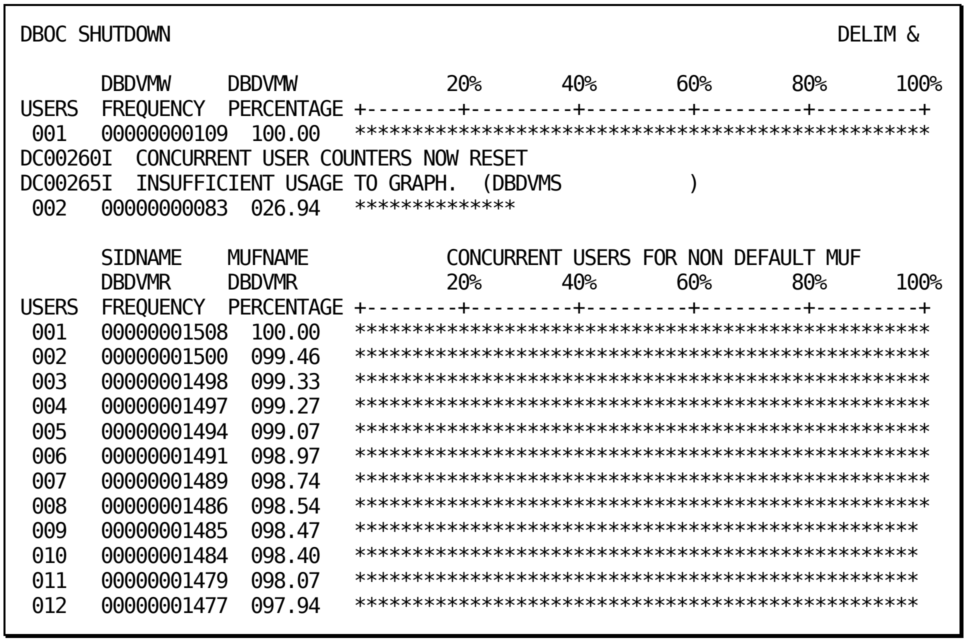
Note: One or more master operators can be defined through the MSTOPR= parameter in the DBCVTPR macro. If undefined, all users are eligible to invoke master operator-type functions. Specifications for master operator can be altered for the current CICS session through the screen displayed when you issue the DBOC GENOPTS command.

Note: For more information about DBOC SHUTDOWN and DBOC GENOPTS, see the *System Reference Guide*.

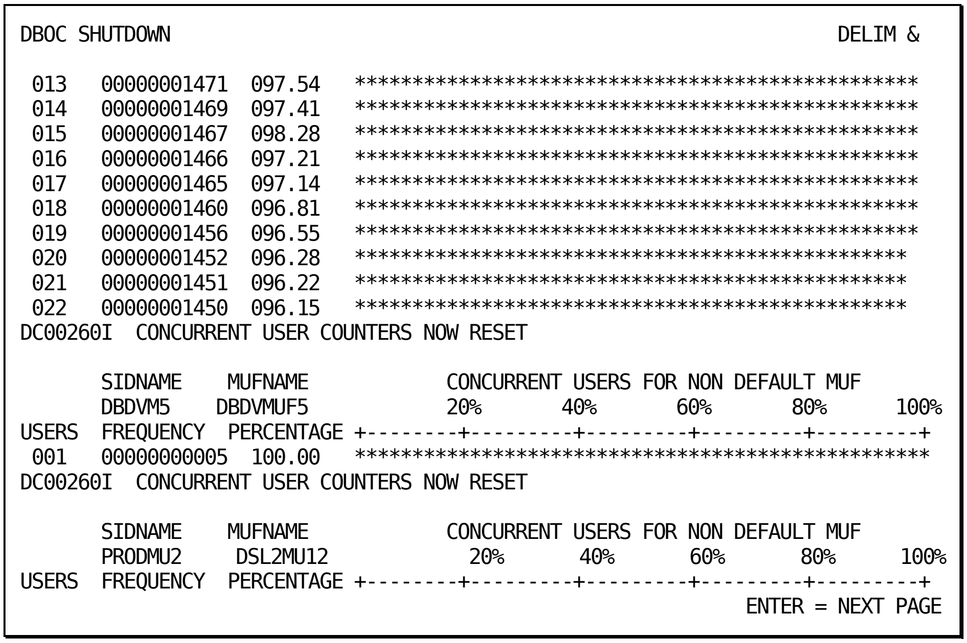
Display Example: DBOC SHUTDOWN



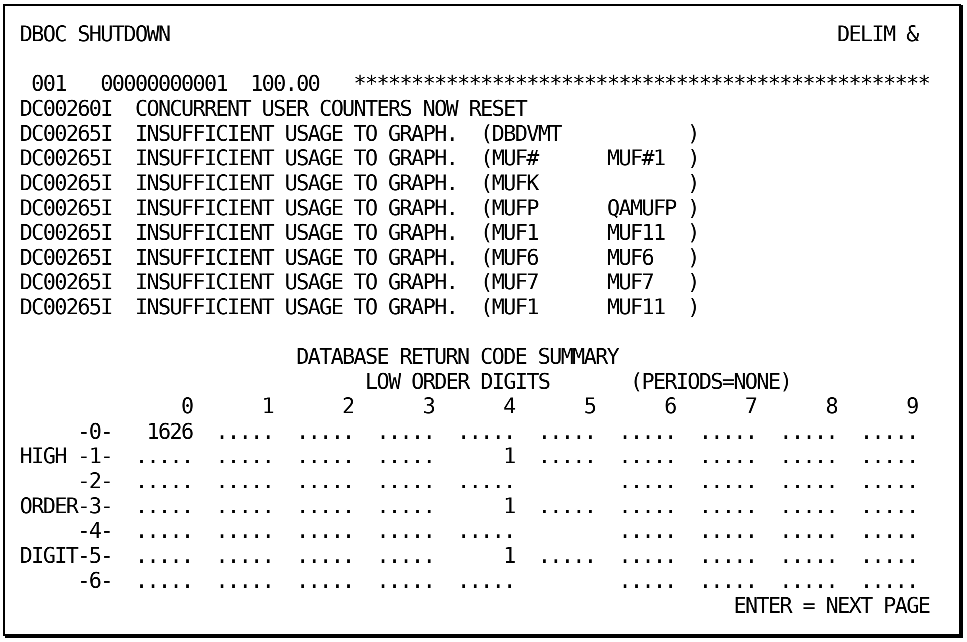
```
DBOC SHUTDOWN                                                          DELIM &

DC00330I  CA Datacom CICS Services SHUTDOWN

DC00169I  URT 0001 NOW CLOSED
DC00169I  URT 0510 NOW CLOSED
DC00178I  MUF DBDVMW   NOW DISCONNECTED
DC00178I  MUF DBDVMR   NOW DISCONNECTED
DC00178I  MUF DBDVM5  NOW DISCONNECTED
DC00178I  MUF PRODMU2  NOW DISCONNECTED

CURRENT:   ACTIVE TRANS=000       RESERVING TRANS=000    HELD TRANS=000
TOTALS:    REQUESTS=000001627     HELD=000000862
           REQUEST WITHOUT I/O WAIT =000000792
           REQUEST WITH    I/O WAIT =000000835
BACKOUTS:  PGM REQUESTED=0000000  DUE TO ABEND=0000000
DATABASE START I/O'S=000000905   AVERAGE SIO'S PER REQUEST=0000.5562
SPAWNED TRANCODE:NONE      PGMID:NONE      DB CMD:NONE     COUNT=000000
ABENDS  :  DC01S=000000    DC02S=000000    DC03S=000000    DC05S=000000
           DC06S=000000    DC07S=000000    DC16S=000000    DC18S=000000
           DC19S=000000    DCD1S=000000    DCD2S=000000    DCD3S=000000
DC00275I  STATISTICS NOW RESET
       SIDNAME    MUFNAME            CONCURRENT USERS FOR DEFAULT MUF
                                                             ENTER = NEXT PAGE
```



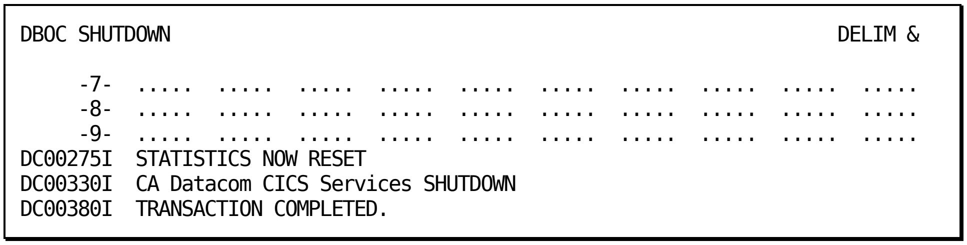
```
DBOC SHUTDOWN                                                          DELIM &

       DBDVMW     DBDVMW            20%       40%       60%       80%      100%
USERS  FREQUENCY  PERCENTAGE +--------+---------+---------+---------+---------+
 001   00000000109  100.00   **************************************************
DC00260I  CONCURRENT USER COUNTERS NOW RESET
DC00265I  INSUFFICIENT USAGE TO GRAPH.  (DBDVMS           )
 002   00000000083  026.94   **************

       SIDNAME    MUFNAME           CONCURRENT USERS FOR NON DEFAULT MUF
       DBDVMR     DBDVMR            20%       40%       60%       80%      100%
USERS  FREQUENCY  PERCENTAGE +--------+---------+---------+---------+---------+
 001   00000001508  100.00   **************************************************
 002   00000001500  099.46   **************************************************
 003   00000001498  099.33   **************************************************
 004   00000001497  099.27   **************************************************
 005   00000001494  099.07   **************************************************
 006   00000001491  098.97   **************************************************
 007   00000001489  098.74   **************************************************
 008   00000001486  098.54   **************************************************
 009   00000001485  098.47   *************************************************
 010   00000001484  098.40   *************************************************
 011   00000001479  098.07   *************************************************
 012   00000001477  097.94   *************************************************
```



```
DBOC SHUTDOWN                                                          DELIM &

 013   00000001471  097.54   *************************************************
 014   00000001469  097.41   *************************************************
 015   00000001467  098.28   *************************************************
 016   00000001466  097.21   *************************************************
 017   00000001465  097.14   *************************************************
 018   00000001460  096.81   *************************************************
 019   00000001456  096.55   *************************************************
 020   00000001452  096.28   ************************************************
 021   00000001451  096.22   ************************************************
 022   00000001450  096.15   ************************************************
DC00260I  CONCURRENT USER COUNTERS NOW RESET

       SIDNAME    MUFNAME           CONCURRENT USERS FOR NON DEFAULT MUF
       DBDVM5    DBDVMUF5           20%       40%       60%       80%      100%
USERS  FREQUENCY  PERCENTAGE +--------+---------+---------+---------+---------+
 001   00000000005  100.00   **************************************************
DC00260I  CONCURRENT USER COUNTERS NOW RESET

       SIDNAME    MUFNAME           CONCURRENT USERS FOR NON DEFAULT MUF
       PRODMU2     DSL2MU12           20%      40%       60%        80%     100%
USERS  FREQUENCY  PERCENTAGE +--------+---------+---------+---------+---------+
                                                               ENTER = NEXT PAGE
```



```
DBOC SHUTDOWN                                                         DELIM &

 001   00000000001  100.00   **************************************************
DC00260I  CONCURRENT USER COUNTERS NOW RESET
DC00265I  INSUFFICIENT USAGE TO GRAPH.  (DBDVMT          )
DC00265I  INSUFFICIENT USAGE TO GRAPH.  (MUF#      MUF#1  )
DC00265I  INSUFFICIENT USAGE TO GRAPH.  (MUFK             )
DC00265I  INSUFFICIENT USAGE TO GRAPH.  (MUFP      QAMUFP )
DC00265I  INSUFFICIENT USAGE TO GRAPH.  (MUF1      MUF11  )
DC00265I  INSUFFICIENT USAGE TO GRAPH.  (MUF6      MUF6   )
DC00265I  INSUFFICIENT USAGE TO GRAPH.  (MUF7      MUF7   )
DC00265I  INSUFFICIENT USAGE TO GRAPH.  (MUF1      MUF11  )

                        DATABASE RETURN CODE SUMMARY
                              LOW ORDER DIGITS       (PERIODS=NONE)
              0      1      2      3      4      5      6      7      8      9
     -0-   1626 ..... ..... ..... ..... ..... ..... ..... ..... .....
HIGH -1-  ..... ..... ..... .....      1 ..... ..... ..... ..... .....
     -2-  ..... ..... ..... ..... .....        ..... ..... ..... .....
ORDER-3-  ..... ..... ..... .....      1 ..... ..... ..... ..... .....
     -4-  ..... ..... ..... ..... .....        ..... ..... ..... .....
DIGIT-5-  ..... ..... ..... .....      1 ..... ..... ..... ..... .....
     -6-  ..... ..... ..... ..... .....        ..... ..... ..... .....
                                                             ENTER = NEXT PAGE
```



```
DBOC SHUTDOWN                                                         DELIM &

     -7-  ..... ..... ..... ..... ..... ..... ..... ..... ..... .....
     -8-  ..... ..... ..... ..... ..... ..... ..... ..... ..... .....
     -9-  ..... ..... ..... ..... ..... ..... ..... ..... ..... .....
DC00275I  STATISTICS NOW RESET
DC00330I  CA Datacom CICS Services SHUTDOWN
DC00380I  TRANSACTION COMPLETED.
```

The DBOC SHUTDOWN command generates the same displays of statistics as issuing the commands:

DBOC INQ=STATS, INQ=USERS, INQ=CODES

For a description of these displays, see INQ=STATS: Displaying System Statistics (see page 87), INQ=USERS: Displaying Concurrent Users (see page 94), and INQ=CODES: Displaying Request Totals by Return Code (see page 76).

DBOC SHUTDOWN frees all associated CA Datacom CICS Services storage and modules, including CA Datacom/DB modules.

TRACE= Using the Trace Facility

The CA Datacom/DB Trace Facility enables you to monitor all or selected events in your CICS CA Datacom environment. The same type of information you can view by issuing a DBOC/DBIC TASK transaction (see TASK: Displaying Active Tasks) is collected on the CA Datacom/DB Trace Table. The difference is that the former displays only the tasks active at the moment you request the report. The Trace Facility provides history data for the last 100 events. (The number of events for which data is maintained in the CA Datacom/DB Trace Table, can be modified in the TRACE= parameter of the DBCVTPR macro. For more information, see the *System Reference Guide*.)

The procedure for using the Trace Facility includes the following steps:

1. Display list of current trace criteria.

   Use either a DBIC or a DBOC transaction as described in TRACE: Displaying Trace Criteria List (see page 100).

2. Establish or revise the trace criteria as described in Adding/Deleting Trace Criteria (see page 172).

3. Establish the trace list relationships with Boolean qualifiers AND or OR as described in Establishing Trace Criteria Relationship (see page 175).

4. If the CA Datacom/DB Trace Facility is not automatically started at CA Datacom CICS Services startup, turn it on as described in Initiating/Terminating the Trace Facility (TRACEON/TRACEOFF) (see page 176).

5. Display the Trace Table.

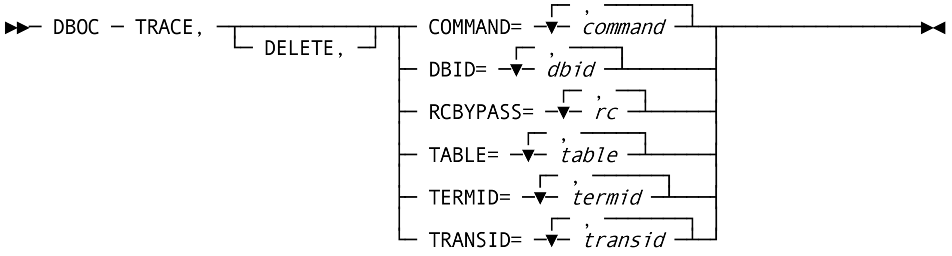
   Use either a DBIC or a DBOC transaction as described in INQ=TRACE: Displaying the Trace Table (see page 91).

6. Turn the Trace Facility off as described on Initiating/Terminating the Trace Facility (TRACEON/TRACEOFF) (see page 176).

Adding/Deleting Trace Criteria

You can display the current trace criteria using a DBOC/DBIC TRACE command. If you have not specified any trace criteria, the Trace Facility traces all CA Datacom/DB requests. For more information, see TRACE: Displaying Trace Criteria List (see page 100).

To modify the current trace criteria, issue one or more of the following transactions:



DBOC

(Required) Specify the transaction ID used with Operational commands to control system resources. Leave a space between the transaction ID and the command.

TRACE,

(Required) Specifies modification of the existing trace criteria. If specified without the DELETE parameter, specifies that the following trace criteria are to be added to the existing trace criteria.

DELETE,

(Optional) Specifies that the following trace criteria are to be deleted from the existing trace criteria.

COMMAND=*command1,command2 . . . ,commandn*

Adds or deletes one or more named CA Datacom/DB commands. The Trace Facility only views tasks issuing CA Datacom/DB commands included in the Trace Criteria list.

Note: OPEN and CLOSE commands are always traced when Trace Facility is active; adding or deleting these commands in the Trace Criteria list has no effect.

DBID=*dbid1,dbid2 . . . ,dbidn*

Adds or deletes one or more named database IDs. The Trace Facility only views tasks accessing CA Datacom/DB databases included in the Trace Criteria list.

RCBYPASS=*rc1,rc2 . . . ,rcn*

Adds or deletes one or more named CA Datacom/DB return codes. The Trace Facility only views tasks not returning CA Datacom/DB return codes included in the Trace Criteria list.

Note: To specify a return code of blanks, enter RCBYPASS=00. CA Datacom CICS Services translates 00 into blanks.

TABLE=*table1,table2 . . . ,tablebn*

Adds or deletes one or more named CA Datacom/DB tables. The Trace Facility only views tasks accessing CA Datacom/DB tables included in the Trace Criteria list.

TERMID=*termid1,termid2 . . . ,termidn*

Adds or deletes one or more named terminal IDs. The Trace Facility only views tasks initiated at terminals included in the Trace Criteria list.

TRANSID=*transid1,transid2 . . . ,transidn*

Adds or deletes one or more named transaction IDs. The Trace Facility only views tasks associated with transactions included in the Trace Criteria list.

Command Examples: Adding Trace Criteria

Command	Result
DBOC TRACE,COMMAND=REDKY,SELFR	Adds the CA Datacom/DB commands, REDKY and SELFR to the Trace Criteria list.
DBOC TRACE,DBID=1,180	Adds databases 1 and 180 to the Trace Criteria list.
DBOC TRACE,RCBYPASS=00	Since CA Datacom CICS Services translates 00 to blanks, the Trace Facility is not to trace successful requests.
DBOC TRACE,TABLE=PAY	Adds the CA Datacom/DB table, PAY, to the Trace Criteria list.
DBOC TRACE,TERMID=6617	Adds terminal 6617 to the Trace Criteria List.
DBOC TRACE,TRANSID=DQRY	Adds the DQRY transaction to the Trace Criteria List.

Display Example: DBOC TRACE,RCBYPASS=00

```
DBOC TRACE,RCBYPASS=00                                                     DELIM &

DB TRACE IS ON,  NUMBER OF ENTRIES IN TRACE TABLE      100
TRACE LIST RELATIONSHIP IS BOOLEAN QUALIFIER "OR "

     TRANS ID    LIST ==>

     TERMINAL ID LIST ==>

     COMMAND     LIST ==>  SELFR

     DB TABLE    LIST ==>  POH

     DB ID       LIST ==>  00001

     RC BYPASS   LIST ==>  00


DC00380I  TRANSACTION COMPLETED.
```

Command Examples: Deleting Trace Criteria

Command	Result
DBOC TRACE,DELETE,COMMAND=REDKY,SELFR	Deletes the CA Datacom/DB commands, REDKY and SELFR, from the Trace Criteria list.
DBOC TRACE,DELETE,DBID=1,180	Deletes databases 1 and 180 from the Trace Criteria list.
DBOC TRACE,DELETE,RCBYPASS=00	Since CA Datacom CICS Services translates 00 to blanks, the Trace Facility traces successful requests.
DBOC TRACE,DELETE,TABLE=PAY	Deletes the CA Datacom/DB table, PAY, from the Trace Criteria list.
DBOC TRACE,DELETE,TERMID=6617	Deletes terminal 6617 from the Trace Criteria List.
DBOC TRACE,DELETE,TRANSID=DQRY	Deletes the DQRY transaction from the Trace Criteria List.

Establishing Trace Criteria Relationship

You can specify that CA Datacom CICS Services produce a trace for each request which matches either one of the trace criteria or all of the trace criteria. You specify this by establishing a trace list relationship with the Boolean qualifier AND or OR.

Use the following transaction to establish a trace relationship:

```
►►─ DBOC ─ TRACE,SETR= ─┬─ OR ◄ ─┬───────────────────────────────────────────►◄
                        └─ AND ──┘
```

DBOC

(Required) Specify the transaction ID used with Operational commands to control system resources. Leave a space between the transaction ID and the command.

TRACE,

(Required) Specifies modification of the existing trace criteria.

SETR=

(Required) Indicates that the trace list relationship is set. AND specifies that CA Datacom CICS Services only produces a trace when a request meets all of the currently established trace criteria. OR specifies that CA Datacom CICS Services produces a trace if a request meets any one of the currently established trace criteria.

Valid Entries:

AND, OR

Default Value:

OR

Display Example: DBOC TRACE,SETR=AND

```
DBOC TRACE,SETR=AND                                                  DELIM &

DB TRACE IS ON,  NUMBER OF ENTRIES IN TRACE TABLE      100
TRACE LIST RELATIONSHIP IS BOOLEAN QUALIFIER "AND"

     TRANS ID    LIST ==>

     TERMINAL ID LIST ==>

     COMMAND     LIST ==>  SELFR

     DB TABLE    LIST ==>  POH

     DB ID       LIST ==>  00001

     RC BYPASS   LIST ==>  00


DC00380I  TRANSACTION COMPLETED.
```

Initiating/Terminating the Trace Facility (TRACEON/TRACEOFF)

You can use the DBCVTPR TRACE= parameter or the DBOC GENOPTS command to automatically activate the CA Datacom/DB Trace Facility when CA Datacom CICS Services is initiated. See the *System Reference Guide*.

You can also initiate and terminate the Trace Facility manually by invoking the following DBOC transactions:

```
►►─ DBOC ─┬─ TRACEON ─┬──────────────────────────────────────────────────────►◄
          └─ TRACEOFF ─┘
```

DBOC

(Required) Specify the transaction ID used with Operational commands to control system resources. Leave a space between the transaction ID and the command.

TRACEON

Initiates the Trace Facility.

TRACEOFF

Terminates the Trace Facility.

Conserve system resources by terminating the Trace Facility when you do not need to trace anything.

Replacing a Module or URT with a New Copy

To implement any changes you make to a module or URT, use the procedures described in this section to enable a new copy. A new copy of DBCVTPR cannot be enabled without shutting down CA Datacom CICS Services.

The CICS startup PLT contains an entry directing the system to load all modules and URTs needed for execution of CA Datacom CICS Services and mark them as being in use. A new copy of a module or URT cannot be used until the loaded version is deleted. A URT cannot be deleted until it is closed. A module cannot be deleted until all URTs are closed and all MUFs are disconnected. Because the process of enabling a new copy of a URT must be preceded by closing the URT and deleting the URT to be replaced, the process of enabling a new copy of a module must be preceded by closing all URTs, disconnecting all MUFs, and deleting the module to be replaced.

Use the steps described in the following chart to replace an existing module or URT with a new copy:

Module	URT
1. Disconnect all MUFs. DBEC P,DISCONNECT(??) Follow by pressing the CLEAR key.	Close the URT to be replaced. DBOC CLOSE=urt
2. Delete the module to be replaced. DBOC DELETE=modname	Delete the URT to be replaced. DBOC DELETE=urt
3. Produce a new copy of the deleted module. CEMT S PROG(modname) NEWCOPY	Produce a new copy of the URT. CEMT S PROG(DBURTurt) NEWCOPY or CEMT S PROG(DBURnurt) NEWCOPY
4. Load new copy of the module and restore initial status of all the MUFs. DBOC LOAD=modname DBEC P,CONNECT(??) If there are MUFs that you do not want connected because they were previously disconnected, you should instead do the following after the LOAD: DBEC I,MUF(??) and then use the C line command to selectively connect the MUFs that you want reconnected.	Load and open the new copy of the URT. (URT is implicitly loaded prior to opening.) DBOC OPEN=urt

Command Examples

The following replaces DCCTPPR with a new copy:

```
DBEC P,MUF(??),DISCONNECT followed by the CLEAR key

DBOC DELETE=DCCTPPR

CEMT S PROG(DCCTPPR) NEWCOPY

DBOC LOAD=DCCTPPR

DBEC P,MUF(??),CONNECT
```

If there are MUFs that you do not want connected because they were previously disconnected, you should instead do the following after the LOAD:

```
DBEC I,MUF(??)
```

Then use the C line command to selectively connect the MUFs that you want reconnected.

The following replaces URT 1 with a new copy.

```
DBOC CLOSE=1

DBOC DELETE=1

CEMT S PROG(DBURT001) NEWCOPY

DBOC OPEN=1
```

Chapter 8: DBEC Controlling Local Resources with Enhanced Commands

DBEC and DBEX commands provide you with a means of maintaining resources for MUFs, URT, or TBL and initiating/terminating services. For more information, see URT Connections Table (see page 423). Each DBEC or DBEX command provides pageable input displays. Each DBEC PERFORM command can be issued from the console.

Task	Perform Command	Action After Command
Connecting MUFs: Disconnecting MUFs:	Connecting and Disconnecting MUFs (see page 209)	Updating MUF-Level Processing Options (see page 181)
Resetting MUF Statistics	None	Resetting MUF Statistics (see page 58)
Opening URTs: Closing URTs:	Opening and Closing URTs (see page 285)	Updating URT-Level Processing Options (see page 191)
Naming URTs for automatic opening: Naming URTs for deferred opening: Resetting URTs to original status.	Changing/Restoring Open Options for URTs (see page 212)	Updating URT-Level Processing Options (see page 191)
Replacing a URT with an updated version:	Replacing a URT with a New Copy (see page 206)	Updating URT-Level Processing Options (see page 191)
Changing maximum I/O for set processing established by CBSIO= parameter: Changing job priority for requests processed through this URT: Changing the maximum amount of time a program using this URT is to wait for a record held under exclusive control by another request: Changing the transaction backout option from off to on or on to off:	None.	Overriding DBURSTR Parameter Values (see page 198)

Task	Perform Command	Action After Command
Changing whether exclusive control is dropped for this table when an RDUxx command is issued from the same Request Area: Changing whether this table is bypassed from the opening when the URT is opened: Changing specification for whether this table name is duplicated in either this URT or another URT: Changing specification of whether updates are permitted for this table when accessed through this URT	None	Updating Table-Level Processing Options (see page 200)
Initiating Services	Initiating/Terminating Services	Initiating CA Datacom CICS Services
Terminating Services	Initiating/Terminating Services	Terminating CA Datacom CICS Services

This section contains the following topics:

Updating MUF-Level Processing Options

Requests for information on MUF resources are issued with the **DBEC** or the **DBEX** transaction followed by the INQUIRE operand. The options enable you to invoke a display of all MUFs or a limited set of MUFs, or to invoke a display of statistics for all or a limited set of MUFs. The MSIDname object can be used instead of MUF for any of the MUF-level commands.

If you issue the command with the DBEX transaction ID, you cannot update any information on the resulting scrollable display. One of the allowable entries is an S in the Action field which toggles to the URT-level to display all the URTs for the row containing your selected MUF. The only other allowable entries are E to display the return code summary, T to display the active task summary, and U to display the task usage summary. If you issue the command with DBEC, you can alter certain fields on the panel. (Any alterations that area made take effect immediately and are valid only during the life of the CICS session.)

The following example is a DBCSID macro. A DBCSID macro is appended to the DBCVTPR macro. Each DBCSID macro defines a connection to a particular CA Datacom/DB MUF. The values for the bold-faced parameters in this example are displayed on the MUF-level inquiry.

To add or delete MUFs, or to change the connection type of the MUFs, or to change the SIDNAMEs, use the DBCSID macros that are appended to the DBCVTPR macro. Assemble and link DBCVTPR and NEWCOPY command to place it into the CICS region. This NEWCOPY request only takes effect if the CA Datacom CICS Services is shut down.

```
DBCSID SIDNAME=DBSIDPR,USERS=3,CONNECT=PLT,EOJ_OK=DISCONNECT
```

Invoke the following inquiry to display the status of CA Datacom/DB MUFs or to display the statistics for MUFs.

Note: The status of any MUF displayed in this manner is current as of the time of the last request processed by that MUF. For example, if the last request processed by a MUF was 90 seconds ago, a DBEC I,MUF (or DBEX I,MUF), or DBEC I,MSIDname (or DBEX I,MSIDname) request displays the status of that MUF as it was 90 seconds ago.

```
►►─┬─ DBEC ─┬─ INQuire,MUF(nn) ─┬─────────┬─┬──────────┬──────────────────►◄
   └─ DBEX ─┘                   └─ ,STATS ─┘ └─ ,limiter ─┘
```

(Required) Specify a transaction ID valid with Enhanced commands used to monitor MUFs. Select the transaction ID for which you are authorized. Leave a space between the transaction ID and the command.

INQuire,

(Required) Requests a scrollable display of MUFs (INQ and I are valid abbreviations).

MUF(*nn*)

(Required) Specifies the inquiry is to invoke the MUF-level display. The value within the parentheses identifies the number of the MUF relative to the order of the DBCSID macros that are appended to the DBCVTPR macro, if multiple MUFs are defined. If MSIDname(xxxxx) is specified with this qualification, then the MSIDname(xxxxxxxx) is ignored.

nn

Specifies that you want to display *only* the MUF with the specific two-digit number *nn*.

Alternately, instead of using the *nn* number to specify only a specific MUF, you can use the wildcard symbol ? (question mark) to accept *any* digit 0 through 9 for one (or both) of the two digits of the number.

MSIDname(*xxxxxxxx*)

(Required) Specifies the inquiry is to invoke the MUF-level display. The value within the parentheses identifies the name of the MUF specified in the DBCSID macros that are appended to the DBCVTPR macro, if multiple MUFs are defined. If MUF(nn) is specified with this qualification then this parameter is ignored and the displayed is based on the MUF(nn) qualification.

xxxxxxxx

Specifies that *only* the MUF with the specific SIDNAME in the DBCSID macro coded with the DBCVTPR is displayed.

You can also use the wildcard symbol * (an asterisk) to display all MUFs or characters that succeeded by the asterisk to display all MUFs beginning with a range of SIDNAMEs by beginning values as specified in the DBCSID macros appended to the DBCVTPR macro.

,STATS

(Optional) Specifies a MUF-level *statistic* display as opposed to a MUF-level display. From this display, a line command is available to reset the statistics for a selected MUF when the DBEC transaction ID is used.

,limiter

(Optional) Limits the inquiry to MUFs of designated status, or how defined for opening. A limiter can be specified with the STATS option to invoke the MUF-level statistics display that is further limited by this option. The following values are for designating limiters of each type:

Status

DISconnect

MUFs explicitly disconnected through a DBEC command. (DIS is a valid abbreviation.)

DISCONNECTING

MUFs with a disconnect in progress, where the status is set to disconnect at the completion of the current read or update and URT closes.

CONnect

MUFs that are currently connected. CON is a valid abbreviation.

CONNECTING

MUFs with a connect in progress, where URT opens are invoked at the completion of the current connect.

UNConnected

MUFs defined as AUTO or DEFER that are not connected by a program call or a DBEC transaction. UNC is a valid abbreviation.

When

AUTO

MUFs defined to be connected when they are required by a program.

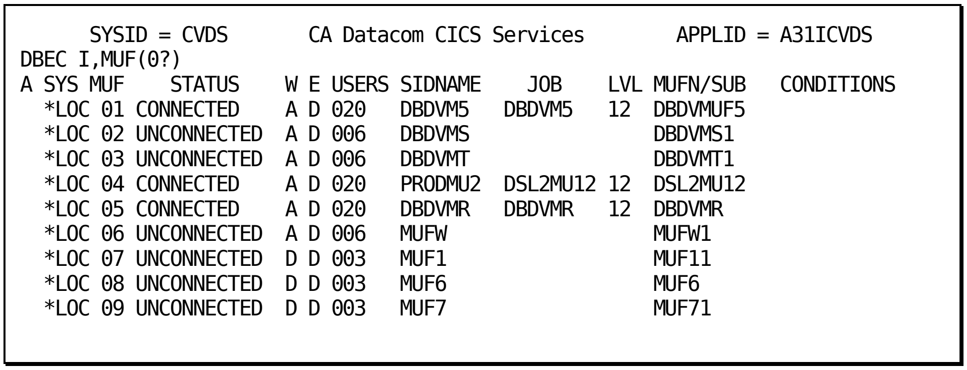
DEFer

MUFs defined to be connected only by an explicit DBEC command. (DEF is a valid abbreviation.)

PLT

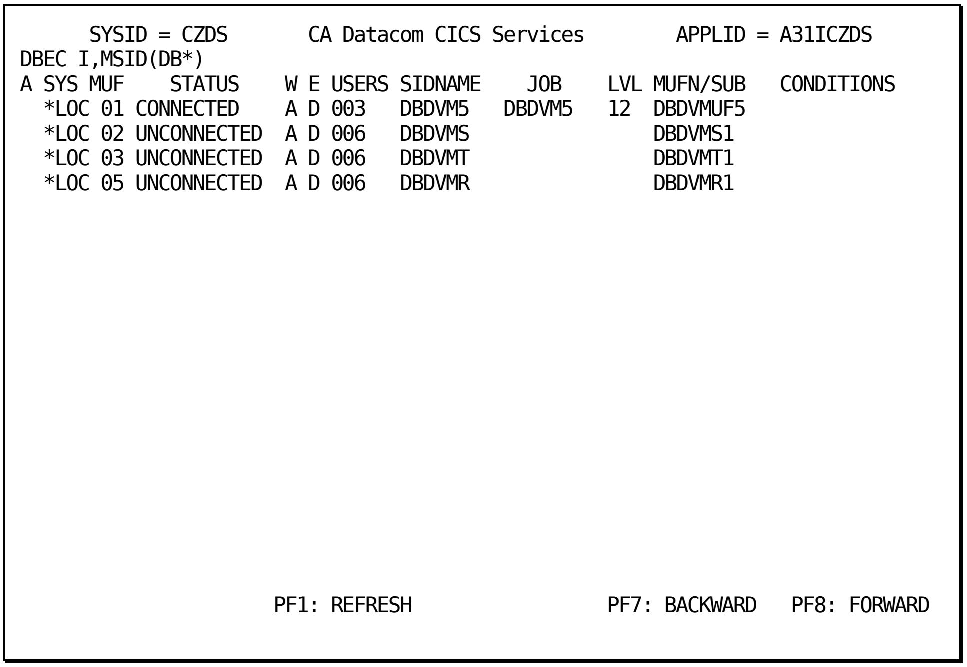
MUFs connected at CA Datacom CICS Services startup, such as MUFs not defined for AUTO or DEFER.

Display Example: DBEC I,MUF(0?)



```
      SYSID = CVDS       CA Datacom CICS Services        APPLID = A31ICVDS
DBEC I,MUF(0?)
A SYS MUF    STATUS    W E USERS SIDNAME    JOB    LVL MUFN/SUB   CONDITIONS
  *LOC 01 CONNECTED    A D 020   DBDVM5   DBDVM5   12  DBDVMUF5
  *LOC 02 UNCONNECTED  A D 006   DBDVMS                DBDVMS1
  *LOC 03 UNCONNECTED  A D 006   DBDVMT                DBDVMT1
  *LOC 04 CONNECTED    A D 020   PRODMU2  DSL2MU12 12  DSL2MU12
  *LOC 05 CONNECTED    A D 020   DBDVMR   DBDVMR   12  DBDVMR
  *LOC 06 UNCONNECTED  A D 006   MUFW                  MUFW1
  *LOC 07 UNCONNECTED  D D 003   MUF1                  MUF11
  *LOC 08 UNCONNECTED  D D 003   MUF6                  MUF6
  *LOC 09 UNCONNECTED  D D 003   MUF7                  MUF71
```

Alternate Display Example: DBEC I,MSIDNAME(DB*)



```
      SYSID = CZDS       CA Datacom CICS Services        APPLID = A31ICZDS
DBEC I,MSID(DB*)
A SYS MUF    STATUS    W E USERS SIDNAME    JOB    LVL MUFN/SUB   CONDITIONS
  *LOC 01 CONNECTED    A D 003   DBDVM5   DBDVM5   12  DBDVMUF5
  *LOC 02 UNCONNECTED  A D 006   DBDVMS                DBDVMS1
  *LOC 03 UNCONNECTED  A D 006   DBDVMT                DBDVMT1
  *LOC 05 UNCONNECTED  A D 006   DBDVMR                DBDVMR1









                      PF1: REFRESH                 PF7: BACKWARD   PF8: FORWARD
```

Field Descriptions

All fields marked with a Y in the Chg column are updatable when the panel is invoked through a DBEC transaction. When DBEX is used, the only valid entries are an E, S, T, and U in Column A.

Column	Chg	Description
A	Y	Action to perform when DBEC transaction used: **C** Perform CONNECT on MUF. (Same as DBEC P,CONNECT,MUF(*nn*) or DBEC P,CONNECT,MSIDname(xxxxxxxx).) **D** Perform DISCONNECT on MUF. (Same as DBEC P,DISCONNECT,MUF(*nn*) or DBEC P,DISCONNECT,MSIDname(xxxxxxxx).) **E** Select and invoke return code summary display for that MUF.
		I Perform IMMEDIATE disconnect from MUF regardless of active tasks running against that MUF. (Same as DBEC P,IMMEDIATE,MUF(*nn*) or DBEC P,IMMEDIATE,MSIDname(xxxxxxxx).) **S** Select and browse display at URT level. **T** Select and invoke active tasks display for that MUF. **U** Select and invoke task usage summary for that MUF.
SYS		Identifies the CICS system to which this display line refers. *LOC means local CICS or TOR.
MUF		Identifies the sequence number of the MUF relative to the position of the associated DBCSID macro appended to the DBCVTPR macro.

Column	Chg	Description
STATUS		Indicates the CONNECT status of the MUF: **UNCONNECTED** Not yet connected by a program call, PLT, or a DBEC transaction. **DISCONNECTED** Explicitly disconnected with a DBEC P,DISCONNECT. **DISCONNECTING** Disconnect requested by DBEC P,DISCONNECT command, but not yet disconnected pending completion of a read in progress or a transaction having exclusive control. **CONNECTED** Connected by CA Datacom CICS Services but no transaction to disconnect it has been issued. **CONNECTING** Connect requested by DBEC P,CONNECT command, but not yet connected pending completion by CA Datacom/DB.
W		(WHEN) Indicates when CA Datacom CICS Services connects the MUF: **P** (PLT) Specifies the MUF is connected by CA Datacom CICS Services at startup time. **A** (AUTO) Specifies the MUF is automatically connected by CA Datacom CICS Services when an application request or a User Requirements Table open needs this MUF. **D** (DEFER) Specifies the MUF can only be connected with an explicit DBEC command.

Column	Chg	Description
E		The E (EOJ_OK) indicates whether CA Datacom CICS Services participates in recognizing that an EOJ was requested for this MUF. If so, then the value indicates whether CA Datacom CICS Services will DISCONNECT or disconnect IMMEDIATE this MUF. This value is specified in the DBCVTPR or in the DBCSID macro of the DBCVTPR. For more information about specifying this value, see the *System Reference Guide*. CA Datacom/DB Version 12.0 does not support this feature. **N** CA Datacom CICS Services does not recognize a MUF EOJ. MUF waits until a DISCONNECT for the MUF has been performed in CA Datacom CICS Services as it works in CA Datacom CICS Services r11. **D** When a MUF EOJ is requested and a request return indicates this to CA Datacom CICS Services, the DISCONNECT is issued internally. **I** When a MUF EOJ is requested and a request return indicates this to CA Datacom CICS Services then an IMMEDIATE is issued internally. **Note:** If the value is D or I and there is no activity in CICS, MUF severs the connection with CICS at the time the interval has been reached as specified in the X_EOJ_OK_S_DELAY MUF startup parameter. For more information, see the CA Datacom/DB documentation for EOJ_OK support
USERS	Y	The value specified in the corresponding MUF DBCSID macro in the DBCVTPR generation for the number of tasks to allocate for CA Datacom/DB threads. Specify a number between 001 and 255. If there are no DBCSID macros coded with the DBCVTPR, this is the USERS= value specified in the DBCVTPR macro. In this case, this value can also be changed by making use of the DBOC GENOPTS command. For more information, see the *System Reference Guide*. Before updating this value, verify that the MUF has been disconnected. If you use the d or i line command on a DBEC I,MUF(*nn*) or DBEC I,MSIDname(xxxxxxxx) screen to disconnect the MUF, press the PF1 function key to refresh the screen before implementing any overrides.
SIDNAME		The value specified in the relative DBCSID macro of the DBCVTPR generation for the name of the DBSIDPR macro generated module to be loaded and used for this MUF.
JOB		The job name of the connected MUF.
LVL		The release level of the connected MUF.
MUFN/SUB		This field displays the MUF name if the SIDNAME module is assembled with a name specified by MUFNAME= that matches the MUF name specified in the MUF startup option. Otherwise, this field displays the number of the SVC and SVC sub-ID associated with this MUF as defined in the SIDNAME module.

Column	Chg	Description
CONDITIONS		**CONN RC=xx.yyy** The last connect request for this MUF failed for the reason indicated by CA Datacom/DB return code xx(yyy). **DISC RC=xx.yyy** The last disconnect request for this MUF failed for the reason indicated by CA Datacom/DB return code xx(yyy).

Overriding DBCSID Parameter Values

MUFs must first be disconnected. (If you use the d or i line command on a DBEC I,MUF(*nn*) or DBEC I,MSIDname(xxxxxxxx) screen to disconnect the MUF, press the PF1 function key to refresh the screen before implementing any overrides.)

To change any of the displayed options for the duration of the current CICS cycle:

1. Tab to the option to revise.
2. Overtype the value to override with the new value.
3. When you have made all of your changes, press Enter.
4. To exit, press Clear.

You define online multiple MUFs for CICS programs using the DBCSID macro that is appended to the DBCVTPR module generation. The DBCSID macro is composed of three parameters, one of which you can override by updating the scrollable display invoked with DBEC for the MUF-Level MUF inquiry.

Use the following guidelines to change the current setting for any of these parameter values associated with any MUF.

USERS

Change options for USERS= follow:

- Increase the maximum number of MUF tasks, up to 255 for connecting threads to this MUF.
- Decrease the maximum number of MUF tasks, where the lowest valid value is 1.

Resetting MUF Statistics

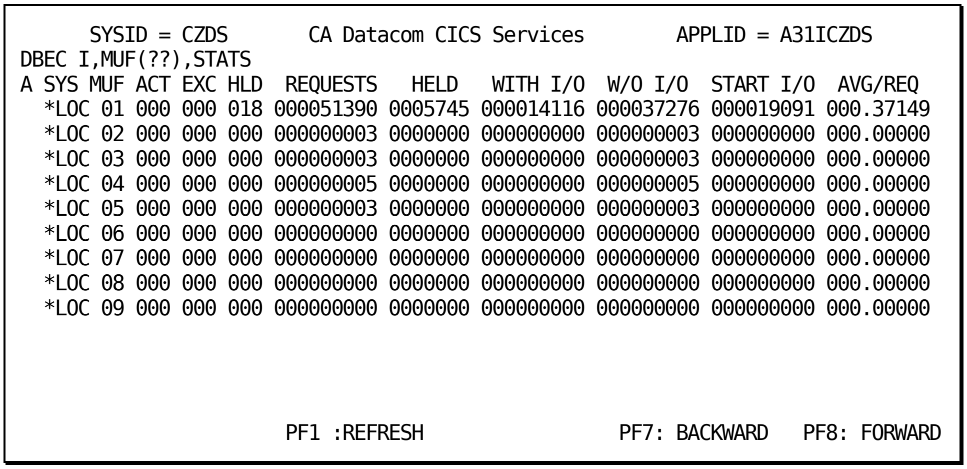
After performing a requested MUF statistics inquiry (DBEC I, MUF(??),STATS), CA Datacom CICS Services displays a scrollable inquiry panel beginning with the first MUF defined in the DBCVTPR macro assembly (or the one and only default MUF defined by the DBSIDPR module). An example would be MUF(01). Your options are as follows:

- Scroll through the display of MUF statistics. press PF8 to scroll forward and PF7 to scroll backward.
- Perform the following action for any displayed MUF by entering the code corresponding to the action in Column A.

  R

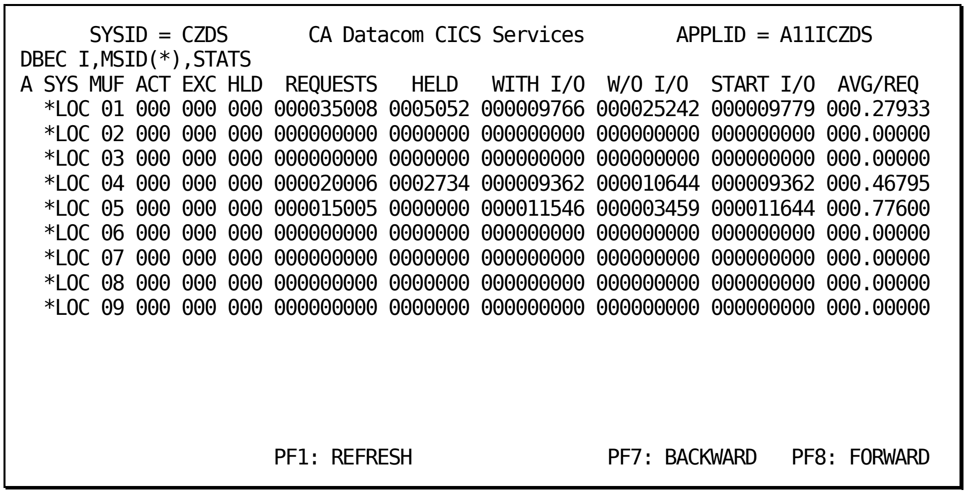
  Perform reset of the statistics counter for MUF if you are authorized to use DBEC.

Display Example: DBEC I,MUF(?),STATS



```
      SYSID = CZDS       CA Datacom CICS Services        APPLID = A31ICZDS
DBEC I,MUF(??),STATS
A SYS MUF ACT EXC HLD  REQUESTS   HELD   WITH I/O  W/O I/O  START I/O  AVG/REQ
  *LOC 01 000 000 018 000051390 0005745 000014116 000037276 000019091 000.37149
  *LOC 02 000 000 000 000000003 0000000 000000000 000000003 000000000 000.00000
  *LOC 03 000 000 000 000000003 0000000 000000000 000000003 000000000 000.00000
  *LOC 04 000 000 000 000000005 0000000 000000000 000000005 000000000 000.00000
  *LOC 05 000 000 000 000000003 0000000 000000000 000000003 000000000 000.00000
  *LOC 06 000 000 000 000000000 0000000 000000000 000000000 000000000 000.00000
  *LOC 07 000 000 000 000000000 0000000 000000000 000000000 000000000 000.00000
  *LOC 08 000 000 000 000000000 0000000 000000000 000000000 000000000 000.00000
  *LOC 09 000 000 000 000000000 0000000 000000000 000000000 000000000 000.00000




                        PF1 :REFRESH                 PF7: BACKWARD   PF8: FORWARD
```

Alternate Display Example: DBEC I,MSID(*),STATS



```
      SYSID = CZDS      CA Datacom CICS Services       APPLID = A11ICZDS
DBEC I,MSID(*),STATS
A SYS MUF ACT EXC HLD  REQUESTS   HELD   WITH I/O  W/O I/O  START I/O  AVG/REQ
  *LOC 01 000 000 000 000035008 0005052 000009766 000025242 000009779 000.27933
  *LOC 02 000 000 000 000000000 0000000 000000000 000000000 000000000 000.00000
  *LOC 03 000 000 000 000000000 0000000 000000000 000000000 000000000 000.00000
  *LOC 04 000 000 000 000020006 0002734 000009362 000010644 000009362 000.46795
  *LOC 05 000 000 000 000015005 0000000 000011546 000003459 000011644 000.77600
  *LOC 06 000 000 000 000000000 0000000 000000000 000000000 000000000 000.00000
  *LOC 07 000 000 000 000000000 0000000 000000000 000000000 000000000 000.00000
  *LOC 08 000 000 000 000000000 0000000 000000000 000000000 000000000 000.00000
  *LOC 09 000 000 000 000000000 0000000 000000000 000000000 000000000 000.00000





                       PF1: REFRESH                PF7: BACKWARD   PF8: FORWARD
```

Field Descriptions

Column	Chg	Description
A	Y	Action to perform when DBEC transaction used: **R** Perform RESET on MUF statistics. This resets the selected MUF statistics to zero from the STATS display. This option is only available from display with the STATS limiter.
SYS		Identifies the CICS system to which this display line refers. *LOC means local CICS or TOR.
MUF		Identifies the sequence number of the MUF relative to the position of the associated DBCSID macro appended to the DBCVTPR macro.
ACT		Indicates the total of tasks currently waiting for CA Datacom/DB I/O to complete.
EXC		Indicates the current number of tasks which have acquired exclusive control by issuing update requests to CA Datacom/DB.
HLD		Indicates the current number of tasks waiting for access to CA Datacom/DB. If this is not zero (000), the maximum number of concurrent users has been reached. The maximum number of concurrent users is defined in the DBCVTPR macro as described in the *CA Datacom CICS Services System Reference Guide*.
REQUESTS		Indicates the total number of CA Datacom/DB requests issued since CA Datacom CICS Services initiation, or since a DBOC RESET=STATS transaction was issued.

Column	Chg	Description
HELD		Indicates the total number of requests which had to wait for CA Datacom/DB access since the initiation of CA Datacom CICS Services or since a DBOC RESET=STATS transaction was issued.
WITH I/O		Indicates the total number of requests receiving CA Datacom/DB service after an I/O wait.
W/O I/O		Indicates the total number of requests receiving CA Datacom/DB service without an I/O wait.
START I/O		Indicates the total number of start I/Os issued by CA Datacom/DB.
AVG/REQ		Indicates the average number of start I/Os issued by CA Datacom/DB per request.

Updating URT-Level Processing Options

Requests for information on URT resources are issued with the **DBEC** or the **DBEX** transaction followed by the INQUIRE operand. The options enable you to invoke a display of all URTs or a limited set of URTs.

If you issue the command with the DBEX transaction ID, you cannot update any information on the resulting scrollable display. The only allowable entry is an S in the Action field which toggles to the Table-level display beginning with the URT for the row containing your entry. If you issue the command with DBEC, you can alter certain fields on the panel. (Any alterations made take effect immediately and are valid only during the life of the CICS session.)

The following is an example of a URT. A URT begins with a DBURSTR macro, contains one or more DBURTBL macros, each defining a particular CA Datacom/DB table, and ends with a DBUREND macro. The values for the bold-faced parameters in this example are displayed on the URT-level inquiry.

```
URT         TITLE 'ONLINE URT FOR REQUESTS USING MULTI-USER FACILITY'
DBURSTR     MULTUSE=YES,WRITE=NO,
            CBSIO=0,PRTY=7,TXNUNDO=YES,TIMEMIN=5,TIMESEC=0
DBURTBL     TBLNAME=PAY,DBID=004,
            AUTODXC=YES,BYPOPEN=NO,SYNONYM=YES,UPDATE=YES
DBUREND     DBSQL=YES,USRINFO=CAICICS
END
```

Invoke the inquiry as shown following to display the status of CA Datacom/DB URTs.

```
►►─┬─ DBEC ─┬─ INQuire,URT(nnnn) ─┬──────────────────────┬──────────────────►
   └─ DBEX ─┘                     └─ ,SIDname(xxxxxxxx) ─┘

►─┬────────────┬─────────────────────────────────────────────────────────►◄
  └─ ,limiter ─┘
```

DBEC/DBEX

(Required) Specify a transaction ID valid with Enhanced commands used to monitor URTs. Select the transaction ID for which you are authorized. Leave a space between the transaction ID and the command.

INQuire,

(Required) Requests a scrollable display of URTs. (INQ and I are valid abbreviations.)

URT(*nnnn*)

(Required) URT specifies the inquiry is to invoke the URT-level display. The value within the parentheses identifies the suffix of the URT.

nnnn

Specifies that you want to display *only* the URT with the specific 4-digit suffix *nnnn*.

Alternately, instead of using the *nnnn* suffix to specify only a specific URT, you can use the wildcard symbol ? (a question mark) to accept *any* digit 0—9 for any (or all) of the four digits of the suffix.

,SIDname(*xxxxxxxx*)

(Optional) Limits the inquiry to a specific MUF by the SID name associated with that MUF (see the DBURSTR macro SIDNAME= parameter in the *CA Datacom/DB Database and System Administration Guide* and the DBCSID macro SIDNAME= parameter in the *System Reference Guide*) or limits the inquiry to a range of MUFs by specifying any number of leading characters of the SID name, followed by an asterisk (*). Omitting the SIDname(*xxxxxxxx*) limiter results in URTs in all MUFs being displayed. (SID is a valid abbreviation.)

,limiter

(Optional) Limits the inquiry to URTs of designated type, status, how defined for opening or those with no CSD entry. The following are the values for designating limiters of each type:

Type

DYN

URTs dynamically built by a CA product.

SQL

URTs for applications issuing SQL statements.

Status

CLOSE

URTs explicitly closed through a DBOC/DBEC command.

CLOSING

URTs with a close in progress, where close is invoked at the completion of the current read or update.

OPEN

URTs which are currently open.

OPENING

Open requested by DBEC or DBOC OPEN= command, or a request requires an AUTO open but request has not completed in CA Datacom/DB.

UNOpened

URTs defined as AUTO or DEFER which have not been opened by a program call or a DBOC/DBEC transaction. (UNO is a valid abbreviation.)

When

AUTO

URTs defined to be opened when required by a program.

DEFer

URTs defined to be opened only by an explicit DBOC/DBEC command. (DEF is a valid abbreviation.)

PLT

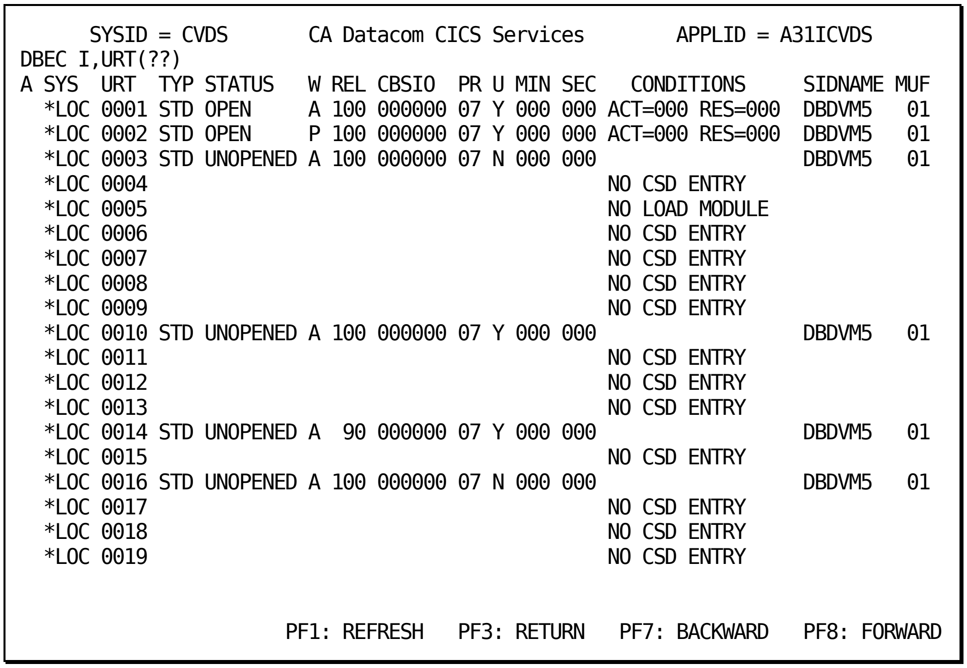
URTs opened at CA Datacom CICS Services startup, that is to say those not defined for AUTO or DEFER.

Condition

NOCSD

URTs have no CICS System Definition data set (CSD) entry. Such URTs are available for dynamic creation by a CA product.

Display Example: DBEC I,URT(??)



```
      SYSID = CVDS       CA Datacom CICS Services        APPLID = A31ICVDS
DBEC I,URT(??)
A SYS  URT  TYP STATUS   W REL CBSIO  PR U MIN SEC   CONDITIONS     SIDNAME MUF
  *LOC 0001 STD OPEN     A 100 000000 07 Y 000 000 ACT=000 RES=000  DBDVM5   01
  *LOC 0002 STD OPEN     P 100 000000 07 Y 000 000 ACT=000 RES=000  DBDVM5   01
  *LOC 0003 STD UNOPENED A 100 000000 07 N 000 000                  DBDVM5   01
  *LOC 0004                                        NO CSD ENTRY
  *LOC 0005                                        NO LOAD MODULE
  *LOC 0006                                        NO CSD ENTRY
  *LOC 0007                                        NO CSD ENTRY
  *LOC 0008                                        NO CSD ENTRY
  *LOC 0009                                        NO CSD ENTRY
  *LOC 0010 STD UNOPENED A 100 000000 07 Y 000 000                  DBDVM5   01
  *LOC 0011                                        NO CSD ENTRY
  *LOC 0012                                        NO CSD ENTRY
  *LOC 0013                                        NO CSD ENTRY
  *LOC 0014 STD UNOPENED A  90 000000 07 Y 000 000                  DBDVM5   01
  *LOC 0015                                        NO CSD ENTRY
  *LOC 0016 STD UNOPENED A 100 000000 07 N 000 000                  DBDVM5   01
  *LOC 0017                                        NO CSD ENTRY
  *LOC 0018                                        NO CSD ENTRY
  *LOC 0019                                        NO CSD ENTRY


                       PF1: REFRESH   PF3: RETURN   PF7: BACKWARD   PF8: FORWARD
```

Field Descriptions

All fields marked with a Y in the Chg column are updatable when the panel is invoked through a DBEC transaction. When DBEX is used, the only valid entry is an S in Column A.

Column	Chg	Description
A	Y	Action to perform when DBEC transaction used: **A** Sets URT to AUTO open. (Same as DBEC P,AUTO,URT(*nnnn*).) **C** Performs CLOSE on URT. (Same as DBEC P,CLOSE,URT(*nnnn*).) **D** Sets URT to DEFER open. (Same as DBEC P,DEFER,URT(*nnnn*).) **N** Performs CICS newcopy on URT module. (Same as DBEC P,NEWCOPY,URT(*nnnn*)) (URT must first be closed.) **O** Performs OPEN on URT. (Same as DBEC P,OPEN,URT(*nnnn*).) **R** Performs RESTART on URT. This resets the URT to its original STATUS. (Same as DBEC P,RESTART,URT(*nnnn*).) Action to perform with either DBEC or DBEX transaction. **S** Selects and begin browse display at table level.
SYS		Identifies the CICS system to which this display line refers. *LOC means local CICS or TOR.
URT		Identifies the number of the URT.
TYP		Indicates the type of URT: **STD** URT for applications issuing CA Datacom/DB commands. **SQL** URT for applications issuing SQL statements. **DYN** URT dynamically built by another CA product.

Column	Chg	Description
STATUS		Indicates the OPEN status of the URT: **UNOPENED** Not yet opened by a program call or a DBEC or DBOC transaction. **CLOSED** Explicitly closed with a DBEC or DBOC CLOSE=. **CLOSING** Close requested by DBEC or DBOC CLOSE= command, but not yet closed pending completion of a read in progress or a transaction having exclusive control. **OPEN** Opened by CA Datacom CICS Services but no transaction to close it has been issued. **OPENING** Open requested by DBEC or DBOC OPEN= command, or a request requires an AUTO open but request has not completed in CA Datacom/DB.
W		(WHEN) Indicates when CA Datacom CICS Services opens the URT: **P** (PLT) Specifies the URT is opened by CA Datacom CICS Services at startup time. **A** (AUTO) Specifies the URT is automatically opened by CA Datacom CICS Services when an application request needs this URT. **D** (DEFER) Specifies the URT can only be opened with an explicit DBEC or DBOC command.
REL		If the URT was assembled with a release of the macros at CA Datacom/DB r10 or earlier, REL indicates the CA Datacom/DB release level of the macro used to generate the URT. Beginning with CA Datacom/DB r11 and for all following releases, the value for REL is a URT compatibility indicator and displays as 100.
CBSIO	Y	The value specified in URT generation for I/O limit interrupt for all SELxx commands except SELPR. *****
PR	Y	(PRTY) Indicates the priority level for requests processed using this URT, where nn is between 01 and 15. 01 is low, 07 is the default. (Specified with PRTY= in the DBURSTR macro that was used in generating this URT.) *****
U	Y	(UND) The TXNUNDO= value in the DBURSTR macro generating this URT, where: ***** **Y** (YES) Indicates transaction backout is dynamically invoked for update requests issued by a program using this URT when an abend occurs. **N** (NO) Indicates transaction backout is not operational.

Column	Chg	Description
MIN **	Y	The TIMEMIN= value in the DBURSTR macro generating this URT, where the number from 1 through 120 is the limit in minutes to wait for a record held under exclusive control by another request (alternative to TIMESEC=). ***** **Note:** MIN=0 with SEC=0 means unlimited wait time. MIN=0 with SEC=1 means no wait time.
SEC **	Y	The TIMESEC= value in the DBURSTR macro generating this URT, where the number between 1 and 120 is the limit in seconds to wait for a record held under exclusive control by another request (alternative to TIMEMIN=). ***** MIN=0 with SEC=0 means unlimited wait time. MIN=0 with SEC=1 means no wait time.

*** Before updating this value, verify that the URT has been closed. (If you use the c line command on a DBEC I,URT(nnn) screen to close the URT, press the PF1 function key to refresh the screen before implementing any overrides.)**

**** If you alter either the MIN or SEC field, the value you specify is converted (if necessary) to seconds before storing in the URT. When redisplayed, if the value in seconds is greater than 60 and is evenly divisible by 60 (that is to say, the remainder is zero), the value is displayed in the MIN field. Otherwise, it is shown in the SEC field.**

Column	Chg	Description
CONDITIONS		ACT=xxx RES=xxx The ACT (ACTIVE) value is the total number of tasks using this URT. The RES value is the number of tasks that have read a record for update. **NO CSD ENTRY** The CICS System Definition data set (CSD) does not contain an entry for this URT. **NO LOAD MODULE** The URT module is not in the library.

Column	Chg	Description
		CSD DISABLED The entry for this URT in the CICS System Definition data set (CSD) has been disabled. **URT DELETED/SKIPPED** The user has deleted the URT module or this URT was not loaded because it was specified in a SKIPLOAD range. **UNKNOWN MUF** The global URT specifies a SID name, but there is no such SID name defined in any DBCSID macro of the DBCVTPR. **OPEN RC=xx.yyy** The last open request for this URT failed for the reason indicated by CA Datacom/DB return code xx and internal return code yyy. **CLOS RC=xx.yyy** The last close request for this URT failed for the reason indicated by CA Datacom/DB return code xx and internal return code yyy.
SIDNAME		The value specified in the relative DBCSID macro of the DBCVTPR generation for the name of the DBSIDPR macro generated module to be loaded and used for this MUF.
MUF		The number of the MUF with which this URT is associated, relative to the number of the DBCSID macro appended to the DBCVTPR.

Overriding DBURSTR Parameter Values

Note: URTs must first be closed. (If you use the c line command on a DBEC I,URT(*nnnn*) screen to close the URT, press the PF1 function key to refresh the screen before implementing any overrides.)

To change any of the displayed options for the duration of the current CICS cycle:

1. Tab to the option to revise.
2. Overtype the value to override with the new value.
3. When you have made all of your changes, press Enter.
4. To exit, press Clear.

You define online URTs for CICS programs using three macros: the Start macro (DBURSTR), the Entry macro (DBURTBL), and the End macro (DBUREND). The Start macro is composed of 12 parameters, four of which you can override by updating the scrollable display invoked with DBEC for the URT-Level URT inquiry.

Use the following guidelines to change the current setting for any of these parameter values associated with any URT.

CBSIO

Change options for CBSIO= follow:

- Increase the maximum number of I/Os to permit before interruption, up to 524287 (or 0, for unlimited I/Os) for all Compound Boolean Selection SELxx commands (except SELPR) to speed program execution.
- Decrease the maximum number of I/Os to permit before interruption, where the lowest valid value is 1 (0 means no limit) if your program is taking too much system resources.

PR

(PRTY) Change options for PRTY= follow:

- Increase the priority level, up to 15, with which CA Datacom/DB processes requests using this URT
- Decrease the priority level, to a minimum of 1, to lower the priority with which requests using this URT are processed.

U

(UND) Change options for TXNUNDO= follow:

- Change from N (NO) to **Y** (YES) to invoke transaction backout for update requests when an abend occurs. (Recommended value)
- Change from Y (YES) to N (NO) to *not* back out updates in progress when an abend occurs.

MIN or SEC

Change options for TIMEMIN= or TIMESEC= follow:

- Increase the maximum amount of time a program using this URT is to wait for a record held under exclusive control by another request from the current value up to 120, where TIMEMIN= specifies time in minutes and TIMESEC= specifies time in seconds.

  Note: TIMEMIN=0,TIMESEC=0 specifies unlimited wait time.
- Decrease the maximum wait time. The lowest valid value is TIMEMIN=0,TIMESEC=1 which specifies no wait time.

Updating Table-Level Processing Options

To display options for CA Datacom/DB tables accessible through URTs from a specified CICS system, or all CICS systems, issue the **DBEC** or **DBEX** transaction followed by the INQUIRE command.

If you issue the INQ command with the DBEX transaction ID, you are not able to update any fields on the scrollable display. If you issue the command with DBEC, you can make entries in certain fields to override table options specified in the URT definition. (Any alterations made take effect immediately and are valid only during the life of the CICS session.)

The following is an example of a URT definition. A URT begins with a DBURSTR macro, contains one or more DBURTBL macros, each defining a particular CA Datacom/DB table, and ends with a DBUREND macro. The values for the bold-faced parameters in this example are displayed on the Table-level inquiry.

```
URT          TITLE 'ONLINE URT FOR REQUESTS USING MULTI-USER FACILITY'
DBURSTR      MULTUSE=YES,WRITE=NO,
             CBSIO=0,PRTY=7,TXNUNDO=YES,TIMEMIN=5,TIMESEC=0
DBURTBL      TBLNAME=PAY,DBID=004,
             AUTODXC=YES,BYPOPEN=NO,SYNONYM=YES,UPDATE=YES
DBUREND      DBSQL=YES,USRINFO=CAICICS
END
```

Invoke the inquiry transaction sample as shown following to display information at the Table-level to change the previously highlighted values.

```
►►─┬─ DBEC ─┬── INQuire,TBL(nnnn) ─┬────────────┬─┬──────────────────────┬──►◄
   └─ DBEX ─┘                      └─ ,limiter ─┘ └─ ,SIDname(xxxxxxxx) ─┘
```

DBEC/DBEX

(Required) Specify a transaction ID valid with Enhanced commands used to monitor URTs. Select the transaction ID for which you are authorized. Leave a space between the transaction ID and the command.

INQuire,

(Required) Specifies that CA Datacom CICS Services is to perform an Inquiry. (INQ and I are valid abbreviations.)

TBL(*nnnn*)

(Required) TBL specifies the inquiry is to invoke the Table-level display. The value within the parentheses identifies the suffix of the URT.

nnnn

Specifies that you want to display *only* the URT with the specific 4-digit suffix *nnnn*.

Alternately, instead of using the *nnnn* suffix to specify only a specific URT, you can use the wildcard symbol ? (a question mark) to accept *any* digit 0 through 9 for any (or all) of the four digits of the suffix.

,limiter

(Optional) Limits the inquiry to URTs of designated type, status, how they are defined for opening, or those with no CICS System Definition data set (CSD) entry. The following are the values for designating limiters of each type:

Type

DYN

URTs dynamically built by a CA product.

SQL

URTs for applications issuing SQL statements.

Status

CLOSE

URTs explicitly closed through a DBOC CLOSE= command, a DBEC PERform,URT(*nnnn*),CLOSE, or an entry of C in the Action column of a DBEC INQ,URT(*nnnn*) display.

CLOSING

URTs with a close in progress, where close is invoked at the completion of the current read or update.

OPEN

URTs which are currently open.

OPENING

Open requested by DBEC or DBOC OPEN= command, or a request requires an AUTO open but request has not completed in CA Datacom/DB.

UNOpened

URTs defined as AUTO or DEFER which have not been opened by a program call or a DBOC/DBEC transaction. (UNO is a valid abbreviation.)

When

AUTO

URTs defined to be opened when required by a program.

DEFer

URTs defined to be opened only by an explicit DBOC/DBEC command. (DEF is a valid abbreviation.)

PLT

URTs opened at CA Datacom CICS Services startup, that is to say those not defined for AUTO or DEFER.

Condition

NOCSD

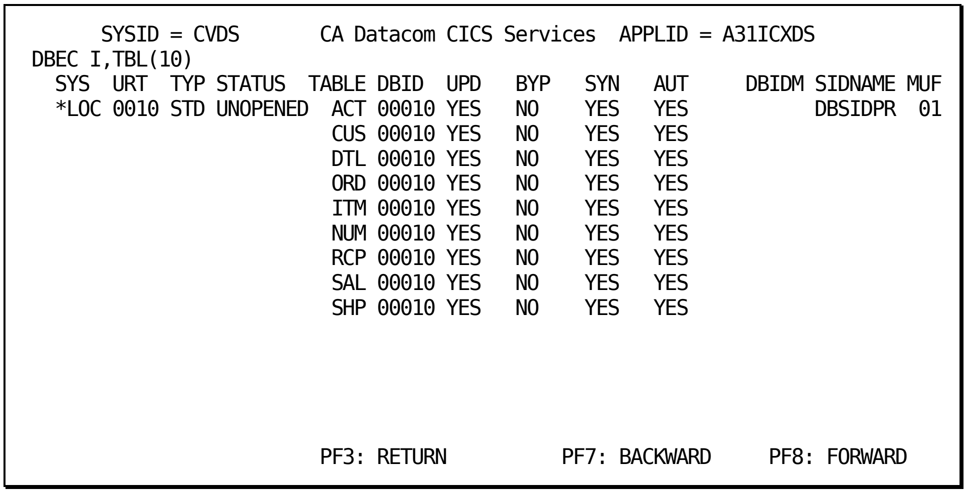
URTs have no CICS System Definition data set (CSD) entry. Such URTs are available for dynamic creation by a CA product.

,SIDname(*xxxxxxxx*)

(Optional) Limits the inquiry to a specific MUF by the SID name associated with that MUF (see the DBURSTR macro SIDNAME= parameter in the *CA Datacom/DB Database and System Administration Guide* and the DBCSID macro SIDNAME= parameter in the *System Reference Guide*) or limits the inquiry to a range of MUFs by specifying any number of leading characters of the SID name, followed by an asterisk (*). Omitting the SIDname(*xxxxxxxx*) limiter results in URTs in all MUFs being displayed. (SID is a valid abbreviation.)

Display Example: DBEC I,TBL(10),SIDNAME(DBSIDPR)

When inquiries are made at the table level, the display includes the number and status of each URT, similar to the URT status inquiry display. In addition, the table names and database IDs are displayed for each URT.



```
      SYSID = CVDS       CA Datacom CICS Services  APPLID = A31ICXDS
DBEC I,TBL(10)
  SYS  URT  TYP STATUS  TABLE DBID  UPD   BYP   SYN   AUT     DBIDM SIDNAME MUF
  *LOC 0010 STD UNOPENED  ACT 00010 YES   NO    YES   YES           DBSIDPR  01
                          CUS 00010 YES   NO    YES   YES
                          DTL 00010 YES   NO    YES   YES
                          ORD 00010 YES   NO    YES   YES
                          ITM 00010 YES   NO    YES   YES
                          NUM 00010 YES   NO    YES   YES
                          RCP 00010 YES   NO    YES   YES
                          SAL 00010 YES   NO    YES   YES
                          SHP 00010 YES   NO    YES   YES





                         PF3: RETURN          PF7: BACKWARD     PF8: FORWARD
```

Field Descriptions

When you specify TBL rather than URT in the command format, CA Datacom CICS Services presents a scrollable display containing 13 columns of data. The first four columns and the last two columns repeat the SYS, URT, TYP, STATUS, SIDNAME, and MUF data which is displayed on the corresponding URT-Level inquiry. Data appears in these fields only once per URT. The remaining seven columns display information on the tables making up the URT definition. Any field marked with a Y in the Chg column is updatable when the STATUS displayed is UNOPENED or CLOSED.

Column	Chg	Description
SYS		Identifies the CICS system to which this display line refers. *LOC means local CICS or TOR.
URT		Identifies the sequence number of the URT.
TYP		Indicates the type of URT. **STD** URT for applications issuing CA Datacom/DB commands. **SQL** URT for applications issuing SQL statements. **DYN** URT dynamically built by another CA product.

Column	Chg	Description
STATUS		Indicates the OPEN status of the URT with the following values: **UNOPENED** Not yet opened by a program call or a DBEC or DBOC transaction. **CLOSED** Explicitly closed with a DBEC or DBOC CLOSE=. **CLOSING** Close requested by DBEC or DBOC CLOSE= command, but not yet closed pending completion of a read in progress or a transaction having exclusive control. **OPEN** Opened by CA Datacom CICS Services but no transaction to close it has been issued. **OPENING** Open requested by DBEC or DBOC OPEN= command, or a request requires an AUTO open but request has not completed in CA Datacom/DB.
TABLE		Name of the CA Datacom/DB table with the URT.
DBID		Number of the DATABASE which contains the table.
UPD	Y	**YES** Indicates that this URT permits applications to update the named table. **NO** Indicates that update of the named table is not permitted using this URT.
BYP	Y	**YES** When the URT is opened, the designated table is bypassed from the opening. Any attempt to access this table, using this URT, results in a CA Datacom/DB return code of 05. **NO** When the URT is opened, the designated table is opened during the opening.
SYN	Y	**YES** Indicates that SYNONYM=YES is specified in the DBURTBL macro for this URT. **NO** Indicates that SYNONYM=NO is specified in the DBURTBL macro for this URT.
AUT	Y	**NO** Indicates that CA Datacom/DB does not automatically drop exclusive control for this table when a second command is issued from the same Request Area. **YES** Indicates that CA Datacom/DB automatically drops exclusive control for this table when a second command is issued from the same Request Area.

Column	Chg	Description
DBIDM		This global URT is using DBID remapping for this table. This is the DBID that is passed to the MUF in the request.
SIDNAME		The value specified in the relative DBCSID macro of the DBCVTPR generation for the name of the DBSIDPR macro generated module to be loaded and used for this Multi-User Facility.
MUF		The number of the MUF with which this URT is associated, relative to the number of the DBCSID macro appended to the DBCVTPR.

Overriding DBURTBL Parameter Values

Note: URTs must first be closed.

You define online URTs for CICS programs using three macros: the Start macro (DBURSTR), the Entry macro (DBURTBL), and the End macro (DBUREND). Of the Entry macro (DBURTBL) parameters, you can override the following four by updating the scrollable display invoked with DBEC for the Table-level URT inquiry.

Use the following guidelines to change the current setting for any of these parameter values associated with any table within any URT.

AUT

Change options for AUTODXC= follow:

- Change from YES to NO to indicate that RDUxx commands are no longer to automatically drop secondary exclusive control. That the program is to release the record if it is not updated or deleted after having been read with update intent.
- Change from NO to YES to allow consecutive RDUxx commands to execute without an intervening update, delete, or release.

BYP

Change options for BYPOPEN= follow:

- Change from NO to YES to disable access to this table through this URT as of the next time this URT is opened.
- Change from YES to NO if the corresponding table is no longer to be bypassed during open and close processing.

SYN

Change options for SYNONYM= follow:

- Change from NO to YES if CA Datacom CICS Services should now evaluate the database ID specified in the Request Area together with the table name when searching for a URT to service a request for this table and if CA Datacom/DB should evaluate the DBID when searching for a macro within this URT containing processing specifications. Before specifying YES, verify that all requests to this table, issued by online programs, specify the database ID in the Request Area. Make this change under either of the following conditions:
  - The table name is now duplicated in another URT (online only).
  - The table name is now duplicated in this URT (same as batch).
- Change from YES to NO if there are no duplicate names for this table in this URT or any other URT and CA Datacom/DB is not to evaluate the DBID when selecting a URT to process a request to this table, but rather, is to use the database ID specified in the first available URT containing this table name.

UPD

Change options for UPDATE= follow:

- Change from NO to YES if this table can be updated and its records held under exclusive control when accessed through this URT. UPDATE=YES is required if a program issues Compound Boolean Selection commands (SELxx), unless a DBID is specified in the CBS MUF startup option.
- Change from YES to NO to limit access of the corresponding table to read-only.

Replacing a URT with a New Copy

This section discusses replacing a URT with a new copy.

Invoke the following transaction to perform the NEWCOPY function for a specified URT.

```
►►─ DBEC ─ PERform,NEWcopy,URT(nnnn) ─┬──────────────────────┬──────────────►◄
                                      └ ,SIDname(xxxxxxxx) ─┘
```

DBEC

(Required) Specify the transaction ID used with Enhanced commands to control URTs and startup/shutdown. Leave a space between the transaction ID and the command.

PERform,

(Required) The command that requests CA Datacom CICS Services perform the specified action on the specified URT in the specified CICS system. PER and P are valid abbreviations.

NEWcopy,

(Required) Action is a CICS newcopy on the URT module. The URT must be closed before issuing the NEWCOPY request. It is your responsibility to open the URT once the NEWCOPY request is complete. (If you use the c line command on a DBEC I,URT(*nnnn*) screen to close the URT, press the PF1 function key to refresh the screen before implementing any overrides.) (NEW is a valid abbreviation.)

Note: A P,NEWCOPY command results in a URT inquiry display, once the perform has been completed. In the resulting display, however, be aware that any URTs in OPEN status were not part of the NEWCOPY. The DBOCPRT file contains errors for the NEWCOPY commands that failed. You can also use the N line command from a URT inquiry display to see specific messages.

URT(*nnnn*)

(Required) Identifies (with the 4-digit suffix *nnnn*) the URT on which to perform the action.

nnnn

Specifies that you want to perform the action *only* on the URT with the specific 4-digit suffix *nnnn*.

Alternately, instead of using the *nnnn* suffix to specify only a specific URT, you can use the wildcard symbol ? (a question mark) to accept *any* digit 0 through 9 for any (or all) of the four digits of the suffix. If wildcard symbols are used, only those URTs that are not open are processed.

,SIDname(*xxxxxxxx*)

(Optional) Limits the inquiry to a specific MUF by the SID name associated with that MUF (see the DBURSTR macro SIDNAME= parameter in the *CA Datacom/DB Database and System Administration Guide* and the DBCSID macro SIDNAME= parameter in the *System Reference Guide*) or limits the inquiry to a range of MUFs by specifying any number of leading characters of the SID name, followed by an asterisk (*). Omitting the SIDNAME(*xxxxxxxx*) limiter results in URTs in all MUFs having new copies made. (SID is a valid abbreviation.) See the following command example.

Command Example

Command	Result
DBEC P,NEWCOPY,URT(123)	CA Datacom CICS Services replaces URT 123 with a new copy. The URT must be closed before issuing this request.

Connecting and Disconnecting MUFs

This section discusses connecting and disconnecting MUFs. For more information, see URT Connections Table (see page 423).

Invoke the following transaction to connect or disconnect MUFs.

```
▶▶─ DBEC ─ PERform, ─┬─ CONnect ─────┬─ ,MUF(nn) ─────────────────────────▶◀
                     ├─ DISconnect ─┤
                     └─ IMMediate ──┘
```

DBEC

(Required) Specify the transaction ID used with Enhanced commands to control MUFs. Leave a space between the transaction ID and the command.

PERform,

(Required) The command that requests CA Datacom CICS Services perform the specified action on the specified MUFs in the specified CICS system. PER and P are valid abbreviations.

CONnect

Connect specified MUFs. CON is a valid abbreviation.

DISconnect

Disconnect specified MUFs. DIS is a valid abbreviation.

IMMediate

Immediately disconnect specified MUFs without regard for active tasks. See the command examples on the following page.

Be aware that a disconnect IMMEDIATE puts the MUF into a state in CA Datacom CICS Services such that the MUF automatically reconnects, as if the MUF had abended. For example, in that state the MUF allows transactions to be backed out, if the appropriate return code handling is programmed, and to reconnect when a request requiring that MUF is made. You would typically only use this command when a MUF is hung. In situations where it is desired to terminate the connection to the MUF quickly, we recommend that you consider sending an EOJ to the MUF before issuing an IMMEDIATE disconnect. (IMM is a valid abbreviation.)

,MUF(*nn*)

(Required) Identifies (with the 2-digit number *nn*) the MUF, relative to the position of the associated DBCSID macro in the DBCVTPR generation, on which to perform the action.

nn

Specifies that you want to perform the action *only* on the MUF with the specific 2-digit number *nn*.

Alternately, instead of using the *nn* number to specify only a specific MUF, you can use the wildcard symbol ? (a question mark) to accept *any* digit 0 through 9 for one (or both) of the 2 digits of the number.

,MSIDname(*xxxxxxxx*)

(*Required*) Identifies (with the up to 8-characters) the SIDNAME as specified in the DBCSID macro appended to the DBCVTPR.

xxxxxxxx

Specifies that you want to perform the action *only* on the MUF with the specific SIDNAME.

Alternately, you can use the wildcard symbol * (an asterisk) to specify all MUFs or you can specify a range of MUFs by using a prefix value followed by the asterisk.

Command Examples

Command	Result
DBEC P,CONNECT,MUF(1) DBEC P,CONNECT,MSID(DBSIDPR)	Connects MUF 01. Connects the MUF with SIDNAME DBSIDPR (or the default MUF if no DBCSID macros were appended to the DBCVTPR)
DBEC P,DISCONNECT,MUF(2?) DBEC P,DISCONNECT,MSIDNAME(D*)	Disconnects all MUFs with numbers 20 through 29, then returns the MUF-level display of MUFs 20 through 29 or all MUFs with SIDNAMEs beginning with D. If the MUF is connected but the disconnect has not yet completed, it is put into DISCONNECTING status.
DBEC P,CONNECT,MUF(??) DBEC P,CONNECT,MSIDNAME(*)	Connects all MUFs, then returns the MUF-level display of MUFs, beginning with MUF 01.
DBEC P,IMMEDIATE,MUF(10) DBEC P,IMMEDIATE,MSIDNAME(MUF10)	Immediately disconnects MUF 10 or the MUF with the SIDNANE of MUF10 regardless of active tasks, puts the MUF in DISCONNECTED status, then returns the MUF-level display of MUF 10 or MUF10 as the SIDNAME.

Command	Result
DBEC P,CONNECT,MUF(1?) DBEC P,CONNECT,MSID(MUF1*)	Connects the MUFs 10 through 19 or all MUFs beginning with MUF1* as the SIDNAME and displays the result of each MUF CONNECT.
DBEC PER,DISCONNECT,MUF(??) DBEC PER,DISCONNECT,MSIDNAME(*)	Disconnects all MUFs, then returns the MUF-level display beginning with MUF 01.

Opening and Closing URTs

This section discusses opening and closing URTs.

Invoke the following transaction to open or close URTs.

```
▶▶─ DBEC ─ PERform, ─┬─ OPEN ──┬─ ,URT(nnnn) ─┬──────────────────────┬──▶◀
                     └─ CLOSE ─┘              └─ ,SIDname(xxxxxxxx) ─┘
```

DBEC

(Required) Specify the transaction ID used with Enhanced commands to control URTs and startup/shutdown. Leave a space between the transaction ID and the command.

PERform,

(Required) The command that requests CA Datacom CICS Services perform the specified action on the specified URTs in the specified CICS system. PER and P are valid abbreviations.

OPEN

Open specified URTs

CLOSE

Close specified URTs

,URT(*nnnn*)

(Required) Identifies (with the 4-digit suffix *nnnn*) the URT on which to perform the action.

nnnn

Specifies that you want to perform the action *only* on the URT with the specific 4-digit suffix *nnnn*.

Alternately, instead of using the *nnnn* suffix to specify only a specific URT, you can use the wildcard symbol ? (a question mark) to accept *any* digit 0 through 9 for any (or all) of the four digits of the suffix. If wildcard symbols are used, only those URTs that are not open are processed.

,SIDname(*xxxxxxxx*)

(Optional) Limits the inquiry to a specific MUF by the SID name associated with that MUF (see the DBURSTR macro SIDNAME= parameter in the *CA Datacom/DB Database and System Administration Guide* and the DBCSID macro SIDNAME= parameter in the *System Reference Guide*) or limits the inquiry to a range of MUFs by specifying any number of leading characters of the SID name, followed by an asterisk (*). Omitting the SIDname(*xxxxxxxx*) limiter results in URTs in all MUFs being displayed. SID is a valid abbreviation. See the command examples that follow.

Command Examples

Command	Result
DBEC P,OPEN,URT(10)	Opens URT 0010.
DBEC P,CLOSE,URT(12?)	Closes all URTs with suffixes 120 through 129, then returns the URT-level display of URTs 120 through 129. If URT is active, it is put into CLOSING status.
DBEC P,OPEN,URT(????)	Opens all URTs, then returns the URT-level display of URTs, beginning with URT 0001.
DBEC P,CLOSE,URT(10)	Closes URT 10, then returns the URT-level display of URT 0010.
DBEC P,OPEN,URT(12?)	Opens the URTs 120 through 129 and displays the result of each URT OPEN.
DBEC PER,CLOSE,URT(????)	Closes all URTs, then returns the URT-level display beginning with URT 0001.
DBEC P,OPEN,URT(????),SIDNAME(DBSIDPR)	Opens all URTs that access the MUF connection defined by the SID module name of DBSIDPR for that MUF. In a single MUF environment, this would be all URTs. In a multiple MUF environment, this would be the MUF connection defined with the DBCSID macro parameter SIDNAME= (specified with a value of DBSIDPR) appended to the DBCVTPR. The display then returns the URT-level display of URTs, beginning either with the first URT defined to access that MUF in a multiple MUF environment or with URT 0001 in a single MUF environment.

Changing/Restoring Open Options for URTs

Issue the following Enhanced command to modify current *when to open* specifications on URTs.

```
►►─ DBEC ─ PERform, ─┬─ AUTO ────┬─ ,URT(nnnn) ─┬──────────────────────┬──────►◄
                     ├─ DEFer ───┤              └─ ,SIDname(xxxxxxxx) ─┘
                     └─ REStart ─┘
```

DBEC

(Required) Specify the transaction ID used with Enhanced commands to control URTs and startup/shutdown. Leave a space between the transaction ID and the command.

PERform,

(Required) Command that CA Datacom CICS Services perform the specified action on the specified URT in the specified CICS system. PER and P are valid abbreviations.

AUTO

Set specified URTs to be opened automatically when first required by an executing application.

Note: Do not use AUTO when the URT is defined with SQL=YES.

DEFer

Set specified URTs for deferred opening, where opening is deferred until explicitly opened by a DBEC or DBOC OPEN= command. DEF is a valid abbreviation.

REStart

Reset specified URTs to their original STATUS. (RES is a valid abbreviation.)

Resetting specified URTs to their original STATUS means to reset the URT STATUS to OPEN or UNOPENED from CLOSED. If TYPE is AUTO, the STATUS becomes UNOPENED. If TYPE is PLT, CA Datacom CICS Services tries to OPEN the URT and, if successful, the STATUS changes to OPEN. If TYPE is DEFER, RESTART has no impact on the STATUS of URTs.

,URT(*nnnn*)

(Required) Identifies (with the 4-digit suffix *nnnn*) the URT on which to perform the action.

nnnn

Specifies that you want to perform the action *only* on the URT with the specific 4-digit suffix *nnnn*.

Alternately, instead of using the *nnnn* suffix to specify only a specific URT, you can use the wildcard symbol ? (a question mark) to accept *any* digit 0 through 9 for any (or all) of the four digits of the suffix. If wildcard symbols are used, only those URTs that are not open are processed.

,SIDname(*xxxxxxxx*)

(Optional) Limits the inquiry to a specific MUF by the SID name associated with that MUF or limits the inquiry to a range of MUFs by specifying any number of leading characters of the SID name, followed by an asterisk (*). Omitting the SIDname(*xxxxxxxx*) limiter results in URTs in all MUFs being displayed. SID is a valid abbreviation. For more information, see the DBURSTR macro SIDNAME= parameter in the *CA Datacom/DB Database and System Administration Guide* and the DBCSID macro SIDNAME= parameter in the *System Reference Guide*. See the command examples that follow.

Command Examples

Command	**Result**
DBEC P,AUTO,URT(10)	Sets for automatic opening URT 0010. Displays URT 0010.
DBEC P,DEFER,URT(12?)	Sets for deferred opening those URTs with suffixes 120 through 129, then returns the URT-level display of URTs 120 through 129.
DBEC P,RESTART,URT(????)	Resets all URTs to their original STATUS, then returns the URT-level display of URTs beginning with URT 0001.
DBEC P,AUTO,URT(10)	Sets for automatic opening URT 10, then returns the URT-level display for URT 0010.
DBEC P,RESTART,URT(12?)	Resets URTs 120 through 129 to their original STATUS, then returns the URT-level display of URTs, beginning with URT 0120.
DBEC P,RESTART,URT(????),SIDNAME(DBSIDPR)	Resets to their original STATUS all URTs that access the MUF connection defined by the SID module name of DBSIDPR for that MUF. In a single MUF environment, this would be all URTs. In a multiple MUF environment, this would be the MUF connection defined with the DBCSID macro parameter SIDNAME= (specified with a value of DBSIDPR) appended to the DBCVTPR. The display then returns the URT-level display of URTs, beginning either with the first URT defined to access that MUF in a multiple MUF environment or with URT 0001 in a single MUF environment.

Initiating/Terminating Services

Initiating and terminating CA Datacom CICS Services for the local system can be accomplished by using the enhanced command DBEC as described in the following sections.

Initiating CA Datacom CICS Services

We recommend that CA Datacom CICS Services be initiated by using CICS PLT startup in the CICS system. Use the appropriate DBEC P,STARTup command to manually initiate CA Datacom CICS Services for the local system if the startup is not automatic (that is to say PLT) or if CA Datacom CICS Services is currently shut down as a result of issuing the SHUTdown command.

When the DBEC command for startup is issued, CA Datacom CICS Services does the following:

1. Connects all MUFs defined with PLT in the DBCSID macros (or connects the single MUF when there are no DBCSID macros appended to DBCVTPR)
2. Opens all URTs not defined with AUTO= or DEFER= in DBCVTPR (which then causes connects of any associated MUFs defined with AUTO in the DBCSID macros)
3. Displays the URT-level panel with the initialization message for the remote system

You can then enter the command to display the updatable MUF-level or URT-level panel, beginning with the first MUF or URT in the remote system. When the panel is displayed, you can enter a command from the command line or an action code on any displayed row.

Invoke the following transaction to perform CA Datacom CICS Services startup processing in the local CICS system.

```
▶▶─ DBEC ─ PERform,STARTup──────────────────────────────────────────────▶◀
```

DBEC

(Required) Specify the transaction ID used with Enhanced commands to control MUFs or URTs and startup or shutdown. Leave a space between the transaction ID and the command.

PERform,

(Required) Command that CA Datacom CICS Services perform the specified action. PER and P are valid abbreviations.

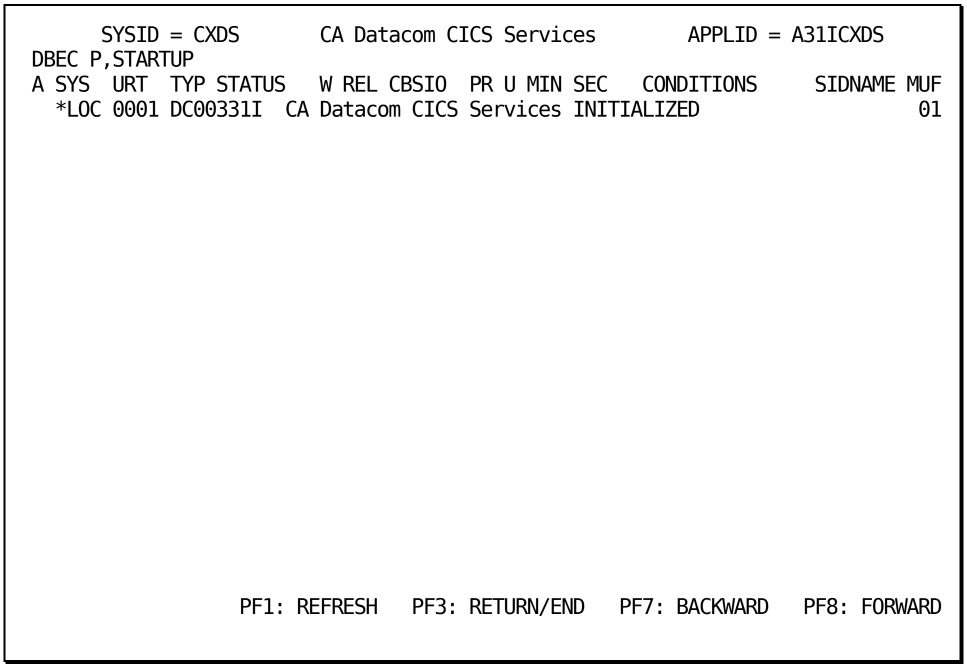
STARTup

Action is to initiate CA Datacom CICS Services. START is a valid abbreviation.

Command Example

Command	Result
DBEC P,STARTUP	Initiates CA Datacom CICS Services in the local CICS system.
DBEC PER,START	Initiates CA Datacom CICS Services in the local CICS system.

Display Example



```
      SYSID = CXDS       CA Datacom CICS Services        APPLID = A31ICXDS
DBEC P,STARTUP
A SYS  URT  TYP STATUS   W REL CBSIO  PR U MIN SEC   CONDITIONS     SIDNAME MUF
  *LOC 0001 DC00331I  CA Datacom CICS Services INITIALIZED                  01




















                   PF1: REFRESH   PF3: RETURN/END   PF7: BACKWARD   PF8: FORWARD
```

Terminating CA Datacom CICS Services

The termination of CA Datacom CICS Services is automatically invoked (if a CICS PLT entry is used) when CICS is recycled. To shut down CA Datacom CICS Services in the CICS system while CICS is running, you must issue a command.

During shutdown, CA Datacom CICS Services disconnects all connected MUFs and closes all open URTs in the local system and displays statistics on the Message Log.

Issue the following transaction to shut down CA Datacom CICS Services in the specified local CICS system.

```
►►─ DBEC ─ PERform,SHUTdown────────────────────────────────────────────────►◄
```

DBEC

(Required) Specify the transaction ID used with Enhanced commands to control MUFs or URTs and startup or shutdown. Leave a space between the transaction ID and the command.

PERform,

(Required) Command that CA Datacom CICS Services perform the specified action. PER and P are valid abbreviations.

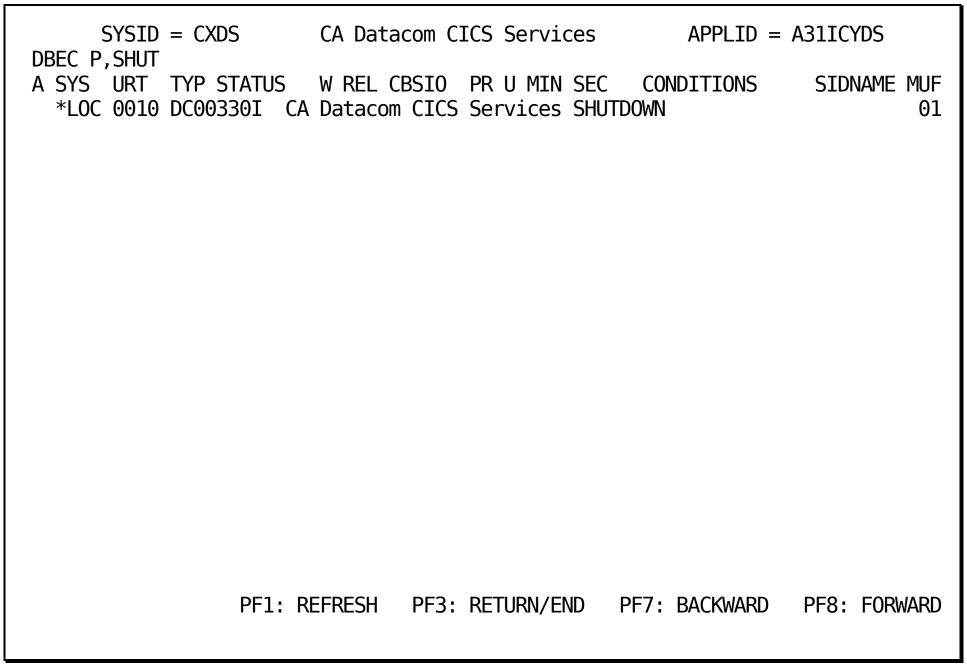
SHUTdown,

Action is to terminate CA Datacom CICS Services. SHUT is a valid abbreviation.

Command Example

Command	Result
DBEC PERFORM,SHUTDOWN	Terminates CA Datacom CICS Services in the local CICS system.
DBEC PER,SHUT	Terminates CA Datacom CICS Services in the local system.

Display Example



```
      SYSID = CXDS       CA Datacom CICS Services        APPLID = A31ICYDS
DBEC P,SHUT
A SYS  URT  TYP STATUS   W REL CBSIO  PR U MIN SEC   CONDITIONS     SIDNAME MUF
  *LOC 0010 DC00330I  CA Datacom CICS Services SHUTDOWN                      01

















                  PF1: REFRESH   PF3: RETURN/END   PF7: BACKWARD   PF8: FORWARD
```

Chapter 9: DBEC/DBEX: Monitoring and Controlling Remote System Resources with Enhanced Commands

In an MRO environment, requests to display information in read-only mode for MUFs and URTs in a remote CICS system can be issued as follows:

- With the DBEC transaction ID
- With the DBEX transaction ID
- With their substitute IDs

Issuing Requests with DBEC/DBEX

You can issue requests with either transaction ID for the following purposes:

- Display the status of MUFs and their processing options and statistics.
- Display the status of URTs and their processing options.
- Display processing options for database tables defined within the URTs.

In an MRO environment, requests to perform an action on a remote CICS system defined in the CICS Connection table can be issued with the DBEC transaction. The PERFORM commands can be issued from the console to control remote resources. You can issue requests with this transaction to accomplish any of the following tasks:

- Initiate or terminate CA Datacom CICS Services for a remote CICS system.
- Connect and disconnect MUFs in any attached system.
- Open and close URTs in any attached system.
- Set or reset *when to open* specifications for any URTs in any attached system.
- Move a new copy of a specified URT into a specified remote system.
- Override processing options established by the following DBCSID parameters in any remote MUF definition:
  - USERS= (Maximum threads for task processing)

- Reset statistics in any remote MUF definition.
- Override processing options established by the following DBURSTR parameters in any remote URT definition:
  - CBSIO= (Maximum I/O for set processing—CBS commands)
  - PRTY= (Request priority)
  - TIMEMIN= or TIMESEC= (Maximum wait time for held record)
  - TXNUNDO= (Transaction backout)
- Override processing options established by the following DBURTBL parameters in any remote URT definition:
  - AUTODXC= (Automatic dropping of exclusive control with subsequent read for update commands)
  - BYPOPEN= (Bypass opening table)
  - SYNONYM= (Table name is duplicated in this or another URT)
  - UPDATE= (Table is updatable)

The following considerations are relevant to the available functions used in monitoring and controlling resources in remote MRO regions.

- Using SYSID(*aaaa*) to reference a single remote CICS system requires that the referenced system has installed the CA Datacom CICS Services DBRC transaction required for communication.
- Using SYSID(*) to reference *all* attached CICS systems (as defined in the CICS connections table) requires that *all* of the attached CICS AOR regions have the DBRC transaction installed so that communication can take place.

  Note: The DBRC transaction is defined in the CA Datacom CICS Services CSD definitions.

In both previous cases, if a referenced AOR region does not have the CA Datacom CICS Services DBRC transaction installed, the DBEC/DBEX transaction issued from the TOR region receives the message "DBRC NOT DEFINED IN AOR". The transaction abends with an AZI6 abend code from CICS.

To use DBEC INQ,SYSID(*) in an MRO environment, define the following resources:

- For CICS AOR regions without CA Datacom CICS Services
  1. Define the DBRC transaction.
  2. Define the DCCERPR program.

- For CICS AOR regions with CA Datacom CICS Services installed, the necessary definitions for needed transactions and programs should be in place by having installed CA Datacom CICS Services CSD definitions. Specifically they are as follows:
    - Define the DBRC transaction.
    - Define the DCCERPR and DCCETPR programs.

The following topics provide detailed information about monitoring and controlling remote system resources in an MRO environment using a DBEC or DBEX transaction ID:

- DBEC/DBEX: Monitoring Remote System Resources (see page 221)
- DBEC: Controlling Remote System Resources (see page 257)

Chapter 10: DBEC/DBEX: Monitoring Remote System Resources with Enhanced Commands

This section discusses monitoring MUFs and MUF statistics, User Requirements Tables (URTs), and URT Tables (TBLs).

Displaying MUF-Level Processing Options

Requests for information on MUF resources are issued with the **DBEC** or the **DBEX** transaction followed by the INQUIRE operand. The options enable you to invoke a display of all MUFs.

If you issue the command with the DBEX transaction ID, you cannot update any information on the resulting scrollable display. The only allowable entries in the Action field are an S, E, T, or U, where:

S

Toggles to the URT-level display to display all the URTs for the MUF row containing your entry.

E

Toggles to the return code summary display for the MUF row containing your entry.

T

Toggles to the active task summary for the MUF.

U

Toggles to the task usage summary for the MUF.

If you issue the command with DBEC, you may alter certain fields on the panel or issue a statistics reset.

The following is an example of DBCSID macro. In a multiple MUF environment, a DBCSID macro is coded and appended to the DBCVTPR macro, each defining a particular CA Datacom/DB MUF connection. The values for the bold-faced parameters in this example are displayed on the MUF-level inquiry.

```
DBCSID SIDNAME=DBSIDPR,USERS=3,CONNECT=PLT,EOJ_OK=DISCONNECT
```

Invoke the following transaction to display the status of CA Datacom/DB MUFs.

Note: The status of any MUF displayed in this manner is current as of the time of the last request processed by that MUF. For example, if the last request processed by a MUF was 90 seconds ago, a DBEC I,MUF (or DBEX I,MUF) request displays the status of that MUF as it was 90 seconds ago.

```
►►─┬─ DBEC ─┬─ INQuire,┬MUF(nn) ──────────┬┬──────────────┬─ ,SYSid(aaaa) ─►◄
   └─ DBEX ─┘          └MSIDname(xxxxxxxx)┘└─ ,limiter ─┘
```

DBEC/DBEX

(Required) Specify a transaction ID valid with Enhanced commands used to monitor MUFs. Select the transaction ID for which you are authorized. Leave a space between the transaction ID and the command.

INQuire

(Required) Requests a scrollable display of MUFs. (INQ and I are valid abbreviations.)

,MUF(*nn*)

(Required) Specifies the inquiry is to invoke the MUF-level display. The value within the parentheses identifies the number of the MUF relative to the order of the DBCSID macros appended to the DBCVTPR macro, if multiple MUF are defined. This cannot be used with MSIDNAME.

nn

Specifies that you want to display *only* the MUF with the specific 2-digit number *nn*.

Alternately, instead of using the *nn* number to specify only a specific MUF, you can use the wildcard symbol ? (a question mark) to accept *any* digit 0 through 9 for one (or both) of the two digits of the number.

See Command Examples (see page 224).

MSIDname(*xxxxxxxx*)

(Required) Specifies the inquiry is to invoke the MUF-level display. The value within the parentheses identifies the MUFs identified by the SIDNAME specified in the DBCSID macros appended to the DBCVTPR macro if MUFs are defined. The MUFs that meet the qualification of your request are presented in the order that they are defined in the DBCSID macros of the DBCVTPR. MSIDname(*xxxxxxxx*) cannot be used with the MUF(nn) qualifier.

xxxxxxxx

Specifies that you want to display *only* the MUF with the SIDNAME specified as defined for the DBSIDPR module name *xxxxxxxx* for this MUF.

Alternately, instead of using the *xxxxxxxx* name to specify only a specific MUF, you can use the wildcard symbol * (asterisk) to accept SIDNAMEs that begin with a specific value. The asterisk represents any trailing characters in the SIDNAME.

See Command Examples (see page 224).

Note: MUF(*nn*) and MSIDname(*xxxxxxxx*) cannot both be used. Use the one to qualify the MUF inquiry in the manner that meets your needs.

,limiter

(Optional) Limits the inquiry to URTs of designated type, status, how defined for opening or those with no CICS System Definition data set (CSD) entry. The following are the values for designating limiters of each type:

Status

DISconnect

MUFs explicitly disconnected through a DBEC command. (DIS is a valid abbreviation.)

DISCONNECTING

MUFs with a disconnect in progress, where disconnect status is set at the completion of the current read or update and/or URT closes.

CONnect

MUFs that are currently connected. (CON is a valid abbreviation.)

CONNECTING

MUFs with a connect in progress, where connect status is set at the completion of the connect in the MUF.

UNConnected

MUFs defined as AUTO or DEFER that have not been connected by a program call or a DBEC transaction. (UNC is a valid abbreviation.)

When

AUTO

MUFs defined to be connected when required by a program or a URT open.

DEFer

MUFs defined to be connected only by an explicit DBEC command. (DEF is a valid abbreviation.)

PLT

MUFs connected at CA Datacom CICS Services startup, meaning those not defined for AUTO or DEFER.

Statistics

STATS

MUFs statistics display. Such statistics are available for dynamic reset by the R line command with the DBEC transaction ID.

,SYSid(aaaa)

(Required) For an MRO environment, the value within the parentheses determines whether the inquiry is for a single remote CICS system or for all CICS systems. Valid values are as follows:

aaaa

Four-character CICS identifier for a single remote CICS system, as defined in the CICS connection table.

*

All attached CICS systems, beginning with the local system.

(SYS is a valid abbreviation.)

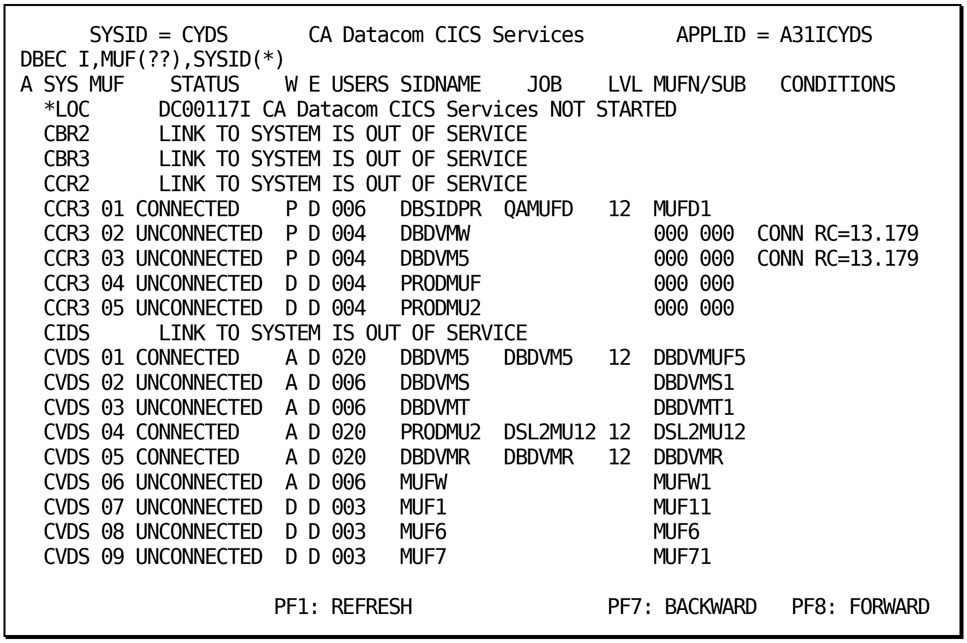
Command Examples

Each of the following commands displays scrollable MUF-level data for the specified remote system in read-only format. MUF information is presented in ascending numerical order by MUF number. Differences are presented in the "Result" column.

Command	Result
DBEX I,MUF(12),SYSID(SYSA)	Displays MUF 12 in system SYSA only.
DBEX I,MSIDNAME(DBSIDPR),SYSID(SYSA)	Displays the MUF in SYSA which is the default MUF or the MUF with the SIDNAME of DBSIDPR in the DBCSID macro of the DBCVTPR.
DBEX INQ,MUF(2?),SYSID(*)	Displays MUFs 20 through 29 in all connected CICS systems.
DBEX INQ,MUF(DB*),SYSID(*)	Displays MUFs with SIDNAMEs beginning with DB as specified in the DBCSID macros in the DBCVTPR in all connected systems. (Or the default MUF with the SIDNAME of DBSIDPR if there are no DBCSID macros defined in the DBCVTPR.)
DBEX INQ,MUF(??),SYSID(SYSA) DBEX I,MSID(*),SYSID(SYSA)	Displays all MUFs in the CICS system SYSA.

Command	Result
DBEX INQUIRE,MUF(??),SYSID(*) DBEX INQUIRE,MSIDNAME(*),SYSID(*)	Displays all MUFs in all systems, beginning with the local system followed by remote systems in the order defined in the CICS Connection Table.
DBEX I,MUF(2?),DISCONNECT,SYSID(SYSA)	Limits display to MUFs in CICS system SYSA which are in disconnected status and have a number between 20 and 29.
DBEX INQ,MUF(DB*),DISCONNECT,SYSID(SYSA)	Limits display to MUFs in CICS system SYSA which are in disconnected status and have SIDNAMEs beginning with DB as specified in the DBCSID macros in the DBCVTPR in all connected systems. Or, the default MUF with the SIDNAME of DBSIDPR if there are no DBCSID macros defined in the DBCVTPR.
DBEX I,MUF(??),DISCONNECTING,SYSID(*) DBEX I,MSID(*),DISCONNECTING,SYSID(*)	Limits displays to all MUFs in disconnecting status, that is to say those with DISCONNECTING in the STATUS column. The display begins with disconnecting MUFs in the local system followed by disconnecting MUFs in each remote system.
DBEX I,MUF(??),STATS,SYSID(*) DBEX I,MSIDNAME(*),STATS,SYSID(*)	Displays statistics for all MUFs. The display begins with MUFs in the local system, followed by MUFs in each remote system.
DBEX I,MUF(2?),PLT,SYSID(SYSA)	Limits display to MUFs 20 through 29 in the SYSA system which are connected at PLT time.
DBEX I,MSID(DB*),PLT,SYSID(SYSA)	Limits display to MUFs in CICS system SYSA which are connected at PLT time and have SIDNAMEs beginning with DB as specified in the DBCSID macros in the DBCVTPR or, the default MUF with the SIDNAME of DBSIDPR if there are no DBCSID macros defined in the DBCVTPR.

Display Example: DBEX I,MUF(??),SYSID(*)



```
      SYSID = CYDS       CA Datacom CICS Services        APPLID = A31ICYDS
DBEC I,MUF(??),SYSID(*)
A SYS MUF    STATUS    W E USERS SIDNAME    JOB    LVL MUFN/SUB   CONDITIONS
  *LOC      DC00117I CA Datacom CICS Services NOT STARTED
  CBR2      LINK TO SYSTEM IS OUT OF SERVICE
  CBR3      LINK TO SYSTEM IS OUT OF SERVICE
  CCR2      LINK TO SYSTEM IS OUT OF SERVICE
  CCR3 01 CONNECTED    P D 006   DBSIDPR  QAMUFD   12  MUFD1
  CCR3 02 UNCONNECTED  P D 004   DBDVMW                MUFD1
  CCR3 03 UNCONNECTED  P D 004   DBDVM5                000 000  CONN RC=13.179
  CCR3 04 UNCONNECTED  D D 004   PRODMUF               000 000
  CCR3 05 UNCONNECTED  D D 004   PRODMU2               000 000
  CIDS      LINK TO SYSTEM IS OUT OF SERVICE
  CVDS 01 CONNECTED    A D 020   DBDVM5   DBDVM5   12  DBDVMUF5
  CVDS 02 UNCONNECTED  A D 006   DBDVMS                DBDVMS1
  CVDS 03 UNCONNECTED  A D 006   DBDVMT                DBDVMT1
  CVDS 04 CONNECTED    A D 020   PRODMU2  DSL2MU12 12  DSL2MU12
  CVDS 05 CONNECTED    A D 020   DBDVMR   DBDVMR   12  DBDVMR
  CVDS 06 UNCONNECTED  A D 006   MUFW                  MUFW1
  CVDS 07 UNCONNECTED  D D 003   MUF1                  MUF11
  CVDS 08 UNCONNECTED  D D 003   MUF6                  MUF6
  CVDS 09 UNCONNECTED  D D 003   MUF7                  MUF71

                      PF1: REFRESH                 PF7: BACKWARD   PF8: FORWARD
```

Field Descriptions

A

Action to perform with DBEX:

E

Select and display the return code summary for that MUF.

S

Select and begin browse display at the URT level.

T

Select and begin browse display of active tasks for that MUF.

U

Select and begin browse display of the concurrent users summary for that MUF.

SYS

Identifies the CICS system to which this display line refers. *LOC means local CICS or TOR.

MUF

Identifies sequence number of the MUF.

STATUS

Indicates the CONNECT status of the MUF:

UNCONNECTED

Not yet connected by a program call, PLT, or a DBEC transaction.

DISCONNECTED

Explicitly disconnected with a DBEC P,DISCONNECT.

DISCONNECTING

Disconnect requested by DBEC P,DISCONNECT command, but not yet disconnected pending completion of a read in progress, URT closes, or a transaction having exclusive control.

CONNECTED

Connected by CA Datacom CICS Services but no transaction to disconnect it has been issued.

CONNECTING

Connect requested by DBEC P,CONNECT command, but not yet connected pending completion of the request in progress in the MUF.

W

(WHEN) Indicates when CA Datacom CICS Services connects the MUF:

P

(PLT) Specifies the MUF is to connect by CA Datacom CICS Services at startup time.

A

(AUTO) Specifies the MUF is automatically connected by CA Datacom CICS Services when an application request or URT open needs this MUF.

D

(DEFER) Specifies the MUF can only be connected with an explicit DBEC command.

E

The E (EOJ_OK) value represents CA Datacom CICS Services participation in an EOJ being issued for the default MUF. A value of No indicates that CA Datacom CICS Services does not participate in the EOJ of MUF. This means that MUF cannot EOJ until the MUF is disconnected in CA Datacom CICS Services. The value of Disconnect or Immediate determines the CA Datacom CICS Services action when notified of a MUF EOJ. If these two values are specified and there is no request activity within a specific time interval in CICS for this MUF, MUF severs the connection. The MUF startup option of X_EOJ_OK_S_DELAY determines this interval. This feature is not supported in CA Datacom/DB Version 12.0.

USERS

Number of tasks allocated to this MUF for processing requests.

SIDNAME

The SIDNAME specified on the DBCSID macro in the DBCVTPR or the default SIDNAME of DBSI*DPR if no DBCSID macro has been specified in the DBCVTPR macro.

Note: The status of any MUF displayed in this manner is current as of the time of the last request processed by that MUF. For example, if the last request processed by a MUF was 90 seconds ago, a DBEC I,MUF (or DBEX I,MUF) request displays the status of that MUF as it was 90 seconds ago.

JOB

Identifies the job name of the active MUF.

LVL

Identifies the release level of the active MUF.

MUFN/SUB

This field displays the MUF name if the SIDNAME module is assembled with a name that is specified by the MUFNAME= that matches the MUF name specified in the MUF startup option. Otherwise, this field displays the number of the SVC and SVC sub-ID associated with this MUF as defined in the SIDNAME module.

CONDITIONS

Specifies one of the following:

CONN RC=nn.yyy

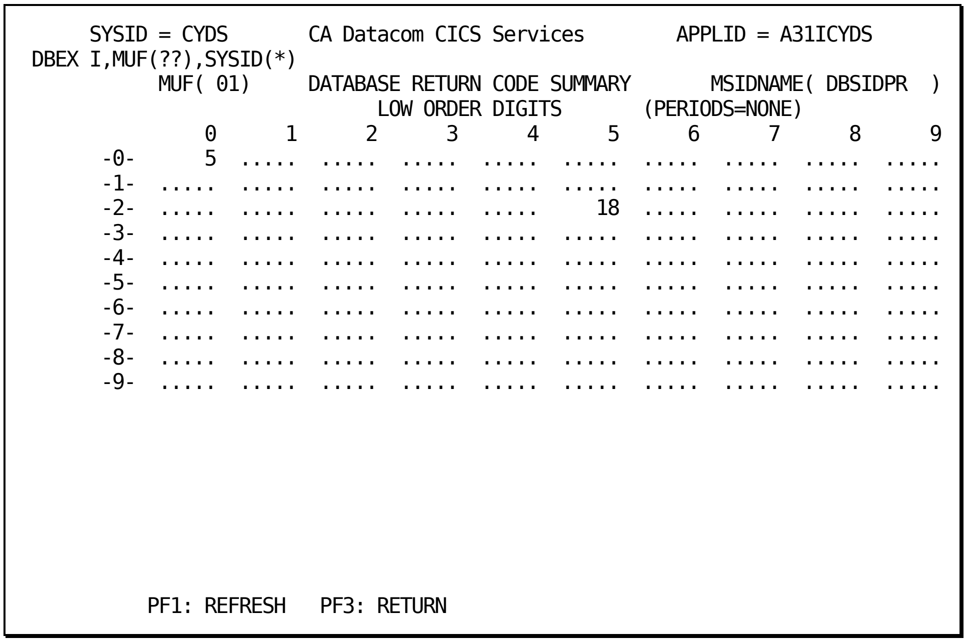
The last connect request for this MUF failed for the reason indicated by CA Datacom/DB return code *nn* and internal return code *yyy*.

DISC RC=nn.yyy

The last disconnect request for this MUF failed for the reason indicated by CA Datacom/DB return code *nn* and internal return code *yyy*.

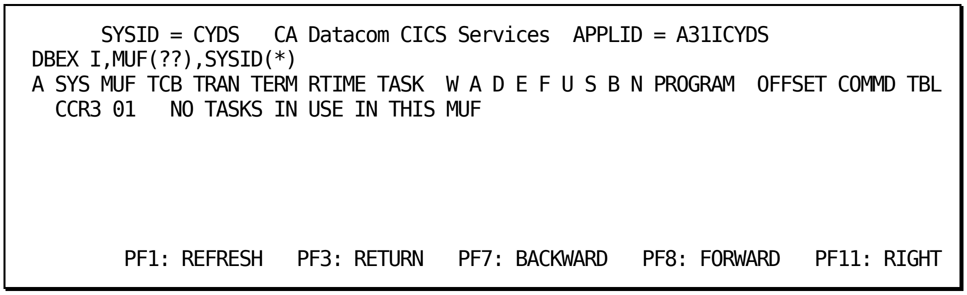
For CICS regions defined in CICS by CONNECTION and SESSION CSD definitions, see the *Message Reference Guide* for a description of the messages that are displayed if that the inquiry cannot retrieve the requested MUF-level display information.

From this display, if you key an E in the action field of the first MUF row, the resulting display shows the return code summary for that MUF.



```
     SYSID = CYDS       CA Datacom CICS Services        APPLID = A31ICYDS
DBEX I,MUF(??),SYSID(*)
           MUF( 01)     DATABASE RETURN CODE SUMMARY       MSIDNAME( DBSIDPR  )
                              LOW ORDER DIGITS       (PERIODS=NONE)
               0      1      2      3      4      5      6      7      8      9
      -0-      5  .....  .....  .....  .....  .....  .....  .....  .....  .....
      -1-  .....  .....  .....  .....  .....  .....  .....  .....  .....  .....
      -2-  .....  .....  .....  .....  .....     18  .....  .....  .....  .....
      -3-  .....  .....  .....  .....  .....  .....  .....  .....  .....  .....
      -4-  .....  .....  .....  .....  .....  .....  .....  .....  .....  .....
      -5-  .....  .....  .....  .....  .....  .....  .....  .....  .....  .....
      -6-  .....  .....  .....  .....  .....  .....  .....  .....  .....  .....
      -7-  .....  .....  .....  .....  .....  .....  .....  .....  .....  .....
      -8-  .....  .....  .....  .....  .....  .....  .....  .....  .....  .....
      -9-  .....  .....  .....  .....  .....  .....  .....  .....  .....  .....







          PF1: REFRESH   PF3: RETURN
```

From this screen, PF3 returns you to the MUF-level display where you can choose another display, and PF1 refreshes the current display. From the MUF-level display, you can then key a T in the action of a MUF row. The resulting display is the active task summary for that MUF.



```
      SYSID = CYDS   CA Datacom CICS Services  APPLID = A31ICYDS
DBEX I,MUF(??),SYSID(*)
A SYS MUF TCB TRAN TERM RTIME TASK  W A D E F U S B N PROGRAM  OFFSET COMMD TBL
  CCR3 01   NO TASKS IN USE IN THIS MUF




        PF1: REFRESH   PF3: RETURN   PF7: BACKWARD   PF8: FORWARD   PF11: RIGHT
```

Field Descriptions

A

There is no available action.

SYS

Identifies the CICS system to which this display line refers. *LOC means local CICS or TOR.

MUF

The ID of the MUF accessed by the current event, consisting of two numbers nn, where nn can be 01 through 99.

TCB

The Task Control Block sequence number which identifies the thread used by the current event.

TRAN

The CICS transaction ID associated with the listed task.

TERM

The ID of the terminal which initiated the listed command, or ???? if no terminal was attached to the issue of the command.

RTIME

Time of day when the task last issued a CA Datacom/DB request.

TASK

CICS Task number.

W

AWAITING DB RESPONSE—A request passed control to the MUF and has not yet returned control to CA Datacom CICS Services.

A

ABENDING—The task has an abend condition or the MUF detected an abnormal condition.

D

COMMIT IN PROCESS—The task is terminating and CA Datacom CICS Services is performing final task cleanup.

E

EXCLUSIVE CONTROL—The task has acquired exclusive control by reading a record for update and the TCB is dedicated to this task until it finishes.

F

COMMIT FAIL—The task is terminating, but the CA Datacom CICS Services final cleanup for the task has failed.

U

DWE IN PROCESS—The task is terminating.

S

SYNCPOINT IN PROCESS—The task is currently in CICS SYNCPOINT processing.

B

DTB IN PROCESS—The task ended abnormally and is terminating with dynamic transaction backout.

N

NORMAL TERMINATION—The task has finished terminating, and all requests have completed.

PROGRAM

Name of the application program of this task.

OFFSET

Offset of the return address (in hexadecimal) of the application program.

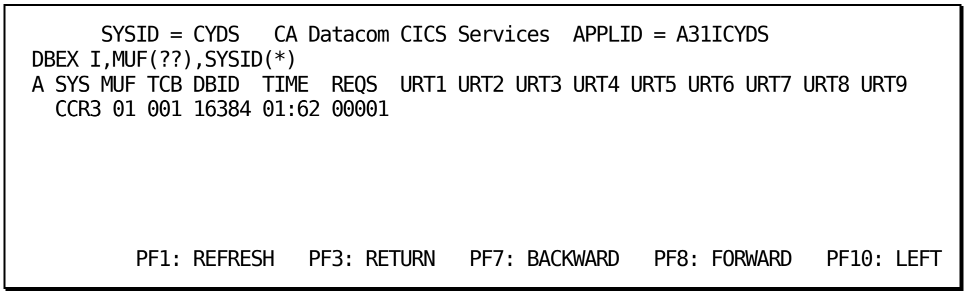
COMMD

The last CA Datacom/DB command used by this task.

TBL

The last CA Datacom/DB table used by this task.

From this screen, PF1 refreshes the active task data, PF3 returns to the MUF display, and PF11 displays the second screen of active task data.



```
      SYSID = CYDS   CA Datacom CICS Services  APPLID = A31ICYDS
DBEX I,MUF(??),SYSID(*)
A SYS MUF TCB DBID  TIME  REQS  URT1 URT2 URT3 URT4 URT5 URT6 URT7 URT8 URT9
  CCR3 01 001 16384 01:62 00001




         PF1: REFRESH   PF3: RETURN   PF7: BACKWARD   PF8: FORWARD   PF10: LEFT
```

Field Descriptions

A

There is no available action.

SYS

Identifies the CICS system to which this display line refers. *LOC means local CICS or TOR.

MUF

The ID of the MUF being accessed by the current event, consisting of two numbers nn, where nn can be 01 through 99.

TCB

The Task Control Block sequence number which identifies the thread being used by the current event.

DBID

The last database used by this task.

TIME

Time of day when the task first used this Task Control Block.

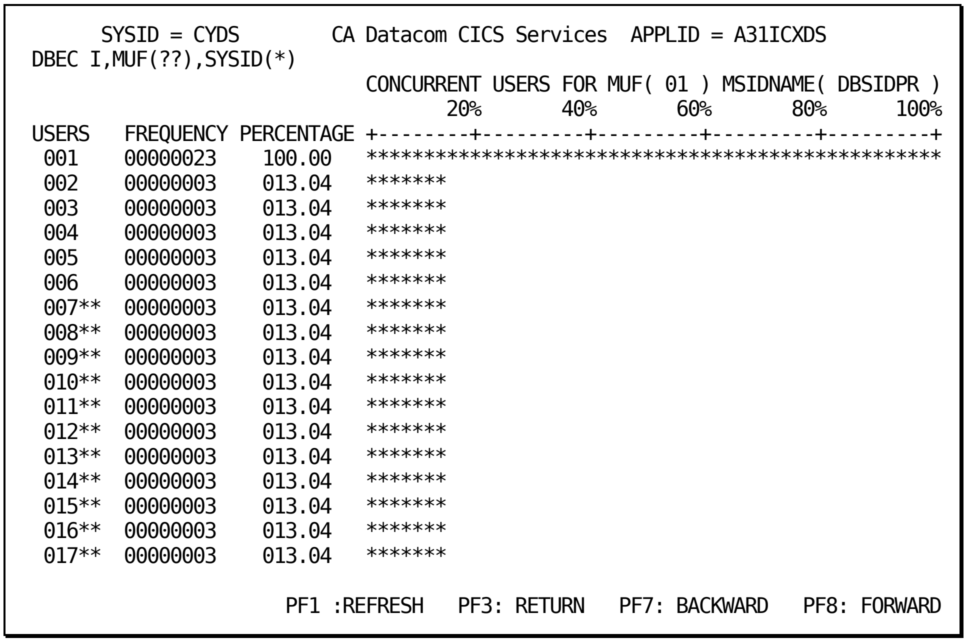
REQS

Number of CA Datacom/DB requests issued by the referenced task using the referenced TCB.

URT1-URT9

First through ninth URT used for exclusive control in this task.

From this screen, PF1 refreshes the data of this screen, PF10 returns to the first screen of active task data, and PF3 returns you to the MUF-level display where you can choose another display. From the MUF-level display, you can then key a U in the action of a MUF row. The resulting display is the task usage summary for that MUF.



```
      SYSID = CYDS        CA Datacom CICS Services  APPLID = A31ICXDS
DBEC I,MUF(??),SYSID(*)
                             CONCURRENT USERS FOR MUF( 01 ) MSIDNAME( DBSIDPR )
                                    20%       40%       60%       80%      100%
USERS   FREQUENCY PERCENTAGE +--------+---------+---------+---------+---------+
 001    00000023    100.00   **************************************************
 002    00000003    013.04   *******
 003    00000003    013.04   *******
 004    00000003    013.04   *******
 005    00000003    013.04   *******
 006    00000003    013.04   *******
 007**  00000003    013.04   *******
 008**  00000003    013.04   *******
 009**  00000003    013.04   *******
 010**  00000003    013.04   *******
 011**  00000003    013.04   *******
 012**  00000003    013.04   *******
 013**  00000003    013.04   *******
 014**  00000003    013.04   *******
 015**  00000003    013.04   *******
 016**  00000003    013.04   *******
 017**  00000003    013.04   *******

                      PF1 :REFRESH   PF3: RETURN   PF7: BACKWARD   PF8: FORWARD
```

Field Descriptions

USERS

A sequence number for a user invoking the reserving of transactions or physically waiting on a read event, where asterisks following the sequence number carry the following meaning:

- The highest number without an asterisk identifies the value assigned to the USERS= parameter, for example, 3 in the display example.
- The 12 extra USERS (021**-032**) beyond the allocated USERS represent how many more USERS you could allocate to have better distribution of TCB usage.

FREQUENCY

The values shown under the FREQUENCY heading denote the total number of requests at the time a request arrives for service. CA Datacom CICS Services requires n threads (for USERS: *nnn*) to service the request without waiting for thread availability. For example, for USERS 006 in the example, this means that 3 requests were counted at a time when there were six concurrent users issuing requests.

PERCENTAGE

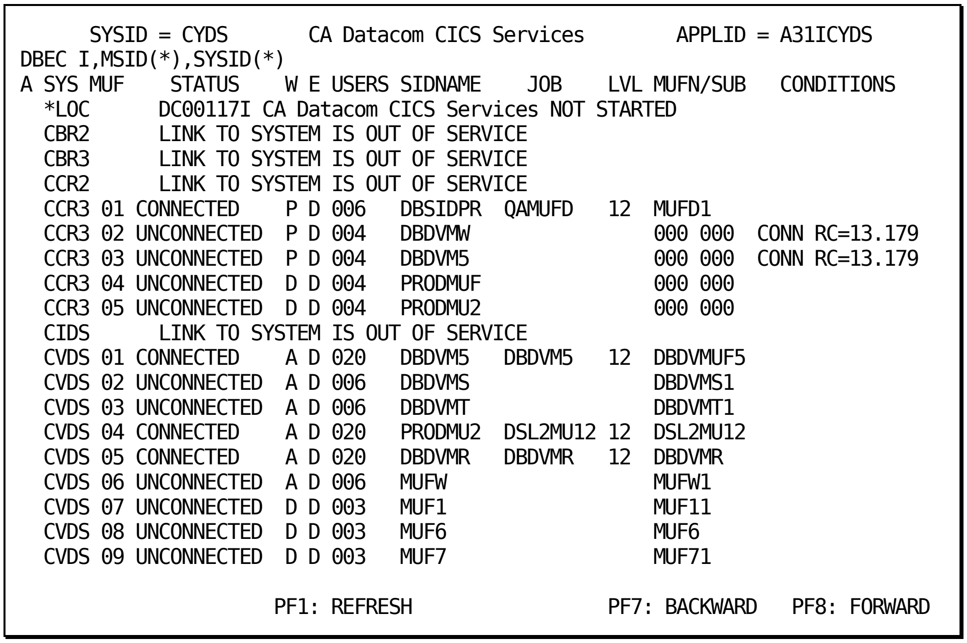
Indicates the percentage of time that concurrent requests are being issued by the number listed in the USERS column. That is, 6 users are attempting requests concurrently about 13 percent of the time. In the display example, USERS 006 percentage data 13.04 was computed by dividing 3 (frequency of USERS: 006) by 23 (frequency of USERS: 001, which was serviced 100 percent of the time).

CONCURRENT USERS FOR MUF (*nn*) MSIDNAME (*xxxxxxxx*)

Users concurrently invoking reserving transactions or physically waiting on a read event for the selected MUF indicated by its sequence number in the DBCSID macros of the DBVTPR and the SIDNAME specified in the respective DBCSID macro.

Note: After statistics are captured over a longer period of time, the graphical display under Concurrent Users for Selected MUF becomes more meaningful.

Display Example: DBEC I,MSID(*),SYSID(*)



```
      SYSID = CYDS       CA Datacom CICS Services        APPLID = A31ICYDS
DBEC I,MSID(*),SYSID(*)
A SYS MUF    STATUS    W E USERS SIDNAME    JOB    LVL MUFN/SUB   CONDITIONS
  *LOC      DC00117I CA Datacom CICS Services NOT STARTED
  CBR2      LINK TO SYSTEM IS OUT OF SERVICE
  CBR3      LINK TO SYSTEM IS OUT OF SERVICE
  CCR2      LINK TO SYSTEM IS OUT OF SERVICE
  CCR3 01 CONNECTED    P D 006   DBSIDPR  QAMUFD   12  MUFD1
  CCR3 02 UNCONNECTED  P D 004   DBDVMW                000 000  CONN RC=13.179
  CCR3 03 UNCONNECTED  P D 004   DBDVM5                000 000  CONN RC=13.179
  CCR3 04 UNCONNECTED  D D 004   PRODMUF               000 000
  CCR3 05 UNCONNECTED  D D 004   PRODMU2               000 000
  CIDS      LINK TO SYSTEM IS OUT OF SERVICE
  CVDS 01 CONNECTED    A D 020   DBDVM5   DBDVM5   12  DBDVMUF5
  CVDS 02 UNCONNECTED  A D 006   DBDVMS                DBDVMS1
  CVDS 03 UNCONNECTED  A D 006   DBDVMT                DBDVMT1
  CVDS 04 CONNECTED    A D 020   PRODMU2  DSL2MU12 12  DSL2MU12
  CVDS 05 CONNECTED    A D 020   DBDVMR   DBDVMR   12  DBDVMR
  CVDS 06 UNCONNECTED  A D 006   MUFW                  MUFW1
  CVDS 07 UNCONNECTED  D D 003   MUF1                  MUF11
  CVDS 08 UNCONNECTED  D D 003   MUF6                  MUF6
  CVDS 09 UNCONNECTED  D D 003   MUF7                  MUF71

                      PF1: REFRESH                PF7: BACKWARD   PF8: FORWARD
```

Field Descriptions

A

Action to perform with DBEX:

E

Select and display return code summary for that MUF.

S

Select and begin browse display at URT level.

T

Select and begin browse display of active tasks for that MUF.

U

Select and begin browse display of concurrent users summary for that MUF.

SYS

Identifies the CICS system to which this display line refers. *LOC means local CICS or TOR.

MUF

Identifies sequence number of the MUF.

STATUS

Indicates the CONNECT status of the MUF:

UNCONNECTED

Not yet connected by a program call, PLT, or a DBEC transaction.

DISCONNECTED

Explicitly disconnected with a DBEC P,DISCONNECT.

DISCONNECTING

Disconnect requested by DBEC P,DISCONNECT command, but not yet disconnected pending completion of a read in progress, URT closes, or a transaction having exclusive control.

CONNECTED

Connected by CA Datacom CICS Services but no transaction to disconnect it has been issued.

CONNECTING

Connect requested by DBEC P,CONNECT command, but not yet connected pending completion of the request in progress in the MUF.

W

(WHEN) Indicates when CA Datacom CICS Services connects the MUF:

P

(PLT) Specifies the MUF is connected by CA Datacom CICS Services at startup time.

A

(AUTO) Specifies the MUF is automatically connected by CA Datacom CICS Services when an application request or URT open needs this MUF.

D

(DEFER) Specifies the MUF can only be connected with an explicit DBEC command.

E

The E (EOJ_OK) value represents CA Datacom CICS Services participation in an EOJ being issued for the default MUF. A value of No indicates that CA Datacom CICS Services does not participate in the EOJ of MUF. This means that MUF cannot EOJ until the MUF is disconnected in CA Datacom CICS Services. The value of Disconnect or Immediate determines the CA Datacom CICS Services action when notified of a MUF EOJ. If these two values are specified and there is no request activity within a specific time interval in CICS for this MUF, MUF severs the connection. The MUF startup option of X_EOJ_OK_S_DELAY determines this interval. This feature is not supported in CA Datacom/DB Version 12.0.

USERS

Number of tasks allocated to this MUF for processing requests.

SIDNAME

The SIDNAME specified on the DBCSID macro in the DBCVTPR or the default SIDNAME of DBSIDPR if no DBCSID macro has been specified in the DBCVTPR macro.

Note: The status of any MUF displayed in this manner is current as of the time of the last request processed by that MUF. For example, if the last request processed by a MUF was 90 seconds ago, a DBEC I,MUF (or DBEX I,MUF) request displays the status of that MUF as it was 90 seconds ago.

JOB

Identifies the job name of the active MUF.

LVL

Identifies the release level of the active MUF.

MUFN/SUB

This field displays the MUF name if the SIDNAME module is assembled with a name specified by MUFNAME= that matches the MUF name specified in the MUF startup option. Otherwise, this field displays the number of the SVC and SVC sub-ID associated with this MUF as defined in the SIDNAME module.

CONDITIONS

Specifies one of the following:

CONN RC=nn.yyy

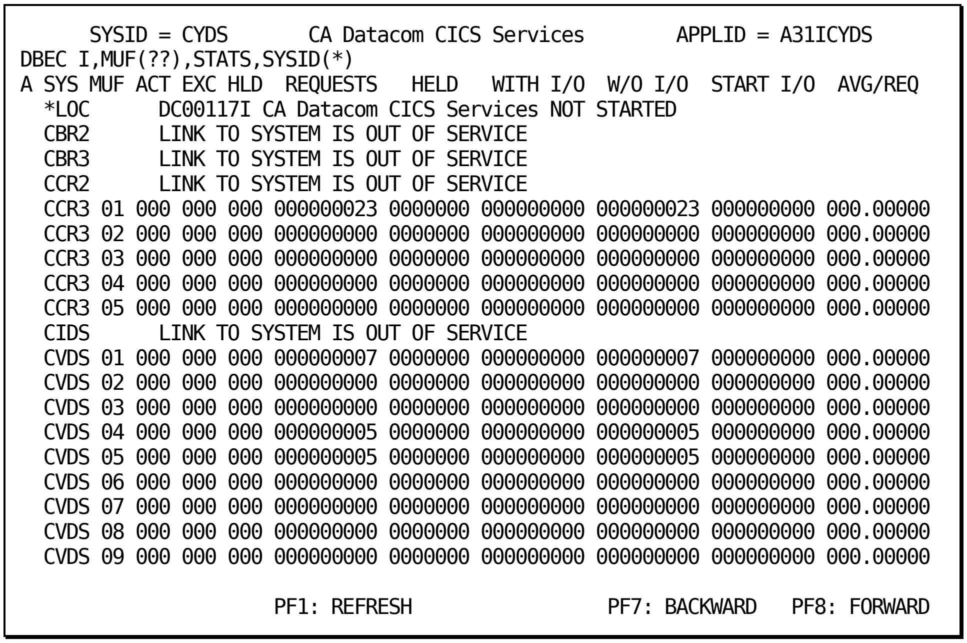
The last connect request for this MUF failed for the reason indicated by CA Datacom/DB return code *nn* and internal return code *yyy*.

DISC RC=nn.yyy

The last disconnect request for this MUF failed for the reason indicated by CA Datacom/DB return code *nn* and internal return code *yyy*.

For CICS regions that have been defined in CICS by CONNECTION and SESSION CSD definitions, see the *Message Reference Guide* for a description of the messages that are displayed if that the inquiry cannot retrieve the requested MUF-level display information.

Display Example: DBEC I,MUF(??),STATS,SYSID(*)



```
      SYSID = CYDS       CA Datacom CICS Services        APPLID = A31ICYDS
DBEC I,MUF(??),STATS,SYSID(*)
A SYS MUF ACT EXC HLD  REQUESTS   HELD   WITH I/O  W/O I/O  START I/O  AVG/REQ
  *LOC      DC00117I CA Datacom CICS Services NOT STARTED
  CBR2      LINK TO SYSTEM IS OUT OF SERVICE
  CBR3      LINK TO SYSTEM IS OUT OF SERVICE
  CCR2      LINK TO SYSTEM IS OUT OF SERVICE
  CCR3 01 000 000 000 000000023 0000000 000000000 000000023 000000000 000.00000
  CCR3 02 000 000 000 000000000 0000000 000000000 000000000 000000000 000.00000
  CCR3 03 000 000 000 000000000 0000000 000000000 000000000 000000000 000.00000
  CCR3 04 000 000 000 000000000 0000000 000000000 000000000 000000000 000.00000
  CCR3 05 000 000 000 000000000 0000000 000000000 000000000 000000000 000.00000
  CIDS      LINK TO SYSTEM IS OUT OF SERVICE
  CVDS 01 000 000 000 000000007 0000000 000000000 000000007 000000000 000.00000
  CVDS 02 000 000 000 000000000 0000000 000000000 000000000 000000000 000.00000
  CVDS 03 000 000 000 000000000 0000000 000000000 000000000 000000000 000.00000
  CVDS 04 000 000 000 000000005 0000000 000000000 000000005 000000000 000.00000
  CVDS 05 000 000 000 000000005 0000000 000000000 000000005 000000000 000.00000
  CVDS 06 000 000 000 000000000 0000000 000000000 000000000 000000000 000.00000
  CVDS 07 000 000 000 000000000 0000000 000000000 000000000 000000000 000.00000
  CVDS 08 000 000 000 000000000 0000000 000000000 000000000 000000000 000.00000
  CVDS 09 000 000 000 000000000 0000000 000000000 000000000 000000000 000.00000

                      PF1: REFRESH                 PF7: BACKWARD   PF8: FORWARD
```

Field Descriptions

A

There is no available action in read-only mode (DBEX).

SYS

Identifies the CICS system to which this display line refers. *LOC means local CICS or TOR.

MUF

Identifies sequence number of the MUF relative to the position of the associated DBCSID macro appended to the DBCVTPR macro..

ACT

Indicates the total of tasks currently waiting for CA Datacom/DB I/O to complete.

EXC

Indicates the total of tasks which have acquired exclusive control by issuing update requests to CA Datacom/DB.

HLD

Indicates the current number of tasks waiting for access to CA Datacom/DB. If this is not zero (000), the maximum number of concurrent users has been reached. The maximum number of concurrent users is defined in the DBCVTPR macro as described in the *CA Datacom CICS Services System Reference Guide*.

REQUESTS

Indicates the total number of CA Datacom/DB requests issued since CA Datacom CICS Services initiation, or since a DBOC RESET=STATS transaction was issued.

HELD

Indicates the total number of requests which had to wait for CA Datacom/DB access since CA Datacom CICS Services initiation, or since a DBOC RESET=STATS transaction was issued.

WITH I/O

Indicates the total number of requests receiving CA Datacom/DB service after an I/O wait.

W/O I/O

Indicates the total number of requests receiving CA Datacom/DB service without an I/O wait.

START I/O

Indicates the total number of start I/Os issued by CA Datacom/DB.

AVG/REQ

Indicates the average number of start I/Os issued by CA Datacom/DB per request.

Displaying URT-Level Processing Options

Requests for information on URT resources are issued with the **DBEC** or the **DBEX** transaction followed by the INQUIRE operand. The options enable you to invoke a display of all URTs.

If you issue the command with the DBEX transaction ID, you cannot update any information on the resulting scrollable display. The only allowable entry in the Action field is an S, which toggles to the Table-level display beginning with the URT for the row containing your entry. If you issue the command with DBEC, you can alter certain fields on the panel.

The following is an example of a URT. A URT begins with a DBURSTR macro, contains one or more DBURTBL macros, each defining a particular CA Datacom/DB table, and ends with a DBUREND macro. The values for the bold-faced parameters in this example are displayed on the URT-level inquiry.

```
URT   TITLE 'ONLINE URT FOR REQUESTS USING MULTI-USER FACILITY'

DBURSTR       MULTUSE=YES,WRITE=NO,

              CBSIO=0,PRTY=7,TXNUNDO=YES,TIMEMIN=5,TIMESEC=0

DBURTBL       TBLNAME=PAY,DBID=004,

              AUTODXC=YES,BYPOPEN=NO,SYNONYM=YES,UPDATE=YES

DBUREND       DBSQL=YES,USRINFO=CAICICS

END
```

Invoke the following transaction to display the status of CA Datacom/DB URTs.

```
►►─┬─ DBEC ─┬─ INQuire,URT(nnnn) ─┬──────────────┬─ ,SYSid(aaaa) ──────────►
   └─ DBEX ─┘                     └─ ,limiter ───┘

►─┬───────────────────────┬──────────────────────────────────────────────►◄
  └─ ,SIDname(xxxxxxxx) ──┘
```

DBEC/DBEX

(Required) Specify a transaction ID valid with Enhanced commands used to monitor URTs. Select the transaction ID for which you are authorized. Leave a space between the transaction ID and the command.

INQuire,

(Required) Requests a scrollable display of URTs. (INQ and I are valid abbreviations.)

URT(*nnnn*)

(Required) URT specifies the inquiry is to invoke the URT-level display. The value within the parentheses identifies the suffix of the URT.

nnnn

Specifies that you want to display *only* the URT with the specific 4-digit suffix *nnnn*.

Alternately, instead of using the *nnnn* suffix to specify only a specific URT, you can use the wildcard symbol ? (a question mark) to accept *any* digit 0 - 9 for any (or all) of the four digits of the suffix.

See Command Examples (see page 242).

,limiter

(Optional) Limits the inquiry to URTs of designated type, status, how defined for opening or those with no CICS System Definition data set (CSD) entry. The following are the values for designating limiters of each type:

Type

DYN

URTs dynamically built by a CA product.

SQL

URTs for applications issuing SQL statements.

Status

CLOSE

URTs explicitly closed through a DBOC/DBEC command.

CLOSING

URTs with a close in progress, where close is invoked at the completion of the current read or update.

OPEN

URTs which are currently open.

OPENING

URTs with an open in progress, where open status is set at the completion of the current open in MUF.

UNOpened

URTs defined as AUTO or DEFER which have not been opened by a program call or a DBOC/DBEC transaction. (UNO is a valid abbreviation.)

When

AUTO

URTs defined to open when required by a program.

DEFer

URTs defined to open only by an explicit DBOC/DBEC command. (DEF is a valid abbreviation.)

PLT

URTs opened at CA Datacom CICS Services startup, meaning those not defined for AUTO or DEFER.

Condition

NOCSD

URTs have no CICS System Definition data set (CSD) entry. Such URTs are available for dynamic creation by a CA product.

,SYSid(*aaaa*)

(Required) For an MRO environment, the value within the parentheses determines whether the inquiry is for a single remote CICS system or for all CICS systems. Valid values follow:

aaaa

Four-character CICS identifier for a single remote CICS system, as defined in the CICS connection table.

*****

All attached CICS systems, beginning with the local system.

(SYS is a valid abbreviation.)

,SIDname(*xxxxxxxx*)

(Optional) Specify one specific SID name to which the URT inquiry applies by MUF (see the DBURSTR macro SIDNAME= parameter in the *CA Datacom/DB Database and System Administration Guide* and the DBCSID macro SIDNAME= parameter in the *System Reference Guide*) or any number of leading characters of SID names, followed by an asterisk (*) to specify a range of SID names to which the URT inquiry applies by MUFs. Omitting the SIDNAME(*xxxxxxxx*) limiter results in the command being applied to all MUFs in the remote systems. (SID is a valid abbreviation.)

If the URT-level display information cannot be retrieved for a remote system, see the *Message Reference Guide* for an explanation of the message that displays for that CICS system.

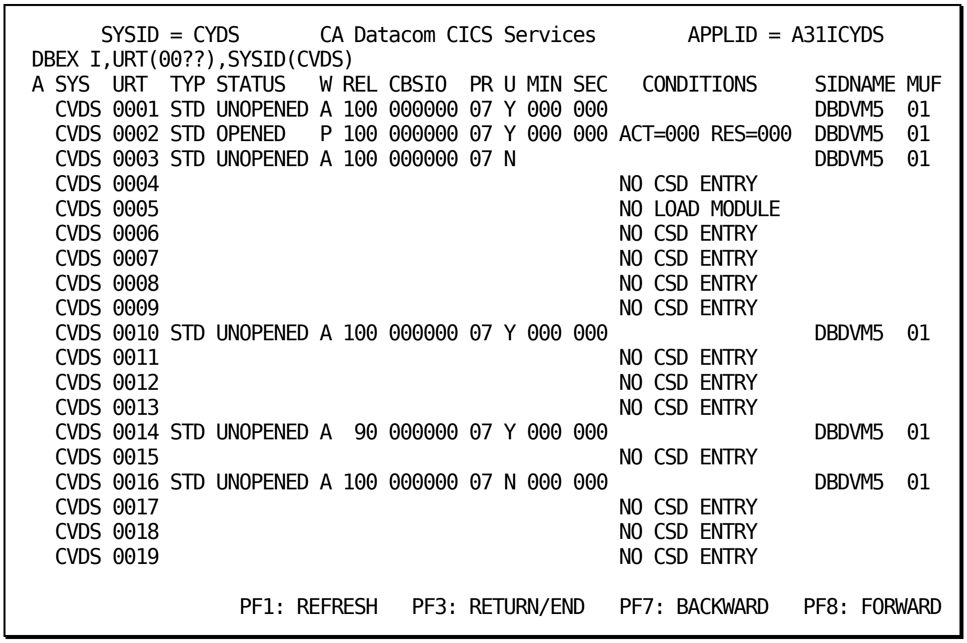
Command Examples

Each of the following commands displays scrollable URT-level data for the specified remote system in read-only format. URT information is presented in ascending numerical order by URT suffix. Differences are presented in the "Result" column.

Command	Result
DBEX I,URT(12),SYSID(SYSA)	Displays URT 0012 in system SYSA only.
DBEX INQ,URT(2?),SYSID(*)	Displays URTs 0020 through 0029 in all connected CICS systems.

Command	Result
DBEX INQ,URT(????),SIDNAME(DBSIDPR),SYSID(SYSA)	Displays all URTs in the CICS system SYSA and only those that are associated with the MUF that uses the DBSIDPR module as defined by the DBCSID macro for connection.
DBEX INQUIRE,URT(????),SYSID(*)	Displays all URTs in all systems, beginning with the local system followed by remote systems in the order defined in the CICS Connection Table.
DBEX I,URT(2?),CLOSE,SYSID(SYSA)	Limits display to URTs in CICS system SYSA which are in closed status and have a suffix between 0020 and 0029.
DBEX I,URT(????),CLOSING,SIDNAME(PROD*),SYSID(*)	Limits displays to URTs in closing status, that is to say those with CLOSING in the STATUS column, and further limits the display to the URTs associated with any MUF that is defined by the DBCSID macros for connection with a SID module name that begins with PROD. The display begins with closing URTs in the local system followed by closing URTs in each remote system.
DBEX I,URT(2?),DYN,SYSID(*)	Limits display to dynamically build (that is to say with DYN in the TYP column) URTs 0020 through 0029. The display begins with URTs in the local system, followed by URTs in connected remote systems.
DBEX I,URT(????),NOCSD,SYSID(SYSA)	Limits display to URTs in SYSA which have no entry in the CICS System Definition data set (CSD).
DBEX I,URT(2?),PLT,SYSID(CXDS)	Limits display to URTs 0020 through 0029 in the CXDS system which are opened at PLT time.
DBEX I,URT(????),SQL,SYSID(*)	Limits display to URTs defined for SQL applications, that is to say those with SQL in the TYP column. Display begins with all local SQL URTs, followed by all SQL URTs in each remote system.

Display Example: DBEX I,URT(00??),SYSID(CVDS)



```
      SYSID = CYDS       CA Datacom CICS Services        APPLID = A31ICYDS
DBEX I,URT(00??),SYSID(CVDS)
A SYS  URT  TYP STATUS   W REL CBSIO  PR U MIN SEC   CONDITIONS     SIDNAME MUF
  CVDS 0001 STD UNOPENED A 100 000000 07 Y 000 000                  DBDVM5  01
  CVDS 0002 STD OPENED   P 100 000000 07 Y 000 000 ACT=000 RES=000  DBDVM5  01
  CVDS 0003 STD UNOPENED A 100 000000 07 N                          DBDVM5  01
  CVDS 0004                                        NO CSD ENTRY
  CVDS 0005                                        NO LOAD MODULE
  CVDS 0006                                        NO CSD ENTRY
  CVDS 0007                                        NO CSD ENTRY
  CVDS 0008                                        NO CSD ENTRY
  CVDS 0009                                        NO CSD ENTRY
  CVDS 0010 STD UNOPENED A 100 000000 07 Y 000 000                  DBDVM5  01
  CVDS 0011                                        NO CSD ENTRY
  CVDS 0012                                        NO CSD ENTRY
  CVDS 0013                                        NO CSD ENTRY
  CVDS 0014 STD UNOPENED A  90 000000 07 Y 000 000                  DBDVM5  01
  CVDS 0015                                        NO CSD ENTRY
  CVDS 0016 STD UNOPENED A 100 000000 07 N 000 000                  DBDVM5  01
  CVDS 0017                                        NO CSD ENTRY
  CVDS 0018                                        NO CSD ENTRY
  CVDS 0019                                        NO CSD ENTRY

                  PF1: REFRESH   PF3: RETURN/END   PF7: BACKWARD   PF8: FORWARD
```

Field Descriptions

The only valid entry in Column A is **S**, which selects the URT to display at the Table-level.

A

Action to perform with DBEX:

S

Select and begin browse display at table level.

SYS

Identifies the CICS system to which this display line refers. *LOC means local CICS or TOR.

URT

Identifies sequence number of the URT.

TYP

Indicates the type of URT:

STD

URT for applications issuing CA Datacom/DB commands.

SQL

URT for applications issuing SQL statements.

DYN

URT dynamically built by another CA product.

STATUS

Indicates the OPEN status of the URT:

UNOPENED

Not yet opened by a program call or a DBEC or DBOC transaction.

CLOSED

Explicitly closed with a DBEC or DBOC CLOSE=.

CLOSING

Close requested by DBEC or DBOC CLOSE= command, but not yet closed pending completion of a read in progress or a transaction having exclusive control.

OPEN

Opened by CA Datacom CICS Services but no transaction to close it has been issued.

OPENING

Open requested by DBEC or DBOC OPEN= command, but not yet opened pending completion of the request in progress in the MUF or a connect to the MUF.

W

(WHEN) Indicates when CA Datacom CICS Services opens the URT:

P

(PLT) Specifies the URT is open by CA Datacom CICS Services at startup time.

A

(AUTO) Specifies the URT is automatically opened by CA Datacom CICS Services when an application request needs this URT.

D

(DEFER) Specifies the URT can only be opened with an explicit DBEC or DBOC command.

REL

If the URT was assembled with a release of the macros at CA Datacom/DB r10 or earlier, REL indicates the CA Datacom/DB release level of the macro used to generate the URT. Beginning with CA Datacom/DB r11 and for all following releases, the value for REL is a URT compatibility indicator and displays as 100.

CBSIO

The value specified in URT generation for I/O limit interrupt for all SELxx commands except SELPR.

PR

Indicates the priority level for requests processed using this URT, where nn is between 01 and 15; 01 is low, 07 is the default (specified with PRTY= in the DBURSTR macro used in generating this URT).

U

Value for TXNUNDO= in the DBURSTR macro generating this URT, where:

YES

Indicates transaction backout is dynamically invoked for update requests issued by a program using this URT when an abend occurs.

NO

Indicates transaction backout is not operational.

MIN

Value for TIMEMIN= in the DBURSTR macro generating this URT, where the number between 1 and 120 is the limit in minutes to wait for a record held under exclusive control by another request (alternative to TIMESEC=).

Note: MIN=0 with SEC=0 means unlimited wait time; MIN=0 with SEC=1 means no wait time.

SEC

Value for TIMESEC= in the DBURSTR macro generating this URT, where the number between 1 and 120 is the limit in seconds to wait for a record held under exclusive control by another request (alternative to TIMEMIN=).

Note: MIN=0 with SEC=0 means unlimited wait time; MIN=0 with SEC=1 means no wait time.

CONDITIONS

ACT=xxx,RES=xxx

The value for ACT (ACTIVE) is the total number of tasks using this URT. The value for RES is the number of tasks which have read a record for update.

NO CSD ENTRY

The CICS System Definition data set (CSD) does not contain an entry for this URT.

NO LOAD MODULE

The URT module is not in the library.

CSD DISABLED

The entry for this URT in the CICS System Definition data set (CSD) has been disabled.

URT DELETED/SKIPPED

The user has deleted the URT module or this URT was not loaded because it was specified in a SKIPLOAD range.

UNKNOWN MUF

This global URT is associated with a MUF that is not defined with a DBCSID macro in the DBCVTPR.

OPEN RC=xx.yyy

The last open request for this URT failed for the reason indicated by CA Datacom/DB return code xx and internal return code yyy.

CLOS RC=xx.yyy

The last close request for this URT failed for the reason indicated by CA Datacom/DB return code xx and internal return code yyy.

SIDNAME

The value specified in the relative DBCSID macro of the DBCVTPR generation for the name of the DBSIDPR macro generated module to be loaded and used for this MUF.

MUF

The number of the MUF that contains the tables for this URT. In a single MUF environment, this number is always one.

Displaying Table-Level Processing Options

To display options for CA Datacom/DB tables accessible through URTs from a specified CICS system, or all CICS systems, issue an Enhanced INQUIRE command.

If you issue the INQ command with the DBEX transaction ID, or its substitute, you are not able to update any fields on the scrollable display. If you issue the command with DBEC, or its substitute, you may make entries in certain fields to override table options specified in the URT definition.

The following is an example of a URT definition. A URT begins with a DBURSTR macro, contains one or more DBURTBL macros, each defining a particular CA Datacom/DB table, and ends with a DBUREND macro. The values for the bold-faced parameters in this example are displayed on the Table-level inquiry.

```
URT          TITLE 'ONLINE URT FOR REQUESTS USING MULTI-USER FACILITY'
DBURSTR      MULTUSE=YES,WRITE=NO,
             CBSIO=0,PRTY=7,TXNUNDO=YES,TIMEMIN=5,TIMESEC=0
DBURTBL      TBLNAME=PAY,DBID=004,
             AUTODXC=YES,BYPOPEN=NO,SYNONYM=YES,UPDATE=YES
DBUREND      DBSQL=YES,USRINFO=CAICICS
END
```

Invoke the following transaction to display how TBLNAM=, DBID= or DBIDUSER= and DBIDMUF=, AUTODXC=, BYPOPEN=, SYNONYM=, and UPDATE= parameters are defined by DBURTBL macros for all tables within specified URT.

Displaying Table-Level Processing Options

```
►►─┬─ DBEC ─┬─ INQuire,TBL(nnnn) ─┬───────────┬─ ,SYSid(aaaa) ──────────►
   └─ DBEX ─┘                     └─ ,limiter ─┘

►─┬────────────────────┬──────────────────────────────────────────────►◄
  └─ ,SIDname(xxxxxxxx) ─┘
```

DBEC/DBEX

(Required) Specify a transaction ID valid with Enhanced commands used to monitor URTs. Select the transaction ID for which you are authorized. Leave a space between the transaction ID and the command.

INQuire,

(Required) Specifies that CA Datacom CICS Services is to perform an Inquiry. (INQ and I are valid abbreviations.)

TBL(*nnnn*)

(Required) TBL specifies the inquiry is to invoke the Table-level display. The value within the parentheses identifies the suffix of the URT.

nnnn

Specifies that you want to display *only* the URT with the specific 4-digit suffix *nnnn*.

Alternately, instead of using the *nnnn* suffix to specify only a specific URT, you can use the wildcard symbol ? (a question mark) to accept *any* digit 0 through 9 for any (or all) of the four digits of the suffix.

See Command Examples (see page 251).

,limiter

(Optional) Limits the inquiry to URTs of designated type, status, how defined for opening or those with no CICS System Definition data set (CSD) entry. The following are the values for designating limiters of each type:

Type

DYN

URTs dynamically built by a CA product.

SQL

URTs for applications issuing SQL statements.

Status

CLOSE

URTs explicitly closed through a DBOC CLOSE= command, a DBEC PERform,URT(*nnnn),CLOSE, or an entry of C in the Action column of a DBEC INQ,URT(nnnn) display.*

CLOSING

URTs with a close in progress, where close is invoked at the completion of the current read or update.

OPEN

URTs which are currently open.

OPENING

URTs with an open in progress, where open status is set at the completion of the current open in the MUF.

UNOpened

URTs defined as AUTO or DEFER which have not been opened by a program call or a DBOC/DBEC transaction. (UNO is a valid abbreviation.)

When

AUTO

URTs defined to be opened when required by a program.

DEFer

URTs defined to be opened only by an explicit DBOC/DBEC command. (DEF is a valid abbreviation.)

PLT

URTs opened at CA Datacom CICS Services startup, that is to say those not defined for AUTO or DEFER.

Condition

NOCSD

URTs have no CICS System Definition data set (CSD) entry. Such URTs are available for dynamic creation by a CA product.

,SYSid(*aaaa*)

(Required) For an MRO environment, the value within the parentheses determines whether the inquiry is for a single remote CICS system or for all CICS systems. Valid values follow:

aaaa

Four-character CICS identifier for a single remote CICS system, as defined in the CICS connection table.

*****

All attached CICS systems, beginning with the local system.

(SYS is a valid abbreviation.)

,SIDname(*xxxxxxxx*)

(Optional) Specify one specific SID name to which the URT inquiry applies by MUF (see the DBURSTR macro SIDNAME= parameter in the *CA Datacom/DB Database and System Administration Guide* and the DBCSID macro SIDNAME= parameter in the *System Reference Guide*) or any number of leading characters of SID names, followed by an asterisk (*) to specify a range of SID names to which the URT inquiry applies by MUFs. Omitting the SIDNAME(*xxxxxxxx*) limiter results in the command being applied to all MUFs in the remote systems. (SID is a valid abbreviation.)

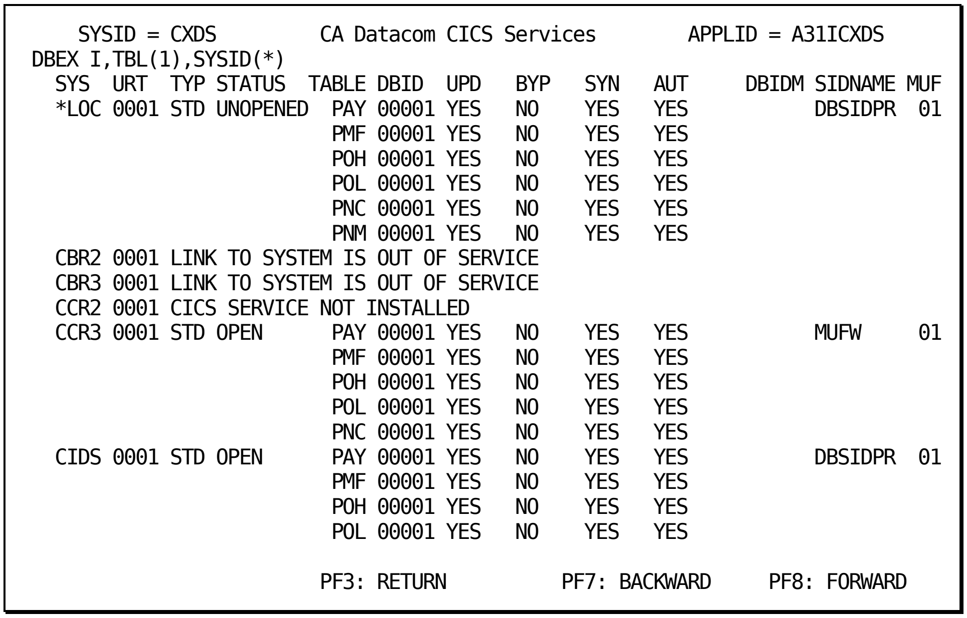
Command Examples

Each of the following commands displays scrollable Table-level data for only the specified remote system in read-only format, where URT information is presented in ascending numerical order by URT suffix and table information is presented in the order tables are defined to the URT. Details are presented in the "Result" column.

Command	Result
DBEX I,TBL(12),SYSID(SYSA)	Displays tables for URT 0012 in CICS system SYSA.
DBEX INQ,TBL(2?),SYSID(SYSA)	Displays tables for URTs 0020 through 0029 in CICS system SYSA.
DBEX INQUIRE,TBL(????),SIDNAME(DBSIDPR),SYSID(*)	Displays tables for all URTs in the system that are associated with the MUF that uses the DBSIDPR module as defined by the DBCSID macro for connection.
DBEX I,TBL(?),AUTO,SYSID(SYSA)	Displays tables for URTs 0001 through 0009 defined for automatic opening in CICS system SYSA.
DBEX I,TBL(2?),CLOSE,SYSID(*)	Displays tables for URTs 0020 through 0029 that are in closed status (that is to say with CLOSED in the STATUS column) in all connected CICS systems.
DBEX I,TBL(????),CLOSING,SIDNAME(PROD*),SYSID(SYSA)	Displays tables for all URTs in closing status (that is to say with CLOSING in the STATUS column) in CICS system SYSA and further limits the display to the URTs associated with any MUF that is defined by the DBCSID macros for connection with a SID module name that begins with PROD.
DBEX I,TBL(2?),DYN,SYSID(*)	Displays tables for dynamically built (that is to say with DYN in the TYP column) URTs 0020 through 0029 in all CICS systems.
DBEX I,TBL(??),PLT,SYSID(SYSC)	Displays tables for URTs 0001 through 0099 that are opened at PLT time (that is to say with PLT in the WHEN column) in CICS system SYSC.

Display Example: DBEC I,TBL(1),SYSID(*)

When inquiries are made at the table level, the display includes the number and status of each URT, similar to the URT status inquiry display. In addition, the table names and database IDs are displayed for each URT.



```
    SYSID = CXDS         CA Datacom CICS Services        APPLID = A31ICXDS
 DBEX I,TBL(1),SYSID(*)
   SYS  URT  TYP STATUS  TABLE DBID  UPD   BYP   SYN   AUT     DBIDM SIDNAME MUF
   *LOC 0001 STD UNOPENED  PAY 00001 YES   NO    YES   YES           DBSIDPR  01
                           PMF 00001 YES   NO    YES   YES
                           POH 00001 YES   NO    YES   YES
                           POL 00001 YES   NO    YES   YES
                           PNC 00001 YES   NO    YES   YES
                           PNM 00001 YES   NO    YES   YES
   CBR2 0001 LINK TO SYSTEM IS OUT OF SERVICE
   CBR3 0001 LINK TO SYSTEM IS OUT OF SERVICE
   CCR2 0001 CICS SERVICE NOT INSTALLED
   CCR3 0001 STD OPEN      PAY 00001 YES   NO    YES   YES           MUFW     01
                           PMF 00001 YES   NO    YES   YES
                           POH 00001 YES   NO    YES   YES
                           POL 00001 YES   NO    YES   YES
                           PNC 00001 YES   NO    YES   YES
   CIDS 0001 STD OPEN      PAY 00001 YES   NO    YES   YES           DBSIDPR  01
                           PMF 00001 YES   NO    YES   YES
                           POH 00001 YES   NO    YES   YES
                           POL 00001 YES   NO    YES   YES

                          PF3: RETURN         PF7: BACKWARD     PF8: FORWARD
```

Field Descriptions

When you specify TBL rather than URT in the command format, CA Datacom CICS Services presents a scrollable display containing thirteen columns of data. The first four columns and the last two columns repeat the SYS, URT, TYP, STATUS, SIDNAME, and MUF data which is displayed on the corresponding URT-Level inquiry. Data appears in these fields only once per URT. The remaining seven columns display information on the tables making up the URT definition.

SYS

Identifies the CICS system to which this display line refers. *LOC means local CICS or TOR.

URT

Identifies the sequence number of the URT.

TYP

Indicates the type of URT.

STD

URT for applications issuing CA Datacom/DB commands.

SQL

URT for applications issuing SQL statements.

DYN

URT dynamically built by another CA product.

STATUS

Indicates the OPEN status of the URT with the following values:

UNOPENED

Not yet opened by a program call or a DBEC or DBOC transaction.

CLOSED

Explicitly closed with a DBEC or DBOC CLOSE=.

CLOSING

Close requested by DBEC or DBOC CLOSE= command, but not yet closed pending completion of a read in progress or a transaction having exclusive control.

OPEN

Opened by CA Datacom CICS Services but no transaction to close it has been issued.

OPENING

Open requested by DBEC or DBOC OPEN= command, but not yet opened pending completion of the request in progress in the MUF or a connect to the MUF.

TABLE

Name of the CA Datacom/DB table within the URT.

DBID

Number of the database which contains the table (as seen in the application request).

UPD

Specifies whether table updates are permitted using this URT.

YES

Indicates that this URT permits applications to update the named table.

NO

Indicates that update of the named table is not permitted using this URT.

BYP

Specifies whether the designated table is bypassed when the URT is opened.

YES

When the URT is opened, the designated table is bypassed from the opening. Any attempt to access this table, using this URT, results in a CA Datacom/DB return code of 05.

NO

When the URT is opened, the designated table is opened during the opening.

SYN

Identifies SYNONYM=.

YES

Indicates that SYNONYM=YES is specified in the DBURTBL macro for this URT.

NO

Indicates that SYNONYM=NO is specified in the DBURTBL macro for this URT.

AUT

Specifies whether exclusive control for a table is automatically dropped.

NO

Indicates that CA Datacom/DB does not automatically drop exclusive control for this table when a second command is issued from the same Request Area.

YES

Indicates that CA Datacom/DB automatically drops exclusive control for this table when a second command is issued from the same Request Area.

DBIDM

For a global URT using DBID remapping, this is the number of the database that contains the table to be accessed in the MUF and overrides the DBID specified in the request.

SIDNAME

The name of the CA Datacom/DB DBSIDPR module associated with the MUF, as specified in the DBCSID macro or, in a single MUF environment, the name DBSIDPR.

MUF

The number of the MUF that contains the tables for this URT. In a single MUF environment, this number is always one.

Chapter 11: DBEC: Controlling Remote System Resources with Enhanced Commands

DBEC commands let you maintain MUFs and URT resources for any attached CICS system in an MRO environment. Each DBEC command provides pageable input displays. The PERFORM commands can be issued from the console for controlling remote resources.

Task	Perform Command	Action After Inquiry Command
Connecting MUFs: Disconnecting MUFs:	Connecting and Disconnecting Multi-User Facilities (see page 282)	Updating MUF-Level Processing Options (see page 259)
Opening URTs: Closing URTs:	Opening and Closing URTs (see page 210, see page 285)	Updating URT-Level Processing Options (see page 269)
Naming URTs for automatic opening: Naming URTs for deferred opening: Resetting URTs to original status.	Changing/Restoring Open Options for URTs (see page 288)	Updating URT-Level Processing Options (see page 269)
Replacing a URT with an updated version: (The URT must first be closed.)	Replacing a URT with a New Copy (see page 280)	Updating URT-Level Processing Options (see page 269)
Changing maximum I/O for set processing established by CBSIO= parameter: Changing job priority for requests processed through this URT: Changing the maximum amount of time a program using this URT is to wait for a record held under exclusive control by another request: Changing the transaction backout option from off to on or on to off: (The URT must first be closed for all of these.)	None.	Overriding DBURSTR Parameter Values (see page 275)

Task	Perform Command	Action After Inquiry Command
Changing whether exclusive control is dropped for this table when a RDU*xx* command is issued from the same Request Area: Changing whether this table is bypassed from the opening when the URT is opened: Changing specification for whether this table name is duplicated in either this URT or another URT: Changing specification of whether updates are permitted for this table when accessed through this URT:	None.	Overriding DBURTBL Parameter Values (see page 279)
Overriding DBCSID parameter values:	None.	Overriding DBCSID Parameter Values (see page 265)
Resetting MUF Statistics		Resetting MUF Statistics (see page 189)
Initiating Services	Initiating/Terminating Services	Initiating CA Datacom CICS Services
Terminating Services	Initiating/Terminating Services	Terminating CA Datacom CICS Services (see page 167)

This section contains the following topics:

Updating MUF-Level Processing Options

In an MRO environment, you can maintain MUF-level processing options for remote systems using the DBEC command with the SYSID option to specify all connected CICS systems or a specific CICS system. Requests for information on MUF resources are issued with the *DBEC* transaction followed by the INQUIRE operand. The options enable you to invoke a display of all MUFs or a limited set of MUFs for a remote CICS system or all connected CICS systems.

You can alter certain fields on the panel. Any alterations made, take effect immediately and are valid only during the life of the CICS session.

The following is an example of a DBCSID macro. DBCSID macros are appended to the DBCVTPR macro, each defining a particular CA Datacom/DB MUF. The values for the bold-faced parameters in this example are displayed on the MUF-level inquiry.

DBCSID **SIDNAME=DBSIDPR,USERS=3,CONNECT=PLT,EOJ_OK=DISCONNECT**

Invoke the inquiry as shown following to display the status of CA Datacom/DB MUFs or to display the statistics for MUFs.

Note: The status of any MUF displayed in this manner is current as of the time of the last request processed by that MUF. For example, if the last request processed by a MUF was 90 seconds ago, a DBEC I,MUF (or DBEX I,MUF) request displays the status of that MUF as it was 90 seconds ago.

```
►►─┬─ DBEC ─┬─ INQuire,MUF(nn) ─ SYSID ─┬────────┬─┬──────────┬──────────►◄
   └─ DBEX ─┘                           └─ ,STATS ─┘ └─ ,limiter ─┘
```

DBEC/DBEX

(Required) Specify a transaction ID valid with Enhanced commands used to monitor MUFs. Select the transaction ID for which you are authorized. Leave a space between the transaction ID and the command.

INQuire,

(Required) Requests a scrollable display of MUFs (INQ and I are valid abbreviations) for the remote CICS system or in the case of all CICS systems, in the order in which the connections are defined to this CICS.

MUF(*nn*)

(Required) Specifies the inquiry is to invoke the MUF-level display. The value within the parentheses identifies the number of the MUF relative to the order of the DBCSID macros appended to the DBCVTPR macro, if multiple MUFs are defined.

nn

Specifies that you want to display *only* the MUF with the specific 2-digit number *nn*.

Alternately, instead of using the *nn* number to specify only a specific MUF, you can use the wildcard symbol ? (a question mark) to accept *any* digit 0 through 9 for one (or both) of the two digits of the number.

MSIDname(*xxxxxxxx*)

(Required) Specifies the inquiry is to invoke the MUF-level display. The value within the parentheses identifies the name of the MUF specified in the DBCSID macros appended to the DBCVTPR macro, if multiple MUFs are defined. The MSIDNAME(xxxxxxxx) qualifier should not be used with the MUF(nn) qualifier. If it is used with the MUF(nn) qualifier then the MUF(nn) qualifier takes precedence and the MSIDNAME(xxxxxxxx) qualifier is ignored

xxxxxxxx

Specifies that *only* the MUF with the specific SIDNAME in the DBCSID macro coded with the DBCVTPR is displayed.

Alternately, you can use the wildcard symbol * (an asterisk) to display all MUFs or characters succeeded by the asterisk to display all MUFs beginning with a range of SIDNAMEs by beginning values as specified in the DBCSID macros appended to the DBCVTPR macro.

,STATS

(Optional) Specifies a MUF-level *statistics* display for the remote CICS system or optionally all remote CICS systems as opposed to a MUF-level display for that or those CICS systems. From this display, a line command is available to reset the statistics for a selected MUF when the DBEC transaction ID is used and the user is allowed to perform updates.

,limiter

(Optional) Limits the inquiry to MUFs of designated status, or how defined for opening. A limiter can be specified with the STATS option to invoke the MUF-level statistics display that is further limited by this option. The following are the values for designating limiters of each type:

Status

DISconnect

MUFs explicitly disconnected through a DBEC command. (DIS is a valid abbreviation.)

DISCONNECTING

MUFs with a disconnect in progress, where the status is set to disconnected at the completion of the current read or update and URT closes.

CONnect

MUFs that are currently connected. (CON is a valid abbreviation.)

CONNECTING

MUFs with a connect in progress, where URT opens are invoked at the completion of the current connect.

UNConnected (UNC is a valid abbreviation.)

MUFs defined as AUTO or DEFER that have not been connected by a program call or a DBEC transaction.

When

AUTO

MUFs defined to be connected when required by a program.

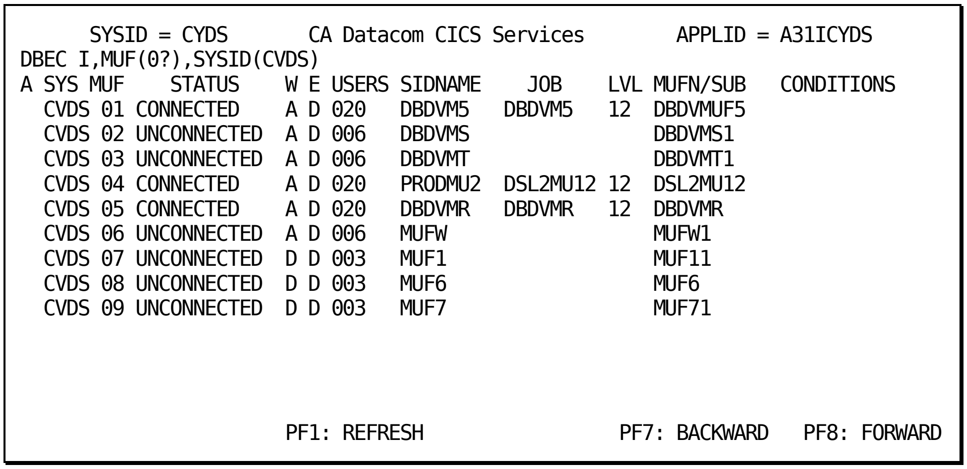
DEFer

MUFs defined to be connected only by an explicit DBEC command. (DEF is a valid abbreviation.)

PLT

MUFs connected at CA Datacom CICS Services startup, that is to say those not defined for AUTO or DEFER.

Display Example: DBEC I,MUF(0?),SYSID(CVDS)



```
      SYSID = CYDS       CA Datacom CICS Services        APPLID = A31ICYDS
DBEC I,MUF(0?),SYSID(CVDS)
A SYS MUF    STATUS    W E USERS SIDNAME    JOB    LVL MUFN/SUB   CONDITIONS
  CVDS 01 CONNECTED    A D 020   DBDVM5   DBDVM5   12  DBDVMUF5
  CVDS 02 UNCONNECTED  A D 006   DBDVMS                DBDVMS1
  CVDS 03 UNCONNECTED  A D 006   DBDVMT                DBDVMT1
  CVDS 04 CONNECTED    A D 020   PRODMU2  DSL2MU12 12  DSL2MU12
  CVDS 05 CONNECTED    A D 020   DBDVMR   DBDVMR   12  DBDVMR
  CVDS 06 UNCONNECTED  A D 006   MUFW                  MUFW1
  CVDS 07 UNCONNECTED  D D 003   MUF1                  MUF11
  CVDS 08 UNCONNECTED  D D 003   MUF6                  MUF6
  CVDS 09 UNCONNECTED  D D 003   MUF7                  MUF71




                       PF1: REFRESH                 PF7: BACKWARD   PF8: FORWARD
```

Field Descriptions

All fields marked with a Y in the Chg column are updatable when the panel is invoked through a DBEC transaction.

Column	Chg	Description
A	Y	Action to perform when DBEC transaction used: **C** Perform CONNECT on MUF. (Same as DBEC P,CONNECT,MUF(*nn*).) **D** Perform DISCONNECT on MUF. (Same as DBEC P,DISCONNECT,MUF(*nn*).) **E** Select and invoke return code summary display for that MUF. **I** Perform IMMEDIATE disconnect from MUF regardless of active tasks running against that MUF. (Same as DBEC P,IMMEDIATE,MUF(*nn*)).

Column	Chg	Description
		R Perform RESET on MUF statistics. This resets the selected MUF statistics to zero from the STATS display. This option is only available from the display with the STATS limiter. **T** Select and invoke active tasks display for that MUF. **U** Select and invoke task usage summary for that MUF. **S** Select and begin browse display at the URT-level.
SYS		Identifies the CICS system to which this display line refers. *LOC means local CICS or TOR.
MUF		Identifies the sequence number of the MUF relative to the position of the associated DBCSID macro appended to the DBCVTPR macro for that remote CICS system.
STATUS		Indicates the CONNECT status of the MUF on that remote CICS system: **UNCONNECTED** Not yet connected by a program call, PLT, or a DBEC transaction. **DISCONNECTED** Explicitly disconnected with a DBEC P,DISCONNECT. **DISCONNECTING** Disconnect requested by DBEC P,DISCONNECT command, but not yet disconnected pending completion of a read in progress, URT closes, or a transaction having exclusive control. **CONNECTED** Connected by CA Datacom CICS Services and no transaction to disconnect it has been issued. **CONNECTING** Connect requested by DBEC P,CONNECT command, but not yet connected pending completion of the request in progress in the MUF.

Column	Chg	Description
W		(WHEN) Indicates when CA Datacom CICS Services opens the URT: **P** (PLT) Specifies the URT is opened by CA Datacom CICS Services at startup time. **A** (AUTO) Specifies the URT is automatically opened by CA Datacom CICS Services when an application request needs this URT. **D** (DEFER) Specifies the URT can only be opened with an explicit DBEC or DBOC command.
E		(EOJ OK) indicates whether CA Datacom CICS Services participates in recognizing that an EOJ was requested for this MUF. If so, then the value indicates whether CA Datacom CICS Services DISCONNECTs or disconnects IMMEDIATE this MUF. This value is specified in the DBCVTOR or in the DBCSID macro of the DBCVTPR. For more information about specifying this value, see the *System Reference Guide*. CA Datacom/DB This feature is not supported in CA Datacom/DB Version 12.0. **N** CA Datacom CICS Services will not recognize a MUF EOJ. MUF waits until a DISCONNECT for the MUF is performed in CA Datacom CICS Services as it works in CA Datacom CICS Services r11. **D** When a MUF EOJ has been requested and a request return indicates this to CA Datacom CICS Services, then a DISCONNECT is issued internally by CA Datacom CICS Services. I When a MUF EOJ has been requested and a request return indicates this to CA Datacom CICS Services, then a IMMEDIATE is issued internally by CA Datacom CICS Services. **Note:** If the value is D or I and there is no activity in CICS, MUF severs the connection with CICS at the time the interval has been reached as specified in the X_EOJ_OK_S_DELAY startup parameter. For more information, see the CA Datacom/DB documentation for EOJ_OK support.
USERS	Y	The value specified in the corresponding MUF DBCSID macro in the DBCVTPR generation for the number of tasks to allocate for CA Datacom/DB threads. Specify a number between 001 and 255. If there are no DBCSID macros coded with the DBCVTPR, this is the USERS= value specified in the DBCVTPR macro. In this case, this value can also be changed with the DBOC GENOPTS command. For more information, see the *System Reference Guide*. Before updating this value, verify that the MUF has been disconnected. If you use the d or i line command on a DBEC I,MUF(*nn*) screen to disconnect the MUF, press the PF1 function key to refresh the screen before implementing any overrides.

Column	Chg	Description
SIDNAME		The name of the CA Datacom/DB DBSIDPR module associated with the MUF, as specified in the DBCSID macro or, in a single MUF environment, the name DBSIDPR.
JOB		The job name of the CA Datacom/DB of the connected MUF.
LVL		The CA Datacom/DB release level of the connected MUF.
MUFN/SUB		This field displays the MUF name if the SIDNAME module is assembled with a name specified by MUFNAME= that matches the MUF name specified in the MUF startup option. Otherwise, this field displays the number of the SVC and SVC sub-ID associated with this MUF as defined in the SIDNAME module.
CONDITIONS		**CONN RC=xx.yyy** The last connect request for this MUF failed for the reason indicated by CA Datacom/DB return code xx(yyy). **DISC RC=xx.yyy** The last disconnect request for this MUF failed for the reason indicated by CA Datacom/DB return code xx(yyy).

Overriding DBCSID Parameter Values

Note: MUFs must first be disconnected. (If the status is CONNECTED you must use the "d" or "i" line command on a DBEC I,MUF(*nn*) screen to disconnect the MUF. You can also issue the DBEC P,MUF(*nn*),DISCONNECT command to change the processing options.)

To change any of the displayed options for the duration of the current CICS cycle:

1. Tab to the option to revise.
2. Overtype the value to override with the new value.
3. When you have made all of your changes, press Enter.
4. To exit, press Clear.

You define online multiple MUFs for CICS programs using the DBCSID macro that is appended to the DBCVTPR module generation. The DBCSID macro is composed of three parameters, one of which you can override by updating the scrollable display invoked with DBEC for the MUF-level MUF inquiry.

Use the following guidelines to change the current setting for any of these parameter values associated with any MUF.

USERS

Change options for USERS= follow:

- Increase the maximum number of MUF tasks, up to 255 for connecting threads to this MUF.
- Decrease the maximum number of MUF tasks, where the lowest valid value is 1.

Resetting MUF Statistics

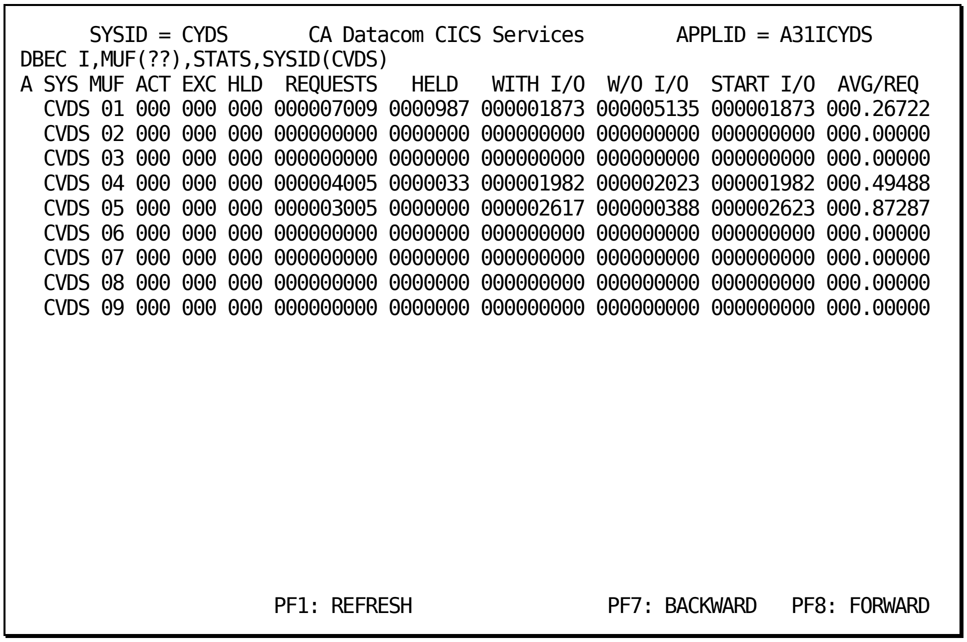
After performing a requested MUF statistics inquiry (DBEC I, MUF(??),STATS), CA Datacom CICS Services displays a scrollable inquiry panel beginning with the first MUF defined in the DBCVTPR macro assembly (or the one and only default MUF defined by the DBSIDPR module). An example would be MUF(01). Your options are as follows:

- Scroll through the display of MUF statistics. press PF8 to scroll forward and PF7 to scroll backward.
- Perform the following action for any displayed MUF by entering the code corresponding to the action in Column A.

  R

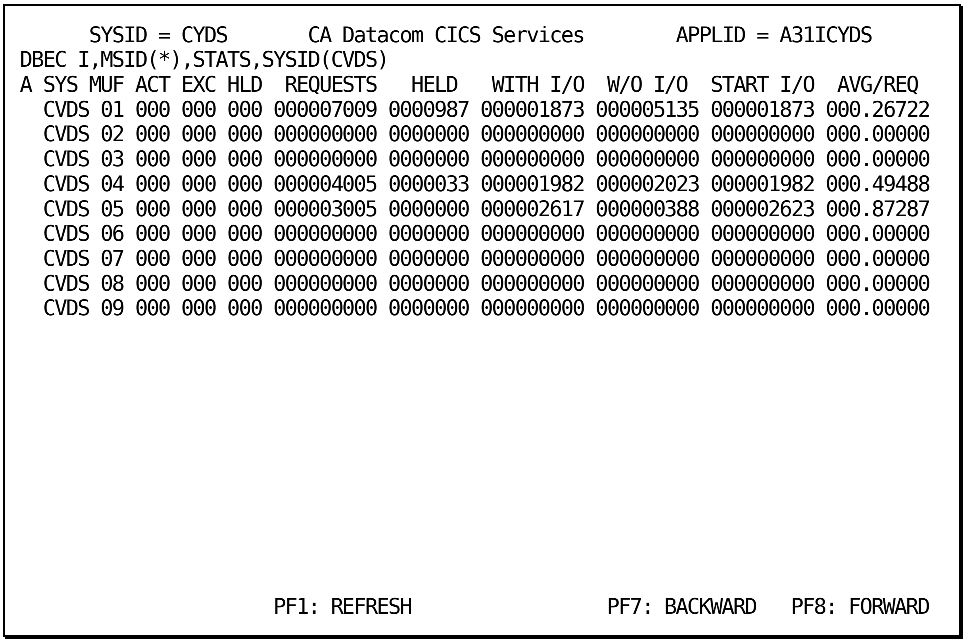
  Perform reset of the statistics counter for MUF if you are authorized to use DBEC.

Display Example: DBEC I,MUF(??),STATS,SYSID(CVDS)



```
      SYSID = CYDS       CA Datacom CICS Services       APPLID = A31ICYDS
DBEC I,MUF(??),STATS,SYSID(CVDS)
A SYS MUF ACT EXC HLD  REQUESTS   HELD   WITH I/O  W/O I/O  START I/O  AVG/REQ
  CVDS 01 000 000 000 000007009 0000987 000001873 000005135 000001873 000.26722
  CVDS 02 000 000 000 000000000 0000000 000000000 000000000 000000000 000.00000
  CVDS 03 000 000 000 000000000 0000000 000000000 000000000 000000000 000.00000
  CVDS 04 000 000 000 000004005 0000033 000001982 000002023 000001982 000.49488
  CVDS 05 000 000 000 000003005 0000000 000002617 000000388 000002623 000.87287
  CVDS 06 000 000 000 000000000 0000000 000000000 000000000 000000000 000.00000
  CVDS 07 000 000 000 000000000 0000000 000000000 000000000 000000000 000.00000
  CVDS 08 000 000 000 000000000 0000000 000000000 000000000 000000000 000.00000
  CVDS 09 000 000 000 000000000 0000000 000000000 000000000 000000000 000.00000









                       PF1: REFRESH                PF7: BACKWARD   PF8: FORWARD
```

Alternate Display Example: DBEC I,MSID(*),STATS,SYSID(CVDS)



```
      SYSID = CYDS       CA Datacom CICS Services        APPLID = A31ICYDS
DBEC I,MSID(*),STATS,SYSID(CVDS)
A SYS MUF ACT EXC HLD  REQUESTS   HELD   WITH I/O  W/O I/O  START I/O  AVG/REQ
  CVDS 01 000 000 000 000007009 0000987 000001873 000005135 000001873 000.26722
  CVDS 02 000 000 000 000000000 0000000 000000000 000000000 000000000 000.00000
  CVDS 03 000 000 000 000000000 0000000 000000000 000000000 000000000 000.00000
  CVDS 04 000 000 000 000004005 0000033 000001982 000002023 000001982 000.49488
  CVDS 05 000 000 000 000003005 0000000 000002617 000000388 000002623 000.87287
  CVDS 06 000 000 000 000000000 0000000 000000000 000000000 000000000 000.00000
  CVDS 07 000 000 000 000000000 0000000 000000000 000000000 000000000 000.00000
  CVDS 08 000 000 000 000000000 0000000 000000000 000000000 000000000 000.00000
  CVDS 09 000 000 000 000000000 0000000 000000000 000000000 000000000 000.00000











                      PF1: REFRESH                 PF7: BACKWARD   PF8: FORWARD
```

Field Descriptions

Column	Chg	Description
A	Y	Action to perform when DBEC transaction used: **R** Perform RESET on MUF statistics. This resets the selected MUF statistics to zero from the STATS display. This option is only available from display with the STATS limiter.
SYS		Identifies the CICS system to which this display line refers. *LOC means local CICS or TOR.
MUF		Identifies the sequence number of the MUF relative to the position of the associated DBCSID macro appended to the DBCVTPR macro.
ACT		Indicates the total of tasks currently waiting for CA Datacom/DB I/O to complete.
EXC		Indicates the current number of tasks which have acquired exclusive control by issuing update requests to CA Datacom/DB.
HLD		Indicates the current number of tasks waiting for access to CA Datacom/DB. If this is not zero (000), the maximum number of concurrent users has been reached. The maximum number of concurrent users is defined in the DBCVTPR macro as described in the *CA Datacom CICS Services System Reference Guide*.

REQUESTS	Indicates the total number of CA Datacom/DB requests issued since CA Datacom CICS Services or since a DBOC RESET=STATS transaction was issued.
HELD	Indicates the total number of CA Datacom/DB requests which had to wait for CA Datacom/DB access since the initiation of CA Datacom CICS Services or since a DBOC RESET=STATS transaction was issued.
WITH I/O	Indicates the total number of requests receiving CA Datacom/DB service after an I/O wait.
W/O I/O	Indicates the total number of requests receiving CA Datacom/DB service without an I/O wait.
START I/O	Indicates the total number of start I/Os issued by CA Datacom/DB.
AVG/REQ	Indicates the average number of start I/Os issued by CA Datacom/DB per request.

Updating URT-Level Processing Options

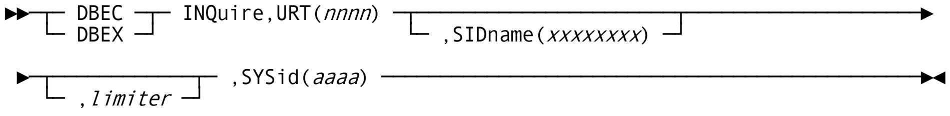
Requests for information on URT resources are issued with the **DBEC** transaction followed by the INQUIRE operand. The options enable you to invoke a display of all URTs or a limited set of URTs from which you can maintain remote system URT-level processing options with the SYSID parameter.

Note: Any alterations made take effect immediately and are valid only during the life of the CICS session.

The following is an example of a URT. A URT begins with a DBURSTR macro, contains one or more DBURTBL macros, each defining a particular CA Datacom/DB table, and ends with a DBUREND macro. The values for the bold-faced parameters in this example are displayed on the URT-level inquiry.

```
URT          TITLE 'ONLINE URT FOR REQUESTS USING MULTI-USER FACILITY'
DBURSTR      MULTUSE=YES,WRITE=NO,
             CBSIO=0,PRTY=7,TXNUNDO=YES,TIMEMIN=5,TIMESEC=0
DBURTBL      TBLNAME=PAY,DBID=004,
             AUTODXC=YES,BYPOPEN=NO,SYNONYM=YES,UPDATE=YES
DBUREND      DBSQL=YES,USRINFO=CAICICS
END
```

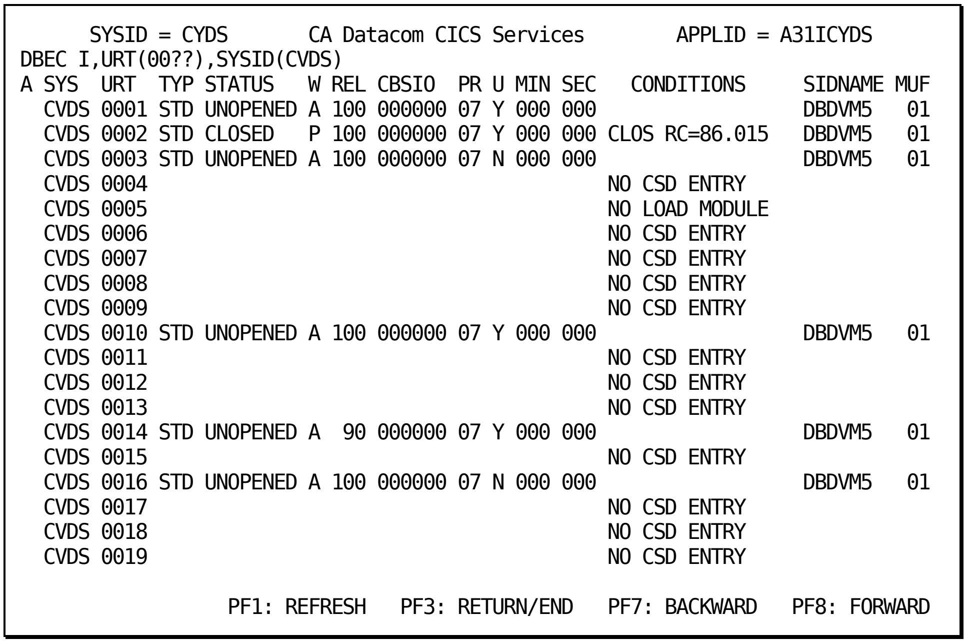
Invoke the following inquiry to display the status of CA Datacom/DB URTs.



```
►►─┬─ DBEC ─┬─ INQuire,URT(nnnn) ─┬────────────────────┬──────────────►
   └─ DBEX ─┘                     └─ ,SIDname(xxxxxxxx) ┘

►─┬────────────┬─ ,SYSid(aaaa) ─────────────────────────────────────►◄
  └─ ,limiter ─┘
```

See Displaying URT-Level Processing Options (see page 119)

Display Example: DBEC I,URT(00??),SYSID(CVDS)



```
      SYSID = CYDS       CA Datacom CICS Services        APPLID = A31ICYDS
DBEC I,URT(00??),SYSID(CVDS)
A SYS  URT  TYP STATUS   W REL CBSIO  PR U MIN SEC   CONDITIONS     SIDNAME MUF
  CVDS 0001 STD UNOPENED A 100 000000 07 Y 000 000                  DBDVM5   01
  CVDS 0002 STD CLOSED   P 100 000000 07 Y 000 000 CLOS RC=86.015   DBDVM5   01
  CVDS 0003 STD UNOPENED A 100 000000 07 N 000 000                  DBDVM5   01
  CVDS 0004                                        NO CSD ENTRY
  CVDS 0005                                        NO LOAD MODULE
  CVDS 0006                                        NO CSD ENTRY
  CVDS 0007                                        NO CSD ENTRY
  CVDS 0008                                        NO CSD ENTRY
  CVDS 0009                                        NO CSD ENTRY
  CVDS 0010 STD UNOPENED A 100 000000 07 Y 000 000                  DBDVM5   01
  CVDS 0011                                        NO CSD ENTRY
  CVDS 0012                                        NO CSD ENTRY
  CVDS 0013                                        NO CSD ENTRY
  CVDS 0014 STD UNOPENED A  90 000000 07 Y 000 000                  DBDVM5   01
  CVDS 0015                                        NO CSD ENTRY
  CVDS 0016 STD UNOPENED A 100 000000 07 N 000 000                  DBDVM5   01
  CVDS 0017                                        NO CSD ENTRY
  CVDS 0018                                        NO CSD ENTRY
  CVDS 0019                                        NO CSD ENTRY

                  PF1: REFRESH   PF3: RETURN/END   PF7: BACKWARD   PF8: FORWARD
```

Field Descriptions

All fields marked with a Y in the Chg column are updatable when the panel is invoked through a DBEC transaction.

Column	Chg	Description
A	Y	Action to perform when DBEC transaction used: **A** Set URT to AUTO open. (Same as DBEC P,AUTO,URT(*nnnn*)) **C** Perform CLOSE on URT. (Same as DBEC P,CLOSE,URT(*nnnn*)) **D** Set URT to DEFER open. (Same as DBEC P,DEFER,URT(*nnnn*)) **N** Perform CICS newcopy on URT module. (Same as DBEC P,NEWCOPY,URT(*nnnn*)). (URT must first be closed.) **O** Perform OPEN on URT. (Same as DBEC P,OPEN,URT(*nnnn*)) **R** Perform RESTART on URT. This resets the URT to its original STATUS. (Same as DBEC P,RESTART,URT(*nnnn*)) Action to perform with either DBEC or DBEX transaction. **S** Select and begin browse display at table level.
SYS		Identifies the CICS system to which this display line refers. *LOC means local CICS or TOR.
URT		Identifies sequence number of the URT.
TYP		Indicates the type of URT (URT): **STD** URT for applications issuing CA Datacom/DB commands. **SQL** URT for applications issuing SQL statements. **DYN** URT dynamically built by another CA product.

Column	Chg	Description
STATUS		Indicates the OPEN status of the URT: **UNOPENED** Not yet opened by a program call or a DBEC or DBOC transaction. **CLOSED** Explicitly closed with a DBEC or DBOC CLOSE=. **CLOSING** Close requested by DBEC or DBOC CLOSE= command, but not yet closed pending completion of a read in progress or a transaction having exclusive control. **OPEN** Opened by CA Datacom CICS Services but no transaction to close it has been issued. **OPENING** Open requested by DBEC or DBOC OPEN= command, but not yet opened pending completion of the CA Datacom/DB request.
W		(WHEN) Indicates when CA Datacom CICS Services opens the URT: **P** (PLT) Specifies the URT is opened by CA Datacom CICS Services at startup time. **A** (AUTO) Specifies the URT is automatically opened by CA Datacom CICS Services when an application request needs this URT. **D** (DEFER) Specifies the URT can only be opened with an explicit DBEC or DBOC command.
REL		If the URT was assembled with a release of the macros at CA Datacom/DB r10 or earlier, REL indicates the CA Datacom/DB release level of the macro used to generate the URT. Beginning with CA Datacom/DB r11 and for all following releases, the value for REL is a URT compatibility indicator and displays as 100.
CBSIO	Y	The value specified in URT generation for I/O limit interrupt for all SELxx commands except SELPR.
PR	Y	Indicates the priority level for requests processed using this URT, where nn is between 01 and 1.5. 01 is low, 07 is the default. (Specified with PRTY= in the DBURSTR macro used in generating this URT.)

Column	Chg	Description
U	Y	Value for TXNUNDO= in the DBURSTR macro generating this URT, where: **YES** Indicates transaction backout is dynamically invoked for update requests issued by a program using this URT when an abend occurs. **NO** Indicates transaction backout is not operational.
MIN	Y	Value for TIMEMIN= in the DBURSTR macro generating this URT, where the number between 1 and 120 is the limit in minutes to wait for a record held under exclusive control by another request (alternative to TIMESEC=). **Note:** MIN=0 with SEC=0 means unlimited wait time. MIN=0 with SEC=1 means no wait time.
SEC	Y	Value for TIMESEC= in the DBURSTR macro generating this URT, where the number between 1 and 120 is the limit in seconds to wait for a record held under exclusive control by another request (alternative to TIMEMIN=). **Note:** MIN=0 with SEC=0 means unlimited wait time. MIN=0 with SEC=1 means no wait time.

Column	Chg	Description
CONDITIONS		**ACT=xxx,RES=xxx** Value for ACTIVE is the total number of tasks using this URT. Value for RES is the number which have read a record for update. **NO CSD ENTRY** The CICS System Definition data set (CSD) does not contain an entry for this URT. **NO LOAD MODULE** The URT module is not in the library. **CSD DISABLED** The entry for this URT in the CICS System Definition has been disabled. **OPEN RC=xx.yyy** The last open request for this URT failed for the reason indicated by CA Datacom/DB return code xx and internal return code yyy. **CLOS RC=xx.yyy** The last close request for this URT failed for the reason indicated by CA Datacom/DB return code xx and internal return code yyy. **UNKNOWN MUF** The global URT module has been determined to require a MUF that has not been defined by a DBCSID macro in the DBCVTPR module. **URT DELETED/SKIPPED** The URT module has been deleted by the user or the URT has been specified in a SKIPLOAD range of the DBCVTPR for that remote CICS system.
SIDNAME		The value specified in the relative DBCSID macro of the DBCVTPR generation for the name of the DBSIDPR macro generated module to be loaded and used for this MUF.
MUF		Number of the MUF which contains the tables for this URT. In a single MUF environment, this number is always one.

Overriding DBURSTR Parameter Values

Note: Close URTs first.

To change any of the displayed options for the duration of the current CICS cycle:

1. Tab to the option to revise.
2. Overtype the value to override with the new value.
3. When you have made all of your changes, press Enter.
4. To exit, press Clear.

You define online URTs for CICS programs using three macros: the Start macro (DBURSTR), the Entry macro (DBURTBL), and the End macro (DBUREND). The Start macro is composed of twelve parameters, four of which you can override by updating the scrollable display invoked with DBEC for the URT-level URT inquiry.

Use the following guidelines to change the current setting for any of these parameter values associated with any URT.

CBSIO

Change options for CBSIO= follow:

- Increase the maximum number of I/Os to permit prior to interruption, up to 524287 (or 0, for unlimited I/Os) for all Compound Boolean Selection SEL*xx* commands (except SELPR) to speed program execution.
- Decrease the maximum number of I/Os to permit prior to interruption, where the lowest valid value is 1 (0 means no limit) if your program is taking too much system resources.

PR

Change options for PRTY= follow:

- Increase the priority level, up to 15, with which CA Datacom/DB processes requests using this URT.
- Decrease the priority level, to a minimum of 1, to lower the priority with which requests using this URT are processed.

U

Change options for TXNUNDO= follow:

- Change from N (NO) to Y (YES) to invoke transaction backout for update requests when an abend occurs. (Recommended value.)
- Change from Y (YES) to N (NO) to *not* back out updates in progress when an abend occurs.

MIN or SEC

Change options for TIMEMIN= or TIMESEC= follow:

- Increase the maximum amount of time a program using this URT is to wait for a record held under exclusive control by another request from the current value up to 120, where TIMEMIN= specifies time in minutes and TIMESEC= specifies time in seconds.

  Note: TIMEMIN=0,TIMESEC=0 specifies unlimited wait time.

- Decrease the maximum wait time. The lowest valid value is TIMEMIN=0,TIMESEC=1 which specifies no wait time.

Updating Table-level Processing Options

To display options for CA Datacom/DB tables accessible through URTs from a specified CICS system, or all CICS systems, issue the **DBEC** transaction followed by the INQUIRE command.

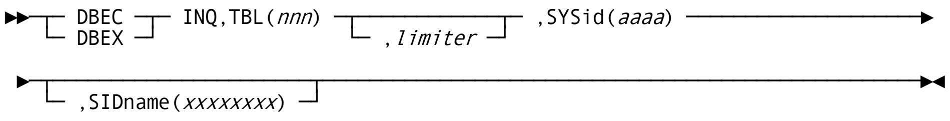
With DBEC, you can make entries in certain fields to override table options specified in the URT definition if you are authorized to make updates.

Note: Any alterations made take effect immediately and are valid only during the life of the CA Datacom CICS Services cycle.

The following is an example of a URT definition. A URT begins with a DBURSTR macro, contains one or more DBURTBL macros, each defining a particular CA Datacom/DB table, and ends with a DBUREND macro. The values for the bold-faced parameters in this example are displayed on the table-level inquiry.

```
URT             TITLE 'ONLINE URT FOR REQUESTS USING MULTI-USER FACILITY'
DBURSTR         MULTUSE=YES,WRITE=NO,
                CBSIO=0,PRTY=7,TXNUNDO=YES,TIMEMIN=5,TIMESEC=0
DBURTBL         TBLNAME=PAY,DBID=004
                AUTODXC=YES,BYPOPEN=NO,SYNONYM=YES,UPDATE=YES
DBUREND         DBSQL=YES,USRINFO=CAICICS
END
```

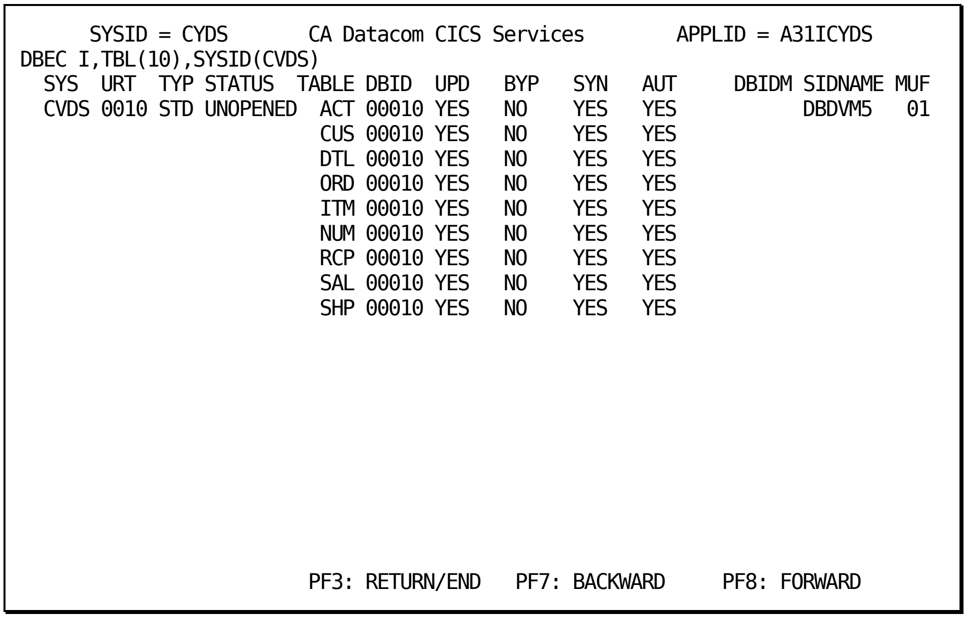
Invoke the following inquiry transaction sample to display information at the table level to change the previously highlighted values.



See Displaying Table-Level Processing Options (see page 248) for a description.

Display Example: DBEC I,TBL(10),SYSID(CVDS)

When inquiries are made at the table level, the display includes the number and status of each URT, similar to the URT status inquiry display. In addition, the table names and database IDs are displayed for each URT.



```
      SYSID = CYDS       CA Datacom CICS Services        APPLID = A31ICYDS
DBEC I,TBL(10),SYSID(CVDS)
  SYS  URT  TYP STATUS  TABLE DBID  UPD   BYP   SYN   AUT     DBIDM SIDNAME MUF
  CVDS 0010 STD UNOPENED  ACT 00010 YES   NO    YES   YES           DBDVM5   01
                          CUS 00010 YES   NO    YES   YES
                          DTL 00010 YES   NO    YES   YES
                          ORD 00010 YES   NO    YES   YES
                          ITM 00010 YES   NO    YES   YES
                          NUM 00010 YES   NO    YES   YES
                          RCP 00010 YES   NO    YES   YES
                          SAL 00010 YES   NO    YES   YES
                          SHP 00010 YES   NO    YES   YES










                         PF3: RETURN/END   PF7: BACKWARD     PF8: FORWARD
```

Field Descriptions

When you specify TBL rather than URT in the command format, CA Datacom CICS Services presents a scrollable display containing 13 columns of data. The first four columns and the last two columns repeat the SYS, URT, TYP, STATUS, SIDNAME, and MUF data which is displayed on the corresponding URT-level inquiry. Data appears in these fields only once per URT (URT). The remaining seven columns display information on the tables making up the URT definition. Any field marked with a Y in the Chg column is updatable when the STATUS displayed is UNOPENED or CLOSED.

Column	Chg	Description
SYS		Identifies the CICS system to which this display line refers. *LOC means local CICS or TOR.
URT		Identifies the sequence number of the URT.

Column	Chg	Description
TYP		Indicates the type of URT. **STD** URT for applications issuing CA Datacom/DB commands. **SQL** URT for applications issuing SQL statements. **DYN** URT dynamically built by another CA product.
STATUS		Indicates the OPEN status of the URT with the following values: **UNOPENED** Not yet opened by a program call or a DBEC or DBOC transaction. **CLOSED** Explicitly closed with a DBEC or DBOC CLOSE=. **CLOSING** Close requested by DBEC or DBOC CLOSE= command, but not yet closed pending completion of a read in progress or a transaction having exclusive control. **OPEN** Opened by CA Datacom CICS Services but no transaction to close it has been issued. **OPENING** Open requested by DBEC or DBOC OPEN= command, but not yet opened pending completion of the CA Datacom/DB request.
TABLE		Name of the CA Datacom/DB table with the URT.
DBID		Number of the DATABASE which contains the table.
UPD	Y	**YES** Indicates that this URT permits applications to update the named table. **NO** Indicates that update of the named table is not permitted using this URT.
BYP	Y	**YES** When the URT is opened, the designated table is bypassed from the opening. Any attempt to access this table, using this URT, results in a CA Datacom/DB return code of 05. **NO** When the URT is opened, the designated table is opened during the opening.
SYN	Y	**YES** Indicates that SYNONYM=YES is specified in the DBURTBL macro for this URT. **NO** Indicates that SYNONYM=NO is specified in the DBURTBL macro for this URT.

Column	Chg	Description
AUT	Y	**NO** Indicates that CA Datacom/DB does not automatically drop exclusive control for this table when a second command is issued from the same Request Area. **YES** Indicates that CA Datacom/DB automatically drops exclusive control for this table when a second command is issued from the same Request Area.
DBIDM		For a global URT using DBID remapping, this is the number of the database that contains the table to be accessed in the MUF and overrides the DBID specified in the request.
SIDNAME		The value specified in the relative DBCSID macro of the DBCVTPR generation for the name of the DBSIDPR macro generated module to be loaded and used for this MUF.
MUF		The number of the MUF which contains the tables for this URT. In a single MUF environment, this number is always one.

Overriding DBURTBL Parameter Values

You define online URTs for CICS programs using three macros: the Start macro (DBURSTR), the Entry macro (DBURTBL), and the End macro (DBUREND). Of the Entry macro (DBURTBL) parameters, you can override the following four by updating the scrollable display invoked with DBEC for the table-level URT inquiry.

Use the following guidelines to change the current setting for any of these parameter values associated with any table within any URT.

AUTODXC

Change options for AUTODXC= follow:

- Change from YES to **NO** to indicate that RDU*xx* commands are no longer to automatically drop secondary exclusive control and that the program is to release the record if it is not updated or deleted after having been read with update intent.
- Change from NO to **YES** to allow consecutive RDU*xx* commands to execute without an intervening update, delete, or release.

BYP

Change options for BYPOPEN= follow:

- Change from NO to **YES** to disable access to this table through this URT as of the next time this URT is opened.
- Change from YES to **NO** if the corresponding table is no longer to be bypassed during open and close processing.

SYN

Change options for SYNONYM= follow:

- Change from NO to **YES** if CA Datacom CICS Services should now evaluate the database ID specified in the Request Area together with the table name when searching for a URT to service a request for this table and if CA Datacom/DB should evaluate the DBID when searching for a macro within this URT containing processing specifications. Before specifying YES, verify that all requests to this table issued by online programs, specify the database ID in the Request Area. Make this change under either of the following conditions:
  - The table name is now duplicated in another URT (online only).
  - The table name is now duplicated in this URT (same as batch).
- Change from YES to **NO** if there are no duplicate names for this table in this URT or any other URT and CA Datacom/DB is not to evaluate the DBID when selecting a URT to process a request to this table, but rather, is to use the database ID specified in the first available URT containing this table name.

UPD

Change options for UPDATE= follow:

- Change from NO to **YES** if this table can be updated and its records held under exclusive control when accessed through this URT. UPDATE=YES is required if a program issues Compound Boolean Selection commands (SEL*xx*), unless a DBID is specified in the CBS MUF startup option.
- Change from YES to **NO** to limit access of the corresponding table to read-only.

Replacing a URT with a New Copy

This section discusses replacing a URT with a new copy.

Invoke the following transaction to perform the NEWCOPY function for a specified URT in a specific remote CICS system or all remote CICS systems.

```
►►─ DBEC ─ PERform,NEWcopy,URT(nnnn),SYSid(aaaa) ──────────────────────►

►─┬───────────────────────┬───────────────────────────────────────────►◄
  └─ ,SIDname(xxxxxxxx) ──┘
```

DBEC

(Required) Specify the transaction ID used with enhanced commands to control URTs and startup/shutdown. Leave a space between the transaction ID and the command.

PERform,

(Required) The command that requests CA Datacom CICS Services perform the specified action on the specified URT in the specified CICS system. PER and P are valid abbreviations.

NEWcopy,

(Required) Action is a CICS newcopy on the URT module. The URT must be closed before issuing the NEWCOPY request. It is the user's responsibility to open the URT once the NEWCOPY request is complete. NEW is a valid abbreviation.

Note: A P,NEWCOPY command results in a URT inquiry display, once the perform has been completed. In the resulting display, however, be aware that any URTs in OPEN status were not part of the NEWCOPY. The DBOCPRT file contains errors for the NEWCOPY commands that failed. You can also use the N line command from a URT inquiry display to see specific messages.

URT(*nnnn*)

(Required) Identifies (with the 4-digit suffix *nnnn*) the URT on which to perform the action.

nnnn

Specifies that you want to perform the action *only* on the URT with the specific 4-digit suffix *nnnn*.

Alternately, instead of using the *nnnn* suffix to specify only a specific URT, you can use the wildcard symbol ? (a question mark) to accept *any* digit 0 through 9 for any or all of the four digits of the suffix. If wildcard symbols are used, only those URTs that are not open are processed.

See the Command Example (see page 282).

,SYSid(*aaaa*)

(Required) Identifies the remote CICS system with the 4-character identifier defined in the CICS Connection table.

SYSID(*) is not valid for this function.

,SIDname(*xxxxxxxx*)

(Optional) Limits the inquiry to a specific MUF by the SID name associated with that MUF or limits the inquiry to a range of MUFs by specifying any number of leading characters of the SID name, followed by an asterisk (*). Omitting the SIDname(*xxxxxxxx*) limiter results in URTs in all MUFs being displayed. For more information, see the DBURSTR macro SIDNAME= parameter in the CA Datacom/DB *Database and System Administration Guide* and the DBCSID macro SIDNAME= parameter in the *System Reference Guide*.

Command Example

Command	Result
DBEC P,NEWCOPY,URT(123),SYSID(aaaa)	CA Datacom CICS Services replaces URT 0123 in the remote system aaaa with a new copy. The URT must be closed before issuing this request.
DBEC P,NEWCOPY,URT(????),SYSID(aaaa),SIDNAME(DBSIDPR)	CA Datacom CICS Services replaces all URTs in the remote system aaaa that access the MUF connection defined by the SID module name of DBSIDPR for that MUF with a new copy. The URTs must be closed before issuing this request. In a single MUF environment in the remote CICS, this would be all URTs. In a multiple MUFs environment in the remote CICS, this would be the MUF connection defined with the DBCSID macro SIDNAME= parameter (specified with a value of DBSIDPR) appended to the DBCVTPR. The display then returns the URT-level display of URTs, beginning either with the first URT defined to access that MUF in a multiple MUF environment or with URT 0001 in a single MUF environment in the remote CICS.

Connecting and Disconnecting Multi-User Facilities

This section discusses connecting and disconnecting MUFs.

Invoke the following transaction to connect or disconnect MUFs.

```
▶▶─ DBEC ─ PERform, ─┬─ CONnect ────┬─ ,MUF(nn),SYSid(aaaa) ──────────────▶◀
                     ├─ DISconnect ─┤
                     └─ IMMediate ──┘
```

DBEC

(Required) Specify the transaction ID used with enhanced commands to control MUFs. Leave a space between the transaction ID and the command.

PERform,

(Required) The command that requests CA Datacom CICS Services perform the specified action on the specified MUFs in the specified CICS system. PER and P are valid abbreviations.

CONnect

Connect specified MUFs. CON is a valid abbreviation.

DISconnect

Disconnect specified MUFs. (DIS is a valid abbreviation.)

IMMediate

Immediately disconnect specified MUFs without regard for active tasks. See the command examples on the following page.

Be aware that a disconnect IMMEDIATE puts the MUF into a state in CA Datacom CICS Services such that the MUF automatically reconnects, as if the MUF had abended. For example, in that state the MUF allows transactions to be backed out, if the appropriate return code handling is programmed, and to reconnect when a request requiring that MUF is made. You would typically only use this command when a MUF is hung. In situations where it is desired to terminate the connection to the MUF quickly, we recommend that you consider sending an EOJ to the MUF before issuing an IMMEDIATE disconnect. IMM is a valid abbreviation.

,MUF(*nn*)

(Required) Identifies (with the 2-digit number *nn*) the MUF, relative to the position of the associated DBCSID macro in the DBCVTPR generation, on which to perform the action.

nn

Specifies that you want to perform the action *only* on the MUF with the specific 2-digit number *nn*.

Alternately, instead of using the *nn* number to specify only a specific MUF, you can use the wildcard symbol ? (a question mark) to accept *any* digit 0 through 9 for one or both of the 2 digits of the number.

,MSIDname(*xxxxxxxx*)

(*Required*) Specifies the inquiry is to invoke the MUF-level display. The value within the parentheses identifies the MUFs identified by the SIDNAME specified in the DBCSID macros appended to the DBCVTPR macro, if multiple MUFs are defined. The MUFs that meet the qualification of your request are presented in the order that they are defined in the DBCSID macros of the DBCVTPR. The MSIDNAME(xxxxxxxx) qualifier should not be used with the MUF(nn) qualifier. If it is used with the MUF(nn) qualifier then the MUF(nn) qualifier takes precedence and the MSIDNAME(xxxxxxxx) qualifier is ignored.

xxxxxxxx

Specifies that you want to display only the MUF with the SIDNAME specified as defined for the DBSIDPR module name *xxxxxxxx* for this MUF.

Alternately, instead of using the *xxxxxxxx* name to specify only a specific MUF, you can use the wildcard symbol * (asterisk) to accept SIDNAMEs that begin with a specific value. The asterisk represents any trailing characters in the SIDNAME.

For more information, see Command Examples (see page 129).

Note: MUF(*nn*) and MSIDname(*xxxxxxxx*) should not both be used. Use the one that meets your needs to qualify the MUF inquiry. If both qualifiers are specified, then MUF(nn) takes precedence and MSIDNAME(xxxxxxxx) is ignored.

,SYSid(*aaaa*)

(Required) For an MRO environment, the value within the parentheses determines whether the action applies to a single remote CICS system or to all CICS systems. Valid values follow:

aaaa

Four-character CICS identifier for a single remote CICS system, as defined in the CICS connection table.

*****

All attached CICS systems, beginning with the local system.

SYS is a valid abbreviation.

Command Examples

Command	Result
DBEC P,CONNECT,MUF(1),SYSID(SYSA)	Connects MUF 01 in CICS system SYSA. Displays only MUF 01 in SYSA.

Command	Result
DBEC P,DISCONNECT,MUF(2?),SYSID(SYSA)	Disconnects all MUFs with numbers 20 through 29 in CICS system SYSA, then returns the MUF-level display of MUFs 20 through 29 in SYSA.
DBEC P,CONNECT,MUF(??),SYSID(SYSA)	Connects all MUFs in CICS system SYSA, then returns the MUF-level display of MUFs, beginning with MUF 01 in SYSA.
DBEC P,IMMEDIATE,MUF(1),SYSID(SYSA)	Immediately disconnects MUF 1 in CICS system SYSA regardless of active tasks, puts the MUF in DISCONNECTED status, then returns the MUF-level display of MUF 1 in SYSA.
DBEC P,CONNECT,MUF(1?),SYSID(*)	Connects the MUFs 10 through 19 in all CICS systems in SYSA and displays the result of each MUF CONNECT for MUF numbers 10 through 19 in all systems.
DBEC PER,DISCONNECT,MUF(??),SYSID(*)	Disconnects all MUFs in all CICS systems, then returns the MUF-level display beginning with MUF 01 in the local system and including all MUFs in all CICS systems. Remote systems are displayed in the order they are defined to the CICS Connections table.

Opening and Closing URTs

This section discusses opening and closing URTs.

Invoke the following transaction to open or close URTs in a specified remote CICS system.

```
►►─ DBEC ─ PERform, ─┬─ OPEN ──┬─ ,URT(nnnn),SYSid(aaaa) ──────────────────►
                     └─ CLOSE ─┘

►─┬──────────────────────────┬──────────────────────────────────────────►◄
  └─ ,SIDname(xxxxxxxx) ─────┘
```

DBEC

(Required) Specify the transaction ID used with enhanced commands to control URTs and startup/shutdown. Leave a space between the transaction ID and the command.

PERform,

(Required) The command that requests CA Datacom CICS Services perform the specified action on the specified URTs in the specified CICS system. PER and P are valid abbreviations.

OPEN

Open specified URTs

CLOSE

Close specified URTs

,URT(*nnnn*)

(Required) Identifies (with the 4-digit suffix *nnnn*) the URT on which to perform the action.

nnnn

Specifies that you want to perform the action *only* on the URT with the specific 4-digit suffix *nnnn*.

Alternately, instead of using the *nnnn* suffix to specify only a specific URT, you can use the wildcard symbol ? (a question mark) to accept *any* digit 0 through 9 for any (or all) of the four digits of the suffix. If wildcard symbols are used, only those URTs that are not open are processed.

See Command Examples (see page 287).

,SYSid(*aaaa*)

(Required) For an MRO environment, the value within the parentheses determines whether the action applies to a single remote CICS system or to all CICS systems. Valid values follow:

aaaa

Four-character CICS identifier for a single remote CICS system, as defined in the CICS connection table.

*****

All attached CICS systems, beginning with the local system.

SYS is a valid abbreviation.

,SIDname(*xxxxxxxx*)

(Optional) Limits the inquiry to a specific MUF by the SID name associated with that MUF (see the DBURSTR macro SIDNAME= parameter in the *CA Datacom/DB Database and System Administration Guide* and the DBCSID macro SIDNAME= parameter in the *System Reference Guide*) or limits the inquiry to a range of MUFs by specifying any number of leading characters of the SID name, followed by an asterisk (*). Omitting the SIDname(*xxxxxxxx*) limiter results in URTs in all MUFs being displayed. (SID is a valid abbreviation.)

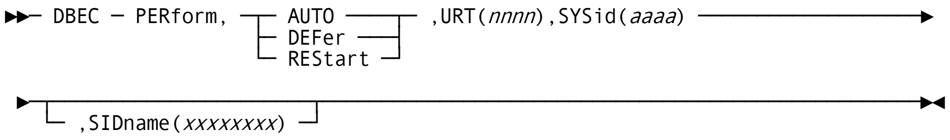
Command Examples

Command	Result
DBEC P,OPEN,URT(10),SYSID(SYSA)	Opens URT 0010 in the CICS system SYSA. Displays only URT 0010 in SYSA.
DBEC P,CLOSE,URT(12?),SYSID(SYSA)	Closes all URTs with suffixes 0120 through 0129 in CICS system SYSA, then returns the URT-level display of URTs 0120 through 0129 in SYSA. If URT is active, it is put into CLOSING status.
DBEC P,OPEN,URT(????),SYSID(SYSA)	Opens all URTs in system SYSA, then returns the URT-level display of URTs in SYSA only, beginning with URT 0001.
DBEC P,CLOSE,URT(10),SYSID(*)	Closes URT 0010 in each attached system, then returns the URT-level display for each URT 0010 found.
DBEC P,OPEN,URT(12?),SYSID(*)	Opens the URTs 0120 through 0129 in each attached system and displays the result of each URT OPEN.
DBEC PER,CLOSE,URT(????),SYSID(*)	Closes all URTs in all attached systems, beginning with the local system, then returns the URT-level display beginning with URT 0001 in the local system and including all URTs in all CICS systems. Remote systems are displayed in the order they are defined to the CICS Connection table.

Command	Result
DBEC P,OPEN,URT(????),SIDNAME(DBSIDPR),SYSID(SYSA)	Opens all URTs in remote system SYSA that access the MUF connection defined by the SID module name of DBSIDPR for that MUF. In a single MUF environment, this would be all URTs. In a multiple MUF environment, this would be the MUF connection defined with the DBCSID macro SIDNAME= parameter (specified with a value of DBSIDPR) appended to the DBCVTPR. The display then returns the URT-level display of URTs in the remote system SYSA, beginning either with the first URT defined to access that MUF in a multiple MUF environment or with URT 0001 in a single MUF environment.

Changing/Restoring Open Options for URTs

Issue the following enhanced command to modify current *when to open* specifications on URTs in a specified remote CICS system.



```
►►─ DBEC ─ PERform, ─┬─ AUTO ────┬─ ,URT(nnnn),SYSid(aaaa) ──────────────►
                     ├─ DEFer ───┤
                     └─ REStart ─┘

►─┬──────────────────────┬──────────────────────────────────────────────►◄
  └─ ,SIDname(xxxxxxxx) ─┘
```

DBEC

(Required) Specify the transaction ID used with enhanced commands to control URTs and startup/shutdown. Leave a space between the transaction ID and the command.

PERform,

(Required) The command that requests CA Datacom CICS Services perform the specified action on the specified URT in the specified CICS system. (PER and P are valid abbreviations.)

AUTO

Set specified URTs to be opened automatically when first required by an executing application.

DEFer

Set specified URTs for deferred opening, where opening is deferred until explicitly opened by a DBEC or DBOC OPEN= command. (DEF is a valid abbreviation.)

REStart

Reset specified URTs to their original STATUS. (RES is a valid abbreviation.)

Resetting specified URTs to their original STATUS means to reset the URT STATUS to OPEN or UNOPENED from CLOSED. If TYPE is AUTO, the STATUS becomes UNOPENED. If TYPE is PLT, CA Datacom CICS Services tries to OPEN the URT and, if successful, the STATUS changes to OPEN. If TYPE is DEFER, RESTART has no impact on the STATUS of URTs.

,URT(*nnnn*)

(Required) Identifies (with the 4-digit suffix *nnnn*) the URT on which to perform the action.

nnnn

Specifies that you want to perform the action *only* on the URT with the specific 4-digit suffix *nnnn*.

Alternately, instead of using the *nnnn* suffix to specify only a specific URT, you can use the wildcard symbol ? (a question mark) to accept *any* digit 0 through 9 for any (or all) of the four digits of the suffix. If wildcard symbols are used, only those URTs that are not open are processed.

See Command Examples (see page 290).

,SYSid(*aaaa*)

(Required) For an MRO environment, the value within the parentheses determines whether the action applies to a single remote CICS system or to all CICS systems. Valid values follow:

aaaa

Four-character CICS identifier for a single remote CICS system, as defined in the CICS connection table.

*****

All attached CICS systems, beginning with the local system.

(SYS is a valid abbreviation.)

,SIDname(*xxxxxxxx*)

(Optional) Limits the inquiry to a specific MUF by the SID name associated with that MUF (see the DBURSTR macro SIDNAME= parameter in the *CA Datacom/DB Database and System Administration Guide* and the DBCSID macro SIDNAME= parameter in the *System Reference Guide*) or limits the inquiry to a range of MUFs by specifying any number of leading characters of the SID name, followed by an asterisk (*). Omitting the SIDname(*xxxxxxxx*) limiter results in URTs in all MUFs being displayed. (SID is a valid abbreviation.)

Command Examples

Command	Result
DBEC P,AUTO,URT(10),SYSID(SYSA)	Sets for automatic opening URT 0010 in the CICS system SYSA. Displays URT 0010 in SYSA.
DBEC P,DEFER,URT(12?),SYSID(SYSA)	Sets for deferred opening those URTs with suffixes 0120 through 0129 in CICS system SYSA, then returns the URT-level display of URTs 0120 through 0129 in SYSA.
DBEC P,RESTART,URT(????),SYSID(SYSA)	Resets to their original STATUS all URTs in system SYSA, then returns the URT-level display of URTs in SYSA only, beginning with URT 0001.
DBEC P,AUTO,URT(10),SYSID(*)	Sets for automatic opening URT 0010 in each attached system, then returns the URT-level display for each URT 0010 found.
DBEC P,RESTART,URT(12?),SYSID(*)	Resets URTs 0120 through 0129 to their original STATUS in all attached systems, beginning with 0120 in the first system, then returns the URT-level display of URTs 0120 through 0129 in all attached systems.

Command	Result
DBEC P,RESTART,URT(????),SIDNAME(DBSIDPR),SYSID(SYSA)	Resets to their original STATUS all URTs in remote system SYSA that access the MUF connection defined by the SID module name of DBSIDPR for that MUF. In a single MUF environment, this would be all URTs. In a multiple MUF environment, this would be the MUF connection defined with the DBCSID macro SIDNAME= parameter (specified with a value of DBSIDPR) appended to the DBCVTPR. The display then returns the URT-level display of URTs in the remote system SYSA, beginning either with the first URT defined to access that MUF in a multiple MUF environment or with URT 0001 in a single MUF environment.

Initiating/Terminating Services

Initiating CA Datacom CICS Services in an MRO environment, and optionally in a CICSplex, for a remote system, a set of CICS sysstems, or all connected systems can be accomplished by using the enhanced command DBEC (described in the following section).

Initiating CA Datacom CICS Services

We recommend that CA Datacom CICS Services be initiated by using CICS PLT startup in each CICS system in which it is used. Use the appropriate DBEC P,STARTup command to initiate CA Datacom CICS Services for a remote system or systems, which can optionally be limited to those active in the CICSplex, if the startup is not automatic (that is to say PLT) or if CA Datacom CICS Services is currently shut down as a result of issuing the SHUTdown command.

When the DBEC command for startup is issued, CA Datacom CICS Services does the following:

1. Connects all MUFs defined with PLT in the DBCSID macros (or connects the single MUF when there are no DBCSID macros appended to DBCVTPR)
2. Opens all URTs not defined with AUTO= or DEFER= in DBCVTPR (which then causes connects of any associated MUFs defined with AUTO in the DBCSID macros)
3. Displays one line of the URT-level panel with the initialization message for the remote system(s) qualified by the SYSID and optional CICSplex options.

You can then enter the command to display the updatable MUF-level or URT-level panel, beginning with the first MUF or URT in the remote system(s), beginning with the local system as qualified by the SYSID option. The display can further be qualified to active CICS regions in a CICSplex or CICSplex system group. When the panel is displayed, you can enter a command from the command line or an action code on any displayed row.

Invoke the following transaction to perform CA Datacom CICS Services startup processing in the specified remote CICS system, a set of CICS systems, or all connected CICS systems including the local system. This command can be issued from the console.

```
▶▶─ DBEC ─ PERform,STARTup,SYSid(aaaa) ─────────────────────────────────▶◀
```

DBEC

(Required) Specify the transaction ID used with Enhanced commands to perform startup or shutdown. Leave a space between the transaction ID and the command.

PERform,

(Required) Command that CA Datacom CICS Services perform the specified action. (PER and P are valid abbreviations.)

STARTup

Action is to initiate CA Datacom CICS Services. (START is a valid abbreviation.)

,SYSID(*aaaa*)

(Required) For an MRO environment and optionally in a CICSPLEX environment, the value within the parentheses determines whether the inquiry displayed is for a single remote CICS system, a set of CICS systems, or for all CICS systems. Valid values are as follows:

aaaa

Four-character CICS identifier for a single remote CICS system, as defined in the CICS connection table and optionally active in the CICSPLEX.

xxxx

Use a question mark (?) for any position of the four-character value to specify a mask to limit the inquiry display for an update to a set of SYSIDs which can include the local CICS system and any remote systems.

*****

All attached CICS systems, beginning with the local system.

(SYS is a valid abbreviation.)

,PLEX(*data-value*)

Identifies the CICSPLEX context for the function that is issued with this DBEC request. The PLEX value must be the 1- to 8- character name of the CICSPLEX to which this CICS region belongs. If the PLEX option is not specified, the default for the DBEC command is the CICSPLEX specified in the DBCVTPR. The PLEX value must match the CICSPLEX parameter that is specified in the EYUPARM member of the CICS startup. This parameter has no meaning unless the SYSID parameter is also specified in the command. When it is specified in the command with SYSID, it must preceed the SYSID option in the command string.

Note: To use the CICSPLEX-aware feature of DBEC with SYSID, either DBCVTPR should be coded with the CICSPLEX= parameter or the PLEX and SCOPE parameters must be specified in the command. It is important to note that SYSID behaves differently depending on whether DBEC is CICSPLEX-aware. If it is not, then SYSID operates on all MRO connections. If it is, then SYSID operates on only the MRO connections for active CICS regions in the CICSPLEX, that is, for active CICS regions in the CICSPLEX as identified by a CICSRGN CICSPlex SM resource table occurrence. PLEX (a CICSPLEX name) and SCOPE (a CICSPLEX or system group name), can override the DBCVTPR value for the CICSPLEX connections.

,SCOPE(*data-value*)

Identifies the scope for the function that is issued with this DBEC request. The SCOPE option qualifies the PLEX option or DBCVTPR CICSPLEX parameter. The scope can be:

- The 1- to -8 character name of the CICSPLEX itself. This is the default as specified in the CICSPLEX parameter of the DBCVTPR.

- A valid 1- to -8 character name of a CICSPLEX System Group in the CICSPLEX to which this CICS belongs

The SCOPE option should always be used in the command when the PLEX option is used in the command to override the DBCVTPR CICSPLEX parameter or to make the DBEC command CICSPLEX-aware when CICSPLEX is not coded in the DBCVTPR. This parameter has no meaning unless the SYSID parameter is also specified in the command. When it is specified in the command with SYSID, it must preceed the SYSID option in the command string.

Note: SCOPE further qualifies the DBCVTPR CICSPLEX parameter or PLEX option. If either of those two are not specified, SCOPE is ignored in the command.

Important! For previous release compatibility, if neither PLEX or SCOPE are specified in the DBEC command and CICSPLEX= is not specified in the DBCVTPR then the command does not use the CPSM API. DBEC works as before on all MRO connections. The DBCVTPR CICSPLEX parameter could not be specified and still use the DBEC CICSPLEX feature by specifying the PLEX and SCOPE qualifiers in the command.

Command Example

Command	Result
DBEC P,STARTUP,SYSID(aaaa)	Initiates CA Datacom CICS Services in the specified remote CICS system.
DBEC P,STARTUP,SYSID(*)	Initiates CA Datacom CICS Services in all CICS systems identified in the CICS Connection table, beginning with the local system..

Terminating CA Datacom CICS Services

The termination of CA Datacom CICS Services is automatically invoked (if a CICS PLT entry is used) when CICS is recycled. To shut down CA Datacom CICS Services in any CICS system while CICS is running, issue a command.

During shutdown, CA Datacom CICS Services disconnects all connected MUFs and closes all open URTs in the SYSID and CICSplex specified local and remote system and displays statistics on the Message Log.

Issue the following transaction to shut down CA Datacom CICS Services in the specified remote CICS system.

```
▶▶─ DBEC ─ PERform,SHUTdown,SYSid(aaaa) ──────────────────────────▶◀
```

DBEC

(Required) Specify the transaction ID used with Enhanced commands to perform startup or shutdown. Leave a space between the transaction ID and the command.

PERform,

(Required) Command that CA Datacom CICS Services perform the specified action. (PER and P are valid abbreviations.)

SHUTdown,

Action is to terminate CA Datacom CICS Services. (SHUT is a valid abbreviation.)

SYSid(aaaa)

(Required) For an MRO environment, the value within the parentheses determines whether the action applies to a single remote CICS system or to all CICS systems. Valid values follow:

aaaa

Four-character CICS identifier for a single remote CICS system, as defined in the CICS connection table.

*****

All attached CICS systems, beginning with the local system.

(SYS is a valid abbreviation.)

Command Example

Command	Result
DBEC P,SHUTDOWN,SYSID(aaaa)	Terminates CA Datacom CICS Services in the specified remote CICS system.
DBEC PER,SHUTDOWN,SYSID(*)	Terminates CA Datacom CICS Services in all CICS systems identified in the CICS Connection table, beginning with the local system..

Chapter 12: Linking Application Programs

All application programs using CA Datacom CICS Services must be link edited with one of the following modules to establish required communication:

- DBCSVPR version 2.5 or higher
- DBCSRPR version 11.0 or higher

Note: DBCSVPR and DBCSRPR use the exact same code. Except DBCSVPR runs with AMODE=24, RMODE=24, and NORENT, whereas DBCSRPR runs with AMODE=31, RMODE=31, and RENT. We recommend that all new programs you develop be link edited using DBCSRPR.

To access CA Datacom CICS Services, the application program must issue a standard call to the DBNTRY CA Datacom/DB entry point or to the DBSQLE entry point for SQL. Although the DATACOM entry point is still supported, we recommend using DBNTRY. The inclusion of DBCSVPR or DBCSRPR by the IBM Linkage Editor resolves the call to the entry point.

Note: Only command-level is supported with CA Datacom CICS Services r11 or higher. Therefore, the register 13 of the caller has to point to the 18 fullword Register Save Area before the call to DBNTRY.

Select one of the following options for including the DBCSVPR routine:

- Option 1: Manual Linkage (see page 298)
- Option 2: Automatic Linkage (see page 299)

Option 1: Manual Linkage

Code control statements to the IBM Linkage Editor to include the DBCSVPR routine last in the load module. These examples have been changed to DBCSRPR instead of DBCSVPR. This allows the application options to control the LINK EDIT without having to supply override parameters such as AMODE/RMODE to the LINK EDIT.

Here is an example for z/OS environments:

```
//LKED    EXEC PGM=IEWL,
   //. . .
   //. . .
   //CICSLIB DD DSN=users.CTS,SDFHLOAD,DISP=SHR
   //OBJLIB  DD DSN=users.OBJECT.LIB,DISP=SHR
   //DBCLLD  DD DSN=userhlq.CAB1LOAD,DISP=SHR
   //. . .
   //SYSIN   DD *
     INCLUDE CICSLIB(DFHEILxx)
     INCLUDE OBJLIB(pgmname)
     INCLUDE DBCLLD(DBCSRPR)
     NAME pgmname
   /*
```

Here is an example for z/VSE environments:

```
// DLBL   DBCLLD,'DBC14LIBRARY'
// EXTENT ,VSE300
// LIBDEF OBJ,SEARCH=(DBCLLD.DBC14,USER.OBJECT,CICSTS.TS11)
// LIBDEF  PHASE,CATALOG=USER.PHASE
// OPTION CATAL
 PHASE pgmname,*
 INCLUDE DFHELxx
 INCLUDE pgmname
 INCLUDE DBCSVPR
// EXEC LNKEDT
/*
```

For both z/OS and z/VSE, DDNAME DBCLLD references the CA Datacom CICS Services product load library defined during installation.

For z/OS and z/VSE, the DFHEILxx module represents the CICS command-level interface module that must be included from your appropriate CICS library. For more information about these module names, see the note in Option 2: Automatic Linkage (see page 299).

Option 2: Automatic Linkage

Include one of the following types of code in each application program requiring access to CA Datacom CICS Services. When the code is compiled, the IBM Linkage Editor automatically includes the DBCSRPR module.

Assembler:

Include the following statements anywhere in the program.

```
EXTRN DBCSRPR
WXTRN DATACOM,DBNTRY
```

COBOL:

Insert the following statements at the end of the program.

```
BAD-RETURN.
          GOBACK.
DUMMY-DB-CALL.
          CALL 'DBCSRPR'.
```

PL/I:

Insert the following statements just before the last program statement.

```
BAD_RETURN:  RETURN;

DUMMY_DB_CALL:  CALL DBCSRPR;
```

Note: For the ASSEMBLER, COBOL, and PL/I examples, a DD statement for z/OS or a DLBL statement for z/VSE must be added to the SYSLIB for z/OS or OBJ SEARCH for z/VSE concatenation in the link-edit step, to reference the CA Datacom CICS Services product load library in z/OS or object library in z/VSE. Also, you must provide an include for the command-level interface modules: ASSEMBLER (DFHEILIA), COBOL (DFHEILIC), and PL/I (DFHEILIP) for z/OS or DFHELII for z/VSE.

Sample Online Programs

We provide sample online programs that use the sample User Requirements Table DBURT001 to access CA Datacom/DB through CICS. The programs, which are not Transaction ID dependent, are written in command-levels in Assembler, COBOL, and PL/I. All of these programs run on IBM 3270 type devices (screen size 24 rows by 80 columns).

Only DCCACPR, DCCALAPR, and DCCASPR are assembled as a part of the installation procedure. To test the other sample programs, assemble or compile the programs and link the modules. The source for the other sample programs is delivered and can also be obtained from the CA Support website. The sample programs are as follows:

Transaction ID	Program Name	Level
DBAC	DCCACPR	Assembler command-level
DBCC	DCCCCPR	COBOL command-level
DBAL	DCCALPR	Assembler command-level DBLC sample
DBAS	DCCASPR	Assembler command-level DBLC sample for OTE testing
DBPC	DCCPCPR	PL/I command-level
DBSQ	DCSQLPR	COBOL command-level using SQL commands
DBXA	DCCXAPR	Assembler command-level

The following sections continue to address the various aspects of using CA Datacom CICS Services with application programs:

- Updating Techniques, SYNCPOINT, and Logging (see page 301)
- SQL Considerations (see page 307)
- Abend Handling (see page 313)
- Test Facility (DBTS/DBTX) (see page 317)
- Debugging Facility (DBUG) (see page 347)

Chapter 13: Updating Techniques, SYNCPOINT, and Logging

To maintain the most efficient and functional transaction processing environment, minimize the length of time your applications hold data with exclusive control (data locks). A transaction (task) that waits on a response from the terminal operator is called a conversational transaction. If your application locks data while waiting for an operator response, other users requesting a read for update of that data must wait until the transaction releases the data. For best overall performance, when writing CICS transactions do not lock the data you want to update while waiting for a response from an operator.

In addition to not waiting on the terminal, performance can be gained by issuing the following commands as late as possible in the processing of the transaction:

- ADDIT
- RDUxx (one of the read for update commands)
- DELET
- UPDAT

When updating a database in a CICS environment, pseudo conversational mode is the recommended method.

To perform a pseudo conversational transaction

1. Read the target record without locking it.
2. Save the record information in a temporary location.
3. Display the record information to the screen.
4. Obtain the updates to the information.
5. Reread the target record with a lock.

6. Verify that the locked record information is the same as the original information then write the updated information to the locked record.

   If the locked record information differs from the original information, release the record and return to step 2, if desired.

7. Issue SYNCPOINT or end the transaction.

If a long running conversational transaction is needed, issue frequent SYNCPOINTs after updating records to increase efficiency. Task completion automatically generates a SYNCPOINT. A task ABEND generates a SYNCPOINT ROLLBACK provided there is no ABEND HANDLER.

Use SYNCPOINTs instead of CA Datacom/DB log (LOGxx) commands. Whenever possible, avoid using LOGxx commands (including COMIT and ROLBK) in a CICS environment.

This section contains the following topics:

Using CICS SYNCPOINT

This release has simplified the management of CICS resources using CICS SYNCPOINT implementation for user log type commands. For more details, see User Issued Log Commands (see page 427).

Important! Take great care to distinguish between user issued log commands and log commands that are issued as a result of SYNCPOINT. Both can generate the same log command, but they may not function exactly the same. A user issued log command is when an application issues a CA Datacom/DB request with its command being a log command.

The following simplifications come with this release:

- Synchronization of all resources is assured.
- Assurance that all LOGxx commands that checkpoint data will participate in both the MVS LOGGER (or CICS JOURNAL FILE if z/VSE) and the LXX.

- SYNCPOINT optimization of DB logging commands is allowed.
- The original user log command is preserved on the CA Datacom/DB LXX file.

All updates for application issued SYNCPOINTs and task termination SYNCPOINTs are true for both CA Datacom CICS Services r11 and Version 14.0. There is no difference between r11 and Version 14.0 for user issued or CICS issued SYNCPOINTs.

When an application program issues a CICS SYNCPOINT, all held data resources but not necessary sets, are released. Released resources include all resources under exclusive control, and the release of threads making those resources available for batch jobs or other CICS tasks to hold and update. Once an application issues a CICS SYNCPOINT, the CA Datacom CICS Service participates in SYNCPOINT, and the task completes one unit of work (UOW). Coding a CICS SYNCPOINT commits all updates to all resources including VSAM, DL/I, BDAM, DB2, and CA Datacom/DB, or CICS SYNCPOINT ROLLBACK to back them all out.

Important! If you want SYNCPOINT ROLLBACK to back out the updates for a transaction, the parameter value DTB=YES must be specified in the appropriate TRANSACTION definition. If DTB=NO is specified, SYNCPOINT ROLLBACK is treated as a SYNCPOINT and all the updates are committed.

Whenever possible, use the CICS SYNCPOINT or CICS SYNCPOINT ROLLBACK command for committing updates instead of specifying the CA Datacom/DB commands such as COMIT, LOGCP, LOGTB, or ROLBK. Also, when modifying old legacy programs containing these commands, consider converting the LOG commands to SYNCPOINTs at that same time.

Note: CBS and SQL sets are beyond the scope of this document. Therefore they are not obligated to follow any of the rules stated in this manual concerning exclusive control and there may be cases where sets remain beyond a SYNCPOINT or task termination or log commands.

Special Logging Commands Considerations

CA Datacom CICS Services Version 14.0 simplifies and standardizes user log commands. CA Datacom CICS Services Version 14.0 also increases data integrity with user log commands by issuing SYNCPOINT instead.

Important! Only user legacy applications that issue CA Datacom/DB log commands need to be concerned with this section. CA products may in fact issue CA Datacom/DB log commands but do not pose a problem or require special consideration. They meet the needed requirements.

DBOC INQ=STATS and DBOC SHUTDOWN Displays User Logging Information

The DBOC INQ=STATS help you determine if there are applications that still use DB Log commands in the programs and which programs they are.

DBOC INQ=STATS: The SPAWNED line shows user log usage.

Use DBOC INQ=STATS transaction to determine if any applications are using these commands.

See the line stated:

```
SPAWNED TRANCODE:
```

If “NONE” and COUNTS=0 shows up, then no user application has used these commands since the beginning of the CA Datacom CICS Services invocation on this CICS.

Also the SPAWNED TRANCODE line can be seen in the DBOC SHUTDOWN stats.

CICS User Logging Differences Summary

Note: Be aware that the CA Datacom/DB record-at-a-time commands involving logging (COMIT, LOGCP, LOGCR, LOGIT, LOGLB, LOGTB, and ROLBK) will function differently beginning with CA Datacom CICS Services Version 14.0 than in r11 or r2.6.

CA Datacom CICS Services Version 14.0 has the following major changes concerning user issued log commands (LOGxx):

- All COMIT, LOGCP, LOGCR, LOGTB, and ROLBK commands invoke either a CICS SYNCPOINT or a SYNCPOINT ROLLBACK regardless of how many resource managers are involved be it only CA Datacom/DB, or CA Datacom/DB and others also such as DB2. A SYNCPOINT will be issued whether it is a single-phase or two-phase commit. This simplifies the complexity for the user from CA Datacom CICS Services r11.
- LOGIT and LOGLB are issued only to the default CA Datacom/DB Multi-User known as MUF1 in DBEC. In CA Datacom CICS Services r11, the same transaction involving requests to different CA Datacom/DB connections could log the LOGIT to different CA Datacom/DB Multi-Users depending on the order of requests made by the transaction. This has been simplified for the user. It will always go to the first defined connection.

- Although CA Datacom CICS Services replaced five of these commands with a SYNCPOINT type request, the original command is still logged on the CA Datacom/DB LXX except in the case where the log command was not needed. See User Issued Log Commands (see page 427).

In legacy applications issuing these LOGxx commands, for detailed description of each command and how it is used under the various conditions, see User Issued Log Commands (see page 427).

Examples of SYNCPOINT and LOG Commands in a Multiple MUFs Environment

All of the examples that follow show only the process for the CA Datacom/DB log request.

Example 1

An application program issues updates to DB2, VSAM, MUF1, MUF2, and MUF5 followed by a CA Datacom/DB COMIT. The updates to DB2 and VSAM do not prevent CA Datacom CICS Services from converting this request into a SYNCPOINT. CICS in turn issues a two-phase commit because multiple resource managers have update type resources involved.

Example 2

An application program has issued updates to DB2, VSAM, MUF1, MUF2, and MUF5 and has RDUxx (outstanding read-for-update without the update), then it issues a LOGCP. The LOGCP causes a SYNCPOINT and because multiple resources are being updated (or have update intent), a two-phase SYNCPOINT occurs. However, all update-intent records in CA Datacom/DB remain locked and ready for an update after the LOGCP/SYNCPOINT was issued.

CA Datacom CICS Services then returns to the user application that issued the LOGCP. The user can then issue updates on records previously held with exclusive control even though a COMIT was issued.

LXX r11 Logging Differences

For further information about r11 logging differences, see Logging (LXX) Considerations and r11 Differences (see page 421).

Chapter 14: SQL Considerations

This chapter provides SQL considerations with regard to plan options.

SQL Plan Options Special Topics

Each application with embedded SQL statements must have a CA Datacom/DB access plan. The plan contains information required by CA Datacom/DB about your program and information about each SQL statement you have embedded. The plan is built when you submit your application to CA Datacom/DB's SQL Preprocessor. The Preprocessor has options which you can either specify or let default to determine how the Preprocessor processes the SQL statements and controls certain aspects of the application's environment.

One of the SQL Preprocessor options (ISOLEVEL=) specifies the isolation level, meaning the degree to which a unit of recovery in your application is isolated from updating operations (such as SQL statements INSERT, UPDATE, or DELETE) or other units of recovery.

A unit of recovery is defined as the data and control information needed to enable CA Datacom/DB to back out or reapply all of an application's changes to recoverable resources since the last commit point.

In the following pages of this chapter, when a reference is made to ISOLEVEL=C, be aware that the implication is, that in the context of the particular situation being described, ISOLEVEL= cannot be specified as U. This is because ISOLEVEL=U does *not* acquire locks or allow changes, but other ISOLEVEL= specifications do, as shown in the following list.

ISOLEVEL=U

Specifies that no locks are acquired and no changes are allowed.

ISOLEVEL=C

Specifies that locks are acquired and changes are allowed.

ISOLEVEL=R

Specifies "repeatable read," in which locks are acquired and *restricted* changes are allowed.

Note: For detailed information about isolation levels and using SQL, see the *CA Datacom/DB SQL User Guide*.

Read Only

If you choose the SQL Preprocessor option ISOLEVEL=U, the access plan is read-only and your application cannot execute the SQL statements INSERT, UPDATE, or DELETE.

In addition, a share lock is *not* acquired for rows accessed with SELECT INTO or through a cursor, which means you may access rows inserted or updated by other concurrent tasks that have not been committed and may therefore be backed out.

Locking a Row

Locking a Row

If your application needs to hold a lock on a row, you must specify ISOLEVEL=C and use the SQL FETCH statement to fetch the row using a cursor that has a WHERE CURRENT OF *cursor-name* clause in either an UPDATE or DELETE statement (the WHERE CURRENT OF *cursor-name* clause need never be executed but, if none are present, blocked transfer of rows may either cause the share lock acquired for fetched (FETCH) rows to be released before your application fetches them, or a temporary table may be built). The WHERE CURRENT OF *cursor-name* clause causes the row on which your application is positioned to be held with an exclusive lock.

Note: Using the SQL SELECT INTO statement with ISOLEVEL=C causes rows to be accessed by a share lock, but the lock is released before control is passed to your application.

CICS Unit of Recovery End

If your plan is for a CICS application, CA Datacom CICS Services issues a CICS SYNCPOINT and issues either a COMIT or ROLBK to end the unit of recovery:

- At the end of each asynchronous CICS task, or
- At the end of each synchronous CICS task (a task associated with a terminal) if:
  - A task abnormally terminates, or
  - A task returns control to CICS, or
  - ISOLEVEL=C and at least one cursor is left open, or
  - ISOLEVEL=C and INSERT, UPDATE, or DELETE statements have been executed.

CA Datacom CICS Services does *not* issue a CICS SYNCPOINT and does *not* issue a COMIT or ROLBK to end the unit of recovery when:

- A synchronous CICS task terminates successfully, and
- The transaction ID is specified in the RETURN statement, and either:
  - ISOLEVEL=U, or
  - ISOLEVEL=C, no cursor is left open, and no INSERT, UPDATE, or DELETE statements have been executed.

However, the SQL Manager automatically ends a unit of recovery after each SQL statement if there are:

- No open cursors,
- No table-level locks, and
- No primary or secondary exclusive control is being held.

For example, if ISOLEVEL=U and you have only SELECT INTO statements or no open cursors, there is no need to execute a COMMIT WORK statement at CICS transaction end because there is no current unit of recovery active. Therefore, the only case where the unit of recovery is left active when the synchronous CICS task ends successfully is when ISOLEVEL=U and a cursor is left open.

Note: If you code ISOLEVEL=U, **you are responsible** for ending the current unit of recovery as follows:

- We recommend ending the current unit of recovery by closing all open cursors. Or, if your user application logic does not support this method,
- Issue a CICS SYNCPOINT (see page 302). Or, if your user application logic does not support this method,
- Issue an appropriate SQL statement (COMMIT WORK or ROLLBACK WORK). Or, if your user application logic does not support this method, as a last option,
- Issue an appropriate CA Datacom/DB record-at-a-time command (LOGCP, LOGCR, LOGTB, COMIT, or ROLBK).

  If a CA Datacom/DB log command is issued in a situation where a single transaction talks to multiple MUFs, unpredictable results can occur. Therefore, using other methods of ending the current unit of recovery are recommended before this last option.

When you do not do one of the previously given actions and the current unit of recovery remains active, it allows a *browse* application to keep cursors open across CICS synchronous transactions. Be aware, if that was not what you intended, the plan stays locked in share mode, and memory is held in the MUF until the unit of recovery is ended.

For example, if your application opens a cursor, fetches one or more rows, and issues a CICS read with return to the application, upon return your application receives a -135 SQLCODE (INVALID CURSOR STATE) when it attempts to open the cursor, because it was left open from the previous CICS transaction. Or, if the next application attempts to execute a plan with ISOLEVEL=C, your application receives a -144 SQLCODE (INVALID TRANSACTION ISOLEVEL) because you cannot mix transaction isolation levels in the same unit of recovery.

To end the current unit of recovery, have your application issue a ROLLBACK WORK or CICS SYNCPOINT when it receives an unexpected SQLCODE, or you can execute a non-SQL command which ends the current unit of recovery. Otherwise, close the SQL User Requirements Table to end the current unit of recovery.

If your application does *not* execute CICS RETURN with the *same* transaction ID, the current unit of recovery is ended, meaning the unit of recovery is ended if control is passed to another transaction or back to CICS.

ANSI Compatibility

ANSI Compatibility

ISOLEVEL=U is a CA Datacom extension. It is not ANSI standard and is therefore not allowed if ANSI or FIPS is specified in SQLMODE=.

Note: For more information about the SQL Preprocessor's SQLMODE= option, see the *CA Datacom/DB SQL User Guide*.

CA Ideal Considerations

If you are invoking SQL from CA Ideal FOR statements with an embedded TRANSMIT statement, ISOLEVEL=C can be specified. Such cursors are opened in a special mode that holds them open across units of recovery. CA Ideal automatically closes the cursors.

Block Transfer

Block Transfer

If you specify ISOLEVEL=U, block transfer of rows between the MUF and the CICS address space is *not* performed.

OPEN/CLOSE Efficiency

OPEN/CLOSE Efficiency

Specifying T for the PLNCLOSE= option for SQL Preprocessor (to close the access plan at unit of recovery end) causes any opened tables to close. The exception is when another unit of recovery is currently accessing the table.

If the ACCESS MUF startup option has been specified as NOOPT, and if the table is the last table open for an area, the area is "physically" closed by the operating system. We recommend that when ACCESS NOOPT has been specified, open tables that are frequently accessed with PLNCLOSE=T in a non-SQL User Requirements Table to avoid this overhead. This User Requirements Table need never be used, but it keeps the areas open.

Note: Plan binding uses the CA Datacom Datadictionary, the Schema Information Tables (SIT), and the Optimizer message table (SYSMSG) areas. Binding executes faster if there is a User Requirements Table that holds those areas open. The Temporary Table Manager (TTM) area should also be held open because it may be used during the execution of binding.

Automatic Unit of Recovery End

Automatic Unit of Recovery End

The SQLOPTION MUF startup option can be used to automatically close CICS and DLI units of recovery that are left open. For more information on SQLOPTION, see the *CA Datacom/DB Database and System Administration Guide*.

Note: A unit of recovery will not be ended if it is still active in the MUF (such as when waiting on a plan lock).

If an ISOLEVEL=U application with an open cursor exists for longer than the limit specified in the SQLOPTION MUF startup option, the application will receive a -135 SQLCODE (INVALID CURSOR STATE) when it tries to continue scrolling.

Units of recovery that are automatically timed out are not reported.

Plan Locks

Plan Locks

A plan cannot be rebound when in use. If (for a CICS application) R is specified for the SQL Preprocessor's PLNCLOSE= option, the plan remains in use until the SQL User Requirements Table is closed.

To determine which plans are being used, you can use CA Datacom/DB Utility's (DBUTLTY) COMM ALTER option as follows:

```
►►─ COMM OPTION=ALTER,TRACE=TRACEGLOBAL ──────────────────────────────────►◄
```

This writes a report of all open plans (plus various other information about the state of the SQL subsystem) to the CA Datacom/DB Statistics and Diagnostics Area (PXX) when the SQL User Requirements Table is closed. Print the report using CA Datacom/DB Utility's (DBUTLTY) REPORT AREA=PXX option with FULL or TRACE specified for the DUMPS= keyword.

To turn off this option, use CA Datacom/DB Utility's (DBUTLTY) COMM ALTER option:

```
►►─ COMM OPTION=ALTER,TRACE=NONE ─────────────────────────────────────────►◄
```

Note: For more information about using the CA Datacom/DB Utility (DBUTLTY), see the *CA Datacom/DB DBUTLTY Reference Guide*.

Chapter 15: Abend Handling

CA Datacom CICS Services handles all abend recovery for application tasks.

Standard Method

When a task that issued a CA Datacom/DB request terminates abnormally, standard CA Datacom CICS Services abend processing issues a CA Datacom/DB ROLBK (Rollback Transaction) command, in which case you are not required to code any special abend handling function for your applications.

Alternative Methods

If the standard method does not meet your needs or a software application package uses an abend handler, observe the following guidelines:

- Any CA Datacom/DB request issued by the abend handling routine should use a different Request Area for debugging purposes.

  Warning A DC16 abend results if a CA Datacom/DB request is issued in an abend handling condition from a force-purge of an active CA Datacom/DB request. We therefore do not recommend that abend handlers be allowed to issue CA Datacom/DB requests.

- If the abend handler routine can correct the cause of the abend, the application can resume processing as if the abend never occurred.
- Use the DBUTLTY COMM REQABORT option to cancel a task that is waiting for a response from CA Datacom/DB. This utility function causes CA Datacom/DB to respond to the CICS task and place a return code of 45 in the Request Area. (For details on this DBUTLTY function, see the *CA Datacom/DB DBUTLTY Reference Guide*.)

This section contains the following topics:

Using an Abend Handler

Using an abend handling routine causes CICS to reset the abend condition and, at termination, CA Datacom CICS Services does not use its special abend processing to issue a ROLBK command. If you want to use CA Datacom/DB's transaction backout processing, your abend handling routine must issue one of the following (shown in their preferred order):

- CICS SYNCPOINT ROLLBACK
- CICS ABEND
- CA Datacom/DB ROLBK command

CICS SYNCPOINT ROLLBACK and CICS ABEND allows CA Datacom CICS Services to handle the backout. However, any allowable CA Datacom/DB command is honored.

When processing a CA Datacom/DB request from an abend handling routine, CA Datacom CICS Services treats it as a new request and has no indication that it has been issued by an abend handler. Therefore, CA Datacom CICS Services processes a request from an abend handler like any other CA Datacom/DB request:

1. CA Datacom CICS Services checks for the completion of any previous CA Datacom/DB request. If it finds a previous request that has not been completed, it abends the transaction (active request) with an abend code of DC16.
2. The DC16 abend causes abend processing to occur. CA Datacom CICS Services is called by CICS and:
   a. Releases any attached facility (terminal).
   b. Waits on the original request.
   c. Is followed by a ROLBK (backout).

If the application and the abend handler have used different Request Areas, the results of both commands are available to your application.

Using a CEMT Force-Purge Transaction

To avoid unpredictable results, use *only* the CEMT purge or CEMT force-purge transactions *provided by IBM.* Note that the CICS TS CEKL transaction from IBM produces unpredictable results if used on CA Datacom transactions.

1. If the task has exclusive control or has an open cursor, then CA Datacom CICS Services issues a ROLBK. However, if the task did not hold exclusive control or did not have an open cursor, no database request is required.
2. Returns to CICS.

When Using an Abend Handler

When a CEMT force-purge transaction is issued on a task that is waiting for a response from CA Datacom/DB, the following events occur.

1. The first CEMT issued causes your abend handler to be invoked. If the abend handling routine issues a CA Datacom/DB request (such as ROLBK), CA Datacom CICS Services abends this transaction with an abend code of DC16. This is first handled by a CICS Recovery Manager that subsequently calls CICS SYNCPOINT processing, which then calls CA Datacom CICS Services with a SYNCPOINT backout indication. At this point, processing follows the situation discussed in Case 2. In such cases, there is an active request in CA Datacom/DB at the time of the force-purge.

2. If the abend handler does not request an abend, one of the following occurs:

   - Either the abend handler does not issue any CA Datacom/DB request, or

   - The abend handler issues CA Datacom/DB requests when there is no outstanding CA Datacom/DB request active for this task.

   Then normal transaction processing continues, and updated records are committed at SYNCPOINT processing time (which probably occurs during task termination). But if the abend handler issues an abend, the CICS SYNCPOINT ROLLBACK is invoked and backout occurs.

   Note: Even though an abend occurred, in this case the abend handler has the authority to create an abend or to continue processing as if no abend occurred, regardless of transactional dynamic transaction backout (DTB) settings. However, if the abend handler issues an abend, backout does occur.

The previous descriptions do not take into account other resource managers that may be involved nor their states at the time of the CEMT force-purge.

When Not Using an Abend Handler

When a CEMT is issued, the CA Datacom CICS Services abend processor gains control.

Case 1

If there is no active request in CA Datacom/DB at the time of the force-purge, the following steps are done in the order shown:

1. The facility is freed (usually the terminal) if one exists.
2. If the task has exclusive control or has an open cursor, then CA Datacom CICS Services issues a ROLBK. However, if the task did not hold exclusive control or did not have an open cursor, no database request is required.
3. Returns to CICS.

Case 2

If there is an active request in CA Datacom/DB at the time of the force-purge, the following steps are done in the order shown:

1. The facility is freed (usually the terminal) if one exists.
2. The task waits on the original request until CA Datacom/DB has completed the request and CICS has dispatched the task.

Using CEMT to Cancel an Active Task

The following procedure shows how CEMT is used to cancel an active task. An active task is one that is waiting for a CA Datacom/DB MUF I/O request to finish.

1. Use DBOC to check the status of the DBOC TASK output to make certain that the task is waiting for a CA Datacom/DB MUF to respond.
2. Use a CEMT purge transaction or a CEMT force-purge transaction to cancel the active task.
3. CA Datacom CICS Services gains control during the cancel (if there is no abend handler) then releases the terminal from the task and issues a wait on the CA Datacom/DB ECB of that task.
4. After the MUF finishes the I/O request, it posts the ECB.
5. CA Datacom CICS Services then issues a ROLBK to undo the updates.

Chapter 16: Test Facility (DBTS/DBTX)

Use the Test Facility to perform the following tasks:

- Update or add records to the database without writing a program
- Simulate application program logic
- Test the function of various CA Datacom/DB commands
- Use feedback from the syntax checking feature to learn CA Datacom/DB syntactical rules

Security for these transactions is established through standard CICS security features.

The DBTS/DBTX transaction runs under its own control. DBTX and DBTS operate under Basic Mapping Support (BMS) on IBM 3270 type devices with a minimum screen size of 24 lines by 80 columns.

Note: The only value supported by the DBTS/DBTX transaction for ENTRY is DBNTRY. Although CA Datacom CICS Services still supports the DATACOM entry point, the DATACOM entry point is not supported by the DBTS/DBTX transaction.

This section contains the following topics:

Using the Test Facility

This section discusses using the test facility.

Initiating the Test Facility

To initiate the DBTS/DBTX transaction, enter one of the following transaction IDs and press Enter.

```
►►─┬─ DBTS ─┬─┬─────────┬──────────────────────────────────────────►◄
   └─ DBTX ─┘ └─ ALLOW ─┘
```

DBTS

Initiates the Test Facility. (Your site may have defined an alternate CICS transaction ID for DBTX and DBTS. For details on assigning an alternate CICS transaction ID, see the C*A D*atacom CICS Services *System Reference Guide*.)

DBTX

Initiates the Test Facility for read-only processing. (Your site may have defined an alternate CICS transaction ID for DBTX and DBTS. For details on assigning an alternate CICS transaction ID, see the *System Reference Guide*.)

ALLOW

(Optional) Permits entry in Request Area lines on Test Facility panels. If this option is selected and you need to enter data in hexadecimal format, the data must be entered vertically on the second and third lines provided for REQUEST AREA (the first line is for character representation). For example, if you wanted to enter hexadecimal value '01de' in the first two bytes of the REQUEST AREA, you would enter 0d on the second line and 1e on the third line.

See the example screen in DBTS/DBTX Main Panel (see page 319).

When the formatted screen appears, you may enter and execute any CA Datacom/DB command permitted by CA Datacom CICS Services. CA Datacom CICS Services does not permit some CA Datacom/DB commands including GETIT, OPEN and CLOSE. If you are using the DBTX transaction, CA Datacom CICS Services does not allow you to enter commands which would update the database.

Because DBTS allows you to update records, it runs both in pseudo-conversational and conversational mode. To conserve resources, your systems programmer can use the RTIMOUT= feature of CICS to time out unattended conversational terminals.

Terminating the Test Facility

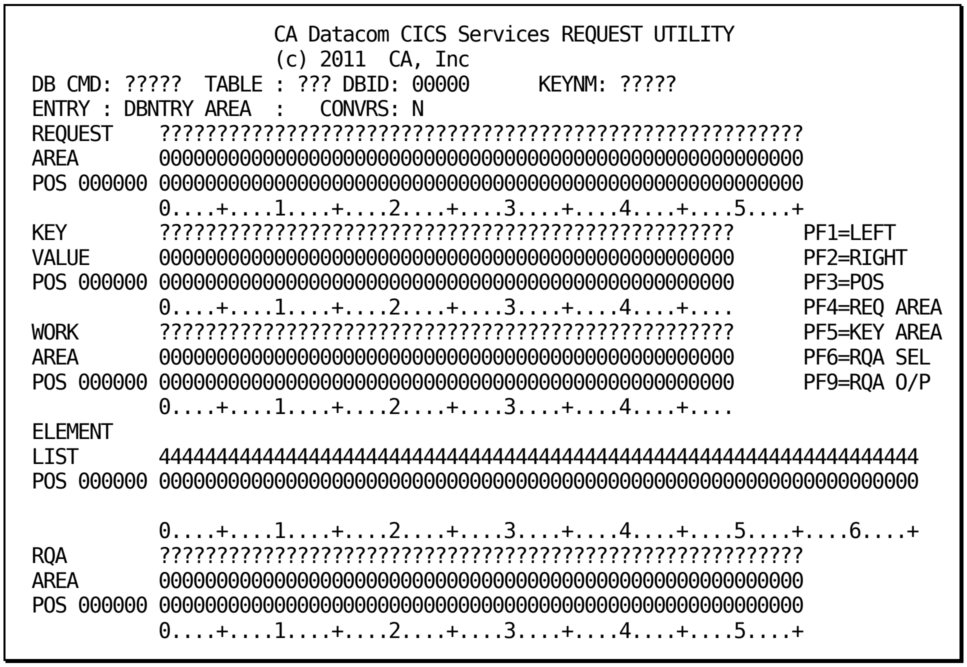
To terminate the Test Facility, return to the Main Panel and press Clear.

DBTS/DBTX Panel Descriptions

This section provides DBTS/DBTX panel descriptions.

DBTS/DBTX Main Panel

The screen displayed by either the DBTS or the DBTX transaction appears as follows:



```
                     CA Datacom CICS Services REQUEST UTILITY
                     (c) 2011  CA, Inc
DB CMD: ?????  TABLE : ??? DBID: 00000      KEYNM: ?????
ENTRY : DBNTRY AREA  :   CONVRS: N
REQUEST    ????????????????????????????????????????????????????????
AREA       00000000000000000000000000000000000000000000000000000000
POS 000000 00000000000000000000000000000000000000000000000000000000
           0....+....1....+....2....+....3....+....4....+....5....+
KEY        ??????????????????????????????????????????????????      PF1=LEFT
VALUE      00000000000000000000000000000000000000000000000000      PF2=RIGHT
POS 000000 00000000000000000000000000000000000000000000000000      PF3=POS
           0....+....1....+....2....+....3....+....4....+....      PF4=REQ AREA
WORK       ??????????????????????????????????????????????????      PF5=KEY AREA
AREA       00000000000000000000000000000000000000000000000000      PF6=RQA SEL
POS 000000 00000000000000000000000000000000000000000000000000      PF9=RQA O/P
           0....+....1....+....2....+....3....+....4....+....
ELEMENT
LIST       444444444444444444444444444444444444444444444444444444444444444444
POS 000000 000000000000000000000000000000000000000000000000000000000000000000

           0....+....1....+....2....+....3....+....4....+....5....+....6....+
RQA        ????????????????????????????????????????????????????????
AREA       00000000000000000000000000000000000000000000000000000000
POS 000000 00000000000000000000000000000000000000000000000000000000
           0....+....1....+....2....+....3....+....4....+....5....+
```

Function Key Assignments

Use the following keys to perform the described tasks:

PF1

Increments value of all position fields (POS) such that the five areas are shifted to the left of the current position by the amount shown.

PF2

Decrements value of position fields (POS) such that the five areas are shifted to the right of the current position by the amount shown.

If a position is manually entered, this value is used as the starting position for the display when a PF1 or PF2 is used.

PF3

After making an entry in one of the five POS fields, shifts data in that field to the specified offset.

PF4

Saves the Main panel entries and displays the complete Request Area.

PF5

Saves the Main panel entries and displays the Key area as two 180-byte fields.

PF6

Saves the Main panel entries and displays the RQA area starting with the Selection Section panel.

PF9

Saves the Main panel entries and displays the RQA area starting with the Order-By and Parameter Section panel.

PA1 or PA2

Redisplays the current screen and ignores input.

Clear

Releases all areas and terminates the session.

Enter

Accepts the input, executes the CA Datacom/DB request and returns the results.

Field Descriptions

The first two lines of DBTS/DBTX display provide a limited breakdown of the Request Area. The purpose of each field is described in the following:

DB CMD

Enter the CA Datacom/DB command to execute, for example, REDKY, ADDIT, or UPDAT. After execution, the command name you enter here is displayed in the first five positions of the Request Area. With DBTX, you may not enter commands which update the database.

Note: Two non CA Datacom/DB commands have been added to use for syncpoint testing. Use SYNPT to issue a CICS SYNCPOINT and SYNRB to issue a CICS SYNCPOINT ROLLBACK. You can also use the ABEND command to perform a transaction backout.

TABLE

Enter the CA Datacom/DB table name to which the command applies. After execution, the table name you enter here is displayed after the command name in the Request Area.

DBID

Enter the database ID as a numeric value without leading zeros if the specified table name appears in two or more databases. If you make no entry, CA Datacom CICS Services displays the ID of the database containing the table you specified after the command has executed.

KEYNM

Enter the key name used to access the table. After execution, the key name you enter here is displayed in the Request Area after the command and table name.

ENTRY

The entry point used to access CA Datacom/DB, for example, DBNTRY. Once a request has been executed, the entry point is protected and cannot be altered.

AREA

Identify the area to display by entering an alphabetic character or blank which you previously established as a shorthand identifier for a set of CA Datacom/DB arguments which identify the required area.

For example, you might associate A with a set of statements which would enable you to retrieve the PMF table in sequential mode and B with a set of statements which would enable you to access the PAY table for random retrieval. Once defined, you could enter A in the AREA field to retrieve the PMF table, then enter B to accomplish random retrieval in the PAY table, then enter A to return to the PMF table to continue the original operation.

Since areas are saved in CICS temporary storage, they are released when the transaction terminates. We recommend using auxiliary storage for temporary storage. You can save the Request Area, Element List and Work Area and then create another group. To create another group, enter a single character after AREA and press Enter. The default identifier for AREA is blank.

CONVRS

(DBTS Only) Enter Y to specify the transaction is conversational. Entry of any CA Datacom/DB update command invokes conversational mode.

The remaining lines display the contents of the following:

- Request Area
- Key Value Area
- Work Area
- Element List
- Request Qualification Area

The lines displaying the character and hexadecimal values found in the Request Area are protected to avoid extraneous entry. To obtain access to the hexadecimal portion of the Request Area for the purpose of entering data, use the ALLOW operand with the initiating transaction. Some of the displayed fields permit you to enter values; others are used by CA Datacom CICS Services to display information after your requests have been executed.

The Key Value, Work Area, Element List and Request Qualification Area each contain three fields for data entry. The first field accepts character values; the second and third fields accept the 2-byte hexadecimal values corresponding to the previously displayed character values. Enter data by over-typing either the character or the hexadecimal fields. If you enter data in the character fields, use the ERASE EOF key to clear out the extraneous question marks (?). If you use the space bar to erase data in the character fields, CA Datacom CICS Services reads blanks (hexadecimal '40').

If you change both character and hexadecimal data, the transaction honors the hexadecimal input.

Five similar areas fill the remainder of the screen:

REQUEST AREA

Make no entry. CA Datacom CICS Services uses the first 15 characters of this field to display the contents of the following fields: DB CMD, TABLE, DBID, and KEYNM. (If you need to enter data in the Request Area field, see the description of the DBTS ALLOW parameter.)

KEY VALUE

When the input screen is displayed, you may enter a complete value, a partial value, or no value. Valid values include whole or partial data which appears in one or more records in the fields associated with the Key for the table. Make no entry to begin access with the first record in the table.

For example, if you enter the LOCKY command for a table which is sorted with the key STZIP (containing state and zip code fields), your options and results can be summarized as follows:

No entry

Accesses first record in table, with the lowest STZIP value.

Partial value - TX

Accesses the first record which begins with the letters TX.

Total value - TX75243

Accesses the first record which begins with the listed data, if it exists.

WORK AREA

CA Datacom CICS Services uses this field to return the data from records when you issue any of the Read commands. For DBTS, when data is displayed, you may overwrite the displayed data after issuing a command to update.

ELEMENT LIST

Enter the elements to be retrieved from the database or processed by CA Datacom/DB.

Element security code, if used, must be entered in hex.

RQA AREA

Enter the set-at-a-time selection criteria for SELxx commands.

Position Field

If no entry is made in the Position field of any of the four areas, CA Datacom CICS Services displays the current starting position. Alter the position value to indicate the next starting position for the display of the area up to maximum size of the area.

Input Errors

When an input error is encountered, the following message is displayed in the upper-right corner of the screen:

**** ERROR FIELDS IN NORMAL INTENSITY ****

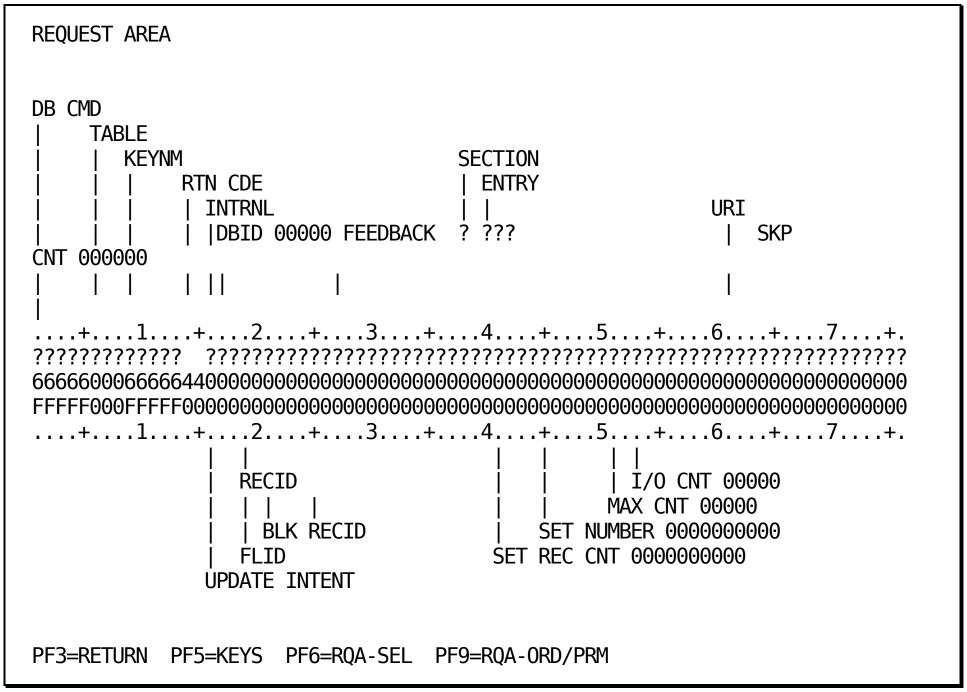
The position of the cursor indicates the first field containing an error.

Forcing a Transaction to Abend

Forcing a transaction to abend, releases any resources it has under exclusive control and any temporary set which CA Datacom/DB built to satisfy its request. To force a transaction abend, enter ABEND in the command field. CA Datacom CICS Services responds with a user transaction abend.

DBTS/DBTX Request Area Panel (PF4)

CA Datacom CICS Services displays the Request Area panel when you press PF4. The Request Area panel provides an *exploded view,* containing all fields in the Request Area. You can use this panel to view entries and to modify selected fields.



```
REQUEST AREA


DB CMD
|    TABLE
|    |  KEYNM                        SECTION
|    |  |    RTN CDE                 | ENTRY
|    |  |    | INTRNL                | |                   URI
|    |  |    | |DBID 00000 FEEDBACK  ? ???                  |  SKP
CNT 000000
|    |  |    | ||         |                                 |
|
....+....1....+....2....+....3....+....4....+....5....+....6....+....7....+.
?????????????  ?????????????????????????????????????????????????????????????
6666600066666440000000000000000000000000000000000000000000000000000000000000
FFFFF000FFFFF000000000000000000000000000000000000000000000000000000000000000
....+....1....+....2....+....3....+....4....+....5....+....6....+....7....+.
               |  |                     |   |     | |
               |  RECID                 |   |     | I/O CNT 00000
               |  | |   |               |   |     MAX CNT 00000
               |  | BLK RECID           |   SET NUMBER 0000000000
               |  FLID                  SET REC CNT 0000000000
               UPDATE INTENT


PF3=RETURN  PF5=KEYS  PF6=RQA-SEL  PF9=RQA-ORD/PRM
```

Function Key Assignments

PF3

Ignores input and returns the Main DBTS/DBTX panel.

PF5

Ignores any input and displays the Key Value panel. (See DBTS/DBTX Key Value Panel (PF5) (see page 327).)

PF6

Ignores any input and displays the RQA Selection Section panel, if it is appropriate for the current command. (See DBTS/DBTX RQA Selection Section Panel (PF6) (see page 328).) If the Selection Section panel is not appropriate for the current command, PF6 displays the Main DBTS/DBTX panel.

PF9

Ignores any input and displays the RQA Order-By and Parameter Section panel, if it is appropriate for the current command. (See DBTS/DBTX RQA Order-By and Parameter Section Panel (PF9) (see page 335).) If the Order-By and Parameter Section panel is not appropriate for the current command, PF9 displays the Main DBTS/DBTX panel.

Clear

Returns to the Main DBTS/DBTX panel without modifying the Request Area.

Enter

Accepts the input and redisplays the Request Area panel data.

Field Descriptions

The Request Area panel fields corresponding to Main DBTS/DBTX panel fields include the following:

- DB CMD
- DBID
- KEYNM
- TABLE

For explanations of these fields, see DBTS/DBTX Main Panel (see page 319). If you made an entry in any of these fields on the Main panel, CA Datacom CICS Services automatically transfers your entries to the Request Area panel.

CA Datacom CICS Services uses the following fields to display information passed by CA Datacom/DB:

RTN CDE

If CA Datacom/DB executes the command successfully, it returns blanks to this field. Otherwise, it returns one of the numeric return codes documented in the *CA Datacom/DB Message Reference Guide*.

INTRNL

Many CA Datacom/DB return codes are followed by a hexadecimal internal return code which clarify their meaning. These codes are documented in the *CA Datacom/DB Message Reference Guide*.

FEEDBACK

Contains the following:

SECTION

For errors involving Compound Boolean Selection commands, CA Datacom/DB returns the first Request Qualification Area section containing an error.

ENTRY

For errors involving Compound Boolean Selection commands, CA Datacom/DB returns the number of the entry with the indicated section where it detected the error.

URI

CA Datacom/DB returns the URI (Unique Record Identifier) of the located record to this field.

RECID FLID BLK RECID

CA Datacom/DB returns the ID of the located record to this field.

UPDATE INTENT

This is physically the same field as the internal return code field. CA Datacom/DB Compound Boolean Selection commands and several other commands use this field to determine whether to hold the retrieved record for update. After command execution, CA Datacom/DB uses this field to return an internal error code, if any.

Use the following fields to pass CA Datacom/DB data in the Request Area. Enter the data as a decimal number. CA Datacom CICS Services converts it to hexadecimal and places it in the Request Area.

SKP CNT

(Compound Boolean Selection Commands Only) Enter a number of records for CA Datacom/DB to skip before returning the next record when a SELNR command is issued. Use negative values to skip backwards and positive values to skip forward within the set of records built to satisfy a SELFR command.

SET REC CNT

(Compound Boolean Selection Commands Only) When CA Datacom/DB executes a Compound Boolean Selection command which requires building a temporary set or which specifies the CNT parameter, CA Datacom/DB returns the number of records in the set to this field.

SET NUMBER

(Compound Boolean Selection Commands Only) An ID number assigned by CA Datacom/DB to identify a temporary set built to satisfy a SELFR command.

MAX CNT

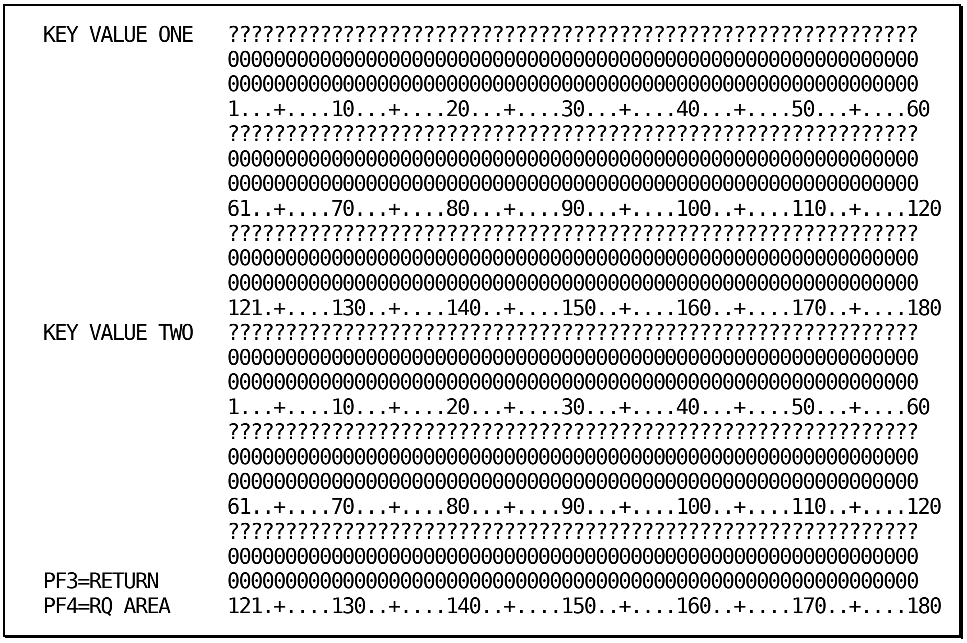
(CNTKY and CNTKR Only) Specify a number to limit the number of records that CA Datacom/DB counts.

I/O CNT

CA Datacom/DB returns a number indicating the total number of start I/Os issued to satisfy this request.

DBTS/DBTX Key Value Panel (PF5)

CA Datacom CICS Services displays the Key Value panel when you press PF5. The Key Value panel provides an *exploded view* displaying all 360 bytes. You can use this panel to view and modify any existing entry.



```
KEY VALUE ONE   ????????????????????????????????????????????????????????????
                000000000000000000000000000000000000000000000000000000000000
                000000000000000000000000000000000000000000000000000000000000
                1...+....10...+....20...+....30...+....40...+....50...+....60
                ????????????????????????????????????????????????????????????
                000000000000000000000000000000000000000000000000000000000000
                000000000000000000000000000000000000000000000000000000000000
                61..+....70...+....80...+....90...+....100..+....110..+....120
                ????????????????????????????????????????????????????????????
                000000000000000000000000000000000000000000000000000000000000
                000000000000000000000000000000000000000000000000000000000000
                121.+....130..+....140..+....150..+....160..+....170..+....180
KEY VALUE TWO   ????????????????????????????????????????????????????????????
                000000000000000000000000000000000000000000000000000000000000
                000000000000000000000000000000000000000000000000000000000000
                1...+....10...+....20...+....30...+....40...+....50...+....60
                ????????????????????????????????????????????????????????????
                000000000000000000000000000000000000000000000000000000000000
                000000000000000000000000000000000000000000000000000000000000
                61..+....70...+....80...+....90...+....100..+....110..+....120
                ????????????????????????????????????????????????????????????
                000000000000000000000000000000000000000000000000000000000000
PF3=RETURN      000000000000000000000000000000000000000000000000000000000000
PF4=RQ AREA     121.+....130..+....140..+....150..+....160..+....170..+....180
```

Function Key Assignments

PF3

Ignores input and returns the Main DBTS/DBTX panel with modification, if any.

PF4

Ignores input and displays the Request Area panel. (See DBTS/DBTX Request Area Panel (PF4) (see page 324).)

Clear

Ignores input and returns to the Main DBTS/DBTX panel.

Enter

Accepts the input and redisplays the Key Value panel data.

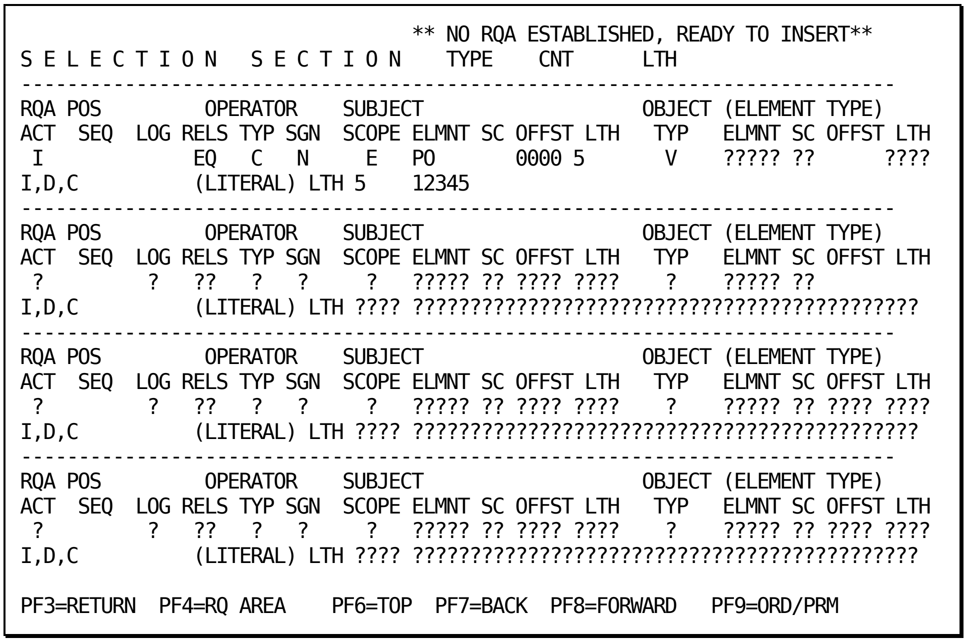
Field Descriptions

When two key values are required, input the beginning value in the KEY VALUE ONE area of the panel and the second value in the KEY VALUE TWO area. (Commands which test a specified key range such as CNTKR, LOCKR, LOCNR, REDNR, and REDKR, require the second key value area.) After typing your entry in the character portion of each KEY VALUE area, use the ERASE EOF key to clear out the extraneous question marks (?). If you use the space bar to erase data in the character fields, CA Datacom CICS Services reads blanks (hexadecimal '40').

Make your entry in the hexadecimal portion of the display for binary or packed keys and in the character portion for all other key types.

DBTS/DBTX RQA Selection Section Panel (PF6)

CA Datacom CICS Services displays the RQA Selection Section panel when you press PF6. The Selection Section panel and the Order-By and Parameter Section panel (described beginning on DBTS/DBTX RQA Order-By and Parameter Section Panel (PF9) (see page 335)) together provide an *exploded view,* containing all fields in the Request Qualification Area. You can use the Selection Section panel to view and to modify set selection specifications.



```
                                  ** NO RQA ESTABLISHED, READY TO INSERT**
S E L E C T I O N   S E C T I O N    TYPE    CNT      LTH
----------------------------------------------------------------------------
RQA POS         OPERATOR    SUBJECT                   OBJECT (ELEMENT TYPE)
ACT  SEQ  LOG RELS TYP SGN  SCOPE ELMNT SC OFFST LTH   TYP   ELMNT SC OFFST LTH
 I             EQ   C   N     E   PO       0000 5       V    ????? ??      ????
I,D,C          (LITERAL) LTH 5    12345
----------------------------------------------------------------------------
RQA POS         OPERATOR    SUBJECT                   OBJECT (ELEMENT TYPE)
ACT  SEQ  LOG RELS TYP SGN  SCOPE ELMNT SC OFFST LTH   TYP   ELMNT SC OFFST LTH
 ?         ?   ??   ?   ?     ?   ????? ?? ???? ????    ?    ????? ??
I,D,C          (LITERAL) LTH ???? ????????????????????????????????????????????
----------------------------------------------------------------------------
RQA POS         OPERATOR    SUBJECT                   OBJECT (ELEMENT TYPE)
ACT  SEQ  LOG RELS TYP SGN  SCOPE ELMNT SC OFFST LTH   TYP   ELMNT SC OFFST LTH
 ?         ?   ??   ?   ?     ?   ????? ?? ???? ????    ?    ????? ?? ???? ????
I,D,C          (LITERAL) LTH ???? ????????????????????????????????????????????
----------------------------------------------------------------------------
RQA POS         OPERATOR    SUBJECT                   OBJECT (ELEMENT TYPE)
ACT  SEQ  LOG RELS TYP SGN  SCOPE ELMNT SC OFFST LTH   TYP   ELMNT SC OFFST LTH
 ?         ?   ??   ?   ?     ?   ????? ?? ???? ????    ?    ????? ?? ???? ????
I,D,C          (LITERAL) LTH ???? ????????????????????????????????????????????

PF3=RETURN  PF4=RQ AREA    PF6=TOP  PF7=BACK  PF8=FORWARD   PF9=ORD/PRM
```

Function Key Assignments

PF3

Accepts input and returns the Main DBTS/DBTX panel with modification, if any.

PF4

Ignores input and displays the Request Area panel. (See DBTS/DBTX Request Area Panel (PF4) (see page 324).)

PF6

Returns display to the first Selection Section, if more than four Selection Sections exist.

PF7

Scrolls display backward to display additional Selection Sections, if more than four Selection Sections exist.

PF8

Scrolls display forward to display additional Selection Sections, if more than four Selection Sections exist.

PF9

Saves the Selection Section panel entries. Displays the RQA Order-By and Parameter Section panel. (See DBTS/DBTX RQA Order-By and Parameter Section Panel (PF9) (see page 335).)

Clear

Ignores input and returns to the Main DBTS/DBTX panel.

Enter

If you have made entries, accepts the input and redisplays the panel.

Field Descriptions

The data on the top line of the Selection Section panel is generated by CA Datacom CICS Services and you cannot modify it. The fields displayed on this line are as follows:

TYPE

S indicates that a Request Qualification Area Selection Section is displayed.

CNT

The number of entries in this section.

LTH

If a number is displayed, it indicates the fixed length of each entry. If V is displayed, it indicates variable-length entries.

The Request Qualification Area Selection Section entries specify a search condition in the form of predicates joined by the logical operators AND or OR, where each predicate is composed of a subject, relational operator, and object. The subject is a field in a record. The object can be either another field in the same record, or a literal data value.

For each predicate, the Selection Section panel has three groups of fields:

- Operator fields
- Subject fields
- Object fields

Each predicate group begins with the following three fields:

RQA POS

Displays the position of this predicate within the Request Qualification Area

ACT

Action to be performed on this predicate. Enter one of the following:

I

Insert

D

Delete

C

Change

SEQ

Displays the order of this predicate within its section of the Request Qualification Area.

The remaining fields on the panel are for the entry of Request Qualification Area Selection Section data. After entering data in each of these fields, use the ERASE EOF key to clear out the extraneous question marks (?). If you use the space bar to erase data in the character fields, CA Datacom CICS Services reads blanks (hexadecimal '40').

Selection Section Operator Fields

LOG

Logical operator specifying relationship between preceding predicate and current predicate:

Blank

required on first predicate

A

AND

O

OR

RELS

Relational operator between subject and object:

GT

Greater than

LT

Less than

GE

Greater than or equal to

LE

Less than or equal to

EQ

Equal to

NE

Not equal to

SP

String present

SA

String absent

IG

Ignore

TYP

Type of comparison:

C

Character comparison for shortest length of 2 operands

P or F

Packed decimal (no alignment)

B

Binary comparison (2, 4 or 8 bytes, logical or arithmetic)

Z or N

Zoned comparison

E

Single precision floating point comparison

D

Double precision floating point comparison

S

Character scan (for SP and SA operators)

SGN

Sign code or skip character:

N or Blank

Logical comparison for numeric fields.

Y

Signed test for numeric comparisons.

P

Positive only (ignore sign for numeric comparisons).

x

(Skip character) Any wildcard character used in string comparisons. Binary zero and space indicate no wildcard character is used.

Selection Section Subject Fields

SCOPE

Indicates one of the following:

E

Element

R

Record (used with SP and SA operators only)

ELMNT

5-character CA Datacom/DB name for the element containing the field to be used as the subject.

SC

Security code (in hexadecimal) for the named element.

OFFST

Offset within element, relative to zero, of the first byte to be used in the subject.

LTH

Number of bytes to be used in the subject. The minimum length is one and the maximum length is the length of the element.

Note: Blanks in both OFFST and LTH indicate that the entire element is used.

Selection Section Object Fields

The element type object fields and the literal object fields are mutually exclusive. When specifying an element type object, identify the field to be used as the object in terms of its offset within an element and its length.

TYP

Indicates the type of object specified:

E

Element object—Fill in only the Element Type following field group.

V

Literal value object—Fill in only the Literal following field group.

The following field groups contain the following fields:

OBJECT (Element Type) ***(TYP=E)***

This field group contains the following fields.

ELMNT

5-character CA Datacom/DB name identifying the element that contains the object.

SC

Security code (in hexadecimal) for the named element.

OFFST

Offset within element, relative to zero, of the first byte to be used in the object.

LTH

Number of bytes to be used in the object. The minimum length is one and the maximum length is the length of the element.

Blanks in both OFFST and LTH indicate that the entire element is used.

OBJECT LITERAL ***(TYP=V)***

This field group contains the following fields.

LTH

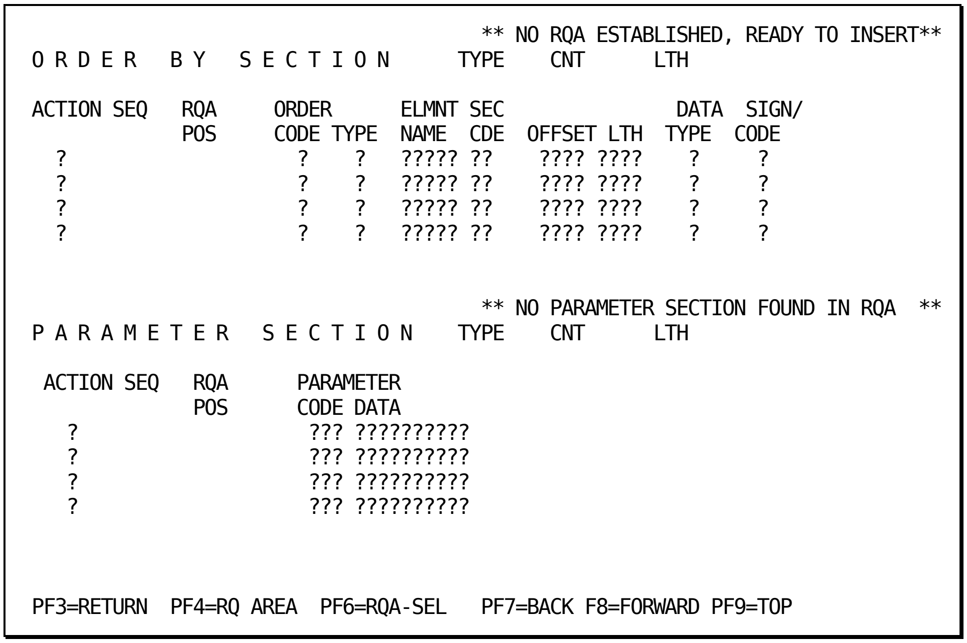
Specifies the length of the object, which must be greater than zero and less than or equal to the subject length.

Second Field

This 45-position field is for entry of the literal value with which the subject is compared. (The literal value must be of the same data type and precision as the subject.) To specify a literal longer than 45 positions, use the Main DBTS/DBTX panel to enter data beyond the first 45 positions. To enter packed data, enter the literal in the hexadecimal portion of the Main DBTS/DBTX panel.

DBTS/DBTX RQA Order-By and Parameter Section Panel (PF9)

CA Datacom CICS Services displays the Order-By and Parameter Section panel when you press PF9 while either the DBTS/DBTX Main panel or the Selection Section panel is displayed. The Order-By and Parameter Section panel, together with the Selection Section panel (described in the previous section) provide an *exploded view* containing all fields of the Request Qualification Area. You can use the Order-By and Parameter Section panel to view and to modify or set order-by specifications in the Order-By Section and set options in the Parameter Section.



```
                                       ** NO RQA ESTABLISHED, READY TO INSERT**
O R D E R   B Y   S E C T I O N      TYPE    CNT      LTH

ACTION SEQ   RQA     ORDER      ELMNT SEC            DATA  SIGN/
             POS     CODE TYPE  NAME  CDE  OFFSET LTH  TYPE  CODE
  ?                    ?    ?   ????? ??    ???? ????    ?     ?
  ?                    ?    ?   ????? ??    ???? ????    ?     ?
  ?                    ?    ?   ????? ??    ???? ????    ?     ?
  ?                    ?    ?   ????? ??    ???? ????    ?     ?


                                       ** NO PARAMETER SECTION FOUND IN RQA  **
P A R A M E T E R   S E C T I O N    TYPE    CNT      LTH

 ACTION SEQ   RQA      PARAMETER
              POS      CODE DATA
   ?                    ??? ??????????
   ?                    ??? ??????????
   ?                    ??? ??????????
   ?                    ??? ??????????


PF3=RETURN  PF4=RQ AREA  PF6=RQA-SEL   PF7=BACK F8=FORWARD PF9=TOP
```

Function Key Assignments

PF3

Ignores input and returns the Main DBTS/DBTX panel.

PF4

Ignores input and displays the Request Area panel. (See DBTS/DBTX Request Area Panel (PF4) (see page 324).)

PF6

Ignores input and displays the RQA Selection Section panel. (See DBTS/DBTX RQA Selection Section Panel (PF6) (see page 328).)

PF7

Scrolls display backward based on the value in the SEQ field.

PF8

Scrolls display forward based on the value in the SEQ field.

PF9

Positions display to the top based on the first value in the SEQ field.

Clear

Returns to the Main DBTS/DBTX panel without saving any Request Area panel entries.

Enter

If you have made entries, accepts the input and redisplays the Order-By and Parameter Section panel data. If all displayed sections contain data and you have not entered data, pages the display forward.

Field Descriptions

The data on the top line of the Order-By Section and on the top line of the Parameter Section is generated by CA Datacom CICS Services and you cannot modify it. The fields displayed on each of these lines are as follows:

TYPE

K indicates a Request Qualification Area Order-By Section. P indicates a Request Qualification Area Parameter Section.

CNT

The number of entries in this section.

LTH

For the Order-By Section, it is always 18. For the Parameter Section, indicates the length of the longest parameter.

The remaining fields on this panel are for entry of Request Qualification Area Order-By Section and Parameter Section Data. After entering data in each field, use the ERASE EOF key to clear out extraneous question marks (?). If you use the space bar to erase data, CA Datacom CICS Services reads blanks (hexadecimal '40').

Order-By Section

The Order-By Section specifies the order in which records are to be returned. To indicate an order, specify multiple fields beginning with the major order field and ending with the minor order field. The total length of all fields which you specify must be less than or equal to 160 bytes. To input more than four entries, press Enter to page forward.

ACTION

Action to be performed on this line:

I

Insert

D

Delete

C

Change

SEQ

Displays the internal sequence value which specifies the amount PF7 and PF8 scroll the display.

RQA POS

Indicates the location of this section in the Request Qualification Area.

ORDER CODE

Indicates the order direction as follows:

A

Ascending (default)

D

Descending

TYPE

E - Element

ELMNT NAME

5-character CA Datacom/DB name of the element containing the data to be used in ordering.

SEC CDE

Security code (in hexadecimal) for the specified element.

OFFSET

Offset within specified element, relative to zero, of the first byte to be used in ordering.

LTH

Number of bytes to be used in ordering.

DATA TYPE

Identifies the data type of the element as follows:

C

Character

P

Packed decimal with preferred signs

F

Packed decimal with any valid sign

B

Binary

Z

Zoned decimal with F high-order nibble

N

Zoned decimal with any high-order nibble

E

Single precision floating-point

D

Double precision floating-point

SIGN/CODE

Identifies the signed or unsigned characteristic:

Y

Signed

P

Signed, positive numeric values only

N or Blank

Unsigned

Parameter Section

The Parameter Section displays a series of lines, each of which begins with the following two fields:

ACTION

Action to be performed on this line:

I

Insert

D

Delete

C

Change

SEQ

Displays the internal sequence value which specifies the amount PF7 and PF8 scroll the display.

Following the ACTION and SEQ fields on each line are a pair of fields. In the first field of the pair specify a 3-character option code. If the option requires data, enter the required data in the second field.

Code	Meaning	Data
UPD	Indicates record to update or delete. (DBTS only)	
UNQ	Specifies the return of one record for each unique value of the fields listed in the Order-By Section.	
CNT	Indicates a count of records selected to return.	Enter Y to return the first record after counting.

Code	Meaning	Data
FST	Specifies maximum number of records to be selected when a temporary set is required.	Number of records to be selected followed by one of the following codes: **A** Any records meeting the selection criteria are to be returned. When ordering is specified, this means that the records are ordered only within themselves and not within the entire table. **T** The records returned must be a true representation of the table. This option is meaningful only if an Order-By section is also specified. If T is specified, CA Datacom/DB orders the entire table before returning the first record.
INR	Specifies interrupting selection when nnnnnn records have been selected.	nnnnnn
INF	Specifies interrupting selection when nnnnnn records have been rejected.	nnnnnn
IIO	Specifies interrupting selection when nnnnnn start-I/Os have been performed.	nnnnnn

DBTS Example - Simulating Program Logic

The logic of any program can be simulated through the DBTS Transaction. The following is a simple example using CA Datacom/DB Compound Boolean Selection commands. Since this example does not update the database, it can be performed with either DBTS or DBTX.

Problem

Design an application which displays the address of the employees living in a specified state, ordered by their city.

Solution

Our application uses the Select First Record (SELFR) command to build a set from the Personnel Master File (PMF). The records in this CA Datacom/DB table contain the Employee Data (EMDTA) element that contains the data we need to display. We specify set selection criteria to limit the set to those records with the state field equal to the specified state (for example, TX). We also identify the Order-By field as the city field.

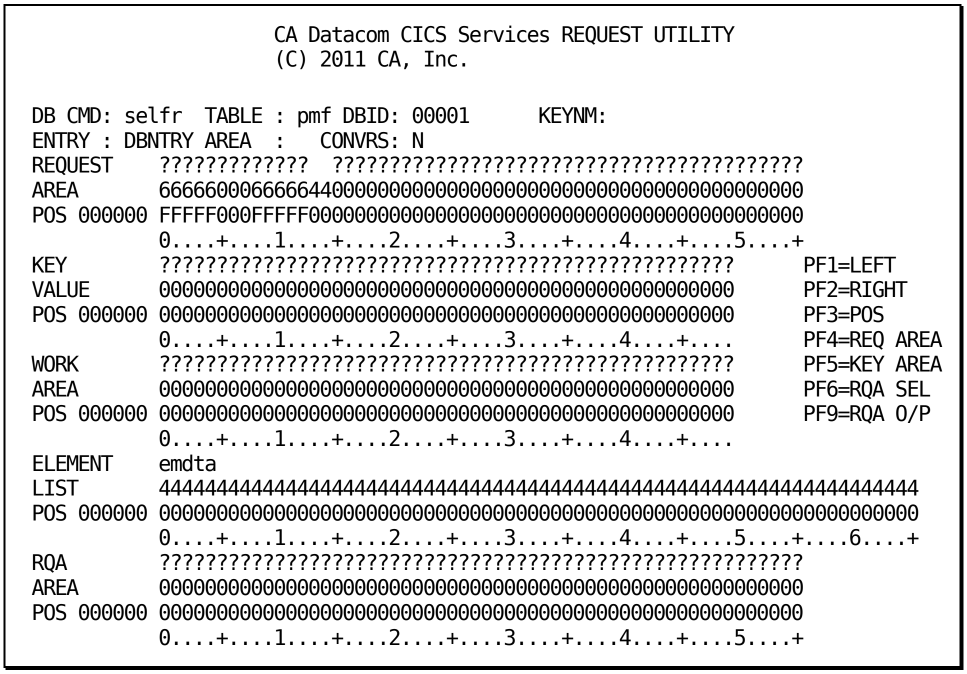
We can use DBTS (or DBTX) to verify that our program logic works and that we have calculated the correct offset and length to identify the fields used in our set selection and order criteria.

Step 1

Enter the DBTS (or DBTX) transaction ID.

Step 2

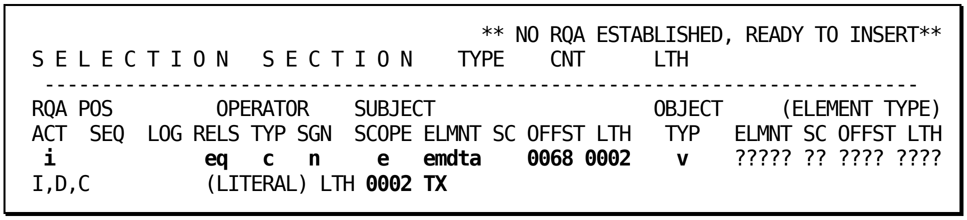
CA Datacom CICS Services responds with the Main DBTS Panel. Fill in the appropriate fields as highlighted in the following:



```
                     CA Datacom CICS Services REQUEST UTILITY
                     (C) 2011 CA, Inc.

DB CMD: selfr  TABLE : pmf DBID: 00001      KEYNM:
ENTRY : DBNTRY AREA  :   CONVRS: N
REQUEST    ?????????????  ?????????????????????????????????????????
AREA       66666000666664400000000000000000000000000000000000000000
POS 000000 FFFFF000FFFFF00000000000000000000000000000000000000000000
           0....+....1....+....2....+....3....+....4....+....5....+
KEY        ??????????????????????????????????????????????????      PF1=LEFT
VALUE      00000000000000000000000000000000000000000000000000      PF2=RIGHT
POS 000000 00000000000000000000000000000000000000000000000000      PF3=POS
           0....+....1....+....2....+....3....+....4....+....      PF4=REQ AREA
WORK       ??????????????????????????????????????????????????      PF5=KEY AREA
AREA       00000000000000000000000000000000000000000000000000      PF6=RQA SEL
POS 000000 00000000000000000000000000000000000000000000000000      PF9=RQA O/P
           0....+....1....+....2....+....3....+....4....+....
ELEMENT    emdta
LIST       444444444444444444444444444444444444444444444444444444444444444444
POS 000000 000000000000000000000000000000000000000000000000000000000000000000
           0....+....1....+....2....+....3....+....4....+....5....+....6....+
RQA        ????????????????????????????????????????????????????????
AREA       00000000000000000000000000000000000000000000000000000000
POS 000000 00000000000000000000000000000000000000000000000000000000
           0....+....1....+....2....+....3....+....4....+....5....+
```

Step 3

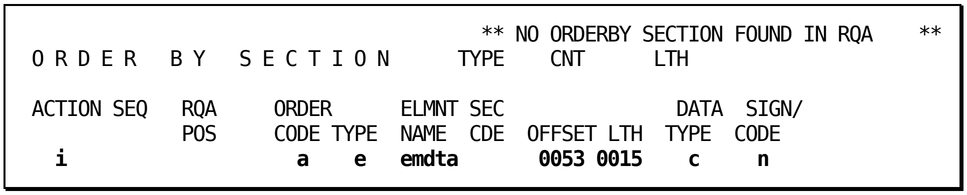
Press PF6 to display the Selection Section Panel and fill in the appropriate fields as highlighted in the following. Use the ERASE EOF key to eliminate extraneous question marks.



```
                                       ** NO RQA ESTABLISHED, READY TO INSERT**
S E L E C T I O N   S E C T I O N    TYPE    CNT      LTH
 ----------------------------------------------------------------------------
RQA POS         OPERATOR    SUBJECT                   OBJECT     (ELEMENT TYPE)
ACT  SEQ  LOG RELS TYP SGN  SCOPE ELMNT SC OFFST LTH   TYP   ELMNT SC OFFST LTH
 i             eq   c   n     e   emdta    0068 0002    v    ????? ?? ???? ????
I,D,C          (LITERAL) LTH 0002 TX
```

Step 4

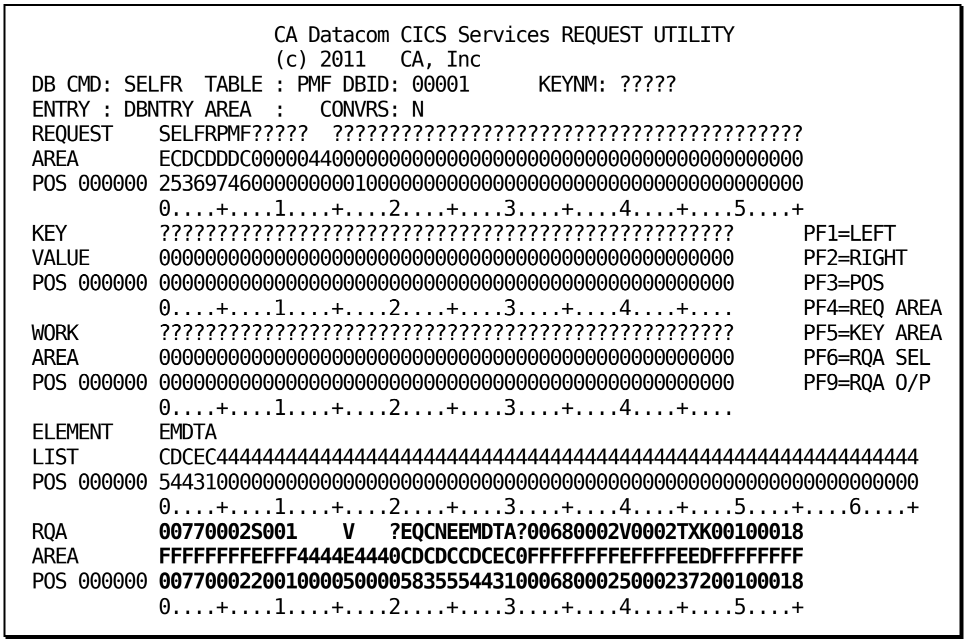
Press Enter to record your entries on the Selection Section Panel, then press PF9 to display the Order-By and Parameter Section Panel. Fill in the appropriate fields on this panel, as highlighted in the following:



```
                                       ** NO ORDERBY SECTION FOUND IN RQA    **
O R D E R   B Y   S E C T I O N      TYPE    CNT      LTH

ACTION SEQ   RQA     ORDER      ELMNT SEC               DATA  SIGN/
             POS     CODE TYPE  NAME  CDE  OFFSET LTH  TYPE  CODE
  i                    a    e   emdta       0053 0015    c     n
```

Step 5

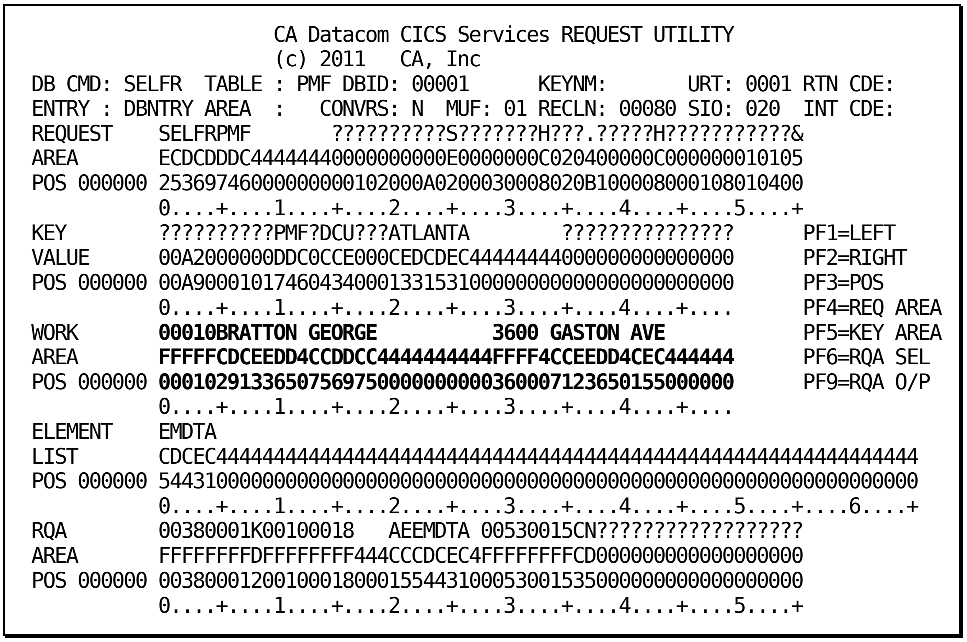
Press Enter to record your entries on the Order-By and Parameter Section Panel, then press PF3 to return to the Main DBTS panel. CA Datacom CICS Services transfers the Request Qualification Area information which you entered in the Selection Section and Order-By Section Panels into the Request Qualification Area of the Main Panel. (The Request Qualification Area is highlighted in the following.)



```
                     CA Datacom CICS Services REQUEST UTILITY
                     (c) 2011   CA, Inc
DB CMD: SELFR  TABLE : PMF DBID: 00001      KEYNM: ?????
ENTRY : DBNTRY AREA  :   CONVRS: N
REQUEST    SELFRPMF?????  ?????????????????????????????????????????
AREA       ECDCDDDC000004400000000000000000000000000000000000000000
POS 000000 25369746000000000100000000000000000000000000000000000000
           0....+....1....+....2....+....3....+....4....+....5....+
KEY        ??????????????????????????????????????????????????      PF1=LEFT
VALUE      00000000000000000000000000000000000000000000000000      PF2=RIGHT
POS 000000 00000000000000000000000000000000000000000000000000      PF3=POS
           0....+....1....+....2....+....3....+....4....+....      PF4=REQ AREA
WORK       ??????????????????????????????????????????????????      PF5=KEY AREA
AREA       00000000000000000000000000000000000000000000000000      PF6=RQA SEL
POS 000000 00000000000000000000000000000000000000000000000000      PF9=RQA O/P
           0....+....1....+....2....+....3....+....4....+....
ELEMENT    EMDTA
LIST       CDCEC4444444444444444444444444444444444444444444444444444444444444
POS 000000 544310000000000000000000000000000000000000000000000000000000000000
           0....+....1....+....2....+....3....+....4....+....5....+....6....+
RQA        00770002S001    V   ?EQCNEEMDTA?00680002V0002TXK00100018
AREA       FFFFFFFFEFFF4444E4440CDCDCCDCEC0FFFFFFFFEFFFFEEDFFFFFFFF
POS 000000 00770002200100005000058355544310006800025000237200100018
           0....+....1....+....2....+....3....+....4....+....5....+
```

Step 6

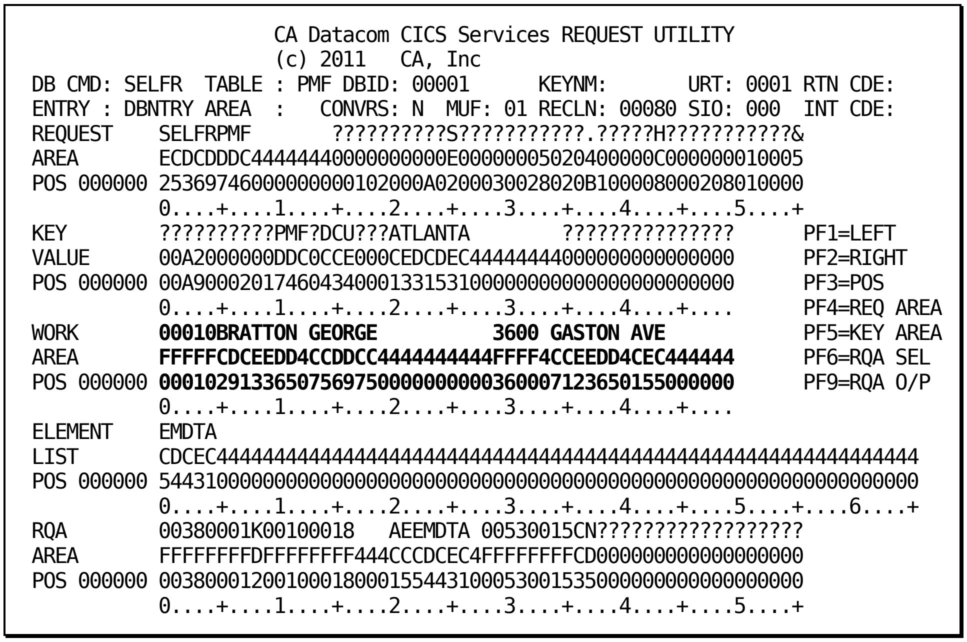
Press Enter and CA Datacom CICS Services executes the SELFR command and displays the data returned by CA Datacom/DB. (The returned data is highlighted in the following.)



```
                     CA Datacom CICS Services REQUEST UTILITY
                     (c) 2011   CA, Inc
DB CMD: SELFR  TABLE : PMF DBID: 00001      KEYNM:       URT: 0001 RTN CDE:
ENTRY : DBNTRY AREA  :   CONVRS: N  MUF: 01 RECLN: 00080 SIO: 020  INT CDE:
REQUEST    SELFRPMF       ??????????S???????H???.?????H???????????&
AREA       ECDCDDDC44444440000000000E0000000C020400000C000000010105
POS 000000 25369746000000000102000A0200030008020B100008000108010400
           0....+....1....+....2....+....3....+....4....+....5....+
KEY        ??????????PMF?DCU???ATLANTA        ???????????????      PF1=LEFT
VALUE      00A2000000DDC0CCE000CEDCDEC44444444000000000000000      PF2=RIGHT
POS 000000 00A900010174604340001331531000000000000000000000000      PF3=POS
           0....+....1....+....2....+....3....+....4....+....      PF4=REQ AREA
WORK       00010BRATTON GEORGE          3600 GASTON AVE            PF5=KEY AREA
AREA       FFFFFCDCEEDD4CCDDCC4444444444FFFF4CCEEDD4CEC444444      PF6=RQA SEL
POS 000000 00010291336507569750000000000360007123650155000000      PF9=RQA O/P
           0....+....1....+....2....+....3....+....4....+....
ELEMENT    EMDTA
LIST       CDCEC4444444444444444444444444444444444444444444444444444444444444
POS 000000 544310000000000000000000000000000000000000000000000000000000000000
           0....+....1....+....2....+....3....+....4....+....5....+....6....+
RQA        00380001K00100018   AEEMDTA 00530015CN??????????????????
AREA       FFFFFFFFDFFFFFFFF444CCCDCEC4FFFFFFFFCD000000000000000000
POS 000000 00380001200100018000155443100053001535000000000000000000
           0....+....1....+....2....+....3....+....4....+....5....+
```

Step 7

Press Enter and CA Datacom CICS Services executes the SELFR command and displays the data returned by CA Datacom/DB. (The returned data is highlighted in the following.)



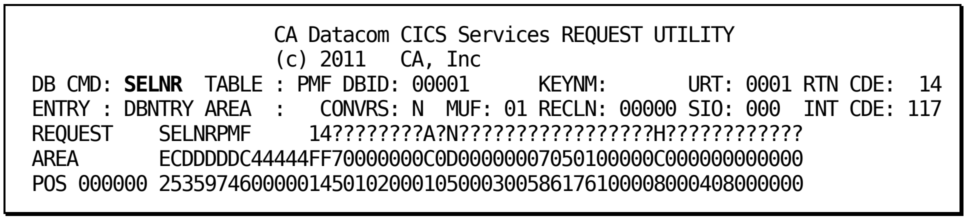
```
                     CA Datacom CICS Services REQUEST UTILITY
                     (c) 2011   CA, Inc
DB CMD: SELFR  TABLE : PMF DBID: 00001      KEYNM:       URT: 0001 RTN CDE:
ENTRY : DBNTRY AREA  :   CONVRS: N  MUF: 01 RECLN: 00080 SIO: 000  INT CDE:
REQUEST    SELFRPMF       ??????????S???????????.?????H???????????&
AREA       ECDCDDDC44444440000000000E000000050204000000C000000010005
POS 000000 2536974600000000000102000A0200030028020B100008000208010000
           0....+....1....+....2....+....3....+....4....+....5....+
KEY        ??????????PMF?DCU???ATLANTA        ???????????????      PF1=LEFT
VALUE      00A2000000DDC0CCE000CEDCDEC444444440000000000000000      PF2=RIGHT
POS 000000 00A900020174604340001331531000000000000000000000000      PF3=POS
           0....+....1....+....2....+....3....+....4....+....      PF4=REQ AREA
WORK       00010BRATTON GEORGE         3600 GASTON AVE             PF5=KEY AREA
AREA       FFFFFCDCEEDD4CCDDCC4444444444FFFF4CCEEDD4CEC444444      PF6=RQA SEL
POS 000000 00010291336507569750000000000360007123650155000000      PF9=RQA O/P
           0....+....1....+....2....+....3....+....4....+....
ELEMENT    EMDTA
LIST       CDCEC444444444444444444444444444444444444444444444444444444444444
POS 000000 544310000000000000000000000000000000000000000000000000000000000000
           0....+....1....+....2....+....3....+....4....+....5....+....6....+
RQA        00380001K00100018   AEEMDTA 00530015CN??????????????????
AREA       FFFFFFFFDFFFFFFFF444CCCDCEC4FFFFFFFFCD000000000000000000
POS 000000 003800012001000180001554431000530015350000000000000000000
           0....+....1....+....2....+....3....+....4....+....5....+
```

Step 8

Use PF1 and PF2 to scroll through the Work Area and examine the returned data.

Step 9

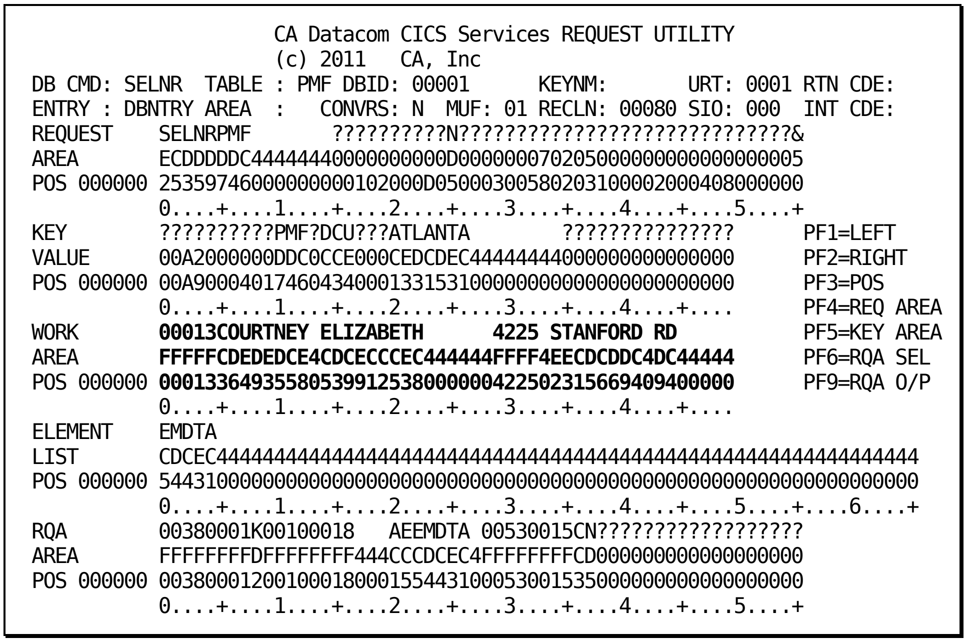
Change the command in the DB CMD field to SELNR to display the next record in the set, as highlighted in the following:



```
                     CA Datacom CICS Services REQUEST UTILITY
                     (c) 2011   CA, Inc
DB CMD: SELNR  TABLE : PMF DBID: 00001      KEYNM:       URT: 0001 RTN CDE:   14
ENTRY : DBNTRY AREA  :   CONVRS: N  MUF: 01 RECLN: 00000 SIO: 000  INT CDE: 117
REQUEST    SELNRPMF     14????????A?N?????????????????H????????????
AREA       ECDDDDDC44444FF70000000C0D000000070501000000C000000000000
POS 000000 253597460000014501020001050003005861761000080004080000000
```

Step 10

Press Enter and CA Datacom CICS Services executes the SELNR command and displays the data returned by CA Datacom/DB. The returned data is highlighted in the following.



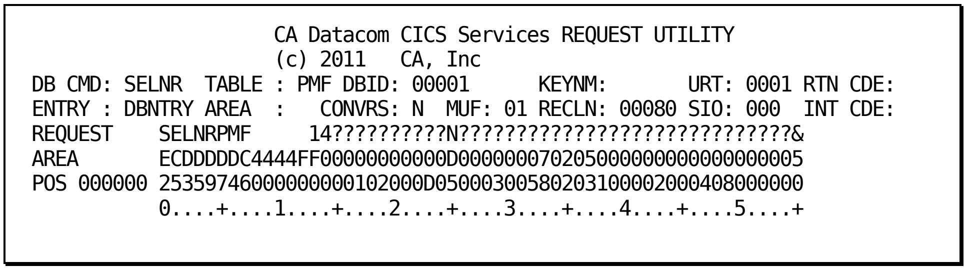
```
                     CA Datacom CICS Services REQUEST UTILITY
                     (c) 2011   CA, Inc
DB CMD: SELNR  TABLE : PMF DBID: 00001      KEYNM:       URT: 0001 RTN CDE:
ENTRY : DBNTRY AREA  :   CONVRS: N  MUF: 01 RECLN: 00080 SIO: 000  INT CDE:
REQUEST    SELNRPMF       ??????????N?????????????????????????????&
AREA       ECDDDDDC44444440000000000D00000007020500000000000000000005
POS 000000 25359746000000000102000D05000300580203100002000408000000
           0....+....1....+....2....+....3....+....4....+....5....+
KEY        ??????????PMF?DCU???ATLANTA        ???????????????      PF1=LEFT
VALUE      00A2000000DDC0CCE000CEDCDEC44444444000000000000000      PF2=RIGHT
POS 000000 00A90004017460434000133153100000000000000000000000      PF3=POS
           0....+....1....+....2....+....3....+....4....+....      PF4=REQ AREA
WORK       00013COURTNEY ELIZABETH      4225 STANFORD RD           PF5=KEY AREA
AREA       FFFFFCDEDEDCE4CDCECCCEC444444FFFF4EECDCDDC4DC44444      PF6=RQA SEL
POS 000000 00013364935580539912538000000422502315669409400000      PF9=RQA O/P
           0....+....1....+....2....+....3....+....4....+....
ELEMENT    EMDTA
LIST       CDCEC4444444444444444444444444444444444444444444444444444444444444
POS 000000 544310000000000000000000000000000000000000000000000000000000000000
           0....+....1....+....2....+....3....+....4....+....5....+....6....+
RQA        00380001K00100018   AEEMDTA 00530015CN??????????????????
AREA       FFFFFFFFDFFFFFFFF444CCCDCEC4FFFFFFFFCD000000000000000000
POS 000000 00380001200100018000155443100053001535000000000000000000
           0....+....1....+....2....+....3....+....4....+....5....+
```

Step 11

Use PF1 and PF2 to scroll through the Work Area and examine the returned data.

Step 12

Repeat the procedure from Step 10 to view additional records in the set. After reaching the last record, CA Datacom/DB places a return code of 14 and an internal code of hexadecimal 75 in the Request Area as highlighted in the following:



```
                     CA Datacom CICS Services REQUEST UTILITY
                     (c) 2011   CA, Inc
DB CMD: SELNR  TABLE : PMF DBID: 00001      KEYNM:       URT: 0001 RTN CDE:
ENTRY : DBNTRY AREA  :   CONVRS: N  MUF: 01 RECLN: 00080 SIO: 000  INT CDE:
REQUEST    SELNRPMF     14??????????N?????????????????????????????&
AREA       ECDDDDDC44444FF0000000000D00000007020500000000000000000005
POS 000000 25359746000000000102000D05000300580203100002000408000000
           0....+....1....+....2....+....3....+....4....+....5....+
```

Step 13

When you are done, press Clear to exit DBTS (or DBTX).

Chapter 17: Debugging Facility (DBUG)

When results indicate a problem exists, use the Debugging Facility to examine the logic of programs you have written. The Debugging Facility allows you to test an application program without any preparatory procedure. DBUG intercepts execution of the program at every CA Datacom/DB request. DBUG also displays, among other things, the commands as they are issued and shows the data that is read.

The CA Datacom CICS Services Debugging Facility runs as a subprogram of the application program. DBUG can be used with other diagnostic facilities, such as CA InterTest® for CICS and the CICS online facility EDF. The DBUG transaction controls the scheduling of intercepts, but the intercepted transaction controls the intercept process. The Debugging Facility uses temporary storage and full function BMS (Basic Mapping Support). You can use the Debugging Facility only from a 3270 type terminal that has 80 columns or more, and 24 lines or more. Security for the DBUG transaction is established through standard CICS security features.

The Debugging Facility allows you to examine CA Datacom/DB requests from application programs written in CA Ideal, DMS, Assembler, COBOL, or PL/I using command-level CICS. The application programs can reside above the 16 MB (megabyte) line. The application can use CA Datacom Transparency products and the transparent request is intercepted.

Note: The only value supported by the DBUG transaction for ENTRY: is DBNTRY. Although CA Datacom CICS Services r11 and higher still supports the DATACOM entry point, the DATACOM entry point is not supported by the DBUG transaction. Normal execution occurs for DATACOM calls, but DBUG cannot be used to set up interception points for those calls. For example, if a transaction executes three programs (A, B, and C), where A and B use the DBNTRY entry point to call CA Datacom/DB but C uses DATACOM calls, if DBUG has been used to specify that calls to CA Datacom/DB are intercepted, only calls from programs A and B are intercepted. CA Datacom/DB requests from program C are executed normally but are not intercepted.

Functions of DBUG

The Debugging Facility (DBUG) enables you to accomplish the following tasks:

- Define the interception points for the Debugging Facility
  - Intercept every request issued to CA Datacom/DB before or after execution or both.
  - Limit interception to requests which match criteria you establish.
  - Skip *n* number of requests.

- While the task is intercepted, you can examine the following:
  - Values of the fields in the CA Datacom/DB Request Area.
  - Program working storage in hexadecimal or character mode.
  - User display associated with this task.
  - Last ten debug panels associated with this task. These can be the last ten requests or other panels viewed and remembered.
  - Data at any address within the CICS region, above or below the line.
  - Entries of the internal CA Datacom/DB trace table.
  - Components of the URT associated with the intercepted task.
- Interact with the application in the following ways:
  - Before execution, modify commands or data by replacing (typing over) data on the display. Suppress execution of a command by changing it to a null operation or change CA Datacom/DB commands.

    Note: Use the correct case when replacing data on the display. Specifically, verify that a replaced DB command is in uppercase. Otherwise, a return code of 05 results in a DC05 abend.
  - After execution, change accessed data or return codes by replacing data on the display.
  - Change program working storage.
  - Switch off Debugging Facility and continue the task or abend the task.
  - Change the interception specification or criteria.

This section contains the following topics:

Using the Debugging Facility

This section discusses the Debugging Facility.

Initiating the Debugging Facility

Initiate the Debugging Facility by entering the following transaction from a cleared screen and pressing Enter.

```
►►─ DBUG ──────────────────────────────────────────────────────►◄
```

CA Datacom CICS Services responds with the Intercept Specifications Panel.

Specifying Processing Mode

The Debugging Facility supports three processing modes. The Terminal Control Table (TCT) must include the terminal ID for any specified remote terminal. Local terminals and remote terminals must be in transceive status, that is to say able to send and receive data.

Note: The DBUG local and remote modes described in the following apply only to DBUG processing and have nothing to do with CICS/MRO environments.

Local Mode

Local mode processing enables you to issue the DBUG transaction to intercept CA Datacom/DB requests from a program. When DBUG intercepts a request, CA Datacom CICS Services DBUG display replaces the display of the program on your terminal.

Remote Mode

Remote mode processing enables you to issue the DBUG transaction from one terminal to intercept CA Datacom/DB requests from a program initiated at a specified remote terminal. This allows you to run an application on one terminal while concurrently viewing CA Datacom CICS Services DBUG displays for that program on your terminal. You can initiate DBUG before executing the program to intercept or at the end of any unit of work during its execution.

Monitor Mode

Monitor mode processing allows the user to monitor who, when and what program is accessing which CA Datacom/DB information. Monitor mode processing intercepts all CA Datacom/DB requests meeting specified criteria issued by any program and routes these interceptions to your terminal.

- Only one terminal can be in monitor mode at a time. It should be a dedicated terminal assigned for use of the DBUG monitor mode function.
- For a terminal that has initiated monitor mode, any subsequent transaction issued from that terminal while monitor mode is still active are not debugged.

For any terminal, a local DBUG interception or a single remote DBUG interception may be requested. A single terminal cannot be intercepted by more than one terminal at a time. When monitor mode is active, no other terminal can have a local or remote DBUG session active.

Only one terminal at a time can activate monitor mode. The authorization to request a monitor mode DBUG or a remote mode DBUG is controlled by the values specified in the MSTOPR= parameter of the DBCVTPR macro. If a list of master operators is specified, then only those operators may initiate a monitor mode or a remote mode DBUG session. If *** is the value of MSTOPR=, any terminal can start monitor mode or remote mode DBUG.

Caution Exercise discretion in your use of monitor mode. If the monitor mode terminal is to be left unattended for a period of time, turn off the monitor mode. A terminal intercepted by the monitor mode terminal receives an INTERCEPTED BY... message and remains in a wait condition until the monitor mode operator presses Enter. While it is in monitor mode, a terminal should not run any conversational tasks.

If in monitor mode or remote mode, CA Datacom CICS Services sends the following message to the intercepted terminal:

```
*** YOUR TRANSACTION IS INTERCEPTED BY TERMINAL - XXXX ***
```

Specifying Interception Points

Specify interception points as follows:

1. Specify whether the Primary Interception Panel is displayed for the intercepted request, before the interception, after the interception, or both before and after.
2. If requesting monitor mode, or optionally, if requesting local or remote mode, specify criteria to limit the interception of requests.
3. When you have specified the interception criteria, press Enter. If no errors are found the Debugging Facility returns the message:

   ```
   ** REQUEST SERVICED **
   ```

4. If in local mode, clear the screen and enter the transaction ID of the program to debug and any input data required by the program.

The program executes normally until it issues a request meeting the interception criteria. At this point, CA Datacom CICS Services displays the DBUG Primary Interception Panel (see page 361) panel.

Examining Data of Interest

CA Datacom CICS Services stops the processing of the program being debugged while you are viewing the DBUG Intercept panels.

During the interception of requests, you can examine any of the following by pressing a function key:

- Contents of the intercepted request, which CA Datacom CICS Services displays on the Primary Interception panel
- Registers

- Working storage
- User display
- Interception criteria
- Internal trace table entries for the current task
- Last 10 DBUG panels, which include the Primary Interception panel and other panels for which you specified Remember.
- URT components

Modifying Displayed Data

You can make the following modifications:

- When displaying a request intercepted before execution, you can modify the request or suppress its execution. If you modify the DB command, verify that it is in uppercase to avoid a DB return code of 05 and resulting DC05 abend.
- When displaying data or a return code which is returned after execution of an intercepted request, you can modify what is returned to your program.
- Change working storage.
- Terminate the task.

Releasing the Terminal

If the transaction being intercepted is complete, you should release your terminal from the Debugging Facility. If you do not, the Debugging Facility remains active at your terminal and intercepts any application initiated there. Use the following procedure to release the Debugging Facility:

1. If the Primary Interception Panel is not displayed, press PF12 to display it.
2. Either press PF3 or enter RELEASE in the DBUG CMD field.

Short-Cut DBUG

To initiate the Debugging Facility for your terminal for any request, use the following transaction:

```
►►─ DBUG ─┬─ BOTH ─────┬──────────────────────────────────────────►◄
          ├─ AFTER ────┤
          └─ BEFORE ───┘
```

CA Datacom CICS Services responds with the message:

```
** REQUEST SERVICED **
```

Or, the intercept specification if an error is found.

Begin your test by entering the test transaction on your terminal.

DBUG Panel Format

Each DBUG panel is divided into three parts: header, body, and footer containing PF key assignments. If you enter any data in a field on this panel, *do not* use the ERASE EOF key to clear out any extraneous data, except in formatted numeric fields.

```
DBUG 20          xxxxxxxxx<-     title    ->xxxxxxxxxxxxxxxxx       CA Datacom
TRAN ID: XXXX    PROGRAM: XXXXXXXX +000000    TASK NR: 0000000     DISPLAY: XXX
CALL: DBNTRY     TERM ID: XXXX        xxxxxxxxx<--  message line -->xxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xx
xx
xx
xx
xx
xx
xx
xx                               BODY
xx
xx
xx
xx
xx
xx
xx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
PF1 :                    PF2 :                     PF3 :
PF4 :                    PF5 :                     PF6 :
PF7 :                    PF8 :                     PF9 :
PF10:                    PF11:                     PF12:
```

Field Descriptions

(Header Field)

DBUG *nn*

Numeric identification of DBUG panel.

title

Panel name.

TRAN ID

Transaction ID.

PROGRAM

Program associated with the transaction ID followed by a hexadecimal value indicating the offset in the program where the CA Datacom/DB request was issued.

TASK NR

CICS task identification number.

DISPLAY

One of the following:

CUR

Display is current panel.

-nn

Display is a *remembered* panel, where *nn* indicates the panel held in memory prior to the current interception; appears when the display is invoked with PF7.

CALL

CA Datacom/DB entry point in use.

TERM ID

Terminal ID.

message line

Error message or informational message.

(Body Field)

varies

See the Field Description section for the panel of interest.

(Footer Field)

Function keys

Four lines of PF key assignments. See the Function Key Assignments section for the panel of interest.

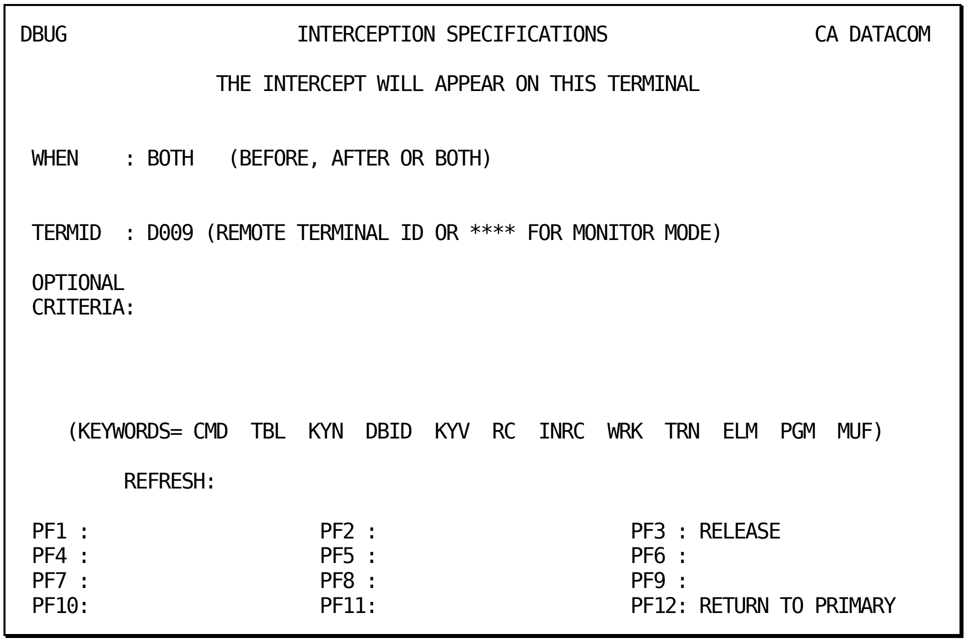
DBUG Panel Descriptions

The following panels are in numeric order:

Panel Number	Panel Name	Location of Details
	Intercept Specifications	DBUG Interception Specifications Panel (see page 355)
20	Primary Interception	DBUG Primary Interception Panel (see page 361)
31	Storage: Working Storage	DBUG Storage Panel (see page 365)
32	Storage: User Identification Area	DBUG Storage Panel (see page 365)
33	Storage: Request Area	DBUG Storage Panel (see page 365)
34	Request Area Formatted	DBUG Formatted Request Area Panel (see page 370)
35	Storage: Request Area Key Value	DBUG Storage Panel (see page 365)
36	Key Area Formatted	DBUG Formatted Key Value Area Panel (see page 373)
37	Storage: Request Work Area	DBUG Storage Panel (see page 365)
38	Storage: Request Area Element List	DBUG Storage Panel (see page 365)
39	Storage: Request Qualification Area	DBUG Storage Panel (see page 365)
40	Call RQA-Area	Call RQA-Area (see page 367)
41	RQA Selection Section	DBUG RQA Selection Section Panel

Panel Number	Panel Name	Location of Details
42	RQA Order-By Section	DBUG RQA Order-By Section Panel
43	RQA Parameter Section	DBUG RQA Parameter Section Panel
52	URT nnnn Being Used	DBUG Review URT Panel (see page 375)
54	Trace Entries	DBUG Trace Entries Panel (see page 380)

DBUG Interception Specifications Panel



```
DBUG                       INTERCEPTION SPECIFICATIONS                  CA DATACOM

                       THE INTERCEPT WILL APPEAR ON THIS TERMINAL


 WHEN    : BOTH   (BEFORE, AFTER OR BOTH)


 TERMID  : D009 (REMOTE TERMINAL ID OR **** FOR MONITOR MODE)

 OPTIONAL
 CRITERIA:




    (KEYWORDS= CMD  TBL  KYN  DBID  KYV  RC  INRC  WRK  TRN  ELM  PGM  MUF)

         REFRESH:

 PF1 :                    PF2 :                      PF3 : RELEASE
 PF4 :                    PF5 :                      PF6 :
 PF7 :                    PF8 :                      PF9 :
 PF10:                    PF11:                      PF12: RETURN TO PRIMARY
```

Field Descriptions

Field	Description
WHEN	*(Required)* Entry specifies when interception is to occur. One of the following is required for activation. **AFTER** Intercept every request for transaction initiated at specified terminal after execution. **BEFORE** Intercept every request for transaction initiated at specified terminal before execution. **BOTH** Intercept every request for transaction initiated at specified terminal before and after execution.
TERMID	*(Optional)* Indicates the terminal from which application-generated requests are to be intercepted. Options follow: ■ Accept the displayed default, which identifies the local terminal which initiated the DBUG transaction. ■ Enter the terminal ID of a remote terminal. ■ Enter four asterisks (****) for monitor mode. In monitor mode, the Debugging Facility intercepts all CA Datacom/DB requests from all applications which meet the specified criteria.
OPTIONAL CRITERIA	**(Required for monitor mode, optional for remote and local modes.)** Limits the interception of requests to those which meet the conditions specified by a conditional expression. Use one of the following forms: ■ A simple logical expression ■ Negation of a simple logical expression, that is to say an expression preceded by NOT ■ A compound expression made up of two simple logical expressions (or their negations) connected by AND or OR ■ A complex expression made up of three or more simple logical expressions (or their negations) connected by AND or OR, where priority for evaluation is expressed with parentheses **Note:** See Format Options for Criteria for format options and n for components of each format option.

Field	Description
REFRESH	*(Optional)* For a transaction that issues multiple WRITEs to the terminal without erase option, specify Y to cause the user's data to be rewritten to the screen each time after DBUG information is written to the screen, so that screen data is not overwritten. The default is N (no refresh). **Note:** If you use the REFRESH option from one terminal that is operating with a multi-session manager product, results may not be as expected.

Format Options for Criteria

Format Options for Criteria

If requesting monitor mode, or optionally, if requesting local or remote mode, specify criteria to limit the interception of requests in one of the following forms:

- A simple logical expression, consisting of a special CA Datacom CICS Services keyword, an optional offset, a relational operator, and a comparison value.

```
▶▶─ keyword ─┬──────┬─ operator ─ literal ────────────────────────────────▶◀
             └─ +n ─┘
```

- The negation of a simple logical expression, consisting of a logical expression within parentheses, prefixed with NOT or ¬.

```
▶▶─ NOT ─ (keyword ─┬──────┬─ operator ─ literal) ────────────────────▶◀
                    └─ +n ─┘
```

- Compound or complex logical expressions, consisting of one or more simple logical expressions (including the negated form), separated by the logical operator AND or OR.

```
▶▶─ keyword ─┬──────┬─ operator ─ literal ─┬─ AND ─┬─ keyword ─┬──────┬──────▶
             └─ +n ─┘                      └─ OR ──┘           └─ +n ─┘

 ▶─ operator ─ literal ───────────────────────────────────────────────────▶◀
```

NOT

(Optional) Specifies that interception is to exclude matches to the logical expression which follows. The logical expression which follows must be enclosed within parentheses. Both NOT and its symbol, ¬, are valid. (If the negation is omitted, the interception includes, rather than excludes, matches to the logical expression.)

keyword

(Required) One of the following keywords listed by type, where C means character and B means unsigned binary.

Keyword	Type	Length	Derivation for Literal
CMD	C	5	Command Code in Request Area

Keyword	Type	Length	Derivation for Literal
ELM	C	Up to 480	Element List specifying the data elements to be retrieved, updated or added.
KYN	C	5	Key Name in Request Area.
KYV	C	1-360	Key Value in Request Area.
PGM	C	8	Application program name.
RC	C	2	Return Code in Request Area.
TBL	C	3	Table Name in Request Area.
TRN	C	4	CICS transaction ID.
WRK	C	Up to 4096	Work Area used to send and receive elements.
INRC	B	1	Internal Return Code in Request Area.
DBID	B	5	Database ID in Request Area.
MUF	C	1-99	Number of the MUF on which the request is processed.

+n

(Optional) The integer offset within the intercepted entity at which the comparison to the specified literal begins. (If omitted, comparison begins at the initial character.)

***operator* (relational)**

(Required) Use one of the following relational operators to specify the nature of the comparison between the keyword and the literal:

Relational Operators	Meaning
EQ, =	Equal to
NE, ¬=, =¬, <>	Not equal to
GT, >	Greater than
GE, =>, >=, ¬<, <¬	Greater than or equal to
LT, <	Less than
LE, <=, =<, ¬>, >¬	Less than or equal to

literal

(Required) Literals in the logical expression must represent valid values for the specified keyword, such as 'DBOC' for the TRN keyword, or 014 for DBID. Syntax varies by type of comparison value, that is to say whether literal is a string, an integer value, or a hexadecimal value. Valid comparison types vary by keyword type. Use the following syntax when expressing literals to be compared with keywords of type C (character string) and B (unsigned binary):

Keyword Type	Syntax for Literal
C	Either of the following: **'string'** A character string in single quotes. String literals may include from one character to the number of characters associated with the keyword, where the physical length of the string determines the number of characters evaluated during the comparison. **"hexadecimal"** A hexadecimal value in double quotes, with a length up to the maximum length associated with the specified keyword, as documented for *keyword* in DBUG Interception Specifications Panel.
B	Either of the following: **integer value** An integer value with no leading zeros, where no punctuation is expected. **"hexadecimal"** A hexadecimal value in double quotes, where you must specify the full length.

***operator* (logical)**

(Optional) Specifies that multiple logical expressions are to be evaluated, where pairs of expressions are connected with one of the following logical operators:

Logical Operators	Meaning
AND, &	logical connective (both)
OR, |	logical inclusive (either or both)

Optional Criteria Examples

- To limit interception to requests meeting a single criteria, specify a simple conditional with a complete value. For example, the maximum length of a character string for the keyword, CMD, is 5. The following limits the interception to the single command, CNTKR. In the first example, the criteria is expressed as a string; in the second, it is expressed as a hexadecimal value.

  ```
  CMD='CNTKR'
  ```

  ```
  CMD="C3D5E3D2D9"
  ```

- The following specifies interception of requests with a Work Area containing a 4-byte packed field at position one.

  ```
  WRK="0001234C"
  ```

- To request the interception of requests meeting criteria expressed as a partial value beginning with the first character, specify a simple conditional with a partial value. The following expression specifies interception of requests which include any command having CNT as the first three characters, for example, CNTKR, CNTKY or CNTTB.

  ```
  CMD='CNT'
  ```

- The following simple logical expression specifies that the third position of the intercepted command be compared with the literal U to determine whether it matches. In this example, RDUBR, RDUID, RDUKG, RDUKL, RDUKR, RDUKX, RDUKY, RDULE, RDUNE, RDUNK, RDUNR, and RDUNX would qualify.

  ```
  CMD+2='U'
  ```

- The following simple negated logical expression specifies that interception is to exclude any requests which resulted in a CA Datacom/DB return code of 6 (table not open for update); this specification is equivalent to RC¬='06'.

  ```
  NOT (RC EQ '06')
  ```

- The following compound expression specifies that the interception is to include any request where the command's third letter is a U unless that request results in the return code of 6. RC and INRC are appropriate only for interceptions invoked AFTER the request has been processed.

  ```
  CMD+2='U' AND NOT (RC = '06')
  ```

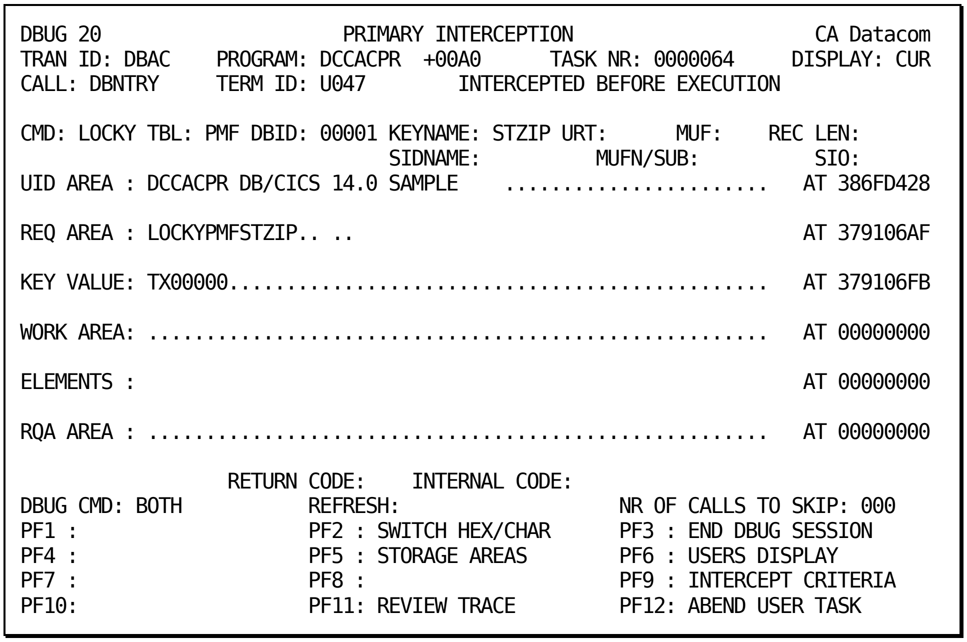
- The following complex expression specifies that the interception is to include any request to database 35 where the command is UPDAT or where the command's third letter is a U. (The parentheses indicate the part of the expression to be evaluated as a unit.)

  ```
  DBID=035 AND (CMD+2='U' OR CMD='UPDAT')
  ```

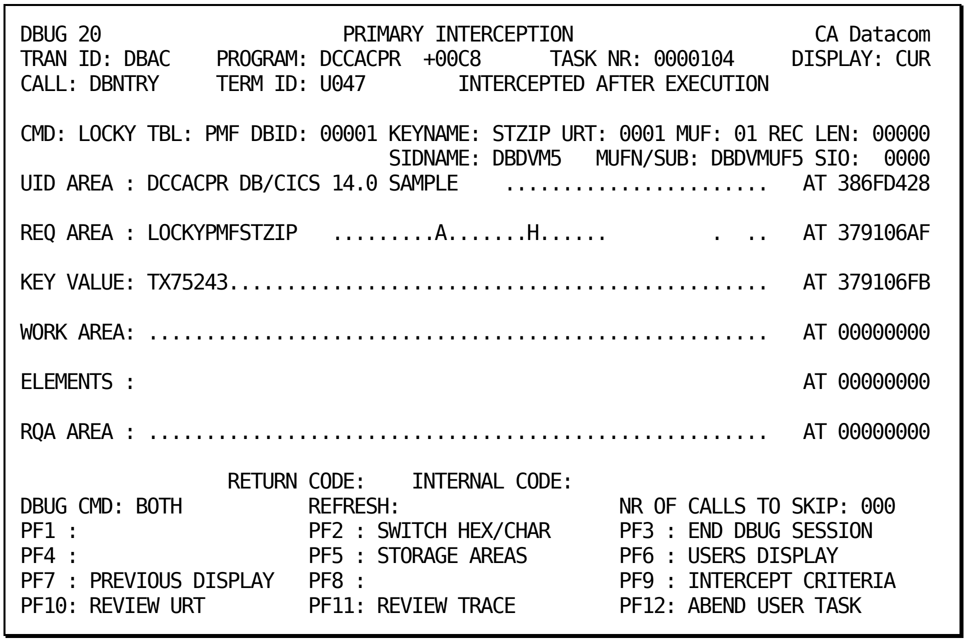
Function Key Assignments

Key	Function
PF3	**RELEASE** Releases the program being intercepted.
PF12	**RETURN** Returns to Primary Interception Panel, which displays for update the interception criteria currently in use.
Clear	Clears the screen and terminates the maintenance of the interception specifications without any changes.
Enter	Edits the entered data. If any entry contains an error, returns an error message; otherwise, accepts the entered data and redisplays the modified panel.

DBUG Primary Interception Panel



```
DBUG 20                     PRIMARY INTERCEPTION                 CA Datacom
TRAN ID: DBAC    PROGRAM: DCCACPR  +00A0      TASK NR: 0000064     DISPLAY: CUR
CALL: DBNTRY     TERM ID: U047        INTERCEPTED BEFORE EXECUTION

CMD: LOCKY TBL: PMF DBID: 00001 KEYNAME: STZIP URT:      MUF:    REC LEN:
                                SIDNAME:         MUFN/SUB:          SIO:
UID AREA : DCCACPR DB/CICS 14.0 SAMPLE    .......................   AT 386FD428

REQ AREA : LOCKYPMFSTZIP.. ..                                       AT 379106AF

KEY VALUE: TX00000...............................................   AT 379106FB

WORK AREA: ......................................................   AT 00000000

ELEMENTS :                                                          AT 00000000

RQA AREA : ......................................................   AT 00000000

                  RETURN CODE:    INTERNAL CODE:
DBUG CMD: BOTH           REFRESH:                   NR OF CALLS TO SKIP: 000
PF1 :                    PF2 : SWITCH HEX/CHAR      PF3 : END DBUG SESSION
PF4 :                    PF5 : STORAGE AREAS        PF6 : USERS DISPLAY
PF7 :                    PF8 :                      PF9 : INTERCEPT CRITERIA
PF10:                    PF11: REVIEW TRACE         PF12: ABEND USER TASK
```



```
DBUG 20                     PRIMARY INTERCEPTION                    CA Datacom
TRAN ID: DBAC    PROGRAM: DCCACPR  +00C8      TASK NR: 0000104     DISPLAY: CUR
CALL: DBNTRY     TERM ID: U047        INTERCEPTED AFTER EXECUTION

CMD: LOCKY TBL: PMF DBID: 00001 KEYNAME: STZIP URT: 0001 MUF: 01 REC LEN: 00000
                                SIDNAME: DBDVM5   MUFN/SUB: DBDVMUF5 SIO:  0000
UID AREA : DCCACPR DB/CICS 14.0 SAMPLE    .......................   AT 386FD428

REQ AREA : LOCKYPMFSTZIP   .........A.......H......         .  ..   AT 379106AF

KEY VALUE: TX75243...............................................   AT 379106FB

WORK AREA: ......................................................   AT 00000000

ELEMENTS :                                                          AT 00000000

RQA AREA : ......................................................   AT 00000000

                  RETURN CODE:    INTERNAL CODE:
DBUG CMD: BOTH           REFRESH:                   NR OF CALLS TO SKIP: 000
PF1 :                    PF2 : SWITCH HEX/CHAR      PF3 : END DBUG SESSION
PF4 :                    PF5 : STORAGE AREAS        PF6 : USERS DISPLAY
PF7 : PREVIOUS DISPLAY   PF8 :                      PF9 : INTERCEPT CRITERIA
PF10: REVIEW URT         PF11: REVIEW TRACE         PF12: ABEND USER TASK
```

Function Key Assignments

Key	Function
PF2	**SWITCH HEX/CHAR:** Switches display from hexadecimal to character or from character to hexadecimal.
PF3	**END DBUG SESSION:** Terminates the interception of requests for any transaction on this terminal. Applications continue executing.
PF5	**STORAGE AREAS:** If the cursor is on one of five Request Areas, invokes Storage panel starting at the address of indicated area. Otherwise, displays application Request Area working storage.
PF6	**USER DISPLAY:** Displays full-screen containing the last user entry.
PF7	**PREVIOUS DISPLAY:** Displays up to ten previous panels.
PF9	**INTERCEPT CRITERIA:** Displays the Intercept Specifications panel.
PF10	**REVIEW URT:** Displays the URT nnnn Being Used panel, if it is invoked after the first intercept; otherwise, N/A.
PF11	**REVIEW TRACE:** Displays the Trace Entries panel, listing all traced CA Datacom/DB requests associated with this task.

Key	Function
PF12	**ABEND USER TASK:** With no message: Redisplays current panel with the following message: ENTER ABEND CODE: ____ AND PRESS PF12 After making an entry in this four position field with your choice of code: abnormally ends task with specified abend code and terminates the Debugging Facility for any transaction on this terminal.
Enter	Edits the entered data. If any entry contains an error, returns an error message; otherwise, accepts the entered data and returns to the intercepted program.

Field Descriptions

This section describes each field on the Primary Intercept Panel. If you enter any data in a field on this panel, *do not* use the ERASE EOF key to clear out any extraneous data.

Note: All changes are case-sensitive. Use the proper case when entering data.

CMD

The CA Datacom/DB command at the time of the intercept.

TBL

The name of the table in the Request Area at the time of the intercept.

DBID

The CA Datacom/DB database ID in the Request Area at the time of the intercept.

KEYNAME

The CA Datacom/DB key name in the Request Area at the time of the intercept.

URT

The URT number associated with the request being executed.

MUF

The relative number of the DBCSID macro appended to the DBCVTPR (or 01 in a single MUF environment) which defines the connection to the MUF. For a non-global URT, this defaults to 1. For a global URT, it is the number of the MUF defined with the matching SID module.

REC LEN

The record length returned after the request is executed. If zeros, the address is unavailable.

SIDNAME

The value specified in the relative DBCSID macro (of the DBCVTPR generation) for the name of the DBSIDPR macro-generated module loaded and used for this MUF.

MUFN/SUB

This field displays the MUF name if the SIDNAME module is assembled with the MUFNAME= MUF name that matches the MUF name specified in the MUF startup option MUF. Otherwise, this field displays the number of the SVC and SVC sub-ID associated with this MUF, as defined in the SIDNAME module.

SIO

The number of physical I/O events required to satisfy the request. Returned only after the request is executed.

UID AREA

The first parameter of the CA Datacom/DB request is a 32-byte User Information Block. The trailing field, preceded by AT, is the address of the UID.

REQ AREA

Displays the first 54 bytes of the Request Area. The trailing field, preceded by AT, is the address of the Request Area.

KEY VALUE

Displays the first 54 bytes of the 360-byte Key Value field of the Request Area. The trailing field, preceded by AT, is the address of the key value area.

WORK AREA

Displays area provided by the program being intercepted, to receive data accessed from CA Datacom/DB. The trailing field, preceded by AT, is the address of the Work Area.

ELEMENTS

Displays the list of element names provided by the application. The trailing field, preceded by AT, is the address of the Element List.

RQA AREA

Displays the Request Qualification Area, if any. The trailing field, preceded by AT, is the address of the RQA.

RETURN CODE

Displays the 2-byte return code returned after a CA Datacom/DB access.

INTERNAL CODE

Displays a 3-byte decimal representation of the 1-byte binary Internal Return Code, which is associated with the displayed Return Code.

DBUG CMD

Displays current DBUG intercept:

AFTER

Intercept after the request has executed

BEFORE

Intercept before the request has executed

BOTH

Intercept before and after request execution

RELEASE

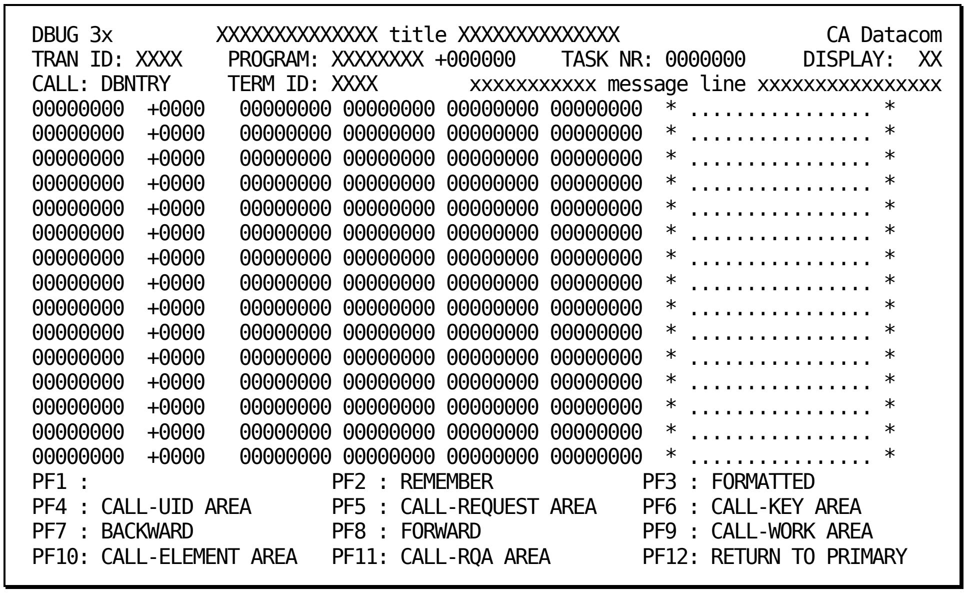
Release terminal from the Debugging Facility

NR OF CALLS TO SKIP

Displays a 3-byte number. This number is a count of DBUG interceptions desired to be skipped before an intercept screen is displayed.

DBUG Storage Panel

The Debugging Facility displays the Storage panel when you press the PF5 key on the Request Intercept panel. The Storage panel provides a method of viewing storage and changing storage.



```
DBUG 3x         XXXXXXXXXXXXXX title XXXXXXXXXXXXXX                 CA Datacom
TRAN ID: XXXX    PROGRAM: XXXXXXXX +000000    TASK NR: 0000000     DISPLAY:  XX
CALL: DBNTRY     TERM ID: XXXX        xxxxxxxxxxx message line xxxxxxxxxxxxxxxx
00000000  +0000   00000000 00000000 00000000 00000000  * ................ *
00000000  +0000   00000000 00000000 00000000 00000000  * ................ *
00000000  +0000   00000000 00000000 00000000 00000000  * ................ *
00000000  +0000   00000000 00000000 00000000 00000000  * ................ *
00000000  +0000   00000000 00000000 00000000 00000000  * ................ *
00000000  +0000   00000000 00000000 00000000 00000000  * ................ *
00000000  +0000   00000000 00000000 00000000 00000000  * ................ *
00000000  +0000   00000000 00000000 00000000 00000000  * ................ *
00000000  +0000   00000000 00000000 00000000 00000000  * ................ *
00000000  +0000   00000000 00000000 00000000 00000000  * ................ *
00000000  +0000   00000000 00000000 00000000 00000000  * ................ *
00000000  +0000   00000000 00000000 00000000 00000000  * ................ *
00000000  +0000   00000000 00000000 00000000 00000000  * ................ *
00000000  +0000   00000000 00000000 00000000 00000000  * ................ *
00000000  +0000   00000000 00000000 00000000 00000000  * ................ *
PF1 :                     PF2 : REMEMBER            PF3 : FORMATTED
PF4 : CALL-UID AREA       PF5 : CALL-REQUEST AREA   PF6 : CALL-KEY AREA
PF7 : BACKWARD            PF8 : FORWARD             PF9 : CALL-WORK AREA
PF10: CALL-ELEMENT AREA   PF11: CALL-RQA AREA       PF12: RETURN TO PRIMARY
```

Function Key Assignments

Key	Function
PF2	**REMEMBER:** Saves displayed panel for later review from Primary Interception panel through PF7 (Previous Display).
PF3	**FORMATTED:** Displays the formatted panel for Request Area, key value, or Request Qualification Area corresponding to the displayed storage.
PF4	**CALL-UID AREA:** Displays the scrollable Storage panel starting at the address of the User Identification Area.
PF5	**CALL-REQUEST AREA:** Displays the scrollable Storage panel starting at the address of the Request Area.
PF6	**CALL-KEY AREA:** Displays the scrollable Storage panel starting at the address of the Request Key Value Area.
PF7	**BACKWARD:** Decrements the first address by 256 and displays the storage located at the calculated address.
PF8	**FORWARD:** Increments the first address by 256 and displays the storage located at the calculated address.
PF9	**CALL-WORK AREA:** Displays the scrollable Storage panel starting at the address of the Request Work Area.
PF10	**CALL-ELEMENT AREA:** Displays the scrollable Storage panel starting at the address of the Request Element Area.
PF11	**CALL-RQA AREA:** Displays the scrollable Storage panel starting at the address of the Request RQA Area.
PF12	**RETURN TO PRIMARY:** Returns the Primary Interception panel.
Enter	Edits the entered data. If any entry contains an error, redisplays panel with an error message; otherwise, accepts the entered data.

Field Descriptions

address

Address of data shown on each line.

offset

Hexadecimal offset for each line from initial address.

hexadecimal

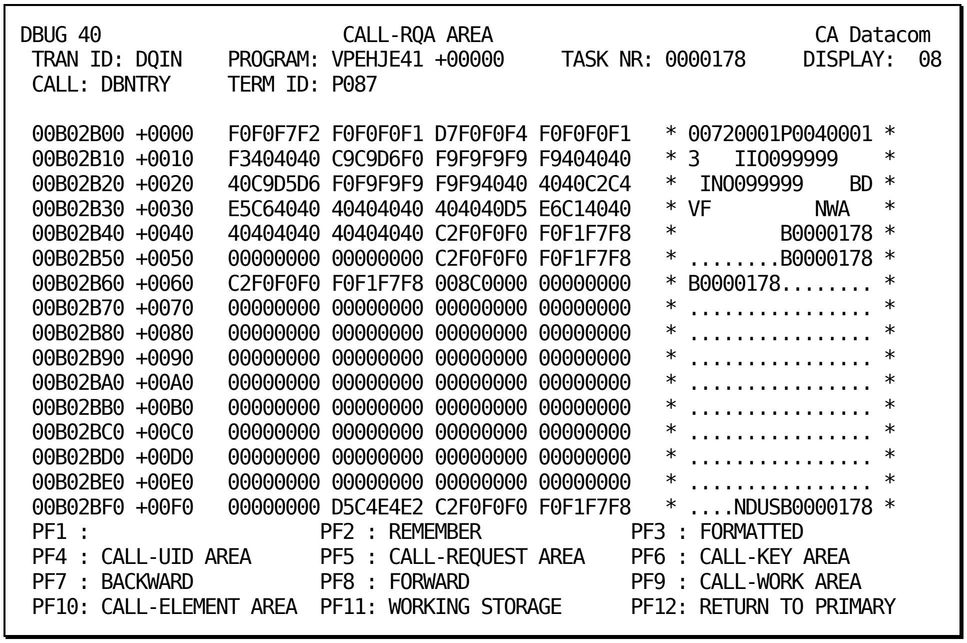
Displays four four-byte fields (hexadecimal form) of data located at the address for each line. Changes made in these fields override changes made in the character field.

character

Displays a 16-byte field in character format of data located at the address for each line. Changes made in these fields are ignored when changes are made in the hexadecimal fields. Periods are used to show non-displayable characters, any change in the character field on a period is ignored.

Call RQA-Area

The Debugging Facility displays the Call RQA-Area Storage panel when you press the PF11 key from the Working Storage panel. This panel provides a method of viewing the RQA-Area storage of the call and changing that storage.



```
DBUG 40                     CALL-RQA AREA                           CA Datacom
 TRAN ID: DQIN    PROGRAM: VPEHJE41 +00000    TASK NR: 0000178    DISPLAY:  08
 CALL: DBNTRY     TERM ID: P087

 00B02B00 +0000   F0F0F7F2 F0F0F0F1 D7F0F0F4 F0F0F0F1   * 00720001P0040001 *
 00B02B10 +0010   F3404040 C9C9D6F0 F9F9F9F9 F9404040   * 3   IIO099999    *
 00B02B20 +0020   40C9D5D6 F0F9F9F9 F9F94040 4040C2C4   *  INO099999    BD *
 00B02B30 +0030   E5C64040 40404040 404040D5 E6C14040   * VF        NWA    *
 00B02B40 +0040   40404040 40404040 C2F0F0F0 F0F1F7F8   *         B0000178 *
 00B02B50 +0050   00000000 00000000 C2F0F0F0 F0F1F7F8   * ........B0000178 *
 00B02B60 +0060   C2F0F0F0 F0F1F7F8 008C0000 00000000   * B0000178........ *
 00B02B70 +0070   00000000 00000000 00000000 00000000   * ................ *
 00B02B80 +0080   00000000 00000000 00000000 00000000   * ................ *
 00B02B90 +0090   00000000 00000000 00000000 00000000   * ................ *
 00B02BA0 +00A0   00000000 00000000 00000000 00000000   * ................ *
 00B02BB0 +00B0   00000000 00000000 00000000 00000000   * ................ *
 00B02BC0 +00C0   00000000 00000000 00000000 00000000   * ................ *
 00B02BD0 +00D0   00000000 00000000 00000000 00000000   * ................ *
 00B02BE0 +00E0   00000000 00000000 00000000 00000000   * ................ *
 00B02BF0 +00F0   00000000 D5C4E4E2 C2F0F0F0 F0F1F7F8   * ....NDUSB0000178 *
 PF1 :                     PF2 : REMEMBER           PF3 : FORMATTED
 PF4 : CALL-UID AREA       PF5 : CALL-REQUEST AREA  PF6 : CALL-KEY AREA
 PF7 : BACKWARD            PF8 : FORWARD            PF9 : CALL-WORK AREA
 PF10: CALL-ELEMENT AREA   PF11: WORKING STORAGE    PF12: RETURN TO PRIMARY
```

Function Key Assignments

Key	Function
PF2	**REMEMBER:** Saves displayed panel for later review from Primary Interception panel through PF7 (Previous Display).
PF3	**FORMATTED:** Displays the formatted panel for RQA Selection Section corresponding to the displayed storage.
PF4	**CALL-UID AREA:** Displays the scrollable Storage panel starting at the address of the User Identification Area.
PF5	**CALL-REQUEST AREA:** Displays the scrollable Storage panel starting at the address of the Request Area.
PF6	**CALL-KEY AREA:** Displays the scrollable Storage panel starting at the address of the Request Key Value Area.
PF7	**BACKWARD:** Decrements the first address by 256 and displays the storage located at the calculated address.
PF8	**FORWARD:** Increments the first address by 256 and displays the storage located at the calculated address.
PF9	**CALL-WORK AREA:** Displays the scrollable Storage panel starting at the address of the Request Work Area.
PF10	**CALL-ELEMENT AREA:** Displays the scrollable Storage panel starting at the address of the Request Element Area.
PF11	**STORAGE AREAS:** If the cursor is on one of the five Request Areas, invokes the Storage panel starting at the address of the indicated area; otherwise, displays application Request Area working storage.
PF12	**RETURN TO PRIMARY:** Returns the Primary Interception panel.
Enter	Edits the entered data. If any entry contains an error, redisplays panel with an error message; otherwise, accepts the entered data.

Field Descriptions

address

Address of data shown on each line.

offset

Hexadecimal offset for each line from initial address.

hexadecimal

Displays four four-byte fields (hexadecimal form) of data located at the address for each line. Changes made in these fields override changes made in the character field.

character

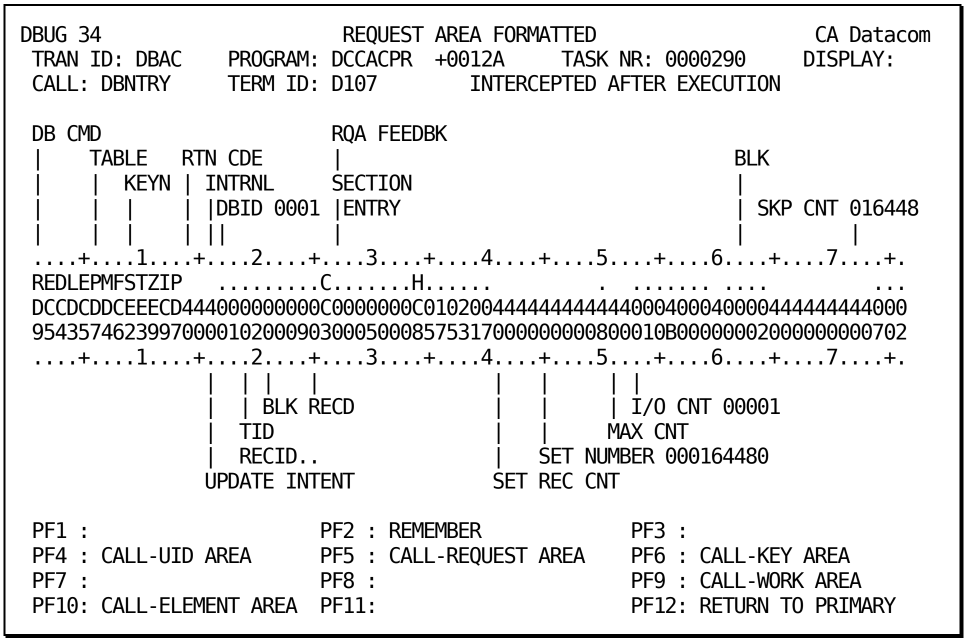
Displays a 16-byte field in character format of data located at the address for each line. Changes made in these fields are ignored when changes are made in the hexadecimal fields. Periods are used to show nondisplayable characters, any change in the character field on a period is ignored.

DBUG Formatted Request Area Panel

The Request Area Formatted panel provides an *exploded* view, identifying fields in the Request Area. Use this panel to modify request count data by making hexadecimal entries into the following five numeric fields:

- SKP CNT
- I/O CNT
- MAX CNT
- SET NUMBER
- SET REC CNT

The RTN CDE, INTRNL, and DBID can also be changed on this screen to modify the Request Area.



```
DBUG 34                     REQUEST AREA FORMATTED                   CA Datacom
 TRAN ID: DBAC    PROGRAM: DCCACPR  +0012A     TASK NR: 0000290     DISPLAY:
 CALL: DBNTRY     TERM ID: D107        INTERCEPTED AFTER EXECUTION

 DB CMD                    RQA FEEDBK
 |    TABLE   RTN CDE      |                                  BLK
 |    |  KEYN | INTRNL     SECTION                            |
 |    |  |    | |DBID 0001 |ENTRY                             | SKP CNT 016448
 |    |  |    | ||         |                                  |         |
 ....+....1....+....2....+....3....+....4....+....5....+....6....+....7....+.
 REDLEPMFSTZIP   .........C.......H......         .  ....... ....         ...
 DCCDCDDCEEECD444000000000C0000000C010200444444444444000400040000444444444000
 9543574623997000010200090300050008575317000000000800010B00000002000000000702
 ....+....1....+....2....+....3....+....4....+....5....+....6....+....7....+.
                |  | |   |               |   |     | |
                |  | BLK RECD            |   |     | I/O CNT 00001
                |  TID                   |   |     MAX CNT
                |  RECID..               |   SET NUMBER 000164480
                UPDATE INTENT            SET REC CNT

 PF1 :                    PF2 : REMEMBER             PF3 :
 PF4 : CALL-UID AREA      PF5 : CALL-REQUEST AREA    PF6 : CALL-KEY AREA
 PF7 :                    PF8 :                      PF9 : CALL-WORK AREA
 PF10: CALL-ELEMENT AREA  PF11:                      PF12: RETURN TO PRIMARY
```

Function Key Assignments

Key	Function
PF2	**REMEMBER:** Saves panel for review from Primary Interception panel.
PF4	**CALL-UID AREA:** Displays the scrollable Storage panel starting at the address of the User Identification Area.
PF5	**CALL-REQUEST AREA:** Displays the scrollable Storage panel starting at the address of the Request Area.

Key	Function
PF6	**CALL-KEY AREA:** Displays the scrollable Storage panel starting at the address of the Request Key Value Area.
PF9	**CALL-WORK AREA:** Displays the scrollable Storage panel starting at the address of the Request Work Area.
PF10	**CALL-ELEMENT AREA:** Displays the scrollable Storage panel starting at the address of the Request Element Area.
PF12	**RETURN TO PRIMARY:** Returns the Primary Interception panel.
Enter	Edits the entered data. If any entry contains an error, returns an error message; otherwise, accepts the entered data and redisplays the modified panel.

Field Descriptions

The Request Area panel fields correspond to Primary Interception panel fields as follows:

Request Area panel field	Primary Interception field
DB CMD	CMD
TABLE	TBL
KEYN	KEYNAME
RTN CDE	RETURN CODE
INTRNL	INTERNAL CODE
DBID	DBID

An explanation of these fields follows:

DB CMD

The CA Datacom/DB command at the time of the intercept.

TABLE

The name of the table in the Request Area at the time of the intercept.

KEYN

The CA Datacom/DB key name in the Request Area at the time of the intercept.

RTN CDE

Displays the 2-byte character field containing the return code after a CA Datacom/DB access.

INTRNL

Displays the 1-byte binary field internal return code. This is a sub-code and is always associated with a return code. The display is a 3-byte decimal representation of the binary value.

DBID

The CA Datacom/DB database ID in the Request Area at the time of the intercept.

Request data which you may enter, view, or modify on this panel are entered and displayed here in alphanumeric format.

If you enter any data in a field on this panel, use the ERASE EOF key to clear out any extraneous data. If you use the space bar to blank out a field, CA Datacom CICS Services reads blanks (hexadecimal '40').

Note: All changes are case-sensitive. Use the proper case when entering data.

UPDATE INTENT

Displays application program redefinition of UPD parameter specification used by SELSM to specify that records should be returned for update.

RECID

After request executes, displays the 7-byte record ID of the located record as:

- TID: Table ID
- BLK: Block number within Area or URI
- RECD: Record number within Block

RQA FEEDBK

After request executes, for errors in Compound Boolean Selection commands, displays:

- SECTION: Section type (S, K or P)
- ENTRY: Entry number in error

SET REC CNT

After request executes, displays the number of records selected for a set if a temporary set is created or if a count is requested with the CNT parameter.

SET NUMBER

After request executes, displays ID number assigned to the current set by CA Datacom/DB.

MAX CNT

Displays maximum records to count data established in Request Area of an application program for current CNTKR or CNTKY command, if any.

I/O CNT

Before the request executes, displays the value for the IIO parameter if specified.

After request executes, displays the number of start I/O operations issued to satisfy the current request. If selection was interrupted because the IIO parameter specification was reached, displays the number of start I/O operations issued before selection was interrupted.

BLK

Block number in URI area.

SKP CNT

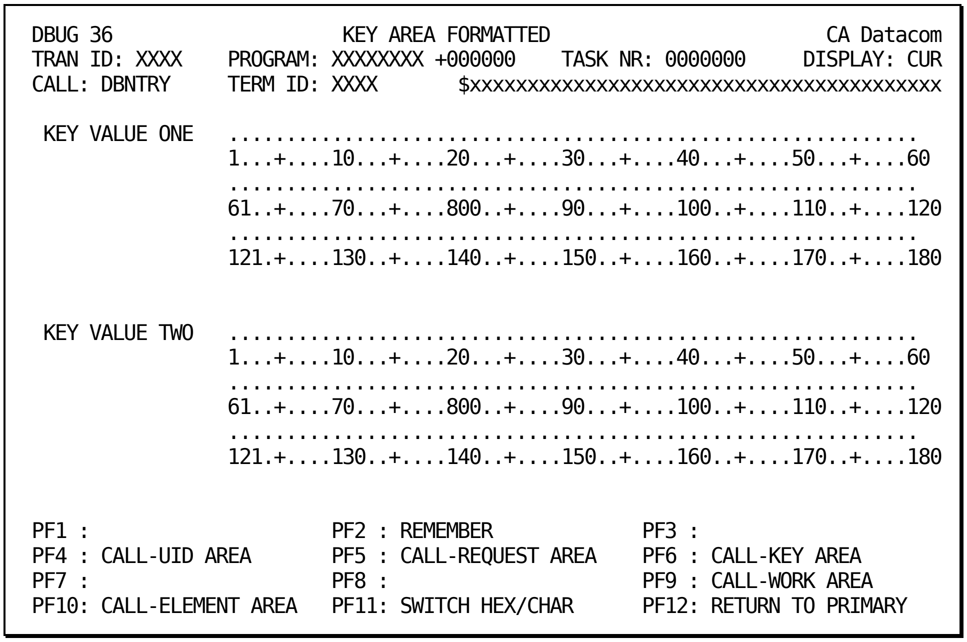
Displays the application program specification for the number of records to skip before returning the first record when using the SELNR command.

DBUG Formatted Key Value Area Panel

The Key Value panel allows you to change the complete key value. It also provides an *exploded* view displaying the character value of a maximum 360 bytes. This area is located within program storage. If the program allocated less than 360 bytes, any changes beyond the length allocated by the program may change data not associated with the key.

If the data to be changed is in a data type other than packed decimal or binary, make an entry of up to 180 bytes in the character portion of the display.

If the data to be changed is in packed decimal or binary format and is within the first 90 bytes of the Key Value, press PF11 and make the changes in hexadecimal mode. If the data to be changed is beyond the first 90 bytes displayable on this panel, press PF6 and make the changes on the corresponding storage panel.



```
DBUG 36                    KEY AREA FORMATTED                         CA Datacom
TRAN ID: XXXX    PROGRAM: XXXXXXXX +000000    TASK NR: 0000000     DISPLAY: CUR
CALL: DBNTRY     TERM ID: XXXX       $xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

 KEY VALUE ONE   ............................................................
                 1...+....10...+....20...+....30...+....40...+....50...+....60
                 ............................................................
                 61..+....70...+....800..+....90...+....100..+....110..+....120
                 ............................................................
                 121.+....130..+....140..+....150..+....160..+....170..+....180


 KEY VALUE TWO   ............................................................
                 1...+....10...+....20...+....30...+....40...+....50...+....60
                 ............................................................
                 61..+....70...+....800..+....90...+....100..+....110..+....120
                 ............................................................
                 121.+....130..+....140..+....150..+....160..+....170..+....180


PF1 :                     PF2 : REMEMBER           PF3 :
PF4 : CALL-UID AREA       PF5 : CALL-REQUEST AREA  PF6 : CALL-KEY AREA
PF7 :                     PF8 :                    PF9 : CALL-WORK AREA
PF10: CALL-ELEMENT AREA   PF11: SWITCH HEX/CHAR    PF12: RETURN TO PRIMARY
```

Function Key Assignments

Key	Function
PF2	**REMEMBER:** Saves panel for review from Primary Interception panel.
PF4	**CALL-UID AREA:** Displays the scrollable Storage panel starting at the address of the User Identification Area.
PF5	**CALL-REQUEST AREA:** Displays the scrollable Storage panel starting at the address of the Request Area.
PF6	**CALL-KEY AREA:** Displays the scrollable Storage panel starting at the address of the Request Key Value Area.
PF9	**CALL-WORK AREA:** Displays the scrollable Storage panel starting at the address of the Request Work Area.
PF10	**CALL-ELEMENT AREA:** Displays the scrollable Storage panel starting at the address of the Request Element Area.
PF11	**SWITCH HEX/CHAR:** Switches display from hexadecimal to character or from character to hexadecimal. The full 180 bytes are displayable in character format, but only the first 90 bytes is displayable in hexadecimal representation.

Key	Function
PF12	**RETURN TO PRIMARY:** Returns the Primary Interception panel.
Enter	Edits the entered data. If any entry contains an error, returns an error message; otherwise, accepts the entered data and redisplays the modified panel.

Field Descriptions

The Debugging Facility displays the Key value in two areas of the panel:

- First 180 bytes of the key value are in KEY VALUE ONE
- Second 180 bytes are in KEY VALUE TWO

  Note: Commands which test a specified key range such as CNTKR, LOCKR, LOCNR, REDNR, and REDKR, require the second key value area.

If you enter any data into this panel for changes, each character is compared internally and changes are made a character at a time. Therefore, if you used ERASE EOF or space bar those characters are changed.

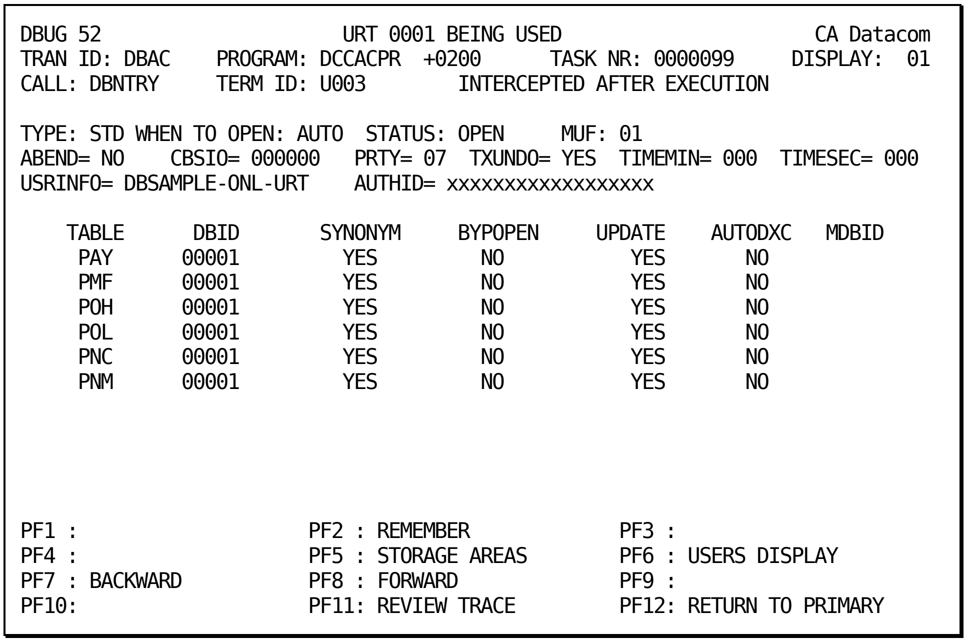
Note: All changes are case-sensitive. Use the proper case when entering data.

When making an entry in the character portion of the display, do not overtype a displayed period. CA Datacom CICS Services ignores any change to a column containing a period.

DBUG Review URT Panel

The URT panel provides a synopsis of the contents of the URT used to fulfill the application CA Datacom/DB request. The body of this panel is divided into the following three parts:

- The first line displays how the URT is defined to CA Datacom CICS Services
- The second line displays the DBURSTR parameter values which define the URT identified in the heading.
- The remaining lines display the DBURTBL parameter values which define the tables referenced in the URT.



```
DBUG 52                    URT 0001 BEING USED                     CA Datacom
TRAN ID: DBAC    PROGRAM: DCCACPR  +0200      TASK NR: 0000099     DISPLAY:  01
CALL: DBNTRY     TERM ID: U003        INTERCEPTED AFTER EXECUTION

TYPE: STD WHEN TO OPEN: AUTO  STATUS: OPEN     MUF: 01
ABEND= NO    CBSIO= 000000   PRTY= 07  TXUNDO= YES  TIMEMIN= 000  TIMESEC= 000
USRINFO= DBSAMPLE-ONL-URT    AUTHID= xxxxxxxxxxxxxxxxxx

    TABLE      DBID       SYNONYM     BYPOPEN     UPDATE    AUTODXC   MDBID
     PAY      00001         YES         NO          YES       NO
     PMF      00001         YES         NO          YES       NO
     POH      00001         YES         NO          YES       NO
     POL      00001         YES         NO          YES       NO
     PNC      00001         YES         NO          YES       NO
     PNM      00001         YES         NO          YES       NO




PF1 :                     PF2 : REMEMBER           PF3 :
PF4 :                     PF5 : STORAGE AREAS      PF6 : USERS DISPLAY
PF7 : BACKWARD            PF8 : FORWARD            PF9 :
PF10:                     PF11: REVIEW TRACE       PF12: RETURN TO PRIMARY
```

Function Key Assignments

Key	Function
PF2	**REMEMBER:** Saves panel for review from Primary Interception panel.
PF5	**STORAGE AREAS:** Displays application Request Area working storage.
PF6	**USERS DISPLAY:** Displays full-screen containing the last user entry.
PF7	**BACKWARD:** Scrolls backward through the trace table.
PF8	**FORWARD:** Scrolls forward through the trace table.
PF11	**REVIEW TRACE:** Displays the Trace Entries panel, listing all traced CA Datacom/DB requests associated with this task.
PF12	**RETURN TO PRIMARY:** Returns the Primary Interception panel.
Enter	No function.

Field Descriptions

TYPE

Displays a code for the type of URT as follows:

STD

URT you defined for applications issuing CA Datacom/DB commands DBSQL=NO in the DBUREND macro of the URT definition.

SQL

URT you defined for applications issuing SQL statements; DBSQL=YES in the DBUREND macro of the URT definition.

DYN

URT dynamically built by another CA product.

WHEN TO OPEN

Identifies when the URT is opened as follows:

PLT

CA Datacom CICS Services opens the URT at startup time.

AUTO

URT is opened automatically by CA Datacom CICS Services when an application program request needs it.

DEFER

URT can be opened only with an explicit DBEC or DBOC command.

STATUS

Display the status of the URT as follows:

UNOPENED

Not yet opened by a program call or a DBOC or DBEC transaction.

CLOSED

Explicitly closed with a DBEC or DBOC CLOSE=.

CLOSING

Close pending completion of a read in progress or a transaction having exclusive control.

OPEN

Opened by CA Datacom CICS Services.

OPENING

Open requested but not yet open, possibly pending connection to MUF.

MUF

Displays the relative number of the DBCSID macro appended to the DBCVTPR (or 01 in a single MUF environment) which defines the connection to the MUF. For a non-global URT, this defaults to 1. For a global URT, it is the number of the MUF defined with the matching SID module.

ABEND

This value is ignored in CA Datacom/DB r11 and higher. Specify as NO for a release of the URT before CA Datacom/DB r11.

CBSIO

Displays the value specified in URT generation for I/O limit interrupt for all SELxx commands except SELPR.

PRTY

Displays the value specified in URT generation for priority level within MUF using this URT, where 1 is lowest priority and 15 is highest priority.

TXUNDO

Specifies that the transaction backout option is in effect for all update transactions using this URT.

TIMEMIN

Specifies the TIMEMIN value in URT generation which defines the exclusive control wait time limit in minutes.

TIMESEC

Specifies the TIMESEC value in URT generation which defines the exclusive control wait time limit in seconds. If no value is displayed in MIN or SEC field, there is no limit on the time a task can hold a record under exclusive control.

USRINFO

Specifies the USRINFO value specified in the URT generation macro.

AUTHID

Specifies the AUTHID specified in the URT generation macro or has been specified in Services using the DBCVTPR macro or dynamic plan switching.

TABLE

Displays the name of the CA Datacom/DB table within the URT.

DBID

Displays ID of the database where the corresponding table resides.

SYNONYM

One of the following values:

YES

Indicates that SYNONYM=YES is specified in the DBURTBL macro for this URT.

NO

Indicates that SYNONYM=NO is specified in the DBURTBL macro for this URT.

BYPOPEN

One of the following values:

YES

When the URT is opened, the designated table is bypassed from the opening. Any attempt to access this table, using this URT, results in a CA Datacom/DB return code of 05.

NO

When the URT is opened, the designated table is opened during the opening.

UPDATE

One of the following values:

YES

This URT permits applications to update the named table.

NO

Updates on the named table are not permitted using this URT.

AUTODXC

One of the following values:

NO

Indicates that CA Datacom/DB does not automatically drop exclusive control for this table when a second command is issued from the same Request Area.

YES

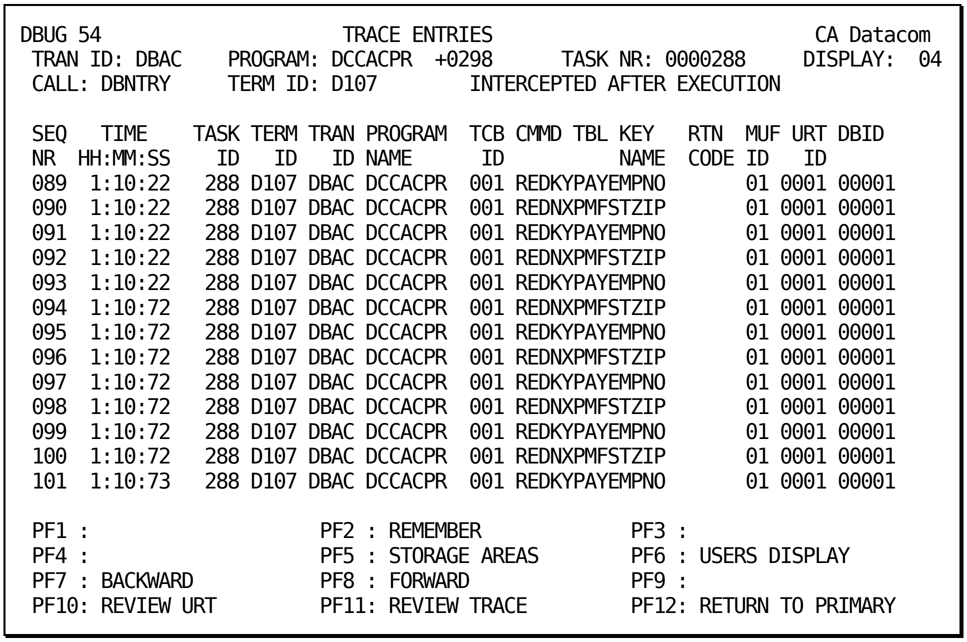
Indicates that CA Datacom/DB automatically drops exclusive control for this table when a second command is issued from the same Request Area.

MDBID

Blank for a non-global URT. For a global URT using DBID remapping, it is the DBID that is remapped from the request and passed to the MUF.

DBUG Trace Entries Panel

The Trace Entries panel provides a review of the internal CA Datacom/DB trace table associated with the current intercepted task.



```
DBUG 54                     TRACE ENTRIES                            CA Datacom
 TRAN ID: DBAC    PROGRAM: DCCACPR  +0298      TASK NR: 0000288    DISPLAY:  04
 CALL: DBNTRY     TERM ID: D107        INTERCEPTED AFTER EXECUTION

 SEQ   TIME    TASK TERM TRAN PROGRAM  TCB CMMD TBL KEY   RTN  MUF URT DBID
 NR  HH:MM:SS    ID   ID   ID NAME      ID          NAME  CODE ID   ID
 089  1:10:22   288 D107 DBAC DCCACPR  001 REDKYPAYEMPNO       01 0001 00001
 090  1:10:22   288 D107 DBAC DCCACPR  001 REDNXPMFSTZIP       01 0001 00001
 091  1:10:22   288 D107 DBAC DCCACPR  001 REDKYPAYEMPNO       01 0001 00001
 092  1:10:22   288 D107 DBAC DCCACPR  001 REDNXPMFSTZIP       01 0001 00001
 093  1:10:22   288 D107 DBAC DCCACPR  001 REDKYPAYEMPNO       01 0001 00001
 094  1:10:72   288 D107 DBAC DCCACPR  001 REDNXPMFSTZIP       01 0001 00001
 095  1:10:72   288 D107 DBAC DCCACPR  001 REDKYPAYEMPNO       01 0001 00001
 096  1:10:72   288 D107 DBAC DCCACPR  001 REDNXPMFSTZIP       01 0001 00001
 097  1:10:72   288 D107 DBAC DCCACPR  001 REDKYPAYEMPNO       01 0001 00001
 098  1:10:72   288 D107 DBAC DCCACPR  001 REDNXPMFSTZIP       01 0001 00001
 099  1:10:72   288 D107 DBAC DCCACPR  001 REDKYPAYEMPNO       01 0001 00001
 100  1:10:72   288 D107 DBAC DCCACPR  001 REDNXPMFSTZIP       01 0001 00001
 101  1:10:73   288 D107 DBAC DCCACPR  001 REDKYPAYEMPNO       01 0001 00001

 PF1 :                    PF2 : REMEMBER            PF3 :
 PF4 :                    PF5 : STORAGE AREAS       PF6 : USERS DISPLAY
 PF7 : BACKWARD           PF8 : FORWARD             PF9 :
 PF10: REVIEW URT         PF11: REVIEW TRACE        PF12: RETURN TO PRIMARY
```

Function Key Assignments

Key	Function
PF2	**REMEMBER:** Saves panel for review from Primary Interception panel.
PF5	**STORAGE AREAS:** Displays application Request Area working storage.
PF6	**USERS DISPLAY:** Displays full screen containing the last user entry.
PF7	**BACKWARD:** Scrolls backward through the trace table.
PF8	**FORWARD:** Scrolls forward through the trace table.
PF10	**REVIEW URT:** Displays the URT nnnn Being Used panel, if invoked after the first intercept; otherwise, N/A.
PF11	**REVIEW TRACE:** Displays the Trace Entries panel, listing all traced CA Datacom/DB requests associated with this task.
PF12	**RETURN TO PRIMARY:** Returns the Primary Interception panel.
Enter	No function.

Field Descriptions

SEQ NR

The number of the trace entry within the trace table. This indicates where within the trace table the display is positioned.

TIME HH:MM:SS

The time of day to the second at which each event occurred.

TASK ID

The CICS task number.

TERM ID

The ID of the terminal which initiated the listed command or ???? if no terminal was attached to the issuance of the command.

TRAN ID

The CICS transaction ID associated with the listed task.

PROGRAM NAME

The name of the program which issued the listed command.

TCB ID

Task Control Block sequence number which identifies the thread being used by the current event.

CMMD

The CA Datacom/DB command being traced.

TBL

The name of the CA Datacom/DB table being accessed by the current event, if any.

KEY NAME

The name of the key for the listed CA Datacom/DB table.

RTN CODE

Interpret the return code xx.yy as follows:

xx

CA Datacom/DB external return code (decimal).

yy

CA Datacom/DB internal return code (hexadecimal), '40' is a blank internal return code.

MUF ID

The number of the MUF being accessed by the current event.

URT ID

The number of the URT being accessed by the current event.

DBID

The database ID of the database in the MUF being accessed by the current event.

DBUG Example - Reviewing an Online Application

In the following example, the Debugging Facility (DBUG) is used to review an online application.

Step 1

Initiate the Debugging Facility by clearing the screen on terminal D028 and entering the DBUG transaction ID. The Debugging Facility acknowledges this transaction with the Interception Specifications panel, where the intercept is specified to occur both before and after every CA Datacom/DB request. Specify a different terminal ID D107.

```
DBUG                       INTERCEPTION SPECIFICATIONS                  CA DATACOM

                  THE INTERCEPT WILL APPEAR ON THIS TERMINAL


 WHEN    : both   (BEFORE, AFTER OR BOTH)


 TERMID  : D107 (REMOTE TERMINAL ID OR **** FOR MONITOR MODE)
```

The Debugging Facility acknowledges this input with the following message:

```
 DC03027I - REQUEST SERVICED
```

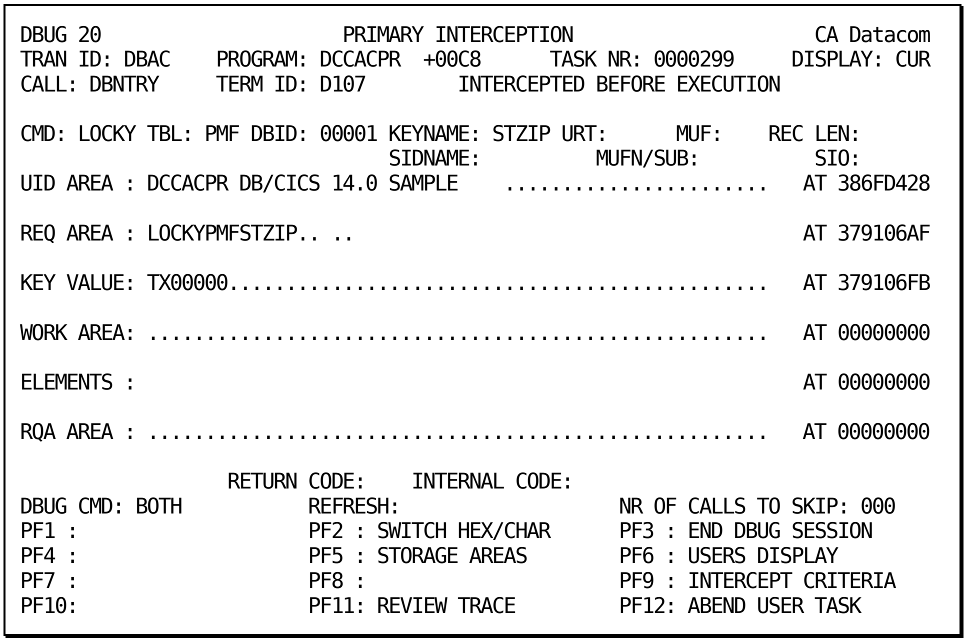
Step 2

On terminal D107, enter the transaction ID for the application to be debugged. The Debugging Facility acknowledges that the transaction is being intercepted and displays the message:

```
 dbac***YOUR TRANSACTION IS INTERCEPTED BY TERMINAL - D028
```

Step 3

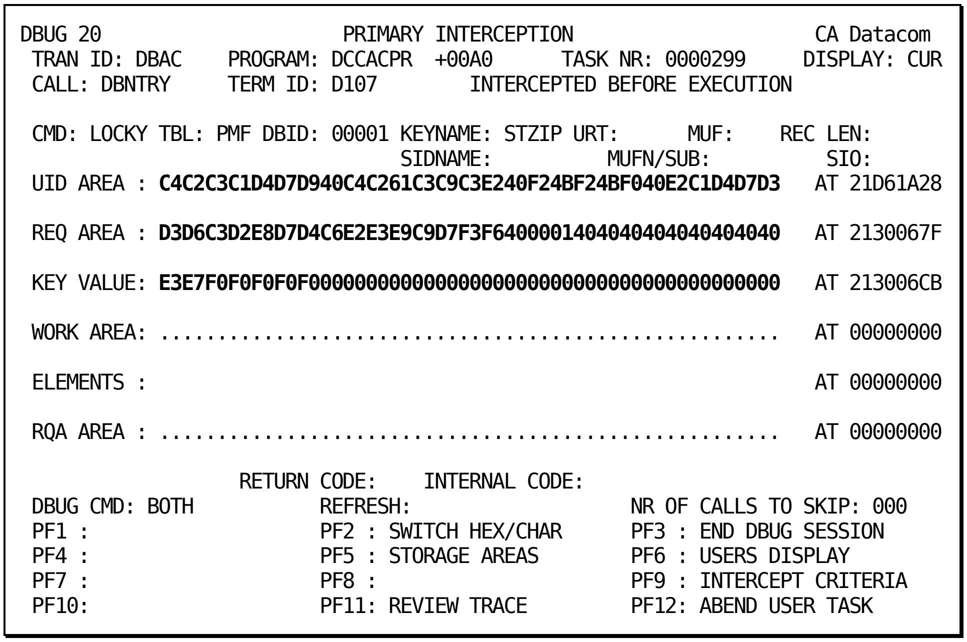
Since the Debugging Facility was initiated specifying BOTH, the Debugging Facility intercepts the transaction before it accesses CA Datacom/DB, and presents the following screen on terminal D028.



```
DBUG 20                     PRIMARY INTERCEPTION                    CA Datacom
TRAN ID: DBAC    PROGRAM: DCCACPR  +00C8      TASK NR: 0000299     DISPLAY: CUR
CALL: DBNTRY     TERM ID: D107        INTERCEPTED BEFORE EXECUTION

CMD: LOCKY TBL: PMF DBID: 00001 KEYNAME: STZIP URT:      MUF:    REC LEN:
                                SIDNAME:          MUFN/SUB:          SIO:
UID AREA : DCCACPR DB/CICS 14.0 SAMPLE    .......................   AT 386FD428

REQ AREA : LOCKYPMFSTZIP.. ..                                       AT 379106AF

KEY VALUE: TX00000..............................................    AT 379106FB

WORK AREA: ......................................................   AT 00000000

ELEMENTS :                                                          AT 00000000

RQA AREA : ......................................................   AT 00000000

                  RETURN CODE:    INTERNAL CODE:
DBUG CMD: BOTH           REFRESH:                   NR OF CALLS TO SKIP: 000
PF1 :                    PF2 : SWITCH HEX/CHAR      PF3 : END DBUG SESSION
PF4 :                    PF5 : STORAGE AREAS        PF6 : USERS DISPLAY
PF7 :                    PF8 :                      PF9 : INTERCEPT CRITERIA
PF10:                    PF11: REVIEW TRACE         PF12: ABEND USER TASK
```

Step 4

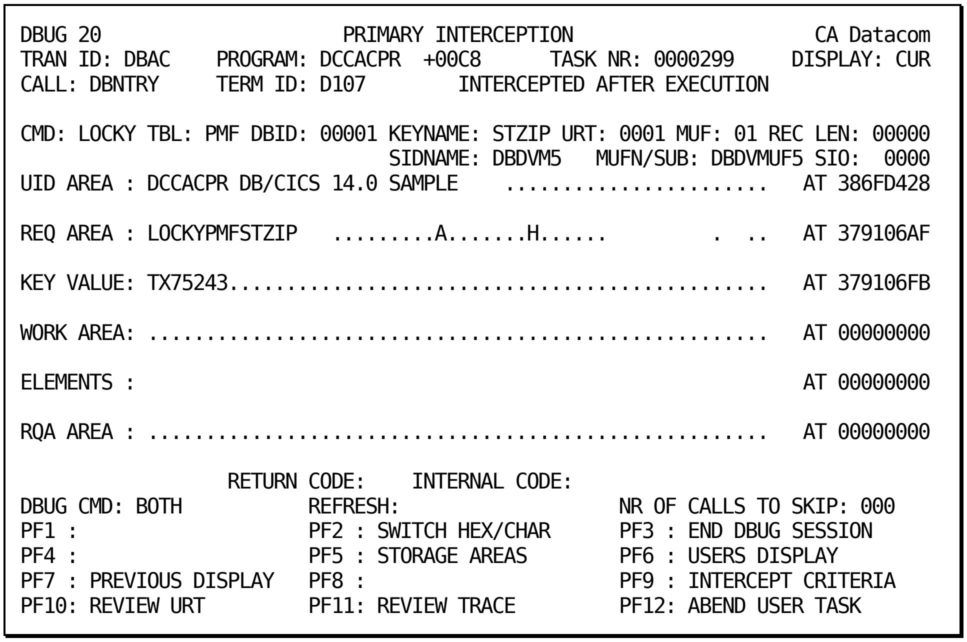
Press PF2 to change the display to hexadecimal mode, and the Debugging Facility responds with the following display:



```
DBUG 20                     PRIMARY INTERCEPTION                    CA Datacom
 TRAN ID: DBAC    PROGRAM: DCCACPR  +00A0      TASK NR: 0000299     DISPLAY: CUR
 CALL: DBNTRY     TERM ID: D107        INTERCEPTED BEFORE EXECUTION

 CMD: LOCKY TBL: PMF DBID: 00001 KEYNAME: STZIP URT:      MUF:    REC LEN:
                                SIDNAME:          MUFN/SUB:          SIO:
 UID AREA : C4C2C3C1D4D7D940C4C261C3C9C3E240F24BF24BF040E2C1D4D7D3   AT 21D61A28

 REQ AREA : D3D6C3D2E8D7D4C6E2E3E9C9D7F3F6400001404040404040404040   AT 2130067F

 KEY VALUE: E3E7F0F0F0F0F00000000000000000000000000000000000000000   AT 213006CB

 WORK AREA: ......................................................   AT 00000000

 ELEMENTS :                                                          AT 00000000

 RQA AREA : ......................................................   AT 00000000

                  RETURN CODE:    INTERNAL CODE:
 DBUG CMD: BOTH          REFRESH:                  NR OF CALLS TO SKIP: 000
 PF1 :                   PF2 : SWITCH HEX/CHAR     PF3 : END DBUG SESSION
 PF4 :                   PF5 : STORAGE AREAS       PF6 : USERS DISPLAY
 PF7 :                   PF8 :                     PF9 : INTERCEPT CRITERIA
 PF10:                   PF11: REVIEW TRACE        PF12: ABEND USER TASK
```

Step 5

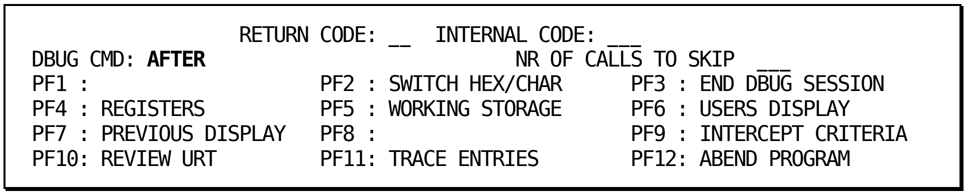
Press PF2, then Enter; the Debugging Facility allows the transaction to continue with its CA Datacom/DB access. After the transaction has accessed CA Datacom/DB, the Debugging Facility intercepts it and presents the following display:



```
DBUG 20                     PRIMARY INTERCEPTION                 CA Datacom
TRAN ID: DBAC    PROGRAM: DCCACPR  +00C8      TASK NR: 0000299     DISPLAY: CUR
CALL: DBNTRY     TERM ID: D107       INTERCEPTED AFTER EXECUTION

CMD: LOCKY TBL: PMF DBID: 00001 KEYNAME: STZIP URT: 0001 MUF: 01 REC LEN: 00000
                                SIDNAME: DBDVM5   MUFN/SUB: DBDVMUF5 SIO:  0000
UID AREA : DCCACPR DB/CICS 14.0 SAMPLE    .......................   AT 386FD428

REQ AREA : LOCKYPMFSTZIP   .........A.......H......         .  ..   AT 379106AF

KEY VALUE: TX75243.............................................   AT 379106FB

WORK AREA: ......................................................   AT 00000000

ELEMENTS :                                                          AT 00000000

RQA AREA : ......................................................   AT 00000000

                  RETURN CODE:    INTERNAL CODE:
DBUG CMD: BOTH           REFRESH:                  NR OF CALLS TO SKIP: 000
PF1 :                    PF2 : SWITCH HEX/CHAR      PF3 : END DBUG SESSION
PF4 :                    PF5 : STORAGE AREAS        PF6 : USERS DISPLAY
PF7 : PREVIOUS DISPLAY   PF8 :                      PF9 : INTERCEPT CRITERIA
PF10: REVIEW URT         PF11: REVIEW TRACE         PF12: ABEND USER TASK
```

Step 6

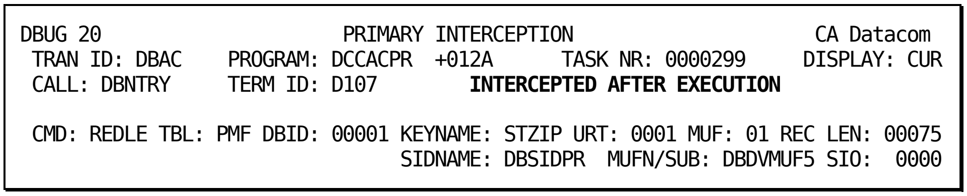
At this point, it is decided that only the data needs to be examined after CA Datacom/DB access. Therefore, AFTER is entered in the DBUG CMD field.



```
                  RETURN CODE: __  INTERNAL CODE: ___
DBUG CMD: AFTER                           NR OF CALLS TO SKIP  ___
PF1 :                    PF2 : SWITCH HEX/CHAR      PF3 : END DBUG SESSION
PF4 : REGISTERS          PF5 : WORKING STORAGE      PF6 : USERS DISPLAY
PF7 : PREVIOUS DISPLAY   PF8 :                      PF9 : INTERCEPT CRITERIA
PF10: REVIEW URT         PF11: TRACE ENTRIES        PF12: ABEND PROGRAM
```

Step 7

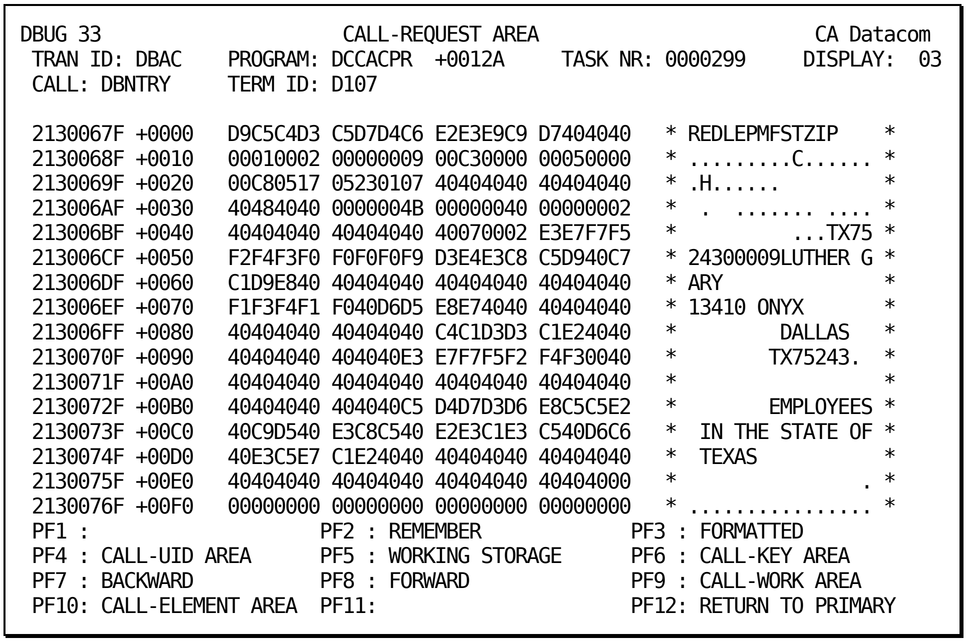
The Debugging Facility accepts this request with another primary intercept as follows:



```
DBUG 20                     PRIMARY INTERCEPTION                 CA Datacom
 TRAN ID: DBAC    PROGRAM: DCCACPR  +012A      TASK NR: 0000299     DISPLAY: CUR
 CALL: DBNTRY     TERM ID: D107       INTERCEPTED AFTER EXECUTION

 CMD: REDLE TBL: PMF DBID: 00001 KEYNAME: STZIP URT: 0001 MUF: 01 REC LEN: 00075
                                 SIDNAME: DBSIDPR  MUFN/SUB: DBDVMUF5 SIO:  0000
```

Step 8

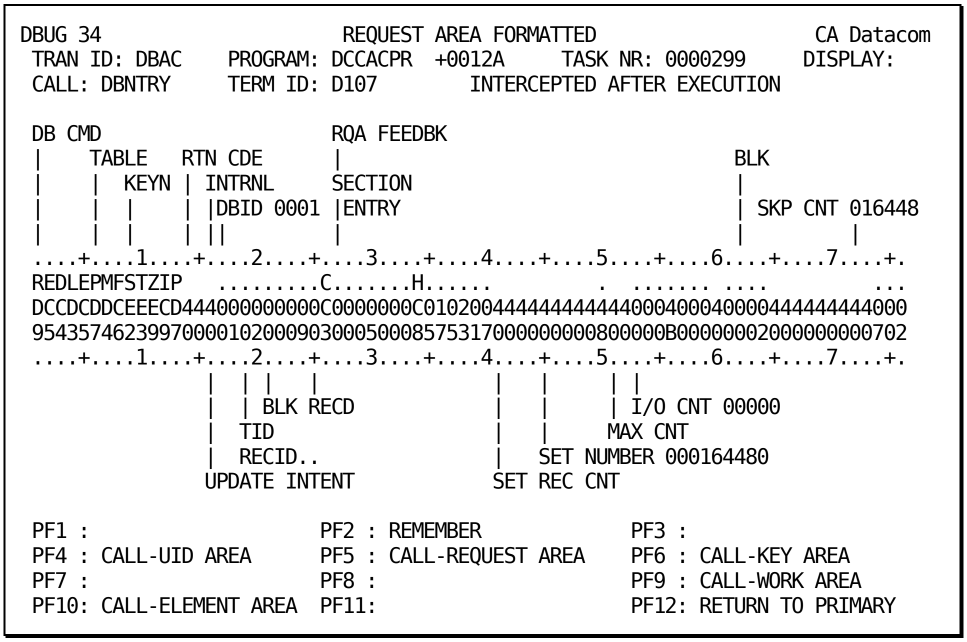
Place the cursor in the Request Area and press PF5 to take a closer look at the Request Area. In response, the Debugging Facility presents the following display:



```
DBUG 33                     CALL-REQUEST AREA                       CA Datacom
 TRAN ID: DBAC    PROGRAM: DCCACPR  +0012A     TASK NR: 0000299     DISPLAY:  03
 CALL: DBNTRY     TERM ID: D107

 2130067F +0000   D9C5C4D3 C5D7D4C6 E2E3E9C9 D7404040   * REDLEPMFSTZIP    *
 2130068F +0010   00010002 00000009 00C30000 00050000   * .........C...... *
 2130069F +0020   00C80517 05230107 40404040 40404040   * .H......         *
 213006AF +0030   40484040 0000004B 00000040 00000002   *  .  ....... .... *
 213006BF +0040   40404040 40404040 40070002 E3E7F7F5   *          ...TX75 *
 213006CF +0050   F2F4F3F0 F0F0F0F9 D3E4E3C8 C5D940C7   * 24300009LUTHER G *
 213006DF +0060   C1D9E840 40404040 40404040 40404040   * ARY              *
 213006EF +0070   F1F3F4F1 F040D6D5 E8E74040 40404040   * 13410 ONYX       *
 213006FF +0080   40404040 40404040 C4C1D3D3 C1E24040   *         DALLAS   *
 2130070F +0090   40404040 404040E3 E7F7F5F2 F4F30040   *        TX75243.  *
 2130071F +00A0   40404040 40404040 40404040 40404040   *                  *
 2130072F +00B0   40404040 404040C5 D4D7D3D6 E8C5C5E2   *        EMPLOYEES *
 2130073F +00C0   40C9D540 E3C8C540 E2E3C1E3 C540D6C6   *  IN THE STATE OF *
 2130074F +00D0   40E3C5E7 C1E24040 40404040 40404040   *  TEXAS           *
 2130075F +00E0   40404040 40404040 40404040 40404000   *                . *
 2130076F +00F0   00000000 00000000 00000000 00000000   * ................ *
 PF1 :                    PF2 : REMEMBER            PF3 : FORMATTED
 PF4 : CALL-UID AREA      PF5 : WORKING STORAGE     PF6 : CALL-KEY AREA
 PF7 : BACKWARD           PF8 : FORWARD             PF9 : CALL-WORK AREA
 PF10: CALL-ELEMENT AREA  PF11:                     PF12: RETURN TO PRIMARY
```

Step 9

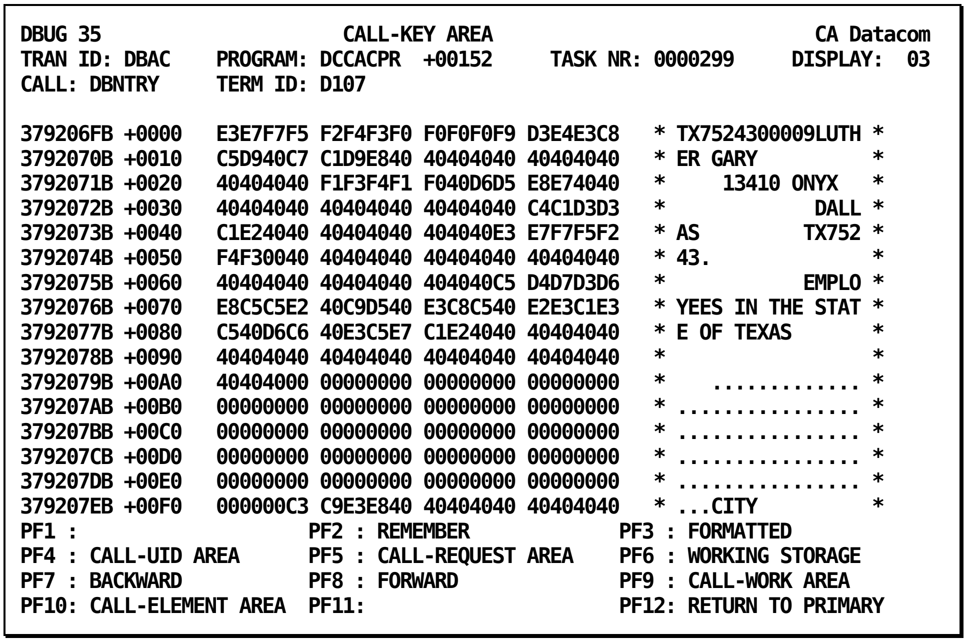
From this panel, you can see storage used by the Request Area, but individual fields are hard to determine. Press PF3 to get a formatted Request Area. In response, the Debugging Facility presents the following display:



```
DBUG 34                     REQUEST AREA FORMATTED                   CA Datacom
 TRAN ID: DBAC    PROGRAM: DCCACPR  +0012A     TASK NR: 0000299     DISPLAY:
 CALL: DBNTRY     TERM ID: D107        INTERCEPTED AFTER EXECUTION

 DB CMD                    RQA FEEDBK
 |    TABLE   RTN CDE      |                                  BLK
 |    |  KEYN | INTRNL     SECTION                            |
 |    |  |    | |DBID 0001 |ENTRY                             | SKP CNT 016448
 |    |  |    | ||         |                                  |         |
 ....+....1....+....2....+....3....+....4....+....5....+....6....+....7....+.
 REDLEPMFSTZIP   .........C.......H......         .  ....... ....         ...
 DCCDCDDCEEECD444000000000C0000000C010200444444444444000400040000444444444000
 9543574623997000010200090300050008575317000000000800000B00000002000000000702
 ....+....1....+....2....+....3....+....4....+....5....+....6....+....7....+.
                |  | |   |               |   |     | |
                |  | BLK RECD            |   |     | I/O CNT 00000
                |  TID                   |   |     MAX CNT
                |  RECID..               |   SET NUMBER 000164480
                UPDATE INTENT            SET REC CNT

 PF1 :                    PF2 : REMEMBER             PF3 :
 PF4 : CALL-UID AREA      PF5 : CALL-REQUEST AREA    PF6 : CALL-KEY AREA
 PF7 :                    PF8 :                      PF9 : CALL-WORK AREA
 PF10: CALL-ELEMENT AREA  PF11:                      PF12: RETURN TO PRIMARY
```

Step 10

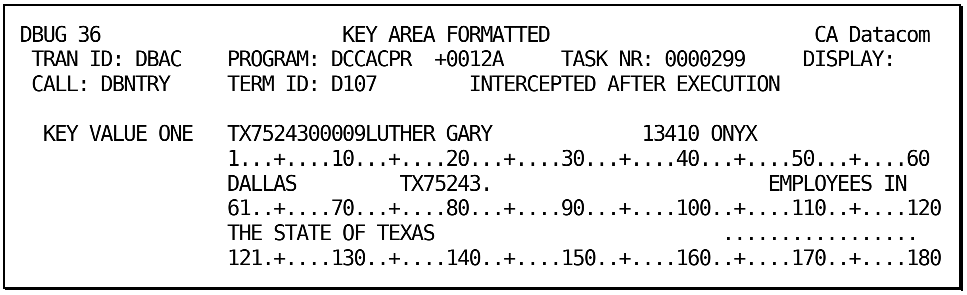
Since no problems are seen in the Request Qualification Area, press PF6 to examine the call key area. The Debugging Facility responds with the following display.



```
DBUG 35                     CALL-KEY AREA                          CA Datacom
TRAN ID: DBAC    PROGRAM: DCCACPR  +00152     TASK NR: 0000299     DISPLAY:  03
CALL: DBNTRY     TERM ID: D107

379206FB +0000   E3E7F7F5 F2F4F3F0 F0F0F0F9 D3E4E3C8   * TX7524300009LUTH *
3792070B +0010   C5D940C7 C1D9E840 40404040 40404040   * ER GARY          *
3792071B +0020   40404040 F1F3F4F1 F040D6D5 E8E74040   *     13410 ONYX   *
3792072B +0030   40404040 40404040 40404040 C4C1D3D3   *             DALL *
3792073B +0040   C1E24040 40404040 404040E3 E7F7F5F2   * AS         TX752 *
3792074B +0050   F4F30040 40404040 40404040 40404040   * 43.              *
3792075B +0060   40404040 40404040 404040C5 D4D7D3D6   *            EMPLO *
3792076B +0070   E8C5C5E2 40C9D540 E3C8C540 E2E3C1E3   * YEES IN THE STAT *
3792077B +0080   C540D6C6 40E3C5E7 C1E24040 40404040   * E OF TEXAS       *
3792078B +0090   40404040 40404040 40404040 40404040   *                  *
3792079B +00A0   40404000 00000000 00000000 00000000   *    ............. *
379207AB +00B0   00000000 00000000 00000000 00000000   * ................ *
379207BB +00C0   00000000 00000000 00000000 00000000   * ................ *
379207CB +00D0   00000000 00000000 00000000 00000000   * ................ *
379207DB +00E0   00000000 00000000 00000000 00000000   * ................ *
379207EB +00F0   000000C3 C9E3E840 40404040 40404040   * ...CITY          *
PF1 :                    PF2 : REMEMBER            PF3 : FORMATTED
PF4 : CALL-UID AREA      PF5 : CALL-REQUEST AREA   PF6 : WORKING STORAGE
PF7 : BACKWARD           PF8 : FORWARD             PF9 : CALL-WORK AREA
PF10: CALL-ELEMENT AREA  PF11:                     PF12: RETURN TO PRIMARY
```

Step 11

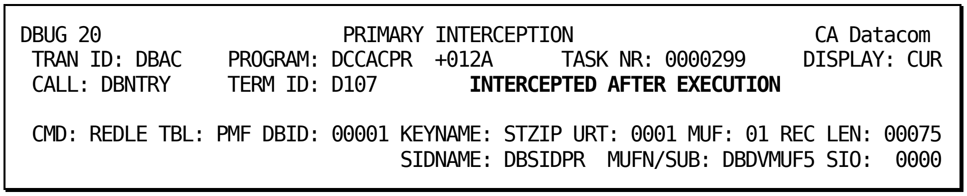
Since no problems are seen in the Request Qualification Area, press PF6 to examine the formatted key area. The Debugging Facility responds with the following display:



```
DBUG 36                     KEY AREA FORMATTED                     CA Datacom
 TRAN ID: DBAC    PROGRAM: DCCACPR  +0012A    TASK NR: 0000299     DISPLAY:
 CALL: DBNTRY     TERM ID: D107        INTERCEPTED AFTER EXECUTION

  KEY VALUE ONE   TX7524300009LUTHER GARY             13410 ONYX
                  1...+....10...+....20...+....30...+....40...+....50...+....60
                  DALLAS         TX75243.                        EMPLOYEES IN
                  61..+....70...+....80...+....90...+....100..+....110..+....120
                  THE STATE OF TEXAS                           .................
                  121.+....130..+....140..+....150..+....160..+....170..+....180
```

Step 12

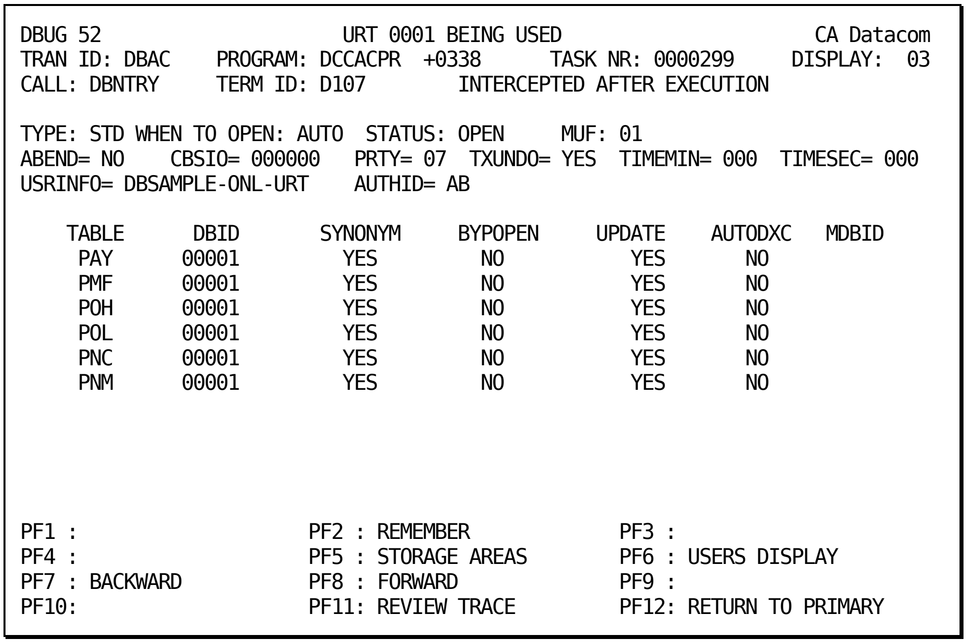
Review the Formatted Key Area and press PF12 to return to the primary intercept panel:



```
DBUG 20                     PRIMARY INTERCEPTION                    CA Datacom
 TRAN ID: DBAC    PROGRAM: DCCACPR  +012A      TASK NR: 0000299     DISPLAY: CUR
 CALL: DBNTRY     TERM ID: D107        INTERCEPTED AFTER EXECUTION

 CMD: REDLE TBL: PMF DBID: 00001 KEYNAME: STZIP URT: 0001 MUF: 01 REC LEN: 00075
                                 SIDNAME: DBSIDPR  MUFN/SUB: DBDVMUF5 SIO:  0000
```

Step 13

Press PF10 to review the specifications in the URT, and the Debugging Facility responds with:



```
DBUG 52                     URT 0001 BEING USED                     CA Datacom
TRAN ID: DBAC    PROGRAM: DCCACPR  +0338      TASK NR: 0000299     DISPLAY:  03
CALL: DBNTRY     TERM ID: D107        INTERCEPTED AFTER EXECUTION

TYPE: STD WHEN TO OPEN: AUTO  STATUS: OPEN     MUF: 01
ABEND= NO    CBSIO= 000000   PRTY= 07  TXUNDO= YES  TIMEMIN= 000  TIMESEC= 000
USRINFO= DBSAMPLE-ONL-URT    AUTHID= AB

    TABLE      DBID       SYNONYM     BYPOPEN     UPDATE    AUTODXC   MDBID
     PAY      00001         YES         NO           YES       NO
     PMF      00001         YES         NO           YES       NO
     POH      00001         YES         NO           YES       NO
     POL      00001         YES         NO           YES       NO
     PNC      00001         YES         NO           YES       NO
     PNM      00001         YES         NO           YES       NO




PF1 :                    PF2 : REMEMBER          PF3 :
PF4 :                    PF5 : STORAGE AREAS     PF6 : USERS DISPLAY
PF7 : BACKWARD           PF8 : FORWARD           PF9 :
PF10:                    PF11: REVIEW TRACE      PF12: RETURN TO PRIMARY
```

Step 14

Press PF11 to review the internal CA Datacom/DB trace table to see what commands this task has performed and the Debugging Facility responds with:

```
DBUG 54                      TRACE ENTRIES                          CA DATACOM
 TRAN ID: DBAC     PROGRAM: DCCACPR  +0298      TASK NR: 0000299    DISPLAY:  03
 CALL: DBNTRY      TERM ID: D107        INTERCEPTED AFTER EXECUTION

 SEQ   TIME     TASK TERM TRAN PROGRAM  TCB CMMD TBL KEY   RTN  MUF URT DBID  OPR
 NR  HH:MM:SS     ID   ID   ID NAME      ID          NAME  CODE ID   ID       ID
 001  1:42:60    299 D107 DBAC DCCACPR  001 LOCKYPMFSTZIP       01  0001 00001












 PF1 :                     PF2 : REMEMBER          PF3 :
 PF4 :                     PF5 : STORAGE AREAS     PF6 : USERS DISPLAY
 PF7 : BACKWARD            PF8 : FORWARD           PF9 :
 PF10: REVIEW URT          PF11: REVIEW TRACE      PF12: RETURN TO PRIMARY
```

Step 15

When PF6 is pressed to review the User's display showing on remote terminal D107, the Debugging Facility responds with:

```
 DBAC
```

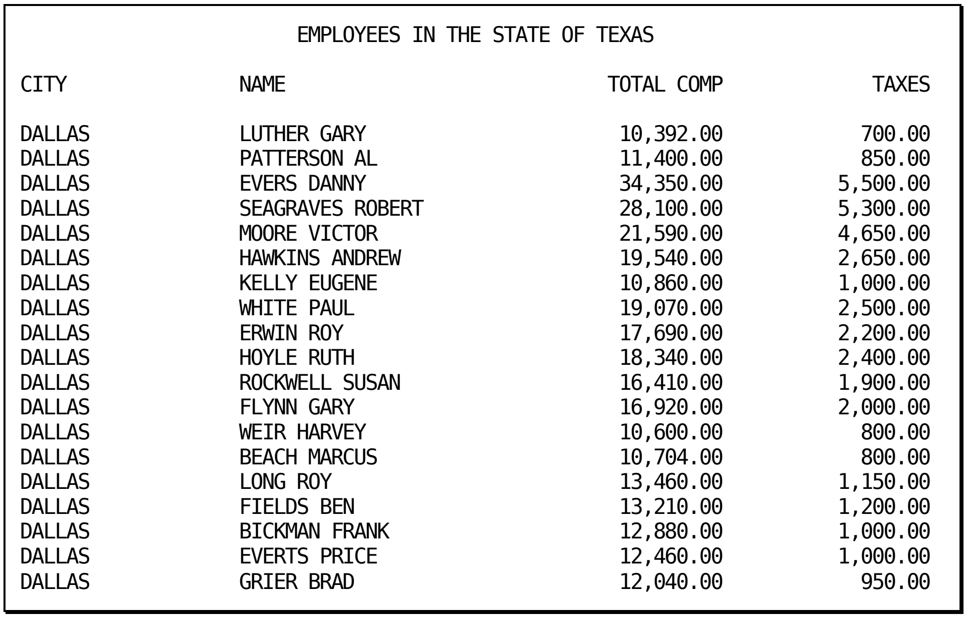
Step 16

Press any key to return to the previous DBUG display, which is the Trace Table, or in this case, press PF12 to go back to the primary intercept panel.

```
DBUG 20                      PRIMARY INTERCEPTION                   CA DATACOM
 TRAN ID: DBAC     PROGRAM: DCCACPR  +012A      TASK NR: 0000299    DISPLAY: CUR
 CALL: DBNTRY      TERM ID: D107        INTERCEPTED AFTER EXECUTION

 CMD: REDLE TBL: PMF DBID: 00001 KEYNAME: STZIP URT: 0001 MUF: 01 REC LEN: 00075
                                SIDNAME: DBSIDPR  MUFN/SUB: DBDVMUF5 SIO:  0000
```

Step 17

Press PF3 to terminate Debugging Facility intercept for terminal D107 and the Debugging Facility returns control to the application which finishes the task with the following on terminal D028.



```
                        EMPLOYEES IN THE STATE OF TEXAS

CITY                NAME                          TOTAL COMP              TAXES

DALLAS              LUTHER GARY                    10,392.00             700.00
DALLAS              PATTERSON AL                   11,400.00             850.00
DALLAS              EVERS DANNY                    34,350.00           5,500.00
DALLAS              SEAGRAVES ROBERT               28,100.00           5,300.00
DALLAS              MOORE VICTOR                   21,590.00           4,650.00
DALLAS              HAWKINS ANDREW                 19,540.00           2,650.00
DALLAS              KELLY EUGENE                   10,860.00           1,000.00
DALLAS              WHITE PAUL                     19,070.00           2,500.00
DALLAS              ERWIN ROY                      17,690.00           2,200.00
DALLAS              HOYLE RUTH                     18,340.00           2,400.00
DALLAS              ROCKWELL SUSAN                 16,410.00           1,900.00
DALLAS              FLYNN GARY                     16,920.00           2,000.00
DALLAS              WEIR HARVEY                    10,600.00             800.00
DALLAS              BEACH MARCUS                   10,704.00             800.00
DALLAS              LONG ROY                       13,460.00           1,150.00
DALLAS              FIELDS BEN                     13,210.00           1,200.00
DALLAS              BICKMAN FRANK                  12,880.00           1,000.00
DALLAS              EVERTS PRICE                   12,460.00           1,000.00
DALLAS              GRIER BRAD                     12,040.00             950.00
```

Chapter 18: Open Transaction Environment

The Open Transaction Environment (OTE) is IBM’s approach to multi-tasking support in a CICS/TS region. This environment could best be described as employing asymmetric TCBs.

The use of OTE open TCBs improves performance, reduces costs, and exploits the benefits of OTE processing.

If you experience poor response times for any of the following reasons, migrating to a Threadsafe environment is especially important:

- The CICS QR TCB is CPU constrained.
- Application programs are waiting excessively for the QR TCB.
- The CICS region in general is CPU constrained.

This section provides information about how OTE provides increased throughput with concurrency, improved performance, benefits of backward compatibility, and considerations when migrating to OTE.

This section contains the following topics:

Terminology

The following terms are important to know when you are working in an OTE:

RENT

Re-enterable modules are modules that do not modify anything in the program storage and can be loaded into *read-only* memory.

THREADSAFE programs

For a *program* to be Threadsafe, it must first be RENT. The program must either not modify the shared resources or else it must serialize use of the shared resources by using one of the many serialization techniques.

THREADSAFE applications

For an application system to be Threadsafe, all the programs that modify a shared resource *must use the same serialization techniques* or the application system may not be Threadsafe.

QR TCB

A Quasi-reentrant TCB also called *application* TCB is a TCB that has a property of forcing the application programs to run in a serialized manner. There is only one instance of a QR TCB per CICS and it only allows one CICS active task to run at any given point in time. This TCB protects the shared resources from being overridden by concurrently running tasks.

OPEN TCB

OTE introduces the *open* TCB which can be used by applications. An open TCB is characterized by the fact it is assigned to a CICS task for its sole use, and *multiple* OTE TCBs can run concurrently in CICS. Several modes of open TCBs support various functions, such as JAVA in CICS, OPEN API programs, C, and C++ programs.

OPENAPI programs

An OPENAPI program must be Threadsafe. This type of program commences execution on an OPEN TCB. Depending on the program EXECKEY of CICS or USER, the program would commence execution on L8 or L9.

CICSAPI programs

A CICSAPI program would commence execution on a QR TCB. Calls to an OPENAPI enabled TRUE causes a switch to an OPEN TCB to execute the TRUE. Depending on whether the program is defined as Threadsafe or QR, dictates whether the control returns to the application from the TRUE on the OPEN TCB or the QR TCB.

Concurrency

The Open Transaction Environment (OTE) allows concurrency.

Instead of application programs taking turns and running on a single QR TCB, they can run concurrently on many L8s, L9s, and other TCBs. OTE introduces many new engines (TCBs) to CICS program execution. Each new TCB can run on one new CPU in parallel (concurrently). As long as the necessary CPU power is present, there is the potential of increased throughput for a single CICS system.

Non-CICSAPI

A program that is CICSAPI is restricted to use only the CICS API. By definition this is:

- Command level application programming interface (API)
- System programming interface (SPI)
- Resource manager interface (RMI)
- Exit programming interface (XPI) – for global user exits
- System application architecture (SAA)
- LE callable services

Note: An OPENAPI program is not restricted to the CICS API as described previously.

Performance

OTE provides improved performance that is the result of the following two factors.

- Availability of many TCBs to run many CICS tasks concurrently
- Save on the number of switching TCBs while running a task

The higher the percentage of Threadsafe programs run in a CICS/TS environment, the lower the need to switch back and forth between the QR and Open TCBs. An application not using any of the shared resources is considered to be Threadsafe even if it uses non-Threadsafe CICS commands. The exception is if it is self modifying and therefore not reentrant.

Note: Replacing non-Threadsafe commands adds to improved performance.

Backward Compatibility and OTE

There are significant changes in the interface protocol between CA Datacom/DB and CA Datacom CICS Services from release 11.0 to Version 14.0 of CA Datacom CICS Services. These changes relate to the CONNECT, DISCONNECT, and DISCONNECT IMMEDIATE functions. For these functions to work properly, CA Datacom/DB must move forward or backwards with the CA Datacom CICS Services release. The interface protocol takes care of single threading the three functions, since using OTE naturally multi-threads any functions that it can.

If it is necessary to drop back to CA Datacom CICS Services r11, restore the CICS CSD and the DBCVTPR before migrating. This procedure is necessary because the new DBCVTPR 14.0 and CICS CSD definitions are not compatible with CA Datacom CICS Services r11.

Note: Do not mix CA Datacom CICS Services Version 14.0 with r11 in MRO. CA Datacom CICS Services version 14.0 is not compatible with CA Datacom/DB releases lower than version 12.0.

Migrating to OTE

A user application does not necessarily need to be threadsafe to install CA Datacom CICS Services Version 14.0. That includes selection of the option OPENAPI=YES in the DBCVTPR macro to force the CA Datacom CICS Services to commence execution on open TCBs. However, if you want more information about the migration process for an application to become threadsafe, the following checklist shoud be considered as an initial road map for that effort:

- Make all the programs RENT including replacement of the entire standard embedded macros with LIST and Executable macros.
- Identify all the shared resources (storage). Sharing a resource between two or more programs makes the application non-threadsafe unless the sharing process is serialized.
- Use serialization techniques (ENQ/DEQ, CS/CDS/CSG...) to make programs threadsafe. Verify that all the programs sharing a resource use the same serialization technique or the application may not be threadsafe.
- Define the Concurrency=threadsafe on the intended programs in CSD.
- Define the API(OPENAPI) or API(CICSAPI) for every program in CSD as appropriate.

Selecting the Right Options

The following list provides information that can help in selecting the right OTE options for CA Datacom CICS Services:

- Select the option OPENAPI=YES or NO in DBCVTPR and reassemble the macro. Consider the EXECKEY and the Concurrency value of the application programs for this selection.
- DBC request processing has Concurrency(Threadsafe) and EXECKEY=CICS. Therefore, DBC request processing starts processing on L8 TCBs if the DBCVTPR parameter is designated as OPENAPI=YES. If the DBCVTPR parameter is designated as OPENAPI=NO, execution begins on the same TCB where application is running when it is called. Give special attention to this selection as to prevent the degradation of performance by excessive TCB switching.
- Initially select applications that contain a mix of other resource managers in addition to CA Datacom/DB calls to run in OTE. Measure performance and modify as required to achieve the best throughput. In this case, the option of OPENAPI=YES should be tried in DBCVTPR for evaluating the overall performance since other resource managers may also run on L8 TCBs. Fully Threadsafe "application programs" have a better chance of achieving better performance with CA Datacom CICS Services in OTE, however that is not a requirement for selecting OPENAPI=YES. The fact that many open TCBs would be used in the OTE environment and the CA Datacom CICS Services can run on the open TCBs can greatly enhance the system performance.
- The MAXOPENTCBS system initialization parameter controls the number of CICS open TCBs permitted for this purpose. The necessary value would be set here to achieve maximum performance. For more information, see the *CA Datacom CICS Services System Reference Guide*.

Appendix A: JCL Examples for Program Compilation and Link Edit

This appendix contains JCL examples, provided for your reference. They show JCL procedures (PROCs) that may be used to compile and link a program for execution in a CICS environment.

Examples are provided using:

- Assembler
- COBOL
- PL/I
- SQL precompiler

This section contains the following topics:

Assembler Example (z/OS)

```
//DFHEITAL PROC SUFFIX=1$,
//         INDEX='CICSSYS.V321',
//         OUTC='*',
//         REG=512K,
//         WORK=SYSDA
//*
//*        THIS PROCEDURE CONTAINS 3 STEPS
//*        1.   EXEC THE ASSEMBLER TRANSLATOR
//*             (USING THE SUPPLIED SUFFIX 1$)
//*        2.   EXEC THE ASSEMBLER
//*        3.   LKED THE OUTPUT TO CICSSYS.LOADLIB
//*
//*        THE FOLLOWING JCL SHOULD BE USED
//*        TO EXECUTE THIS PROCEDURE
//*
//*        //APPLPROG EXEC DFHEITAL
//*        //TRN.SYSIN  DD *
//*           .
//*           . APPLICATION PROGRAM
//*           .
//*        /*
//*        //LKED.SYSIN DD *
//*           NAME ANYNAME(R)
//*        /*
//*
//*        WHERE ANYNAME IS THE NAME OF YOUR APPLICATION PROGRAM
//*
//*
//TRN    EXEC PGM=DFHEAP&SUFFIX.,
//         REGION=&REG.
//STEPLIB DD DSN=&INDEX..SDFHLOAD,DISP=SHR
//SYSPRINT DD SYSOUT=&OUTC.
//SYSPUNCH DD DSN=&.&SYSCIN.,
//         DISP=(,PASS),UNIT=&WORK.,
//         DCB=BLKSIZE=400,
//         SPACE=(400,(400,100))
//ASM    EXEC  PGM=ASMA(),
//         PARM='DECK,NOOBJECT,LIST'
//SYSLIB DD   DSN=&INDEX..SDFHMAC,DISP=SHR,
//         DD   DSN=SYS1.MACLIB,DISP=SHR
```

```
//SYSUT1 DD UNIT=&WORK.,SPACE=(1700,(400,400))
//SYSUT2 DD UNIT=&WORK.,SPACE=(1700,(400,400))
//SYSUT3 DD UNIT=&WORK.,SPACE=(1700,(400,400))
//SYSPUNCH DD    DSN=&.&LOADSET.,
//       UNIT=&WORK.,DISP=(,PASS),
//       SPACE=(400,(100,100,1)),
//       DCB=(RECFM=FB,LRECL=80,BLKSIZE=400)
//SYSPRINT DD SYSOUT=&OUTC.
//SYSIN    DD DSN=&.&SYSCIN.,DISP=(OLD,DELETE)
//LKED   EXEC PGM=IEWL,REGION=&REG.,
//       PARM=XREF,COND=(9,LT,ASM)
//SYSLIB DD   DSN=&INDEX..SDFHLOAD,DISP=SHR
//SYSLMOD DD  DSN=&INDEX..SDFHLOAD,DISP=SHR
//SYSUT1 DD   UNIT=&WORK.,DCB=BLKSIZE=1024,
//       SPACE=(1024,(200,20))
//SYSPRINT DD SYSOUT=&OUTC.
//SYSLIN DD   DSN=&INDEX..SDFHLOAD(DFHEILIA),
//            DISP=SHR,DCB=BLKSIZE=80
//       DD   DSN=usershlq.CAB1LOAD(DBCSRPR),DISP=SHR
//       DD   DSN=&.&LOADSET.,DISP=(OLD,DELETE)
//       DD   DDNAME=SYSIN
//       PEND
```

Assembler Example (z/VSE)

```
* $$ JOB JNM=ASSEMBLY,CLASS=x
* $$ LST CLASS=c
// JOB ASSEMBLY
// EXEC      PROC=procname
// LIBDEF    *,CATALOG=lib.sublib
// ASSGN     SYS101,DISK,VOL=vvvvvv,SHR
// DLBL      PUNCH,'SYSIN.FILE',1,SD
// EXTENT    SYS101,vvvvvv,1,0,s,n
* DITTO
// UPSI 1
// EXEC DITTO
$$DITTO CSQ FILEOUT=PUNCH,CISIZE=512,BLKFACTOR=2
*          insert source here
/*
$$DITTO EOJ
/*
* DFHEAP1$
// DLBL      IJSYSPH,'SYSPCH.FILE',1,SD
// EXTENT    SYSPCH,vvvvvv,1,0,s,n
 ASSGN     SYSPCH,DISK,VOL=vvvvvv,SHR
// DLBL      IJSYSIN,'SYSIN.FILE'
// EXTENT    SYSIPT,vvvvvv
 ASSGN     SYSIPT,DISK,VOL=vvvvvv,SHR
// EXEC DFHEAP1$,SIZE=512K
/*
 CLOSE       SYSIPT,READER
 CLOSE       SYSPCH,PUNCH
/*
* COMPILE
// DLBL      IJSYSIN,'SYSPCH.FILE'
// EXTENT    SYSIPT,vvvvvv
 ASSGN     SYSIPT,DISK,VOL=vvvvvv,SHR
// OPTION    NODECK,CATAL
   PHASE   ppppppp,S
   INCLUDE DFHxxx
// EXEC ASSEMBLY,SIZE=350K
/*
 CLOSE       SYSIPT,READER
/*
* LINK-EDIT
/*
// EXEC LNKEDT
/*
/&
* $$ EOJ
```

COBOL Example (z/OS)

```
//DFHEITCL PROC SUFFIX=1$,
//             INDEX='CICSSYS.V321',
//             INDEX2='usershlq.CAB1LOAD',
//             OUTC='*',
//             REG=1024K,
//             WORK=SYSDA
//*
//*      THIS PROCEDURE CONTAINS 3 STEPS
//*      1.   EXEC THE COBOL TRANSLATOR
//*      2.   EXEC THE OS/VS COBOL COMPILER
//*      3.   LINK EDIT THE OUTPUT TO USER LOADLIB
//*
//* NOTE: FOR VS COBOL II USE PROCEDURE DFHEITVL
//*
//*      THE FOLLOWING JCL SHOULD BE USED
//*      TO EXECUTE THIS PROCEDURE
//*
//*      //APPLPROG EXEC DFHEITCL
//*      //TRN.SYSIN  DD *
//*         .
//*         . APPLICATION PROGRAM
//*         .
//*      /*
//*      //LKED.SYSIN DD *
//*         NAME ANYNAME(R)
//*      /*
//*
//*      WHERE ANYNAME IS THE NAME OF YOUR APPLICATION PROGRAM
//*
//*
//TRN     EXEC PGM=DFHECP&SUFFIX.,
//             REGION=&REG.,COND=EVEN
//STEPLIB   DD DSN=&INDEX..SDFHLOAD,DISP=SHR
//SYSPRINT  DD SYSOUT=&OUTC.
//SYSPUNCH  DD DSN=&.&SYSCIN.,
//             DISP=(,PASS),UNIT=&WORK.,
//             DCB=BLKSIZE=400,
//             SPACE=(400,(400,100))
//*
//*
```

```
//COB     EXEC PGM=IGYCRCTL,REGION=&REG.,COND=EVEN,
//        PARM='APOST,DMAP,PMAP'
//SYSLIB    DD DSN=&INDEX..SDFHCOB,DISP=SHR
//          DD DSN=&INDEX..SDFHMAC,DISP=SHR
//SYSPRINT  DD SYSOUT=&OUTC.
//SYSIN     DD DSN=&.&SYSCIN.,DISP=(OLD,DELETE)
//SYSLIN    DD DSN=&.&LOADSET.,DISP=(MOD,PASS),
//             UNIT=&WORK.,SPACE=(80,(250,100))
//SYSUT1    DD UNIT=&WORK.,SPACE=(460,(350,100))
//SYSUT2    DD UNIT=&WORK.,SPACE=(460,(350,100))
//SYSUT3    DD UNIT=&WORK.,SPACE=(460,(350,100))
//SYSUT4    DD UNIT=&WORK.,SPACE=(460,(350,100))
//SYSUT5    DD UNIT=&WORK.,SPACE=(460,(350,100))
//SYSUT6    DD UNIT=&WORK.,SPACE=(460,(350,100))
//SYSUT7    DD UNIT=&WORK.,SPACE=(460,(350,100))
//*
//LKED    EXEC PGM=IEWL,REGION=&REG.,
//             PARM='XREF.LIST,MAP,LET',COND=EVEN
//SYSLIB    DD DSN=&INDEX2.,DISP=SHR
//          DD DSN=&INDEX..SDFHLOAD,DISP=SHR
//          DD DSN=IBMPROD.COB2LIB,DISP=SHR
//          DD DSN=IBMPROD.COB2CICS,DISP=SHR
//SYSUT1    DD UNIT=&WORK.,DCB=BLKSIZE=1024,
//             SPACE=(1024,(200,20))
//SYSPRINT  DD SYSOUT=&OUTC.
//SYSLMOD   DD DSN=USER..LOADLIB,DISP=SHR
//SYSLIN    DD DSN=&INDEX..SDFHCOB(DFHEILIC),DISP=SHR
//          DD DSN=&INDEX2.(DBCSRPR),DISP=SHR
//          DD DSN=&.&LOADSET.,DISP=(OLD,DELETE)
//          DD DDNAME=SYSIN
//       PEND
```

COBOL Example (z/VSE)

```
* $$ JOB JNM=COBOL,CLASS=x                                              DBC00010
* $$ LST CLASS=c                                                        DBC00020
// JOB COBOL                                                            DBC00030
// EXEC      PROC=procname                                              DBC00040
// LIBDEF    *,CATALOG=lib.sublib                                       DBC00050
// ASSGN     SYS101,DISK,VOL=vvvvvv,SHR                                 DBC00060
// DLBL      PUNCH,'SYSIN.FILE',1,SD                                    DBC00070
// EXTENT    SYS101,vvvvvv,1,0,s,n                                      DBC00080
* DITTO                                                                 DBC00090
// UPSI 1                                                               DBC00100
// EXEC DITTO                                                           DBC00110
$$DITTO CSQ FILEOUT=PUNCH,CISIZE=512,BLKFACTOR=2                        DBC00120
*          insert source here                                           DBC00130
/*                                                                      DBC00140
$$DITTO EOJ                                                             DBC00150
/*                                                                      DBC00160
* DFHECP1$                                                              DBC00170
// DLBL      IJSYSPH,'SYSPCH.FILE',1,SD                                 DBC00180
// EXTENT    SYSPCH,vvvvvv,1,0,s,n                                      DBC00190
 ASSGN     SYSPCH,DISK,VOL=vvvvvv,SHR                                   DBC00200
// DLBL      IJSYSIN,'SYSIN.FILE'                                       DBC00210
// EXTENT    SYSIPT,vvvvvv                                              DBC00220
 ASSGN     SYSIPT,DISK,VOL=vvvvvv,SHR                                   DBC00230
// EXEC DFHECP1$,SIZE=512K                                              DBC00240
/*                                                                      DBC00250
 CLOSE       SYSIPT,READER                                              DBC00260
 CLOSE       SYSPCH,PUNCH                                               DBC00270
/*                                                                      DBC00280
* COMPILE                                                               DBC00290
// DLBL      IJSYSIN,'SYSPCH.FILE'                                      DBC00300
// EXTENT    SYSIPT,vvvvvv                                              DBC00310
 ASSGN     SYSIPT,DISK,VOL=vvvvvv,SHR                                   DBC00320
// OPTION    NODECK,CATAL                                               DBC00330
   PHASE   ppppppp,S                                                    DBC00340
   INCLUDE DFHxxx                                                       DBC00350
// EXEC IGYCRCTL,SIZE=IGYCRCTL                                          DBC00360
/*                                                                      DBC00370
 CLOSE       SYSIPT,READER                                              DBC00380
/*                                                                      DBC00390
* LINK-EDIT                                                             DBC00400
/*                                                                      DBC00410
// EXEC LNKEDT                                                          DBC00420
/*                                                                      DBC00430
/&                                                                      DBC00440
* $$ EOJ                                                                DBC00450
```

PL/I Example (z/OS)

```
//DFHEITPL PROC SUFFIX=1$,
//       INDEX='CICSSYS.V321',
//       USER=XXXXX,
//       OUTC='*',
//       REG=512K,
//       WORK=SYSDA
//*
//*      THIS PROCEDURE CONTAINS 3 STEPS
//*      1.   EXEC THE PL/I TRANSLATOR
//*           (USING THE SUPPLIED SUFFIX 1$)
//*      2.   EXEC THE PL/I OPTIMIZER
//*           COMPILER
//*      3.   LKED THE COMPILER OUTPUT TO
//*           USER.LOADLIB
//*
//*      THE FOLLOWING JCL SHOULD BE USED
//*      TO EXECUTE THIS PROCEDURE
//*
//*      //APPLPROG EXEC DFHEITPL
//*      //TRN.SYSIN  DD *
//*         .
//*         . APPLICATION PROGRAM
//*         .
//*      /*
//*      //LKED.SYSIN DD *
//*         NAME ANYNAME(R)
//*      /*
//*
//*      WHERE ANYNAME IS THE NAME OF YOUR APPLICATION PROGRAM
//*
//*
//TRN    EXEC PGM=DFHEPP&SUFFIX.,
//       REGION=&REG.
```

```
//STEPLIB DD DSN=&INDEX..SDFHLOAD,DISP=SHR
//SYSPRINT DD SYSOUT=&OUTC.
//SYSPUNCH DD DSN=&.&SYSCIN.,
//       DISP=(,PASS),UNIT=&WORK.,
//       DCB=BLKSIZE=400,
//       SPACE=(400,(400,100))
//PLI    EXEC PGM=IEL0AA,REGION=&REG.,
//       PARM='OBJECT,NODECK,INCLUDE'
//STEPLIB  DD DSN=SYS1.PL1COMP,DISP=SHR
//SYSLIB   DD DSN=&INDEX..SDFHPL1,DISP=SHR
//SYSPRINT DD SYSOUT=&OUTC.
//SYSIN  DD   DSN=&.&SYSCIN.,
//       DISP=(OLD,DELETE)
//SYSLIN DD   DSN=&.&LOADSET.,UNIT=&WORK.,
//       DISP=(MOD,PASS),
//       SPACE=(80,(250,100))
//SYSUT1 DD   UNIT=&WORK.,DCB=BLKSIZE=1024,
//       SPACE=(1024,(300,60),,CONTIG)
//LKED   EXEC PGM=IEWL,REGION=&REG.,
//       PARM=XREF,COND=(9,LT,PLI)
//SYSLIB DD   DSN=&INDEX..SDFHLOAD,DISP=SHR
//       DD   DSN=SYS1.PLIBASE,DISP=SHR
//SYSLMOD DD  DSN=&USER..LOADLIB,DISP=SHR
//SYSUT1 DD   UNIT=&WORK.,DCB=BLKSIZE=1024,
//       SPACE=(1024,(200,20))
//SYSPRINT DD SYSOUT=&OUTC.
//SYSLIN DD DSN=&INDEX..SDFHPL1(DFHEILIP),
//          DISP=SHR
//       DD DSN=usershlq.CAB1LOAD(DBCSRPR),DISP=SHR
//       DD DSN=&.&LOADSET.,DISP=(OLD,DELETE)
//       DD DDNAME=SYSIN
//       PEND
```

PL/I Example (z/VSE)

```
* $$ JOB JNM=PL1,CLASS=x
* $$ LST CLASS=c
// JOB PL1
// EXEC      PROC=procname
// LIBDEF    *,CATALOG=lib.sublib
// ASSGN     SYS101,DISK,VOL=vvvvvv,SHR
// DLBL      PUNCH,'SYSIN.FILE',1,SD
// EXTENT    SYS101,vvvvvv,1,0,s,n
* DITTO
// UPSI 1
// EXEC DITTO
$$DITTO CSQ FILEOUT=PUNCH,CISIZE=512,BLKFACTOR=2
*          insert source here
/*
$$DITTO EOJ
/*
* DFHEPP1$
// DLBL      IJSYSPH,'SYSPCH.FILE',1,SD
// EXTENT    SYSPCH,vvvvvv,1,0,s,n
 ASSGN     SYSPCH,DISK,VOL=vvvvvv,SHR
// DLBL      IJSYSIN,'SYSIN.FILE'
// EXTENT    SYSIPT,vvvvvv
 ASSGN     SYSIPT,DISK,VOL=vvvvvv,SHR
// EXEC DFHEPP1$,SIZE=512K
/*
 CLOSE       SYSIPT,READER
 CLOSE       SYSPCH,PUNCH
/*
* COMPILE
// UPSI 0
// DLBL      IJSYSIN,'SYSPCH.FILE'
// EXTENT    SYSIPT,vvvvvv
 ASSGN     SYSIPT,DISK,VOL=vvvvvv,SHR
// OPTION    NODECK,CATAL
   PHASE   ppppppp,S
   INCLUDE DFHxxx
// EXEC IEL1AA,SIZE=1024K
/*
 CLOSE       SYSIPT,READER
/*
* LINK-EDIT
/*
// EXEC LNKEDT
/*
/&
* $$ EOJ
```

SQL Precompiler Example (z/OS)

```
//SQLPROC  PROC SUFFIX=1$,
//             INDEX='CICSSYS.V321',
//             INDEX2='usershlq.CABDLOAD',
//             INDEX3='usershlq.CAB1LOAD',
//             OUTC='*',
//             REG=1024K,
//             WORK=SYSDA
//*
//*      THIS PROCEDURE CONTAINS 4 STEPS
//*      1.   EXEC THE SQL PRE-COMPILER
//*      2.   EXEC THE COBOL TRANSLATOR
//*           (USING THE SUPPLIED SUFFIX 1$)
//*      3.   EXEC THE OS/VS COBOL COMPILER
//*      4.   LINK EDIT THE OUTPUT TO USER LOADLIB
//*
//*      THE FOLLOWING JCL SHOULD BE USED
//*      TO EXECUTE THIS PROCEDURE
//*
//*      //APPLPROG EXEC SQLPROC
//*      //SQL.SYSIN  DD *
//*         .
//*         . APPLICATION PROGRAM
//*         .
//*      /*
//*      //LKED.SYSIN DD *
//*         NAME ANYNAME(R)
//*      /*
//*
//*      WHERE ANYNAME IS THE NAME OF YOUR APPLICATION PROGRAM
//*
//SQL   EXEC PGM=DBXMMPR
//STEPLIB DD DSN=&INDEX2.,DISP=SHR
//WORK1 DD DSN=&.&WORK1.,UNIT=SYSDA,DISP=(NEW,PASS),
//      DCB=(RECFM=F,LRECL=80,BLKSIZE=80),SPACE=(TRK,(1,1))
//WORK2 DD DSN=&.&WORK2.,UNIT=SYSDA,DISP=(NEW,PASS),
//      DCB=(RECFM=F,LRECL=80,BLKSIZE=80),SPACE=(TRK,(1,1))
//WORK3 DD DSN=&.&WORK3.,UNIT=SYSDA,DISP=(NEW,PASS),
//      DCB=(RECFM=F,LRECL=80,BLKSIZE=80),SPACE=(TRK,(1,1))
//SYSOUT DD SYSOUT=*
//SYSPRINT DD SYSOUT=*
//SYSPUNCH DD DSN=&.&TEMP.,UNIT=&WORK.,DISP=(,PASS),
//      DCB=(RECFM=FB,LRECL=80,BLKSIZE=800),SPACE=(TRK,(2,1))
```

```
//SYSUDUMP DD SYSOUT=*
//SNAPPER DD SYSOUT=*
//*
//TRN     EXEC PGM=DFHECP&SUFFIX.,
//             REGION=&REG.,COND=EVEN
//STEPLIB   DD DSN=&INDEX..SDFHLOAD,DISP=SHR
//SYSPRINT  DD SYSOUT=&OUTC.
//SYSPUNCH  DD DSN=&.&SYSCIN.,
//             DISP=(,PASS),UNIT=&WORK.,
//             DCB=BLKSIZE=400,
//             SPACE=(400,(400,100))
//SYSIN    DD DSN=&.&TEMP.,UNIT=&WORK.,DISP=(OLD,DELETE,DELETE)
//*
//*
//COB     EXEC PGM=IGYCRCTL,REGION=&REG.,COND=EVEN,
//        PARM='APOST,DMAP,PMAP'
//SYSLIB    DD DSN=&INDEX..SDFHCOB,DISP=SHR
//SYSPRINT  DD SYSOUT=&OUTC.
//SYSIN     DD DSN=&.&SYSCIN.,DISP=(OLD,DELETE)
//SYSLIN    DD DSN=&.&LOADSET.,DISP=(MOD,PASS),
//             UNIT=&WORK.,SPACE=(80,(250,100))
//SYSUT1    DD UNIT=&WORK.,SPACE=(460,(350,100))
//SYSUT2    DD UNIT=&WORK.,SPACE=(460,(350,100))
//SYSUT3    DD UNIT=&WORK.,SPACE=(460,(350,100))
//SYSUT4    DD UNIT=&WORK.,SPACE=(460,(350,100))
//SYSUT5    DD UNIT=&WORK.,SPACE=(460,(350,100))
//SYSUT6    DD UNIT=&WORK.,SPACE=(460,(350,100))
//SYSUT7    DD UNIT=&WORK.,SPACE=(460,(350,100))
//*
//LKED    EXEC PGM=IEWL,REGION=&REG.,
//             PARM='XREF.LIST,MAP,LET',COND=EVEN
//SYSLIB    DD DSN=&INDEX3.,DISP=SHR
//          DD DSN=&INDEX..SDFHLOAD,DISP=SHR
//          DD DSN=IBMPROD.COB2LIB,DISP=SHR
//          DD DSN=IBMPROD.COB2CICS,DISP=SHR
//SYSUT1    DD UNIT=&WORK.,DCB=BLKSIZE=1024,
//             SPACE=(1024,(200,20))
//SYSPRINT  DD SYSOUT=&OUTC.
//SYSLMOD   DD DSN=USER..LOADLIB,DISP=SHR
//SYSLIN    DD DSN=&INDEX..SDFHCOB(DFHEILIC),DISP=SHR
//          DD DSN=&INDEX3.(DBCSRPR),DISP=SHR
//          DD DSN=&INDEX2.(DBXHVPR),DISP=SHR
//          DD DSN=&.&LOADSET.,DISP=(OLD,DELETE)
//          DD DDNAME=SYSIN
//          PEND
```

SQL Precompiler Example (z/VSE)

```
* $$ JOB JNM=SQL,CLASS=x
* $$ LST CLASS=c
// JOB SQL
// EXEC      PROC=procname
// LIBDEF    *,CATALOG=lib.sublib
* DBXMMPR
// OPTION    DECK,NOXREF,DUMP,LOG
// DLBL      PUNCH,'SYSIN.FILE',1,SD
// EXTENT    SYS101,vvvvvv,1,0,s,n
 ASSGN     SYSPCH,DISK,VOL=vvvvvv,SHR
// EXEC DBXMMPR,SIZE=768K
*          insert source here
/*
 CLOSE       SYSPCH,PUNCH
* DFHECP1$
// DLBL      IJSYSPH,'SYSPCH.FILE',1,SD
// EXTENT    SYSPCH,vvvvvv,1,0,s,n
 ASSGN     SYSPCH,DISK,VOL=vvvvvv,SHR
// DLBL      IJSYSIN,'SYSIN.FILE'
// EXTENT    SYSIPT,vvvvvv
 ASSGN     SYSIPT,DISK,VOL=vvvvvv,SHR
// EXEC DFHECP1$,SIZE=512K
/*
 CLOSE       SYSIPT,READER
 CLOSE       SYSPCH,PUNCH
/*
* COMPILE
// DLBL      IJSYSIN,'SYSPCH.FILE'
// EXTENT    SYSIPT,vvvvvv
 ASSGN     SYSIPT,DISK,VOL=vvvvvv,SHR
// OPTION    NODECK,CATAL
   PHASE   ppppppp,S
   INCLUDE DFHxxx
   INCLUDE DBCSVPR
   INCLUDE DBXHVPR
// EXEC IGYCRCTL,SIZE=IGYCRCTL
/*
 CLOSE       SYSIPT,READER
/*
* LINK-EDIT
/*
// EXEC LNKEDT
/*
/&
* $$ EOJ
```

Appendix B: CICS Trace Table Entries

When an application program abends, a CICS transaction dump is produced. This dump contains Trace Table entries which may aid you in determining the source of the abend. The CA Datacom CICS Services issues a USER TRACE entry for each user entering or exiting CA Datacom CICS Services.

An abend between the issue of the USER 186 TRACE and the USER 188 TRACE indicates a CA Datacom CICS Services problem unless the CICS ABCODE is USER. Also, these entries can be written to the CICS Auxiliary File (even if there is no dump involved) when (or while) the CICS AUXTRACE is set ON.

Note: Verify that both the SIT parameter value AUXTR=ON (or that it has been turned on using a CEMT transaction) and the DBCVTPR parameter TRACE=ON are specified, or the USER 186/188 TRACE entries are suppressed.

For information about the USER 186/188 TRACE entry layout, see USER 186/188 TRACE Entry Layout (see page 413), and for a sample report, see Example Report (see page 414).

USER 186/188 TRACE Entry Layout

The layout for the USER 186/188 TRACE entries follows:

Columns	Function	Description
Bytes 1-4	Trace type	186. For USER 186 before call to CA Datacom/DB, or 188. For USER 188 after call to CA Datacom/DB.
Bytes 5-22	Request Area	First 18 bytes of the Request Area (command-5, table-3, keyname-5, return code-2, internal return code-1B, DBID-2B). Internal Return Code and DBID can only be seen in a Level 2 trace entry and are valid only on USER 188.
Bytes 23,24	URT#	The URT number in binary valid only on U188 and can only be seen in a Level 2 trace entry.
Bytes 37-47	Monitor	CA Datacom/DB monitor info (TRANID-4, TERMID-4, OPID-3).
Bytes 49-56	MUFNAME	This is only valid on U188 entry and is the CA Datacom/DB job name.
Bytes 65-68	TASKID	TASKID-4P can only be seen in Level 2 trace entry.
Bytes 81-88	DATE/TIME	The date and time of the trace entry, 4 bytes each packed (OCYYDDD+,OHHMMSS+)

Example Report

Examples of the USER 186/188 TRACE entries are shown in the following sample report. The example shows one CA Datacom/DB request call to the CA Datacom CICS Services from the start of the request to the return of the request in Level 1 tracing. The bottom part of the example is the Level 2 tracing for the USER 186 and the USER 188 for this same request.

```
05227 QR    AP 2520 ERM   ENTRY ASSEMBLER-APPLICATION-CALL-TO-TRUE(DBNTRY  )                                                =
05227 L805K SM 0C01 SMMG  ENTRY GETMAIN               A90,YES,00,TASK                                                       =
05227 L805K SM 0C02 SMMG  EXIT  GETMAIN/OK            37920EE8                                                              =
05227 L805K AP 00E1 EIP   ENTRY ASSIGN                                            0004,37920EF8 .k.8,08000208 ....          =
05227 L805K IS 0200 ISIS  ENTRY INQUIRE_FACILITY                                                                            =
05227 L805K IS 0201 ISIS  EXIT  INQUIRE_FACILITY/EXCEPTION FACILITY_NOT_ISSESSION,                                          =
05227 L805K AP 00E1 EIP   EXIT  ASSIGN                INVREQ                      00F4,00000005 ....,00100208 ....          =
05227 L805K AP 00E1 EIP   ENTRY ASKTIME-ABSTIME                                   0004,37920EF8 .k.8,08004A02 ..¢.          =
05227 L805K AP 00E1 EIP   EXIT  ASKTIME-ABSTIME       OK                          00F4,00000000 ....,00004A02 ..¢.          =
05227 L805K AP 00E1 EIP   ENTRY ENTER-TRACENUM                                    0004,37920EF8 .k.8,08004802 ....          =
05227 L805K AP 00BA USER  EVENT APPLICATION-PROGRAM-ENTRY DCCTPPR 186.REDLEPMFSTZIP .......0.CA##DCOMDBACU019 .DBDVM5       =
05227 L805K AP 00E1 EIP   EXIT  ENTER-TRACENUM        OK                          00F4,00000000 ....,00004802 ....          =
05227 L805K AP 00E1 EIP   ENTRY ENQ                                               0004,37920EF8 .k.8,08001204 ....          =
05227 L805K NQ 0301 NQED  ENTRY ENQUEUE               3647FB00,37920F64 , 00000004,./{.                                     =
05227 L805K NQ 0302 NQED  EXIT  ENQUEUE/OK                                                                                  =
CICS - AUXILIARY TRACE FROM 09/15/11 - APPLID A11ICZDS - TIME OF FIRST ENTRY ON THIS PAGE 15:28:02.1807940598             PAG

05227 L805K AP 00E1 EIP   EXIT  ENQ                   OK                          00F4,00000000 ....,00001204 ....          =
05227 L805K AP 00E1 EIP   ENTRY DEQ                                               0004,37920EF8 .k.8,08001206 ....          =
05227 L805K NQ 0301 NQED  ENTRY DEQUEUE               3647FB00,37920F64 , 00000004,./{.                                     =
05227 L805K NQ 0302 NQED  EXIT  DEQUEUE/OK                                                                                  =
05227 L805K AP 00E1 EIP   EXIT  DEQ                   OK                          00F4,00000000 ....,00001206 ....          =
05227 L805K AP 00E1 EIP   ENTRY WAIT-EXTERNAL                                     0004,37920EF8 .k.8,08005E22 ..;.          =
05227 L805K DS 0004 DSSR  ENTRY WAIT_MVS              375D3C44,NO,MISC                                                      =
05227 L805K DS 0005 DSSR  EXIT  WAIT_MVS/OK                                                                                 =
05227 L805K AP 00E1 EIP   EXIT  WAIT-EXTERNAL         OK                          00F4,00000000 ....,00005E22 ..;.          =
05227 L805K AP 00E1 EIP   ENTRY WRITEQ-TD                                         0004,37920EF8 .k.8,08000802 ....          =
05227 QR    DD 0301 DDLO  ENTRY LOCATE                364FAF80,364E2B47,DCTE,DCAX                                           =
05227 QR    DD 0302 DDLO  EXIT  LOCATE/OK             377E0B70 , C4C3E3C5                                                   =
05227 QR    AP F600 TDA   ENTRY WRITE_TRANSIENT_DATA  DCAX,375D36F0 , 00000001,YES                                          =
05227 QR    DD 0301 DDLO  ENTRY LOCATE                364FAF80,0004D368,DCTE,DCAX                                           =
05227 QR    DD 0302 DDLO  EXIT  LOCATE/OK             377E0B70 , C4C3E3C5                                                   =
05227 QR    AP F601 TDA   EXIT  WRITE_TRANSIENT_DATA/OK                                                                     =
05227 L805K AP 00E1 EIP   EXIT  WRITEQ-TD             OK                          00F4,00000000 ....,00000802 ....          =
05227 L805K AP 00E1 EIP   ENTRY ENTER-TRACENUM                                    0004,37920EF8 .k.8,08004802 ....          =
05227 L805K AP 00BC USER  EVENT APPLICATION-PROGRAM-ENTRY DCCTPPR 188.REDLEPMFSTZIP ........CA##DCOMDBACU019 .DBDVM5        =
05227 L805K AP 00E1 EIP   EXIT  ENTER-TRACENUM        OK                          00F4,00000000 ....,00004802 ....          =
05227 L805K AP 00E1 EIP   ENTRY ENQ                                               0004,37920EF8 .k.8,08001204 ....          =
05227 L805K NQ 0301 NQED  ENTRY ENQUEUE               3647FB00,37920F64 , 00000004,./{.                                     =
05227 L805K NQ 0302 NQED  EXIT  ENQUEUE/OK                                                                                  =
05227 L805K AP 00E1 EIP   EXIT  ENQ                   OK                          00F4,00000000 ....,00001204 ....          =
05227 L805K AP 00E1 EIP   ENTRY DEQ                                               0004,37920EF8 .k.8,08001206 ....          =
05227 L805K NQ 0301 NQED  ENTRY DEQUEUE               3647FB00,37920F64 , 00000004,./{.                                     =
05227 L805K NQ 0302 NQED  EXIT  DEQUEUE/OK                                                                                  =
05227 L805K AP 00E1 EIP   EXIT  DEQ                   OK                          00F4,00000000 ....,00001206 ....          =
05227 L805K SM 0D01 SMMF  ENTRY FREEMAIN              37920EE8                                                              =
05227 L805K SM 0D02 SMMF  EXIT  FREEMAIN/OK           USER storage at 37920EE8                                              =
05227 QR    AP 2521 ERM   EXIT  ASSEMBLER-APPLICATION-CALL-TO-TRUE(DBNTRY  )                                                =
AP 00BA USER  EVENT - APPLICATION-PROGRAM-ENTRY - DCCTPPR  - 186.REDLEPMFSTZIP  .......0.CA##DCOMDBACU019   .DBDVM5

              TASK-05227 KE_NUM-00BB TCB-L805K/007510F8 RET-80082A6C TIME-15:28:02.1807886848 INTERVAL-00.0000003750        =
                1-0000  E4E2C5D9 404040                                                        *USER
                2-0000  F1F8F600 D9C5C4D3 C5D7D4C6 E2E3E9C9  D7404000 00010000 0048F000 C3C17B7B  *186.REDLEPMFSTZIP  .......
                  0020  C4C3D6D4 C4C2C1C3 E4F0F1F9 40404000  C4C2C4E5 D4F54040 40404040 40404040  *DCOMDBACU019   .DBDVM5
                  0040  0005227C 379206AF 00000000 D5FF0000  0111258F 0152802F C86102A2 4CA76975  *...@.k......N..........H/
                  0060  00352508 9282180C                                                        *....kb..
                3-0000  C4C3C3E3 D7D7D940                                                        *DCCTPPR


AP 00BC USER  EVENT - APPLICATION-PROGRAM-ENTRY - DCCTPPR  - 188.REDLEPMFSTZIP   ........CA##DCOMDBACU019   .DBDVM5

              TASK-05227 KE_NUM-00BB TCB-L805K/007510F8 RET-80082A6C TIME-15:28:02.1808896342 INTERVAL-00.0000006250        =
                1-0000  E4E2C5D9 404040                                                        *USER
                2-0000  F1F8F800 D9C5C4D3 C5D7D4C6 E2E3E9C9  D7404040 00010001 02480000 C3C17B7B  *188.REDLEPMFSTZIP   ......
                  0020  C4C3D6D4 C4C2C1C3 E4F0F1F9 40404000  C4C2C4E5 D4F54040 40404040 40404040  *DCOMDBACU019   .DBDVM5
                  0040  0005227C 379206AF 00000000 D5FF0000  0111258F 0152802F 00000000 00000000  *...@.k......N.............
                  0060  00000000 00000000                                                        *........
                3-0000  C4C3C3E3 D7D7D940                                                        *DCCTPPR
```

Appendix C: Additional Monitoring and Debugging Tools

The following information about the Auxiliary Trace Facility can prove useful in some troubleshooting situations.

Auxiliary Trace Facility

The CA Datacom Trace Facility enables you to monitor all or selected events in your CICS CA Datacom environment. The same type of information you can view by issuing a DBOC/DBIC TASK transaction is collected in the CA Datacom/DB Trace Table. The DBOC/DBIC TASK transaction only displays the task or tasks that are active at the moment you request the report.

The Trace Facility provides history data for the last specified number of events. The number of events for which the data is maintained in the CA Datacom/DB Trace Table can be modified in the TRACE= parameter of the DBCVTPR macro.

The procedure for using the Trace Facility includes the following steps:

1. Display the current system generation options for the trace parameters using either a DBIC or DBOC transaction to check the AUXTRACE= and the TRACE= parameters of the DBCVTPR macro. See INQ=GENOPTS: Displaying System Generation Options (see page 78), and see the DBCVTPR in the *CA Datacom CICS Services System Reference Guide*.
2. See the sample installation JCL in the *CA Datacom CICS Services Installation Guide*. If the CA Datacom/DB Trace Facility was not set up at CA Datacom CICS Services installation, see the information about allocating DBOC Log Areas and Auxiliary Trace Data Sets in the *CA Datacom CICS Services Installation Guide*.
3. Display a list of the current trace criteria using either a DBIC or DBOC transaction. See TRACE: Displaying Trace Criteria List (see page 100).
4. Establish or revise the trace criteria. See Adding/Deleting Trace Criteria (see page 172).
5. Establish the trace list relationships with AND/OR Boolean qualifiers. See Establishing Trace Criteria Relationship (see page 175).
6. If the Trace Facility is not automatically started at CA Datacom CICS Services startup, turn it on. See Initiating/Terminating the Trace Facility (TRACEON/TRACEOFF) (see page 176).

7. Display the Trace Table using either a DBIC or a DBOC transaction. See INQ=TRACE: Displaying the Trace Table (see page 91).
8. Turn the Trace Facility off. See Initiating/Terminating the Trace Facility (TRACEON/TRACEOFF (see page 176)).
9. Print the Trace Table. See the information about using the AUXTRACE Utility in the *System Reference Guide*.

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6. If the Trace Facility is not automatically started at CA Datacom CICS Services startup, turn it on. See Initiating/Terminating the Trace Facility (TRACEON/TRACEOFF) (see page 176).

7. Display the Trace Table using either a DBIC or a DBOC transaction. See INQ=TRACE: Displaying the Trace Table (see page 91).

8. Turn the Trace Facility off. See Initiating/Terminating the Trace Facility (TRACEON/TRACEOFF (see page 176)).

9. Print the Trace Table. See the information about using the AUXTRACE Utility in the *System Reference Guide*.

Appendix D: Logging (LXX) Considerations and Differences

For applications that update only one CA Datacom/DB MUF and do not access any other resource managers such as VSAM, DB2, and so on, with regard to logging considerations there is no effective difference between Version 14.0 and the previous releases of CA Datacom CICS Services. But a CICS SYNCPOINT is substituted for the original LOG command. This in turn generates a LOG command to CA Datacom/DB. However, it is slightly different beginning in Version 14.0 for transactions and applications that update multiple resources such as a second CA Datacom/DB MUF, using the Log Area (LXX) for logging, because of the use of two-phase commit. Doing updates on two CA Datacom/DB MUFs or on one MUF and another resource such as VSAM or DB2, means using multiple resource managers. Therefore, the potential exists for two physical I/Os to the LXX instead of one. That is, one I/O is for the Prepare phase and one I/O is for the Commit phase. In CA Datacom CICS Services r2.6, there was only one physical I/O to the LXX, even for a two-phase commit. In CA Datacom/DB 11.0 and higher, true two-phase commit protocol was introduced which means two physical I/Os. The number of two-phase commits has been increased beginning in Version 14.0 by converting simple user log commands to SYNCPOINTs.

You should therefore consider possible performance overhead in writing more I/Os to the LXX. There may be a slight size increase required for the extra LXX records as well. Also, user issued log commands will generally produce more LXX I/Os than in releases prior to 14.0. For more information, see CICS Emergency Restart Environmental Considerations.

Appendix E: URT Connections Table

These three tables show the relationships of the URTs to DBCSID types. They also show the behavior of the OPENs/CLOSEs and CONNECTs/DISCONNECTs.

This section contains the following topics:

Table 1

Table 1

For this table, assume that all URTs are UNOPENED, and all CONNECTIONs are unconnected. Also assume the transaction is *not* a DBOC/DBEC OPEN URT. An application request (implicit OPEN) then drives the OPENs/CONNECTs in the following manner:

	PLT CONNECT	AUTO CONNECT	DEFER CONNECT
PLT URT	drive a CONNECT drive an OPEN URT	drive a CONNECT drive an OPEN URT	would not CONNECT would not OPEN URT
AUTO URT	drive a CONNECT drive an OPEN URT	drive a CONNECT drive an OPEN URT	would not CONNECT would not OPEN URT
DEFER URT	would not CONNECT would not OPEN URT	would not CONNECT would not OPEN URT	would not CONNECT would not OPEN URT

Note: All implicit CONNECTs drive OPENs for all PLT URTs for that specific CONNECTION.

Table 2

Table 2

For the following table, assume that all URTs are UNOPENED and, all CONNECTIONs are unconnected. If the transaction is then an explicit OPEN URT (DBOC/DBEC), it drives the OPENs/CONNECTs in the following manner:

	PLT CONNECT	**AUTO CONNECT**	**DEFER CONNECT**
PLT URT	drive a CONNECT drive an OPEN URT	drive a CONNECT drive an OPEN URT	would not CONNECT would not OPEN URT
AUTO URT	drive a CONNECT drive an OPEN URT	drive a CONNECT drive an OPEN URT	would not CONNECT would not OPEN URT
DEFER URT	drive a CONNECT drive an OPEN URT	drive a CONNECT drive an OPEN URT	would not CONNECT would not OPEN URT

Note: All explicit CONNECTs (DBEC/DBOC) *do not* drive OPENs for any PLT URTs for that specific CONNECTION.

Table 3

Table 3

For the following table, assume that the DBOC STARTUP has already run, all PLT-type CONNECTIONs are CONNECTED, and all PLT-type URTs are OPENED. The following table then displays the status after a successful STARTUP. It also indicates the actions required to OPEN the URTs that are still UNOPENED:

	PLT CONNECT	**AUTO CONNECT**	**DEFER CONNECT**
PLT URT	already CONNECTED already OPENED URT	already CONNECTED already OPENED URT	would not CONNECT explicit OPEN would not OPEN implicit OPEN would not OPEN requires explicit CONNECT followed by an implicit or explicit OPEN URT

	PLT CONNECT	AUTO CONNECT	DEFER CONNECT
AUTO URT	already CONNECTED would not OPEN URT requires implicit or explicit OPEN URT	would not CONNECT would not OPEN URT requires implicit or explicit OPEN URT	would not CONNECT explicit OPEN would not OPEN implicit OPEN would not OPEN requires explicit CONNECT followed by an implicit or explicit OPEN URT
DEFER URT	already CONNECTED requires explicit OPEN URT	would not CONNECT would not OPEN URT requires explicit CONNECT followed by an implicit or explicit OPEN URT	would not CONNECT explicit OPEN would not OPEN implicit OPEN would not OPEN requires explicit CONNECT followed by explicit OPEN URT

Appendix F: User Issued Log Commands

The following CA Datacom/DB log commands require special consideration.

- COMIT
- LOGCP
- LOGCR
- LOGDR
- LOGDW
- LOGIT
- LOGLB
- LOGTB
- ROLBK

This section contains the following topics:

Spawning

There is no spawning in CA Datacom/DB Version 14.0 and CA Datacom CICS Services Version 14.0. Whenever possible, applications should avoid issuing the CA Datacom/DB log commands. Instead, use the appropriate EXEC CICS SYNCPOINT or EXEC CICS SYNCPOINT ROLLBACK. This recommendation is based on keeping all the resources of the transaction in synchronization with each other.

Checkpointing

Starting in CA Datacom CICS Services Version 14.0, all user issued CA Datacom/DB log commands that checkpoint user data (COMIT, ROLBK, LOGCP, LOGCR, and LOGTB) are replaced with a CICS SYNCPOINT or CICS SYNCPOINT ROLLBACK. This is needed to help ensure data integrity between resource managers within a single transaction. There are no exceptions.

Mixed Releases

Applications issuing LOGCP, LOGCR, COMIT, ROLBK, or LOGTB cannot run with mixed releases of CA Datacom/DB MUF Version 12.0 and Version 14.0 in the same CICS. This is another reason for using CICS SYNCPOINT.

Note: You can run with mixed releases of CA Datacom/DB Version 12.0 and Version 14.0 in a CICS system. If you are running CA Datacom CICS Services with any DB 14.0 MUFs, the first CA Datacom/DB library in the DFHRPL must be the CA Datacom/DB 14.0 libraries.

Not Replaced

LOGIT, LOGLB, LOGDR, and LOGDW do not checkpoint user data, therefore they are not replaced with a CICS SYNCPOINT.

Exclusive CA Datacom/DB Applications

For exclusive CA Datacom/DB applications that have no other user data resource managers, there is no effective change, but CA Datacom CICS Services Version 14.0 issues a SYNCPOINT(ROLLBACK) instead. In some cases where no locks or updates occurred, then no internal log command is issued to CA Datacom/DB. But for those applications where there are additional user data resource managers involved, a SYNCPOINT or SYNCPOINT ROLLBACK occurs against all resources, not just against CA Datacom/DB. In previous releases only CA Datacom/DB would be affected by the user log command. Therefore, an application issuing a user log command in CA Datacom CICS Services Version 14.0 results in SYNCPOINT of all other data resources involved in this transaction including DB2 and VSAM.

Migration

Careful consideration must be made before migrating a production environment from r11 to Version 14.0 that contains user issued log commands.

Primary and Secondary Exclusive Control

The LOGCP command allows primary exclusive control to cross a SYNCPOINT boundary.

Primary exclusive control is requested with a command that acts as a prerequisite for the UPDAT and DELET commands, such as RDUKX or SELFR with UPDATE-INTENT=Y. Primary exclusive control is dropped when the record is updated or deleted or released with the RELES or RELFL commands.

Secondary exclusive control is the enqueuing of logical records that takes place when a transaction backout task issues a maintenance request, such as add, update or delete. When a transaction backout batch job or online task updates rows, these rows are not available to any other task until the batch job or online task has finished or has taken a checkpoint. In general, if another task issues an update read for a row updated by this batch job or online task, then that task must wait for the batch job or online task to complete or checkpoint. This means an online processor may have to wait for a batch job to finish.

Command Processing

CA Datacom CICS Services Version 14.0 still supports legacy applications issuing user log commands LOGCP, LOGCR, and LOGTB. Version 14.0 still issues the SYNCPOINT or SYNCPOINT ROLLBACK, but preserves the log command's original intent. The following is a detailed explanation for each user issued log command.

CA Datacom CICS Services can support connections to several different CA Datacom/DB MUFs in the same CICS. The desired connections are described by listing the SIDs that point to the various CA Datacom/DB MUFs and are compiled in the DBCVTPR assembly. The first one in the list is known as MUF01 and is the default CA Datacom/DB MUF.

In this section all nine user-issued log commands are listed, however LOGCP and LOGCR each have two sections, one with a meaningful work area and one without a meaningful work area. View the one which is applicable to your application.

Each command section contains the following:

- Connection conditions
- Required connections
- Action taken
- Return code conditions and what happens
- Variations based on number of resource managers involved
- Whether threads are locked

- Whether exclusive control is retained

This section does not describe what the commands mean. For command meanings, see the CA Datacom/DB manuals.

COMIT

COMIT is replaced with an EXEC CICS SYNCPOINT. If there are any errors during the SYNCPOINT, this info is passed back in the DB RC of the user's application request area, and a backout occurs. Except the backout cannot occur if the error occurred during Phase 2. In this case, the records are to be committed.

When no updates have occurred and no records are locked for update, SYNCPOINT is still issued but no internal log request is sent to the CA Datacom/DB MUF.

If at the time the application issues the user COMIT request, there are update requests on multiple resource managers, then CICS SYSNCPOINT invokes a two-phase commit. If threads are locked, both the CA Datacom/DB thread and the corresponding CA Datacom CICS Services thread are released. All record locks are released.

LOGCP Replaced

LOGCP with a work area of 8 bytes of low-values or 8 blanks, is replaced with an EXEC CICS SYNCPOINT. However, the primary locks with primary exclusive control, remain in effect after the SYNCPOINT, just as in previous releases without the SYNCPOINT.

If there are any errors during the SYNCPOINT, this info is passed back in the DB RC of the user's application request area and a backout occurs.

If no updates have occurred and there are no record locks, then the SYNCPOINT is still issued but no internal log request is sent to CA Datacom/DB MUF.

If there are update type requests on multiple resource managers at the time the application issues the user LOGCP request with a work area of binary zeros or blanks, then CICS SYSNCPOINT results in a two-phase commit.

The CA Datacom/DB threads and the corresponding CA Datacom CICS Services threads are not released for a LOGCP request that has a work area of binary zeros or blanks if there are any primary exclusive controls in effect at the time of the request. Otherwise, the threads are released on any locked thread connections to a CA Datacom/DB MUF where all primary exclusive control associated with this task on this MUF has been dropped due to updates or releases.

LOGCP as a Reference Point

LOGCP with a work area other than 8 bytes of low-values or 8 blanks is a forward-looking command. Therefore it is a reference point command and the default CA Datacom/DB MUF must be involved in the SYNCPOINT. Likewise as in the case of the LOGIT or LOGLB, if the default CA Datacom/DB MUF is not connected, a DB RC 36 is returned to the application without issuing the SYNCPOINT even if there are other CA Datacom/DB MUFs connected. The primary exclusive control locks remain in effect after the SYNCPOINT, just as in previous releases without the SYNCPOINT.

If no updates and no record locks for update have occurred, then the SYNCPOINT is still issued and an internal log request is sent to the default CA Datacom/DB MUF.

If any resource other than the default CA Datacom/DB MUF (MUF01) had record updates or locks this automatically becomes a two-phase commit, even if there were no record locks or updates on the default CA Datacom/DB. This includes a non-default CA Datacom/DB, DB2, or other database.

CA Datacom/DB and CA Datacom CICS Service threads remain locked after the SYNCPOINT. They are not released, but all updated record locks and secondary exclusive controls are released. The CA Datacom CICS Services and CA Datacom/DB threads are not released until after a future SYNCPOINT, task termination, or task ABEND.

LOGCR as a COMIT

LOGCR with a work area of 8 bytes of low-values or 8 blanks, is treated like a COMIT. It is replaced with an EXEC CICS SYNCPOINT. If there are any errors during the SYNCPOINT, this info is passed back in the DB RC of the user's application request area and a backout occurs.

If no updates have occurred and no records are locked for update, the SYNCPOINT is still issued but no internal log request is sent to the CA Datacom/DB MUF.

If there are update requests on multiple resource managers at the time the application issues the user LOGCR request with a work area of binary zeros or blanks, then the CICS SYSNCPOINT results in a two-phase commit.

Any existing CA Datacom/DB threads and the corresponding CA Datacom CICS Services threads are released for a LOGCR request with a work area of binary zeros or blanks. All record locks are also released.

LOGCR as a Reference Point

LOGCR with a work area other than 8 bytes of low-values or 8 blanks is a forward-looking command and therefore is a reference point command. The default CA Datacom/DB MUF must be involved in the SYNCPOINT that is issued on behalf of this type of LOGCR. Likewise as in the case of LOGIT and LOGLB, if the default CA Datacom/DB MUF is not connected, a DB RC 36 is returned to the application without issuing the SYNCPOINT, even if there are other CA Datacom/DB MUFs connected to this CICS.

If there are any errors during the SYNCPOINT, this info is passed back in the DB RC of the user's application request area and a backout occurs releasing all associated threads.

If no updates or record locks for updates have occurred, then the SYNCPOINT is still issued with an internal log command against the default to CA Datacom/DB MUF.

If any resource other than the default CA Datacom/DB MUF (MUF01) had record updates or locks, this automatically becomes a two-phase commit even if there were no record locks or updates on the default CA Datacom/DB. This includes a non-default CA Datacom/DB, DB2, or other database.

CA Datacom/DB and CA Datacom CICS Services threads remain locked after the SYNCPOINT. They are not released for other CICS transactions. All data record locks are released.

LOGDW and LOGDR

LOGDW and LOGDR call DCCTFPR to determine which CA Datacom/DB MUF is used based on DBID. This is just as in previous releases of CA Datacom CICS Services.

LOGDW and LOGDR are not replaced with SYNCPOINT. They are issued without alteration.

LOGDW and LOGDR cause a thread to be locked after the request until a future CICS SYNCPOINT, task termination, or ABEND occurs.

LOGIT and LOGLB

The LOGIT and LOGLB commands request reference-points. These commands are issued only against the default CA Datacom/DB MUF known as MUF01. If the default CA Datacom/DB MUF is not connected, then the user application receives a DB RC (return code) 36 regardless of other CA Datacom/DB MUFs connected to this CICS.

The default CA Datacom/DB MUF must be connected for LOGIT or LOGLB to be successful. Thus the user knows where to find all reference points for all transactions in that CICS. The LOGIT or LOGLB causes a lock of both a CA Datacom/DB thread and a CA Datacom CICS Services thread.

If there is not a thread already locked for this task from the default CA Datacom/DB MUF, it must now acquire one. This thread remains locked until a future SYNCPOINT, task termination, or task ABEND occurs causing the thread to be released.

LOGTB

LOGTB is replaced with an EXEC CICS SYNCPOINT ROLLBACK but the CA Datacom/DB MUF retains the same TSN (Transaction Sequence Number) that existed before the SYNCPOINT ROLLBACK. All record locks are released but the CA Datacom/DB threads and the CA Datacom CICS Services threads are locked if a TSN had been created. Any return code error during the SYNCPOINT ROLLBACK is eventually backed out.

ROLBK

ROLBK is replaced with EXEC CICS SYNCPOINT ROLLBACK. There are no known error conditions on backout. All errors are eventually backed out. However, there are setup conditions that must be met for backout to occur, such as DTB and CA Datacom/DB logging parameters. Otherwise the ROLBK result is a commit of the data rather than a backout of the data.

All threads locked by this CICS transaction or task are released. All record locks are released.