CICS 3270 Bridge Passthrough
User's Guide
Release 3

CA1E

April 9, 2002

CICS 3270 Bridge Passthrough User's Guide

Release 3

> **Note!**
>
> Before using this information and the product it supports, be sure to read the general information under "Notices" on page v.

Third Edition (April 2002)

This edition applies to Release 3 of the CICS® 3270 Bridge Passthrough utility that is designed to be used with CICS Transaction Server for z/OS™ Release 2.2.

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IBM® United Kingdom Laboratories,
Transaction Systems Marketing Support,
Hursley Park,
Winchester,
Hampshire,
England,
SO21 2JN.

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v

About this User's Guide

This book tells you about Release 3 of the CICS 3270 Bridge Passthrough SupportPac. It tells you how to:

- Install the SupportPac
- Run the passthrough transactions

It also tells you:

- What the passthrough transactions do
- How the passthrough transactions work
- Things to look at when something goes wrong

Who this book is for

This book is intended for anyone who plans to use the CICS 3270 Bridge and wants to :

1. Evaluate the suitability of existing CICS applications for use in a bridged environment
2. Test the execution of the IBM supplied sample bridge exits
3. Analyze the data flows in order to write their own end-user application to drive a CICS application using the 3270 Bridge

Prerequisites

Release 3 of the CICS 3270 Bridge Passthrough utility cannot coexist with any earlier release, as many components have been reworked.

The following table shows the 3270 bridge function supported by each release of the Passthrough, and the Release of CICS that you will need.

Table 1. CICS release requirements

	Link3270 bridge	START Bridge CBTS	START Bridge MQ, TS and TD
CICS TS 2.2	CA1E R3	CA1E R2	CA1E R3 CA1E R2 CA1E R1
CICS TS 1.3		CA1E R2	CA1E R2 CA1E R1
CICS TS 1.2			CA1E R1

If you plan to use the START bridge with the sample bridge exit provided by MQSeries®, which uses MQ queues to pass messages between the CICS 3270 Bridge and the Passthrough, you will also need:

- MQSeries – CICS/ESA® Bridge, available as an MQ SupportPac™ named MA1E. You can download this from the Web, from URL:

  `http://www.ibm.com/software/mqseries/txppacs`

Note: Release 3 of the SupportPac does not support a START bridge using CICS Business Transaction Services (CBTS).

Useful Publications

For information about the CICS 3270 Bridge:

- *CICS External Interfaces Guide SC33–1944*

For information about the MQSeries-CICS Bridge:

- *MQSeries —CICS/ESA Bridge user's Guide*

Chapter 1. Introduction

The CICS 3270 Bridge Passthrough allows you to run a CICS 3270 user transaction from a 3270 terminal in the usual way, but, using the CICS 3270 bridge mechanism rather than standard CICS terminal control function. You can then evaluate whether a CICS 3270 transaction is suitable to be driven using the 3270 Bridge.

The 3270 bridge provides an interface so that you can run 3270-based CICS transactions without a 3270 terminal. The 3270 terminal and end-user are replaced by an application program, known as the ***client application***. Commands for the 3270 terminal in the CICS 3270 ***user transaction*** are intercepted by CICS and replaced by a messaging mechanism that provides a bridge between the client application and the CICS user transaction. Release 3 of the SupportPac can be used with the two types of bridge mechanism supplied by CICS:

The START BREXIT mechanism

This 3270 bridge mechanism requires a ***bridge monitor*** transaction to initiate the bridge environment by issuing a START BREXIT command, which specifies the target user transaction and also the name of a user-written ***bridge exit***. The bridge exit is called to intercept 3270 requests and pass them in the form of messages to the client application. You can write your own bridge exit and also define your own message formats. Bridge exits are provided to support client applications using Temporary Storage, the Web and MQSeries as transport mechanisms for requests, using sample message formats. Note that CBTS is not supported as a transport mechanism in Release 3 of the SupportPac.

The Link3270 mechanism

This mechanism was introduced in CICS TS 2.2 and provides a simplified interface using LINK, ECI or EXCI. All messages have a fixed format and you are not required to provide any user-written supporting programs.

Note: You can only install one release of the Passthrough (CAIE) in your CICS region. See Table 1 on page vii for details of the support provided by each release and the CICS product required.

1

The START bridge Passthrough

The START BREXIT bridge mechanism uses exits supplied with CICS. If you are running CICS TS Release 1.2, or a later release, you can use the supplied bridge exits to support intermediate queuing on Temporary Storage (TS), Transient Data (TD) queues, or MQSeries.

The following diagram shows the relationship between the Release 3 Passthrough transaction, the 3270 bridge exit and the user transaction when using the START BREXIT bridge mechanism.
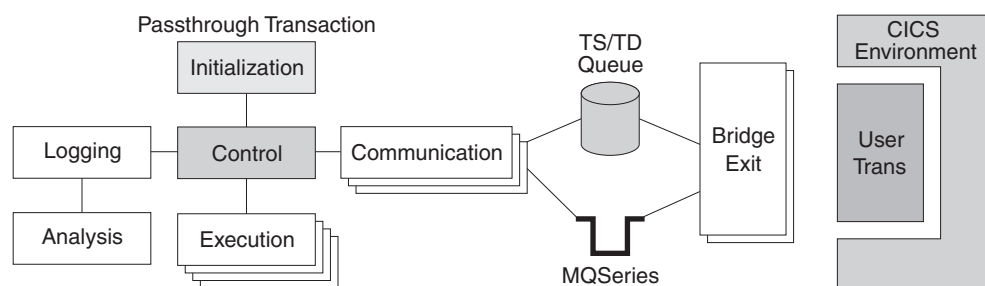

Figure 1. The CICS 3270 START bridge Passthrough

The Passthrough transactions also allow you to examine the 3270 data streams created by the bridge exit, and log them for further analysis. You can then use this information to write your own end-user application to drive the CICS 3270 transaction instead of a real 3270 terminal.

The Passthrough transactions work with the following CICS supplied bridge exits:

DFH0CBRE   Using temporary storage (TS) or transient data (TD) queues to pass messages

CSQCBE00   Using MQSeries queues to pass messages

You may use any other bridge exit, provided that it implements the same interfaces as the IBM supplied bridge implementations, defined in the *CICS External Interfaces Guide* or the *MQSeries —CICS/ESA Bridge user's Guide*. These books also contain full details of the CICS and MQ Bridges and the supplied bridge exits.

The Link3270 bridge Passthrough

The client application uses the Link3270 bridge to run 3270 transactions by linking to a the DFHL3270 program in the CICS **router** region and passing a COMMAREA that identifies the transaction to be run and contains the data used by the user application. The response contains the 3270 screen data reply.

The Link3270 bridge is called in the same way for all request mechanisms of the interface: EXEC CICS LINK, the EXternal CICS Interface (EXCI), and the CICS External Call Interface (ECI).

The following diagram shows the request flow between the Release 3 Passthrough transaction and the user transaction when using the Link3270 bridge mechanism.
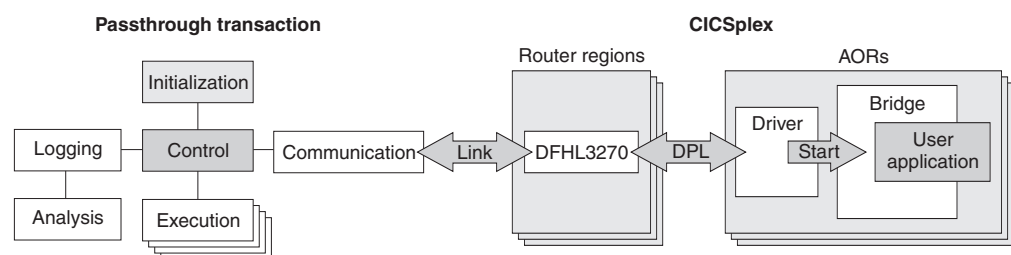

Figure 2. The CICS Link3270 bridge Passthrough

The Passthrough transactions also allow you to examine the 3270 data streams created by the Link3270 bridge mechanism, and log them for further analysis. You can then use this information to write your own end-user application to drive the CICS 3270 transaction instead of a real 3270 terminal.

Chapter 2. Installation

This chapter tells you how to:

- Download the Passthrough source from the Web
- Unpack the ZIP file
- Transfer the files to a TSO system
- Unload the files into partitioned datasets for CICS use

Download

1. Go to URL:

   `http://www.ibm.com/software/cics/txppacs`

2. Locate the Bridge Passthrough, named CA1E, and double click on CA1E to display the overview and installation guidance information.
3. Click on the appropriate icon to download the Passthrough source in InfoZip format.

   - Release 1 of CA1E executes with CICS TS Release 1.2
   - Release 2 of CA1E executes with CICS TS Release 1.3
   - Release 2 of CA1E executes with CICS TS Release 2.2

   Note: You can only install one release of the SupportPac in a CICS region. Different releases cannot coexist as they all use different versions of programs with the same name.

Unpack the ZIP file

The zip file is an archived file that should be uncompressed on a PC using one of INFOZIPs unzip programs (e.g. UNZIP32.EXE for OS/2®). The following files should be produced:

ca1e.cpy
An MVS™ partitioned dataset containing COBOL copybook files.

ca1e.def
An MVS partitioned dataset containing resource definitions.

ca1e.jcl
An MVS partitioned dataset containing JCL to create a VSAM KSDS file.

ca1e.map
An MVS partitioned dataset containing BMS map source files.

ca1e.src
An MVS partitioned dataset containing COBOL program source files.

ca1e.lod
An MVS partitioned dataset containing load modules of the COBOL program source files, compiled with a Language Environment® conforming compiler.

Transfer to TSO

Transfer the library files to the destination TSO system as sequential binary files with a record length of 80 bytes, using one of the following methods:

- Use the Communications Manager/2 SEND command below to send the file to TSO as a sequential binary file :

```
send ca1e.cpy A:ca1e.cpyseq
send ca1e.def A:ca1e.defseq
send ca1e.jcl A:ca1e.jclseq
send ca1e.map A:ca1e.mapseq
send ca1e.src A:ca1e.srcseq
send ca1e.lod A:ca1e.lodseq
```

  where A is the TSO session id.

- Use the FTP commands below, ensuring that the BINARY option is set:

```
site fixrecfm 80
put ca1e.cpy ca1e.cpyseq
put ca1e.def ca1e.defseq
put ca1e.jcl ca1e.jclseq
put ca1e.map ca1e.mapseq
put ca1e.src ca1e.srcseq
put ca1e.lod ca1e.lodseq
```

- Use the 'Send Files to Host' option under the Transfer menu item of Personal Communications, specifying:

```
PC File        ca1e.src
Host File      ca1e.srcseq
Transfer Type  loadlib
repeat for each library.
```

  The Transfer type of **loadlib** may need to be correctly set up. To do this, use the 'Setup - Define Transfer Types' option from the Transfer menu-bar pull-down and create the **loadlib** type with the ASCII, CRLF and Append checkboxes all unselected, the **Fixed** radio button selected and the **LRECL** set to **80**.

Create libraries

On TSO, issue the following commands to unload the sequential files into TSO partitioned datasets:

```
receive indsname(ca1e.cpyseq)
 dsn(ca1e.cpy)              (when prompted for a filename)

receive indsname(ca1e.defseq)
 dsn(ca1e.def)              (when prompted for a filename)

receive indsname(ca1e.jclseq)
 dsn(ca1e.jcl)              (when prompted for a filename)

 receive indsname(ca1e.mapseq)
 dsn(ca1e.map)              (when prompted for a filename)

 receive indsname(ca1e.srcseq)
 dsn(ca1e.source)           (when prompted for a filename)

receive indsname(ca1e.lodseq)
 dsn(ca1e.lod)              (when prompted for a filename)
```

Preparing to run the Passthrough transactions

Before you can run the Passthrough transactions, the following preparation is required:

1. Run the resource definition utility DFHCSDUP, using BRQTOOL as input, to define the passthrough TRANSACTION, PROGRAM and FILE resources in the region where the 3270 bridge is run.:

Transactions	BRTS	BRTD	BRMQ
	BRFL	BRLI	

Programs	BRQTS	BRQTD	BRQMQ
	BRQ3270	BRQLI	BRQMAIN
	BRQLOG	BRQLOGBR	BRQLOGTS
	BRQLOGTD	BRQLOGF1	BRQRETV
	BRQEDIT	BRQSEND	BRQSENDC
	BRQSNDM1	BRQSNDM2	BRQSNDM3
	BRQSNDM4	BRQSNDT	BRQSNDTM
	BRQSNDTN	BRQCONV	BRQISEAP
	BRQRECV	BRQRECVM	BRQMQCHC
	BRQBRIHC	BRQVCT2C	BRQVCT3C
	BRQTSCTL	BRQTDCTL	BRQMQCTL
	BRQLICTL	BRQCVBR	BRQFILE
	BRQVBRIH	BRQVMQCH	BRQHRLP

Files	BRQFILE	BRQFILOD

2. Run the resource definition utility DFHCSDUP, using BRQTYPE as input, to define the passthrough TYPETERM resources in the region where the CICS user transaction is run.

3. Run the resource definition utility DFHCSDUP, using BRQTERM as input, to define the passthrough TERMINAL resources in the region where the CICS user transaction is run.

4. Assemble the supplied map source file BRQMAPS and compile the supplied COBOLII program source files if you are not using Language Environment. Release 3 of the SupportPac provides precompiled load modules in library CA1E.lod for use with Language Environment.

5. Create the VSAM KSDS file BRQFILE using the supplied JCL.

6. Load this file by running the BRFL CICS transaction. This file contains data used by the Passthrough for analysis of the message streams.

7. Create your own VSAM ESDS file to hold logged data (if you plan to use a file to log messages flowing between the bridge exit and the Passthrough). This file can have any name. It must also be defined to CICS and installed, and must be ENABLED and ADDABLE.

8. Create your own transient data queues to hold logged data (if you plan to use TD to log messages flowing between the bridge exit and the Passthrough). These TD queues can be defined as either INTRAPARTITION or EXTRAPARTITION and must have the attributes IOTYPE(OUTPUT) and PRINTCONTROL(NOCTL).

9. Add the group BRQTOOL to your startup group list, or use CEDA to install the group dynamically.

Customization

The transactions BRTS, BRTD, BRLI, and BRMQ invoke the programs BRQTS, BRQTD, BRQLI, and BRQMQ respectively. These programs set the default values for the master screen. You can change these defaults by editing the programs and recompiling them.

The Passthrough uses the prefix BRQ for all program and map names and the VSAM KSDS file. You may change this if you wish, but the value you choose must be used consistently across all the resources.

Many of the data fields that are displayed by the programs BRQVBRIH, BRQ3270, BRQRETV, BRQEDIT, BRQLOGBR, and BRQVMQCH are validated for displayable characters. Any character not considered to be displayable is replaced with a '.'. The displayable character set is defined in the level 88 variable DT-DISP in copybook DSPTRNWO. To vary the character set content you can change the list of characters defined in this copybook and recompile the above programs.

Chapter 3. Running the Passthrough transactions

This chapter explains how you start the Passthrough transactions and describes the Passthrough functions that you can select from the screens.

Starting the Passthrough transactions

You start the Passthrough by entering one of the following transaction names on a CICS 3270 terminal that is attached to a CICS region where the Passthrough transactions and 3270 Bridge transactions are installed.

BRLI To start the Link3270 bridge Passthrough. (CICS TS Release 2.2 using CAIE Release 3 only)

BRTS To start the 3270 START bridge Passthrough with a bridge exit that will use TS queues to pass 3270 data messages to the Passthrough.

BRTD To start the 3270 START bridge Passthrough with a bridge exit that will use TD queues to pass 3270 data messages to the Passthrough.

BRMQ To start the 3270 START Bridge with a bridge exit that will use MQ queues to pass 3270 data messages to the Passthrough.

The Passthrough master screen is then displayed. Before you enter PF2 to run the Passthrough, you must enter required fields, such as the name of the user CICS transaction that is to be driven by the bridge, and also use the PF5 and PF9 keys to enter any RETRIEVE data and set up logging options.

Screen formats

The heading line on all screens has the following format:

```
BRXX        ZZZZZ - CICS 3270 Bridge, Passthrough transaction
```

Where BRXX is the transaction that you entered to start the passthrough session and ZZZZZ has the following values:

LINK When BRXX is BRLI

TS Queue When BRXX is BRTS

TD Queue When BRXX is BRTD

MQSeries When BRXX is BRMQ

Using the Link3270 Passthrough master screen

The Link3270 bridge Passthrough executes in session mode. This means that you need to allocate the bridge facility explicitly before executing the user transaction, and deallocate it afterwards. See the *CICS External Interfaces Guide* for an explanation of session mode with the Link3270 bridge. The BRLI master screen provides PF keys to allow you to allocate and deallocate the bridge facility, and provides fields so that you can specify a Termid and Netname.

If the request to run the user transaction is to be routed to another CICS region, you will need a model resource definition (facilitylike) for your terminal in that

region. The passthrough provides dummy definitions that you can install in user regions. PF10 selects an appropriate definition to match your request, and places the name in the facilitylike field.

To execute a user transaction using the Link3270 bridge Passthrough, follow this sequence:
- Enter the required data into the fields on the master screen.
- Press PF7 to allocate the bridge facility.
- Examine response codes and messages.
- Use PF keys to define any RETRIEVE data (see "RETRIEVE data" on page 15) or request logging (see "Logging" on page 19).
- Press PF2 to start execution of the Passthrough

The parameters that you provide are used to build the messages that are sent to the Link3270 bridge. See the *CICS External Interfaces Guide* for full details of the parameters and message formats.

The target user transaction is then executed to end of task, and the master screen is redisplayed so that you can examine logs and messages.

To see the user screen, press PF6. Any AID key allows you to return to the master screen.

The Link3270 bridge Passthrough master screen

```
 BRLI            LINK - CICS 3270 Bridge, Passthrough Transaction


 Overtype to modify then press PF2

  BRIH values                                    Requested
   Transaction id    ==>                  Termid        ==>
   Startcode         ==>                  Netname       ==>
   Aid               ==> ENTER
   Cursor Position   ==>    0
                                          GET WAIT interval
   FACILITYLIKE      ==> TC09
   FACILITY          ==> 0000000000000000  Server        ==>      90000
   FACILITY keeptime ==>    500
                                          RETRIEVE data
                                            Number of areas   :  0




   Termid TC09       Date 2002/03/26      Time 16:40:06      Applid IYCQST18

 PF  1 Help      2 Execute   3 Exit     4 Results    5 Retrieve  6 User Scr
     7 Allocate  8 Dealloc   9 Logging  10 Term mdl 11 Clr User 12 Exit
```

Figure 3. Passthrough master screen for BRLI

Using the START bridge Passthrough master screen

Enter the required data into the fields on the master screen, and use the PF keys to define RETRIEVE data (see "RETRIEVE data" on page 15) or request logging (see "Logging" on page 19). The parameters that you provide are used to build the MQCIH header in the messages that are sent to the 3270 Bridge. See the *CICS External Interfaces Guide* or the *MQSeries – CICS/ESA Bridge user's Guide* for details of the message format and function of the MQCIH.

To execute a user transaction using the START bridge Passthrough, follow this sequence:

- Enter the required data into the fields on the master screen.
- Use PF keys to define any RETRIEVE data (see "RETRIEVE data" on page 15) or request logging (see "Logging" on page 19).
- Press PF2 to start execution of the Passthrough

The target user transaction is then executed to end of task, and the master screen is redisplayed so that you can examine logs and messages.

To see the user screen, press PF6. Any AID key allows you to return to the master screen.

The START bridge Passthrough master screen

```
BRXX           ZZZZ - CICS 3270 Bridge, Passthrough transaction

Overtype to modify then press PF2

 MQCIH values                          Application Data Structure Descriptor
   Transaction id    ==> ----            On SEND        ==> -
   Startcode         ==> --              On RECEIVE     ==> -
   Aid               ==> -----           Short/Long     ==> -
   Cursor Position   ==> ----
   Authenticator     ==> --------     GET WAIT interval
   FACILITYLIKE      ==> ----            Requester      ==> ---------
   FACILITY          ==> ---------------  Server        ==> ---------
   FACILITY keeptime ==> ------
                                       RETRIEVE data
                                         Number of areas :
USERID               ==> --------
Monitor queue        ==> --------
Reply to queue       ==> --------


Termid         Date                Time              Applid

PF  1 Help    2 Execute   3 Exit     4 Results   5 Retrieve   6 User Scr
    7         8           9 Logging  10          11 Clr User  12 Exit
```

Figure 4. Passthrough master screen for BRTS, BRTD and BRMQ

Master screen parameters

The fields have the following values:

Aid

Enter here a 5-character description of the AID key that is to be passed to the target 3270 user transaction at initialization. This field is passed to the bridge in MQCIH-ATTENTIONID (START bridge) or BRIH-ATTENTIONID (Link3270 bridge). Values can be:

ENTER
CLEAR
PA1-PA3
PF1-PF24

Application Data Structure Descriptor

Enter here the data used to determine the 1-character ADS indicator value to be passed to CICS on the initialization call of the bridge exit for the START bridge:

On Send

Enter here **Y** for YES or **N** for NO

On Receive

Enter here **Y** for YES or **N** for NO

Short or Long

Enter her **S** for SHORT or **L** for LONG

This field is passed to the bridge in MQCIH-ADSDESCRIPTOR.

Applid

This is the VTAM® applid of the CICS region where the Passthrough transaction is running.

Authenticator

Enter here the 8-character password that is to be passed to CICS on the initialization call of the bridge exit for the START bridge. This field is passed to the bridge in MQCIH-AUTHENTICATOR. Note that the password and USERID are not passed in the same message. This is intended to reduce the security risk if the messages are intercepted. The authenticator is stored in an encrypted form by the Passthrough and is decrypted only immediately before display or transmission in the MQCIH. This reduces the possibility of detecting the authenticator in a dump.

Cursor Position

Enter here the 4-digit cursor position that is to be passed to the target 3270 user transaction. This field is passed to the bridge in MQCIH-CURSORPOSITION (START bridge) or BRIH-CURSORPOSITION (Link3270 bridge).

Date

This is the current date.

Facility

For the START bridge, enter here the 8-character FACILITY value, in hexadecimal notation, that is to be passed to CICS on the initialization call of the bridge exit in MQCIH-FACILITY. On the BRLI screen for the Link3270 bridge, this is an output field, showing the facility token generated by CICS after PF7 has been pressed to allocate a bridge facility.

Facility keep time

Enter here the 6-digit keep time value, in seconds, that is to be passed to CICS. This field is passed to the bridge in MQCIH-FACILITYKEEPTIME (START bridge) or BRIH-FACILITYKEEPTIME (Link3270 bridge).

Facilitylike

For the START bridge enter here the 4-character FACILITYLIKE name that is to be passed to CICS on the initialization call of the bridge exit. This field defaults to the Termid of the terminal that initiated the BRxx transaction. This field is passed to the bridge in MQCIH-FACILITYLIKE. On the BRLI screen, you can enter a value here, or use PF10 to generate a value selected from dummy definitions provided by CICS.

GET WAIT Interval

Enter here the 9-digit timeout value, in milliseconds, to be used by the Passthrough (Requester) or by the Bridge (Server). The server value is passed to the bridge in MQCIH-GETWAITINTERVAL (START bridge) or .BRIH-GETWAITINTERVAL (Link3270 bridge). Note that BRLI only supports a wait interval for the server.

Monitor queue

For the START bridge, enter here the 8-character name of the TS queue, the 4-character name of the TD queue or the 48-character name of the MQSeries queue to be used to pass messages from the Passthrough to the bridge exit. This field is passed to the bridge in the START data for the bridge transaction.

Monitor queue manager

Enter here the name of the MQSeries queue manager used by the MQSeries - CICS Bridge. This field is present only on the master screen for BRMQ.

Netname

On the Link3270 master screen this is where you can provide a netname for the bridge facility, otherwise CICS generates one for you and displays it here.

Reply to queue

For the START bridge enter here the 8-character name of the TS queue, the 4-character name of the TD queue or the 48-character name of the MQSeries queue to be used to pass messages from the bridge exit to the Passthrough. This field is passed to the bridge in the START data for the bridge transaction.

RETRIEVE data

The number of data items to be passed on the START of the bridge transaction, for subsequent RETRIEVE by the target 3270 user transaction. This is an output only field. PF5 on this screen allows you to dynamically define this data.

Start code

Enter here the 2-character STARTCODE that is to be passed to the target 3270 user transaction. This field is passed to the Bridge in MQCIH-STARTCODE (START bridge) or BRIH-STARTCODE (Link3270 bridge).

Termid (last line)

. On the last line of all screens this is the TERMID of the CICS terminal displaying this screen.

Termid (Requested)

On the Link3270 master screen this is where you optionally provide a name for the bridge facility, otherwise CICS will generate one for you and display it here.

Time

This is the current time.

Transaction id

Enter here the 4-character name of the target 3270 user transaction that you want to run. This field is passed to the Bridge in MQCIH-TRANSACTIONID (START bridge) or BRIH-TRANSACTIONID (Link3270 bridge).

Userid

For the START bridge enter here the 8-character USERID that is to be passed to CICS on the initialization call of a TS or TD queue bridge exit. This field is passed to the bridge in the START data . MQSeries uses other means to pass the USERID. See the *MQSeries —CICS/ESA Bridge user's Guide* for details.

Master screen PF keys

The PF keys on the master screen invoke all the services provided by the Passthrough.

PF1

Help information.

PF2

Run the Passthrough, using the data provided on the master screen.

PF3

Exit.

PF4

Show the Results panel.

PF5

Invokes further screens that help you to define the RETRIEVE vectors to be passed to the CICS 3270 Bridge to satisfy RETRIEVE commands issued by the target 3270 CICS transaction. See the *CICS External Interfaces Guide* for details of the formats of the CICS 3270 message vectors.

PF6

Shows the user screen. This is similar to the effect of PF6 when using the CICS execution diagnostic facility (EDF). Any data entered into the user screen is ignored. You can return to the master screen by pressing any AID key.

PF7

On the Link3270 master screen, drives the allocation of a bridge facility for the Link3270 session.

PF8

On the Link3270 master screen, drives the deallocation of a bridge facility used by a Link3270 session.

PF9

Invokes further screens that define the logging of message flows if required.

PF10

On the Link3270 master screen, drives the allocation of a facilitylike in a routed region. CICS provides model terminal definitions that you can install in all routed regions. PF10 matches your terminal to one of these and puts the Termid into the **Facilitylike** field in the screen.

PF11

Clears the user screen.

PF12

Exit.

RETRIEVE data

PF5 on the Passthrough master screen invokes the following screen to help you define data to be passed to the target user transaction to satisfy RETRIEVE requests.

```
BRXX      ZZZZ - CICS 3270 Bridge, Passthrough transaction
                         Retrieve Areas
Cmd  Length   RTERMID RTRANSID-------Queue-----------------------Content---




















Termid        Date                Time              Applid

PF  1 Help    3 Return   12 Exit
Commands ADD   DELete   DATa   EXClude   INClude   ILV   ISP   Ixx   Onn   =
```

Figure 5. Retrieve areas

There are 16 free lines on the screen. Each line can define an item of RETRIEVE data. The commands shown on the bottom line of the screen can be entered under 'Cmd' to create or define the data (Note that you only enter the first 3 characters of the command). Press ENTER to process each command.

ADD
If you enter the command 'ADD', and press ENTER, a skeleton line is presented for you to overtype, with fields aligned under the headings shown on the top line. Each field is shown preceded by X. This means that by default this field will be excluded. You must remove this X to include the field. A data field of the length specified is then provided. You can define the content of this field using DATa. The 'Content' field is display only.

DEL
If you enter the command **DEL** against an existing entry, and press ENTER, the entry is deleted.

DAT
If you enter the command **DAT**, against an existing entry, an edit screen is shown, to allow you to create or edit the RETRIEVE data to be passed to the target user transaction. This screen is described in "The Passthrough editor" on page 16.

EXC
If you enter the command **EXC**, against an existing entry, that entry will be excluded from the RETRIEVE vectors passed to the bridge exit.

ILV

If you enter the command **ILV**, against an existing entry, the data field is initialized to 'low values' - hexadecimal zeroes.

INC

If you enter the command **INC**, against an existing entry, that entry will be included in the RETRIEVE vectors passed to the bridge exit.

ISP

If you enter the command **ISP**, against an existing entry, the data field is initialized to spaces - hexadecimal '40'.

Ixx

If you enter the command **Ixx**, against an existing entry, the data field is initialized to hexadecimal 'xx'.

Onn

If you enter the command **Onn**, against an existing entry, that entry is moved to position 'nn' in the list.

=   If you enter the command **=**, against an existing entry, the last command entered is reissued.

The Passthrough editor

The following shows a typical edit screen:

```
BRXX        ZZZZ        - CICS 3270 Bridge, Passthrough transaction
                                     Editor
Address 0F512E58  New offset  0000                        Length  0064
0F512E58    0000       00000000 00000000 00000000 00000000   ................
0F512E68    0010       00000000 00000000 00000000 00000000   ................
0F512E78    0020       00000000 00000000 00000000 00000000   ................
0F512E88    0030       00000000 00000000 00000000 00000000   ................
0F512E98    0040       00000000 00000000 00000000 00000000   ................
0F512EA8    0050       00000000 00000000 00000000 00000000   ................
0F512EB8    0060       00000000                               ....




Termid         Date                  Time                  Applid
PF  1 Help    2           3 Return   4             5 Top   6 Bottom
    7 BK Half 8 FW Half   9          10 BK Page  11 FW Page   12 Exit
```

Figure 6. Passthrough Edit screen

You can enter a value in 'New offset' to move further into the data , or use the back (BK) or forward (FW) PF keys. You can enter hexadecimal data in the central part of the display, or character data on the right (overwriting the ...). Hexadecimal data overrides character data. Press PF3 'RETURN' to save the data and return to the previous screen.

Results

After you have run the Passthrough, you can display the following diagnostic screen by pressing PF4:

Diagnostic screen

```
BRXX       ZZZZ - CICS 3270 Bridge, Passthrough transaction
                           Results
                         Diagnostics
             Returncode
             Function
             Completion Code      0
             Reason               0
             Error Program
             Resource
             Error Offset
             Last Item Read
             Abend Code




                     Syncpoint Counts
             Committed        0         Rolledback     0
Termid          Date                Time                  Applid

PF  1 Help   2           3 Return   4          5 Retrieve   6 User Scrn
    7        8           9          10        11 Clr User  12 Exit
```

Figure 7. Passthrough results screen

This screen displays diagnostic information returned in the MQCIH from the bridge exit when using the START bridge, or in the BRIH when using Link3270. The *MQSeries —CICS/ESA Bridge user's Guide* contains a full description of the MQCIH. The fields have the following values:

Abend Code
The value returned in MQCIH-ABENDCODE (START bridge) or BRIH-ABENDCODE (Link3270 bridge). This is the CICS abend code if the transaction abends, otherwise it is set to blanks. If an abend code is returned, further information about the abend will be displayed on the screen.

Completion Code
The description of the CICS EIBRESP or MQ completion code.

Error Offset
The value returned in MQCIH-ERROROFFSET (START bridge) or BRIH-ERROROFFSET (Link3270 bridge). This is the offset from the start of the message to the location of the invalid data.

Error Program
The name of the program that experienced the function failure. This could also be a Passthrough program.

Function
The description of the CICS or MQ function that encountered the error.

Last Item Read

For the START bridge the value returned in the MQCIH-INPUTITEM field. This is the current TS queue item number being processed by the bridge exit.

Reason

The CICS EIBRESP2 or description of the MQ Reason code.

Resource

The name of the resource involved when the function failed. For example, this is the program name when the CICS condition PGMIDERR is raised.

Returncode

The description of the value returned in the Returncode field of the MQCIH or BRIH.

Syncpoint Counts

For the START bridge the number of times that the states **MQCUOWC-COMMIT** and **MQCUOWC-BACKOUT** have been returned from the bridge exit during the execution of the last CICS user transaction. For the Link3270 bridge these fields show the number of Syncpoint vectors that have flowed.

Logging

PF9 on the Passthrough master screen displays the following screen to control logging of the message flows through the bridge. You can call this screen from the master screen to set up logging options before you use PF2 to start the Passthrough, Hit ENTER after filling in the fields to record them before using PF3 to return to the master screen. You can also call this screen again after return from execution of the Passthrough, to examine the logs created.

```
BRXX       QQQQQQQQ - CICS 3270 Bridge, Passthrough transaction
                          Logging Control

                         Log Put Messages   ---
                         Name            Written    State
          Temporary Storage   --------
          Transient Data      --------
          File                --------


                         Log Get Messages   ---
                         Name            Written    State
          Temporary Storage   --------
          Transient Data      --------
          File                --------



Termid         Date                   Time                Applid

PF  1 Help    2           3 Return    4         5             6
    7         8           9 View TS  10        11            12 Exit
```

Figure 8. Logging Control

The fields have the following values:

File
> Enter here the name of a file if you want logs to be written to a VSAM file. The file must be ESDS, OPEN and enabled and defined as addable. It must be defined locally.

Log Get Messages
> To select logging of 'Get' messages, that flow from the bridge exit to the Passthrough, enter **yes**,**ye**, or **y** in this field. The default is NO.

Log Put Messages
> You select logging of 'Put' messages, that flow from the Passthrough to the bridge exit, by entering **yes**, **ye**, or **y** in this field. The default is NO.

State
> This field displays the state of the log resource. This can be NOTOPEN, NOTENABLED, NOTOUTPUT, NOTLOCAL, UNDEFINED, INVPRTCTRL, NOTESDS or NOTADDABLE.

Temporary Storage
> Enter here the 8-byte name of a temporary storage queue if you want logs to be written to TS. You may choose any name. If you choose to log to temporary storage, you can return to this screen after you have run the Passthrough and

use PF9 on this screen to display the content of the queue selected by the cursor. "Browsing TS logs" shows an example of the Browse Logged Messages display screen

Transient Data
Enter here the 8-byte name of a transient data queue if you want logs to be written to TD. This queue can be Intra or Extra and can be indirect. It must be defined locally and must be enabled. If Extra, it must be OPEN and enabled for output and must be defined with no PRINT CONTROL.

Written
This field displays the number of records written.

Browsing TS logs

You can use PF9 on the Logging Control panel to display the content of the TS log selected by the cursor. The following screen is displayed, listing the log entries written. You can select any entry with the cursor and display the content using the PF9 Analyze function. The following shows a typical log browse screen:

```
 BRLI              LINK - CICS 3270 Bridge, Passthrough Transaction
 TS Queue ROSP                 Browse Logged Messages
  Item   Len  Content-------------------------------------------------------
  00001 00688 BRIH..............................................................
              ---- End of Temporary Storage Queue ----

















  Termid TC01       Date 2002/03/28       Time 16:07:57      Applid IYCQST18

 PF  1 Help     2 Delete Q  3 Return    4 Brws Msg  5 Top      6 Bottom
     7 BK Half  8 FW Half   9 Analyze  10 BK Page  11 FW Page  12 Exit
```

Figure 9. Browsing TS logs

To browse the messages, you select an Item with the cursor, then use PF4 to display the message content. The format of this display screen is the same as the editor screen described in "The Passthrough editor" on page 16.

You can also invoke the Analyze function with PF9. This extracts the vectors from the selected message and displays the fields that they contain.

Analyzing TS logs

PF9 on the Browse Logged Messages panel displays the vectors that form a selected logged message. The following shows a typical View Vector screen:

```
 BRLI            LINK - CICS 3270 Bridge, Passthrough Transaction
 Message number    1            View Vector              Message length 02B0
 Offset 0000                 Message Header Vector             Length 00B4
 Offset   Field--------------------------    Value--------------------------
  0000    Structure identifier              BRIH
  0004    Structure version number                 1
  0008    Length of brih structure               180
  000C    Reserved                                 0
  0010    Reserved                                 0
  0014    Reserved                           ........
  001C    Reserved                                 0
  0020    Return code                       OK
  0024    EIBRESP or extra info             NORMAL
  0028    EIBRESP2 or extra info                   0
  002C    Reserved                                 0
  0030    Read wait interval (msecs)           90000
  0034    Length of remaining message              0
  0038    Length of message                      688
  003C    Bridge facility expiry                 300
  0040    Send/Receive ads descriptor       YES
  Termid TC01      Date 2002/03/28      Time 16:09:20      Applid IYCQST18

 PF  1 Help      2 Prev Msg  3 Return    4 Next Msg  5 Frst Vctr 6 Last Vctr
     7 Prev Vctr 8 Next Vctr 9 View Fld 10 BK Page  11 FW Page  12 Exit
```

Figure 10. View Vector screen

This screen displays only the first part of the header vector in the message. You can examine the rest of the vector, and other vectors using the PF keys.

See the *CICS External Interfaces Guide* for a full description of the message vectors.

PF1
>   Help information.

PF2
>   Display the previous message in the log.

PF3
>   Return to previous screen.

PF4
>   Display at the next message in the log.

PF5
>   Display the first vector in this message.

PF6
>   Display the last vector in this message.

PF7
>   Display the previous vector in this message.

PF8
>   Display the next vector in this message.

PF9
>   Display the content of a selected field. The format of this display screen is the same as the editor screen described in "The Passthrough editor" on page 16.

PF10
>   Display the previous page of the currently displayed vector.

PF11
 Display the next page of the currently displayed vector.

PF12
 Exit.

Chapter 4. Problem Determination

The Results screen, displayed by pressing PF4 on the Passthrough master screen, provides diagnostic information for errors occurring in the user program, the bridge exit, or the Passthrough itself. See "Results" on page 17 for details of the results screen.

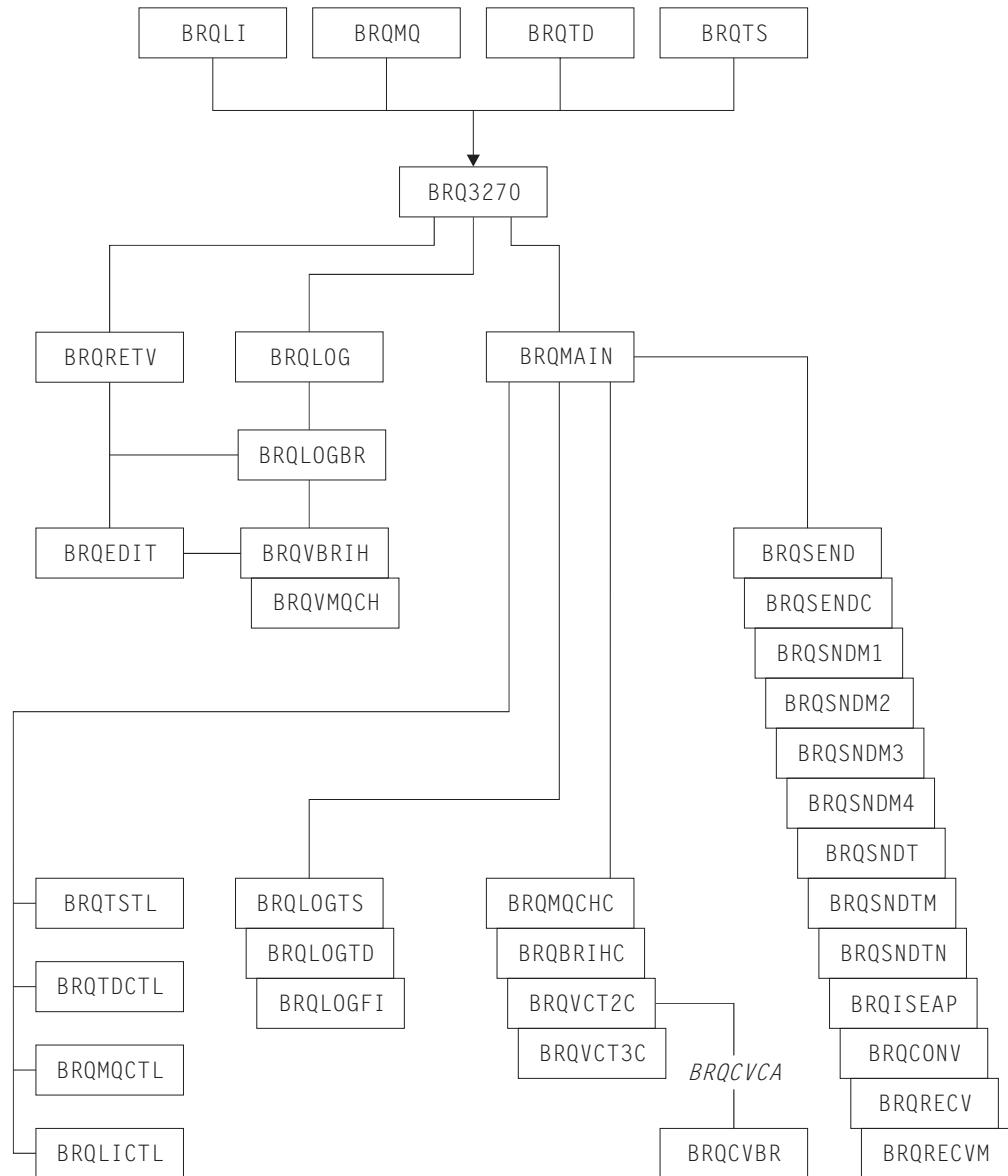The following diagram shows the flow through the Passthrough programs:

Figure 11. Passthrough program linkage

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