

# **Dynamic transaction routing**

**with  
DTROUT-master  
and  
DTROUT-agents**

**a  
Solution description**

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Version 3.2.2

15. Juli 2005

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## General Information

### **What for**

Dynamic transaction routing as understood in this document, allows access to different AORs from one single TOR - connected to the same database(s). It also means that from one single TOR different groups of AORs – connected to different group of databases – can be accessed.

Routing the users to different AORs has the following benefits:

- Dynamic transaction routing based on the availability of CICS systems
- Dynamic transaction routing based on current status of your definitions
- Dynamic transaction routing based on the actual load of each CICS
- Dynamic transaction routing based on the weight of different transactions
- Forward oriented load balancing
- Dynamic transaction routing based on the weightfactors for different CICS systems
- Monitoring the routing activities

All decisions will be made at the time the transaction is invoked.

### **Load balancing by weight**

To control the routed load on any AOR, each transaction is weighted by a installation defined value. The weight is added to the specific AOR load when a transaction is started at the end of this transaction the AOR load is reduced by the same value.

### **Foreward oriented load balancing**

By adding the weight at starttime of a transaction, the DTROUT-master has the advantage of calculating in advance the weight until a heavy weighted transactions ends, especially helpful for handling heavy and resource consuming transactions. Other transactions will bypass this DTROUT-agent during the execution time of this heavy weighted transaction.

### **CICS availability**

Each AOR tells the DTROUT-master in the TOR when it is started and ready for processing. When terminating the AOR the DTROUT-master is informed, that this AOR, the DTROUT-agent, is no longer available for routing purpose.

Any defined connection from the DTROUT-master to its agent can be modified manually, so a connection can be set to NotAvailable or STOPPED. If set to NotAvailable, it can be set to Available manually or automatically during the next start of the DTROUT-agent. If the connection has been STOPPED, the connection must be reset manually.

### **Dealing with affinities**

To prevent the handling users/transactions with affinities, a user will be routed to the same AOR during the whole day or until he invokes the DTROUT exit transaction, which tells the DTROUT-master, that this user is again ready to deal with the load balance functions.

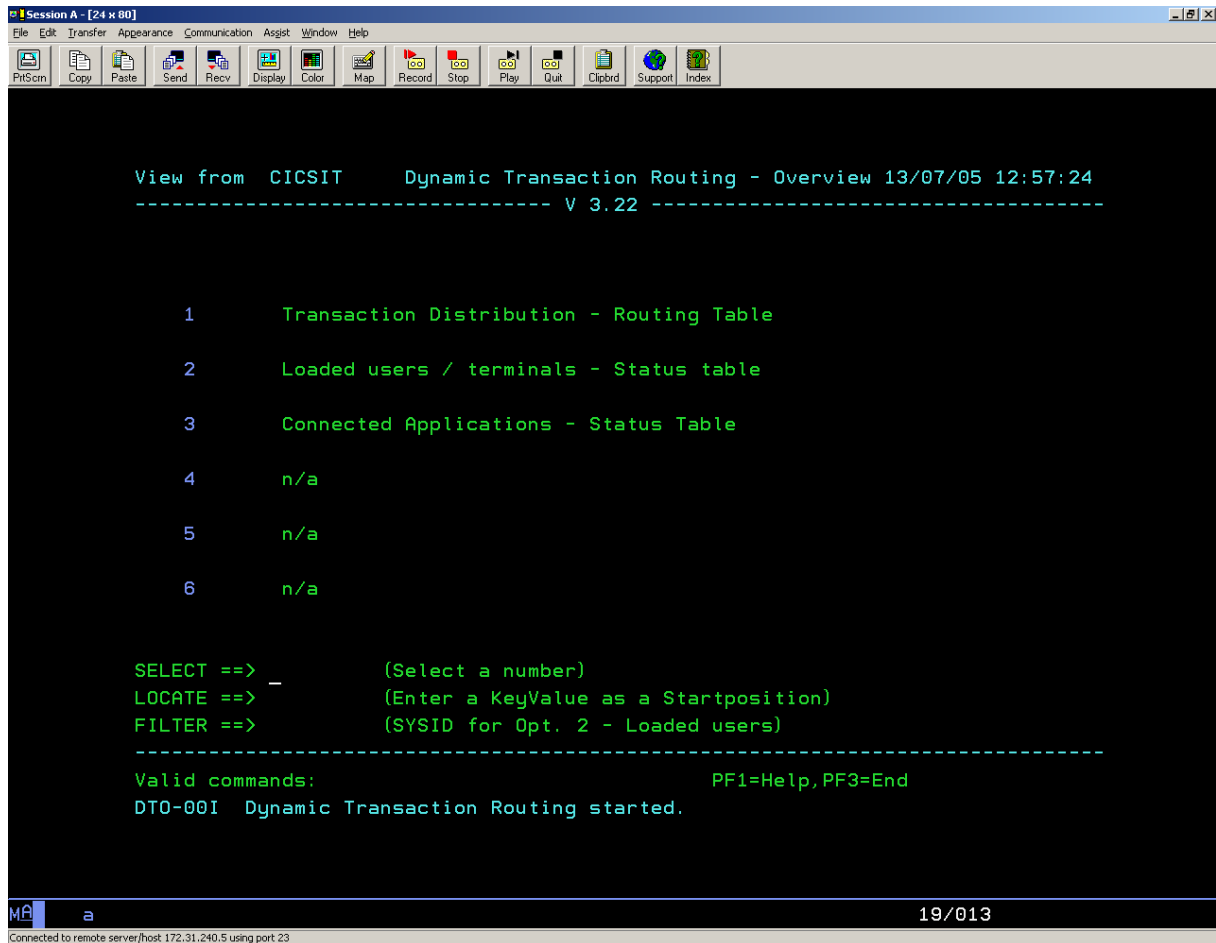
### **Routing over transaction boundaries**

At the start of the first handled transaction, the DTROUT-master assigns a AOR to which all following transactions will be routed

- the DTROUT-exit transaction (DTRQ) is invoked by the user, or
- the DTROUT-exit code is invoked by an application program (see DTRQSAM1), or
- the DTROUT-master is started the next day, or
- the DTROUT-administrator intervenes manually

## Administrator interface

A userfriendly online interface allows the administrator to control all the activities of DTROUT-master and to modify different parms.



```
Session A - [24 x 80]
File Edit Transfer Appearance Communication Assgnt Window Help
PrintScrn Copy Paste Send Recv Display Color Map Record Stop Play Quit Clipbrd Support Index

View from CICSIT      Dynamic Transaction Routing - Overview 13/07/05 12:57:24
----- V 3.22 -----

1      Transaction Distribution - Routing Table
2      Loaded users / terminals - Status table
3      Connected Applications - Status Table
4      n/a
5      n/a
6      n/a

SELECT ==> _          (Select a number)
LOCATE ==>            (Enter a KeyValue as a Startposition)
FILTER ==>           (SYSID for Opt. 2 - Loaded users)
-----
Valid commands:                                PF1=Help,PF3=End
DT0-00I Dynamic Transaction Routing started.

MA a 19/013
Connected to remote server/host:172.31.240.5 using port 23
```

The different functions are described in chapter *User's guide*.

# User's Guide

## Invoking the administrator interface

```
Session A - [24 x 80]
File Edit Transfer Appearance Communication Assjst Window Help
PrintScreen Copy Paste Send Recv Display Color Map Record Stop Play Quit Clipboard Support Index

View from CICSIT      Dynamic Transaction Routing - Overview 13/07/05 12:57:24
----- V 3.22 -----

1      Transaction Distribution - Routing Table
2      Loaded users / terminals - Status table
3      Connected Applications - Status Table
4      n/a
5      n/a
6      n/a

SELECT ==>      (Select a number)
LOCATE ==>      (Enter a KeyValue as a Startposition)
FILTER ==>      (SYSID for Opt. 2 - Loaded users)
-----
Valid commands:      PF1=Help,PF3=End
DTO-00I Dynamic Transaction Routing started.

MA a 19/013
Connected to remote server/host: 172.31.240.5 using port: 23
```

To invoke the administrator interface use transaction **DTRI**.

The optional parms **SYSID** and **FILTER** allows the administrator to reduce the display to a specific filtercriteria.

The options:

- 1 - Transaction Distribution
- 2 - Loaded users / terminals
- 3 - Connected Applications

will be disussed on the following pages.

## Transaction Distribution

Transaction distribution shows all the transactions handled by the DTROUT-master.

```

EXTRA! A - Session1
File Edit View Transfer Options Connection Macro Tools Window Help
View from CICSIT Transaction Distribution - Routing Table 06/07/99 10:13:10
-----
CM Tran SYSID Status Weight +----- Comment -----+
IDEA CIID Avail. + 50 IDEAL SignOn Dev. Environment
IDEA CIIO Avail. + 50 IDEAL SignOn Dev. Environment
IDEA CIIP Avail. + 50 IDEAL SignOn Dev. Environment
IDLX CIID Avail. + 50 Express SignOn to IDEAL
IDLX CIIO Avail. + 50 Express SignOn to IDEAL
IDLX CIIP Avail. + 50 Express SignOn to IDEAL
IPCV CIID NotAvail + 10 CA - IPC (Ideal intern)
IPCV CIIO Avail. + 10 CA - IPC (Ideal intern)
IPCV CIIP NotAvail + 10 CA - IPC (Ideal intern)
IPCX CIID Avail. + 10 CA - IPC (Ideal intern)
IPCX CIIO Avail. + 10 CA - IPC (Ideal intern)
IPCX CIIP Avail. + 10 CA - IPC (Ideal intern)
NETT CIID Avail. + 5 Async. print from IDEAL
NETT CIIO Avail. + 5 Async. print from IDEAL

==> (Paging: Press PF7/8 or a CICS-TranID and PF5 to locate.)
-----
Valid commands: A (Avail.) / NA (NotAvail.) PF1=Help, PF3=End
DT0-40I Update requests processed.
Aa A Session1 R 13 C 2 10:13 6.07.99
  
```

### Column description

- CM** Line Commands
- Tran** The name of the transaction.
- SYSID** System, where this transaction can be executed. One entry for each SYSID is needed.
- Status** Status whether this definition can be used or not. (Avail. or NotAvail.)
- Weight** The individual weight for a certain transaction. the weight is added to a specific DTROUT-agent load when the transaction is started and subtracted therefrom when the transaction ends.
- Comment** Optional. Set during customize.

### Line Commands

- A** Set status to Available.
- NA** Set status to NotAvailable.

### PF Keys

- PF1** Help
- PF3** End (Back to main menu)
- PF5** Locate the specific transaction ==> <transid>
- PF7** Page Up
- PF8** Page Down

## Loaded users / terminals

Loaded users / terminals shows all the PrimKeys (terminals or userids) handled by the DTROUT-master.

```

EXTRA! A - Session1
File Edit View Transfer Options Connection Macro Tools Window Help
View from CICSIT  Loaded users / terminals - Status table 06/07/99 10:11:49
-----
CM PrimKey  LastReference      LastSysid Status      Counter
-----
userid  9999/02/23 11:35:00 CIIO      AnyCICS      494
012L    1999/07/06 11:35:00 CIIO      AnyCICS      482
1281    1999/07/06 09:54:16 CIIP      Predefined    1
218K    1999/07/06 10:42:00 CIIB      AnyCICS      261
310F    1999/07/06 06:34:00 CIIA      AnyCICS      494
314G    1999/07/06 06:34:00 CIIA      Predefined    637
912K    1999/07/06 10:21:00 CIIA      Predefined    494

==> (Paging: Press PF7/B or a PrimaryKey and PF5 to locate)
-----
Valid commands: P (Predefine) / A (AnyCICS)          PF1=Help, PF3=End
DT0-40I Update requests processed.
-----
Aa  A Session1  R 6  C 2  10:12  6.07.99
  
```

### Column description

<b>CM</b>	Line Commands
<b>PrimKey</b>	The PrimKey terminalname (TCTTE) or userid. Each logical unit of work based information belongs to this key.
<b>Last Reference</b>	Timestamp, when this terminal or that userid invoked the DTROUT-master services the last time.
<b>LastSysid</b>	Last referenced SYSID. If the status of the user is predefined, it will be automatically routed to this CICS environment.
<b>Status</b>	Status for this terminal / userid. Predefined - reuse the SYSID. AnyCICS - The appropriate SYSID will be chosen by the DTROUT-master.
<b>Counter</b>	How often the DTROUT-master has been invoked for this terminal / userid

### Line Commands

- P** Sets the terminal / user status to Predefined. This forces the DTROUT-master to reuse the indicated SYSID for the next transaction invocation.
- A** Sets the terminal / user status to AnyCICS

## **PF Keys**

PF1	Help
PF3	End (Back to main menu)
PF5	Locate the specific PrimKey ==> <transid>
PF7	Page Up
PF8	Page Down



## Connected Applications

Connected Applications shows an overview of all DTROUT-agents actually defined to and known by the DTROUT-master.

```

Hkka - EXTRA! Personal Client
File Edit View Tools Session Options Help
View from CICSIT Connected Applications - Status Table 12/06/01 13:38:18
-----
CM CICS Typ *--- DTR-Load ---* Tx-Count DTR-Status Conn.Status Factor
          Current Total
█ CIID AOR 0 0 0 NotAvail REL. 100
  CIIO AOR 0 0 0 Stopped REL. 100
  CIIP AOR 0 0 0 Avail. REL. 100
  CIIT TOR 0 0 0 Avail. ----- 100

==> (Paging: Press PF7/8 or a CICS-SYSID and PF5 to locate
-----
Cmd: A(Avail.)/NA(NotAvail.)/ST(Stopped)/SK(StopKill)/IW(InitCurw.) PF1=Help
DTO-40I Update processed.
06/02
Connected to host hkka-tr [193.223.211.9] 1:38 PM
  
```

### Column description

<b>CM</b>	Line Commands
<b>CICS</b>	The SYSID of the defined DTROUT-agents.
<b>DTR-Load Current</b>	The load currently attached to a DTROUT-agent. This value is the major value to select the best DTROUT-agent, where a transaction will be executed.
<b>DTR- Load Total</b>	Total load distributed to a specific DTROUT-agent. The total is automatically set to zero, when the DTROUT-master is started.
<b>Tx-Count</b>	Number of invocations.
<b>DTR-Status</b>	Status of the DTROUT-agent.
	Avail. The DTROUT-agent is available. This status will be set by the DTROUT-agent at CICS starttime.
	Broken The Connection to this CICS ist not available. Routing requests to the application CICS will fail until CICS will be restarted or the users STATUS will be set to AnyCICS.
	NotAvail. The DTROUT-agent is not available. This status will be set by DTROUT-agent when CICS is terminated.

Stopped            The DTROUT-agent is not available. The status can only be modified manually.

**Conn.Status**    Status of this Connection. Similar to the CICS supplied transaction values from CEMT I CONN(sysid).

**Factor**            Factor to influence the load-balancing. The DTROUT-master will multiply the specific weight by the total weight to find out, where a transaction should be routed to. Using this factor allows the optimal balancing between DTROUT-agent on different processors with different throughput.

### **Line Commands**

**A**                Set the status to Available. The status will be set to NotAvailable by the DTROUT-agent when CICS terminates.

**NA**              Set the status to NotAvailable. The status will be set to Available by the DTROUT-agent at CICS starttime.

**SK**              StopKill. Stops a connection and sets ANY user in this CICS to AnyCICS. Application integrity over transaction boundaries may be lost!

**ST**              Set the status to STOPPED. This value can only be modified manually.

**IW**              Sets the Current DTR-Weight to zero. Only used to handle unexpected user transaction abend.

### **PF Keys**

PF1              Help  
PF3              End (Back to main menu)  
PF5              Locate the specific CICS-SYSID ==> <sysid>  
PF7              Page Up  
PF8              Page Down

## Installing the product libraries

### **Product libraries**

manually	SYS3.CICS.HKKC.DTR.ASM *	Assembler modules and Maps
manually	SYS3.CICS.HKKC.DTR.CNTL	Installation jobs
manually	SYS3.CICS.HKKC.DTR.COBOLE	COBOL Programs and Copybooks
manually	SYS3.CICS.HKKC.DTR.LOAD	Load library

\* Not distributed

### **Input data**

SYS3.CICS.HKKC.DTR.SYSIN

Input data for the CICS Data tables with the input members:

- DTRSTAT1
- DTRSTAT2
- DTRUSER1
- DTRUSER2
- DTRDIST

### **CICS Data Tables**

Modify the jobs INIDxxxx and set the filenames to your installation requirements. **Before running** the jobs, customize the DTROUT-parms as explained in chapter customize.

Those jobs will allocate and load the DTROUT-Files, known by CICS as CICS data tables.

- INIDSTAT
- INIDUSER
- INIDDIST

# Installation the DTROUT-master in the TOR – CICS

## SIT

DTRPGM=DTROUT,      Dynamic transaction routing program      \*

## PLT Startup

```
          DFHPLT TYPE=INITIAL,
            SUFFIX=00
:
:
          DFHPLT TYPE=ENTRY, PROGRAM=DFHDELIM
:
:
*
*          INITIALIZE DTR-USER (Reset)
*          -----
*
          DFHPLT TYPE=ENTRY, PROGRAM=DTRSTUSR
*
*          INITIALIZE DTR-CONNECTION (Reset)
*          -----
*
          DFHPLT TYPE=ENTRY, PROGRAM=DTRSTCON
```

## Ressource Definitionen (CSD)

### Basedefinitions

Group: S\$DTRB

DTRDIST	FILE	S\$DTRB
DTRSTAT1	FILE	S\$DTRB
DTRSTAT2	FILE	S\$DTRB
DTRUSER1	FILE	S\$DTRB
DTRUSER2	FILE	S\$DTRB
DTMSALL	MAPSET	S\$DTRB
DTMSCON	MAPSET	S\$DTRB
DTMSDST	MAPSET	S\$DTRB
DTMSUSR	MAPSET	S\$DTRB
DSROUT	PROGRAM	S\$DTRB
DTHANALL	PROGRAM	S\$DTRB
DTHANCON	PROGRAM	S\$DTRB
DTHANDST	PROGRAM	S\$DTRB
DTHANUSR	PROGRAM	S\$DTRB
DTMSG105	PROGRAM	S\$DTRB
DTMSG108	PROGRAM	S\$DTRB
DTMSG118	PROGRAM	S\$DTRB
DTROUT	PROGRAM	S\$DTRB
DTRQEXI1	PROGRAM	S\$DTRB
DTRQUIT	PROGRAM	S\$DTRB
DTRSTCON	PROGRAM	S\$DTRB
DTRSTUSR	PROGRAM	S\$DTRB
DTHC	TRANSACTION	S\$DTRB
DTHD	TRANSACTION	S\$DTRB
DTHU	TRANSACTION	S\$DTRB
DTRI	TRANSACTION	S\$DTRB
DTRQ	TRANSACTION	S\$DTRB

## Defining your application transactions for DTR

**Group:** xxxxxxxx e.g. S\$DTRxx (xx = TOR-Suffix)

Replacements for any of your transactions, that should be handled by DTR. e.g. for CA-IDEAL.

DDO4	TRANSACTION	S\$DTRTT
DDX4	TRANSACTION	S\$DTRTT
HK03	TRANSACTION	S\$DTRTT
IDE4	TRANSACTION	S\$DTRTT
IDL4	TRANSACTION	S\$DTRTT
IPV4	TRANSACTION	S\$DTRTT
IPX4	TRANSACTION	S\$DTRTT
NET4	TRANSACTION	S\$DTRTT
SAS4	TRANSACTION	S\$DTRTT
SCD4	TRANSACTION	S\$DTRTT
SCS4	TRANSACTION	S\$DTRTT

### Note:

#### REMOTE ATTRIBUTES

DYnamic : Yes No ! Yes

Each user transaction will run under the control of DTROUT, when the Remote Attribute of the transaction definition is set to YES.

### Tuning Notes

The files DTRDIST, DTRSTAT1 and DTRUSER1 can be defined as a CICS Data Table.

The files DTRSTAT2 and DTRUSER2 can be defined as an user maintained data table, so no I/O will be produced against the volume. DTRSTAT2 and DTRUSER2 are only holding datas (e.g. transaction counters and accumulated counters) there normally no need to conserve those data longer than the lifecycle of the CICS's.

## STARTUP Procedure

### DFHRPL

Add to following entry to DFHRPL.

```
//DFHRPL DD .....  
// .....  
// DD DSN=SYS3.CICS.HKCC.DTR.LOAD,DISP=SHR
```

### Files

Add the DTROUT-Files.

```
//*-----*  
//* DD STATEMENTS FOR DYNAMIC TRANSACTION ROUTING *  
//* (DTROUT - ALL FILES ARE CICS DATA TABLES) *  
//*-----*  
//DTRDIST DD DSN=SYS3.CICS.DTRDIST.KSDS,DISP=SHR  
//DTRSTAT1 DD DSN=SYS3.CICS.DTRSTAT1.KSDS,DISP=SHR  
//DTRSTAT2 DD DSN=SYS3.CICS.DTRSTAT2.KSDS,DISP=SHR  
//DTRUSER1 DD DSN=SYS3.CICS.DTRUSER1.KSDS,DISP=SHR  
//DTRUSER2 DD DSN=SYS3.CICS.DTRUSER2.KSDS,DISP=SHR
```

## Installation the DTROUT-agent in a AOR – CICS

### SIT

No definitions.

### PLT Startup

```
DFHPLT TYPE=INITIAL,
        SUFFIX=00
:
:
        DFHPLT TYPE=ENTRY, PROGRAM=DFHDELIM
:
:
*-----*
*      DTR Notification      *
*-----*
        DFHPLT TYPE=ENTRY, PROGRAM=DTCLICON
```

### Ressource Definitionen (CSD)

#### Agentdefinitions

##### Group S\$DTRC

DTRSTAT1	FILE	S\$DTRC	(Remotedefinition, points to the TOR)
DTRSTAT2	FILE	S\$DTRC	(Remotedefinition, points to the TOR)
DTRUSER1	FILE	S\$DTRC	(Remotedefinition, points to the TOR)
DTRUSER2	FILE	S\$DTRC	(Remotedefinition, points to the TOR)
DTCLICON	PROGRAM	S\$DTRC	
DTCLIDIS	PROGRAM	S\$DTRC	

### STARTUP Procedure

#### DFHRPL

Add to following entry to DFHRPL.

```
//DFHRPL DD .....
//
//      DD DSN=SYS3.CICS.HKCC.DTR.LOAD, DISP=SHR
```

#### Files

No file definitions. All files needed are **defined as REMOTE in the CSD**, pointing to the TOR.

## Customize

### **DTRUSER1**

To initialize file DTRUSER1, the following initialrecord can be added to the file.

#### **Char**

userid CII00

#### **Hex**

AA898844CCCDF4444  
42599400399600000

Pos 01-08      Dummy primary Key  
Pos 09-12      Dummy CICS-SYSID  
Pos 13          Dummy Flag  
Pos 14-17      Dummy Filler

No further maintenance is needed. All entries no longer needed will be deleted automatically during startup of CICS by the PLT programm DTRSTUSR.

### **DTRUSER2**

To initialize file DTRUSER2, the following initialrecord can be added to the file.

#### **Char**

userid 9999/02/2311:35:00

#### **Hex**

AA898844FFFF6FF6FFFF7FF7FF000014444  
42599400999910212311A35A000000000000

Pos 01-08      Dummy primary Key  
Pos 09-18      Dummy timestamp (date) If in the future, the record will be kept for ever.  
Pos 19-26      Dummy timestamp (time)  
Pos 27-31      Dummy Initial Counter (Hex)  
Pos 32-35      Dummy Filler

No further maintenance is needed. All entries no longer needed will be deleted automatically during startup of CICS by the PLT programm DTRSTUSR.

### **DTRSTAT1**

To initialize and customize file DTRSTAT1, add an entry for every DTROUT-agent in the following format.

#### **Char (sample)**

CIICA0..

#### **Hex (sample)**

CCCCCF10444  
3993110C000

Pos 01-04      CICS SYSID, known as a DTROUT-agent  
Pos 05-05      INTERNAL. Always „A“ for DTROUT-agents and „T“ for the DTROUT-master.  
Pos 06-06      Internal. Status indicator of this DTROUT-agent. Set to X'F1' for initial start..  
Pos 07-08      Internal. Factor. Set to X'100C'.  
Pos 09-11      Dummy Filler

## **DTRSTAT2**

To initialize and customize file DTRSTAT2, add an entry for every DTROUT-agent in the following format.

### **Char (sample)**

CIIA

### **Hex (sample)**

CCCC0000000000000000444

39910000C0000C0000C000

Pos 01-04	CICS SYSID, known as a DTROUT-agent
Pos 05-09	Internal. Counter.
Pos 10-14	Internal. Actual load.
Pos 15-19	Internal. Cummulated load.
Pos 20-22	Dummy Filler

## **DTRDIST**

To initialize and customize file DTRDIST, add an entry for every transaction and there appropriate AOR, where the transaction can be executed.

### **Char (sample)**

DDO4CITU0+020                      Datacom Data Dictionary

### **Hex (sample)**

CCDFCCEEF4FFF444444444C8A88994C8A84C88A89989A

446439340E0200000000041313640413104933965198

pos 01-04	CICS Transaction code
pos 05-08	CICS SYSID, where the transaction can be executed. An entry for each DTROUT-agent is necessary.
pos 09-09	Internal. Status indicator of this transaction-DTROUT-agent definition.
pos 10-10	Internal. Allways a plus sign (+).
pos 11-13	The weight of this transaction.
pos 14-21	Internal. Reserved.
pos 22-51	Your description of this transaction.

The transaction names can be defined generig. e.g. The definition HK\*\* for CICS CITU covers all transaction codes starting with HK and defines them as executable in CICS CITU.



## Invoking DTRQEXI1

If your application has known transactions to logically terminate affinities over transaction boundaries, you can invoke the DTROUT-exit program DTRQEXI1 as explained in the following sample program (DTRQSAM1).

```
*****
* THIS IS A SAMPLE TO ILLUSTRATE HOW A USER WRITTEN PROGRAM CAN *
* INVOKE THE DTROUT-QUIT ROUTINE TO CLOSE A LOGICAL GROUP OF *
* TRANSACTION, SO THE NEXT INVOKED TRANSACTION WILL RE-CHOOSE *
* THE BEST AOR-CICS TO RUN IN. *
*****
WORKING-STORAGE SECTION.
IDENTIFICATION DIVISION.
PROGRAM-ID. MYPROGRM.
ENVIRONMENT DIVISION.
DATA DIVISION.
WORKING-STORAGE SECTION.

    01  WS-COMMAREA.
        02  WS-COMMAREA-PRIMKEY  PIC X(8) .
        02  WS-COMMAREA-RC      PIC S9(8) COMP.
        02  WS-COMMAREA-RESP    PIC S9(8) COMP.
    :
    :
LINKAGE SECTION.
01  DFHCOMMAREA.
    02  DFHCOMMAREA-PRIMKEY  PIC X(8) .
    02  DFHCOMMAREA-RC      PIC S9(8) COMP.
    02  DFHCOMMAREA-RESP    PIC S9(8) COMP.

PROCEDURE DIVISION.
:
:
*
* GET THE USERID AND PASS IT TO DTRQEXI1
*
*     EXEC CICS ASSIGN USERID(WS-COMMAREA-PRIMKEY)
*         RESP(WS-RESP) RESP2(WS-RESP2)
*     END-EXEC
*
*
* OR GET THE TERMINALNAME AND PASS IT TO DTRQEXI1
*
*     MOVE EIBTRMID TO WS-COMMAREA-PRIMKEY
*
* CALL THE CLOSE L-U-W EXIT (DTRQEXI1)
*
*     EXEC CICS LINK PROGRAM('DTRQEXI1')
*         COMMAREA(WS-COMMAREA)
*     END-EXEC
*
* THE FOLLOWING FIELDS ARE RETURNED FROM DTRQEXI1
*
* DFHCOMMAREA-RC      RETURNCODE OF DTRQEXI1
* DFHCOMMAREA-RESP    LAST DFHRESP FROM DTRQEXI1
*
*     IF DFHCOMMAREA-RC > 0
*         PERFORM MSG-X101
*     END-IF
```

## Messages and Codes

**Die Programme DTRQxxx müssen noch erfasst werden.**

### DTR-C Messages

DTR-C0000I      *date time* CONNECTION FOR CICS cics SUCCESSFULLY DEFINED.

**Explanation:**      The AOR CICS cics connected to the DTROUT functions of the corresponding TOR.

**System Action:**    None.

**User response:**    None.

**Module:**            DTCLICON

**Destination:**      CADL

DTR-C0001E      *date time* 'DTRSTAT-REWRITE ERROR RESP: nn RESP2: mm

**Explanation:**      An error occurred while executing an EXEC CICS REWRITE FROM(CICS-STAT) LENGTH(LENGTH OF CICS-STAT) FILE('DTRSTAT')

**System Action:**    The DTROUT agent (AOR) can't connect to the DTROUT master (TOR). The previous status is left unchanged.

**User response:**    Correct the problem indicated by the DFHRESP / DFHRESP2 values following the CICS literature.

**Module:**            DTCLICON

**Destination:**      CADL

DTR-C0002W      *date time* DTRSTAT-UPDATE NOT ALLOWED, CONNECTION HAS BEEN STOPPED MANUALLY. INTERNAL STATUS=nn

**Explanation:**      An inactive or broken connection will restart automatically at the next start of this cics region. If a connection status has been set to STOP, it will not be modified automatically. The Status of 2 indicates that situation.

**System Action:**    The AOR can't connect to the DTROUT functions of the TOR. The previous status is left unchanged.

**User response:**    Modify the status of the AOR if necessary.

**Module:**            DTCLICON

**Destination:**      CADL

DTR-C0003E      *date time* DTRSTAT-READ FOR UPDATE ERROR RESP: nn RESP2: mm

**Explanation:**      An error occurred while executing an EXEC CICS READ UPDATE FILE('DTRSTAT') INTO(CICS-STAT) RIDFLD(CICS-STAT-SYSID) KEYLENGTH(LENGTH OF CICS-STAT-SYSID)

**System Action:**    The AOR can't connect to the DTROUT functions of the TOR. The previous status is left unchanged.

**User response:**    Correct the problem indicated by the DFHRESP / DFHRESP2 values following the CICS literature.

**Module:**            DTCLICON

**Destination:**      CADL

DTR-C0005I     *date time* CONNECTION FOR CICS cics disabled.

**Explanation:**     The DTROUT agent has disconnected the session during the PLT shutdown phase.

**System Action:**   None.

**User response:**   None.

**Module:**           DTCLIDIS

**Destination:**     CADL

DTR-C0006E     *date time* 'DTRSTAT-REWRITE ERROR RESP: nn RESP2: mm

**Explanation:**     An error occurred while executing an EXEC CICS REWRITE FROM(CICS-STAT) LENGTH(LENGTH OF CICS-STAT) FILE('DTRSTAT')

**System Action:**   The DTROUT agent (AOR) can't connect to the DTROUT master (TOR). The previous status is left unchanged.

**User response:**   Correct the problem indicated by the DFHRESP / DFHRESP2 values following the CICS literature.

**Module:**           DTCLIDIS

**Destination:**     CADL

DTR-C0007W     *date time* DTRSTAT-UPDATE NOT ALLOWED, CONNECTION HAS BEEN STOPPED MANUALLY. INTERNAL STATUS=nn

**Explanation:**     An inactive or broken connection will restart automatically at the next start of this cics region. If an connection status has been set to STOP, it will not be modified automatically. The Status of 2 indicates that situation.

**System Action:**   The DTROUT agent (AOR) can't disconnect from the DTROUT master (TOR) and set the Status to inactive. The previous status is left unchanged.

**User response:**   Modify the status of the DTROUT agent, if necessary.

**Module:**           DTCLIDIS

**Destination:**     CADL

DTR-C0008E     *date time* DTRSTAT-READ FOR UPDATE ERROR RESP: nn RESP2: mm

**Explanation:**     An error occurred while executing an EXEC CICS READ UPDATE FILE('DTRSTAT') INTO(CICS-STAT) RIDFLD(CICS-STAT-SYSID) KEYLENGTH(LENGTH OF CICS-STAT-SYSID)

**System Action:**   The DTROUT agent (AOR) can't disconnect from the DTROUT master (TOR) and set the Status to inactive. The previous status is left unchanged.

**User response:**   Correct the problem indicated by the DFHRESP / DFHRESP2 values following the CICS literature.

**Module:**           DTCLIDIS

**Destination:**     CADL

## DTR-K Messages

DTR-K0094I      *date time* FUNC:  n TRAN:  txid LPROG:  pgmid SYSID:  sysid

**Explanation:**      Produced each invocation of the central module DTROUT. This message does not appear, when LPROG=DUMMY and the FUNC=0 or 2.

The FUNC values are as followed:

- = '0' When the router is invoked initially
- = '1' If the router has been invoked due to a route selection error
- = '2' If the router has been invoked at routed transaction termination
- = '3' If the router is being invoked to notify it that a transaction is being statically routed
- = '4' If the router is being invoked to notify it that the transaction abended

**System Action:**    None.

**User response:**    None.

**Module:**            DTROUT  
**Destination:**      CADL

DTR-K0101E      *date time* DTRUSER-READ KEY:  cicsuser RESP:  resp RESP2:  resp2

**Explanation:**      A "EXEC CICS READ UPDATE" on file DTRUSER with key *cicsuser* has been performed, but the response was nether "NORMAL" (found) nor "NOTFND" (notfound).

**System Action:**    No routing is performed.

**User response:**    Correct the problem indicated by the DFHRESP / DFHRESP2 values following the CICS literature.

**Module:**            DTROUT  
**Destination:**      CADL

DTR-K0102E      *date time* ERROR ASSIGNING USERID RESP:  resp RESP2:  resp2

**Explanation:**      A " EXEC CICS ASSIGN USERID" failed with the indicated response-fields.

**System Action:**    No routing is performed.

**User response:**    Correct the problem indicated by the DFHRESP / DFHRESP2 values following the CICS literature.

**Module:**            DTROUT  
**Destination:**      CADL

DTR-K0103E      *date time* DTRUSER-WRITE KEY:  cicsuser RESP:  resp RESP2:  resp2

**Explanation:**      A "EXEC CICS WRITE" on file DTRUSER with key *cicsuser* has been performed for a new *cicsuser* record, but the response was not "NORMAL".

**System Action:**    No routing is performed.

**User response:**    Correct the problem indicated by the DFHRESP / DFHRESP2 values following the CICS literature.

**Module:**            DTROUT  
**Destination:**      CADL

DTR-K0104E     *date time* CHOOSE CICS: NO MATCHING CICS FOUND. CHECK MESSAGES ABOVE FOR ANY REASONS. USER HAS BEEN INFORMED BY MSG-0105

**Explanation:**     No DTR-agent is available which could handle the specific user transaction.

**System Action:**    No routing is performed. The user will be informed by message DTR-U0105.

**User response:**    Check the preceeding messages in the CICS log. Make sure,

- that the AOR's are started
- that the connection between DTR-master and DTR-agent is available
- that the correct transaction is entered

**Module:**            DTROUT  
**Destination:**      CADL

DTR-K0106E     *date time* CHOOSE CICS FAILED FOR *cics-primarykey*. CHECK MESSAGES ABOVE FOR ANY REASONS. USER HAS BEEN INFORMED BY MSG-0105

**Explanation:**     The user is predefined to a specific DTR-agent, but the transaction the user would like to execute is not available to this DTR-agent.

**System Action:**    No routing is performed. The user will be informed by message DTR-U0105.

**User response:**    Sign off correctly, so the userid can be routed to the appropriate DTR-agent invoking the transaction or define the transaction in the appropriate DTR-agents.

**Module:**            DTROUT  
**Destination:**      CADL

DTR-K0107E     *date time* 'ROUTING REQUEST TO CICS: *cics* FOR *primkey* FAILED. CICS NOT AVAILABLE. USER INFORMED BY MSG-0108

**Explanation:**     The user should be routed to a specific CICS, that isn't available.

**System Action:**    No routing is performed. The user will be informed by message DTR-U0108.

**User response:**    Check the Connection between DTR-master and the DTR-agents.

**Module:**            DTROUT  
**Destination:**      CADL

DTR-K0109E     *date time* DTRDIST-STARTBR KEY: *cics-disp-key* RESP: *resp* RESP2: *resp2*

**Explanation:**     A " EXEC CICS STARTBR" on file DTRDIST failed with the indicated response-fields. The response was nether "NORMAL" (found) nor "NOTFND" (notfound).

**System Action:**    No routing is performed.

**User response:**    Correct the problem indicated by the DFHRESP / DFHRESP2 values following the CICS literature.

**Module:**            DTROUT  
**Destination:**      CADL

DTR-K0110E     *date time* NO CICS AVAILABLE FOR TRANSACTION *dytran* SEARCHED WITH *dist-tranid* FOR *cics-primkey*

**Explanation:**     The transaction *dytran* is defined in CICS for dynaming routing, be there is no corresponding entry in the DTRDIST table.

**System Action:**    No routing is performed.

**User response:**    Ajust the DTRDIST table.

**Module:**            DTROUT  
**Destination:**      CADL

DTR-K0111E     *date time* DTRSTAT-READ KEY: *cics-stat-sysid* RESP: *resp* RESP2: *resp2*

**Explanation:** Before rerouting a transaction the selected connection is check with an " EXEC CICS READ" on file DTRSTAT failed. The access to the DTRSTAT table failed with the indicated response-fields. This message is normally followed by message DTR-K0107.

**System Action:** No routing is performed.

**User response:** Correct the problem indicated by the DFHRESP / DFHRESP2 values following the CICS literature.

**Module:** DTROUT  
**Destination:** CADL

DTR-K0112E *date time* INCORRECT COMMAREA LENGTH. EXPEXTED: len-exp RECEIVED:  
len-rec

**Explanation:** There is a mismatch between the expected and the received commarea when the DTR-master is invoked by CICS.

**System Action:** No routing is performed.

**User response:** Install the DTROUT solution correctly.

**Module:** DTROUT  
**Destination:** CADL

DTR-K0113E *date time* REWRITE OF FILE DTRUSER FAILED. RESP: resp RESP2: resp2 KEY:  
key RECORD: cics-user

**Explanation:** An "EXEC CICS REWRITE" on file DTRUSER with the primary key *key* failed and returned the indicated response-fields.

**System Action:** No routing is performed.

**User response:** Processing continues, no informations for an optimized routing can be gathered.

**Module:** DTROUT  
**Destination:** CADL

DTR-K0114E *date time* REWRITE OF FILE DTRSTAT FAILED. RESP: resp RESP2: resp2 KEY:  
key RECORD: cics-user

**Explanation:** An " EXEC CICS REWRITE" on file DTRSTAT with the primary key *key* failed and returned the indicated response-fields.

**System Action:** No routing is performed.

**User response:** Processing continues, no informations for an optimized routing can be gathered.

**Module:** DTROUT  
**Destination:** CADL

DTR-K0115E *date time* DTRSTAT-READ FOR UPDATE FAILED. RESP: resp RESP2: resp2  
KEY: key RECORD: cics-user

**Explanation:** An " EXEC CICS READ UPDATE" on file DTRSTAT with the primary key *key* failed and returned the indicated response-fields.

**System Action:** No routing is performed.

**User response:** Processing continues, no informations for an optimized routing can be gathered.

**Module:** DTROUT

DTR-K0116I      *date time* 'DTRDIST-READ SWITCH FOR NEW TX *dyrtran* REQUESTED BY  
*cics-primkey* OLD ENVIRONMENT: *cics-user-sysid*.

**Explanation:**      A request to process a transaction in a specific cics can't be satisfied, cause the user is predefined to another cics by the DTR-master. The logical unit of work must be closed by the user.

**System Action:**      The user is informed by message DTR-U0118.

**User response:**      No routing is performed. Sign off correctly, so the userid can be routed to the appropriate DTR-agent invoking the transaction or define the transaction in the appropriate DTR-agents.

**Module:**              DTROUT

DTR-K0117E      *date time* DTRDIST-READ KEY: *key* RESP: *resp* RESP2: *resp2*

**Explanation:**      An " EXEC CICS READ" on file DTRDIST with the primary key *key* failed and returned the indicated response-fields.

**System Action:**      No routing is performed.

**User response:**      Processing continues, no informations for an optimized routing can be gathered.

**Module:**              DTROUT

DTR-K0119E      *date time* DYRUSER-AREA, FIELD WEIGHT NOT NUMERIC. VALUE=*value*

**Explanation:**      An illegal value (nonnumeric) of a transaction weight has been loaded to the DTRDIST table.

**System Action:**      Check the installation.

**User response:**      None.

**Module:**              DTROUT

## DTR-M Messages

DTR-M0000I     *date time* Reseted CICS statistic Cur.Weight Tot.Weight TX-Counter

**Explanation:** During the plt phase of the CICS start (terminal owning region, TOR) the accumulated CICS routing statistic informations are set to zero. Each entry will be listed by message DTR-M0000I before being reseted.

**System Action:** CICS Startup continues.

**User response:** None.

**Module:** DTRSTCON

**Destination:** CADL

DTR-M0001I     *date time* cics    status                             nnn            nnnn            nnn

**Explanation:** One entry for each connected CICS lists the reseted statistic values. See also message DTR-M0000I.

**System Action:** CICS Startup continues.

**User response:** None.

**Module:** DTRSTCON

**Destination:** CADL

### hier, hier, hier hat es noch mehr aus dtrstcon

DTR-M0010I     *date time* Deleted User entries - Processing List  
*date time* PrimKey    LastReference                             SysID Status

**Explanation:** During the plt phase of the CICS start (terminal owning region, TOR) any user definition, which hasn't been referenced today, will be deleted. Each deleted entry will be listed by message DTR-M0010I.

**System Action:** CICS Startup continues.

**User response:** None.

**Module:** DTRSTUSR

**Destination:** CADL

DTR-M0011I     *date time* xxxx            yyyy/mm/dd hh:mm:ss cics    zzzzzzzzz

**Explanation:** One entry for each user. Before resetting the statistic values, they are listed. See also message DTR-M0010I.

**System Action:** CICS Startup continues.

**User response:** None.

**Module:** DTRSTUSR

**Destination:** CADL



DTR-M0012E     *date time* DTRUSER-READNEXT ERROR. RESP: nn RESP2: mm SYSID: cics-  
pk

**Explanation:**     An error occurred while executing an EXEC CICS READ UPDATE FILE('DTRUSER') GTEQ  
INTO(CICS-USER) RIDFLD(cics-pk)

**System Action:**   CICS Startup continues.

**User response:**    Correct the problem indicated by the DFHRESP / DFHRESP2 values following the CICS literature.

**Module:**           DTRSTUSR

**Destination:**     CADL

DTR-M0014E     *date time* DTRUSER-DELETE ERROR. RESP: nn RESP2: mm SYSID: cics-pk

**Explanation:**     An error occurred while executing an EXEC CICS DELETE FILE('DTRUSER')

**System Action:**   CICS Startup continues. The user entry is not deleted.

**User response:**    Correct the problem indicated by the DFHRESP / DFHRESP2 values following the CICS literature.

**Module:**           DTRSTUSR

**Destination:**     CADL

DTR-M0015W     *date time* DTRUSER-STARTBR - User File is empty.

**Explanation:**     This first reading of the file DTRUSER returned a NOTFND condition.

**System Action:**   CICS Startup continues. No actions against the DTROUT files are performed.

**User response:**    Verify the DTROUT installation.

**Module:**           DTRSTUSR

**Destination:**     CADL

DTR-M0019I     *date time* 'Number of user entries deleted: number

**Explanation:**     Reports the number of user entries, that could be deleted during the start of the CICS.

**System Action:**   None.

**User response:**    None.

**Module:**           DTRSTUSR

**Destination:**     CADL

## DTR-Q Messages

DTR-Q0100I     *date time* L-U-W CLOSE INVOKED FOR: *primkey* FROM: *from* BY USER:  
*userid*

**Explanation:**     The close of the logical unit of work has been called by the user.

**System Action:**     None.

**User response:**     None

**Module:**             DTRQEXI1

DTR-Q0101W     *date time* NOTFND COND. DTRUSER-READ-UPDATE KEY: '*userid* RESP: *nn*  
RESP2: *mm*

**Explanation:**     The record with the userid passed to the exit DTRQEXI1 can't be found in DTRUSER1.  
Correct the problem indicated by the DFHRESP / DFHRESP2 values following the CICS literature.

**System Action:**     Check the calling programm, if the passed userid is valid.

**User response:**     The L-U-W remains open.

**Module:**             DTRQEXI1

DTR-Q0102E     *date time* ERROR COND. DTRUSER-READ-UPDATE KEY: '*userid* RESP: *nn*  
RESP2: *mm*

**Explanation:**     An error occurred with a read for update on File DTRUSER1.  
Correct the problem indicated by the DFHRESP / DFHRESP2 values following the CICS literature.

**System Action:**     Check the calling programm, if the passed data is valid.

**User response:**     The L-U-W remains open.

**Module:**             DTRQEXI1

DTR-Q0103E     *date time* 'ERROR ASSIGNING PrimKey: ' RESP: *nn* RESP2: *mm*

**Explanation:**     The received commarelength is zero. No data passed to the exit.

**System Action:**     Check the calling programm.

**User response:**     The L-U-W remains open.

**Module:**             DTRQEXI1

DTR-Q0104E     *date time* NOTFND COND. DTRSTAT-READ-UPDATE KEY: '*sysid* RESP: *nn*  
RESP2: *mm*

**Explanation:**     The record with the userid passed to the exit DTRQEXI1 can't be found in DTRSTAT1.  
Correct the problem indicated by the DFHRESP / DFHRESP2 values following the CICS literature.

**System Action:**     Check the calling programm, if the passed userid is valid.

**User response:**     The L-U-W remains open.

**Module:**             DTRQEXI1

DTR-Q0105E    *date time* NOTFND COND. DTRSTAT-READ-UPDATE KEY: '*sysid* RESP: *nn*  
RESP2: *mm*

**Explanation:**    The record with the userid passed to the exit DTRQEXI1 can't be found in DTRSTAT2.  
Correct the problem indicated by the DFHRESP / DFHRESP2 values following the CICS literature.

**System Action:**    Check the calling programm, if the passed userid is valid.

**User response:**    The L-U-W remains open.

**Module:**    DTRQEXI1

## **DTR-U Messages**

DTR-U0105E     *date time* 'No connection to execute the transaction *tranid* could be established. Contact your CICS-Sys Admin.

**Explanation:**     There is no active DTROUT agent to run transaction *tranid*.

**System Action:**   Start at least one DTROUT agent to run the transaction *tranid*.

**User response:**    Check the name of the tranid.

**Module:**           DTROUT --> DTMSG105

**Destination:**     Terminal

DTR-U0108E     *date time* Routing request to the application CICS failed. CICS is not available.

**Explanation:**     The DTROUT master forced a transaction of an user to a specific DTROUT agent (AOR). The connection to this agent couldn't be established.

**System Action:**   None.

**User response:**    If there is no pending LUW, disconnect from the system using transaction DTRQ or any application transaction which has included the code sequence, as described in the DTRQEX11 function.

**Module:**           DTROUT --> DTMSG108

**Destination:**     Terminal

DTR-U0118W     *date time* To use transaction *tranid* switch to another session, or close your LUW (SignOff/SignOn) .

**Explanation:**     The user is predefined to a specific DTROUT agent. The requested transaction *tranid* can't be executed in the DTROUT agent (AOR).

**System Action:**   None.

**User response:**    If there is no pending LUW, disconnect from the system using transaction DTRQ or any application transaction which has included the code sequence, as described in the DTRQEX11 function. Normally SignOff, signOn and start *tranid*.

**Module:**           DTROUT --> DTMSG118

**Destination:**     Terminal