

CICS for MVS/ESA



CICS ONC RPC Feature for MVS/ESA

CICS/ESA 3.3 and CICS for MVS/ESA 4.1

CICS for MVS/ESA



CICS ONC RPC Feature for MVS/ESA

CICS/ESA 3.3 and CICS for MVS/ESA 4.1

Note!

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

First edition (February 1996)

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Preface

What this book is about

This book describes the CICS ONC RPC Feature for MVS/ESA Version 1 Release 1. It provides an introduction to CICS ONC RPC, guidance on system and application programming, and reference information. It is the only book supplied with CICS ONC RPC, and therefore describes all aspects of it.

Who this book is for

This book is written for those responsible for the following tasks:

- Evaluating and planning for CICS ONC RPC
- System administration
- Application programming and system programming
- Customizing CICS ONC RPC
- Problem determination.

What you need to know to understand this book

The book assumes that you are familiar with CICS, either as a system administrator, or as a system or application programmer. It assumes no knowledge of ONC RPC.

Notes on terminology

“CICS/ESA 3.3” is used for CICS/ESA Version 3 Release 3.

“CICS/ESA 4.1” is used for CICS for MVS/ESA Version 4 Release 1.

“MVS” refers to the Multiple Virtual Storage/Enterprise Systems Architecture (MVS/ESA) operating system.

“ONC RPC” is used for Sun Microsystems’ Open Network Computing Remote Procedure Call.

Typographical conventions

Program elements in lower case or mixed case are always printed bold, thus: **decode_response** (a field in a structure), **Getlengths** (a function).

Program elements in upper case are always printed in normal type, thus: URP_EXCEPTION (a response code).

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For CICS for MVS/ESA books, these softcopy updates appear regularly on the *Transaction Processing and Data Collection Kit* CD-ROM, SK2T-0730-xx. Each reissue of the collection kit is indicated by an updated order number suffix (the -xx

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- When the softcopy version of a publication is updated for a new collection kit the order number it shares with the hardcopy version does not change. Also, the date in the edition notice remains that of the original publication. To compare softcopy with hardcopy, and softcopy with softcopy (on two editions of the collection kit, for example), check the last two characters of the publication's filename. The higher the number, the more recent the publication. For example, DFHPF104 is more recent than DFHPF103. Next to the publication titles in the CD-ROM booklet and the readme files, asterisks indicate publications that are new or changed.
- Updates to the softcopy are clearly marked by revision bars (usually a “#” character) to the left of the changes.

Bibliography

The ONC RPC architecture

Descriptions of ONC RPC are provided in:

- *The Art of Distributed Applications: Programming Techniques for Remote Procedure Calls*, John R. Corbin, Springer-Verlag, New York, 1991, ISBNs 0-387-97247-1, 3-540-97247-1
- *Power RPC Programming*, John Bloomer, O'Reilly, Sebastopol, CA, 1992, ISBN 0-937-17577-3.

ONC RPC is the RPC system implemented by Sun Microsystems Inc. The following includes a description of ONC RPC:

- *Network Programming*, Sun Microsystems Inc. The Sun order number is 800-3850-10.

TCP/IP for MVS manuals

TCP/IP for MVS is a prerequisite for the CICS ONC RPC Feature for MVS/ESA. The books for the TCP/IP for MVS library are listed below. Note that the TCP/IP for MVS version of the ONC RPC interface is described in the *Programmer's Reference* book.

Version 2 Release 2.1

- *TCP/IP for MVS, VM, OS/2, DOS: Introduction*, GC31-6080
- *TCP/IP for MVS Version 2.2.1 Planning and Customization*, SC31-6085
- *TCP/IP for MVS Version 2.2.1 Programmer's Reference*, SC31-6087
- *TCP/IP for MVS Version 2.2.1 User's Guide*, SC31-6088
- *TCP/IP for MVS Version 2.2.1 Messages and Codes*, SC31-6142
- *TCP/IP for MVS Version 2.2.1 Offload of TCP/IP processing*, SC31-7033
- *TCP/IP for MVS Version 2.2.1 Quick Reference*, SX75-0082

Version 3 Release 1

- *TCP/IP for MVS, VM, OS/2, DOS: Introduction*, GC31-6080
- *TCP/IP for MVS Version 3.1 CICS TCP/IP Socket Interface Guide and Reference*, SC31-7131
- *TCP/IP for MVS Version 3.1 Offloading TCP/IP Processing*, SC31-7133
- *TCP/IP for MVS Version 3.1 Customization and Administration Guide*, SC31-7134
- *TCP/IP for MVS Version 3.1 Programmer's Reference*, SC31-7135
- *TCP/IP for MVS Version 3.1 User's Guide*, SC31-7136
- *TCP/IP for MVS Version 3.1 Application Programmer's Interface Reference*, SC31-7187
- *TCP/IP for MVS Version 3.1 Performance Tuning Guide*, SC31-7188
- *TCP/IP for MVS Version 3.1 Planning and Migration Guide*, SC31-7189
- *TCP/IP for MVS Version 3.1 Quick Reference*, SX75-0013
- *TCP/IP for MVS Version 3.1 Diagnosis Guide*, LY43-0105.

Programming manuals

The following manuals might be useful for writing programs for CICS ONC RPC.

C/370

- *IBM C/370 General Information*, GC09-1358
- *IBM C/370 User's Guide*, SC09-1264
- *IBM C/370 Programming Guide*, SC09-1384
- *IBM C Reference—Level 2*, SC09-1308
- *IBM C/370 Reference and Summary*, SX09-1247

COBOL

- *IBM VS COBOL II Application Programming Guide*, SC26-4045
- *VS COBOL II Application Programming: Language Reference*, GC26-4047
- *VS COBOL II Usage in a CICS/ESA and CICS/MVS Environment*, GG24-3509
- *VS COBOL II Application Programming and Debugging*, SC26-4049

PL/I

- *PL/I Programming: Language Reference*, SC26-4308
- *PL/I Optimizing Compiler Programmer's Guide*, SC33-0006

Assembler

- *IBM ESA/370 Principles of Operation*, SA22-7200.
- *Assembler H Version 2 Application Programming Guide*, SC26-4036
- *Assembler H Version 2 Application Programming Language Reference*, GC26-4037

Language Environment/370

- *IBM SAA AD/Cycle Language Environment/370 Programming Guide*, SC26-4818
- *IBM SAA AD/Cycle Language Environment/370 Programming Reference*, SC26-3312
- *IBM SAA AD/Cycle Language Environment/370 Installation and Customization Guide*, SC26-4817.

CICS/ESA 3.3 manuals

You might find the following manuals useful during installation, setup, programming, and problem determination with CICS ONC RPC in the CICS/ESA 3.3 environment.

Administration

- *Installation Guide*, SC33-0663
- *System Definition Guide*, SC33-0664
- *Customization Guide*, SC33-0665
- *Resource Definition (Online)*, SC33-0666
- *Resource Definition (Macro)*, SC33-0667
- *Operations Guide*, SC33-0668
- *CICS-Supplied Transactions*, SC33-0669

Programming

- *Application Programming Guide*, SC33-0675
- *Application Programming Reference*, SC33-0676
- *System Programming Reference*, SC33-0670

Diagnosis

- *Problem Determination Guide*, SC33-1176
- *Messages and Codes*, SC33-0672
- *Diagnosis Handbook*, LX33-6093
- *Diagnosis Reference*, LY33-6082
- *Data Areas*, LY33-6083

CICS/ESA 4.1 manuals

You might find the following manuals useful during installation, setup, programming, and problem determination with CICS ONC RPC in the CICS/ESA 4.1 environment.

Administration

- *Installation Guide*, SC33-1163
- *System Definition Guide*, SC33-1164
- *Customization Guide*, SC33-1165
- *Resource Definition Guide*, SC33-1166
- *Operations and Utilities Guide*, SC33-1167
- *CICS-Supplied Transactions*, SC33-1168

Programming

- *Application Programming Guide*, SC33-1169
- *Application Programming Reference*, SC33-1170
- *System Programming Reference*, SC33-1170

Diagnosis

- *Problem Determination Guide*, SC33-1176
- *Messages and Codes*, SC33-1177
- *Diagnosis Handbook*, LX33-6093
- *Diagnosis Reference*, LY33-6082
- *Data Areas*, LY33-6083
- *Supplementary Data Areas*, LY33-6081

OE DCE AS/CICS

The following manual describes another IBM product providing RPC access to CICS programs.

- *MVS/ESA OpenEdition DCE: Application Support Programming Guide Version 1 Release 1*, SC09-1530

Chapter 1. Introduction to ONC RPC

This chapter:

- Gives a brief summary of CICS ONC RPC
- Introduces ONC RPC
- Describes the TCP/IP family of protocols
- Describes the facilities of ONC RPC
- Describes the naming and routing conventions of ONC RPC.

CICS ONC RPC—a brief summary

CICS ONC RPC allows client applications to access CICS for MVS/ESA programs by calling them as remote procedures using the ONC RPC format. It is a feature of CICS/ESA 3.3 and 4.1.

CICS ONC RPC can be used

- To allow clients to use existing CICS programs and the transaction processing services they provide
- To allow clients to use newly created CICS programs.

TCP/IP for MVS is a prerequisite for CICS ONC RPC; it provides the library code for Sun Microsystems' ONC RPC Version 3.9. Hence, CICS ONC RPC servers work with any remote client compatible with ONC RPC Version 3.9, regardless of operating system or machine type. See *TCP/IP for MVS Programmer's Reference* for information about the function of ONC RPC Version 3.9 supported by TCP/IP for MVS.

Figure 1 shows how CICS ONC RPC allows a variety of client applications to communicate with CICS programs using ONC RPC.

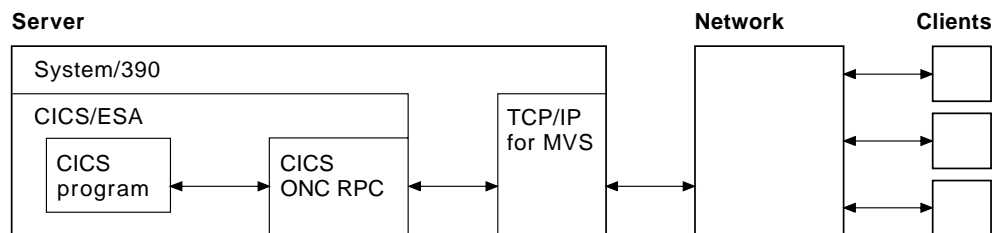


Figure 1. How CICS ONC RPC might be used

The CICS program called to service a client request is executed by a transaction that has no principal facility. It is therefore not allowed to use some commands of the CICS application programming interface:

- Terminal control commands that reference the principal facility
- Options of EXEC CICS ASSIGN that return terminal attributes
- BMS commands
- Signon and signoff commands.

Introduction to ONC RPC

This section introduces the basics of ONC RPC operation, its place in TCP/IP networks, and how its main facilities work. It does not cover all aspects of ONC RPC or TCP/IP, only those that relate to the CICS ONC RPC Feature for MVS/ESA.

CICS ONC RPC

In the rest of this chapter, boxes like this point out how CICS ONC RPC implements the area of ONC RPC being described in the text.

RPC

When a process invokes or calls a process on a remote system, that call is a *remote procedure call (RPC)*. The calling process is a *client* (that is, a process requesting a service); the remote process is a *server* (a process offering a service). As shown in Figure 2, the client sends a request for a procedure to be run, and supplies parameters for that particular run. Once the server has run the procedure, it returns the reply.

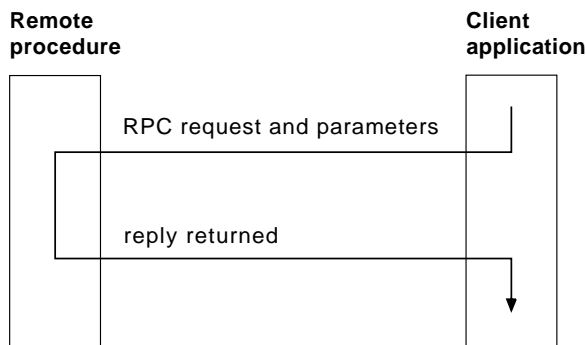


Figure 2. Basic RPC operation

In the RPC model, there is no provision for coordinating changes to recoverable resources in different servers, nor for coordinating changes to recoverable resources in successive calls to the same server. Committing changes to recoverable resources is under the control of the remote procedure, not the client application.

Several RPC implementations have been developed and are now available on a variety of systems. RPC allows a programmer to network an application by distributing the procedures that make up the application across different processors. This is done without the programmer becoming involved with the details of the communication interface required to transmit the parameters to and from the remote procedures.

ONC

ONC is Open Network Computing, a range of software developed by Sun Microsystems. As well as the ONC RPC routines, Sun provides XDR (eXternal Data Representation) routines, which are used for data conversion. The ONC RPC and XDR protocols and formats are supported on many different platforms.

CICS ONC RPC

CICS ONC RPC allows users to run only ONC RPC servers under CICS for MVS/ESA hosts. It does not support client applications running under CICS for MVS/ESA.

TCP/IP

ONC RPC applications use the TCP/IP family of protocols.

TCP/IP protocols

TCP/IP is a communication protocol used between physically separated computer systems. TCP/IP can be implemented on a wide variety of physical networks.

TCP/IP is a large family of protocols that is named after its two most important members, Transmission Control Protocol and Interface Protocol. Figure 3 shows the TCP/IP protocols used by CICS ONC RPC in terms of the layered Open Systems Interconnection (OSI) model. For CICS users, who may be more accustomed to SNA, the left side of Figure 3 shows the SNA layers that correspond very roughly to the OSI layers.

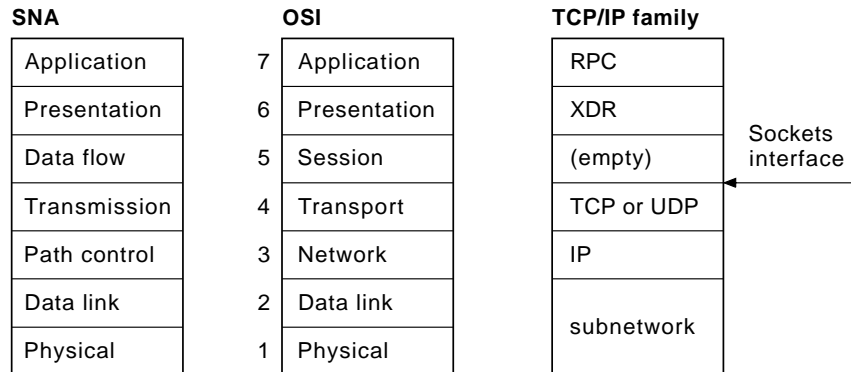


Figure 3. TCP/IP protocols compared to the OSI and SNA models

The protocols used by CICS ONC RPC are shown in the right-hand box in Figure 3.

Internet Protocol (IP)

In terms of the OSI model, IP is a network-layer protocol. It provides a *connectionless* data transmission service and supports both TCP and UDP. Data is transmitted link by link; an end-to-end connection is never set up during the call. The unit of data transmission is the *datagram*.

Transmission Control Protocol (TCP)

In terms of the OSI model, TCP is a transport-layer protocol. It provides a *connection-oriented* data transmission service between applications, that is, a connection is established before data transmission begins. TCP has more error checking than UDP.

CICS ONC RPC

CICS ONC RPC supports the use of TCP as the transmission protocol. TCP requests use more TCP/IP for MVS resources than UDP requests.

User Datagram Protocol (UDP)

UDP is also a transport-layer protocol and is an alternative to TCP. It provides a connectionless data transmission service between applications. UDP has less error checking than TCP. If UDP users want to be able to respond to errors, the communicating programs must establish their own protocol for error handling. When ONC RPC uses UDP, some error checking is performed by the ONC RPC code. With high-quality transmission networks, UDP errors are of little concern.

CICS ONC RPC

CICS ONC RPC supports the use of UDP as the transmission protocol. UDP requests use less TCP/IP for MVS resources than TCP.

ONC RPC and XDR

ONC RPC and XDR correspond to the seventh and sixth OSI layers.

Sockets interface

The interface between the fourth and higher layers is the *sockets* interface. In some TCP/IP implementations, the sockets interface is the API that customers use to write their higher-level applications. With ONC RPC, however, this interface is largely transparent, and is not described in this document.

TCP/IP internet addresses and ports

TCP/IP provides for process-to-process communication, which means that calls need an addressing scheme that specifies both the physical host connection (Host A and Host B in Figure 4) and the software process or application (C, D, E, F, G, and H). The way this is done in TCP/IP is for calls to specify the host by an *internet address* and the process by a *port number*. You may find internet addresses also referred to elsewhere as internet protocol (IP) addresses or host IDs.

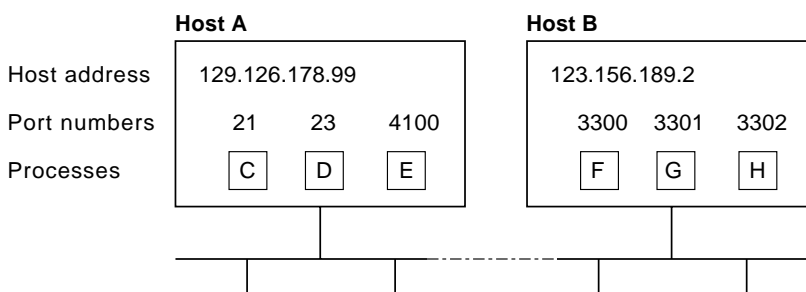


Figure 4. How applications are addressed

Internet addresses: Each host on a TCP/IP internet is identified by its internet address. An internet address is 32 bits, but it is usually displayed in dotted decimal notation. Each eight bits is converted to a decimal number in the range 0 to 255, and the four numbers are separated by dots thus: 129.126.178.99.

Remember that an internet is a collection of networks — hence the internet address must specify both the network and the individual host. How this is done varies with the size of the network. In the example just given, 129.126 specifies the network, 178.99 specifies the host on that network.

Port numbers (for servers): An incoming connection request specifies the server that it wants by specifying the server's port number. For instance, in Figure 4 on page 4, a call requesting port number 21 on host A is directed to process C.

Well-known ports identify servers that carry standard services such as the File Transfer Protocol (FTP) or Telnet. The same service is always allocated the same port number, so, for example, FTP is always 21 and Telnet always 23. Networks generally reserve port numbers 1 through 255 for well-known ports.

Application programmers may use port numbers from 256 to 32767 for nonstandard servers.

Port numbers (for clients): Client applications must also identify themselves with port numbers so that server applications can distinguish different connection requests. The method of allocating client port numbers must ensure that the numbers are unique; such port numbers are termed *ephemeral port numbers*. For example, in Figure 4 on page 4, process F is shown with port number 3300 on host B allocated.

ONC RPC facilities

The ONC RPC implementation consists of:

- **XDR routines.** XDR library functions are supplied to enable conversion to and from the standard data format for transmission.
- **RPCGEN compiler.** This takes a user-written definition of a remote procedure interface and generates the required parts of the application that deal with the RPC interface.
- **ONC RPC API library.**

XDR routines

Data exchanged between systems engaged in ONC RPC must always flow in a standard format specified by XDR, because different machine architectures have different representations of the same information.

Both client and server use *XDR routines* to convert the input and output parameters between XDR format and the local data format. You either write these yourself, or specify an XDR library function, as described below. In Figure 5 on page 6, **inproc** and **outproc** are the XDR routines.

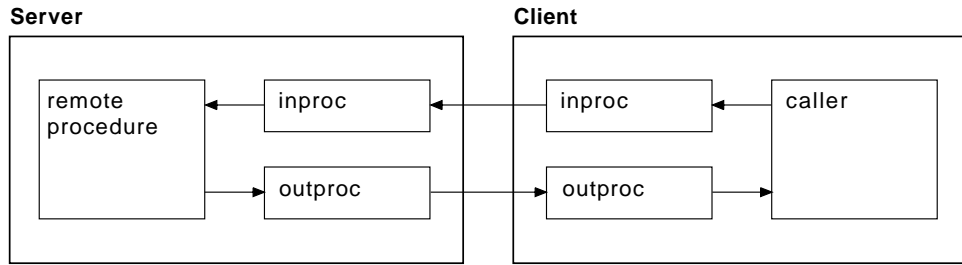


Figure 5. XDR routines used in a remote procedure call

Notice that in Figure 5, the same XDR routine, **inproc**, is used to encode and decode the data as it flows from client to server, and similarly for **outproc** as it flows back to the client. The source for **inproc** is the same in the client and server, but XDR library functions in the routines are compiled to encode or decode as appropriate. Such routines are termed *bidirectional*, and they help to ensure that the encoding and decoding is done symmetrically in the two routines.

Using XDR library functions: XDR library functions are a set of C functions supplied with ONC RPC, which application programmers can use when writing XDR routines. They can be used as follows, depending on the complexity of the structure pointed to by the call argument and reply parameters.

For parameters that are simple single-field C data types

Use an XDR library function for **inproc** and **outproc**.

For parameters that are C data type vectors, arrays, strings, and so on

Use an XDR library function for **inproc** and **outproc**.

For more complex structures

Write an XDR routine, using XDR library functions as required.

Alternatively, use the RPCGEN compiler, described in “RPCGEN compiler,” to create an XDR routine from an XDR data description.

CICS ONC RPC

CICS ONC RPC supports the use of the XDR library functions that support data conversion.

RPCGEN compiler

To use RPCGEN, you write a program definition in RPCL, a language similar to a subset of C, designed for the definition of ONC RPC distributed programs. The definition defines the data to be transferred and procedures to be used for both client and server. The client application source program is written as though the remote procedure call were a call to a local program. The code to send the call and get the reply are part of the client stub, which is generated by RPCGEN. Similarly the code the server needs to accept the call and send back the reply are part of the server stub, which is also generated by RPCGEN. Figure 6 on page 7 illustrates the role of RPCGEN in application development.

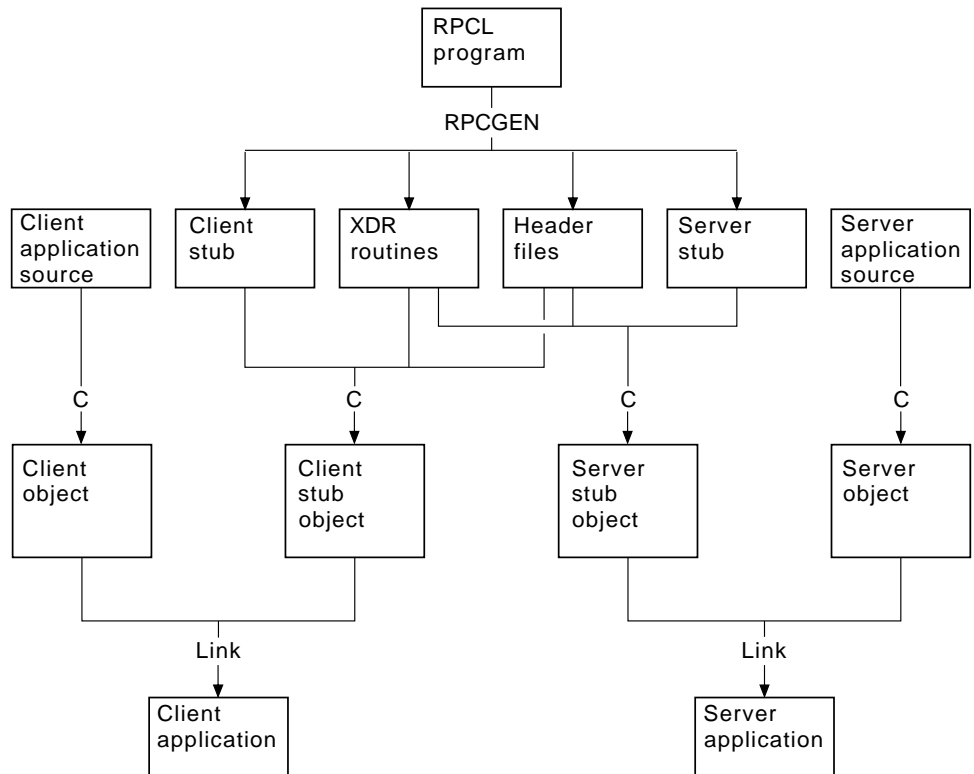


Figure 6. Using the RPCGEN compiler

CICS ONC RPC

RPCGEN may only be used for:

- Generating pairs of XDR routines, as described in the previous section
- Generating a client stub to be linked with the application for the client system
- Generating header files.

CICS ONC RPC does not use the server stub generated by RPCGEN.

ONC RPC API library

The ONC RPC API library contains two types of call: high level and low level.

The high-level ONC RPC API can be used only with UDP. It enables users to make remote procedure calls very simply and with a minimum of library calls, but at a cost of some restriction in available function. The main function of the API is provided by three calls:

registerrpc

Used in the server to register a procedure to be called as a remote procedure by clients.

svc_run

Used in the server to see if a request has arrived from a client.

callrpc

Used in the client to make a remote procedure call.

The low-level ONC RPC API contains many more calls, which give more control and flexibility. For example:

- Low-level calls give the user the choice of transport below ONC RPC, including TCP or UDP.
- With low-level calls, user-written network registration services other than the Portmapper (the Portmapper is described below) can be used.
- Low-level calls allow the variation of ONC RPC time-outs and retry values.
- Low-level calls allow standard ONC RPC authorization to be applied. Only UNIX authorization is available in ONC RPC Version 3.9.

CICS ONC RPC

CICS ONC RPC provides all the server function. You don't specify any server RPC calls.

The client can make its request with the high-level call **callrpc**, or can use low-level calls. CICS ONC RPC is implemented using low-level ONC RPC calls. The implementation allows concurrent dispatching of individual procedures and allows TCP to be supported as well as UDP.

ONC RPC naming and routing

Remote procedures in ONC RPC are identified by the 3-tuple: program number, version number, and procedure number.

It is usual to package several related procedures together into a single program. When changes are made to the procedures, a new version of the program is created, but the new version usually contains the same procedure numbers as the previous version.

Procedure zero: Users define procedure numbers for each program, conventionally starting at 1 and proceeding in sequence. Procedure 0 is usually defined as a procedure with no parameters and no processing that returns an empty reply. This is useful for clients, who can call procedure 0 to (1) see if a particular service exists and (2) test performance on a null call.

Registration and the Portmapper: Servers on a host need to let clients know their logical address and which services they offer. In ONC RPC, servers generally do this by *registering* with a utility service called the *Portmapper*. This maintains a list of mappings from program/version numbers (also qualified by protocol used) to TCP/IP port numbers on a host.

The Portmapper itself can always be located by clients because it is always on well-known port 111 on a given host. If using low-level calls, the client first asks the Portmapper for the port number for the particular remote procedure, and then calls that port directly. The high-level call, **callrpc**, performs the same function transparently to the user.

CICS ONC RPC

Registration is done by CICS ONC RPC automatically, or under operator control.

Routing: Before calling a procedure, a client asks the Portmapper at the host for the port number of the program and version that the client wishes to call. (The protocol is determined when the connection between TCP/IP systems is set up.) In the remote procedure call, the client supplies only the IP address, port number, and procedure number. Figure 7 shows how the IP address, port number, and procedure number identify the server procedure.

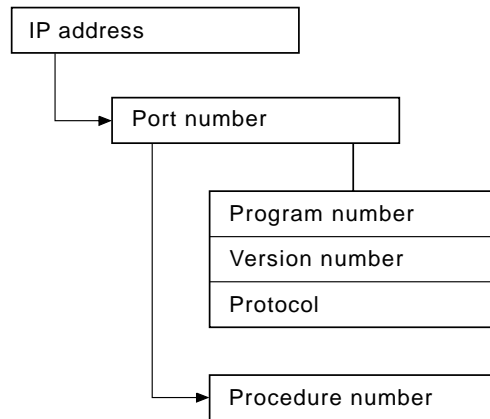


Figure 7. TCP/IP and RPC routing

Types of remote procedure call

Synchronous This is the normal method of operation. The client makes a call and does not continue until the server returns the reply.

Nonblocking The client makes a call and continues with its own processing. The server does not reply.

Batching This is a facility for sending several client nonblocking calls in one batch.

Broadcast RPC RPC clients have a broadcast facility, that is, they can send messages to many servers and then receive all the consequent replies.

Callback RPC The client makes a nonblocking client-server call, and the server signals completion by calling a procedure associated with the client.

CICS ONC RPC

CICS ONC RPC cannot support callback RPC, because callback requires that both ends contain both client and server procedures.

Chapter 2. Overview of CICS ONC RPC

This chapter describes:

- How CICS ONC RPC relates an ONC RPC call to a CICS program
- The CICS transactions supplied as part of CICS ONC RPC
- The user-replaceable programs that you may choose to supply
- Control flow for a typical client request
- Data flow for a typical client request

ONC RPC remote procedures and CICS programs

Identifying the CICS program

In CICS ONC RPC, the CICS programs are identified by a 4-tuple.

- Program number—same as the ONC RPC program number
- Version number—same as the ONC RPC version number
- Procedure number—same as the ONC RPC procedure number
- Protocol—determined by the protocol used to communicate between the client system and TCP/IP for MVS.

When a client request arrives, the CICS program chosen to service it is the one associated with the 4-tuple just described. Figure 8 shows a state of CICS ONC RPC in which five 4-tuples are associated with three CICS programs.

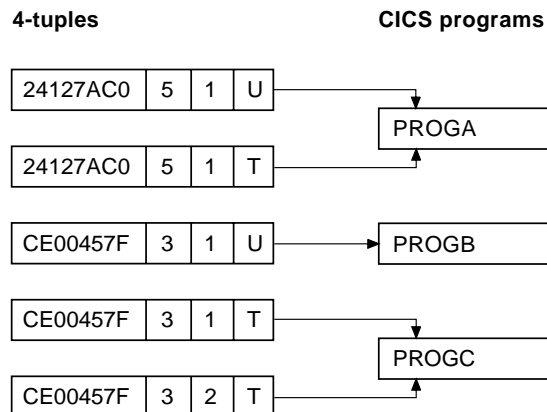


Figure 8. Remote procedures and CICS programs

The program numbers are given in hexadecimal. The protocols are U for UDP and T for TCP.

- If a client request arrives for program 24127AC0, version 5, procedure 1, the CICS program PROGA is used to service it whether the protocol is TCP or UDP.
- If a request arrives for program CE00457F, version 3, procedure 1, and the protocol is UDP, the CICS program PROGB is used to service it. But if the same request arrives and the protocol is TCP, PROGC is used to service it. It

is, however, usual to use the same program, version, and procedure irrespective of the protocol used to transmit the request.

- The CICS program PROGC is also used for procedure 2 of the same program and version if the protocol is TCP.

How you set up and control the relationship between 4-tuples and CICS programs is described in Chapter 4, “Configuring CICS ONC RPC using the connection manager” on page 27.

Where the CICS program might be

The CICS program might be in one of three places:

- In the same CICS for MVS/ESA region as CICS ONC RPC
- In a different CICS for MVS/ESA region of the same host
- On a different host that supports CICS and inbound DPL.

The CICS programs can reside on any CICS system accessible by means of DPL from the CICS for MVS/ESA region running CICS ONC RPC. DPL operation is described in the *CICS for MVS/ESA Intercommunication Guide*.

CICS ONC RPC transactions

Three CICS transactions are supplied with CICS ONC RPC:

- Connection manager
- Server controller
- Alias

Connection manager (CRPC)

The connection manager is a transaction that allows you to enable and disable CICS ONC RPC, and configure and inquire on it. You run the connection manager transaction as required, and several instances of it can be active at the same time. The connection manager is described in Chapter 4, “Configuring CICS ONC RPC using the connection manager” on page 27.

Server controller (CRPM)

The server controller monitors the TCP/IP for MVS interface for client requests, and starts instances of the alias transaction, using EXEC CICS START, to service them. The server controller is a transaction of long duration. It is started by the connection manager when CICS ONC RPC is enabled, and stopped when CICS ONC RPC is disabled. Only one instance of the server controller can be active in a CICS for MVS/ESA system.

Alias (CRPA)

CICS ONC RPC supplies one alias *program*. Multiple instances of the alias *transaction* can be run in parallel, each in response to a client request.

An alias is started by the server controller for each client request that arrives to be processed, as shown in Figure 9 on page 13. This allows CICS ONC RPC to process many client requests concurrently.

The alias program uses EXEC CICS LINK to transfer control to the CICS program.

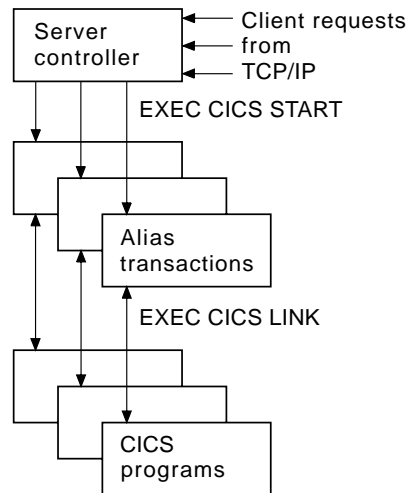


Figure 9. The server controller and alias transactions

User-replaceable programs

Servicing a client request involves not only a CICS program, but a converter program and XDR routines. In CICS/ESA 3.3 you may also want to write a resource checker program to validate incoming client requests. In CICS/ESA 4.1 CICS security facilities are to be preferred.

XDR routines

XDR (eXternal Data Representation) is described in “XDR routines” on page 5.

You need to provide one or two XDR routines for each 4-tuple. You always need an inbound XDR routine, and unless the client call is nonblocking, you need an outbound XDR routine as well.

The XDR routines for each 4-tuple are specified by using the connection manager.

Resource checker module

CICS ONC RPC provides an interface to a resource checker (which you write). The module can be used to validate incoming client requests. It is described in “Writing the resource checker” on page 81.

Converters

You may also supply a converter for each program-version-procedure-protocol 4-tuple. Each converter can contain up to three functions.

- **Getlengths function.** The **Getlengths** function might be called by the connection manager when a 4-tuple is registered. **Getlengths** can supply the following information:
 - The length of the input and output data for the CICS program
 - Whether the output data overlays the input data in the communication area.

Because its processing is done before any client requests are received, It is appropriate to use **Getlengths** to provide the values of data lengths that do not

vary from call to call. Refer to “Lengths of the CICS program input and output data” on page 57 for a fuller description of when **Getlengths** should be used for this purpose.

- **Decode function.** The **Decode** function is called by the server controller on receipt of a client request. **Decode** can do the following:
 - Supply the length of the input and output data for the CICS program. If the parameter lengths vary from call to call, **Decode** should return them for the current call.
 - Reconstruct the data from the client as a communication area for the CICS program. “Data flow in a client request” on page 16 illustrates the kinds of data that **Decode** might have to handle. The incoming data might include pointers, and **Decode** must gather up the incoming data into the communication area.
 - Convert data structures from C format to the format appropriate to the programming language in which the CICS program is written.
 - Process data from the client that is not intended for the CICS program. For example the data from the client might include the name of the CICS program to be called, and **Decode** can feed this information back to the server controller.
- **Encode function.** The **Encode** function is called by the alias when the CICS program ends. **Encode** can do the following:
 - Reconstruct the data from the communication area into the form expected by the client. “Data flow in a client request” on page 16 illustrates the kinds of data that **Encode** might have to handle. The client might expect to receive data accessed by pointers, and **Encode** must build this structure from the data in the communication area.
 - Convert data structures from the format appropriate to the programming language in which the CICS program is written into C format.

Not all 4-tuples need a converter with all three functions. You use the connection manager to specify the converter and the use of **Getlengths**, **Decode**, and **Encode** for each 4-tuple.

The way that particular language data structures are stored is documented in the appropriate language manuals, and a correspondence between C data types and those in other languages is given in the *Language Environment/370 Programming Guide*.

For detailed instructions on the writing of converters, refer to “Step 4—Write the converter” on page 56.

Control flow in a client request

Figure 10 on page 15 shows the components involved in processing a typical client ONC RPC request.

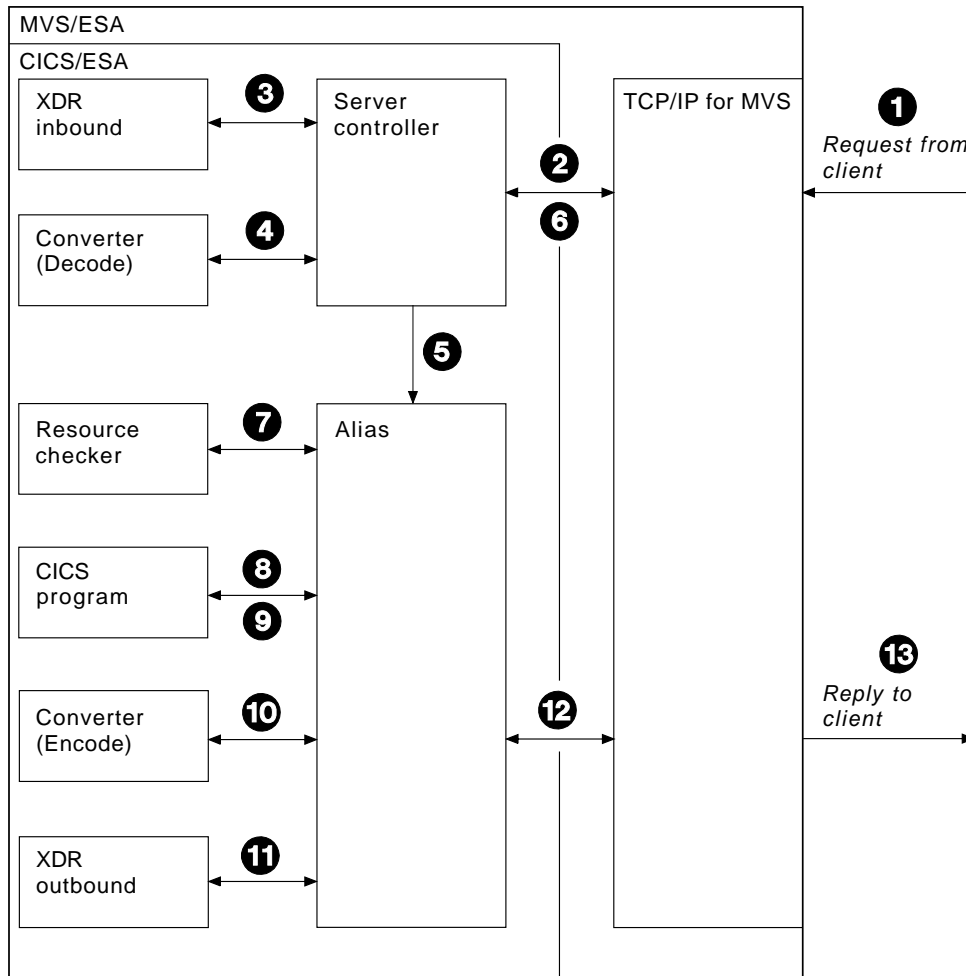


Figure 10. Call processing

Client requests are processed in the following steps:

1. A request from a client arrives in TCP/IP for MVS.
2. The server controller monitors the TCP/IP for MVS interface for incoming client requests, and the client request is passed to it. (From the 4-tuple for the request, the server controller can find the corresponding XDR routine and converter to call.)
3. The server controller invokes the inbound XDR routine.
4. The server controller calls the converter, requesting the **Decode** function, if it is required for the 4-tuple. If **Decode** is not required, the server controller allocates storage for the CICS program communication area.
5. The server controller then starts an alias to deal with all further processing of the request within CICS for MVS/ESA.
6. The server controller returns to monitor the TCP/IP for MVS interface for client requests.
7. The alias optionally calls a user-written resource checker.
8. The alias issues an EXEC CICS LINK to the CICS program for the 4-tuple. The communication area set up by **Decode** is passed in the LINK command.

9. The CICS program processes the request and returns its output to the alias program in the communication area.
10. The alias calls the **Encode** function, if it is required for the 4-tuple.
11. The alias invokes the outbound XDR routine.
12. The alias returns the reply to TCP/IP for MVS, and ends.
13. The reply is sent back to the client.

Updating recoverable resources

After **Decode** processing, the server controller uses EXEC CICS SYNCPOINT to commit any changes to recoverable resources that **Decode** might have made.

If the CICS program makes updates to recoverable resources, whether the changes are committed or backed out depends on the location of the CICS program, and on whether it uses the EXEC CICS SYNCPOINT command.

- If the CICS program is in a CICS region different from the one in which CICS ONC RPC is operating, the updates are committed when the CICS program returns control to the alias.
- If the CICS program is in the same CICS region as CICS ONC RPC, and it uses EXEC CICS SYNCPOINT, the updates are committed when the syncpoint is processed.
- If the CICS program is in the same CICS region as CICS ONC RPC, but it does *not* use EXEC CICS SYNCPOINT, the updates are committed when the alias transaction ends normally, or are backed out when the alias transaction abends.

Data flow in a client request

From client to CICS program

Figure 11 on page 17 shows the progress of data from the client to the CICS program during a remote procedure call.

In this example the processing is as follows:

1. The client call has a parameter which includes a pointer to data that is to be passed to the CICS program. The client's outbound XDR routine packages the parameter and the indirect data for transmission to the host.
2. The data is transmitted over the network to the host.
3. In the host, the inbound XDR routine rebuilds the data as it was in the client.
4. The **Decode** function of the converter reorganizes the data into a communication area for the CICS program.

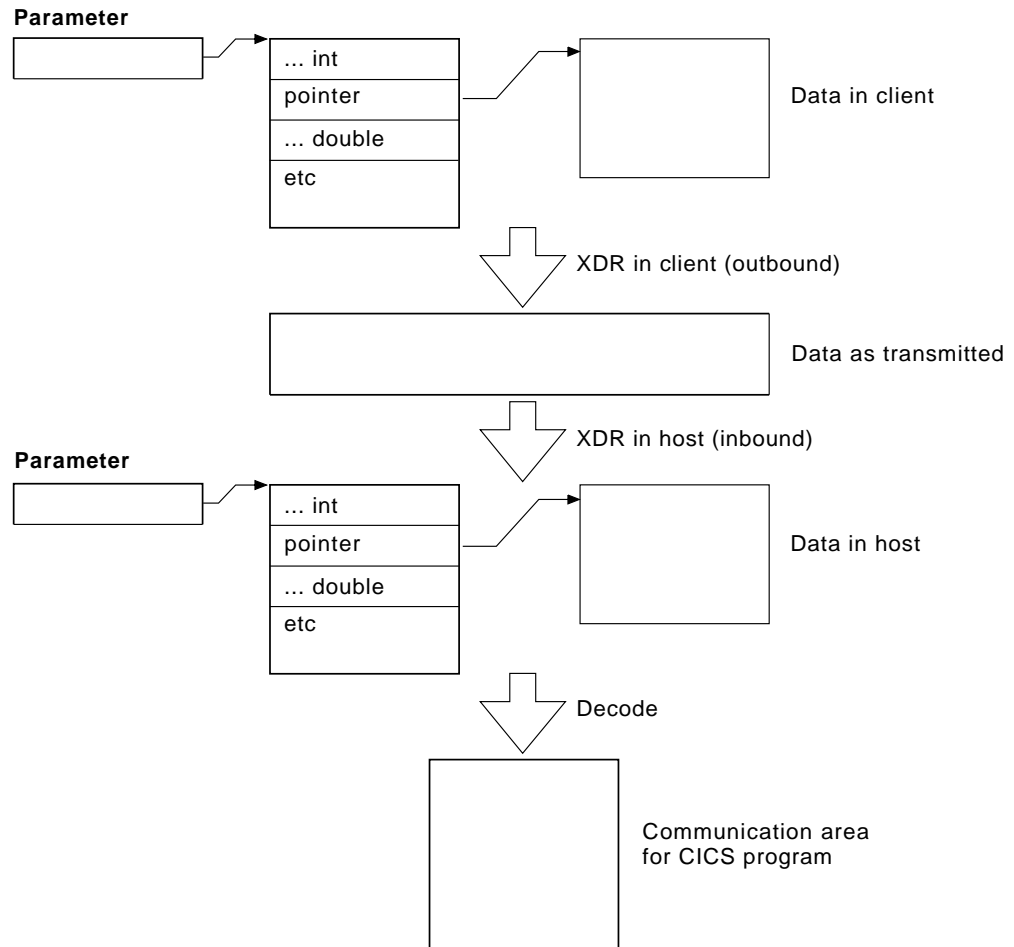


Figure 11. Data flow from client to CICS program

Data format in the CICS program communication area

If the call is a blocking call, the position in the CICS program's communication area of data to be returned to the client has to be specified. The data in the CICS program's communication area can be organized in two ways:

- **Contiguous**—the data to be returned to the client does not start at the beginning of the communication area, but at some offset into it.
- **Overlaid**—the data to be returned starts at the beginning of the communication area. The CICS program overwrites the inbound client data in this area with any data to be returned to the client.

Figure 12 illustrates these two possibilities.

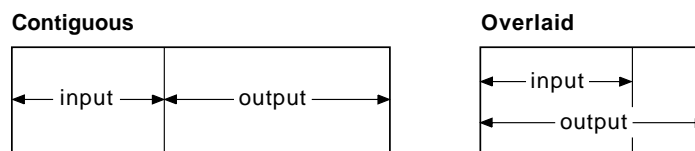


Figure 12. Use of communication area according to data format

From CICS program to client

Figure 13 shows the progress of data from the CICS program back to the client.

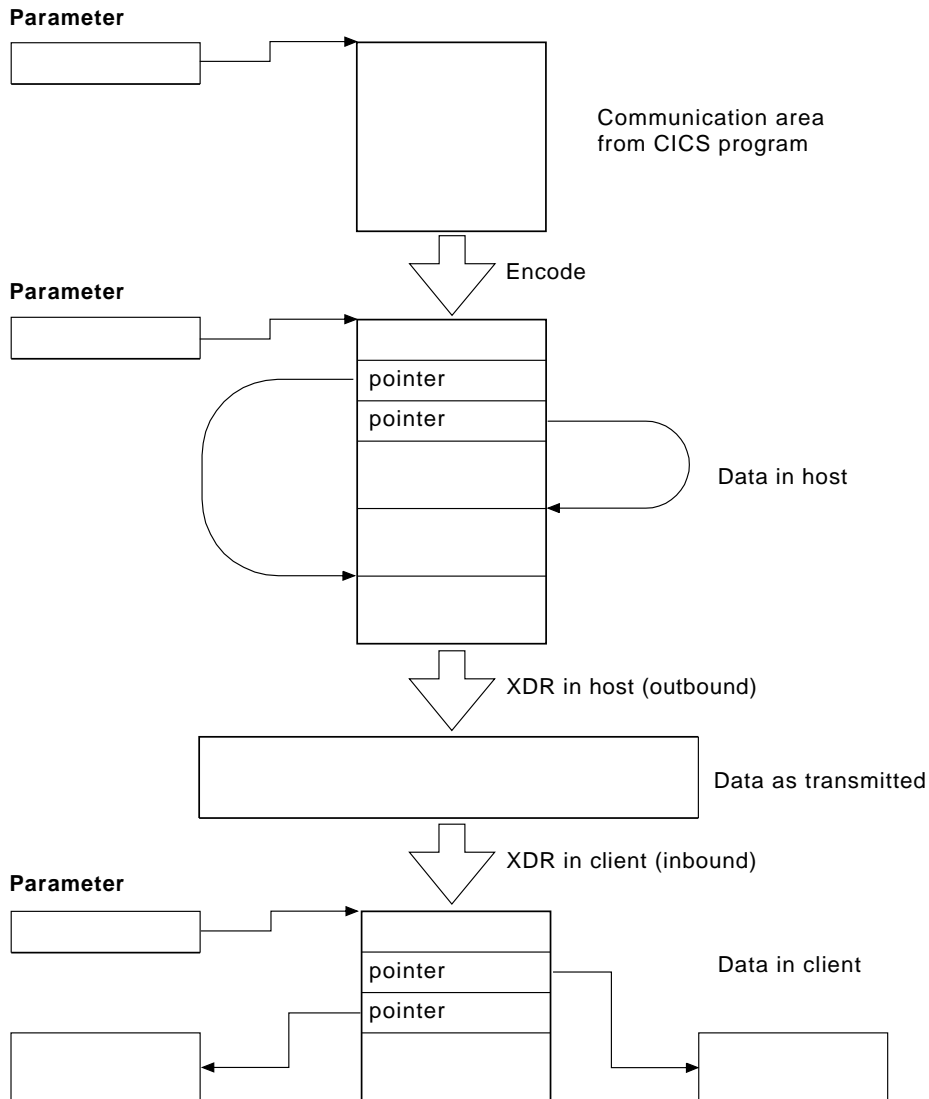


Figure 13. Data flow from CICS program to client

The processing is as follows:

1. The CICS program's output is in the communication area that was created by the **Decode** function. The **Encode** function reorganizes the data in the manner that the client expects. In this case the client is expecting to get back a structure including two pointers to indirect data. The **Encode** function puts the data in a single area of storage to simplify storage management processing when the area is to be freed.
2. The outbound XDR routine packages the data for transmission.
3. The data is transmitted over the network to the client.
4. In the client, the inbound XDR routine rebuilds the data as it was in the host.

Chapter 3. Installing and setting up CICS ONC RPC

This chapter describes:

- Prerequisites for using CICS ONC RPC, and some restrictions
- The installation process using SMP/E
- How to define CICS ONC RPC resources to CICS for MVS/ESA
- Changes to be made to TCP/IP for MVS data sets.

Prerequisites for using CICS ONC RPC

Clients

Clients must access servers on CICS ONC RPC over a TCP/IP network.

Client systems must use a library compatible with the library for ONC RPC Version 3.9, as this is the ONC RPC version supported by TCP/IP for MVS (Versions 2.2.1 and 3.1). To communicate over a TCP/IP network, appropriate hardware and software must be in place.

MVS/ESA

The following items are prerequisite, that is, must be installed on the MVS/ESA system for CICS ONC RPC to run.

- TCP/IP for MVS Version 2.2.1 or above. TCP/IP for MVS ports must be made available for use by the CICS for MVS/ESA region involved.
- Language Environment/370. This provides the C run time libraries that are a prerequisite for installing and running CICS ONC RPC.

Language Environment/370 is a feature of MVS 5.1 and above, and is available at no charge. If you are running an MVS version below 5.1, you need to buy the Language Environment/370 licensed program, Version 1.3 or above.
- If you are using RPCGEN, or writing your own XDR routines, you need a C compiler to compile RPCGEN output and your XDR routines.

To install CICS ONC RPC, you must have System Modification Program/Extended (SMP/E) Release 1.8 or later.

CICS/ESA 3.3

The following must be installed on CICS/ESA 3.3.

- Two PTFs to allow feature message set use: PTF number UN80322 for non-Kanji support, UN80323 for Kanji support.
- A PTF, number UN85724, related to CICS storage use.
- Two PTFs, numbers UN69975 and UN71014, related to the use of the RP TCB described on page 86. (UN69975 also changes DFHIRP.)
- A PTF, number UN75626, related to the use of CEDF.

- Three PTFs, numbers UN79903, UN83901, and UN84795, and a PTF to fix APAR number PN70226, to allow features to make and format trace entries, and to format dumps.

CICS for MVS/ESA must be set up for Language Environment/370 support, as described in the *CICS for MVS/ESA System Definition Guide* and in the *Language Environment/370 Installation and Customization Guide*.

Note: TCP/IP for MVS CICS Sockets is not a prerequisite for CICS ONC RPC.

CICS/ESA 4.1

The following must be installed on CICS/ESA 4.1.

- Two PTFs to allow feature message set use: PTF number UN90128 for non-Kanji support, UN90132 for Kanji support.
- A PTF, number UN85725, related to CICS storage use.
- A PTF, number UN70925, related to the use of the RP TCB described on page 86. (UN70925 also changes DFHIRP.)
- A PTF, number UN74381, related to the use of CEDF.
- Three PTFs, numbers UN78778, UN83894, and UN84222, and a PTF to fix APAR number PN70223, to allow features to make and format trace entries, and to format dumps.

CICS for MVS/ESA must be set up for Language Environment/370 support, as described in the *CICS for MVS/ESA System Definition Guide* and in the *Language Environment/370 Installation and Customization Guide*.

Note: TCP/IP for MVS CICS Sockets is not a prerequisite for CICS ONC RPC.

TCP/IP for MVS

CICS ONC RPC and TCP/IP for MVS CICS Sockets Version 2.2.1 cannot operate together from one CICS region to one TCP/IP for MVS region. You are advised to run CICS Sockets and CICS ONC RPC from different CICS for MVS/ESA regions.

TCP/IP for MVS Version 3.1 users do not have this problem; CICS Sockets and CICS ONC RPC can both be run from the same region.

TCP/IP for MVS 2.2.1

There are no prerequisites for running CICS ONC RPC.

Note: CICS ONC RPC and TCP/IP for MVS CICS Sockets Version 2.2.1 cannot operate together from one CICS region to one TCP/IP for MVS region. You are advised to run CICS Sockets and CICS ONC RPC from different CICS for MVS/ESA regions.

TCP/IP for MVS 3.1

The following PTF is a prerequisite for running CICS ONC RPC:

- A PTF, number UN79963, related to the use of the **xdr_text_char** XDR library function.

Note: CICS ONC RPC and TCP/IP for MVS CICS Sockets Version 2.2.1 cannot operate together from one CICS region to one TCP/IP for MVS region. You

are advised to run CICS Sockets and CICS ONC RPC from different CICS for MVS/ESA regions. TCP/IP for MVS Version 3.1 users do not have this problem; CICS Sockets and CICS ONC RPC can both be run from the same region.

Storage requirements

Except where otherwise noted, the storage used by CICS ONC RPC is obtained from CICS subpools.

When CICS ONC RPC is enabled, its storage requirements are as follows:

- 40 KB base storage
- 100 bytes for each registered 4-tuple.

For each client request being processed the following storage is required:

- MVS-controlled storage used by the inbound XDR routine for internal data structures
- Storage used by the inbound XDR routine for the data structure it builds for the **Decode** function
- Storage for the CICS program communication area
- Storage used by the alias transaction while running the CICS program
- Storage used by the **Encode** function to create a data structure for the outbound XDR routine
- MVS-controlled storage used by the outbound XDR routine.

Installation

CICS ONC RPC is ordered separately and is installed separately from CICS for MVS/ESA. It does not affect installation of CICS for MVS/ESA. CICS ONC RPC is installed from tape into the same library as base CICS for MVS/ESA code.

During installation, CICS ONC RPC is linked with the TCP/IP for MVS ONC RPC library, and the TCP/IP for MVS sockets library.

The release of Language Environment/370 used during installation must be the same as the release in which CICS ONC RPC will operate.

Installing CICS ONC RPC with SMP/E

CICS ONC RPC is installed using SMP/E Release 1.8 or later. Before installing CICS ONC RPC, three libraries have to be defined to SMP/E:

- SCEELKED (for Language Environment/370)
- SEZARPCL (for TCP/IP)
- SEZACMTX (for TCP/IP)

These libraries are needed to link part of CICS ONC RPC.

There are two FMIDs associated with CICS ONC RPC. In CICS/ESA 3.3:

- JCI3305—CICS ONC RPC
- JCI3308—Japanese National Language Support for CICS ONC RPC

In CICS/ESA 4.1:

- JCI4105—CICS ONC RPC

- JCI4108—Japanese National Language Support for CICS ONC RPC

Detailed installation instructions are given in the Program Directory supplied with the installation tape.

Other installation tasks

JCL entry for dump formatting

To switch dump formatting on for CICS ONC RPC (and for all other running features), change the CICS VERBEXIT in the JCL as follows. For CICS/ESA 3.3:

```
IPCS VERBEXIT CICS330 FT=2
```

For CICS/ESA 4.1

```
IPCS VERBEXIT CICS410 FT=2
```

The VERBEXIT provides a formatted dump of CICS ONC RPC control blocks.

Creating the CICS ONC RPC data set

JCL is provided in the job DFHRPIDC to create the CICS ONC RPC data set. The job will be found in the target library SDFHINST after CICS ONC RPC has been installed. The data set is defined as a VSAM key-sequenced data set by a DEFINE CLUSTER command like the following:

```
DEFINE CLUSTER (                               -
  NAME( xxxxxxxx.CICSONC.RESOURCE ) -
  CYL ( 2 1 )                               -
  KEYS( 19 0 )                               -
  INDEXED                                   -
  VOLUME ( vvvvvv )                           -
  RECORDSIZE( 150 150 )                       -
  FREESPACE( 5 5 )                             -
  SHAREOPTIONS( 1 )                             -
)
```

The job to define the data set must be run before you start the connection manager for the first time.

Migrating between CICS for MVS/ESA versions

CICS ONC RPC code is specific to a version and release of CICS for MVS/ESA. It does not transfer from release to release. If you migrate from CICS/ESA 3.3 to 4.1, you must re-order CICS ONC RPC and install it after CICS/ESA 4.1 has been installed.

Updating the CICS message files

You must run the DFHCMACU job to update the CMAC data set with the CICS ONC RPC message entries contained in data set DFHCMACO. Please refer to the section 'Servicing the CICS messages data set' in the *CICS for MVS/ESA Installation Guide* for more information about the DFHCMACU job.

Defining CICS ONC RPC resources to CICS for MVS/ESA

CICS ONC RPC provides two RDO groups defining CICS resources used by CICS ONC RPC. In the following examples the names of the groups shown are those for CICS/ESA 4.1: DFHRP41 and DFHRP41F. For CICS/ESA 3.3, the names are DFHRP33 and DFHRP33F.

After CICS ONC RPC has been installed, group DFHRP41 is in the SDFHLOAD target library, and group DFHRP41F is in found in the job DFHRPJ41 in the SDFHINST target library. The job DFHRPJ33 (for CICS/ESA 3.3), DFHRPJ41 (for CICS/ESA 4.1) is supplied to help install these two groups.

Some of these definitions will be locked to prevent alterations, but you may want to make minor amendments to the others for reasons described in the following sections. You also need to make resource definitions for user-written programs.

Transaction definitions for CICS ONC RPC transactions

The following CICS ONC RPC transactions are defined in the locked group DFHRP41:

CRPA	Alias
CRPC	Connection manager
CRPM	Server controller

These definitions cannot be changed.

Transaction definitions for extra alias transactions

You may want to use other alias transaction names for various reasons:

- Auditing purposes
- Resource and command checking
- Allocating initiation priorities
- Allocating data base plan selection
- Assigning different runaway values for different CICS programs.

If you do, you must also define these to CICS for MVS/ESA, copying the definition from CRPA, and making amendments as necessary. The CRPA definition is as follows:

DEFINE TRANSACTION(CRPA)	GROUP(DFHRP41)
PROGRAM(DFHRPAS)	TWASIZE(0)
PROFILE(DFHCICST)	STATUS(ENABLED)
TASKDATALOC(BELOW)	TASKDATAKEY(USER)
RUNAWAY(SYSTEM)	SHUTDOWN(ENABLED)
PRIORITY(1)	TRANCLASS(DFHTCL00)
DTIMOUT(NO)	INDOUBT(BACKOUT)
SPURGE(YES)	TPURGE(NO)
RESSEC(NO)	CMDSEC(NO)

If you want a CICS program to run under an alias with a name other than CRPA, you can enter this in the connection manager when defining the attributes of the 4-tuple associated with the CICS program, as described in “Defining the attributes of a 4-tuple” on page 36. The name of the alias can also be changed by the **Decode** function, as described in “Changing the alias and CICS program” on page 58.

Changing the CMDSEC and RESSEC values

In CICS/ESA 3.3, these options have no effect, and need not be changed. Security processing in a CICS/ESA 3.3 environment is described in “Security in CICS/ESA 3.3” on page 81.

In CICS/ESA 4.1, you might wish to define new alias transactions with CMDSEC(YES) or RESSEC(YES) in order to enforce security checking on the programs run under the alias transaction, including the CICS program that services the client request. The effect of these options is described in “Security in CICS/ESA 4.1” on page 79. None of the IBM-supplied programs used by the alias use any of system programmer interface (SPI) commands, so CMDSEC need not be changed. However, if you wish to oversee the use of SPI commands by the CICS program, resource checker, or **Encode** function of the converter, CMDSEC(YES) is required.

Program definitions for CICS ONC RPC programs

All the CICS ONC RPC programs are defined in the locked group DFHRP41.

Program definitions for user-written programs

You need to make definitions for:

- CICS programs
- Converters
- User-written XDR routines
- Resource checker

LANGUAGE option

User-written XDR routines should be defined with LANGUAGE(C). Converters and CICS programs should be defined with an appropriate LANGUAGE.

CEDF option

Program definitions for CICS programs must include CEDF(YES) if EDF is required for debugging. If you wish to use EDF, you must enter a terminal ID in the connection manager when defining the attributes of the 4-tuple associated with the CICS program, as described in “Defining the attributes of a 4-tuple” on page 36.

EXECKEY option

CICS for MVS/ESA operates with storage protection only if the SIT parameter STGPROT is set to YES, and the system has the required hardware and software.

Converters and the resource checker should not be regarded as application programs when defining storage. You are recommended to define them as EXECKEY(CICS). This allows them to modify CICS-key storage.

When the **Decode** and **Encode** functions allocate storage to hold the converted data, that storage should be allocated as CICS-key, as described in “Storage allocation by Decode” on page 69 and “Storage allocation by Encode” on page 75.

User-written XDR routines must be defined as EXECKEY(CICS).

CICS programs should be defined as EXECKEY(USER), unless there is some reason for defining them as CICS-key in your CICS system. Defining programs as EXECKEY(USER) prevents them from overwriting CICS.

If you specify EXECKEY(USER) for the CICS program, insure that TASKDATAKEY(USER) is specified for the alias. USER is the default TASKDATAKEY setting in the alias definition in the supplied group DFHRP33 (for CICS/ESA 3.3) or DFHRP41 (for CICS/ESA 4.1).

If you have CICS programs that need to be specified with EXECKEY(CICS), you are advised to specify TASKDATAKEY(CICS) for the alias that will execute them.

RELOAD option

You should specify RELOAD(YES) for any user-written XDR routines to prevent errors in CICS ONC RPC disable processing.

Mapset definition

Mapset definitions are supplied in the group DFHRP33 (for CICS/ESA 3.3) or DFHRP41 (for CICS/ESA 4.1) for the connection manager mapsets. The definitions cannot be changed.

File definition

An unlocked resource definition is provided in group DFHRP33F (for CICS/ESA 3.3) or DFHRP41F (for CICS/ESA 4.1) for the CICS ONC RPC data set. You must make sure that the name chosen for the DSNNAME parameter matches the name of the cluster in "Creating the CICS ONC RPC data set" on page 22.

```
DEFINE FILE(DFHRCPCD)      GROUP(DFHRP41F)
      DSNNAME(XXXXXXXX.CICSONC.RESOURCE)
      LSRPOOLID(1)         STRINGS(1)
      STATUS(ENABLED)     OPENTIME(FIRSTREF)
      DATABUFFERS(2)      INDEXBUFFERS(1)      RECORDFORMAT(F)
      ADD(YES)             BROWSE(YES)         DELETE(YES)
      READ(YES)           UPDATE(YES)
```

Transient data definitions

You must supply DCT definitions for the CICS ONC RPC message transient data queue. The following sample is supplied with CICS ONC RPC as member DFHRPDCT of the SDFHSAMP target library:

```
DFHDCT TYPE=SDSCI,
      BLKSIZE=137,
      RECSIZE=133,
      DSCNAME=CRP0,
      RECFORM=VARUNB,
      BUFNO=1,
      TYPEFLE=OUTPUT
```

```
DFHDCT TYPE=EXTRA,
      DESTID=CRP0,
      DSCNAME=CRP0
```

If you define the destination in the manner of the sample, you must also add a suitable DD statement for the extrapartition queue in the CICS JCL, for instance:

```
//CRP0 DD SYSOUT=A
```

The destination could also be made intrapartition or indirect.

XLT definitions

The XLT system initialization parameter and its associated transaction list should allow the connection manager, CRPC, to be started during normal CICS for MVS/ESA shutdown. If CICS ONC RPC is delaying shutdown, the connection manager can be used to force an immediate disable of CICS ONC RPC.

TCP/IP for MVS—modifying data sets

To run CICS ONC RPC, you need to define the CICS for MVS/ESA region to TCP/IP for MVS in the tcpip.PROFILE.TCPIP data set (described in *TCP/IP for MVS Customization and Administration Guide*).

Chapter 4. Configuring CICS ONC RPC using the connection manager

This chapter describes:

- What the connection manager is for
- How to start the connection manager
- How to use the connection manager panels to:
 - Update CICS ONC RPC status
 - Enable CICS ONC RPC
 - Register 4-tuples with CICS ONC RPC, individually or from a list
 - Unregister 4-tuples
 - Disable CICS ONC RPC
 - Update the CICS ONC RPC data set

What the connection manager is for

The operating environment of CICS ONC RPC has two aspects:

- Operating options—tracing, etc.
- 4-tuple information—determines which client requests can be processed and what CICS resources are needed.

The CICS ONC RPC data set is a store of operating environment information. It contains two kinds of records: the CICS ONC RPC definition record contains the operating options, and 4-tuple records contain the 4-tuple information.

The connection manager has four main functions:

- Enabling CICS ONC RPC
- Disabling CICS ONC RPC
- Controlling the operating options and 4-tuple information stored in the CICS ONC RPC data set
- Controlling the operating options and 4-tuple information in current use when CICS ONC RPC is enabled.

When CICS ONC RPC is disabled

When CICS ONC RPC is disabled, the connection manager allows you to:

- Create or update the CICS ONC RPC definition record in the data set
- Add, delete, and change 4-tuple records in the data set
- Enable CICS ONC RPC.

You can use the connection manager to enable CICS ONC RPC in two ways:

- Operator-assisted enable—Before you enable CICS ONC RPC, you can:
 - Modify any or all of the options

- Select which 4-tuples are to be registered
- Modify the attributes of 4-tuples before registration

When you enable CICS ONC RPC, options to control its operation come into play, and 4-tuples can be registered.

The changes you make during an operator-assisted enable can be temporary, lasting only until the next time you disable CICS ONC RPC, or you can store them into the CICS ONC RPC data set, and use them the next time you enable CICS ONC RPC.

- Automatic enable—The contents of the CICS ONC RPC definition record determine the options to control the operation of CICS ONC RPC until the next time you disable it. Some 4-tuples might be registered, depending on an attribute in the 4-tuple definition.

When CICS ONC RPC is enabled

When CICS ONC RPC is enabled, the connection manager allows you to:

- Update the CICS ONC RPC definition record in the data set
- Add, delete, and change 4-tuple records in the data set
- Change the options being used to control the operation of CICS ONC RPC
- Register 4-tuple definitions from the data set
- Create temporary 4-tuple definitions and register them
- Unregister 4-tuple definitions
- Disable CICS ONC RPC.

There are two ways of disabling CICS ONC RPC: normal, and immediate. The effects of disable processing are described in “Disabling CICS ONC RPC” on page 44.

Starting the connection manager

You can start the connection manager in various ways:

- From a terminal that supports BMS maps. You can work with the connection manager panels described in this chapter.
- From a CICS console.
- Using an EXEC CICS START command
- From a sequential terminal.

The effect of starting the connection manager depends on:

- Whether CICS ONC RPC is enabled or disabled
- Whether you start the connection manager from a terminal that permits the use of BMS
- Whether you enter additional data with the transaction name
- Whether the Automatic Enable option in the CICS ONC RPC definition record is set to YES.

When CICS ONC RPC is disabled, the effect of entering the transaction name (and optional additional data) on a terminal that supports BMS is as follows:

CRPC

- If Automatic Enable is YES, automatic enable processing occurs.
- If Automatic Enable is NO, a BMS panel (DFHRP01) is shown.
- If there is no CICS ONC RPC definition record yet, a BMS panel (DFHRP01) is shown.

CRPC E A(N)

- A BMS panel (DFHRP01) is shown.

CRPC E A(Y)

- Automatic enable processing occurs. If there is no CICS ONC RPC definition record, one is created using default values for the options, but no 4-tuples are registered.

If you start the connection manager in a way that does not allow panels to be shown (EXEC CICS START, or non-BMS terminal, for example) and the action is to show a panel, error message DFHRP1505 is produced.

When CICS ONC RPC is enabled, the effect of entering the transaction name (and optional additional data) is as follows:

- CRPC displays panel DFHRP04, or produces error message DFHRP1505 if panels cannot be shown.
- CRPC D(N) causes normal disable processing.
- CRPC D(I) causes immediate disable processing.

The forms CRPC E A(N), CRPC E A(Y), CRPC D(N), and CRPC D(I) are called fast-path commands.

TCP/IP for MVS should be started before you try to enable CICS ONC RPC with the connection manager, otherwise you cannot register 4-tuples, and you have to reenable CICS ONC RPC after starting TCP/IP for MVS.

Using the connection manager BMS panels

All leading and trailing blanks are ignored on BMS input.

At the top of all panels is a panel identifier in the right corner (for example, DFHRP02) and CRPC in the left corner.

On the bottom of all panels, the fourth line from the bottom gives the status of CICS ONC RPC, the third line from the bottom is a prompt line, while the bottom line lists the available PF keys, which can include:

- PF1** Help information (all panels)
- PF2** Delete definition from the CICS ONC RPC data set (only where shown)
- PF3** Exit CRPC (you are prompted to confirm by using PF3 again)
- PF4** Write fields to the CICS ONC RPC data set (only where shown)
- PF7** Scroll up (only where shown)

- PF8** Scroll down (only where shown)
- PF9** Display messages relating to current input
- PF12** Cancel this panel and return to the previous panel

Connection manager error message output

The destination of connection manager messages depends on the nature of the message, as follows:

- Severe errors requiring operator intervention are sent to the console. No other messages go to the console.
- Messages relating to invalid input on the panel can be displayed by pressing PF9.
- Messages reporting internal errors are sent to CRPO, and in most cases they can be displayed on the terminal by pressing PF9.

Using PF9 to display messages

During the operation of the connection manager, error messages might be issued. These are not displayed immediately on the screen, but a prompt appears on the prompt line to say that messages are waiting to be viewed. To see the messages, press PF9. The number and text of the messages is displayed. You can look up the messages in “Messages” on page 101 for more information about the error, and for advice about what to do next.

When you have read the messages, you may press Enter, PF3 or PF12 to return to the input panel.

Starting the connection manager when CICS ONC RPC is disabled

If CICS ONC RPC is disabled, panel DFHRP01 is shown. (See Figure 14 on page 31.)

The result of selecting the various options is as follows:

1. See “Enabling CICS ONC RPC” on page 33.
2. See “Updating the CICS ONC RPC data set” on page 45.

Starting the connection manager when CICS ONC RPC is enabled

If CICS ONC RPC is enabled, panel DFHRP04 is shown. (See Figure 15 on page 31.)

The result of selecting the various options is as follows:

1. See “Disabling CICS ONC RPC” on page 44.
2. See “Updating the CICS ONC RPC data set” on page 45.
3. See “Updating CICS ONC RPC status” on page 32.

```
CRPC                                CICS ONC RPC for MVS/ESA                                DFHRP01
Select one of the following. Then press Enter.
- 1. Enable CICS ONC RPC
  2. View or modify the CICS ONC RPC data set

Current Status: Disabled

PF1=Help  PF3=Exit  PF9=Messages  PF12=Return  SYSID= CI41  APPLID= IYK1ZFL1
```

Figure 14. Panel DFHRP01

```
CRPC                                CICS ONC RPC for MVS/ESA                                DFHRP04
Select one of the following. Then press Enter.
- 1. Disable CICS ONC RPC
  2. View or modify the CICS ONC RPC data set
  3. View or modify CICS ONC RPC status

Current Status: Enabled

PF1=Help  PF3=Exit  PF9=Messages  SYSID= CI41  APPLID= IYK1ZFL1
```

Figure 15. Panel DFHRP04

Updating CICS ONC RPC status

If you select option 3 on panel DFHRP04, panel DFHRP10 is shown.

```
CRPC                      CICS ONC RPC for MVS/ESA Update Status          DFHRP10

Select one of the following. Then press Enter.

_  1. Change CICS ONC RPC settings
   2. Register procedure(s)
   3. Unregister procedure(s)
   4. View or modify alias list

Current Status: Enabled

                                                                    SYSID= CI41  APPLID= IYK1ZFL1
PF1=Help  PF3=Exit  PF9=Messages  PF12=Return
```

Figure 16. Panel DFHRP10

The result of selecting the various options is as follows:

1. See “Changing the CICS ONC RPC status.”
2. See “Defining, saving, modifying, and deleting 4-tuples” on page 35.
3. See “Unregistering 4-tuples” on page 41.
4. See “Processing the alias list” on page 50.

Changing the CICS ONC RPC status

If you select option 1 on panel DFHRP10, panel DFHRP16 is shown. (See Figure 17 on page 33.)

In CICS/ESA 3.3 the CRPM Userid field is not present, but you may type over any of the entries shown to change the values currently used by CICS ONC RPC.

In CICS/ESA 4.1 you may type over any of the entries except CRPM Userid to change the values currently used by CICS ONC RPC. CRPM Userid is displayed only for information. CRPM Userid cannot be changed without first disabling CICS ONC RPC.

```

CRPC                                CICS ONC RPC for MVS/ESA Status          DFHRP16

Trace( STARTED )                    Trace Level( 1 )
Resource Checker( NO )                CRPM Userid( CICSUSER )

Current Status: Enabled

PF1=Help  PF3=Exit  PF9=Messages  PF12=Return          SYSID= CI41  APPLID= IYK1ZFL1

```

Figure 17. Panel DFHRP16

Enabling CICS ONC RPC

Before enabling CICS ONC RPC, you must accept or modify some options as described in the next section.

Setting and modifying options

If you start the connection manager when CICS ONC RPC is disabled, and select option 1 on panel DFHRP01, panel DFHRP02 is shown.

The values displayed in the 'Choice' column are those stored in the CICS ONC RPC data set. The data set is initialized with the values shown in Figure 18 on page 34, except that the value displayed for CRPM Userid is the default CICS user ID for the CICS for MVS/ESA system in which CICS ONC RPC is operating.

You can make entries in the fields listed below. Entries may be in lowercase or uppercase. Where entries to a field are restricted (for example, YES or NO) you may enter the whole option (YES) or the minimum (Y). In the panels, the minimum entry is shown in uppercase in the 'Possible Options' column. In the reference material in this manual, the minimum entry is given in parentheses after the full entry.

Trace

Specifies whether CICS ONC RPC tracing is active. STARTED (STA) means it is active, STOPPED (STO) means it is not. The default value is STARTED.

CICS ONC RPC exception trace entries are always written to CICS internal trace whatever the setting of this option. To get non-exception

CRPC	CICS ONC RPC for MVS/ESA Enable		DFHRP02
Overtyp e to Modify			
		Choice	Possible Options
Trace	===>	STARTED	STAr ted ST0pped
Trace Level	===>	1	1 2
Resource Checker	===>	NO	Yes No
CRPM Userid	===>	CICSUSER	
Automatic Enable	===>	NO	Yes No
Current Status: Disabled			
		SYSID= CI41 APPLID= IYK1ZFL1	
PF1=Help	PF3=Exit	PF4=Save	PF9=Messages PF12=Return

Figure 18. Panel DFHRP02

trace entries written, CICS trace must be started, and this option must be set to STARTED.

Trace Level

Specifies the trace level for CICS ONC RPC. The value 1 means that level 1 trace points are traced, and 2 means that both level 1 and 2 are traced. The default value is 1.

Resource Checker

YES (Y) means that CICS ONC RPC is to call the user-written resource-checking module on receipt of every incoming RPC request. NO (N) means the resource checker is not to be called. The default is NO.

CRPM Userid

Specifies the CICS user ID under which the server controller is to run. The default is the default user ID for the CICS for MVS/ESA system in which CICS ONC RPC is operating. This field is not present in CICS/ESA 3.3.

Automatic Enable

Enter YES (Y) or NO (N). If YES is stored in the CICS ONC RPC data set, you can enable CICS ONC RPC by just typing CRPC; all values are defaulted from the CICS ONC RPC data set, CICS ONC RPC becomes enabled without further user input, and all the 4-tuples with YES for their Register from Data Set option are registered. The default value is NO.

Setting this field has an effect only when you enable CICS ONC RPC. If you use PF4 to save the values to the CICS ONC RPC data set, this value will be effective the next time you enable, unless you override it. A YES in this field in the CICS ONC RPC data set may be overridden by the fast path command CRPC E A(N).

Validating, saving, and activating options

After you have made your changes on panel DFHRP02, press Enter to get them validated by the connection manager.

If you wish to save the new values in the CICS ONC RPC data set, press PF4.

If you press Enter a second time, CICS ONC RPC becomes enabled, and panel DFHRP03 is shown, as described in “Defining, saving, modifying, and deleting 4-tuples.”

Defining, saving, modifying, and deleting 4-tuples

The first panel for defining, saving, modifying, and deleting 4-tuples is DFHRP03. (See Figure 19.) This panel is shown as soon as you have enabled CICS ONC RPC, or if you choose option 2 on panel DFHRP10.

```
CRPC                                CICS ONC RPC for MVS/ESA                DFHRP03
                                Remote Procedure Registration

Select one of the following. Then press Enter.

- 1. Register procedures from the data set
  2. List procedures sequentially
  3. Register a new procedure
  4. Retrieve a specified procedure from the data set (Enter required data)
     Program Number      ==> _____ 0-FFFFFFF
     Version Number     ==> _____ 0-FFFFFFF
     Procedure Number    ==> _____ 1-FFFFFFF
     Protocol           ==>  UDP         Udp | Tcp

Current Status: Enabled

                                           SYSID= CI41  APPLID= IYK1ZFL1
PF1=Help  PF3=Exit  PF9=Messages  PF12=Return
```

Figure 19. Panel DFHRP03

The result of selecting the various options is as follows:

1. The 4-tuples in the CICS ONC RPC data set that have YES for their Register from Data Set attribute are all registered.
2. See “Registering the 4-tuples” on page 40.
3. See “Defining the attributes of a 4-tuple” on page 36.
4. See below.

If you wish to select option 4, you must first supply the following information:

Program Number

The program number of the 4-tuple whose definition is to be retrieved.

Version Number

The version number of the 4-tuple whose definition is to be retrieved.

Procedure Number

The procedure number of the 4-tuple whose definition is to be retrieved.

Protocol

The protocol of the 4-tuple whose definition is to be retrieved.

If you specify a 4-tuple for which there is no definition in the CICS ONC RPC data set, a message is issued when you press Enter, and panel DFHRP03 remains on the screen.

Defining the attributes of a 4-tuple

When you select option 3 or option 4 on panel DFHRP03, panel DFHRP5 is shown. (See Figure 20 on page 37.) If you chose option 3, some of the fields are empty, but if you chose option 4, the details of the selected 4-tuple are shown. You have to supply more information on panel DFHRP5B.

Once you have made your modifications to panel DFHRP5, you should press PF8 to move to panel DFHRP5B. From panel DFHRP5B you can press PF7 if you wish to go back to panel DFHRP5. Once you have made your modifications to the panels, you press Enter to get all the modifications validated.

The attributes of a 4-tuple are divided into three categories:

- ONC RPC attributes
- CICS attributes
- CICS ONC RPC attributes.

ONC RPC attributes

The first four options establish the 4-tuple whose attributes are being defined.

ONC RPC Program Number

Specifies the program number of the 4-tuple as a hexadecimal string of 1 through 8 characters. You are advised not to use numbers in the range 0 through 1FFFFFFF, as these numbers are reserved for public network services and are allocated by Sun Microsystems.

ONC RPC Version Number

Specifies the version number of the 4-tuple as a hexadecimal string of 1 through 8 characters.

ONC RPC Procedure Number

Specifies the procedure number of the 4-tuple as a hexadecimal string of 1 through 8 characters. Procedure 0 is reserved by TCP/IP for MVS for a procedure with no parameters and no processing that returns an empty reply.

Protocol

Specifies the protocol of the 4-tuple. UDP (U) for UDP, or TCP (T) for TCP.

The remaining options specify the attributes of the 4-tuple.

RPC Call Type

Specifies whether CICS ONC RPC is to treat calls from clients as BLOCKING (B) or NONBLOCKING (N). If NONBLOCKING is specified,

```

CRPC      CICS ONC RPC for MVS/ESA Remote Procedure Registration      DFHRP5

Overtype to Modify. Then press Enter to Validate

ONC RPC ATTRIBUTES
ONC RPC Program Number  ===> _____  0-FFFFFFFF
ONC RPC Version Number  ===> _____  0-FFFFFFFF
ONC RPC Procedure Number ===> _____  1-FFFFFFFF
Protocol                ===>  UDP          Udp | Tcp
RPC Call Type           ===>  BLOCKING     Blocking | Nonblocking
Inbound XDR Routine     ===> _____
Outbound XDR Routine    ===> _____
CICS ATTRIBUTES
ALIAS Transaction ID    ===>  CRPA
EDF Terminal ID        ===>  _____
+ Program Name          ===>  _____

Current Status: Enabled

                                SYSID= CI41  APPLID= IYK1ZFL1
PF1=Help  PF3=Exit  PF4=Save  PF8=Forward  PF9=Messages  PF12=Return

```

```

CRPC      CICS ONC RPC for MVS/ESA Remote Procedure Registration      DFHRP5B

Overtype to Modify. Then press Enter to Validate

+ CICS ONC RPC ATTRIBUTES
Converter Program Name  ===> _____
Encode                 ===>  NO           Yes | No
Decode                 ===>  YES          Yes | No
Getlengths             ===>  YES          Yes | No
  Server Input Length   ===>  _____  0 - 32767 Bytes
  Server Output Length  ===>  _____  0 - 32767 Bytes
  Server Data Format     ===>  CONTIGUOUS  Contiguous | Overlaid
Register from Data set ===>  YES          Yes | No

Current Status: Enabled

                                SYSID= CI41  APPLID= IYK1ZFL1
PF1=Help  PF3=Exit  PF4=Save  PF7=Back  PF9=Messages  PF12=Return

```

Figure 20. Panels DFHRP5 and DFHRP5B

the outbound XDR routine cannot be specified, and no reply is sent to the client. The default is BLOCKING.

Inbound XDR Routine

Specifies the name of the inbound XDR routine. If an XDR library function is used, its full name is specified. See Figure 33 on page 55 to find out which library routines can be specified here. If a user-defined routine is used, its name (maximum 8 characters) is specified.

Outbound XDR Routine

Specifies the name of the outbound XDR routine, if RPC Call Type is BLOCKING. If an XDR library function is used, its full name is specified. See Figure 33 on page 55 to find out which library routines can be specified here. If a user-defined routine is used, its name (maximum 8 characters) is specified. A blank input is valid only if RPC Call Type is NONBLOCKING.

CICS attributes**ALIAS Transaction ID**

Specifies the transaction ID to be used for the alias. If this is omitted, and not provided by the **Decode** function, the alias transaction ID is CRPA. For reasons why you might want a different name from CRPA, see “Transaction definitions for extra alias transactions” on page 23.

EDF Terminal ID

Specifies the terminal ID to be used for the alias. You need a terminal ID only if you want to use execution diagnostic facility (EDF) to debug the resource checker, CICS program, or **Encode** function of the converter. A blank means that you cannot use EDF. EDF setup is described in “Using EDF” on page 98.

Program Name

Specifies the name of the CICS program that is to be called to service a request for this 4-tuple.

CICS ONC RPC attributes**Converter Program Name**

Specifies the name of the converter program. This name must be specified.

Encode

YES (Y) means that CICS ONC RPC must call the **Encode** function of the converter when servicing a client request for this 4-tuple; NO (N) means that it must not. The default is NO.

Decode

YES (Y) means that CICS ONC RPC must call the **Decode** function of the converter when servicing a client request for this 4-tuple; NO (N) means that it must not. The default is YES.

Getlengths

YES (Y) means that the connection manager must call the **Getlengths** function of the converter before registering this 4-tuple. NO (N) means that it must not. If you specify YES here, you should ignore the next two attributes, but you may set Server Data Format. If you specify NO here, you must specify the next three attributes. The default is YES.

Server Input Length

For the use of this option, see the description of Server Data Format.

If you specified YES for the Getlengths option, leave this field blank.

Server Output Length

For the use of this option, see the description of Server Data Format.

If you specified YES for the Getlengths option, leave this field blank.

Server Data Format

A value that controls:

- How the input data pointer for **Encode** will be set up
- How the communication area length to be checked by the connection manager is calculated.

The values you can specify are as follows:

CONTIGUOUS

The value of the data pointer that will be passed to **Encode**, or to the outbound XDR routine if **Encode** is not used for this 4-tuple, is the address of the CICS program communication area plus the value of Server Input Length, though **Decode** can modify this offset.

The connection manager calculates a communication area length by adding the values of Server Input Length and Server Output Length. If this length exceeds 32 767 bytes, message DFHRP1965 is issued. If this length is different from the actual length of the communication area passed from **Decode** to the CICS program, errors might occur in the processing of client requests.

OVERLAID

The value of the data pointer that will be passed to **Encode**, or to the outbound XDR routine if **Encode** is not used for this 4-tuple, is the address of the CICS program communication area.

The connection manager calculates a communication area length by taking the larger of the output values of Server Input Length and Server Output Length. If this length is different from the actual length of the communication area passed to the CICS program, errors might occur in the processing of client requests.

If you specified YES for the Getlengths option, the value in this field is used as an input to the **Getlengths** function of the converter.

Register from Data Set

YES (Y) means that the 4-tuple is to be registered:

- During automatic enable processing
- When option 1 is selected on panel DFHRP03, as described in “Registering the 4-tuples” on page 40.

NO (N) means that it is not. The default is YES. Entries specified as NO can be stored in the CICS ONC RPC data set and you can register them at any time when CICS ONC RPC is enabled.

Saving new 4-tuple definitions

There are five ways of doing this:

- On panel DFHRP03, select option 3. Complete panels DFHRP5 and DFHRP5B, and validate your input as described in “Defining the attributes of a 4-tuple” on page 36. Press PF4 to save the definition in the CICS ONC RPC data set.

- On panel DFHRP03, select option 4. Modify the panels DFHRP5 and DFHRP5B, and validate your input as described in “Defining the attributes of a 4-tuple” on page 36. Press PF4 to save the definition in the CICS ONC RPC data set.
- On panel DFHRP20, select option 3. Complete panels DFHRP21 and DFHRP2B, and validate your input as described in “Changing the attributes of a 4-tuple” on page 49. Press Enter to save the definition in the CICS ONC RPC data set.
- On panel DFHRP20, select option 4. Modify the panels DFHRP21 and DFHRP2B, and validate your input as described in “Changing the attributes of a 4-tuple” on page 49. Press Enter to save the definition in the CICS ONC RPC data set.
- On panel DFHRP03, select option 2. Then on panel DFHRP14, enter command **M** against a 4-tuple. Modify the panels DFHRP21 and DFHRP2B, and validate your input as described in “Changing the attributes of a 4-tuple” on page 49. Press Enter to save the definition in the CICS ONC RPC data set.

Modifying existing 4-tuple definitions

To change some of the attributes of a 4-tuple that already has a definition in the CICS ONC RPC data set, select option 4 on panel DFHRP03 or panel DFHRP20. Change the attributes and validate your input as described in “Defining the attributes of a 4-tuple” on page 36, and press PF4, or Enter, to save the definition in the data set.

Deleting existing 4-tuple definitions

You can delete existing 4-tuple definitions from the CICS ONC RPC data set in either of the following ways:

- On panel DFHRP03, select option 2. Then on panel DFHRP14 you can enter **D** against 4-tuples in the list, and they are deleted from the data set when you press Enter.
- On panel DFHRP21, by using key PF2, as described in “Changing the attributes of a 4-tuple” on page 49.

Registering the 4-tuples

You may register 4-tuples in any of the following ways:

- You may register all the 4-tuples in the CICS ONC RPC data set that are defined with YES specified for Register from Data Set. To do this, select option 1 on panel DFHRP03, and press Enter. After these 4-tuples have been registered, panel DFHRP03 is still displayed, so you can make other selections.
- You may register 4-tuple definitions one at a time. To do this, you use option 3 or option 4 on panel DFHRP03. Make changes, if you need any, to panels DFHRP5 and DFHRP5B and get them validated as described in “Defining the attributes of a 4-tuple” on page 36. To register the definition, press Enter.
- You may register 4-tuples from a list. See “Working with a list of 4-tuples” on page 47.

- When CICS ONC RPC is disabled, you may register all the 4-tuples in the CICS ONC RPC data set that have YES for their Register from Data Set attribute by initiating automatic enable processing.

When a 4-tuple is registered, two things happen:

- If the program-version-protocol 3-tuple has not yet been registered with TCP/IP for MVS, it is registered. The Portmapper assigns a port number to this combination, and that port number is the one that clients use to request the service represented by this 4-tuple. Procedure 0 for the program, version, and protocol becomes available to callers.
- The resources associated with the 4-tuple become available to service client requests. When a client request arrives in CICS ONC RPC, the resources used to service it are those of the 4-tuple whose program, version, and procedure numbers match those of the request, and whose protocol matches the protocol used to transmit the request from the client to the server.

Limits on registration

CICS ONC RPC makes 252 sockets available for use as follows:

- One socket is used by each program/version/protocol 3-tuple from the time the first 4-tuple for that program, version and protocol is registered. This socket remains in use until the last 4-tuple with that program and version is unregistered.
- One socket is used by each TCP call for the duration of the call.

If you register too many 4-tuples, you reduce the service that CICS ONC RPC can give to incoming client requests. If you attempt to register more than 252 program-version-protocol 3-tuples with TCP/IP for MVS, the results are unpredictable.

Unregistering 4-tuples

You may unregister 4-tuples that have previously been registered with CICS ONC RPC only when CICS ONC RPC is already enabled. From panel DFHRP10, if you select option 3, panel DFHRP11 is shown. (See Figure 21 on page 42.)

The result of selecting the various options is as follows:

1. See “Unregistering 4-tuples from a list” on page 42
2. See “Unregistering 4-tuples one by one.”

Unregistering 4-tuples one by one

Before you select option 2 on panel DFHRP11, you must supply the following information:

Program Number

The program number of the 4-tuple to be unregistered.

Version Number

The version number of the 4-tuple to be unregistered.

Procedure Number

The procedure number of the 4-tuple to be unregistered.

```

CRPC                                CICS ONC RPC for MVS/ESA                DFHRP11
                                Remote Procedure Unregister

Select one of the following. Then press Enter.

- 1. Unregister procedures from a list
  2. Unregister a specified procedure (Enter required data)
      Program Number    ===> _____ 0-FFFFFFF
      Version Number    ===> _____ 0-FFFFFFF
      Procedure Number   ===> _____ 1-FFFFFFF
      Protocol          ===> UDP         Udp | Tcp

Current Status: Enabled

                                                                    SYSID= CI41  APPLID= IYK1ZFL1
PF1=Help  PF3=Exit  PF9=Messages  PF12=Return

```

Figure 21. Panel DFHRP11

Protocol

The protocol of the 4-tuple to be unregistered.

If you specify a 4-tuple that is registered, it is unregistered when you press Enter, and panel DFHRP11 remains on the screen.

If you specify a 4-tuple that is not registered, a message is issued when you press Enter, and panel DFHRP11 remains on the screen.

Unregistering 4-tuples from a list

If you select option 1 on panel DFHRP11, panel DFHRP12 is shown. (See Figure 22 on page 43.)

This panel presents a list of 4-tuples currently registered with CICS ONC RPC. If you enter **U** against 4-tuples in the list, they are unregistered when you press Enter. You can display the attributes of a 4-tuple by entering **?** against it, and pressing Enter. Panel DFHRP13 is shown. (See Figure 23 on page 43.)


```

CRPC                                CICS ONC RPC for MVS/ESA                DFHRP12
                                Registered Procedures List

Enter 'U' to Unregister, or '?' to display details of a procedure
- Prog( 20000002 ) Vers( 00000001 ) Proc( 00000006 ) Prot( UDP )
- Prog( 20000002 ) Vers( 00000001 ) Proc( 00000007 ) Prot( TCP )
- Prog( 20000002 ) Vers( 00000001 ) Proc( 00000007 ) Prot( UDP )
- Prog( 20000002 ) Vers( 00000001 ) Proc( 00000008 ) Prot( TCP )
- Prog( 20000002 ) Vers( 00000001 ) Proc( 00000009 ) Prot( UDP )
- Prog( 20000002 ) Vers( 00000001 ) Proc( 0000000A ) Prot( TCP )
- Prog( 20000002 ) Vers( 00000001 ) Proc( 0000000B ) Prot( TCP )
- Prog( 20000002 ) Vers( 00000001 ) Proc( 0000000B ) Prot( UDP )
- Prog( 20000002 ) Vers( 00000001 ) Proc( 0000000C ) Prot( TCP )
- Prog( 20000002 ) Vers( 00000001 ) Proc( 0000000C ) Prot( UDP )
- Prog( _____ ) Vers( _____ ) Proc( _____ ) Prot( ____ )
- Prog( _____ ) Vers( _____ ) Proc( _____ ) Prot( ____ )
- Prog( _____ ) Vers( _____ ) Proc( _____ ) Prot( ____ )
- Prog( _____ ) Vers( _____ ) Proc( _____ ) Prot( ____ )
- Prog( _____ ) Vers( _____ ) Proc( _____ ) Prot( ____ )
- Prog( _____ ) Vers( _____ ) Proc( _____ ) Prot( ____ )
Current Status: Enabled

                                SYSID= CI41  APPLID= IYK1ZFL1
PF1=Help PF2=Refresh PF3=Exit PF7=Back PF8=Forward PF9=Messages PF12=Return

```

Figure 22. Panel DFHRP12

```

CRPC                                CICS ONC RPC for MVS/ESA                DFHRP13
                                Display Registered Procedure

Program Number( 20000002 )          Version Number( 00000001 )
Procedure Number( 00000006 )        Protocol( UDP )
RPC Call Type( Blocking )           Inbound XDR( XDR_WRAPSTRING )
Outbound XDR( XDR_WRAPSTRING )      Alias Transid( CRPA )
Alias Termid( )                     Server Program Name( STRING6 )
Converter Program Name( RINGCVNY )   Getlengths( NO )
Decode( YES )                       Encode( NO )
Server Input Length( 00001 )         Server Output Length( 00001 )
Server Data Format( CONTIGUOUS )

Current Status: Enabled

                                SYSID= CI41  APPLID= IYK1ZFL1
PF1=Help PF3=Exit PF12=Return

```

Figure 23. Panel DFHRP13

Disabling CICS ONC RPC

From panel DFHRP04, select option 1, and panel DFHRP06 is shown. (See Figure 24.)

```
CRPC                      CICS ONC RPC for MVS/ESA Disable          DFHRP06
Select the type of disable required. Then press Enter.

Type of Disable  ==>>  _____  Normal | Immediate

Current Status: Enabled

PF1=Help  PF3=Exit  PF9=Messages  PF12=Return          SYSID= CI41  APPLID= IYK1ZFL1
```

Figure 24. Panel DFHRP06

In this panel there is only one field to enter.

Type of Disable

NORMAL (N)

Normal disable processing is started.

- All program-version pairs are unregistered from TCP/IP for MVS.
- All work that has already entered CICS ONC RPC is allowed to run to completion, and replies are sent to the relevant client.

IMMEDIATE (I)

Immediate disable processing is started.

- Aliases not yet started do not start at all.
- CICS programs running under aliases are allowed to end, and then the alias abends. If the CICS program ends normally, and was called using DPL, the changes it makes to recoverable resources are committed. If the CICS program is a local program, the changes it makes to recoverable resources are backed out unless the CICS program takes a syncpoint with EXEC CICS SYNCPOINT.
- All the program-version pairs are unregistered from TCP/IP for MVS.
- No replies are sent to clients, so they do not know whether the CICS program has run or not.

Pressing Enter causes the entry you have made to be validated. Pressing Enter a second time begins disable processing. The Current Status is changed to Disabling or Disabled, depending on the progress of disable processing. When disable processing is complete, pressing Enter will change the Current Status to Disabled.

The panel is displayed until you use PF3 or PF12.

On CICS for MVS/ESA normal shutdown: CICS for MVS/ESA normal shutdown starts normal disable processing for CICS ONC RPC.

On CICS for MVS/ESA immediate shutdown: On CICS for MVS/ESA immediate shutdown, all transactions are terminated. Clients are not informed of the shutdown or its effects. The program-version-protocol 3-tuples that are registered with TCP/IP for MVS might remain registered.

Updating the CICS ONC RPC data set

If you select option 2 on panel DFHRP01, or option 2 on panel DFHRP04, panel DFHRP20 is shown. (See Figure 25.)

```
CRPC                                CICS ONC RPC for MVS/ESA                DFHRP20
                                Update CICS ONC RPC Data set

Select one of the following. Then press Enter.

- 1. View or modify the CICS ONC RPC definition record
  2. Display a list of remote procedure definitions
  3. Define a new procedure
  4. Retrieve a specified procedure from the data set (Enter required data)
     Program Number      ==> _____ 0-FFFFFFFF
     Version Number     ==> _____ 0-FFFFFFFF
     Procedure Number    ==> _____ 1-FFFFFFFF
     Protocol           ==> UDP         Udp | Tcp

Current Status:

                                           SYSID= CI41  APPLID= IYK1ZFL1
PF1=Help  PF3=Exit  PF9=Messages  PF12=Return
```

Figure 25. Panel DFHRP20

The Current Status field in this panel might show Enabled or Disabled, depending on which panel you came from.

The result of selecting the various options is as follows:

1. See “Updating the CICS ONC RPC definition record” on page 46.
2. See “Working with a list of 4-tuples” on page 47.
3. See “Changing the attributes of a 4-tuple” on page 49.

4. Before selecting this option you must supply the following information, then see “Changing the attributes of a 4-tuple” on page 49.

Program Number

The program number of the 4-tuple whose definition is to be retrieved.

Version Number

The version number of the 4-tuple whose definition is to be retrieved.

Procedure Number

The procedure number of the 4-tuple whose definition is to be retrieved.

Protocol

The protocol of the 4-tuple whose definition is to be retrieved.

If you specify a 4-tuple which is not defined in the CICS ONC RPC data set, a message is issued when you press Enter, and panel DFHRP20 remains on the screen.

Updating the CICS ONC RPC definition record

If you select option 1 on panel DFHRP20, panel DFHRP22 is shown. (See Figure 26 on page 47.)

The values displayed in the ‘Choice’ column are those stored in the CICS ONC RPC data set.

Once you have made your changes you should press Enter to get them validated. You can then press enter again to update the CICS ONC RPC data set with the values you have supplied. The next time you start the connection manager, the saved options are used to set up panel DFHRP02

Trace

Specifies whether CICS ONC RPC tracing is active. STARTED (STA) means it is active, STOPPED (STO) means it is not. The default value is STARTED.

CICS ONC RPC exception trace entries are always written to CICS internal trace whatever the setting of this option. To get non-exception trace entries written, CICS trace must be started, and this option must be set to STARTED.

Trace Level

Specifies the trace level for CICS ONC RPC. The value 1 means that level 1 trace points are traced, 2 means that both level 1 and level 2 are traced. The default value is 1.

Resource Checker

YES (Y) means that CICS ONC RPC is to call the user-written resource-checking module on receipt of every incoming RPC request. NO (N) means the resource checker is not to be called. The default is NO.

CRPM Userid

Specifies the CICS user ID under which the server controller is to operate. The default is the default user ID for the CICS for MVS/ESA system in which CICS ONC RPC is operating. This field is not present in CICS/ESA 3.3.

```

CRPC                                CICS ONC RPC for MVS/ESA                DFHRP22
Update CICS ONC RPC Definition Record
Overtime to Modify

Choice           Possible Options
Trace            ===>  STARTED          STArtd | STOpped
Trace Level      ===>  1                1 | 2
Resource Checker ===>  NO              Yes | No
CRPM Userid      ===>  CICSUSER
Automatic Enable ===>  NO              Yes | No

Current Status:

SYSID= CI41  APPLID= IYK1ZF11
PF1=Help  PF3=Exit  PF9=Messages  PF12=Return

```

Figure 26. Panel DFHRP22

Automatic Enable

Enter YES (Y) or NO (N). If YES is stored in the CICS ONC RPC data set, you can enable CICS ONC RPC by just typing CRPC; all values are defaulted from the CICS ONC RPC data set, CICS ONC RPC becomes enabled without further user input, and all the 4-tuples with YES for their Register from Data Set option are registered. The default value is NO.

Setting this field has an effect only when you enable CICS ONC RPC. If you save the values to the CICS ONC RPC data set, this value will be effective the next time you enable, unless you override it. The value of this field in the CICS ONC RPC data set may be overridden by the fast path command CRPC E A(N).

Working with a list of 4-tuples

If you select option 2 on panel DFHRP03, or option 2 on panel DFHRP20, panel DFHRP14 is shown. (See Figure 27 on page 48.)

This panel presents a list of 4-tuples currently defined in the CICS ONC RPC data set. If CICS ONC RPC is enabled, the 4-tuples that are currently registered are shown highlighted. You may put a command against a 4-tuple, and it takes effect when you press Enter. The following commands can be entered against a 4-tuple:

D

Deletes the definition from the data set.

R

If CICS ONC RPC is enabled, registers the 4-tuple with CICS ONC RPC. If CICS ONC RPC is disabled, this command produces an error message.

```

CRPC                                CICS ONC RPC for MVS/ESA                                DFHRP14
                                Remote Procedure Definition List

Enter a command (press PF1 to view the list of valid commands).
- Prog( 20000002 ) Vers( 00000001 ) Proc( 00000006 ) Prot( UDP )
- Prog( 20000002 ) Vers( 00000001 ) Proc( 00000007 ) Prot( TCP )
- Prog( 20000002 ) Vers( 00000001 ) Proc( 00000007 ) Prot( UDP )
- Prog( 20000002 ) Vers( 00000001 ) Proc( 00000008 ) Prot( TCP )
- Prog( 20000002 ) Vers( 00000001 ) Proc( 00000009 ) Prot( UDP )
- Prog( 20000002 ) Vers( 00000001 ) Proc( 0000000A ) Prot( TCP )
- Prog( 20000002 ) Vers( 00000001 ) Proc( 0000000B ) Prot( TCP )
- Prog( 20000002 ) Vers( 00000001 ) Proc( 0000000B ) Prot( UDP )
- Prog( 20000002 ) Vers( 00000001 ) Proc( 0000000C ) Prot( TCP )
- Prog( 20000002 ) Vers( 00000001 ) Proc( 0000000C ) Prot( UDP )
- Prog( _____ ) Vers( _____ ) Proc( _____ ) Prot( _____ )
- Prog( _____ ) Vers( _____ ) Proc( _____ ) Prot( _____ )
- Prog( _____ ) Vers( _____ ) Proc( _____ ) Prot( _____ )
- Prog( _____ ) Vers( _____ ) Proc( _____ ) Prot( _____ )
- Prog( _____ ) Vers( _____ ) Proc( _____ ) Prot( _____ )
- Prog( _____ ) Vers( _____ ) Proc( _____ ) Prot( _____ )
Current Status:

                                SYSID= CI41  APPLID= IYK1ZF11
PF1=Help PF2=Refresh PF3=Exit PF7=Back PF8=Forward PF9=Messages PF12=Return

```

Figure 27. Panel DFHRP14

M

Shows panel DFHRP21. See “Changing the attributes of a 4-tuple” on page 49 for details.

?

Shows panel DFHRP15, which displays the attributes of a 4-tuple, but does not allow changes.

```

CRPC                                CICS ONC RPC for MVS/ESA                                DFHRP15
                                Display Registered Procedure

Program Number( 20000002 )           Version Number( 00000001 )
Procedure Number( 00000006 )         Protocol( UDP )
RPC Call Type( Blocking )           Inbound XDR( XDR_WRAPSTRING )
Outbound XDR( XDR_WRAPSTRING )      Alias Transid( CRPA )
Alias Termid( )                     Server Program Name( STRING6 )
Converter Program Name( RINGCVNY )   Getlengths( NO )
Decode( YES )                        Encode( NO )
Server Input Length( 00000 )         Server Output Length( 00000 )
Server Data Format( CONTIGUOUS )      Register from Data set( Yes )

Current Status:

                                SYSID= CI41  APPLID= IYK1ZF11
PF1=Help PF3=Exit PF12=Return

```

Figure 28. Panel DFHRP15

Changing the attributes of a 4-tuple

If you select option 3 or 4 on panel DFHRP20, or if you select the **M** command on panel DFHRP14, panel DFHRP21 is shown.

```

CRPC          CICS ONC RPC for MVS/ESA Remote Procedure Definition          DFHRP21

Overtype to Modify. Then press Enter to Validate

ONC RPC ATTRIBUTES
ONC RPC Program Number  ===> _____ 0-FFFFFFFF
ONC RPC Version Number  ===> _____ 0-FFFFFFFF
ONC RPC Procedure Number===> _____ 1-FFFFFFFF
Protocol                ===> UDP          Udp | Tcp
RPC Call Type           ===> BLOCKING     Blocking | Nonblocking
Inbound XDR Routine     ===> _____
Outbound XDR Routine    ===> _____
CICS ATTRIBUTES
ALIAS Transaction ID    ===> CRPA
EDF Terminal ID        ===> _____
+ Program Name          ===> _____

Current Status:

PF1=Help  PF2=Delete  PF3=Exit  PF8=Forward  SYSID= CI41  APPLID= IYK1ZFL1
PF9=Messages  PF12=Return

```

```

CRPC          CICS ONC RPC for MVS/ESA Remote Procedure Registration        DFHRP2B

Overtype to Modify. Then press Enter to Validate

+ CICS ONC RPC ATTRIBUTES
Converter Program Name  ===> _____
Encode                  ===> NO          Yes | No
Decode                  ===> YES         Yes | No
Getlengths              ===> YES         Yes | No
  Server Input Length    ===> _____ 0 - 32767 Bytes
  Server Output Length   ===> _____ 0 - 32767 Bytes
  Server Data Format      ===> CONTIGUOUS  Contiguous | Overlaid
Register from Data set  ===> YES         Yes | No

Current Status:

PF1=Help  PF2=Delete  PF3=Exit  PF7=Back  PF9=Messages  SYSID= CI41  APPLID= IYK1ZFL1
PF12=Return

```

Figure 29. Panels DFHRP21 and DFHRP2B

You can use this panel to delete a 4-tuple definition from the CICS ONC RPC data set by pressing PF2.

If you wish to modify the 4-tuple definition, you should first make modifications to panel DFHRP21, and then press PF8 to move to panel DFHRP2B. From panel

DFHRP2B you can press PF7 if you wish to go back to panel DFHRP21. Once you have made your modifications to the panels, you should press Enter to get all the modifications validated, and then press Enter again to get the definition changed.

The attributes of a 4-tuple are divided into three categories:

- ONC RPC attributes—see “ONC RPC attributes” on page 36.
- CICS attributes—see “CICS attributes” on page 38.
- CICS ONC RPC attributes—see “CICS ONC RPC attributes” on page 38.

Processing the alias list

If you select option 4 on panel DFHRP10, panel DFHRP17 is shown. (See Figure 30 on page 51.)

This panel gives a list of the aliases that have been started, or scheduled, by the server controller, but have not yet ended. Each alias has two lines on the panel.

- The first line shows the 4-tuple for the client request.
- The second line shows the CICS task number of the alias that is processing the client request.

If the alias is scheduled, but not yet started, the task number is blank. If the alias has started, a task number is given and the line is highlighted.

The following commands may be entered against an alias:

P

Purges the alias.

?

Shows panel DFHRP18, which displays details of the alias and the associated client request. (See Figure 31 on page 51.)

If the alias is scheduled, but not yet started, the task number and start time are blank. If the alias has started, a task number and start time are given.


```

CRPC                                CICS ONC RPC for MVS/ESA                DFHRP17
                                Alias List

Enter 'P' to Purge, or '?' to display details of an alias task
- Prog( 00000103 ) Vers( 00000114 ) Proc( 00000001 ) Prot( UDP )
  Task Number( 00000033 )
- Prog( _____ ) Vers( _____ ) Proc( _____ ) Prot( ___ )
  Task Number( _____ )
- Prog( _____ ) Vers( _____ ) Proc( _____ ) Prot( ___ )
  Task Number( _____ )
- Prog( _____ ) Vers( _____ ) Proc( _____ ) Prot( ___ )
  Task Number( _____ )
- Prog( _____ ) Vers( _____ ) Proc( _____ ) Prot( ___ )
  Task Number( _____ )
- Prog( _____ ) Vers( _____ ) Proc( _____ ) Prot( ___ )
  Task Number( _____ )
- Prog( _____ ) Vers( _____ ) Proc( _____ ) Prot( ___ )
  Task Number( _____ )
- Prog( _____ ) Vers( _____ ) Proc( _____ ) Prot( ___ )
  Task Number( _____ )
- Prog( _____ ) Vers( _____ ) Proc( _____ ) Prot( ___ )
  Task Number( _____ )
- Prog( _____ ) Vers( _____ ) Proc( _____ ) Prot( ___ )
  Task Number( _____ )
Current Status: Enabled

                                SYSID= CI41  APPLID= IYK1ZFL1
PF1=Help PF2=Refresh PF3=Exit PF7=Back PF8=Forward PF9=Messages PF12=Return

```

Figure 30. Panel DFHRP17

```

CRPC                                CICS ONC RPC for MVS/ESA                DFHRP18
                                Display Alias Task Details

Program Number( 00000103 )          Version Number( 00000114 )
Procedure Number( 00000001 )        Protocol( UDP )
Task Number( 00000033 )             Client IP Addr( 9.20.2.19 )
CICS Program Name( RPROC103 )       Transid( CRPA )
Port Number( 000007BC )             Socket Descriptor( 00000003 )
Task Start Time( 14:38:19 )         Termid(          )

Current Status: Enabled

                                SYSID= CI41  APPLID= IYK1ZFL1
PF1=Help PF3=Exit PF12=Return

```

Figure 31. Panel DFHRP18

Chapter 5. Guide to programming with CICS ONC RPC

This chapter tells you how to write the user-replaceable programs that were described in “User-replaceable programs” on page 13. It describes the general process of development, including details of the interfaces to the converter functions.

This chapter contains Product-sensitive Programming Interface and Associated Guidance Information.

Developing an ONC RPC application for CICS ONC RPC

ONC RPC applications are always developed as client/server pairs. The process described in this section takes account of this, but concentrates on the server, because CICS ONC RPC affects this and not the client. For details of the client development process, read the documentation of the ONC RPC system running on the client machine.

The process of developing all the material needed for an ONC RPC application using CICS ONC RPC is summarized in the Figure 32, which should be compared with Figure 6 on page 7, which showed the process for ONC RPC without CICS ONC RPC.

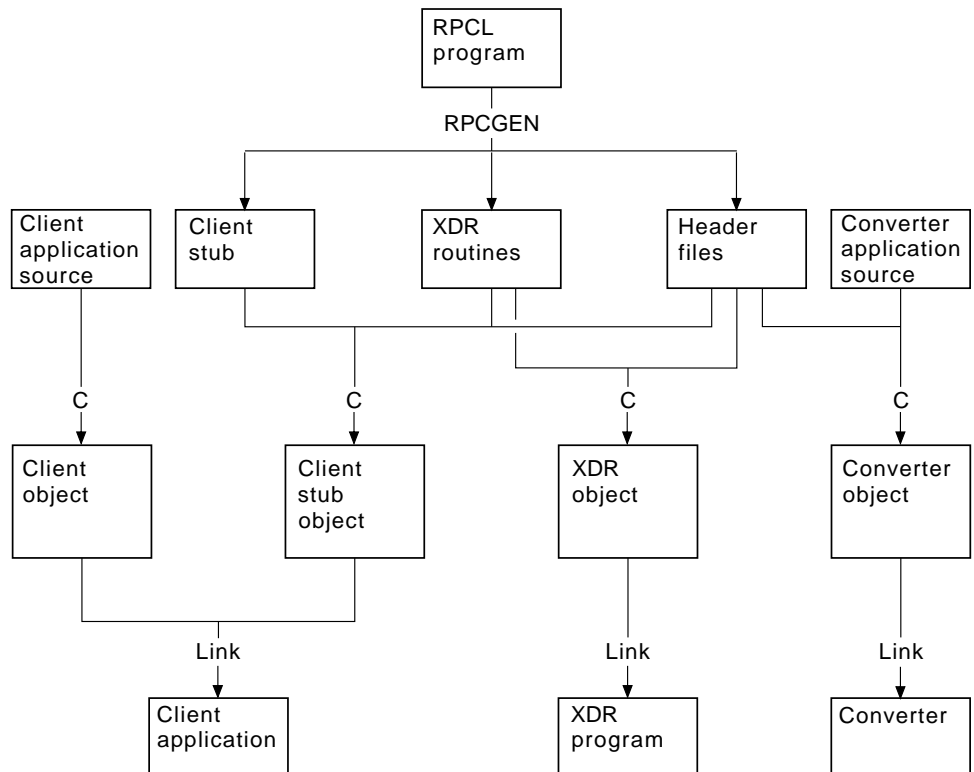


Figure 32. Program development with CICS ONC RPC

The figure shows the development process when RPCGEN is used to create source text from the interface definition in the RPCL program. If you do not use RPCGEN, you must supply some of its output—XDR routines and header

files—yourself. The development of the CICS program to service client requests is not shown.

The sequence of development of an ONC RPC application is summarized below. Each step is described in detail in the sections following the summary.

1. Decide what data is to be sent from client to server and what is to be returned. If the data structures the client uses are not simple, you might choose to use RPCGEN to help with managing the data. If you choose to use RPCGEN, some of its output is useful for writing the user-replaceable programs for CICS ONC RPC.
2. Decide the format of the communication area to be used by the CICS program. If the client is to use an existing CICS program, the format is already decided.
3. Write the XDR routines. If the translations you need can be done by an XDR library function supported by the connection manager (see Figure 33 on page 55), you do not need to write an XDR routine. If you used RPCGEN, it has generated source for XDR routines. In any other case you must write the XDR routines yourself.

XDR routines must be written in C.

4. Write the converter. If you used RPCGEN, and you are going to write your converter in C, the header files produced by RPCGEN describe the data structures that **Decode** receives and **Encode** returns. The format of the CICS program communication area is also used by **Decode** and **Encode**.
5. Write the resource checker (if required in CICS/ESA 3.3). You may want to write your own resource checker to validate incoming client requests. Chapter 6, “Security” on page 79 tells you about this and other security facilities available for use with CICS ONC RPC. “Writing the resource checker” on page 81 gives you details on writing a resource checker.
6. Compile and link the user-replaceable programs. If you used RPCGEN, the header files are needed for the compilation of the XDR routines and the converter if it is in C.
7. Define the server application set to CICS for MVS/ESA. This means defining programs for the CICS program, any XDR routines that are not just XDR library functions, and the converter. One or more alias transaction definitions may also be required, see “Defining CICS ONC RPC resources to CICS for MVS/ESA” on page 23.
8. Use the connection manager to define a 4-tuple and save it in the CICS ONC RPC data set. The definition specifies the CICS program, XDR routines, and converter, as described in “Defining the attributes of a 4-tuple” on page 36.

Step 1—Decide what data is to be sent

This step is outside the scope of this manual. What you do depends on the nature of the data to be sent with the request and with the reply. Defining data with RPCL and the use of RPCGEN are described in Sun Microsystems’ publication *Network Programming*.

Step 2—Decide the format of the communication area

This step is also outside the scope of this manual. You are reminded that if the CICS program that services a client request is not in the same CICS region as CICS ONC RPC, the maximum communication area length is 35 000 bytes. If the CICS program resides in a server other than CICS for MVS/ESA, other restrictions might also apply.

Step 3—Write the XDR routines

If you used RPCGEN in Step 1, you use the XDR source programs generated by RPCGEN. If the XDR source uses the `xdr_char` or `xdr_u_char` XDR library functions, you must use the C `#define` directive to make the compiler use the `xdr_text_char` function instead.

If the translations you need can be done by an XDR library function supported by the connection manager (see Figure 33), you do not need to write an XDR routine. Instead you specify one of the XDR library functions described below when you register a 4-tuple with the connection manager.

If you write your own XDR routine, you need to use the XDR library functions. The full C definitions of these functions are documented in the *TCP/IP for MVS: Programmer's Reference* manual.

CICS ONC RPC supports only the functions listed below. You should use only these functions in your own XDR routines. These functions convert C data types to XDR formats, and XDR formats to C data types.

Some of these function names cannot be used in the connection manager when specifying XDR library functions for the inbound and outbound XDR routines for a 4-tuple. In the column headed **CM**, an asterisk means that the XDR library routine can be specified in the connection manager, while a blank means that it cannot.

Figure 33 (Page 1 of 2). Supported XDR library functions

XDR library function	CM	C type
<code>xdr_int</code>	*	int
<code>xdr_u_int</code>	*	unsigned int
<code>xdr_long</code>	*	long
<code>xdr_u_long</code>	*	unsigned long
<code>xdr_short</code>	*	short int
<code>xdr_u_short</code>	*	unsigned short int
<code>xdr_float</code>	*	float
<code>xdr_bool</code>	*	bool_t (see note)
<code>xdr_double</code>	*	double
<code>xdr_enum</code>		enum
<code>xdr_void</code>	*	void
<code>xdr_array</code>		variable-length array
<code>xdr_opaque</code>		fixed-length uninterrupted data
<code>xdr_bytes</code>		variable-length array of bytes
<code>xdr_pointer</code>		object references, including null pointers
<code>xdr_reference</code>		object references
<code>xdr_char</code>	*	character
<code>xdr_u_char</code>	*	unsigned character
<code>xdr_text_char</code>	*	text character

Figure 33 (Page 2 of 2). Supported XDR library functions

XDR library function	CM	C type
xdr_string		null-terminated character arrays
xdr_vector		fixed-length array with arbitrary element size
xdr_wrapstring	*	variable-length null-terminated character arrays
xdr_union		discriminated union

Note: **bool_t** is not a built-in C data type; it is defined in an ONC RPC header (as a C **int**).

Names of user-written XDR routines are subject to the same restrictions as CICS programs.

You must take care when writing your own XDR routines. These run in the CICS address space and can overwrite CICS code and other user application storage, because they are defined with EXECKEY(CICS).

Code page conversions

Conversion between ASCII and EBCDIC (or vice versa) is done by XDR library functions supplied as part of TCP/IP for MVS. The relevant XDR routines are **xdr_text_char**, **xdr_string**, and **xdr_wrapstring**. These routines use EBCDIC-to-ASCII and ASCII-to-EBCDIC translate tables, which are loaded at TCP/IP for MVS initialization from a data set containing one of the possible translate tables provided with TCP/IP for MVS.

Thus all ONC RPC requests from all clients use the same translate table. There is no provision for ONC RPC data from different client workstations or from different client end users to have different character sets.

Various single-byte character set (SBCS) translate tables are provided with TCP/IP for MVS, one of which is generated during TCP/IP for MVS customization. If none of these is suitable, you could provide your own, as described in *TCP/IP for MVS: Planning and Customization*.

TCP/IP for MVS 3.1 provides several code pages for double-byte character sets (DBCS). If you want to include DBCS in ONC RPC data you have to write your own XDR routines to convert the double-byte characters.

Step 4—Write the converter

This section describes how you can write a converter to perform various tasks. Some of these tasks are required for all 4-tuples, others only for some.

The section describes in turn each of the tasks, indicating the converter function (**Getlengths**, **Decode**, or **Encode**) used.

The parameter details and responses of each of the converter functions are given at the end of the section in “Getlengths” on page 66, “Decode” on page 69, and “Encode” on page 74.

Tasks that can be performed by a converter

The tasks to be performed are:

- Telling the connection manager or the server controller the lengths of the input and output data for the CICS program
- Telling the connection manager the CICS program data format
- Mapping data between client and CICS program formats, as illustrated in Figure 11 on page 17 and Figure 13 on page 18.
- Telling the server controller which alias and CICS program are to be used to service a request, if those specified when the 4-tuple was defined are to be changed.

Lengths of the CICS program input and output data

CICS ONC RPC needs to know the length of the CICS program input and output data for each 4-tuple. For each 4-tuple, the lengths may be defined in one of three places:

- In the connection manager if the lengths do not vary from call to call. You specify the lengths in the connection manager and specify NO for the **Getlengths** attribute of the 4-tuple. In this case **Getlengths** is not called.
- In **Getlengths** if the lengths do not vary from call to call, returning the values in **length_server_input_data_len** and **length_server_output_data_len**. In the connection manager you specify YES for the **Getlengths** attribute of the 4-tuple, and leave the length fields blank.

In either of the above cases, if **Decode** is specified for the 4-tuple, the **Decode** function can change the lengths.

- In **Decode**, if the lengths of the data structures vary from call to call. You return the lengths on each call by using the **decode_server_input_data_len** and **decode_server_output_data_len** output fields. The lengths specified with the connection manager or **Getlengths** are supplied as inputs to **Decode** in these fields.

Setting the CICS program data format

CICS ONC RPC needs to know the CICS program data format for each 4-tuple. The data format defines how the input and output data is arranged in the CICS program communication area. You may set this either in **Getlengths** or in the connection manager. If you choose **Getlengths**, use the output field **length_server_data_format**. The value specified with the connection manager is supplied as input to **Getlengths** in this field.

Mapping data between client and CICS program formats

You need to map the incoming data intended for the CICS program only if it is not in the format required by the CICS program. This is typically for:

- Client data structures that contain pointers to other data. These are rebuilt by the inbound XDR routine in the same form as they existed in the client. The data for the CICS program must be copied into a single area of storage to be passed to the CICS program as its communication area.
- CICS programs that are written in a language other than C. The incoming client request always has a C data structure. If your CICS program is written in COBOL, for example, you need to perform a C-to-COBOL mapping in **Decode**.

The mapping is always done by **Decode** for the input data for the CICS program. In most cases, the output data needs to be mapped in the opposite direction by **Encode**.

Mapping the input data: The client data is pointed to by the **Decode** input field **decode_client_data_ptr**. **Decode** maps this data into the form which the CICS program requires.

To achieve the mapping, **Decode** must allocate an area of CICS storage, using EXEC CICS GETMAIN SHARED. **Decode** must set the output field **decode_returned_data_ptr** to the address returned by the GETMAIN command, and put the input data passed from the client into the storage, making changes where applicable.

Changing the alias and CICS program

You can use **Decode** to redirect a client request to another CICS program. CICS ONC RPC then ignores the original program name that was defined in the connection manager for the requested 4-tuple. To reroute a client request, specify a new CICS program name in the **decode_server_program** field in **Decode**. This facility allows a client to pass a CICS program name in the data it sends in the remote procedure call. The new CICS program must work with the same communication area format, converter, and XDR output routine as the original program.

You can use **Decode** to change the name of the alias transaction to run the CICS program by setting the **decode_alias_transid** output field. CICS ONC RPC then ignores the transaction ID that was defined in the connection manager for the requested 4-tuple. This facility allows a client to pass the alias transaction ID in the data it sends with the remote procedure call.

Changing security information

You may want your CICS ONC RPC system to implement security checking on incoming client requests. Such checking usually involves checks on the client user ID and password. One of the ways the client can provide these is by including them in the data structure it sends.

Decode may retrieve this information from the incoming data, and return it in the output fields. The user ID should be returned in the output field **decode_userid**; the password should be returned as part of the data pointed to by **decode_returned_data_ptr**. These outputs can either be passed by the client or generated by **Decode** in whatever way you want. For instance, **Decode** can derive the CICS user ID and password for the client request by using the **decode_client_address** or the authentication fields **decode_aup_...** that identify the client.

Organizing the converter

You may write converters for any CICS for MVS/ESA-supported compiler. If you choose a language other than C or COBOL, you must write your own header files to define the CICS ONC RPC data structures and constants.

A converter is passed a communication area that contains a parameter that specifies which of the three functions **Getlengths**, **Decode**, or **Encode** is required,

and parameters for the particular function, as described in the reference material: “Getlengths” on page 66, “Decode” on page 69, and “Encode” on page 74.

The following C header files (in the SDFHC370 target library) and COBOL copybooks (in the SDFHCOB target library) are provided to help with writing the converter:

- DFHRPUCH for C (DFHRPUCO for COBOL)—contains definitions of the constants that are used in the interface between CICS ONC RPC and the converter.
- DFHRPCDH for C (DFHRPCDO for COBOL)—defines the format of the communication area that is presented to the converter. The communication area is in two parts. The format of the first part is independent of the function that the converter is being asked to perform, and it contains:
 - The eyecatcher for the requested function
 - The function code for the requested function
 - A response to be supplied by the converter
 - A reason code to be supplied by the converter.

The format of the rest of the communication area depends on the converter function requested.

You need a header file produced by RPCGEN only if you used RPCL to define the data structures, and you are writing **Decode** or **Encode**. If you are writing your converter in a language other than C, you need to rewrite the header file in your chosen language, since RPCGEN produces its output only in C.

You need definitions of the CICS for MVS/ESA structures that you use, and the definition of the CICS program communication area.

Writing a converter in C

The following discussion is based on a converter that consists of four main parts:

- A routing part that consults the function code in the communication area, and then calls the appropriate function
- A function for **Getlengths** processing
- A function for **Decode** processing
- A function for **Encode** processing

Figure 34 on page 60 shows how you can route control to the appropriate function.

```

EXEC CICS ADDRESS EIB(dfheiptr);      /*Get addressability of EIB*/

EXEC CICS ADDRESS COMMAREA(converter_parms_ptr);

switch(converter_parms_ptr->converter_function) {

  case URP_GETLENGTHS:
  {
    converter_getlengths();
    break;
  }
  case URP_DECODE:
  {
    converter_decode();
    break;
  }
  case URP_ENCODE:
  {
    converter_encode();
    break;
  }

  default:
  {
    converter_parms_ptr->converter_response = URP_INVALID;
  }

} /* end switch */

EXEC CICS RETURN;

} /* end main */

```

Figure 34. Routing control to the functions in C

In this program fragment, **converter_parms_ptr** is a locally declared pointer to the **converter_parms** structure declared in DFHRPCDH. All the other names beginning **converter_** are names from this structure.

The processing is as follows:

1. The **converter_parms_ptr** pointer is set by using EXEC CICS ADDRESS COMMAREA.
2. The **switch** statement is used to select the function to be called. If you are not providing all the functions, you need fewer **case** statements.
3. If the function is not valid, the response URP_INVALID is returned from the converter. This test is always advised, especially if the converter does not provide all three functions.

Figure 35 on page 61 is an example of a **Decode** function.

```

void converter_decode(void)
{
    decode_parms *decode_parms_ptr;

    decode_parms_ptr = (decode_parms *)converter_parms_ptr;

    if (strncmp
        (decode_parms_ptr->decode_eyecatcher,DECODE_EYECATCHER_INIT,8)
        == 0)
    {
        EXEC CICS GETMAIN
            SET(decode_parms_ptr->decode_returned_data_ptr)
            FLENGTH(sizeof(rem_proc_parms_103) + PW_LEN)
            SHARED
            NOSUSPEND
            CICSDATAKEY
            RESP(response)
            RESP2(response2);

        if (response != DFHRESP(NORMAL))
        {
            memcpy(outline,errmsg1,strlen(errmsg1));
            EXEC CICS WRITEQ TD QUEUE(tdq) FROM(outline) LENGTH(30);
            decode_parms_ptr->decode_response = URP_EXCEPTION;
            decode_parms_ptr->decode_reason = NO_STORAGE;
        }
        else
        {
            /* move password and data to decode_password and
            decode_server_input_data */

            decode_parms_ptr->decode_response = URP_OK;
        }
    }
    else
    {
        decode_parms_ptr->decode_response = URP_INVALID;
    }
}

```

Figure 35. Example of a Decode function in C

In this code fragment, names beginning **decode_**, except **decode_parms_ptr**, are names from the **decode_parms** structure defined in DFHRPCDH.

The processing is as follows:

1. The pointer **decode_parms_ptr** is set from **converter_parms_ptr**.
2. The eyecatcher is checked to see if it agrees with the function code. If it does:
 - a. EXEC CICS GETMAIN is used to get storage for the password and for the communication area to be passed to the CICS program. The value of PW_LEN is set elsewhere in the program to 8 by #define. The output parameter **decode_returned_data_ptr** is used directly in the GETMAIN. In this case there is no conversion of data to be done, and the communication area size is the same as the size of the client data structure. (**rem_proc_parms_103** is a structure that defines the input data after XDR conversion.)

- b. If the response to the EXEC CICS GETMAIN is not NORMAL, an error message is directed to a transient data queue, the converter response is set to URP_EXCEPTION, and the reason code is set to NO_STORAGE, which is locally declared.
 - c. If the response to the EXEC CICS GETMAIN is NORMAL, the data and password are transferred to the storage acquired by GETMAIN (not shown), and the converter response is set to URP_OK.
3. If the eyecatcher is not the one for the function being called, the converter response is set to URP_INVALID.

Writing a converter in COBOL

In the working storage section of the data division, you should use the COPY statement to copy the copybook DFHRPUCO, and any other copybooks you need. You should also define any other data items you need in working storage.

You must put the definition of the communication area in the linkage section of the data division. The definition is in the copybook DFHRPCDO, but you cannot use a COPY statement, because the CICS COBOL translator adds a definition of DFHCOMMAREA before the first COPY statement in the linkage section.

Figure 36 on page 63 shows the layout of the data division. Comments, which would be part of a well-documented converter, are omitted.

The following discussion is based on a converter that consists of four main parts:

- A routing part that consults the function code in the communication area, and then calls the appropriate function
- A function for **Getlengths** processing
- A function for **Decode** processing
- A function for **Encode** processing

Figure 37 on page 64 shows how you can route control to the appropriate function.

DATA DIVISION.

WORKING-STORAGE SECTION.

COPY DFHRPUCO.

```
01 RESP PIC S9(8) COMP.
01 RESP2 PIC S9(8) COMP.
01 REM-PROC-COMMSIZE PIC S9(8) COMP VALUE +12.
01 CLIENT-OUT-SIZE PIC S9(8) COMP VALUE +8.
```

LINKAGE SECTION.

```
01 DFHCOMMAREA.
  02 COMM-PARMLIST PIC X(1).

01 CONVERTER-PARMS REDEFINES DFHCOMMAREA.
  02 CONVERTER-EYECATCHER PIC X(8).
  02 CONVERTER-FUNCTION PIC 9(8) COMP.
  02 CONVERTER-RESPONSE PIC 9(8) COMP.
  02 CONVERTER-REASON PIC 9(8) COMP.
  02 CONVERTER-PARMLIST PIC X(1).

01 GLENGTH-PARMS REDEFINES DFHCOMMAREA.
  02 GLENGTH-EYECATCHER PIC X(8).
  02 GLENGTH-FUNCTION PIC 9(8) COMP.
  02 GLENGTH-RESPONSE PIC 9(8) COMP.
  02 GLENGTH-REASON PIC 9(8) COMP.
  02 GLENGTH-SERVER-INPUT-DATA-LEN PIC S9(8) COMP.
  02 ...

01 DECODE-PARMS REDEFINES DFHCOMMAREA.
  02 ...

01 DECODE-RETURNED-DATA.
  02 DECODE-PASSWORD PIC X(8).
  02 DECODE-SERVER-INPUT-DATA PIC X(1).

01 ENCODE-PARMS REDEFINES DFHCOMMAREA.
  02 ...
```

Figure 36. Layout of data division in COBOL

```

PROCEDURE DIVISION.

A-CONTROL SECTION.

A-0000-MAIN-TASK.

    MOVE URP-INVALID TO DECODE-RESPONSE.

    IF CONVERTER-FUNCTION = URP-GETLENGTHS
    PERFORM B-0000-GETLENGTHS END-IF.

    IF CONVERTER-FUNCTION = URP-DECODE THEN
    PERFORM C-0000-DECODE END-IF.

    IF CONVERTER-FUNCTION = URP-ENCODE THEN
    PERFORM D-0000-ENCODE END-IF.

A-9999-EXIT.

    EXEC CICS RETURN END-EXEC.

GOBACK.

```

Figure 37. Routing control to the functions in COBOL

In this program fragment:

1. The response URP-INVALID is set.
2. The IF statements examine the function code in the communication area, and pass control to the appropriate function.
3. The converter returns to the program that called it. (If the IF statements selected a function, the DECODE-RESPONSE value returned is the response from that function.)

Figure 38 on page 65 is an example of a **Decode** function.

In this program fragment, the names beginning DECODE- (except DECODE-PASSWORD) are fields in the communication area for the **Decode** function. DECODE-PASSWORD is the field at the beginning of the returned data. The processing is as follows:

1. The eyecatcher is checked to see if it agrees with the function code. If it does not, the URP-INVALID response is returned.
2. If it does:
 - a. The structure CLIENT-IN-DATA is overlaid on the data coming from the inbound XDR routine addressed by DECODE-CLIENT-DATA-PTR.
 - b. The communication area size is increased by 8 to allow for the password field.
 - c. EXEC CICS GETMAIN is used to get storage for the password and for the communication area. REM-PROC-COMMSIZE is the size of the structure REM-PROC-DATA, which defines the format of the communication area. The address of the storage is put directly into DECODE-RETURNED-DATA-PTR.

C-0000-DECODE.

```
IF DECODE-EYECATCHER IS NOT = DECODE-EYECATCHER-INIT
  MOVE URP-INVALID TO DECODE-RESPONSE
ELSE
  SET ADDRESS OF CLIENT-IN-DATA TO DECODE-CLIENT-DATA-PTR
  ADD 8 TO REM-PROC-COMMSIZE
  EXEC CICS GETMAIN
      SET(DECODE-RETURNED-DATA-PTR)
      FLENGTH(REM-PROC-COMMSIZE)
      SHARED
      NOSUSPEND
      CICSDATAKEY
      RESP(RESP)
      RESP2(RESP2)
      END-EXEC
  SET ADDRESS OF DECODE-RETURNED-DATA
      TO DECODE-RETURNED-DATA-PTR
  MOVE "PASSWD" TO DECODE-PASSWORD
  SET ADDRESS OF REM-PROC-DATA
      TO ADDRESS OF DECODE-SERVER-INPUT-DATA
  MOVE CLIENT-IN-U-CHAR TO REM-PROC-U-CHAR
  MOVE CLIENT-IN-CHAR TO REM-PROC-CHAR
  MOVE URP-OK TO DECODE-RESPONSE.
```

Figure 38. Example of a Decode function in COBOL

- d. The structure DECODE-RETURNED-DATA is overlaid on the newly-acquired storage addressed by DECODE-RETURNED-DATA-PTR.
- e. The password is moved into DECODE-PASSWORD.
- f. The data is moved from CLIENT-IN-DATA to REM-PROC-DATA, and the response is set to URP-OK.

Using converters

Converters run as CICS for MVS/ESA programs under the connection manager, server controller, and aliases. Converters must reside in the same CICS for MVS/ESA system as CICS ONC RPC.

Preparation

Before using a converter, you must:

1. Translate the converter using the appropriate CICS translator. If it is a COBOL program, you must use the QUOTE translator directive.
2. Compile the output from the translator.
3. Link the converter as a standard CICS for MVS/ESA application program into a CICS for MVS/ESA load library used by the CICS for MVS/ESA system on which CICS ONC RPC is installed.
4. Define the converter to CICS for MVS/ESA as a program.
5. Use the connection manager to specify the converter in one of the 4-tuple definitions, and define which of the converter functions are required for that 4-tuple.

Reference information for the converter functions

The rest of this section contains reference material for each of the three functions of a converter. Each function is documented in the same way:

- A summary table of parameters, showing which are for input only, which for input and output, and which for output only.
 - **Input** is for parameters that your function may consult, but not change.
 - **Inout** is for parameters that your function may consult, and change.
 - **Output** is for parameters that your function must not consult, but may change.
- A description of the processing that the function is expected to do.
- A list of parameters in alphabetical order, with a description of how CICS ONC RPC sets up the inputs, and what use it makes of the outputs.
- A list of the responses and reason codes that the converter can return, with a description of the action that CICS ONC RPC takes for each response and reason code.

The descriptions give the names of the program elements as they appear in C. In COBOL the names are all in uppercase, and the underscores are replaced by hyphens.

Getlengths

Summary of parameters

The names of the parameters are given in abbreviated form: each name in the table must be prefixed with **glength_** to give the name of the parameter.

To find the C type of each parameter, consult the header file DFHRPCDH provided with CICS ONC RPC. For COBOL, consult the copybook DFHRPCDO.

Input glength_	Inout glength_	Output glength_
eyecatcher function	server_data_format	server_input_data_len server_output_data_len response reason

Function

Getlengths is called when the definition of the 4-tuple is being registered, provided that the definition of the 4-tuple specified that **Getlengths** was to be called. It is not called to process client requests.

Getlengths is responsible for providing CICS ONC RPC with:

- The size of the data that is passed to and from the CICS program
- The data format (contiguous or overlaid) of the CICS program data.

Parameters

glength_eyecatcher

(Input only)

A string of length 8. (The values of the eyecatchers are defined in the DFHRPUCB header file and the DFHRPUCO copybook.)

glength_function

(Input only)

A code indicating that **Getlengths** is being called. The value is URP_GETLENGTHS

glength_reason

(Output only)

A reason code—see “Responses and reason codes” on page 68.

glength_response

(Output only)

A response code—see “Responses and reason codes” on page 68.

glength_server_data_format

(Input and output)

On input, that value specified for Server Data Format for the 4-tuple in the connection manager.

On output, the value is to control:

- how the input data pointer for **Encode** will be set up
- how the communication area length to be checked by the connection manager is calculated.

The values you can supply are as follows:

URP_CONTIGUOUS

The value of the data pointer that will be passed to **Encode**, or to the outbound XDR routine if **Encode** is not used for this 4-tuple, is the address of the CICS program communication area plus the output value of **glength_server_input_data_len**, though **Decode** can modify this offset.

The connection manager calculates a communication area length by adding the output values of **glength_server_input_len** and **glength_server_output_len**. If this length is different from the actual length of the communication area passed to the CICS program, errors might occur in the processing of client requests.

URP_OVERLAID

The value of the data pointer that will be passed to **Encode**, or to the outbound XDR routine if **Encode** is not used for this 4-tuple, is the address of the CICS program communication area.

The connection manager calculates a communication area length by taking the larger of the output values of **glength_server_input_len** and **glength_server_output_len**. If this length is different from the actual length of the

communication area passed to the CICS program, errors might occur in the processing of client requests.

glength_server_input_data_len

(Output only)

For the use of this field, see the description of **glength_server_data_format**. If you do not set a value in this field, a default value of zero is used.

glength_server_output_data_len

(Output only)

For the use of this field, see the description of **glength_server_data_format**. If you do not set a value in this field, a default value of zero is used.

Responses and reason codes

You must return one of the following values in the **glength_response** field:

URP_OK

The connection manager checks that the communication area length does not exceed 32767. If it does not, the information is saved and used to process incoming client requests, and the 4-tuple is registered. If it does, the connection manager writes an exception trace entry (trace point 9EE6), sends a message (DFHRP1991) describing the error to the terminal from which the connection manager was started, and does not register the 4-tuple.

URP_EXCEPTION

The connection manager writes an exception trace entry (trace point 9EE5), sends a message (DFHRP1988) to the terminal from which the connection manager was started, and does not register the 4-tuple.

URP_INVALID

The connection manager writes an exception trace entry (trace point 9EE5), sends a message (DFHRP1989) to the terminal from which the connection manager was started, and does not register the 4-tuple.

URP_DISASTER

The connection manager writes an exception trace entry (trace point 9EE5), sends a message (DFHRP1990) to the terminal from which the connection manager was started, and does not register the 4-tuple.

If you return any other value in **glength_response**, it is treated as **URP_DISASTER**.

You may supply a 32-bit reason code in conjunction with the response value to provide further information in error cases. CICS ONC RPC does not take any action on the reason code returned by **Getlengths**. The reason code is output in any trace that results from the invocation of **Getlengths**, and you may use it as a debugging aid.

Decode

Summary of parameters

The names of the parameters are given in abbreviated form: each name in the table must be prefixed with **decode_** to give the name of the parameter.

To find the C type of each parameter, consult the header file DFHRPCDH provided with CICS ONC RPC. For COBOL, consult the copybook DFHRPCDO.

Input decode_	Inout decode_	Output decode_
eyecatcher function client_address client_data_ptr server_data_format program_number version_number procedure_number aup_time aup_machname_ptr aup_machlen aup_uid aup_gid aup_len aup_gids_ptr	server_program alias_transid server_input_data_len server_output_data_len	returned_data_ptr userid user_token response reason

Function

Decode is invoked by the server controller after the inbound XDR routine. **Decode** processing must avoid making the server controller wait for resources, as this prevents the server controller from dealing efficiently with other requests. **Decode** has four main responsibilities:

1. To set data lengths for the CICS program when the lengths are not the same for all requests.
2. To map the input data passed from the inbound XDR routine to the input data format required by the CICS program.
3. In CICS/ESA 4.1, to set the user ID and password that is used to control subsequent processing.
4. To set the name of the alias and CICS program for the request if those specified for the 4-tuple need to be changed.

Storage allocation by Decode

Decode must issue EXEC CICS GETMAIN to allocate storage for the communication area to be passed to the CICS program. Note the following points about GETMAIN options:

- You must use the SHARED option, since the storage is acquired under the server controller, but is used under the alias.
- You must use the FLENGTH option.

- You must use the NOSUSPEND option to prevent the server controller from being made to wait for storage, as this would prevent the server controller from attending to incoming requests.
- To prevent overwriting by user-key programs, you should consider using the CICSDATAKEY option in the following circumstances:
 - The CICS program to be called by the alias is in another CICS for MVS/ESA system.
 - The CICS program to be called by the alias is defined as EXECKEY(CICS).
 - The CICS program to be called by the alias is defined as EXECKEY(USER), but the amount of data to be copied is small.

If an overlaid data format is specified, the requested length must be the greater of the output values of **decode_server_input_data_len** and **decode_server_output_data_len**. If the data format is not overlaid, this length must be the sum of the output values of **decode_server_input_data_len** and **decode_server_output_data_len**.

Because **Decode** specifies the SHARED option, the data remains available to CICS ONC RPC modules and to CICS programs. CICS ONC RPC frees the storage when it is no longer required.

Parameters

decode_alias_transid

(Input and output)

On input, the name of the alias associated with the 4-tuple for the client request.

On output, the name of the transaction to be started by the server controller to process this client request.

See “Changing the alias and CICS program” on page 58.

decode_aup_gid

(Input only)

The client’s UNIX group id.

decode_aup_gids_ptr

(Input only)

A pointer to an array of 32-bit integers that are the UNIX group ids of which the client is a member.

decode_aup_len

(Input only)

The number of elements in the array of UNIX group identifiers pointed to by **decode_aup_gids_ptr**.

decode_aup_machlen

(Input only)

The number of characters in the machine name.

decode_aup_machname_ptr

(Input only)

A pointer to a variable length character string representing the name of the machine on which the client is executing.

decode_aup_time

(Input only)

The time at which the client created the credentials. The time is measured in seconds since 00h00m GMT on 1 January 1970.

decode_aup_uid

(Input only)

The client's UNIX user ID.

decode_client_address

(Input only)

The 32-bit internet address of the client from which the request was received.

decode_client_data_ptr

(Input only)

A pointer to the data passed from the client. If there is no data, this pointer points to a null string.

Note: The data area pointed to by this pointer must not be changed by **Decode**, or CICS storage management errors are likely to occur.

decode_eyecatcher

(Input only)

A string of length 8. (The values of the eyecatchers are defined in the DFHRPUCB header file and the DFHRPUCO copybook.)

decode_function

(Input only)

A code indicating that **Decode** is being called. The value is URP_DECODE

decode_procedure_number

(Input only)

The procedure number of the 4-tuple to which the client request was made.

decode_program_number

(Input only)

The program number of the 4-tuple to which the client request was made.

decode_reason

(Output only)

A reason code—see “Responses and reason codes” on page 73.

decode_response

(Output only)

A response code—see “Responses and reason codes” on page 73.

decode_returned_data_ptr

(Output only)

A pointer to an area of storage allocated by the converter that contains:

- **decode_password**—the password to be used for user authentication
- **decode_server_input_data**—the data that is to be passed to the CICS program as input.

It may be null if there is no password and if no data is to be passed to the CICS program.

decode_server_data_format

(Input only)

A value that controls:

- how the input data pointer for **Encode** will be set up
- how the communication area length to be checked by the connection manager is calculated.

URP_CONTIGUOUS

The value of the data pointer that will be passed to **Encode**, or to the outbound XDR routine if **Encode** is not used for this 4-tuple, is the address of the CICS program communication area plus the output value of **decode_server_input_data_len**.

The server controller calculates a communication area length by adding the output values of **decode_server_input_data_len** and **decode_server_output_data_len**. If this length is different from the actual length of the communication area passed to the CICS program, errors might occur in the processing of client requests.

URP_OVERLAID

The value of the data pointer that will be passed to **Encode**, or to the outbound XDR routine if **Encode** is not used for this 4-tuple, is the address of the CICS program communication area.

The server controller calculates a communication area length by taking the larger of the output values specified of **decode_server_input_data_len** and **decode_server_output_data_len**. If this length is different from the actual length of the communication area passed to the CICS program, errors might occur in the processing of client requests.

decode_server_input_data_len

(Input and output)

On input, the output value of **glength_server_input_data_len**, or the value specified for Server Input Length for this 4-tuple in the connection manager.

On output, see the description of **decode_server_data_format**.

decode_server_output_data_len

(Input and output)

On input, the output value of **glength_server_output_data_len**, or the value specified for Server Output Length for this 4-tuple in the connection manager.

On output, see the description of **decode_server_data_format**.

decode_server_program

(Input and output)

On input, the name of the CICS program associated with the 4-tuple for the client request.

On output, the name of the CICS program to be linked to by the alias.

You should use this field if you want to direct the client call to a different CICS program.

decode_userid

(Output only)

An 8-character field, the user ID known to CICS that correlates to the requesting client ID. If you store no value in this field, the user ID used in subsequent processing is as follows:

- In CICS/ESA 3.3, blanks
- In CICS/ESA 4.1, the default CICS user ID.

decode_user_token

(Output only)

A fullword that may be used to pass information to the **Encode** function that is subsequently invoked for the client request.

decode_version_number

(Input only)

The version number of the 4-tuple to which the client request was made.

Responses and reason codes

You must return one of the following values in the **decode_response** field:

URP_OK

The server controller checks that the communication area length does not exceed 32 767. If it does not, the alias is started using the information supplied as output. If it does, the server controller writes an exception trace entry (trace point 9FC2), and issues a message (DFHRP0516) describing the error. The alias is not started, and an **svcerr_systemerr** call is used to send a reply to the client.

URP_EXCEPTION

The server controller writes an exception trace entry (trace point 9FAA), and issues a message that depends on the reason code:

- **URP_CORRUPT_CLIENT_DATA**—message DFHRP0626
An **svcerr_decode** call is used to send a reply to the client.
- **URP_AUTH_BADCRED**—message DFHRP0628

An **svcerr_auth** call with a why-value of AUTH_BADCRED is used to send a reply to the client.

- URP_AUTH_TOOWEAK—message DFHRP0629
An **svcerr_auth** call with a why-value of AUTH_TOOWEAK is used to send a reply to the client.
- any other value—message DFHRP0631
An **svcerr_systemerr** call is used to send a reply to the client.

URP_INVALID

The server controller writes an exception trace entry (trace point 9FAA), and issues a message (DFHRP0632).

An **svcerr_systemerr** call is used to send a reply to the client.

URP_DISASTER

The server controller writes an exception trace entry (trace point 9FAA), and issues a message (DFHRP0635).

An **svcerr_systemerr** call is used to send a reply to the client.

If you return any other value in **decode_response**, the server controller writes an exception trace entry (trace point 9FAA), and issues a message (DFHRP0625). An **svcerr_systemerr** call is used to send a reply to the client.

You may supply a 32-bit reason code in conjunction with the response value to provide further information in error cases. CICS ONC RPC does not take any action on the reason code returned by **Decode**, except as indicated above under URP_EXCEPTION. The reason code is output in any trace that results from the invocation of **Decode**, and you may use it as a debugging aid.

Encode

Summary of parameters

The names of the parameters are given in abbreviated form: each name in the table must be prefixed with **encode_** to give the name of the parameter.

To find the C type of each parameter, consult the header file DFHRPCDH provided with CICS ONC RPC. For COBOL, consult the copybook DFHRPCDO.

Input encode_	Inout encode_	Output encode_
eyecatcher function input_data_ptr input_data_len user_token	none	output_data_ptr output_data_len response reason

Function

Encode is called by the alias after the CICS program ends. **Encode** is responsible for taking the data returned from the CICS program and changing its format so that it is suitable to be passed to the outbound XDR routine for return to the client.

If no restructuring of outbound data is required, you can specify to the connection manager that **Encode** is not to be called.

The reference to the CICS program data to be returned to the client is passed to **Encode** in the **encode_input_data_ptr** input field. This data is in CICS program format, which is a communication area structure in any CICS supported language. The CICS program data may be mapped from this format into the format required by the client, which is likely to be C, and might include pointer references, by allocating an area of storage and mapping the server data into it.

Encode must set **encode_output_data_ptr** to point to the start of the allocated storage.

Storage allocation by Encode

Encode must issue EXEC CICS GETMAIN to allocate storage for the data that it returns. Note the following points about GETMAIN options:

- You do not need to use the SHARED option.
- You must use the FLENGTH option.
- If your CICS for MVS/ESA system is using storage protection, you can use the CICS DATAKEY option to prevent overwriting by user-key programs.

Parameters

encode_eyecatcher

(Input only)

A string of length 8. (The values of the eyecatchers are defined in the DFHRPUCB header file and the DFHRPUCO copybook.)

encode_function

(Input only)

A code indicating that **Encode** is being called. The value is URP_ENCODE.

encode_input_data_len

(Input only)

The length in bytes of the data returned from the CICS program. The value is determined as follows:

1. It is the output value of **decode_server_output_data_len**, if **Decode** set it.
2. If **Decode** did not set the value, it is the output value of **glength_server_output_data_len**, if **Getlengths** was called when the 4-tuple was registered.
3. If neither of the above is the case, it is the value specified for Server Output Length in the connection manager when the 4-tuple was defined.

encode_input_data_ptr

(Input only)

A pointer to the data returned from the CICS program. The setting of this pointer depends on the definition of the 4-tuple in the connection manager, **Getlengths** processing when the 4-tuple was registered, and **Decode** processing for the client request.

encode_output_data_len

(Output only)

The length in bytes of the data to be passed to the outbound XDR routine.

encode_output_data_ptr

(Output only)

A pointer to an area of allocated storage that contains the data that is to be passed to the outbound XDR routine.

encode_reason

(Output only)

A reason code—see “Responses and reason codes.”

encode_response

(Output only)

A response code—see “Responses and reason codes.”

encode_user_token

(Input only)

A fullword containing information which was output from **Decode** for this client request.

Responses and reason codes

You must return one of the following values in the **encode_response** field:

URP_OK

The alias passes the output data to the outbound XDR routine.

URP_EXCEPTION

The alias writes an exception trace entry (trace point 9F17), and issues a message (DFHRP0161). An **svcerr_systemerr** call is used to send a reply to the client.

URP_INVALID

The alias writes an exception trace entry (trace point 9F17), and issues a message (DFHRP0162). An **svcerr_systemerr** call is used to send a reply to the client.

URP_DISASTER

The alias writes an exception trace entry (trace point 9F17), and issue a message (DFHRP0169). An **svcerr_systemerr** call is used to send a reply to the client.

If you return any other value in **encode_response**, the alias writes an exception trace entry (trace point 9F17), and issues a message (DFHRP0163). An **svcerr_systemerr** call is used to send a reply to the client.

You may supply a 32-bit reason code in conjunction with the response value to provide further information in error cases. CICS ONC RPC does not take any action on the reason code returned by **Encode**. The reason code is output in any trace that results from the invocation of **Encode**, and you may use it as a debugging aid.

Step 5—Writing a resource checker

This step is optional. See “Writing the resource checker” on page 81 for details.

Step 6—Compile and link

Converter

The headers files needed to compile the converter are discussed in “Organizing the converter” on page 58.

The program is linked into a CICS for MVS/ESA load library, since it is a normal CICS for MVS/ESA program.

XDR routines

If your XDR routines are not just XDR library functions, you must compile each XDR routine separately and link it into a CICS for MVS/ESA load library. If you used RPCL to define the data, the XDR source and header files for the compilation have been generated by RPCGEN.

Resource checker

If you need a resource checker, you must link it into a CICS for MVS/ESA load library. It must be called DFHRPRSC.

Step 7—Make CICS for MVS/ESA definitions

You must define the CICS program, converter program, resource checker, and any XDR routines that are not just library routines to CICS for MVS/ESA. See “Defining CICS ONC RPC resources to CICS for MVS/ESA” on page 23.

Step 8—Make a connection manager entry

Use the connection manager to define each 4-tuple. Completing an entry for a 4-tuple in the connection manager ensures that you provide CICS ONC RPC with all the information that it needs to service the client request.

The fields used to define each 4-tuple are described in “Defining the attributes of a 4-tuple” on page 36.

OE DCE AS/CICS Feature and CICS for MVS/ESA ONC RPC servers

The Open Edition DCE Base Services MVS Application Support CICS Feature (OE DCE AS/CICS Feature) also provides a communication area interface to CICS programs, and in this section we compare it with CICS ONC RPC, and see how the same programs can be accessed by both of them.

DCE RPC is different from ONC RPC in many ways. For example, DCE RPC does not limit the number of parameters on the call, whereas an ONC RPC call is limited to one input and one output parameter (but these may be structures that contain many fields, including pointers to other data).

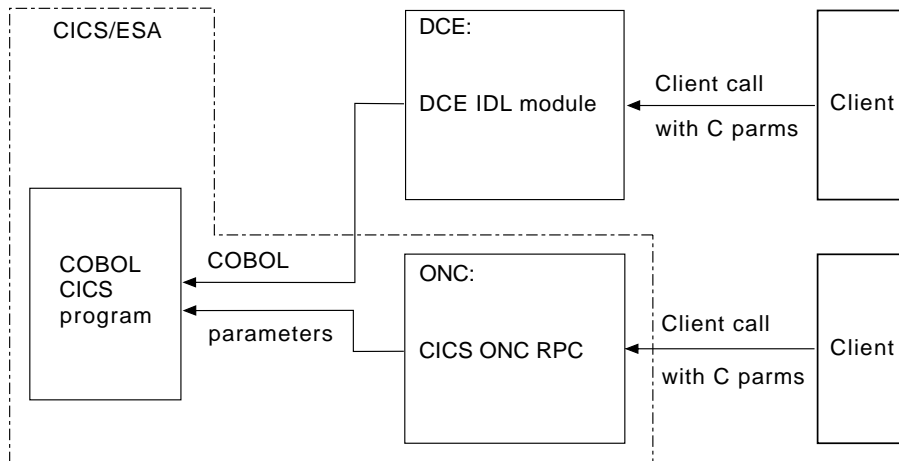


Figure 39. Remote procedures provided for DCE RPC and ONC RPC

Figure 39 shows how the two CICS for MVS/ESA RPC implementations provide the same function.

CICS programs that act as servers for DCE RPC must be written in VS COBOL II. You provide a definition of the client's parameter list in the interface definition language (IDL) provided as a part of DCE RPC. The DCE IDL module maps the incoming parameters into a CICS communication area, so the communication area format is defined by the client's parameter list.

CICS ONC RPC CICS programs can be written in any CICS-supported programming language, and the conversion from client format to communication area is done by the **Decode** function of the converter. With ONC RPC you get more flexibility, but you have more work to do.

CICS programs that are used as servers for DCE RPC clients can also be used as servers for ONC RPC clients. You need to write a **Decode** function that converts the incoming data structure into the predefined communication area, and converts the incoming data from C types to VS COBOL II types.

Chapter 6. Security

This chapter describes how CICS ONC RPC interacts with the security facilities of ONC RPC and CICS for MVS/ESA.

Security is an important concern in the provision of ONC RPC support in the CICS for MVS/ESA environment, because CICS ONC RPC provides an Open Systems communications interface into CICS for MVS/ESA.

This chapter contains Product-sensitive Programming Interface and Associated Guidance Information.

Security in ONC RPC

ONC RPC has its own security methods (called authentication in RPC) with dedicated fields in the ONC RPC call and reply message headers. There are three types of RPC authentication:

- **UNIX authentication**, which is used to transmit the client's UNIX user ID, group ID, etc.
- **Data Encryption Standard (DES) authentication**, which is not available at ONC RPC Version 3.9, and so cannot be used with CICS ONC RPC
- **Null authentication**, which offers no security checking.

Security in CICS for MVS/ESA and its effect on CICS ONC RPC operations

In this section the following topics are dealt with:

- Security features of CICS/ESA 4.1, and their effect on CICS ONC RPC operations
- Security features of CICS/ESA 3.3, how they differ from those CICS/ESA 4.1, and their effect on CICS ONC RPC operations.

Security in CICS/ESA 4.1

During the operation of CICS ONC RPC, various CICS commands are used to make security checks with an external security manager (ESM). The checks will always give positive results if SEC=NO is specified as a system initialization parameter. The checks will always give negative results if SEC=YES was specified, but the ESM abended while CICS was operating. The following discussion of the use made of CICS security commands assumes that SEC=YES is specified, and that the ESM is active.

- When a transaction whose user ID is *userid1* issues EXEC CICS START USERID(*userid2*), a surrogate-user check is made with the ESM to see that *userid1* is authorized to use *userid2*. The check is made only if XUSER=YES is specified as a system initialization parameter.

This command is issued when the connection manager starts the server controller, and each time the server controller starts an alias transaction. In the first case, the user ID used is the one supplied to the connection manager as

CRPM Userid on panel DFHRP02. In the second case, the user ID used is the one output from **Decode**.

- EXEC CICS VERIFY PASSWORD is issued by the alias before it links to the CICS program that services the client request. A check is made with the ESM that the user ID and password are an acceptable combination.
- EXEC CICS QUERY SECURITY is used by the alias to check that the user ID under which it is executing is authorized to use the CICS program. The check is made only if XPPT=YES is specified as a system initialization parameter.
- During the operation of the CICS program, security checks are made each time the program tries to access a protected resource. The check is made only if RESSEC(YES) is specified in the definition of the alias transaction, and the system initialization parameter controlling security checking for the resource type is set to YES.
- During the operation of the CICS program, security checks are made each time the program tries to use a command from the CICS SPI (system programming interface). The check is made only if CMDSEC(YES) is specified in the definition of the alias transaction, and if XCMD=YES is specified as a system initialization parameter.

Figure 40 shows how CICS security interacts with the operation of CICS ONC RPC.

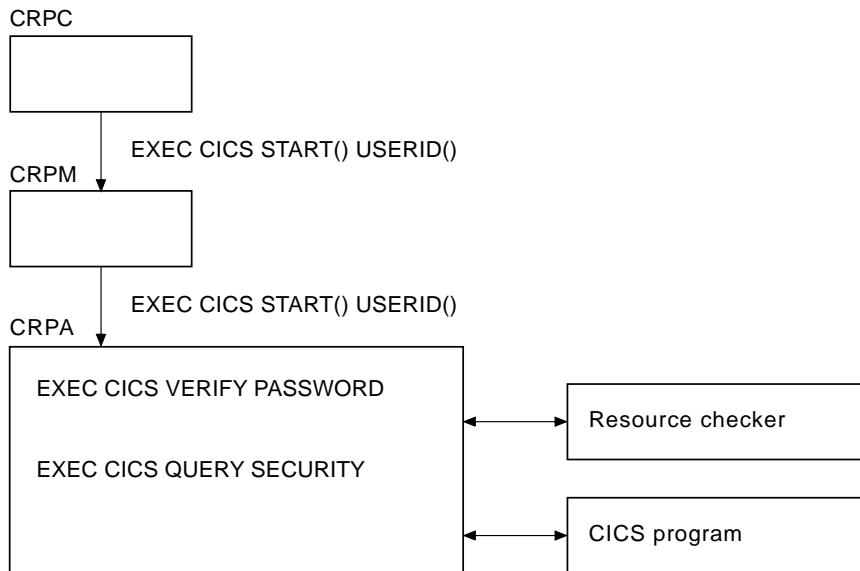


Figure 40. How CICS security interacts with CICS ONC RPC operations

The figure shows that the alias will link to the user-supplied resource checker program if one is configured, but in CICS/ESA 4.1 the use of the resource checker program is not recommended. You should use the CICS security facilities, and make the appropriate definitions in the ESM.

Security in CICS/ESA 3.3

The security provision in CICS/ESA 3.3 is less elaborate than in CICS/ESA 4.1. There is no security for non-terminal transactions, and as most client requests will be serviced by aliases running without terminals, the effect on CICS ONC RPC operation is significant.

There is no security checking of the EXEC CICS START command.

There is no EXEC CICS VERIFY PASSWORD command, so the only checking of user authentication is the **Decode** function of the converter, and the user-supplied resource checker program.

The EXEC CICS QUERY SECURITY command is not used, because there is no user ID associated with the alias transaction, unless the transaction is being run under EDF.

Using RACF Secured Signon

RACF Secured Signon support allows clients to gain security access to CICS facilities by sending a PassTicket (that is, a one-time-only password). This avoids the security hazard of a password being transmitted across the network in clear text.

For further information, see *Resource Access Control Facility, System Programmer's Guide, Version 2 Release 2, SC23-3725-01*. This includes details of the algorithm that the RPC client must use to generate the PassTicket. This algorithm includes the DES algorithm.

PassTicket generation: The algorithm that generates the PassTicket is a function of:

- The CICS user ID of the client
- The CICS application ID of the CICS region running CICS ONC RPC
- A secured signon application key, known to both sides
- A time and date stamp.

To generate the PassTicket, the client must:

- Know its CICS user ID, the server CICS application ID, and the application key.
- Synchronize its clock to within ten minutes of the server
- Have access to the encryption algorithm on its machine. Only the DES algorithm may be used.

Writing the resource checker

Your resource checker program must be called DFHRPRSC. There can be only one resource checker in a CICS region.

The resource checker allows you to check the credentials of inbound client requests.

The resource checker can check the client address, passed as an input parameter, against a list of known clients for the host on which the request has been received.

It may similarly check the CICS user ID and, on CICS/ESA 3.3, the CICS user ID and password combination. On CICS/ESA 4.1, the password passed to the resource checker is blank.

A resource checker written for CICS/ESA 3.3 can be used on CICS/ESA 4.1 provided it can process blank passwords. A blank password cannot be a valid CICS password.

Reference information for the resource checker

The reference information for the resource checker is presented as follows:

- A summary table of parameters, showing which are for input only, and which for output only.
 - **Input** is for parameters that your resource checker may consult, but not change.
 - **Output** is for parameters that your resource checker must not consult, but may change.
- A description of the processing that the resource checker is expected to do.
- A list of parameters in alphabetical order, with a description of how CICS ONC RPC sets up the inputs, and what use it makes of the outputs.
- A list of the responses and reason codes that the resource checker can return, with a description of the action that CICS ONC RPC takes for each response and reason code.

The descriptions give the names of the program elements as they appear in C. In COBOL the names are all in uppercase, and the underscores are replaced by hyphens.

Summary of parameters

The format of the communication area containing the resource checker parameters is in the C header file DFHRPRDH, and the COBOL copybook DFHRPRDO. You will also need values defined in the C header file DFHRPUCH, or in the COBOL copybook DFHRPUCO.

Input	Output
res_check_eyecatcher res_check_host_ip_address res_check_client_ip_address res_check_cics_userid res_check_cics_password_ptr res_check_server_program_name res_check_alias_transid	res_check_response res_check_reason

Function

The resource checker is optionally invoked by the alias before it attempts to link to the CICS program that is to service the client request. It must say whether the client request is allowed to proceed.

Parameters

res_check_alias_transid

(Input only)

The 4-character name of the alias transaction that has linked to the resource checker.

res_check_cics_password_ptr

(Input only)

A pointer to the 8-character password passed from the requesting client or supplied by **Decode**. The value of this field is blank on CICS/ESA 4.1 and above.

res_check_cics_userid

(Input only)

The 8-character CICS user ID under which the alias is running.

res_check_client_ip_address

(Input only)

The fullword internet address of the client.

res_check_eyecatcher

(Input only)

A string of length 8. (Its value is defined in the header file DFHRPUCB and the copybook DFHRPUCO).

res_check_host_ip_address

(Input only)

The fullword internet address of the TCP/IP for MVS host with which the server controller is in communication.

res_check_reason

(Output only)

The reason to be returned to the alias.

res_check_response

(Output only)

The response to be returned to the alias.

res_check_server_program_name

(Input only)

The 8-character name of the CICS program that is to be invoked to perform the server function requested by the client.

Responses and reason codes

You must return one of the following values in the **res_check_response** field.

URP_OK

The alias will continue to process the client request.

URP_EXCEPTION

The alias writes an exception trace entry (trace point 9F0E), and issues a message that depends on the reason code:

- URP_AUTH_BADCRED—message DFHRP0130

An **svcerr_auth** call with a why-value of AUTH_BADCRED is used to send a reply to the client.

- URP_AUTH_TOOWEAK—message DFHRP0184

An **svcerr_auth** call with a why-value of AUTH_TOOWEAK is used to send a reply to the client.

- any other value—message DFHRP0185

An **svcerr_systemerr** call is used to send a reply to the client.

URP_INVALID

The alias writes an exception trace entry (trace point 9F0E), and issues a message (DFHRP0186).

An **svcerr_systemerr** call is used to send a reply to the client.

URP_DISASTER

The alias writes an exception trace entry (trace point 9F0E), and issues a message (DFHRP0187).

An **svcerr_systemerr** call is used to send a reply to the client.

If you return any other value in **res_check_response**, the alias writes an exception trace entry (trace point 9F0E), and issues a message (DFHRP0188). An **svcerr_systemerr** call is used to send a reply to the client.

You may supply a 32-bit reason code in conjunction with the response value to provide further information in error cases. CICS ONC RPC does not take any action on the reason code returned by the resource checker, except as indicated above under URP_EXCEPTION. The reason code is output in any trace or messages that result from the resource checker, and you may use it as a debugging aid.

Chapter 7. Problem determination

This chapter helps you debug problems in CICS ONC RPC user-replaceable programs, the IBM-supplied parts of CICS ONC RPC, and in the system setup of CICS ONC RPC. If you suspect that you have a problem in another part of CICS for MVS/ESA, refer to the *CICS for MVS/ESA: Problem Determination Guide*.

This chapter contains Diagnosis, Modification, or Tuning Information.

The formats of messages and trace outputs in CICS ONC RPC are also described.

Diagnostic information is designed to provide maximal first failure data capture, that is, if an error occurs, information about the error is available directly, without having to reproduce the error situation again. The information is presented in the following forms:

Messages. CICS ONC RPC provides CICS-style messages in the same way as a base CICS for MVS/ESA component. The CICS ONC RPC messages are listed in Appendix A, "Messages and codes" on page 101.

Trace. CICS ONC RPC outputs system trace entries containing all the important information required for problem diagnosis. The CICS ONC RPC trace points are listed in "CICS ONC RPC trace points" on page 88.

Dump. Dump formatting is provided for data areas relating to CICS ONC RPC.

Abend codes. Transaction abend codes are standard 4-character names. The abend codes output by CICS ONC RPC are listed in Appendix A, "Messages and codes" on page 101.

Recovery procedures

Software errors within the server controller may cause it to perform an immediate disable (if this is not prevented by the nature of the error). After an immediate disable of CICS ONC RPC, CICS or MVS/ESA continues to run.

CICS ONC RPC is not included in CICS for MVS/ESA recovery. Registration details are not saved on the CICS for MVS/ESA catalog. If CICS for MVS/ESA abends and is then restarted, RPC interface registrations from the previous run are not preserved. After a CICS for MVS/ESA abend, you must enable CICS ONC RPC as described in "Enabling CICS ONC RPC" on page 33. However, 4-tuple definitions can be stored in the CICS ONC RPC data set. Each time you enable CICS ONC RPC, the definitions can be retrieved from the CICS ONC RPC data set.

If TCP/IP for MVS abends, CICS ONC RPC enters immediate disable processing, but CICS for MVS/ESA continues to run.

The abending of an alias transaction might cause changes to recoverable resources to be backed out. See "Updating recoverable resources" on page 16.

CICS for MVS/ESA immediate shutdown might leave 3-tuples registered with TCP/IP for MVS. These 3-tuples can be registered again when CICS ONC RPC is

enabled without loss of TCP/IP for MVS resources, since CICS ONC RPC always unregisters a 3-tuple before it registers it.

MVS task control blocks (TCBs) used

The TCB that interacts with TCP/IP for MVS goes into a wait as a result of that interaction. If the wait were on the QR (quasi-reentrant) TCB, all the transactions in the whole CICS for MVS/ESA region would be delayed. This is avoided by using an extra TCB, the RP TCB, for issuing calls to TCP/IP for MVS.

The RP TCB is used for some processing for every client request, but most of the call processing done by CICS ONC RPC takes place under the QR TCB. The split between the two TCBs is transparent to you for most of your work, but you need to be aware of it for problem determination.

Task-related user exit (TRUE)

CICS ONC RPC includes a task-related user exit; this is used to anchor shared storage and to improve CICS ONC RPC's response to CICS for MVS/ESA shutdown. CICS ONC RPC does not use a TRUE to pass commands and data to and from TCP/IP for MVS.

Troubleshooting

This section provides some hints on troubleshooting. It follows the general outline:

1. Define the problem.
2. Obtain information (documentation) on the problem.
3. Work out where in CICS ONC RPC the problem is happening.

Defining the problem

When you have a problem, first try to define the circumstances that gave rise to it. If you need to report the problem to the IBM software support center, this information is useful to the personnel there.

1. What is the system configuration?
 - a. CICS for MVS/ESA release
 - b. TCP/IP for MVS release
 - c. LE/370 release
 - d. MVS release
2. What is the connection manager configuration?
 - a. operating options
 - b. registered 4-tuples
3. When did the problem first occur?
4. What were you trying to accomplish at the time the problem occurred?
5. What changes were made to the system before the occurrence of the problem?
 - a. To the MVS/ESA system
 - b. To CICS ONC RPC
 - c. To the CICS program being called by the client
 - d. To the converter being used in the call

- e. To the XDR routines being used in the call
 - f. To the client
 - g. To CICS for MVS/ESA
 - h. To TCP/IP for MVS
6. What is the problem?
- a. Incorrect output
 - b. Hang/Wait: If you suspect that CICS ONC RPC aliases may be in a hung state, you can use the connection manager to display a list of alias transactions and can display associated details. See “Processing the alias list” on page 50.
 - c. Loop: Use CEMT INQUIRE to display the details of the transaction.
 - d. Abend in user-replaceable program
 - e. Abend in a CICS program
 - f. Abend in the IBM-supplied part of CICS ONC RPC
 - g. Performance problem
 - h. Storage violation
 - i. Logic Error
7. At what point in the processing did the problem occur? (Use Figure 10 on page 15.)
8. What was the state of TCP/IP for MVS? (Try the **rpcinfo** command.)

Documentation about the problem

To investigate most problems, you must look at the dumps, traces, and logs provided with MVS and CICS for MVS/ESA.

1. System Dump: This contains the CICS for MVS/ESA internal trace.
2. CICS for MVS/ESA auxiliary trace, if enabled
3. TCP/IP for MVS trace
4. GTF trace, if enabled
5. Console log
6. CSMT log
7. CRPO log
8. CICS for MVS/ESA job log

To identify which are likely to be useful for your problem, try to work out the area of CICS ONC RPC giving rise to the problem, and read the relevant section in the rest of this chapter.

Using messages and codes

CICS ONC RPC messages have identifiers of the form DFHRPnnnn, where nnnn are four numeric characters. These numbers indicate which of the CICS ONC RPC components generated the message, as shown in Appendix A, “Messages and codes” on page 101.

Messages are generated for end-users by the connection manager. They are sent to the CICS ONC RPC message transient data queue CRPO, or the terminal user, or both, depending on the event that is being reported. If you define CRPO as an indirect destination for CSMT, the CICS ONC RPC messages appear in CSMT. Some messages are sent to the console.

When CICS ONC RPC issues a message as a result of an error, it also makes an exception trace entry. CICS ONC RPC also generates information messages, for instance during enable processing and disable processing.

CICS ONC RPC messages are supplied in English and Kanji. In CICS/ESA 4.1, the CICS for MVS/ESA message editing utility can be used to translate them into other languages supported by CICS for MVS/ESA.

CMAC (online help facility for messages and codes): You can use utilities supplied as part of CICS for MVS/ESA to update your base CMAC file with the CICS ONC RPC CMAC file.

The CICS ONC RPC abend codes are listed in Appendix A, "Messages and codes" on page 101.

CICS ONC RPC trace information

CICS ONC RPC outputs CICS for MVS/ESA system trace, which is formatted using software supplied as part of CICS ONC RPC.

Exception trace entries produced by CICS ONC RPC are written to CICS internal trace even when the Trace operating option is set to NO. See "Setting and modifying options" on page 33 for information about the Trace option.

If selected, level 2 trace gives a full trace of the data being transmitted between the client and the CICS program. CICS for MVS/ESA trace output is described in the *CICS for MVS/ESA: Problem Determination Guide*.

CICS ONC RPC trace points

Figure 41 on page 89 lists all the trace points in CICS ONC RPC in numeric order. For each trace point, the following information is given:

Trace point id

Trace point identifier. CICS ONC RPC trace point identifiers are hexadecimal numbers in the range X'9E00' through X'9FFF', with a prefix RP.

Module Name of the module that issues the trace point.

Lvl Trace point level is 1, 2, or exception. (Exception trace entries are output regardless of the trace level setting).

Type The circumstances that gave rise to the trace.

Data The data fields that are traced.

Figure 41 (Page 1 of 8). CICS ONC RPC trace points

Point ID	Module	Lvl	Type	Data
RP 9E00	DFHRPC01	RP 1	Entry	None
RP 9E01	DFHRPC01	RP 1	Exit	None
RP 9E02	DFHRPC01	Exc	TRUE not found	1 RPCOM 2 EIB
RP 9E03	DFHRPC01	Exc	Invalid GWA length	1 RPCOM 2 ONC_GWA
RP 9E04	DFHRPC01	Exc	No GWA returned	1 RPCOM 2 EIB
RP 9E06	DFHRPC01	Exc	INIT EXT NOTAUTH	1 RPCOM 2 EIB
RP 9E07	DFHRPC01	Exc	INIT bad EIBRESP	1 RPCOM 2 EIB
RP 9E08	DFHRPC01	Exc	INIT bad EIBRESP2	1 RPCOM 2 EIB
RP 9E09	DFHRPC01	RP 1	INIT CRPM running	1 RPCOM
RP 9E0A	DFHRPC01	Exc	ASSIGN error	1 RPCOM 2 EIB
RP 9E0B	DFHRPC01	Exc	RECEIVE error	1 EIB
RP 9E0C	DFHRPC01	Exc	DUMP REG error	1 DUFT parameters
RP 9E0D	DFHRPC01	Exc	HANDLE ABEND	1 RPCOM
RP 9E0E	DFHRPC01	Exc	TRUE enabled but no CRPM	1 RPCOM
RP 9E10	DFHRPC01	Exc	Invalid startcode	1 EIB
RP 9E11	DFHRPC01	Exc	GETMAIN buffer error	1 EIB
RP 9E12	DFHRPC01	Exc	Invalid terminal	1 RPCOM
RP 9E20	DFHRPC04	RP 1	Entry	1 RPCOM
RP 9E21	DFHRPC04	RP 1	Exit	1 RPCOM
RP 9E22	DFHRPC04	Exc	Update ENQ error	1 RPCOM 2 ONC_GWA 3 EIBRESP
RP 9E23	DFHRPC04	Exc	Update DEQ error	1 RPCOM 2 ONC_GWA 3 EIBRESP
RP 9E24	DFHRPC04	RP 1	Update GWA entry	1 RPCOM
RP 9E25	DFHRPC04	RP 1	Update GWA exit	1 RPCOM
RP 9E30	DFHRPC42	RP 1	Entry	1 RPCOM
RP 9E31	DFHRPC42	RP 1	Exit	1 RPCOM
RP 9E32	DFHRPC42	Exc	Inquire ESM error	1 RPCOM
RP 9E38	DFHRPC03	RP 1	Entry	1 RPCOM
RP 9E39	DFHRPC03	RP 1	Exit	1 RPCOM
RP 9E3A	DFHRPC03	Exc	ENQ error	1 RPCOM 2 ENQ response
RP 9E3B	DFHRPC03	Exc	DEQ error	1 RPCOM 2 DEQ response
RP 9E40	DFHRPC4C	RP 1	Entry	1 RPCOM
RP 9E41	DFHRPC4C	RP 1	Exit	1 RPCOM
RP 9E42	DFHRPC4C	Exc	WRITE TSQ error	1 EIB 2 RPCOM 3 Subpool token
RP 9E43	DFHRPC4C	Exc	ADDSUB invalid init	1 SMAD parameters 2 RPCOM 3 ONC_GWA
RP 9E45	DFHRPC4C	Exc	SMAD no storage	1 SMAD parameters 2 RPCOM 3 ONC_GWA

Figure 41 (Page 2 of 8). CICS ONC RPC trace points

Point ID	Module	Lvl	Type	Data
RP 9E46	DFHRPC4C	Exc	Unexpected response	1 SMAD parameters 2 RPCOM 3 ONC_GWA
RP 9E47	DFHRPC4C	Exc	WAIT MVS error	1 DSSR parameters 2 RPCOM
RP 9E48	DFHRPC4C	Exc	DSIT no storage	1 DSIT parameters 2 RPCOM
RP 9E49	DFHRPC4C	Exc	ACTIVATE MODE error	1 DSIT parameters 2 RPCOM
RP 9E4A	DFHRPC4C	Exc	Error	1 EIB 2 RPCOM
RP 9E4B	DFHRPC4C	Exc	INVEXITR	1 EIB 2 RPCOM
RP 9E4D	DFHRPC4C	Exc	NOTAUTH for SPI	1 EIB 2 RPCOM
RP 9E4E	DFHRPC4C	Exc	NOTAUTH for TRUE	1 EIB 2 RPCOM
RP 9E4F	DFHRPC4C	Exc	LOAD RPC CALLER error	1 EIB 2 RPCOM
RP 9E50	DFHRPC4C	Exc	CRPM START error	1 EIB 2 RPCOM
RP 9E51	DFHRPC4C	Exc	Load alias list error	3 ONC_GWA 1 EIB 2 RPCOM
RP 9E52	DFHRPC4C	Exc	CHANGE MODE error	1 DSIT parameters 2 RPCOM 3 ONC_GWA
RP 9E53	DFHRPC4C	Exc	DSAT no storage	1 DSAT parameters 2 RPCOM
RP 9E55	DFHRPC4C	Exc	INIT RPC error	1 EIB 2 RPCOM 3 ONC_GWA
RP 9E56	DFHRPC4C	Exc	EXTRACT error	1 EIB 2 RPCOM 3 ONC_GWA
RP 9E57	DFHRPC4C	Exc	ADD XDR error	1 RPCOM 2 ONC_GWA
RP 9E58	DFHRPC4C	Exc	DUMP UPDATE error	1 DUFT parameters
RP 9E59	DFHRPC4C	Exc	Invalid GWA STATUS	1 ONC_GWA
RP 9E5A	DFHRPC4C	Exc	Update ENQ error	1 RPCOM 2 ONC_GWA
RP 9E5B	DFHRPC4C	Exc	Update DEQ error	2 EIBRESP 1 RPCOM 2 ONC_GWA
RP 9E5C	DFHRPC05	RP 1	Entry	2 EIBRESP 1 RPCOM
RP 9E5D	DFHRPC05	RP 1	Exit	1 RPCOM
RP 9E5E	DFHRPC05	Exc	ENQ error	1 RPCOM 2 DEQ response
RP 9E5F	DFHRPC05	Exc	DEQ error	1 RPCOM 2 DEQ response
RP 9E60	DFHRPC06	RP 1	Entry	1 RPCOM
RP 9E61	DFHRPC06	RP 1	Exit	1 RPCOM
RP 9E62	DFHRPC06	Exc	REGTABLE ENQ error	1 RPCOM
RP 9E63	DFHRPC06	Exc	REGTABLE DEQ error	1 RPCOM

Figure 41 (Page 3 of 8). CICS ONC RPC trace points

Point ID	Module	Lvl	Type	Data
RP 9E64	DFHRPC06	Exc	CHANGE MODE error	1 DSAT 2 RPCOM 3 ONC_GWA
RP 9E65	DFHRPC06	Exc	Unregister error	1 RPRP parameters 2 RPCOM 3 ONC_GWA
RP 9E70	DFHRPC08	RP 1	INITREG entry	1 RPCOM
RP 9E71	DFHRPC08	RP 1	INITREG exit	1 RPCOM
RP 9E72	DFHRPC08	Exc	INITREG error	1 Return code
RP 9E73	DFHRPC08	RP 1	GETREG entry	1 RPCOM 2 GETREG parameters
RP 9E74	DFHRPC08	RP 1	GETREG exit	1 RPCOM 2 GETREG parameters 3 GETREG return code
RP 9E75	DFHRPC08	Exc	GETREG LOCATE error	1 INITREG return code 2 GETREG parameters 3 GETREG return code
RP 9E76	DFHRPC08	Exc	GETREG GET error	1 INITREG return code 2 GETREG parameters 3 GETREG return code
RP 9E77	DFHRPC08	RP 1	REPREG entry	1 RPCOM 2 REGTABLE element
RP 9E78	DFHRPC08	RP 1	REPREG exit	1 RPCOM
RP 9E79	DFHRPC08	Exc	REPREG error	1 INITREG return code 2 REGTABLE element
RP 9E7A	DFHRPC08	RP 1	ADDREG entry	1 RPCOM 2 REGTABLE element
RP 9E7B	DFHRPC08	RP 1	ADDREG exit	1 RPCOM
RP 9E7C	DFHRPC08	Exc	ADDREG error	1 Return code 2 REGTABLE element
RP 9E7D	DFHRPC08	RP 1	Current delete entry	1 RPCOM
RP 9E7E	DFHRPC08	RP 1	Current delete exit	1 RPCOM
RP 9E7F	DFHRPC08	RP 1	DELREG error	1 INITREG return code
RP 9E80	DFHRPC08	Exc	CICS ONC RPC disabled	None
RP 9E81	DFHRPC08	RP 1	LOCDEL entry	1 RPCOM
RP 9E82	DFHRPC08	RP 1	LOCDEL exit	1 RPCOM
RP 9E83	DFHRPC08	RP 1	List 4-tuple entry	1 RPCOM
RP 9E84	DFHRPC08	RP 1	List 4-tuple exit	1 4-tuple element
RP 9E85	DFHRPC08	Exc	List 4-tuple GETMAIN	1 SMGF parameters
RP 9E86	DFHRPC08	Exc	List 4-tuple FREEMAIN	1 SMGF parameters
RP 9E87	DFHRPC08	Exc	List 4-tuple cursor	1 ONC_GWA
RP 9E88	DFHRPC08	Exc	List 4-tuple get element	1 ONC_GWA
RP 9E90	DFHRPC09	RP 1	GETDEFS entry	1 RPCOM
RP 9E91	DFHRPC09	RP 1	GETDEFS exit	1 RPCOM
RP 9E92	DFHRPC09	Exc	GETDEFS read error	1 RPCOM 2 EIB
RP 9E93	DFHRPC09	Exc	GETDEFS write error	1 RPCOM 2 CICS ONC RPC definition record
RP 9E94	DFHRPC09	Exc	GETDEFS write process error	1 RPCOM 2 REGTABLE element
RP 9E95	DFHRPC09	Exc	DATAREG ENQ error	1 RPCOM 2 EIBRESP
RP 9E96	DFHRPC09	Exc	DATAREG STARTBR error	1 RPCOM 2 EIBRESP

Figure 41 (Page 4 of 8). CICS ONC RPC trace points

Point ID	Module	Lvl	Type	Data
RP 9E97	DFHRPC09	Exc	DATAREG READ first error	1 RPCOM 2 EIBRESP
RP 9E98	DFHRPC09	Exc	DATAREG READNEXT error	1 RPCOM 2 EIBRESP
RP 9E99	DFHRPC09	Exc	DATAREG Servreg error	1 RPCOM
RP 9E9A	DFHRPC09	Exc	DATAREG ENDBR error	1 RPCOM 2 EIBRESP
RP 9E9B	DFHRPC09	Exc	DATAREG DEQ error	1 RPCOM 2 EIBRESP
RP 9E9C	DFHRPC09	Exc	Update READ error	1 RPCOM 2 CICS ONC RPC definition record
RP 9E9D	DFHRPC09	Exc	Update WRITE error	1 RPCOM 2 CICS ONC RPC definition record
RP 9EB0	DFHRPC0A	RP 1	INITRUN entry	1 RPCOM
RP 9EB1	DFHRPC0A	RP 1	INITRUN exit	1 RPCOM
RP 9EB2	DFHRPC0A	Exc	INITRUN error	1 Return code
RP 9EB3	DFHRPC0A	Exc	Listdata free error	1 SMGF parameters
RP 9EB4	DFHRPC0A	Exc	Listdata get error	1 SMGF parameters
RP 9EB5	DFHRPC0A	Exc	Listdata start browse error	1 RPCOM 1 EIBRESP
RP 9EB6	DFHRPC0A	Exc	Listdata end browse error	1 RPCOM 1 EIBRESP
RP 9EB7	DFHRPC0A	Exc	Listdata read first error	1 RPCOM 1 EIBRESP
RP 9EB8	DFHRPC0A	Exc	Listdata read next error	1 RPCOM 1 EIBRESP
RP 9EC0	DFHRPC0B	RP 1	Help panels entry	1 RPCOM
RP 9EC1	DFHRPC0B	RP 1	Help panels exit	1 RPCOM
RP 9EC2	DFHRPC0B	RP 1	DISPLAY errors entry	1 RPCOM
RP 9EC3	DFHRPC0B	RP 1	DISPLAY errors exit	1 RPCOM
RP 9EC4	DFHRPC0B	Exc	MSGISSUE entry	1 RPCOM
RP 9EC5	DFHRPC0B	RP 1	MSGISSUE exit	1 RPCOM
RP 9EC6	DFHRPC0B	Exc	MSGISSUE SEND MSG error	1 EIB 2 RPCOM
RP 9EC7	DFHRPC0B	Exc	MSGISSUE WRITEQ error	1 EIB 2 RPCOM
RP 9EC8	DFHRPC0B	Exc	EXTRACT exit error	1 RPCOM 2 EIB
RP 9EC9	DFHRPC0B	RP 1	Invalid GWA length	1 RPCOM 2 EIB
RP 9ECA	DFHRPC0B	Exc	Invalid GWA detected	1 RPCOM 2 EIB
RP 9ECB	DFHRPC0B	Exc	Message GETMAIN error	1 EIB 2 RPCOM
RP 9ED0	DFHRPC0D	RP 1	Entry	1 RPCOM
RP 9ED1	DFHRPC0D	RP 1	Exit	1 RPCOM
RP 9EE0	DFHRPC0E	RP 1	Entry	1 RPCOM
RP 9EE1	DFHRPC0E	RP 1	Exit	1 RPCOM
RP 9EE2	DFHRPC0E	Exc	REGTABLE ENQ error	1 RPCOM
RP 9EE3	DFHRPC0E	Exc	REGTABLE DEQ error	1 RPCOM
RP 9EE4	DFHRPC0E	Exc	Getlengths LINK error	1 RPCOM
RP 9EE5	DFHRPC0E	Exc	Getlengths process error	1 RPCOM 2 Getlengths parameters

Figure 41 (Page 5 of 8). CICS ONC RPC trace points

Point ID	Module	Lvl	Type	Data
RP 9EE6	DFHRPC0E	Exc	Getlengths length error	1 RPCOM 2 Getlengths parameters
RP 9EE7	DFHRPC0E	Exc	XDR LOAD error	1 RPCOM 2 EIBRESP
RP 9EE8	DFHRPC0E	Exc	XDR ENQ error	1 RPCOM 2 ONC_GWA
RP 9EE9	DFHRPC0E	Exc	XDR DEQ error	1 RPCOM 2 ONC_GWA
RP 9EEA	DFHRPC0E	Exc	XDR ADD error	1 SMGF parameters 2 RPCOM 3 ONC_GWA
RP 9EEB	DFHRPC0E	Exc	CHANGE MODE error	1 DSAT parameters 2 RPCOM 3 ONC_GWA
RP 9EEC	DFHRPC0E	Exc	REGISTER error	1 RPRP parameters 2 RPCOM 3 ONC_GWA
RP 9EED	DFHRPC0E	Exc	Handle abend	1 RPCOM 2 Getlengths parameters 3 EIBRESP
RP 9EF0	DFHRPC10	RP 1	Entry	1 RPCOM
RP 9EF1	DFHRPC10	RP 1	Exit	1 RPCOM
RP 9EF2	DFHRPC10	Exc	ENQ error	1 RPCOM 2 EIBRESP
RP 9EF3	DFHRPC10	Exc	DEQ error	1 RPCOM 2 EIBRESP
RP 9EF4	DFHRPC10	Exc	Start browse error	1 RPCOM
RP 9EF5	DFHRPC10	Exc	GETMAIN error	1 SMGF parameters
RP 9EF6	DFHRPC10	Exc	FREEMAIN error	1 SMGF parameters
RP 9EF7	DFHRPC10	Exc	Get next error	1 RPCOM
RP 9EF8	DFHRPC10	Exc	End browse error	1 RPCOM
RP 9EF9	DFHRPC10	Exc	Delete entry error	1 RPCOM
RP 9F02	DFHRPAS	Exc	ASSIGN CMD	1 STARTCODE 2 EIB
RP 9F03	DFHRPAS	Exc	START CODE	1 Start code
RP 9F04	DFHRPAS	Exc	RETRIEVE CMD	1 EIB
RP 9F05	DFHRPAS	RP 1	RETRIEVE parameters	1 Actual eyecatcher 2 Expected eyecatcher
RP 9F09	DFHRPAS	RP 1	UPDATE RUNPROC	1 EIB
RP 9F0A	DFHRPAS	Exc	GWA CHECK	1 Enable time 2 GWA address 3 Alias parameters
RP 9F0B	DFHRPAS	Exc	VERIFY PASSWORD	1 Alias parameters 2 ONC_GWA
RP 9F0C	DFHRPAS	Exc	LINK TERMERR	1 EIB
RP 9F0D	DFHRPAS	Exc	LINK CMD	1 Alias parameters 2 EIB
RP 9F0E	DFHRPAS	Exc	Resource checker	1 Resource checker parameters
RP 9F0F	DFHRPAS	Exc	QUERY SECURITY error	1 Client address 2 User ID 3 Alias parameters
RP 9F10	DFHRPAS	Exc	AUTH error	1 Client address 2 User ID 3 Alias parameters
RP 9F12	DFHRPAS	Exc	REPLY data error	1 EIB
RP 9F13	DFHRPAS	Exc	REPLY operation error	1 Alias parameters

Figure 41 (Page 6 of 8). CICS ONC RPC trace points

Point ID	Module	Lvl	Type	Data
RP 9F14	DFHRPAS	Exc	CHANGE MODE error	1 Alias parameters
RP 9F15	DFHRPAS	Exc	SEND REPLY	1 Alias parameters
RP 9F16	DFHRPAS	Exc	Encode LINK error	1 EIB
RP 9F17	DFHRPAS	Exc	Encode response error	1 Encode parameters
RP 9F18	DFHRPAS	Exc	RPC error	1 EIB
RP 9F19	DFHRPAS	Exc	RPC caller error	1 Alias parameters
RP 9F1A	DFHRPAS	Exc	FREEMAIN server error	1 EIB
RP 9F1B	DFHRPAS	Exc	FREEMAIN client error	1 EIB
RP 9F1C	DFHRPAS	Exc	DELRUN error	1 Alias parameters
RP 9F1D	DFHRPAS	Exc	RETURN error	1 Alias parameters
RP 9F1E	DFHRPAS	Exc	MAIN ABEND	1 Alias parameters
RP 9F1F	DFHRPAS	RP 1	Encode request	1 Encode parameters
RP 9F20	DFHRPAS	RP 1	Encode response	1 Encode parameters
RP 9F21	DFHRPAS	RP 1	Server output data	1 Data (256 bytes)
RP 9F22	DFHRPAS	RP 2	Server output data continued	1 Data (3900 bytes)
RP 9F23	DFHRPAS	RP 1	Encode output data	1 Data (256 bytes)
RP 9F24	DFHRPAS	RP 2	Encode output data continued	1 Data (3900 bytes)
RP 9F25	DFHRPAS	RP 1	COMMAREA	1 Data (256 bytes)
RP 9F26	DFHRPAS	RP 2	COMMAREA continued	1 Data (3900 bytes)
RP 9F41	DFHRPRP	Exc	Invalid format	1 RPRP parameters
RP 9F42	DFHRPRP	Exc	Invalid function	1 RPRP parameters
RP 9F43	DFHRPRP	RP 1	Entry	1 RPRP parameters
RP 9F44	DFHRPRP	RP 1	Exit	1 RPRP parameters
RP 9F45	DFHRPRP	Exc	Recovery	None—traced as 9F4E.
RP 9F46	DFHRPRP	RP 1	Call	1 Preinit. C arguments 2 RPC parameters
RP 9F47	DFHRPRP	RP 1	Return	1 Preinit. C arguments 2 RPC parameters
RP 9F48	DFHRPRP	Exc	Invalid GWA	None
RP 9F49	DFHRPRP	Exc	INIT error	1 RPRP parameters 2 RPC parameters
RP 9F4A	DFHRPRP	Exc	No storage	None—traced as 9F4E.
RP 9F4B	DFHRPRP	Exc	Not registered	None—traced as 9F4E.
RP 9F4C	DFHRPRP	Exc	socket error	1 RPRP parameters 2 RPC parameters
RP 9F4D	DFHRPRP	Exc	gethostid error	1 RPRP parameters 2 ONC_GWA
RP 9F4E	DFHRPRP	Exc	Logic error	1 Trace point 2 RPRP parameters
RP 9F4F	DFHRPRP	Exc	select error	1 RPRP parameters 2 RPC parameters
RP 9F50	DFHRPRP	Exc	DELETE LOCK error	1 RPRP parameters
RP 9F51	DFHRPRP	Exc	Duplicate LOCK error	1 RPRP parameters 2 ONC_GWA
RP 9F52	DFHRPRP	Exc	GET LOCK error	1 RPRP parameters
RP 9F53	DFHRPRP	Exc	Bad parameter list	1 RPRP parameters 2 ONC_GWA
RP 9F54	DFHRPRP	Exc	Already registered	None—traced as 9F4E.
RP 9F55	DFHRPRP	Exc	svc_register error	1 RPRP parameters 2 RPC parameters
RP 9F57	DFHRPRP	Exc	PMAP UNSET error	1 RPRP parameters 2 RPC parameters
RP 9F58	DFHRPRP	Exc	svctcp_create error	1 RPRP parameters 2 RPC parameters
RP 9F59	DFHRPRP	Exc	svctcp_create error	1 RPRP parameters 2 RPC parameters

Figure 41 (Page 7 of 8). CICS ONC RPC trace points

Point ID	Module	Lvl	Type	Data
RP 9F5A	DFHRPRP	Exc	HANDLE not found	1 RPRP parameters 2 RPC parameters
RP 9F5B	DFHRPRP	Exc	svc_sendreply error	1 RPRP parameters 2 RPC parameters
RP 9F5C	DFHRPRP	Exc	Invalid aup_gids	1 RPRP parameters 2 RPC parameters
RP 9F5D	DFHRPRP	Exc	Invalid machine name length	1 RPRP parameters 2 RPC parameters
RP 9F5E	DFHRPRP	Exc	svc_getargs error	1 RPRP parameters 2 RPC parameters
RP 9F5F	DFHRPRP	Exc	svc_freeargs error	1 RPRP parameters 2 RPC parameters
RP 9F60	DFHRPRP	Exc	getsockopt error	1 RPRP parameters 2 RPC parameters
RP 9F61	DFHRPRP	Exc	Transport handle free error	1 SMGF parameters 2 RPRP parameters
RP 9F62	DFHRPRP	Exc	Transport copy free error	1 SMGF parameters 2 RPRP parameters
RP 9F63	DFHRPRP	Exc	maxdesc unknown	1 RPRP parameters 2 RPC parameters
RP 9F64	DFHRPRP	Exc	maxdesc too few	1 RPRP parameters 2 RPC parameters
RP 9F65	DFHRPRP	Exc	maxdesc EFAULT	1 RPRP parameters 2 RPC parameters
RP 9F66	DFHRPRP	Exc	maxdesc EALREADY	1 RPRP parameters 2 RPC parameters
RP 9F67	DFHRPRP	Exc	maxdesc EINVAL	1 RPRP parameters 2 RPC parameters
RP 9F68	DFHRPRP	Exc	maxdesc EMFILE	1 RPRP parameters 2 RPC parameters
RP 9F69	DFHRPRP	Exc	maxdesc ENOMEM	1 RPRP parameters 2 RPC parameters
RP 9F6A	DFHRPRP	Exc	maxdesc EIBMIUCVERR	1 RPRP parameters 2 RPC parameters
RP 9F6B	DFHRPRP	Exc	svcerr_auth error	1 RPRP parameters 2 RPC parameters
RP 9F6C	DFHRPRP	Exc	svcerr_decode error	1 RPRP parameters 2 RPC parameters
RP 9F6D	DFHRPRP	Exc	svcerr_noproc error	1 RPRP parameters 2 RPC parameters
RP 9F6E	DFHRPRP	Exc	svcerr_systemerr error	1 RPRP parameters 2 RPC parameters
RP 9F6F	DFHRPRP	Exc	dfhsvc_getreqset error	1 RPRP parameters 2 RPC parameters
RP 9F81	DFHRPMS	RP 1	Exit	1 ONC_GWA
RP 9F82	DFHRPMS	RP 1	Decode request	1 Decode parameters
RP 9F83	DFHRPMS	RP 1	Decode response	1 Decode parameters
RP 9F87	DFHRPMS	Exc	Wait MVS	1 DSSR parameters 2 ONC_GWA
RP 9F90	DFHRPMS	Exc	LINK error	1 EIB 2 ONC_GWA 3 Alias parameters
RP 9F91	DFHRPMS	Exc	START error	1 EIB 2 ONC_GWA 3 Alias parameters

Figure 41 (Page 8 of 8). CICS ONC RPC trace points

Point ID	Module	Lvl	Type	Data
RP 9F93	DFHRPMS	Exc	Run error	1 RPRP parameters 2 ONC_GWA
RP 9F99	DFHRPMS	Exc	CHANGE MODE error	1 DSAT parameters 2 ONC_GWA
RP 9F9A	DFHRPMS	Exc	HANDLE Decode abend	1 Decode parameters 2 ONC_GWA
RP 9F9F	DFHRPMS	Exc	CICS abend client	1 ONC_GWA
RP 9FA3	DFHRPMS	Exc	Disabled TRUE	1 EIB 2 ONC_GWA
RP 9FA4	DFHRPMS	Exc	FREEMAIN error	1 EIB
RP 9FA6	DFHRPMS	Exc	Release RPAL error	1 EIB
RP 9FAA	DFHRPMS	Exc	Decode return error	1 Decode parameters 2 ONC_GWA 3 Alias parameters
RP 9FAE	DFHRPMS	Exc	EXTRACT exit 1	1 EIB
RP 9FAF	DFHRPMS	Exc	GWA corrupt 1	1 ONC_GWA
RP 9FB0	DFHRPMS	RP 1	GETREG entry	1 GETREG parameters
RP 9FB1	DFHRPMS	RP 1	GETREG exit	1 BBLX return code 2 GETREG parameters 3 GETREG return code
RP 9FB2	DFHRPMS	Exc	GETREG ENQ error	1 BBLX return code 2 GETREG parameters 3 GETREG return code
RP 9FB3	DFHRPMS	Exc	GETREG DEQ error	1 BBLX return code 2 GETREG parameters 3 GETREG return code
RP 9FB4	DFHRPMS	Exc	GETREG CURSOR error	1 BBLX return code 2 GETREG parameters 3 GETREG return code
RP 9FB5	DFHRPMS	Exc	GETREG LOCATE error	1 BBLX return code 2 GETREG parameters 3 GETREG return code
RP 9FB6	DFHRPMS	Exc	GETREG POINT error	1 BBLX return code 2 GETREG parameters 3 GETREG return code
RP 9FC2	DFHRPMS	Exc	Decode lengths	1 Decode parameters 2 ONC_GWA 3 Alias parameters
RP 9FC8	DFHRPMS	RP 1	Alias list add error	1 ONC_GWA 2 RPAL parameters
RP 9FD0	DFHRPMS	Exc	ABEND footprint	1 ONC_GWA
RP 9FD1	DFHRPMS	Exc	CICS ABEND NOCLIENT	1 ONC_GWA
RP 9FD2	DFHRPMS	RP 1	Client data	1 Data (256 bytes) 2 aup_machname 3 aup_gids
RP 9FD3	DFHRPMS	RP 2	Client data continued	1 Data (3900 bytes)
RP 9FD4	DFHRPMS	RP 1	Decoded data	1 Data (256 bytes)
RP 9FD5	DFHRPMS	RP 2	Decoded data continued	1 Data (3900 bytes)
RP 9FD6	DFHRPMS	Exc	Freeargs	1 RPRP parameters
RP 9FF0	DFHRPAL	RP 1	RPAL entry	1 RPAL parameters
RP 9FF1	DFHRPAL	RP 1	RPAL exit	1 RPAL parameters
RP 9FF2	DFHRPAL	Exc	Invalid format	1 RPAL parameters
RP 9FF3	DFHRPAL	Exc	Invalid function	1 RPAL parameters
RP 9FF4	DFHRPAL	Exc	Recovery entered	1 RPAL parameters 2 Kernel error data
RP 9FF5	DFHRPAL	Exc	Browse busy	1 RPAL parameters

Dump and trace formatting

To switch dump formatting on and off for CICS ONC RPC, you change the CICS VERBEXIT in the JCL for dump formatting as follows:

- for CICS/ESA 3.3:
IPCS VERBEXIT CICS330 FT=0|1|2|3,TR=1|2
- for CICS/ESA 4.1:
IPCS VERBEXIT CICS410 FT=0|1|2|3,TR=1|2

The parameters have these meanings:

FT=0	Suppress system dump for all features
FT=1	Produce system dump summary listing for all registered features
FT=2	Produce system dump for all registered features
FT=3	(FT=1 and FT=2 combined)
TR=1	Produce abbreviated trace (includes trace for all registered features)
TR=2	Produce full trace ((includes trace for all registered features)

Full details of these and other parameters are described in the *CICS for MVS/ESA Operations and Utilities Guide*.

CICS ONC RPC output in the formatted dump consists of the major control blocks of CICS ONC RPC, with interpretation of some of the fields. The CICS ONC RPC output can be found in the IPCS output by searching for “==RP,” and is under the heading “CICS ONC RPC Feature for MVS/ESA.”

Debugging the user-replaceable programs

The user-replaceable programs are

- The user-written XDR routines
- The converters
- The resource checker
- The CICS programs that service the client requests.

The debugging of the CICS programs is not dealt with in this manual.

XDR routines

The XDR routines, inbound and outbound, run under the RP TCB. The CICS application programming interface is not available under the RP TCB, so you cannot use EDF, CICS abend handling, or CICS for MVS/ESA trace to diagnose problems. The **printf** function must not be used. If an XDR routine has a program check, a C runtime message is written to the CICS for MVS/ESA job log.

Converter and resource checker

The converter and resource checker run under the QR TCB, and the CICS application programming interface is available.

Using EDF

EDF is available for debugging the resource checker, and the **Encode** function. If you want to use EDF, you must:

- Insure that the alias is terminal-attached. To do this, you must set the *EDF Terminal ID* field in the connection manager, as described on page 38. The chosen terminal must be a local terminal that is either logged on, or predefined.
- Define CEDF(YES) in the program definition of converter, or resource checker. The resource checker must run in the same CICS region as CICS ONC RPC if you want to use EDF to debug it.

Using trace entries

Diagnostic information may be output to the CICS for MVS/ESA trace by the use of the EXEC CICS ENTER TRACENUM command. The amount of trace information and the information contained within trace entries is at your discretion. See the *CICS for MVS/ESA: Application Programming Reference* for more information about this command.

Writing messages

Diagnostic messages may be output by using EXEC CICS WRITEQ TD. Message information content, message format, frequency, and destination are at your discretion.

Abends

You are recommended to use EXEC CICS HANDLE ABEND to trap abends. You should collect the diagnostic information you need by tracing, etc., and then return a URP_DISASTER response.

Operational problems

The server controller uses EXEC CICS START to start the aliases that run the CICS programs. CICS for MVS/ESA limits on the numbers of tasks that can be started may prevent aliases from running as soon as they are started by the server controller. This leads to delays in servicing the client requests, and this may lead to time-outs in the client.

In the XDR routines, storage allocation is done using MVS facilities, not CICS facilities. The storage is owned by the RP TCB. If an XDR routine abends, the storage is not freed by the server controller or the alias, nor is it freed by MVS, since the RP task does not end. Repeated abends in XDR routines may lead to shortage of storage that can only be corrected by stopping CICS for MVS/ESA.

Chapter 8. Performance and tuning

This chapter contains Diagnosis, Modification, or Tuning Information.

The performance of a single client request is affected by various aspects of the client, the network, CICS ONC RPC, the user-replaceable programs, and CICS for MVS/ESA.

The client

The client time-out interval must take account of the possible delays in dealing with a client request in CICS ONC RPC and in CICS for MVS/ESA.

If a client request cannot be processed, an error reply is sent to the client.

The network

In this manual, we do not deal with performance problems of TCP/IP networks.

TCP/IP for MVS resources

If while registering 4-tuples you cause the connection manager to register too many 3-tuples with TCP/IP for MVS, you might reduce the service that CICS ONC RPC can give to incoming client requests. See "Limits on registration" on page 41.

CICS ONC RPC

The allocation of different alias transaction names to different 4-tuples must be coordinated with the priorities given to the transactions in CICS for MVS/ESA.

The user-replaceable programs

The converter

Getlengths is called only by the connection manager, and has no effect on the performance of a single client request, or on throughput.

Decode is called by the server controller. Delays here can reduce the throughput of CICS ONC RPC as well as reduce the performance of a single client request. The following recommendations are made:

- Do not use CICS for MVS/ESA trace here except to solve specific problems.
- Use NOSUSPEND on EXEC CICS GETMAIN. If GETMAIN errors occur because there is not enough storage, look for solutions that do not involve using the SUSPEND option.

Encode is called by the alias. Delays here reduce the performance of single client requests, but not the throughput of CICS ONC RPC.

The resource checker

The resource checker is called by the alias, so delays here affect the performance of a single client request, but have no effect on throughput.

CICS for MVS/ESA

The priorities of different alias transactions can be adjusted to determine the service that a client request receives.

There must be enough free tasks to service the alias transactions as they are started by the server controller.

The CICS programs that service the client requests are subject to contention for resources in the CICS for MVS/ESA system, and to transmission delays if they are remote from the CICS for MVS/ESA system in which CICS ONC RPC is operating, or if they request the use of remote resources by function shipping or distributed program link.

Appendix A. Messages and codes

Messages

CICS ONC RPC messages have identifiers of the form DFHRPnnnn, where nnnn are four numeric characters. Messages issued by CICS ONC RPC are split between modules as listed below. Numbers DFHRP0001 through DFHRP0100 are reserved for standard component messages. They are issued only by the RPC Caller.

DFHRP0101 — 0499: Alias

DFHRP0500 — 0899: Server controller

DFHRP0900 — 0999: TRUE

DFHRP1000 — 1499: RPC caller. This is an internal component used by CRPC, CRPM, and the alias to interface to the ONC RPC library provided by TCP/IP for MVS.

DFHRP1500 — 1999: Connection manager

DFHRP2000 — 2499: Alias list

Figure 42 shows the component for each module.

Figure 42. Module to component cross-reference

Module	Component
DFHRPAL	alias list
DFHRPAS	alias
DFHRPC0A	connection manager
DFHRPC0B	connection manager
DFHRPC0D	connection manager
DFHRPC0E	connection manager
DFHRPC01	connection manager
DFHRPC03	connection manager
DFHRPC04	connection manager
DFHRPC05	connection manager
DFHRPC06	connection manager
DFHRPC08	connection manager
DFHRPC09	connection manager
DFHRPC10	connection manager
DFHRPC4C	connection manager
DFHRPC42	connection manager
DFHRPMS	server controller
DFHRPRP	RPC caller

DFHRP0001 *applid* An abend (code *aaa/bbbb*) has occurred at offset *X'offset'* in module *modname*.

Explanation: An abnormal end (abend) or program check has occurred in module *modname*. This implies that there may be an error in the CICS code. Alternatively, unexpected data has been input, or storage has been overwritten.

The code *aaa/bbbb* is a 3-digit hexadecimal MVS code (if applicable), followed by a 4-digit alphanumeric CICS code. The MVS code is a system completion code (for example, 0C1

or D37). If an MVS code is not applicable, this field is filled with three hyphens. The CICS code is an abend code or a number referring to a CICS message (for example, AKEA is a CICS abend code; 1310 refers to message DFHTS1310).

System Action: An exception entry is made in the trace table. A system dump is taken, unless you have specifically suppressed dumps in the dump table.

CICS continues unless you have specified in the dump table that CICS should terminate. If appropriate, an error return code is sent to the caller of this domain. In this case CICS could be terminated by the caller (for example, the domain manager, DFHDMDM). A message is issued to this effect.

Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: Notify the system programmer. If CICS is still running, it is necessary to decide whether to terminate CICS.

Look up the MVS code, if there is one, in the relevant MVS codes manual.

Next, look up the CICS alphanumeric code. This tells you, for example, whether the error was a program check, an abend, or a runaway, and may give you some guidance concerning user response.

If module *modname* is not crucial to the running of your CICS system, you may decide to continue to run and bring CICS down at a convenient time to resolve the problem. If you cannot run without the full use of module *modname* you should bring CICS down in a controlled shutdown.

You need further assistance from IBM to resolve this problem. See Part 4 of the *CICS for MVS/ESA Problem Determination Guide* for guidance on how to proceed.

Destination: Console

Module: DFHRPRP

XMEOUT Parameters: *applid, aaa/bbbb, X'offset', modname*

DFHRP0002 *applid* A severe error (code *X'code'*) has occurred in module *modname*.

Explanation: An error has been detected in module *modname*. The code *X'code'* is the exception trace point ID, which gives an indication of the cause of the error:

- 9F49—error in the C environment
- 9F4A—no storage for the RPC caller
- 9F4C—error from **socket** call to TCP/IP for MVS
- 9F4D—error from **gethostid** call to TCP/IP for MVS
- 9F4F—error from **select** call to TCP/IP for MVS
- 9F55—error from **svc_register** call to TCP/IP for MVS
- 9F58—error from **svcudp_create** call to TCP/IP for MVS
- 9F59—error from **svctcp_create** call to TCP/IP for MVS
- 9F5B—error from **svc_sendreply** call to TCP/IP for MVS
- 9F5C—invalid **aup_gids** from client
- 9F5D—machine name from client too long
- 9F5E—error from **svc_getargs** call to TCP/IP for MVS
- 9F5F—error from **svc_freeargs** call to TCP/IP for MVS
- 9F60—error from **getsockopt** call to TCP/IP for MVS
- 9F63—error from **maxdesc** call to TCP/IP for MVS (unknown error)
- 9F64—error from **maxdesc** call to TCP/IP for MVS (not enough sockets)
- 9F65—error from **maxdesc** call to TCP/IP for MVS (EFAULT)
- 9F66—error from **maxdesc** call to TCP/IP for MVS (EALREADY)
- 9F67—error from **maxdesc** call to TCP/IP for MVS (EINVAL)
- 9F68—error from **maxdesc** call to TCP/IP for MVS (EMFILE)
- 9F69—error from **maxdesc** call to TCP/IP for MVS (ENOMEM)
- 9F6A—error from **maxdesc** call to TCP/IP for MVS (EIBMIUCVERR)
- 9F6B—error from **svcerr_auth** call to TCP/IP for MVS
- 9F6C—error from **svcerr_decode** call to TCP/IP for MVS

- 9F6D—error from **svcerr_noproc** call to TCP/IP for MVS
- 9F6E—error from **svcerr_systemerr** call to TCP/IP for MVS
- 9F6F—error from **dfhsvc_getreqset**.

System Action: An exception entry (code X'code' in the message) is made in the trace table. A system dump is taken, unless you have specifically suppressed dumps in the dump table. If a client request is being processed, and the code is 9F4A, no reply is sent to the client.

Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response:

There are some specific user actions that can be taken for certain values of *code*:

- 9F4A—Retry the current action if possible. If the shortage of storage persists, reduce the number of tasks that can run concurrently, or increase the DSA limits.
- 9F49—Check that the C run-time environment is derived from the same product, version, and release as was used for link-editing at installation time.
- 9F5C—Check the TCP/IP for MVS configuration and release level.
- 9F5D—Check the TCP/IP for MVS configuration and release level.
- 9F6A—Check that TCP/IP for MVS has been started.

For other TCP/IP for MVS problems, look at the TCP/IP for MVS diagnostics.

You may need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed.

Destination: Console

Module: DFHRPRP

XMEOUT Parameters: *applid, X'code', modname*

DFHRP0102 *date time applid tranid* **A CICS ONC RPC alias has received an incorrect response on a call made to CICS during alias initialization.**

Explanation: The alias has received a response that indicates a logic error in the alias while calling CICS to establish its initialization information.

System Action: The client request is abandoned, and no reply is sent to the client. A system dump is taken. The alias abends with abend code ARPK. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: See the associated CICS messages for problem diagnosis.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP0103 *date time applid tranid* **A CICS ONC RPC alias has been started incorrectly.**

Explanation: The alias has been invoked by a means other than the server controller, possibly by a user at a terminal.

System Action: There was no client request to process. The alias abends with abend code ARPF.

User Response: Check that the alias was not started by a terminal user.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP0104 *date time applid tranid* **A CICS ONC RPC alias has received an incorrect response on a call made to CICS during alias initialization.**

Explanation: The alias has received a response while calling CICS to establish its initialization information that indicates that the alias may not have been started by server controller.

System Action: There is no client request to process. The alias abends with abend code ARPF.

User Response: Check that the alias has not been started by a means other than the server controller.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP0105 *date time applid tranid* **A CICS ONC RPC alias has received an incorrect response on a call made to CICS during alias initialization.**

Explanation: The alias has received a response that indicates that CICS has experienced a temporary error while trying to pass the alias its initialization information from temporary storage.

System Action: The client request is abandoned, and no reply is sent to the client. The alias abends with abend code ARPJ.

User Response: See the associated CICS messages for problem diagnosis.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP0106 *date time applid tranid* **A CICS ONC RPC alias has received an incorrect response on a call made to CICS during alias initialization.**

Explanation: The alias cannot find its initialization information in CICS temporary storage. This is probably due to the retrieval of data from temporary storage by another application.

System Action: The client request is abandoned, and no reply is sent to the client. The alias abends with abend code ARPF.

User Response: Check that no other application is using the same temporary storage queue as the alias.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP0107 *date time applid tranid* **A CICS ONC RPC alias has received an incorrect response on a call made to CICS during alias initialization.**

Explanation: The alias has received a response that indicates a logic error in the alias while calling CICS to establish its initialization information.

System Action: The client request is abandoned, and no reply is sent to the client. A system dump is taken. The alias abends with abend code ARPI. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: See the associated CICS messages for problem diagnosis.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP0108 *date time applid tranid* **A CICS ONC RPC alias has been started incorrectly.**

Explanation: The alias has detected an error while validating its initialization information. This probably means that the alias has been started by a means other than the server controller.

System Action: There was no client request to process. The alias abends with abend code ARPF.

User Response: Check that the alias was not started by a transient data trigger level or by a CECI user.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP0113 *date time applid tranid* **A CICS ONC RPC alias is unable to continue processing because the corresponding alias list entry has been deleted.**
Client IP address: *clientaddr* **Host IP address:** *hostaddr* **Program:** *X'prognum'*
Version: *X'versnum'* **Procedure:** *X'procnum'* **Protocol:** *protocol* **Port:** *X'port'*
Socket: *X'socket'.*

Explanation: The alias has attempted to update its alias list entry to indicate that it has successfully started. The alias list component has returned a NOT FOUND response.

System Action: An **svcerr_systemerr** call is used to send a reply to the client. The alias abends with abend code ARPF.

User Response: This situation is almost certainly due to an alias starting after immediate disable of CICS ONC RPC or after its alias list entry has been explicitly deleted by the connection manager.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, X'port', X'socket'*

DFHRP0114 *date time applid tranid* **A CICS ONC RPC alias is unable to continue processing because it is unable to update the corresponding alias list entry.** **Client IP address:** *clientaddr* **Host IP address:** *hostaddr* **Program:** *X'prognum'* **Version:** *X'versnum'* **Procedure:** *X'procnum'* **Protocol:** *protocol* **Port:** *X'port'* **Socket:** *X'socket'.*

Explanation: The alias has attempted to update its alias list entry to indicate that it has successfully started. The alias list component has returned an error response other than NOT FOUND. This is due to an error in another component of CICS.

System Action: An **svcerr_systemerr** call is used to send a reply to the client. The alias abends with abend code ARPJ.

User Response: Proceed as indicated in the messages issued by the CICS component in error.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, X'port', X'socket'*

DFHRP0118 *date time applid tranid* **A CICS ONC RPC alias is unable to continue processing this client request. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: The alias has detected that CICS ONC RPC may have been disabled since this client request was scheduled by the server controller. This is indicated by an incorrect reference to the GWA used by CICS ONC RPC.

System Action: The client request is abandoned, and no reply is sent to the client. The alias abends with abend code ARPH.

User Response: Check that CICS ONC RPC has not been disabled since this client request was first scheduled. This problem may arise when long-running CICS programs are being used. It may also occur if CICS ONC RPC is disabled and immediately re-enabled.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0119 *date time applid tranid* **A CICS ONC RPC alias is unable to continue processing because it cannot authenticate this client request. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: The alias has detected an error with the response returned from the external security manager while attempting to authenticate this client request.

System Action: An `svcerr_systemerr` call is used to send a reply to the client. The alias abends with abend code ARPJ.

User Response: Check that the external security manager is still available.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0120 *date time applid tranid* **A CICS ONC RPC alias is unable to continue processing because this client request is not authenticated. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: The alias has received a response while authenticating the userid and password associated with this client request which indicates that this client request is not authenticated to CICS.

System Action: An `svcerr_auth` call with a why-value of AUTH_TOOWEAK is used to send a reply to the client. The alias abends with abend code ARPL.

User Response: Check the userid/password combination associated with this client request. See the associated CICS messages relating to the security error for help with problem diagnosis.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0121 *date time applid tranid* **A CICS ONC RPC alias is unable to continue processing because it cannot authenticate this client request. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: The alias has received a response while authenticating the userid and password associated with this client request which indicates that the external security manager does not recognize the userid.

System Action: An `svcerr_auth` call with a why-value of AUTH_TOOWEAK is used to send a reply to the client. The alias abends with abend code ARPG.

User Response: Check the userid associated with this client request. See the associated CICS messages relating to the security error for help with problem diagnosis.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0122 *date time applid tranid* **A CICS ONC RPC alias is unable to continue processing this client request. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: The alias has encountered an internal error while authenticating the userid and password associated with this client request.

System Action: An `svcerr_systemerr` call is used to send a reply to the client. A system dump is taken. The alias abends with abend code ARPK. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0123 *date time applid tranid* **A CICS ONC RPC alias is unable to continue processing this client request. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: The alias has detected a temporary error in the remote CICS region while communicating with the resource checker.

System Action: An `svcerr_systemerr` call is used to send a reply to the client. The alias abends with abend code ARPJ.

User Response: Investigate the error in the remote CICS region.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0124 *date time applid tranid* **A CICS ONC RPC alias is unable to continue processing this client request. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: The alias has encountered an internal error while trying to link to the resource checker.

System Action: An **svcerr_systemerr** call is used to send a reply to the client. A system dump is taken. The alias abends with abend code ARPI. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0125 *date time applid tranid* **A CICS ONC RPC alias is unable to continue processing as it cannot link to the resource checker *program*. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: The alias has received a response while trying to link to the resource checker which indicates that it is not defined to CICS.

System Action: An **svcerr_systemerr** call is used to send a reply to the client. The alias abends with abend code ARPG.

User Response: Check that the resource checker is defined to CICS.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, program, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0126 *date time applid tranid* **A CICS ONC RPC alias is unable to continue processing as it cannot link to the resource checker *program*. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: The alias has received a response while trying to link to the resource checker that indicates that the remote system on which the program resides is not defined or available to CICS.

System Action: An **svcerr_systemerr** call is used to send a reply to the client. The alias abends with abend code ARPG.

User Response: Ensure that the remote CICS region in which the resource checker resides is defined to CICS. If it is, check that the connection is available for use by CICS.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, program, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0127 *date time applid tranid* **A CICS ONC RPC alias is unable to continue processing this client request. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: The alias has detected a rollback in the resource checker in a remote CICS region.

System Action: An `svcerr_systemerr` call is used to send a reply to the client. The alias abends with abend code ARPJ.

User Response: Investigate the problem in the remote CICS region. You should consider changing the resource checker so that it does not update any CICS recoverable resources because this is not its primary design intent. Retry the client request.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0128 *date time applid tranid* **A CICS ONC RPC alias is unable to continue processing because it cannot link to the resource checker *program*. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: The alias has received a response while trying to link to the resource checker that indicates that it is not authorized to do so. This error has occurred because either the local alias transaction has been defined with RESSEC=YES, or the resource checker is in a remote CICS region and the mirror transaction in the remote region is defined with RESSEC=YES.

System Action: An `svcerr_systemerr` call is used to send a reply to the client. The alias abends with abend code ARPG.

User Response: If the alias or mirror transaction must run with RESSEC=YES, add a profile to the external security manager that allows users to access the resource checker. If you do not require resource level security in the CICS program, set RESSEC=NO in the alias or mirror transaction definition.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, program, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0129 *date time applid tranid* **A CICS ONC RPC alias is unable to continue processing this client request. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: The alias has received an incorrect response from CICS while trying to link to the resource checker.

System Action: An `svcerr_systemerr` call is used to send a reply to the client. A system dump is taken. The alias abends with abend code ARPK. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0130 *date time applid tranid* **A CICS ONC RPC alias is unable to continue processing. The resource checker has rejected this client request.**
Response: *response* **Reason:** *reason*. **Client IP address:** *clientaddr* **Host IP address:** *hostaddr* **Program:** *X'prognum'* **Version:** *X'versnum'* **Procedure:** *X'procnum'* **Protocol:** *protocol* **Port:** *port* **Socket:** *socket*.

Explanation: The resource checker has returned the response and reason codes *response* and *reason*. This client request is not authorized to continue.

System Action: An `svcerr_auth` call with a why-value of AUTH_BADCRED is used to send a reply to the client. The alias abends with abend code ARPL.

User Response: Determine from the resource checker the meaning of the response and reason codes, and amend the program if necessary.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, response, reason, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0132 *date time applid tranid* **A CICS ONC RPC alias is unable to continue processing this client request. Client IP address:** *clientaddr* **Host IP address:** *hostaddr* **Program:** *X'prognum'* **Version:** *X'versnum'* **Procedure:** *X'procnum'* **Protocol:** *protocol* **Port:** *port* **Socket:** *socket*.

Explanation: The alias has received a response that indicates that the external security manager is no longer active.

System Action: An `svcerr_systemerr` call is used to send a reply to the client. The alias abends with abend code ARPJ.

User Response: Correct the problem with the external security manager.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0133 *date time applid tranid* **A CICS ONC RPC alias is unable to continue processing this client request. Client IP address:** *clientaddr* **Host IP address:** *hostaddr* **Program:** *X'prognum'* **Version:** *X'versnum'* **Procedure:** *X'procnum'* **Protocol:** *protocol* **Port:** *port* **Socket:** *socket*.

Explanation: The alias has received an incorrect response on a call to CICS while trying to test the authorization level of the client.

System Action: An `svcerr_systemerr` call is used to send a reply to the client. A system dump is taken. The alias abends with abend code ARPI. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0134 *date time applid tranid* **A CICS ONC RPC alias is unable to continue processing this client request because the client is not authorized to access the CICS program *program*. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: The alias has rejected this client request because the client is not authorized to access the CICS program *program*.

System Action: An `svcerr_auth` call with a why-value of AUTH_TOOWEAK is used to send a reply to the client. The alias abends with abend code ARPL.

User Response: None

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, program, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0135 *date time applid tranid* **A CICS ONC RPC alias is unable to continue processing this client request. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: The alias has detected an internal arithmetic error with the parameters passed by the server controller while processing this client request and is unable to link to the CICS program.

System Action: The client request is abandoned, and a SYSTEMERR reply is sent to the client. A system dump is taken. The alias abends with abend code ARPI. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0136 *date time applid tranid* **A CICS ONC RPC alias is unable to continue processing this client request. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: The alias has detected a temporary error in the remote CICS region while communicating with the CICS program.

System Action: An `svcerr_systemerr` call is used to send a reply to the client. The alias abends with abend code ARPJ.

User Response: Investigate the problem in the remote CICS region.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0137 *date time applid tranid* **A CICS ONC RPC alias is unable to continue processing this client request. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: The alias has encountered an internal error while trying to link to the CICS program.

System Action: An **svcerr_systemerr** call is used to send a reply to the client. A system dump is taken. The alias abends with abend code ARPI. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0138 *date time applid tranid* **A CICS ONC RPC alias is unable to continue processing as it cannot link to the CICS program *program*. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: The alias has received a response while trying to link to the CICS program *program* that indicates that the program is not defined to CICS.

System Action: An **svcerr_systemerr** call is used to send a reply to the client. The alias abends with abend code ARPG.

User Response: Check that the CICS program is defined to CICS.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, program, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0139 *date time applid tranid* **A CICS ONC RPC alias is unable to continue processing as it cannot link to the CICS program *program*. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: The alias has received a response while trying to link to the CICS program *program* that indicates that the remote system in which the program resides is not defined or is not available to CICS.

System Action: An **svcerr_systemerr** call is used to send a reply to the client. The alias abends with abend code ARPG.

User Response: Ensure that the remote CICS region in which the server program resides is defined to CICS. If it is, ensure that the connection is available for use by CICS.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, program, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0140 *date time applid tranid* **A CICS ONC RPC alias is unable to continue processing this client request. Client IP address:** *clientaddr* **Host IP address:** *hostaddr* **Program:** *X'prognum'* **Version:** *X'versnum'* **Procedure:** *X'procnum'* **Protocol:** *protocol* **Port:** *port* **Socket:** *socket*.

Explanation: The alias has detected a rollback in the CICS program in the remote CICS region.

System Action: An `svcerr_systemerr` call is used to send a reply to the client. The alias abends with abend code ARPJ.

User Response: Investigate why the CICS program rolled back.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0141 *date time applid tranid* **A CICS ONC RPC alias is unable to continue processing as it cannot link to the CICS program *program*. Client IP address:** *clientaddr* **Host IP address:** *hostaddr* **Program:** *X'prognum'* **Version:** *X'versnum'* **Procedure:** *X'procnum'* **Protocol:** *protocol* **Port:** *port* **Socket:** *socket*.

Explanation: The alias has received a response while trying to link to the CICS program *program* that indicates that it is not authorized to do so.

System Action: An `svcerr_systemerr` call is used to send a reply to the client. The alias abends with abend code ARPG.

User Response: If the CICS program must run with resource level security, add a profile to the external security manager that grants access to the CICS program to its clients. If you do not require resource level security in the CICS program, set RESSEC=NO in the alias or mirror transaction definition.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, program, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0142 *date time applid tranid* **A CICS ONC RPC alias is unable to continue processing this client request. Client IP address:** *clientaddr* **Host IP address:** *hostaddr* **Program:** *X'prognum'* **Version:** *X'versnum'* **Procedure:** *X'procnum'* **Protocol:** *protocol* **Port:** *port* **Socket:** *socket*.

Explanation: The alias has received an incorrect response from CICS while trying to link to the CICS program.

System Action: An `svcerr_systemerr` call is used to send a reply to the client. The alias abends with abend code ARPK. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0143 *date time applid tranid* **A CICS ONC RPC alias is unable to continue processing this client request. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: The alias has encountered an internal error and cannot determine how to send a reply to the client. The CICS program has run successfully, and may have updated CICS resources.

System Action: An `svcerr_systemerr` call is used to send a reply to the client. A system dump is taken. The alias abends with abend code ARPI. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0144 *date time applid tranid* **A CICS ONC RPC alias is unable to send a reply to the client because of a length error.**

Explanation: The alias is unable to send a reply to client because the communication area length is zero, but the client was expecting data to be sent in the reply.

System Action: The client request is abandoned, and no reply is sent to the client. A system dump is taken. The alias abends with abend code ARPI. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: See the associated CICS messages for problem diagnosis.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP0145 *date time applid tranid* **A CICS ONC RPC alias is unable to send a reply to the client due to an error in TCP/IP for MVS `svc_sendreply` processing. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: The alias cannot send a reply to the client. A problem has occurred in the TCP/IP for MVS `svc_sendreply` processing.

System Action: An `svcerr_systemerr` call is used to send a reply to the client. The alias abends with abend code ARPJ.

User Response: Examine the diagnostics to determine the reason for the error. If message DFHRP0002 was issued to the console, the explanation of that message might contain more information.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0146 *date time applid tranid* **A CICS ONC RPC alias is unable to send a reply to the client due to an error in send reply processing. The transport handle was invalid or was not found. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: The alias cannot send a reply to the client. A problem has occurred in send reply processing. The transport handle was in error or was not found. This problem can occur if the client program times out before the reply can be sent.

System Action: The client request is abandoned, and no reply is sent to the client. The alias abends with abend code ARPJ.

User Response: Examine the diagnostics to determine the reason for the error. If message DFHRP0002 was issued to the console, the explanation of that message might contain more information.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0147 *date time applid tranid* **A CICS ONC RPC alias is unable to send a reply to the client because CICS ONC RPC is disabling. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: The alias cannot send a reply back to the client because CICS ONC RPC is disabling.

System Action: The client request is abandoned, and no reply is sent to the client. The alias abends with abend code ARPJ.

User Response: Examine the diagnostics to determine the reason for the error.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0148 *date time applid tranid* **A CICS ONC RPC alias is unable to send a reply to the client due to an error in send processing. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: The alias cannot send a reply back to the client. The alias received an unexpected response from the RPC caller.

System Action: An `svcerr_systemerr` call is used to send a reply to the client. The alias abends with abend code ARPI.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the *CICS/ESA Problem Determination Guide* for guidance on how to proceed.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0149 *date time applid tranid* **A CICS ONC RPC alias is unable to send a reply to the client.** **Client IP address:** *clientaddr* **Host IP address:** *hostaddr* **Program:** *X'prognum'* **Version:** *X'versnum'* **Procedure:** *X'procnum'* **Protocol:** *protocol* **Port:** *port* **Socket:** *socket*.

Explanation: The alias cannot send a reply back to the client. The alias received an unexpected response from the RPC caller.

System Action: An `svcerr_systemerr` call is used to send a reply to the client. The alias abends with abend code ARPI.

User Response: If message DFHRP0002 was issued to the console, the explanation of that message might contain more information. You may need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0150 *date time applid tranid* **A CICS ONC RPC alias is unable to send data to the client.**

Explanation: The alias is unable to send reply to the client. An unexpected response was returned from RPC caller.

System Action: The client request is abandoned, and no reply is sent to the client. The alias abends with abend code ARPJ.

User Response: See the associated CICS messages for problem diagnosis.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP0151 *date time applid tranid* **A CICS ONC RPC alias has encountered a severe internal error while processing this client request.** **Client IP address:** *clientaddr* **Host IP address:** *hostaddr* **Program:** *X'prognum'* **Version:** *X'versnum'* **Procedure:** *X'procnum'* **Protocol:** *protocol* **Port:** *port* **Socket:** *socket*.

Explanation: The alias is unable to switch TCB modes to allow it to send a reply to the client. The RP TCB is not active.

System Action: The client request is abandoned, and no reply is sent to the client. A system dump is taken. The alias abends with abend code ARPJ. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: See any associated CICS messages to help with problem diagnosis. If you cannot determine why the TCB mode could not be switched, you need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0155 *date time applid tranid* **A CICS ONC RPC alias encountered an error while attempting to access the converter *converter_program_name*. Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket* Client IP address: *clientaddr*.**

Explanation: An error has prevented the alias from accessing the converter *converter_program_name*.

System Action: An **svcerr_systemerr** call is used to send a reply to the client. A system dump is taken. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, converter_program_name, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket, clientaddr*

DFHRP0156 *date time applid tranid* **A CICS ONC RPC alias could not link to converter *converter_program_name*. EIBRESP2: *resp2val*. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: The alias used EXEC CICS LINK for converter *converter_program_name* to perform the **Encode** function, but received a PGMIDERR response.

System Action: An **svcerr_systemerr** call is used to send a reply to the client.

User Response: Use the EIBRESP2 value to identify the problem.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, converter_program_name, resp2val, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0157 *date time applid tranid* **A CICS ONC RPC alias could not link to converter *converter_program_name* because it is remote. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: The alias cannot work with a converter located in a remote CICS region. Data pointers are passed to and from the converter, and the referenced data can only be used if the converter runs in the local CICS region.

System Action: An **svcerr_systemerr** call is used to send a reply to the client. A system dump is taken.

User Response: Install and define the converter in the same CICS region as CICS ONC RPC.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, converter_program_name, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0159 *date time applid tranid* **A CICS ONC RPC alias is not authorized to link to converter** *converter_program_name*. **Client IP address:** *clientaddr* **Host IP address:** *hostaddr* **Program:** *X'prognum'* **Version:** *X'versnum'* **Procedure:** *X'procnum'* **Protocol:** *protocol* **Port:** *port* **Socket:** *socket*.

Explanation: The alias cannot access the converter. An authorization error has occurred.

System Action: An **svcerr_systemerr** call is used to send a reply to the client. A system dump is taken.

User Response: Either redefine the alias transaction with RESSEC=NO, or change the external security manager to allow the user to access the converter.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, converter_program_name, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0160 *date time applid tranid* **A CICS ONC RPC alias received an incorrect response from CICS when attempting to access the converter** *converter_program_name*. **Client IP address:** *clientaddr* **Host IP address:** *hostaddr* **Program:** *X'prognum'* **Version:** *X'versnum'* **Procedure:** *X'procnum'* **Protocol:** *protocol* **Port:** *port* **Socket:** *socket*.

Explanation: The alias received an unexpected response when trying to link to the converter for **Encode** processing.

System Action: An **svcerr_systemerr** call is used to send a reply to the client. A system dump is taken. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: See the associated messages issued by CICS for problem diagnosis.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, converter_program_name, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0161 *date time applid tranid* **A CICS ONC RPC alias encountered an error during Encode processing in the converter** *program*. **Client IP address:** *clientaddr* **Host IP address:** *hostaddr* **Program:** *X'prognum'* **Version:** *X'versnum'* **Procedure:** *X'procnum'* **Protocol:** *protocol* **Port:** *port* **Socket:** *socket*.

Explanation: **Encode** returned URP_EXCEPTION.

System Action: An **svcerr_systemerr** call is used to send a reply to the client.

User Response: Examine the diagnostics to determine the reason for the error.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, program, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0162 *date time applid tranid* **A CICS ONC RPC alias encountered an error during Encode processing in the converter** *program*. **Client IP address:** *clientaddr* **Host IP address:** *hostaddr* **Program:** *X'prognum'* **Version:** *X'versnum'* **Procedure:** *X'procnum'* **Protocol:** *protocol* **Port:** *port* **Socket:** *socket*.

Explanation: **Encode** returned URP_INVALID.

System Action: An **svcerr_systemerr** call is used to send a reply to the client.

User Response: Examine the diagnostics to determine the reason for the error.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, program, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0163 *date time applid tranid* **A CICS ONC RPC alias encountered an error during Encode processing in the converter program. Client IP address:** *clientaddr* **Host IP address:** *hostaddr* **Program:** *X'prognum'* **Version:** *X'versnum'* **Procedure:** *X'procnum'* **Protocol:** *protocol* **Port:** *port* **Socket:** *socket.*

Explanation: Encode returned an unexpected return code.

System Action: An `svcerr_systemerr` call is used to send a reply to the client. A system dump is taken. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: Examine the diagnostics to determine the reason for the error.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, program, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0164 *date time applid tranid* **A CICS ONC RPC alias is unable to send an error reply to the client due to a logic error. Client IP address:** *clientaddr* **Host IP address:** *hostaddr* **Program:** *X'prognum'* **Version:** *X'versnum'* **Procedure:** *X'procnum'* **Protocol:** *protocol* **Port:** *port* **Socket:** *socket.*

Explanation: The alias cannot send an error reply to the client due to a logic error.

System Action: No reply is sent to the client. A system dump is taken. The alias abends with abend code ARPI. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the *CICS/ESA Problem Determination Guide* for guidance on how to proceed.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0166 *date time applid tranid* **A CICS ONC RPC alias is unable to send a reply to the client because the transport handle was invalid or was not found. Client IP address:** *clientaddr* **Host IP address:** *hostaddr* **Program:** *X'prognum'* **Version:** *X'versnum'* **Procedure:** *X'procnum'* **Protocol:** *protocol* **Port:** *port* **Socket:** *socket.*

Explanation: The alias cannot send a reply to the client. The transport handle was invalid or was not found.

System Action: No reply is sent to the client. The alias abends with abend code ARPJ.

User Response: If message DFHRP0002 was issued to the console, the explanation of that message might contain more information. You may need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the *CICS/ESA Problem Determination Guide* for guidance on how to proceed.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0167 *date time applid tranid* **A CICS ONC RPC alias is unable to send an error reply to the client. CICS ONC RPC is disabling. Client IP address:** *clientaddr*
Host IP address: *hostaddr* **Program:** *X'prognum'* **Version:** *X'versnum'*
Procedure: *X'procnum'* **Protocol:** *protocol* **Port:** *port* **Socket:** *socket*.

Explanation: The alias cannot send a reply to the client because CICS ONC RPC is disabling.

System Action: No reply is sent to the client. The alias abends with abend code ARPJ.

User Response: Examine the diagnostics to determine the reason for the error.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0168 *date time applid tranid* **A CICS ONC RPC alias is unable to send an error reply to the client. Client IP address:** *clientaddr* **Host IP address:** *hostaddr*
Program: *X'prognum'* **Version:** *X'versnum'* **Procedure:** *X'procnum'* **Protocol:** *protocol* **Port:** *port* **Socket:** *socket*.

Explanation: The alias cannot send a reply to the client. The alias received an error response from the RPC caller.

System Action: No reply is sent to the client. The alias abends with abend code ARPI.

User Response: If message DFHRP0002 was issued to the console, the explanation of that message might contain more information. Examine the diagnostics to determine the reason for the error. You may need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0169 *date time applid tranid* **A CICS ONC RPC alias encountered an error during Encode processing in the converter program. Client IP address:** *clientaddr*
Host IP address: *hostaddr* **Program:** *X'prognum'* **Version:** *X'versnum'*
Procedure: *X'procnum'* **Protocol:** *protocol* **Port:** *port* **Socket:** *socket*.

Explanation: Encode returned URP_DISASTER.

System Action: An `svcerr_systemerr` call is used to send a reply to the client.

User Response: Examine the diagnostics to determine the reason for the error.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, program, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0170 *date time applid tranid* **A CICS ONC RPC alias has detected an error.**

Explanation: The alias has detected an error.

System Action: A system dump is taken. The alias abends with abend code ARPI. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: Examine the diagnostics to determine the reason for the error.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP0171 *date time applid tranid* **A CICS ONC RPC alias has detected a FREEMAIN error.**

Explanation: The alias has detected a FREEMAIN error when freeing the communication area used by the CICS program. This FREEMAIN occurs after **Encode** processing.

System Action: Processing continues.

User Response: Examine the diagnostics to determine the reason for the error.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP0172 *date time applid tranid* **A CICS ONC RPC alias has detected a FREEMAIN error.**

Explanation: The alias has detected an error while freeing the data area created by **Encode** processing. The FREEMAIN occurs after outbound XDR processing.

System Action: Processing continues.

User Response: Examine the diagnostics to determine the reason for the error.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP0173 *date time applid tranid* **A CICS ONC RPC alias cannot find its alias list entry for deletion at task end. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *X'port'* Socket: *X'socket'*.**

Explanation: The alias has attempted to delete its alias list entry at task end. The alias list component has returned a NOT FOUND response. This is because either a connection manager user has started immediate disable processing, or because a connection manager user has deleted the entry.

System Action: The alias abends with abend code ARPJ.

User Response: None.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, X'port', X'socket'*

DFHRP0174 *date time applid tranid* **A CICS ONC RPC alias received an error response while attempting to delete its alias list entry. Client IP address:** *clientaddr* **Host IP address:** *hostaddr* **Program:** *X'prognum'* **Version:** *X'versnum'* **Procedure:** *X'procnum'* **Protocol:** *protocol* **Port:** *X'port'* **Socket:** *X'socket'*.

Explanation: The alias has attempted to delete its alias list entry at task end. It received a response that indicated a severe error had occurred.

System Action: The alias abends with abend code ARPJ.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. response.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, X'port', X'socket'*

DFHRP0175 *date time applid tranid* **A CICS ONC RPC alias sent an error reply to the client, but cannot free storage associated with the error call to the client. Client IP address:** *clientaddr* **Host IP address:** *hostaddr* **Program:** *X'prognum'* **Version:** *X'versnum'* **Procedure:** *X'procnum'* **Protocol:** *protocol* **Port:** *port* **Socket:** *socket*.

Explanation: The alias sent an error reply to the client. After this reply was sent, the alias received an error response when attempting to free storage associated with the error call to the client.

System Action: The alias abends with abend code ARPJ.

User Response: Examine the diagnostics to determine the reason for the error. If the problem persists, you need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0176 *date time applid tranid* **A CICS ONC RPC alias sent a reply to the client, but cannot free storage associated with the svc_sendreply call. Client IP address:** *clientaddr* **Host IP address:** *hostaddr* **Program:** *X'prognum'* **Version:** *X'versnum'* **Procedure:** *X'procnum'* **Protocol:** *protocol* **Port:** *port* **Socket:** *socket*.

Explanation: The alias sent a reply back to the client. After this reply was sent, the alias received an error response when attempting to free storage associated with the **svc_sendreply** call.

System Action: The alias abends with abend code ARPJ.

User Response: Examine the diagnostics to determine the reason for the error. You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0180 *date time applid tranid* **A CICS ONC RPC alias has detected an abend issued by the resource checker program. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: The alias has detected an abend by the resource checker.

System Action: An `svcerr_systemerr` call is used to send a reply to the client. The alias abends with abend code ARPO.

User Response: Examine the diagnostics to determine the reason for the error.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, program, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0181 *date time applid tranid* **A CICS ONC RPC alias has detected an abend issued by the CICS program program. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: The alias has detected an abend by the CICS program that was servicing the client request.

System Action: An `svcerr_systemerr` call is used to send a reply to the client. The alias abends with abend code ARPO.

User Response: Examine the diagnostics to determine the reason for the error.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, program, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0182 *date time applid tranid* **A CICS ONC RPC alias has detected an abend issued in the Encode function of the converter program. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: The alias has detected an abend by the converter **Encode** function.

System Action: An `svcerr_systemerr` call is used to send a reply to the client. The alias abends with abend code ARPO.

User Response: Examine the diagnostics to determine the reason for the error.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, program, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0183 *date time applid tranid* **A CICS ONC RPC alias has detected an abend. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: The alias has detected an abend.

System Action: An `svcerr_systemerr` call is used to send a reply to the client. The alias abends with abend code ARPO.

User Response: Examine the diagnostics to determine the reason for the error.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0184 *date time applid tranid* **A CICS ONC RPC alias has found that the resource checker has rejected this client request. Response:** *response* **Reason:** *reason. Client IP address:* *clientaddr* **Host IP address:** *hostaddr* **Program:** *X'prognum'* **Version:** *X'versnum'* **Procedure:** *X'procnum'* **Protocol:** *protocol* **Port:** *port* **Socket:** *socket.*

Explanation: The resource checker has returned the response *response* and reason *reason*. This client request is not authorized to continue.

System Action: An `svcerr_auth` call with a why-value of AUTH_TOOWEAK is used to send a reply to the client. The alias abends with abend code ARPL.

User Response: If you suspect an error in the resource checker, use the response and reason codes to debug it.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, response, reason, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0185 *date time applid tranid* **A CICS ONC RPC alias has detected an error in the resource checker. Response:** *response* **Reason:** *reason. Client IP address:* *clientaddr* **Host IP address:** *hostaddr* **Program:** *X'prognum'* **Version:** *X'versnum'* **Procedure:** *X'procnum'* **Protocol:** *protocol* **Port:** *port* **Socket:** *socket.*

Explanation: The resource checker has returned the response *response* and reason *reason*. This client request is not authorized to continue.

System Action: An `svcerr_systemerr` call is used to send a reply to the client. The alias abends with abend code ARPM.

User Response: If you suspect an error in the resource checker, use the response and reason codes to debug it.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, response, reason, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0186 *date time applid tranid* **A CICS ONC RPC alias has detected an error in the resource checker program. Response:** *response* **Reason:** *reason. Client IP address:* *clientaddr* **Host IP address:** *hostaddr* **Program:** *X'prognum'* **Version:** *X'versnum'* **Procedure:** *X'procnum'* **Protocol:** *protocol* **Port:** *port* **Socket:** *socket.*

Explanation: The resource checker has returned the response *response* and reason *reason*. This client request is not authorized to continue.

System Action: An `svcerr_systemerr` call is used to send a reply to the client. The alias abends with abend code ARPM.

User Response: If you suspect an error in the resource checker, use the response and reason codes to debug it.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, response, reason, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0187 *date time applid tranid* **A CICS ONC RPC alias detected an error in the resource checker. Response:** *response* **Reason:** *reason*. **Client IP address:** *clientaddr* **Host IP address:** *hostaddr* **Program:** *X'prognum'* **Version:** *X'versnum'* **Procedure:** *X'procnum'* **Protocol:** *protocol* **Port:** *port* **Socket:** *socket*.

Explanation: The resource checker has returned the response *response* and reason *reason*. This client request is not authorized to continue.

System Action: An `svcerr_systemerr` call is used to send a reply to the client. The alias abends with abend code ARPM.

User Response: If you suspect an error in the resource checker, use the response and reason codes to debug it.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, response, reason, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0188 *date time applid tranid* **A CICS ONC RPC alias has detected an error in the resource checker. Response:** *response* **Reason:** *reason*. **Client IP address:** *clientaddr* **Host IP address:** *hostaddr* **Program:** *X'prognum'* **Version:** *X'versnum'* **Procedure:** *X'procnum'* **Protocol:** *protocol* **Port:** *port* **Socket:** *socket*.

Explanation: The resource checker has returned the response *response* and reason *reason*. This client request is not authorized to continue.

System Action: An `svcerr_systemerr` call is used to send a reply to the client. A system dump is taken. The alias abends with code abend ARPM. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: If you suspect an error in the resource checker, use the response and reason codes to debug it.

Destination: CRPO

Module: DFHRPAS

XMEOUT Parameters: *date, time, applid, tranid, response, reason, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0501 *date time applid tranid* **CICS ONC RPC normal disable processing has started. Host IP address:** *hostaddr*.

Explanation: The server controller has started normal disable processing following a request by a connection manager user.

System Action: Processing continues.

User Response: None.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid, hostaddr*

DFHRP0502 *date time applid tranid* **CICS ONC RPC immediate disable processing has started. Host IP address: *hostaddr*.**

Explanation: The server controller has started immediate disable processing following a request by a connection manager user.

System Action: Processing continues.

User Response: None.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid, hostaddr*

DFHRP0503 *date time applid tranid* **CICS ONC RPC disable processing is complete.**

Explanation: The server controller has completed the disable processing.

System Action: Processing continues.

User Response: None.

Destination: Console and Transient Data Queue CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP0508 *date time applid tranid* **The CICS ONC RPC task related user exit (DFHRPTRU) has been disabled before the server controller could start.**

Explanation: DFHRPTRU is enabled by the connection manager during enable processing. but DFHRPTRU was found to be disabled when the server controller started. This is probably caused by an operator manually disabling DFHRPTRU.

System Action: The server controller abends with abend code ARP2. CICS ONC RPC remains disabled. A system dump is taken. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: Reenable CICS ONC RPC. Consider taking steps to avoid future manual interference with the TRUE.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP0509 *date time applid tranid* **CICS ONC RPC has received an incorrect response on a call made to CICS during server controller startup.**

Explanation: CICS ONC RPC has received a response indicating an error in CICS.

System Action: The server controller abends with abend code ARP2. CICS ONC RPC remains disabled. A system dump is taken. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: See the associated CICS message or messages for problem diagnosis.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP0510 *date time applid tranid* **The CICS ONC RPC task related user exit (DFHRPTRU) has been deleted or disabled before the server controller could start.**

Explanation: DFHRPTRU is enabled by the connection manager during enable processing, but the server controller received an indication that:

- DFHRPTRU is not defined to CICS, or
- it has no load module, or
- the load module is disabled.

This is probably caused by operator intervention.

System Action: The server controller abends with abend code ARPQ. A system dump is taken.

User Response: Reenable CICS ONC RPC. Consider taking steps to prevent future operator interference.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP0513 *date time applid tranid* **The CICS ONC RPC server controller could not link to the converter *converter_program_name*. EIBRESP2: *resp2val*. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: The server controller used EXEC CICS LINK for converter *converter_program_name* to perform **Decode**, but received a PGMIDERR response.

System Action: An **svcerr_systemerr** call is used to send a reply to the client.

User Response: If the converter name is wrong, use the connection manager to unregister and reregister the 4-tuple with the correct converter name.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid, converter_program_name, resp2val, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0516 *date time applid tranid* **The CICS ONC RPC server controller obtained data length information from the Decode function of converter *converter_program_name* that gives a communication area length that is too great. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: The communication area length calculated from the **decode_server_data_format**, **decode_server_input_data_len**, and **decode_server_output_data_len** parameters exceeds the permitted maximum. See Chapter 5, "Guide to programming with CICS ONC RPC" on page 53 for more information about the **Decode** function and its parameters.

System Action: An **svcerr_systemerr** call is used to send a reply to the client.

User Response: Correct and replace the erroneous converter.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid, converter_program_name, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0517 *date time applid tranid* **The CICS ONC RPC server controller does not have resource-level security authorization to start alias transaction *alias-tranid*.**
Client IP address: *clientaddr* **Host IP address:** *hostaddr* **Program:** *X'prognum'*
Version: *X'versnum'* **Procedure:** *X'procnum'* **Protocol:** *protocol* **Port:** *port*
Socket: *socket*.

Explanation: The server controller cannot start the alias because it does not have the necessary resource-level security authorization.

System Action: An **svcerr_auth** call with a why-value of AUTH_TOOWEAK is used to send a reply to the client.

User Response: You should specify only the alias transaction IDs that server controller has resource-level security authorization to start. When CICS ONC RPC is next disabled, redefine the server controller transaction with RESSEC=NO.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid, alias-tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0518 *date time applid tranid* **CICS ONC RPC cannot process a client request because the associated terminal ID *alias_termid* is not in the terminal control table.**
Client IP address: *clientaddr* **Host IP address:** *hostaddr*
Program: *X'prognum'* **Version:** *X'versnum'* **Procedure:** *X'procnum'* **Protocol:** *protocol* **Port:** *port* **Socket:** *socket*.

Explanation: A client request has arrived, and the corresponding 4-tuple refers to a terminal ID that is not in the terminal control table.

System Action: An **svcerr_systemerr** call is used to send a reply to the client.

User Response: Either define the missing terminal, or change the 4-tuple definition to refer to a terminal ID that is in the terminal control table.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid, alias_termid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0520 *date time applid tranid* **A CICS ONC RPC internal error has occurred while the server controller was polling for client work. Host IP address:** *hostaddr*.

Explanation: This is an internal error.

System Action: CICS ONC RPC enters exception disable processing.

User Response: If message DFHRP0002 was issued to the console, the explanation of that message might contain more information. You may need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid, hostaddr*

DFHRP0521 *date time applid tranid* **The CICS ONC RPC server controller detected an internal error while accessing an internal table. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket***

Explanation: An internal error has occurred in the server controller while it was accessing an internal table.

System Action: Processing continues.

User Response: None.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0522 *date time applid tranid* **The CICS ONC RPC server controller detected an internal error while accessing an internal table. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket***

Explanation: An internal error has occurred in the server controller while accessing an internal table.

System Action: Processing continues.

User Response: None.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0528 *date time applid tranid* **The CICS ONC RPC server controller detected an initialization error.**

Explanation: This is an internal error.

System Action: A system dump is taken. The server controller abends with abend code ARP2. CICS ONC RPC remains disabled. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP0540 *date time applid* **The CICS ONC RPC server controller received an error response from TCP/IP for MVS after an *svc_freeargs* call issued for XDR routine: *xdrname* Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'progname'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: The server controller cannot free storage allocated by the inbound XDR routine. An *svc_freeargs* returned an error response. This may be because the client associated with the call has timed out and the storage has already been freed by TCP/IP for MVS.

System Action: The server controller continues to process this client request. If the message is not a result of client time-out, MVS storage associated with the request will not be freed; if errors of this kind occur frequently, they may lead to storage problems.

User Response: Examine the diagnostics to determine the reason for the error. If a user-written XDR routine is being used, there may be an error in the code associated with the FREE function. If message DFHRP0002 was issued to the console, the explanation of that message might contain more information.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, xdrname, clientaddr, hostaddr, X'progname', X'versnum', X'procnum', protocol, port, socket*

DFHRP0545 *date time applid tranid* **The CICS ONC RPC server controller is unable to send an error reply to the client due to an error in reply processing. The transport handle was invalid or not found. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: The server controller cannot send an error reply to the client because the transport handle is not valid.

System Action: The client request is abandoned, and no reply is sent to the client.

User Response: Examine the diagnostics to determine the reason for the error. If message DFHRP0002 was issued to the console, the explanation of that message might contain more information. You may need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the *CICS/ESA Problem Determination Guide* for guidance on how to proceed.

Destination: CRPO

Module: DFHRPM

XMEOUT Parameters: *date, time, applid, tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0546 *date time applid tranid* **The CICS ONC RPC server controller is unable to send an error reply to the client because CICS ONC RPC is disabling. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: The server controller cannot send an error reply to the client. CICS ONC RPC is disabling.

System Action: The client request is abandoned, and no reply is sent to the client.

User Response: Examine the diagnostics to determine the reason for the disable request.

Destination: CRPO

Module: DFHRPM

XMEOUT Parameters: *date, time, applid, tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0547 *date time applid tranid* **The CICS ONC RPC server controller is unable to send an error reply to the client. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: The server controller cannot send a reply to the client, because it received an error response from the RPC caller.

System Action: The client request is abandoned, and no reply is sent to the client. The server controller attempts to deal with requests from other clients, but may experience further RPC caller errors.

User Response: Examine the exception trace to determine the reason for the error. If message DFHRP0002 was issued to the console, the explanation of that message might contain more information. You may need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the *CICS/ESA Problem Determination Guide* for guidance on how to proceed.

Destination: CRPO

Module: DFHRPM

XMEOUT Parameters: *date, time, applid, tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0548 *date time applid tranid* **The CICS ONC RPC server controller sent an error reply to the client but cannot free storage associated with the client call. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: The server controller sent an error reply to the client. After this reply was sent, the server controller received an error response when attempting to free storage associated with the client call.

System Action: Processing continues as if the error had not occurred.

User Response: Examine the diagnostics to determine the reason for the error. You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the *CICS/ESA Problem Determination Guide* for guidance on how to proceed.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0559 *date time applid tranid* **The CICS ONC RPC server controller has encountered an internal error while trying to disable its task related user exit.**

Explanation: An attempt to disable the task-related user exit during disable processing has failed because of an internal error.

System Action: A system dump is taken. Disable processing continues. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the *CICS/ESA Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP0570 *date time applid tranid* **The CICS ONC RPC server controller found that the RP task control block is not available. Host IP address: *hostaddr*.**

Explanation: The RP TCB is not available.

System Action: A system dump is taken. The server controller abends with abend code ARP2. CICS ONC RPC is disabled. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid, hostaddr*

DFHRP0574 *date time applid tranid* **The CICS ONC RPC server controller has encountered an internal error while waiting for work. Host IP address: *hostaddr*.**

Explanation: CICS ONC RPC is unable to continue because of an internal error in the server controller.

System Action: In some circumstances, a system dump is taken. CICS ONC RPC is disabled. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid, hostaddr*

DFHRP0589 *date time applid tranid* **The CICS ONC RPC server controller cannot enable CICS ONC RPC because it is not defined with the authority to access the task-related user exit.**

Explanation: The server controller cannot access the task-related user exit. This error can arise only if the supplied definitions for the server controller have been changed.

System Action: The server controller abends with abend code ARP2. CICS ONC RPC remains disabled.

User Response: Ensure that the supplied definitions for the server controller are used, and reenables CICS ONC RPC.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP0590 *date time applid tranid* **The CICS ONC RPC server controller has received an unexpected response on a call to CICS during CICS ONC RPC enable processing.**

Explanation: CICS ONC RPC enable processing cannot continue because of an error in CICS.

System Action: A system dump is taken. The server controller abends with abend code ARP2. CICS ONC RPC remains disabled. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP0591 *date time applid tranid* **CICS ONC RPC could not be enabled because of an internal error in the server controller.**

Explanation: The server controller cannot start because of an internal error.

System Action: A system dump is taken. The server controller abends with abend code ARP2. CICS ONC RPC remains disabled. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP0592 *date time applid tranid* **The CICS ONC RPC server controller detected an error while polling for client work. Host IP address: *hostaddr*.**

Explanation: The server controller cannot continue because of an internal error.

System Action: CICS ONC RPC is disabled.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid, hostaddr*

DFHRP0618 *date time applid tranid* **The CICS ONC RPC server controller cannot link to remote converter *converter_program_name*. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: The server controller used EXEC CICS LINK to access the converter for Decode processing, but got an error response that indicated that the converter was defined as remote. Data pointers are passed to and from the converter, and the referenced data can only be used if the converter runs in the local CICS region.

System Action: A system dump is taken. An **svcerr_systemerr** call is used to send a reply to the client. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: Install and define the converter program in the same CICS region as CICS ONC RPC.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid, converter_program_name, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0620 *date time applid tranid* **The CICS ONC RPC server controller received an unexpected response from CICS when attempting to access converter *converter_program_name*. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: A client request has failed because of an error in CICS.

System Action: A system dump is taken. An **svcerr_systemerr** call is used to send a reply to the client. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: See the associated diagnostics issued by CICS for problem determination.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid, converter_program_name, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0621 *date time applid tranid* **The CICS ONC RPC server controller is not authorized to link to converter *converter_program_name*. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: The server controller cannot access the converter. This error can arise only if the supplied definitions for the server controller have been changed.

System Action: A system dump is taken. An **svcerr_systemerr** call is used to send a reply to the client. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: Ensure that the supplied definitions for the server controller are used, and reenable CICS ONC RPC.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid, converter_program_name, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0625 *date time applid tranid* **The CICS ONC RPC server controller encountered an error during Decode processing in converter *converter_program_name*. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: **Decode** returned an unexpected response.

System Action: An **svcerr_systemerr** call is used to send a reply to the client.

User Response: Correct and replace the converter program in question.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid, converter_program_name, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0626 *date time applid tranid* **The CICS ONC RPC server controller encountered an error during Decode processing in converter *converter_program_name*.**
Client IP address: *clientaddr* **Host IP address:** *hostaddr* **Program:** *X'prognum'*
Version: *X'versnum'* **Procedure:** *X'procnum'* **Protocol:** *protocol* **Port:** *port*
Socket: *socket*.

Explanation: **Decode** returned URP_EXCEPTION with a reason of URP_CORRUPT_CLIENT_DATA.

System Action: An **svcerr_decode** call is used to send a reply to the client.

User Response: Compare the client program and the converter program and change one or the other to make the data formats consistent.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid, converter_program_name, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0628 *date time applid tranid* **The CICS ONC RPC server controller encountered an error during Decode processing in converter *converter_program_name*.**
Client IP address: *clientaddr* **Host IP address:** *hostaddr* **Program:** *X'prognum'*
Version: *X'versnum'* **Procedure:** *X'procnum'* **Protocol:** *protocol* **Port:** *port*
Socket: *socket*.

Explanation: **Decode** returned URP_EXCEPTION with a reason of URP_AUTH_BADCRED.

System Action: An **svcerr_auth** call with a why-value of AUTH_BADCRED is used to send a reply to the client.

User Response: If the client should be authorized to make this request, compare the client program and the converter, and change one or the other so that authentication requirements match.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid, converter_program_name, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0629 *date time applid tranid* **The CICS ONC RPC server controller encountered an error during Decode processing in converter *converter_program_name*.**
Client IP address: *clientaddr* **Host IP address:** *hostaddr* **Program:** *X'prognum'*
Version: *X'versnum'* **Procedure:** *X'procnum'* **Protocol:** *protocol* **Port:** *port*
Socket: *socket*.

Explanation: **Decode** returned URP_EXCEPTION with a reason of URP_AUTH_TOOWEAK.

System Action: An **svcerr_auth** call with a why-value of AUTH_TOOWEAK is used to send a reply to the client.

User Response: If the client should be authorized to make this request. compare the client program and the converter, and change one or the other so that authentication requirements match.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid, converter_program_name, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0631 *date time applid tranid* **The CICS ONC RPC server controller encountered an error in Decode processing in converter *converter_program_name*. The response was URP_EXCEPTION, but the reason *decode_reason* was not recognized. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: Decode returned URP_EXCEPTION with an unrecognized reason code.

System Action: An `svcerr_systemerr` call is used to send a reply to the client.

User Response: If the reason code returned has a user-defined meaning act accordingly. If the reason code does not have a user-defined meaning, fix the problem with the converter and replace it.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid, converter_program_name, decode_reason, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0632 *date time applid tranid* **The CICS ONC RPC server controller encountered an error during Decode processing in converter *converter_program_name*. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: Decode returned URP_INVALID.

System Action: An `svcerr_systemerr` call is used to send a reply to the client.

User Response: The Decode parameter area will have been traced. If the values passed were correct, and the error is in the converter, correct and replace the converter. If the values passed were incorrect, you need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid, converter_program_name, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0635 *date time applid tranid* **The CICS ONC RPC server controller encountered an error during Decode processing in converter *converter_program_name*. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: Decode returned URP_DISASTER.

System Action: An `svcerr_systemerr` call is used to send a reply to the client.

User Response: Correct and replace the converter.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid, converter_program_name, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0663 *date time applid tranid* **The CICS ONC RPC server controller could not start alias transaction *alias_tranid*. Host IP address: *hostaddr* Program: *prognum* Version: *versnum* Protocol: *protocol* Port: *port* Socket: *socket* Client IP address: *clientaddr***

Explanation: An internal error has prevented the server controller from starting the alias transaction.

System Action: An **svcerr_systemerr** call is used to send a reply to the client.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid, alias_tranid, hostaddr, prognum, versnum, protocol, port, socket, clientaddr*

DFHRP0686 *date time applid tranid* **The CICS ONC RPC server controller encountered an internal error while attempting to start an alias transaction. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: An internal error has prevented the server controller from starting an alias transaction.

System Action: A system dump is taken. An **svcerr_systemerr** call is used to send a reply to the client. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0687 *date time applid tranid* **The CICS ONC RPC server controller could not start alias transaction *alias_tranid* because the CICS default temporary storage data set is full. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: The server controller cannot start the alias transaction because temporary storage is not available.

System Action: A system dump is taken. An **svcerr_systemerr** call is used to send a reply to the client. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: Determine why the CICS default temporary storage data set is full. Enlarge the data set, or alter your CICS load to free space on it.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid, alias_tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0688 *date time applid tranid* **The CICS ONC RPC server controller detected an error while starting alias transaction *alias_tranid*. The error indicated that the transaction is remote. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: The alias transaction is defined as remote, but aliases must run in the same CICS region as CICS ONC RPC.

System Action: A system dump is taken. An **svcerr_systemerr** call is used to send a reply to the client. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: Define the alias as a local transaction.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid, alias_tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0689 *date time applid tranid* **The CICS ONC RPC server controller tried to start alias transaction *alias-tranid*, but the surrogate user security check failed. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: An attempt by a user ID to access an alias transaction failed because of a security check. This may not be an error as you may wish to prevent the client involved from accessing the alias transaction.

System Action: An **svcerr_auth** call with a why-value of AUTH_TOOWEAK is used to send a reply to the client.

User Response: If you wish the user ID to access the alias, reenable CICS ONC RPC with a different value for CRPM Userid, or alter your surrogate user ID tables.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid, alias-tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0690 *date time applid tranid* **The CICS ONC RPC server controller received an unexpected response from CICS while starting alias transaction *alias-tranid*. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: A client request has failed because of an error in CICS.

System Action: A system dump is taken. An **svcerr_systemerr** call is used to send a reply to the client. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: See the associated diagnostics issued by CICS for problem determination.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid, alias-tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0691 *date time applid tranid* **The CICS ONC RPC server controller found that the user ID attempting to access alias transaction *alias-tranid* is not known to the external security manager. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: The server controller could not start the alias with the user ID because the user ID is not known to the external security manager.

System Action: An **svcerr_auth** call with a why-value of AUTH_TOOWEAK is used to send a reply to the client.

User Response: If you wish the alias to run under this user ID, define the userid to the external security manager, and change your surrogate user ID tables.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid, alias-tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0692 *date time applid tranid* **The CICS ONC RPC server controller found that the external security manager cannot validate the user ID for alias transaction *alias-tranid*. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: An attempt to start the alias with an alias user ID failed as the external security manager cannot determine whether the user ID is valid.

System Action: An **svcerr_systemerr** call is used to send a reply to the client.

User Response: Determine the reason why the external security manager was unable to perform the request.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid, alias-tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0694 *date time applid tranid* **The CICS ONC RPC server controller could not start alias transaction *alias_tranid* because it is not defined. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: The alias transaction *alias_tranid* is missing or is not correctly defined.

System Action: An **svcerr_systemerr** call is used to send a reply to the client.

User Response: Define the alias transaction correctly, or change the definitions of the 4-tuples that refer to it.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid, alias_tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0697 *date time applid tranid* **The CICS ONC RPC server controller has started exception disable of CICS ONC RPC. Host IP address: *hostaddr*.**

Explanation: The server controller has started an exception disable of CICS ONC RPC following an error during its operation. The error has already been reported.

System Action: Disable processing continues.

User Response: See the associated diagnostics for further information about the error.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid, hostaddr*

DFHRP0723 *date time applid tranid* **The CICS ONC RPC server controller has detected an error when attempting to shut down the RPC caller.**

Explanation: During CICS ONC RPC disable processing, the server controller shuts down the RPC Caller, but received an error response.

System Action: Disable processing continues.

User Response: If message DFHRP0002 was issued to the console, the explanation of that message might contain more information. If the problem is not a symptom of a wider problem, you need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP0724 *date time applid tranid* **The CICS ONC RPC server controller has detected an error when attempting to issue a FREEMAIN for the RPC caller program.**

Explanation: During CICS ONC RPC disable processing, the server controller issues a FREEMAIN for the RPC caller program to remove it from storage, but received an error response. This could either be as a result of problems with CICS which will probably be reflected in CICS diagnostics, or as a result of problems with CICS ONC RPC, which will probably be reflected in other CICS ONC RPC diagnostics.

System Action: Disable processing continues.

User Response: It might not be possible to reenable CICS ONC RPC without restarting CICS. If the problem is not a symptom of a wider problem, you need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP0725 *date time applid tranid* **The CICS ONC RPC server controller has detected an error when attempting to issue a RELEASE for the alias list program.**

Explanation: During CICS ONC RPC disable processing, the server controller releases the alias list program, but received an error response.

System Action: Disable processing continues.

User Response: It might not be possible to reenable CICS ONC RPC without restarting CICS. If this error is not associated with others, you need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP0726 *date time applid tranid* **During disable processing, the CICS ONC RPC server controller found that the task-related user exit was already disabled.**

Explanation: During disable processing, the server controller found that the task-related user exit was already disabled or that it has not been defined as an exit. This is probably the result of operator intervention.

System Action: Disable processing continues.

User Response: Take steps to prevent operator interference with the task-related user exit.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP0727 *date time applid tranid* **During disable processing, the CICS ONC RPC server controller found that the task-related user exit is in use by another task.**

Explanation: During disable processing, the server controller found that the task-related user exit is currently invoked by another task. This may be a temporary condition, or it may be that the task related user exit has already been disabled.

System Action: Disable processing continues.

User Response: Investigate whether the operator has disabled the task related user exit DFHRPTRU for any reason.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP0728 *date time applid tranid* **The CICS ONC RPC server controller received an unexpected response from CICS while disabling the task-related user exit.**

Explanation: An error occurred in CICS when the server controller tried to disable the task-related user exit during CICS ONC RPC disable processing.

System Action: A system dump is taken. Disable processing continues. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: See the associated diagnostics issued by CICS for problem determination.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP0729 *date time applid tranid* **The CICS ONC RPC server controller has detected an internal error during disable processing.**

Explanation: CICS ONC RPC has detected an internal error during disable processing.

System Action: Disable processing continues.

User Response: If the problem is not a symptom of a wider problem, you need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP0730 *date time applid tranid* **The CICS ONC RPC server controller does not have authorization to access the task-related user exit.**

Explanation: During disable processing, the server controller found that it did not have the authorization to access the task-related user exit. This problem arises if the supplied definitions of the server controller are changed. Changes to these definitions are not allowed.

System Action: Disable processing continues.

User Response: Ensure that the supplied definitions for the server controller are used, and reenable CICS ONC RPC.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP0731 *date time applid tranid* **The CICS ONC RPC server controller has detected an internal error during disable processing.**

Explanation: CICS ONC RPC has detected an internal error during disable processing.

System Action: Disable processing continues.

User Response: If the problem is not a symptom of a wider problem, you need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP0732 *date time applid tranid* **The CICS ONC RPC server controller has detected an internal error during disable processing.**

Explanation: During disable processing, the server controller attempted to unregister for problem determination, but received an error response.

System Action: Disable processing continues.

User Response: If the problem is not a symptom of a wider problem, you need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP0735 *date time applid tranid* **The CICS ONC RPC server controller HANDLE ABEND code was entered as a result of an error in the Decode function in converter *converter_program_name*. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: An error has occurred in **Decode** in converter *converter_program_name*. Because the converter does not contain HANDLE ABEND logic, the error has percolated to the server controller.

System Action: An **svcerr_systemerr** call is used to send a reply to the client.

User Response: Correct the error in the converter. Add handle abend logic to the converter so that it can handle its own errors, and replace it.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid, converter_program_name, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0736 *date time applid tranid* **The CICS ONC RPC server controller has encountered an internal error while processing a client request. Client IP address: *clientaddr* Host IP address: *hostaddr* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol* Port: *port* Socket: *socket*.**

Explanation: An internal error has forced CICS ONC RPC to abandon a client request.

System Action: A system dump is taken. An **svcerr_systemerr** call is used to send a reply to the client. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid, clientaddr, hostaddr, X'prognum', X'versnum', X'procnum', protocol, port, socket*

DFHRP0737 *date time applid tranid* **The CICS ONC RPC server controller has encountered an internal error. Host IP address: *hostaddr*.**

Explanation: The server controller has encountered an internal error and cannot continue.

System Action: A system dump is taken. CICS ONC RPC is disabled. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid, hostaddr*

DFHRP0741 *date time applid tranid* **The CICS ONC RPC server controller is abending with abend code ARP4.**

Explanation: The server controller encountered an error and cannot continue.

System Action: CICS ONC RPC is disabled. CICS ONC RPC has already issued other diagnostics giving further information about the error. The server controller abends with abend code ARP4.

User Response: See the associated diagnostics and the description of abend code ARP4 for further guidance.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP0746 *date time applid tranid* **The CICS ONC RPC server controller is abending with abend code ARP2.**

Explanation: The server controller encountered an error and cannot continue.

System Action: The server controller abends with abend code ARP2. CICS ONC RPC is disabled.

User Response: See the associated diagnostics and the description of abend code ARP2 for further guidance.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP0747 *date time applid tranid* **The CICS ONC RPC server controller is abending with abend code ARP2.**

Explanation: The server controller has encountered an error and cannot continue.

System Action: The server controller abends with abend code ARP2. CICS ONC RPC is disabled.

User Response: See the associated diagnostics and the description of abend code ARP2 for further guidance.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP0749 *date time applid tranid* **The CICS ONC RPC server controller has encountered an internal error when no client request was being processed. Host IP address: *hostaddr*.**

Explanation: An internal error has occurred in the server controller. No client requests are affected.

System Action: A system dump is taken. The server controller continues. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPMS

XMEOUT Parameters: *date, time, applid, tranid, hostaddr*

DFHRP1000 *date time applid* **The CICS ONC RPC RPC caller is initializing.**

Explanation: The server controller has started initialization of the RPC caller.

System Action: Processing continues.

User Response: None.

Destination: CRPO

Module: DFHRPRP

XMEOUT Parameters: *date, time, applid*

DFHRP1001 *date time applid* **The CICS ONC RPC RPC caller has been initialized successfully.**

Explanation: The RPC caller has been initialized, and it is now ready for use.

System Action: Processing continues.

User Response: None.

Destination: CRPO

Module: DFHRPRP

XMEOUT Parameters: *date, time, applid*

DFHRP1002 *date time applid* **The CICS ONC RPC RPC caller is shutting down.**

Explanation: Termination of the RPC caller has started.

System Action: Processing continues.

User Response: None.

Destination: CRPO

Module: DFHRPRP

XMEOUT Parameters: *date, time, applid*

DFHRP1003 *date time applid* **The CICS ONC RPC RPC caller has successfully shutdown.**

Explanation: Termination of the RPC caller has completed.

System Action: Processing continues.

User Response: None.

Destination: CRPO

Module: DFHRPRP

XMEOUT Parameters: *date, time, applid*

DFHRP1500 *date time applid tranid* **Invalid data has been entered in field *fieldname*.**

Explanation: Invalid data was entered on a connection manager panel in field *fieldname*.

System Action: The panel is redisplayed and the field in error is highlighted.

User Response: Enter valid data in the field indicated. See the *CICS for MVS/ESA ONC RPC Guide* for further guidance.

Destination: Terminal End User

Modules: DFHRPC06, DFHRPC10, DFHRPC0A, DFHRPC1B

DFHRP1501 *date time applid tranid* **The value entered in field *fieldname* exceeds the maximum allowed.**

Explanation: The value entered on a connection manager panel in field *fieldname* exceeds the maximum allowed.

System Action: The panel is redisplayed and the field in error is highlighted.

User Response: Enter valid data in the field indicated. See the *CICS for MVS/ESA ONC RPC Guide* for further guidance.

Destination: Terminal End User

Module: DFHRPC0B

DFHRP1505 *date time applid tranid* **The CICS ONC RPC connection manager has not been started correctly.**

Explanation: The connection manager has been started from a non-BMS terminal but is not being used to enable or disable CICS ONC RPC.

System Action: The connection manager terminates.

User Response: The connection manager can be used as follows from a non-BMS terminal:

- If CICS ONC RPC is disabled, the connection manager can be used for automatic enable, either by setting automatic enable to YES on the CICS ONC RPC data set or by entering a fast path command with YES for automatic enable.
- If CICS ONC RPC is enabled, the connection manager can be used for disable by entering a valid disable fast path command.

See the *CICS for MVS/ESA ONC RPC Guide* for guidance on how to start the connection manager.

Destination: CRPO

Module: DFHRPC01

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1506 *date time applid tranid* **The CICS ONC RPC connection manager detected an error attempting to retrieve any fast path data. EIBRESP: *eibresp*.**

Explanation: The connection manager was attempting to retrieve any fast path commands that may have been specified when it was initiated. The connection manager issued an EXEC CICS GETMAIN command, but received the response *eibresp*.

System Action: A system dump is taken. The connection manager continues but any fast path commands are ignored. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the *CICS/ESA Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC01

XMEOUT Parameters: *date, time, applid, tranid, eibresp*

DFHRP1507 *date time applid tranid* **An invalid CICS ONC RPC fast path command has been entered:** *fastpath_command*

Explanation: The connection manager was started by entering a fast path command, but the format of the command was invalid.

System Action: The connection manager is started, but fast path commands are ignored.

User Response: Enter a valid fast path command. See the *CICS for MVS/ESA ONC RPC Guide* for further guidance.

Destination: CRPO

Module: DFHRPC01

XMEOUT Parameters: *date, time, applid, tranid, fastpath_command*

DFHRP1508 *date time applid tranid* **The CICS ONC RPC connection manager has not been started correctly.**

Explanation: The connection manager was attempting to retrieve any fast path commands that may have been specified when it was initiated, but detected an invalid STARTCODE indicator.

System Action: The connection manager continues but any fast path commands are ignored.

User Response: See the *CICS for MVS/ESA ONC RPC Guide* for guidance on how to start the connection manager. If the connection manager was started correctly, you need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the *CICS/ESA Problem Determination Guide* for guidance on how to proceed.

Destination: CRPO

Module: DFHRPC01

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1509 *date time applid tranid* **The CICS ONC RPC connection manager detected an error attempting to retrieve any fast path data. EIBRESP:** *eibresp*.

Explanation: The connection manager was attempting to retrieve any fast path commands that may have been specified when it was initiated using an EXEC CICS START command. The connection manager issued an EXEC CICS RETRIEVE command, but received the response *eibresp*.

System Action: A system dump is taken. The connection manager continues but any fast path commands are ignored. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the *CICS/ESA Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC01

XMEOUT Parameters: *date, time, applid, tranid, eibresp*

DFHRP1510 *date time applid tranid* **The CICS ONC RPC connection manager detected an error while accessing the CICS ONC RPC data set, CICS file *filename*. EIBRESP: *eibresp*.**

Explanation: The connection manager could not access the CICS ONC RPC data set, CICS file *filename*. An EXEC CICS READ was issued, but received the response *eibresp*. The data set has not been correctly defined to CICS for one of the following reasons:

- No file definition has been found for *filename*. CICS ONC RPC has therefore not been installed correctly.
- READ operations are not allowed on the file.
- The file is DISABLED, either due to an incorrect file definition, or due to operator intervention.
- The file cannot be opened because it has not been defined correctly, or because it has been closed by operator intervention.
- The connection manager transaction, or the user running it, does not have the necessary level of authority to access the file.

System Action: The requested operation is not performed.

User Response: Use Appendix A of the *Application Programming Reference* manual to find out what the EIBRESP value means, and take appropriate action.

Destination: CRPO

Module: DFHRPC09

XMEOUT Parameters: *date, time, applid, tranid, filename, eibresp*

DFHRP1511 *date time applid tranid* **The CICS ONC RPC connection manager has detected a logic error accessing the CICS ONC RPC data set, CICS file *filename*.**

Explanation: The connection manager received an unexpected error when accessing the CICS ONC RPC data set, CICS file *filename*. This is a logic error. The connection manager has received an unexpected response from CICS following an EXEC CICS command.

System Action: A system dump is taken. The requested operation is not performed. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the *CICS/ESA Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC09

XMEOUT Parameters: *date, time, applid, tranid, filename*

DFHRP1512 *date time applid tranid* **The CICS ONC RPC connection manager cannot access the CICS ONC RPC data set, CICS file *filename*.**

Explanation: The connection manager could not access the CICS ONC RPC data set, CICS file *filename*. The data set has not been correctly defined to CICS for one of the following reasons:

- No file definition has been found for *filename*. CICS ONC RPC has therefore not been installed correctly.
- READ operations are not allowed on the file.
- The file has been disabled, either due to an incorrect data set definition, or due to operator intervention.

- The file cannot be opened because it has not been defined correctly, or because it has been closed by operator intervention.
- The connection manager transaction, or the user running the connection manager, does not have the necessary level of authority to access the file.

System Action: The message is displayed at the terminal.

User Response: Ensure that all the CEDA groups for CICS ONC RPC have been installed correctly.

Investigate whether the operator has changed the status of the file for any reason.

Destination: CRPO

Module: DFHRPC01

XMEOUT Parameters: *date, time, applid, tranid, filename*

DFHRP1513 *date time applid tranid* **The CICS ONC RPC connection manager has detected invalid data in the definition record of the CICS ONC RPC data set, CICS file *filename*.**

Explanation: The connection manager detected an error in the definition record in the CICS ONC RPC data set.

System Action: A system dump is taken. CICS ONC RPC is disabled. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: Ensure that the first record in the data set has been correctly initialized. You can do this by manually updating the record (see the *CICS for MVS/ESA ONC RPC Guide* for further guidance), or by deleting the first record in the data set, and rerunning the connection manager. This creates a new definition record using the default settings which can then be updated using the connection manager panels.

Destination: CRPO

Module: DFHRPC01

XMEOUT Parameters: *date, time, applid, tranid, filename*

DFHRP1514 *date time applid tranid* **The CICS ONC RPC connection manager has detected that the CICS ONC RPC global work area does not have the expected length.**

Explanation: The connection manager detected that the length of the associated global work area is not correct.

System Action: A system dump is taken. CICS ONC RPC is disabled. It is not possible to enable CICS ONC RPC until the problem is resolved. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: Make sure that no user-written version of program DFHRPTRU is being used. Only the CICS ONC RPC supplied program can be used with CICS ONC RPC. Similarly, the CICS ONC RPC supplied task-related user exit DFHRPTRU should only be enabled and disabled by the connection manager. It should not be necessary to enable or disable DFHRPTRU in any other way.

Destination: CRPO

Module: DFHRPC01

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1515 *date time applid tranid* **The CICS ONC RPC connection manager detected an error while accessing the CICS ONC RPC data set, CICS file *filename*. EIBRESP: *eibresp*.**

Explanation: The connection manager could not access the CICS ONC RPC data set, CICS file *filename*. An EXEC CICS READ was issued, but received the response *eibresp*. The error can occur for one of the following reasons:

- The file is defined as remote, and there is an error on the connection to the owning system.
- VSAM has returned an unexpected response to CICS.
- An I/O error occurred on the READ.

System Action: A system dump is taken. The requested operation is not performed. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: Use Appendix A of the *Application Programming Reference* manual to find out what the EIBRESP value means, and take appropriate action.

Destination: CRPO

Module: DFHRPC09

XMEOUT Parameters: *date, time, applid, tranid, filename, eibresp*

DFHRP1516 *date time applid tranid* **The CICS ONC RPC connection manager cannot access the feature definition record in the CICS ONC RPC data set, CICS file *filename*.**

Explanation: The connection manager found that the CICS ONC RPC definition record is missing from the CICS ONC RPC data set, CICS file *filename*, while processing a request to update this record.

System Action: A system dump is taken. The connection manager panel is redisplayed. The CICS ONC RPC definition record cannot be updated. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: Investigate the reason why this record does not exist. You must create a new CICS ONC RPC definition record with the connection manager.

Destination: CRPO

Module: DFHRPC09

XMEOUT Parameters: *date, time, applid, tranid, filename*

DFHRP1518 *date time applid tranid* **The CICS ONC RPC connection manager cannot find the global work area.**

Explanation: The connection manager cannot access its global work area.

System Action: A system dump is taken. The connection manager continues, but CICS ONC RPC cannot be enabled. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: End the connection manager. Ensure that all the CEDA groups containing the CICS ONC RPC definitions have been correctly installed. Then try running the connection manager again.

Investigate whether the operator has disabled the task-related user exit DFHRPTRU.

Destination: CRPO

Module: DFHRPC01

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1519 *date time applid tranid* **The CICS ONC RPC connection manager cannot find the task-related user exit.**

Explanation: The connection manager cannot access its task-related user exit for one of the following reasons:

- DFHRPTRU has not been defined to CICS
- DFHRPTRU is not in the CICS load library
- DFHRPTRU has been disabled

System Action: A system dump is taken. CICS ONC RPC is disabled. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: End the connection manager. Ensure that all the CEDA groups containing CICS ONC RPC definitions have been installed correctly. Then try running the connection manager again.

If CICS ONC RPC has been correctly installed, check that the operator has not disabled DFHRPTRU.

Destination: CRPO

Module: DFHRPC01

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1520 *date time applid tranid* **The CICS ONC RPC connection manager is not authorized to access its task related user exit. EIBRESP2: eibresp2.**

Explanation: The connection manager used EXEC CICS EXTRACT EXIT to find the task-related user exit, but got a NOTAUTH response.

System Action: A system dump is taken. CICS ONC RPC is disabled. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: Use the EIBRESP2 value to identify the problem.

Destination: CRPO

Module: DFHRPC01

XMEOUT Parameters: *date, time, applid, tranid, eibresp2*

DFHRP1521 *date time applid tranid* **The CICS ONC RPC connection manager cannot access its task related user exit.**

Explanation: The connection manager cannot access the task related user exit. It received an unexpected response to an EXEC CICS EXTRACT EXIT call.

System Action: A system dump is taken. CICS ONC RPC is disabled. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC01

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1522 *date time applid tranid* **The CICS ONC RPC connection manager has been started against an invalid terminal.**

Explanation: The connection manager has been started against a terminal that is not supported, for example, an LUTYPE6 terminal.

System Action: The connection manager abends with abend code ARPX.

User Response: Start the connection manager against a valid terminal. See the *CICS for MVS/ESA ONC RPC Guide* for further guidance on starting the connection manager.

Destination: CRPO

Module: DFHRPC01

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1523 *date time applid tranid* **CICS ONC RPC cannot be enabled because the connection manager cannot access the task-related user exit DFHRPTRU.**

Explanation: The connection manager could not enable CICS ONC RPC because an error occurred accessing the task related user exit DFHRPTRU.

System Action: A system dump is taken. This instance of connection manager can only be used to inquire on, or update the CICS ONC RPC data set. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response:

See the CRPO transient data queue for messages indicating the nature of the error, and take the appropriate action. Then restart the connection manager transaction and select the enable option again.

Destination: CRPO

Module: DFHRPC01

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1524 *date time applid tranid* **CICS ONC RPC cannot be enabled because the server controller is already running.**

Explanation: The connection manager detected that the task-related user exit DFHRPTRU is disabled, but the server controller transaction is still running.

System Action: A system dump is taken. This instance of connection manager can only be used to inquire on, or update, the CICS ONC RPC data set. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: Investigate why the last attempt to disable CICS ONC RPC did not complete successfully. Investigate the possibility of operator intervention.

Once you have established that it is safe to continue, use CEMT SET TASK or EXEC CICS SET TASK to purge the server controller. Then run the connection manager again to enable CICS ONC RPC.

Destination: CRPO

Module: DFHRPC01

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1525 *date time applid tranid* **The CICS ONC RPC connection manager received an unexpected response from CICS.**

Explanation: The connection manager detected a logic error. It received an unexpected response to a CICS command.

System Action: A system dump is taken. Processing continues. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC01

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1526 *date time applid tranid* **The CICS ONC RPC connection manager found that the task-related user exit is enabled, but the server controller is not running.**

Explanation: The connection manager has detected that the task-related user exit DFHRPTRU is enabled, but the server controller is not running. This means that CICS ONC RPC is in an indeterminate state.

System Action: This instance of connection manager can only be used to inquire on, or update, the CICS ONC RPC data set.

User Response: Investigate whether the previous attempt to disable CICS ONC RPC completed successfully. Alternatively, the server controller task may have been forcepurged by the operator.

Once you have established that it is safe to continue, try running the connection manager again and enabling CICS ONC RPC.

Destination: CRPO

Module: DFHRPC01

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1527 *date time applid tranid* **CICS ONC RPC cannot be enabled because disable processing has not completed.**

Explanation: CICS ONC RPC is being disabled.

System Action: The current instance of CICS ONC RPC is disabled.

User Response: Wait for disable to complete before attempting to enable the CICS ONC RPC again.

Destination: CRPO and Terminal End User

Module: DFHRPC4C

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1528 *date time applid tranid* **The CICS ONC RPC connection manager detected an error while initializing the RPC caller component during CICS ONC RPC enable processing.**

Explanation: The RPC caller could not be started.

System Action: The enable attempt is abandoned.

User Response: If message DFHRP0002 was issued to the console, the explanation of that message might contain more information. You need further assistance from IBM to

resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed.

Destination: CRPO and Terminal End User

Module: DFHRPC4C

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1529 *date time applid tranid* **The CICS ONC RPC connection manager detected an error in enable processing. Host IP address *hostaddr*.**

Explanation: The connection manager discovered a storage problem while trying to enable CICS ONC RPC.

System Action: A system dump is taken. The enable attempt is abandoned. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: See the associated diagnostics issued by CICS for problem determination.

See the *CICS for MVS/ESA Problem Determination Guide* for guidance on dealing with storage problems.

Destination: CRPO and Terminal End User

Module: DFHRPC4C

XMEOUT Parameters: *date, time, applid, tranid, hostaddr*

DFHRP1530 *date time applid tranid* **The CICS ONC RPC connection manager detected a CICS short on storage condition during initialization of the RPC caller component. Host IP address *hostaddr*.**

Explanation: The connection manager detected a short on storage condition.

System Action: The enable attempt is abandoned.

User Response: See the associated diagnostics issued by CICS for problem determination. See the *CICS for MVS/ESA Problem Determination Guide* for guidance on dealing with storage problems.

When the short on storage problem has been resolved, try to enable CICS ONC RPC again.

Destination: CRPO and Terminal End User

Module: DFHRPC4C

XMEOUT Parameters: *date, time, applid, tranid, hostaddr*

DFHRP1531 *date time applid tranid* **The CICS ONC RPC connection manager detected an error while accessing the CICS ONC RPC data set, CICS file *filename*. EIBRESP: *eibresp*.**

Explanation: The connection manager could not access the CICS ONC RPC data set, CICS file *filename*. An EXEC CICS WRITE was issued, but received the response *eibresp*. The error can occur for one of the following reasons:

- No file definition has been found for the file, implying that CICS ONC RPC has not been installed correctly.
- Write operations are not allowed, implying that CICS ONC RPC has not been installed correctly.
- The file is DISABLED, either due to an incorrect file definition, or due to operator intervention.
- The file is NOTOPEN, either due to an incorrect file definition or due to operator intervention.

- Write operations are not authorized, implying that security has not been set up correctly.

System Action: The requested operation is not performed.

User Response: Use Appendix A of the *Application Programming Reference* manual to find out what the EIBRESP value means, and take appropriate action.

Destination: CRPO

Module: DFHRPC09

XMEOUT Parameters: *date, time, applid, tranid, filename, eibresp*

DFHRP1532 *date time applid tranid* **The CICS ONC RPC connection manager detected an error while accessing the CICS ONC RPC data set, CICS file *filename*. EIBRESP: *eibresp*.**

Explanation: The connection manager could not access the CICS ONC RPC data set, CICS file *filename*. An EXEC CICS WRITE was issued, but received the response *eibresp*. The error can occur for one of the following reasons:

- The file is defined as remote, and there is an error on the connection to the owning system.
- VSAM has returned an unexpected response to CICS.
- An I/O error occurred on the WRITE.
- There is insufficient space available on the DASD device containing the data set.

System Action: A system dump is taken. The requested operation is not performed. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: Use Appendix A of the *Application Programming Reference* manual to find out what the EIBRESP value means, and take appropriate action.

Destination: CRPO

Module: DFHRPC09

XMEOUT Parameters: *date, time, applid, tranid, filename, eibresp*

DFHRP1533 *date time applid tranid* **The CICS ONC RPC connection manager has detected a logic error while accessing the CICS ONC RPC data set, CICS file *filename*.**

Explanation: The connection manager used EXEC CICS WRITE to update the CICS ONC RPC data set, but received an unexpected response. This is a logic error.

System Action: A system dump is taken. The requested operation is not performed. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the *CICS/ESA Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC09

XMEOUT Parameters: *date, time, applid, tranid, filename*

DFHRP1534 *date time applid tranid* **The CICS ONC RPC connection manager detected an error while accessing the CICS ONC RPC data set, CICS file *filename*.
EIBRESP: *eibresp*.**

Explanation: The connection manager could not access the CICS ONC RPC data set, CICS file *filename*. An EXEC CICS WRITE was issued, but received the response *eibresp*. The error can occur for one of the following reasons:

- The file is defined as remote, and there is an error on the connection to the owning system.
- VSAM has returned an unexpected response to CICS.
- An I/O error occurred on the WRITE.
- There is insufficient space available on the DASD device containing this file.

System Action: A system dump is taken. The 4-tuple definition is not saved in the data set. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: Use Appendix A of the *Application Programming Reference* manual to find out what the EIBRESP value means, and take appropriate action.

Destination: CRPO

Module: DFHRPC09

XMEOUT Parameters: *date, time, applid, tranid, filename, eibresp*

DFHRP1536 *date time applid tranid* **There was no entry for this 4-tuple in the CICS ONC RPC data set, CICS file *filename*.**

Explanation: The connection manager did not find this 4-tuple in the CICS ONC RPC data set.

System Action: None.

User Response: Enter a 4-tuple that has already been saved in the data set.

Destination: Terminal End User

Module: DFHRPC09

DFHRP1537 *date time applid tranid* **The CICS ONC RPC connection manager detected an internal error while registering 4-tuples from the CICS ONC RPC data set, CICS file *filename*.**

Explanation: The connection manager detected an internal error while processing a request to register 4-tuples from the CICS ONC RPC data set.

System Action: A system dump is taken. No 4-tuples are registered. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the *CICS/ESA Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC09

XMEOUT Parameters: *date, time, applid, tranid, filename*

DFHRP1538 *date time applid tranid* **The CICS ONC RPC connection manager found no records on the CICS ONC RPC data set, CICS file *filename*.**

Explanation: The connection manager was processing a request to register 4-tuples, but found no records on the CICS ONC RPC data set. The CICS ONC RPC definition record is missing.

System Action: A system dump is taken. No 4-tuples are registered. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: Investigate the reason why there are no records. You must use the connection manager to create a new one.

Destination: CRPO

Module: DFHRPC09

XMEOUT Parameters: *date, time, applid, tranid, filename*

DFHRP1539 *date time applid tranid* **The CICS ONC RPC connection manager detected an error while accessing the CICS ONC RPC data set, CICS file *filename*, while registering 4-tuples from the data set. EIBRESP: *eibresp*.**

Explanation: The connection manager could not access the CICS ONC RPC data set.

The error occurred while processing a request to register 4-tuples from the data set. Associated message DFHRP1545 may have been issued to indicate the number of 4-tuples that were registered.

An EXEC CICS STARTBR, EXEC CICS READNEXT, or EXEC CICS ENDBR was issued, but received the response *eibresp*. The error can occur for one of the following reasons:

- No file definition has been found for the file, implying that CICS ONC RPC has not been installed correctly.
- BROWSE or READ operations are not allowed, implying that CICS ONC RPC has not been installed correctly.
- The file is DISABLED, either due to an incorrect file definition, or due to operator intervention.
- The file is NOTOPEN, either due to an incorrect file definition, or due to operator intervention.
- BROWSE or READ operations are not authorized, implying that security has not been set up correctly.

System Action: A system dump is taken. The connection manager cannot register 4-tuples from the data set. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: Use Appendix A of the *Application Programming Reference* manual to find out what the EIBRESP value means, and take appropriate action.

Destination: CRPO

Module: DFHRPC09

XMEOUT Parameters: *date, time, applid, tranid, filename, eibresp*

DFHRP1540 *date time applid tranid* **The CICS ONC RPC connection manager detected a logic error.**

Explanation: The connection manager received an unexpected response from CICS following an EXEC CICS command.

System Action: A system dump is taken. The connection manager abends with abend code ARPV. The other components of CICS ONC RPC continue. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, “Problem determination” on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC4C

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1541 *date time applid tranid* **The CICS ONC RPC connection manager detected a logic error.**

Explanation: The connection manager received an unexpected response from CICS following an EXEC CICS command.

System Action: A system dump is taken. The enable attempt is abandoned. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, “Problem determination” on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC4C

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1542 *date time applid tranid* **CICS ONC RPC detected an error while accessing the CICS ONC RPC data set, CICS file *filename*, while registering 4-tuples from the data set. EIBRESP: *eibresp*.**

Explanation: The connection manager could not access the CICS ONC RPC data set.

The error occurred while processing a request to register 4-tuples from the data set. Associated message DFHRP1545 may have been issued to indicate the number of 4-tuples that were registered.

An EXEC CICS STARTBR, EXEC CICS READNEXT or EXEC CICS ENDBR was issued, but received the response *eibresp*. The error can occur for one of the following reasons:

- The file is defined as remote, and there is an error on the connection to the owning system.
- VSAM has returned an unexpected response to CICS.
- An I/O error occurred on the BROWSE or READ command.

System Action: A system dump is taken. The connection manager cannot register 4-tuples from the data set. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: Use Appendix A of the *Application Programming Reference* manual to find out what the EIBRESP value means, and take appropriate action. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC09

XMEOUT Parameters: *date, time, applid, tranid, filename, eibresp*

DFHRP1543 *date time applid tranid* **The CICS ONC RPC connection manager detected a logic error while accessing the CICS ONC RPC data set, CICS file *filename*, while registering 4-tuples from the data set.**

Explanation: The connection manager has detected an error while accessing the CICS ONC RPC data set. This is a logic error since connection manager has received an unexpected response from CICS following an EXEC CICS STARTBR, EXEC CICS READNEXT or EXEC CICS ENDBR command.

The error occurred while processing a request to register 4-tuples from the data set. Associated message DFHRP1545 may have been issued to indicate the number of 4-tuples that were registered.

System Action: A system dump is taken. The connection manager cannot register 4-tuples from the data set. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC09

XMEOUT Parameters: *date, time, applid, tranid, filename*

DFHRP1544 *date time applid tranid* **The CICS ONC RPC connection manager found no records in the CICS ONC RPC data set, CICS file *filename*.**

Explanation: The connection manager was processing a request to register 4-tuples, but found no records in the CICS ONC RPC data set. This indicates that the CICS ONC RPC definition record is missing.

System Action: A system dump is taken. No 4-tuples are registered. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: Investigate the reason why there are no records. You must use the connection manager to create a new CICS ONC RPC definition record.

Destination: CRPO

Module: DFHRPC09

XMEOUT Parameters: *date, time, applid, tranid, filename*

DFHRP1545 *date time applid tranid* **The CICS ONC RPC connection manager has completed registration of 4-tuples from the CICS ONC RPC data set, CICS file *filename*. Successful registers: *count1*. Unsuccessful registers: *count2*.**

Explanation: The connection manager has finished registering 4-tuples from the CICS ONC RPC data set, CICS file *filename*. *count1* indicates the number of 4-tuples that have been successfully registered. *count2* indicates the number of 4-tuples that were not registered.

System Action: No further action.

User Response: No further action.

Destination: CRPO

Module: DFHRPC09

XMEOUT Parameters: *date, time, applid, tranid, filename, count1, count2*

DFHRP1546 *date time applid tranid* **The CICS ONC RPC connection manager found no 4-tuple records on the CICS ONC RPC data set, CICS file *filename*.**

Explanation: The connection manager was processing a request to register 4-tuples from the CICS ONC RPC data, but found no 4-tuple records in it.

System Action: No 4-tuples are registered.

User Response: Store some 4-tuple definitions in the data set before requesting this option.

Destination: CRPO

Module: DFHRPC09

XMEOUT Parameters: *date, time, applid, tranid, filename*

DFHRP1547 *date time applid tranid* **The CICS ONC RPC connection manager detected an internal error while registering 4-tuples from the CICS ONC RPC data set, CICS file *filename*.**

Explanation: The connection manager detected an internal error while processing a request to register 4-tuple from the CICS ONC RPC data set. Associated message DFHRP1545 indicates how many 4-tuples were registered.

System Action: A system dump is taken. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC09

XMEOUT Parameters: *date, time, applid, tranid, filename*

DFHRP1548 *date time applid tranid* **The CICS ONC RPC connection manager detected an error attempting to retrieve any fast path data. EIBRESP: *eibresp*.**

Explanation: The connection manager was attempting to retrieve any fast path commands that may have been specified when it was initiated from a terminal. The connection manager issued an EXEC CICS RECEIVE command, but received a response in field *eibresp*.

System Action: A system dump is taken. Start up of CICS ONC RPC continues but any fast path commands are ignored. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC01

XMEOUT Parameters: *date, time, applid, tranid, eibresp*

DFHRP1549 *date time applid tranid* **The CICS ONC RPC connection manager received an error response while registering with CICS for problem determination.**

Explanation: The connection manager received an unexpected response from CICS when attempting to register for problem determination.

System Action: A system dump is taken. CICS feature tracing and dump formatting cannot be used for CICS ONC RPC. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC01

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1550 *date time applid tranid* **The CICS ONC RPC connection manager received an error response while registering with CICS for problem determination.**

Explanation: The connection manager received an unexpected response from CICS when attempting to register for problem determination.

System Action: A system dump is taken. The enable attempt is abandoned. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC4C

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1551 *date time applid tranid* **The CICS ONC RPC connection manager could not enable CICS ONC RPC because of a CICS short on storage condition.**

Explanation: The connection manager has made a request for storage during enable processing, but has received a reply indicating that CICS is short on storage.

System Action: A system dump is taken. The enable attempt is abandoned. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: See the associated diagnostics issued by CICS for problem determination. You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC4C

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1552 *date time applid tranid* **The CICS ONC RPC connection manager has detected an internal error during enable processing.**

Explanation: An internal error detected during enable processing has prevented the connection manager from enabling CICS ONC RPC.

System Action: A system dump is taken. The enable attempt is abandoned. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC4C

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1554 *date time applid tranid* **The CICS ONC RPC connection manager is not authorized to use the CICS SPI.**

Explanation: The connection manager has not been defined with the authorization necessary to execute CICS system programming interface commands. It cannot function without this authorization.

System Action: A system dump is taken. The enable attempt is abandoned.

User Response: Message DFHME0116 is normally produced containing the symptom string for this problem. Redefine the connection manager transaction and its associated program DFHRPC00 with the appropriate level of security to be able to use the CICS SPI.

Destination: CRPO

Module: DFHRPC4C

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1555 *date time applid tranid* **The CICS ONC RPC connection manager is not authorized to use the program DFHRPTRU.**

Explanation: The connection manager used the EXEC CICS ENABLE PROGRAM command for DFHRPTRU, but it has not been defined with the authorization necessary to use DFHRPTRU. It cannot function without this authorization.

System Action: A system dump is taken. The enable attempt is abandoned. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: Redefine the connection manager and its associated programs with the appropriate level of security to be able to use the CICS ONC RPC supplied task-related user exit DFHRPTRU.

Destination: CRPO

Module: DFHRPC4C

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1556 *date time applid tranid* **The CICS ONC RPC connection manager has detected an internal error during enable processing.**

Explanation: An internal error detected by the connection manager during enable processing has prevented CICS ONC RPC from being enabled.

System Action: A system dump is taken. The enable attempt is abandoned. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem*

Determination Guide for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC4C

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1557 *date time applid tranid* **The CICS ONC RPC connection manager has detected an internal error during enable processing.**

Explanation: An internal error detected by the connection manager during enable processing has prevented CICS ONC RPC from being enabled.

System Action: A system dump is taken. The enable attempt is abandoned. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the *CICS/ESA Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC4C

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1558 *date time applid tranid* **The CICS ONC RPC connection manager could not find the task-related user exit, program DFHRPTRU.**

Explanation: The connection manager cannot find the task-related user exit, DFHRPTRU, for one of the following reasons:

- DFHRPTRU has not been defined to CICS
- DFHRPTRU is not in the CICS load library
- DFHRPTRU has been disabled

System Action: A system dump is taken. The enable attempt is abandoned. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: Ensure that all the CEDA groups for CICS ONC RPC have been installed correctly, then try the enable request again.

Destination: CRPO

Module: DFHRPC4C

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1559 *date time applid tranid* **The CICS ONC RPC connection manager could not enable CICS ONC RPC because of a CICS short on storage condition.**

Explanation: The connection manager has made a request for storage during enable processing, but has received a reply indicating that CICS is short on storage.

System Action: A system dump is taken. The enable attempt is abandoned. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: See the associated diagnostics issued by CICS for problem determination. See the *CICS for MVS/ESA ONC RPC Guide* for guidance on dealing with CICS storage problems.

Destination: CRPO

Module: DFHRPC4C

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1560 *date time applid tranid* **The CICS ONC RPC connection manager has detected an internal error during enable processing.**

Explanation: An internal error detected by the connection manager during enable processing has prevented CICS ONC RPC from being enabled.

System Action: A system dump is taken. The enable attempt is abandoned. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC4C

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1561 *date time applid tranid* **The CICS ONC RPC connection manager found that the task-related user exit, program DFHRPTRU, is already enabled.**

Explanation: The connection manager found that the task-related user exit, DFHRPTRU, is already enabled.

System Action: A system dump is taken. The enable attempt is abandoned. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: Take steps to prevent operator intervention with the task related user exit, then try the enable request again.

Destination: CRPO

Module: DFHRPC4C

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1564 *date time applid tranid* **CICS ONC RPC could not be enabled due to an internal error while starting the server controller. Host IP address: *hostaddr*.**

Explanation: The connection manager attempted to start the server controller by issuing an EXEC CICS START command, but could not determine the response that was returned.

System Action: A system dump is taken. The enable attempt is abandoned. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC4C

XMEOUT Parameters: *date, time, applid, tranid, hostaddr*

DFHRP1565 *date time applid tranid* **CICS ONC RPC cannot be enabled because the connection manager is not authorized to start the server controller. EIBRESP: *eibresp*. Host IP address: *hostaddr*.**

Explanation: The connection manager attempted to start the server controller by issuing an EXEC CICS START command, but the NOTAUTH response was returned.

System Action: A system dump is taken. The enable attempt is abandoned. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: See the *CICS for MVS/ESA System Programming Reference* for the meaning of the value returned in *eibresp*. Use CEDA to ensure that the resource definitions for the CICS ONC RPC supplied programs and transactions have been defined with the correct levels of security. The connection manager must have the correct level of authority to start the server controller in order for CICS ONC RPC to be enabled successfully.

Destination: CRPO

Module: DFHRPC4C

XMEOUT Parameters: *date, time, applid, tranid, eibresp, hostaddr*

DFHRP1566 *date time applid tranid* **CICS ONC RPC cannot be enabled due to an error starting the server controller. EIBRESP:** *eibresp*. **Host IP address:** *hostaddr*.

Explanation: The connection manager attempted to start the server controller by issuing an EXEC CICS START command, but the TRANSIDERR response was returned.

See the *CICS for MVS/ESA System Programming Reference* for the meaning of the value returned in *eibresp*.

System Action: A system dump is taken. The enable attempt is abandoned. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: Use CEDA to ensure that the resource definitions for the CICS ONC RPC supplied programs and transactions have been defined with the correct levels of security. In order to enable CICS ONC RPC, the connection manager must have the correct level of authority to start the server controller.

Destination: CRPO

Module: DFHRPC4C

XMEOUT Parameters: *date, time, applid, tranid, eibresp, hostaddr*

DFHRP1567 *date time applid tranid* **CICS ONC RPC could not be enabled due to a security error starting the server controller. User ID *userid* is unknown. Host IP address:** *hostaddr*.

Explanation: The connection manager attempted to start the server controller by issuing an EXEC CICS START USERID command, but the USERIDERR response was returned.

The user ID specified for the server controller is not known to the external security manager.

System Action: The enable attempt is abandoned.

User Response: Ensure that a valid user ID is specified for CRPM Userid.

Destination: CRPO

Module: DFHRPC4C

XMEOUT Parameters: *date, time, applid, tranid, userid, hostaddr*

DFHRP1568 *date time applid tranid* **CICS ONC RPC could not be enabled due to a security error starting the server controller. Host IP address:** *hostaddr*.

Explanation: The connection manager attempted to start the server controller by issuing an EXEC CICS START USERID command, but the USERIDERR response was returned.

The external security manager is in a state such that it cannot validate the user ID specified for the server controller.

System Action: A system dump is taken. The enable attempt is abandoned. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: Investigate the reason why the external security manager cannot perform this request.

Destination: CRPO

Module: DFHRPC4C

XMEOUT Parameters: *date, time, applid, tranid, hostaddr*

DFHRP1569 *date time applid tranid* **The CICS ONC RPC connection manager has detected an internal error during enable processing.**

Explanation: An internal error detected by the connection manager during enable processing has prevented CICS ONC RPC from being enabled.

System Action: A system dump is taken. The enable attempt is abandoned. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed.

Destination: CRPO

Module: DFHRPC4C

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1570 *date time applid tranid* **CICS ONC RPC storage subpool token not saved.**

Explanation: The connection manager has detected an error while saving the storage subpool token.

System Action: A system dump is taken. CICS ONC RPC continues normally. However if CICS ONC RPC abends, it may not be possible to reenab CICS ONC RPC without restarting CICS. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: See the associated diagnostics issued by CICS for problem determination.

Destination: CRPO

Module: DFHRPC4C

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1571 *date time applid tranid* **The CICS ONC RPC connection manager is not authorized to load module *module*.**

Explanation: The connection manager has not been defined with the authorization necessary to issue an EXEC CICS LOAD command for the named module.

System Action: The enable attempt is abandoned.

User Response: Redefine the connection manager and its associated programs with the appropriate level of security to be able to issue EXEC CICS LOAD commands for the named CICS ONC RPC program.

Destination: CRPO

Module: DFHRPC4C

XMEOUT Parameters: *date, time, applid, tranid, module*

DFHRP1572 *date time applid tranid* **The CICS ONC RPC connection manager detected an error while loading module.**

Explanation: The connection manager tried to load the module, but the response to EXEC CICS LOAD was PGMIDERR.

System Action: The enable attempt is abandoned.

User Response: Use the CEDA transaction to ensure that the connection manager (program DFHRPC00) and the named program are correctly defined. See the *CICS for MVS/ESA ONC RPC Guide* for the correct program definitions.

Destination: CRPO

Module: DFHRPC4C

XMEOUT Parameters: *date, time, applid, tranid, module*

DFHRP1574 *date time applid tranid* **The CICS ONC RPC connection manager load for module returned an unexpected response.**

Explanation: The connection manager has not been able to load the module into storage. A response other than NOTAUTH or PGMIDERR was returned to the EXEC CICS LOAD command.

System Action: A system dump is taken. The enable attempt is abandoned. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: Use the system dump to determine why the LOAD could not work.

Destination: CRPO

Module: DFHRPC4C

XMEOUT Parameters: *date, time, applid, tranid, module*

DFHRP1575 *date time applid tranid* **CICS ONC RPC could not be enabled due to an internal error starting the server controller. Host IP address: *hostaddr*.**

Explanation: The connection manager attempted to start the server controller by issuing an EXEC CICS START command, but received an unexpected response.

System Action: A system dump is taken. The enable attempt is abandoned. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the *CICS/ESA Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC4C

XMEOUT Parameters: *date, time, applid, tranid, hostaddr*

DFHRP1576 *date time applid tranid* **CICS ONC RPC could not be enabled due to an internal error starting the server controller. EIBRESP: *eibresp*. Host IP address: *hostaddr*.**

Explanation: The connection manager attempted to start the server controller by issuing an EXEC CICS START command, but the INVREQ response was returned.

System Action: A system dump is taken. The enable attempt is abandoned. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the *CICS/ESA Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC4C

XMEOUT Parameters: *date, time, applid, tranid, eibresp, hostaddr*

DFHRP1577 *date time applid tranid* **The CICS ONC RPC connection manager cannot access its task-related user exit DFHRPTRU.**

Explanation: The connection manager was unable to access its task-related user exit DFHRPTRU during enable processing.

System Action: A system dump is taken. The enable attempt is abandoned. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: Check that the task-related user exit has not been disabled by operator intervention. See the associated diagnostics issued by CICS for problem determination.

Destination: CRPO

Module: DFHRPC4C

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1579 *date time applid tranid* **The CICS ONC RPC connection manager detected an internal error while registering 4-tuples from the CICS ONC RPC data set, CICS file *filename*.**

Explanation: The connection manager has detected an internal error while processing a request to register 4-tuples from the CICS ONC RPC data set. Associated message DFHRP1545 may have been issued to indicate the number of 4-tuples that were successfully registered.

System Action: A system dump is taken. Registration of 4-tuples from the data set does not continue. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC09

XMEOUT Parameters: *date, time, applid, tranid, filename*

DFHRP1580 *date time applid tranid* **The CICS ONC RPC connection manager cannot establish whether security is active or obtain the default CICS user ID. EIBRESP: *eibresp*.**

Explanation: The connection manager was unable to retrieve status information about CICS, and therefore cannot establish whether security is active, or obtain the default CICS user ID.

An EXEC CICS INQUIRE SYSTEM was issued but received the response shown in the message.

System Action: Processing continues under the assumption that there is no security active.

Panel DFHRP02 is displayed with no user ID in field CRPM Userid, unless a user ID was saved in the CICS ONC RPC data set.

User Response: Ensure that the connection manager has the correct level of security to use CICS system programming interface commands.

Destination: CRPO

Module: DFHRPC42

XMEOUT Parameters: *date, time, applid, tranid, eibresp*

DFHRP1581 *date time applid tranid* **The CICS ONC RPC connection manager detected an internal error while accessing the CICS ONC RPC data set, CICS file filename.**

Explanation: The connection manager has detected an internal error while accessing the CICS ONC RPC data set.

System Action: A system dump is taken. The panel is redisplayed. No records can be updated. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Modules: DFHRPC03, DFHRPC05

XMEOUT Parameters: *date, time, applid, tranid, filename*

DFHRP1582 *date time applid tranid* **The CICS ONC RPC connection manager detected an internal error while accessing the CICS ONC RPC data set, CICS file filename.**

Explanation: The connection manager has detected an internal error while accessing the CICS ONC RPC data set.

System Action: A system dump is taken. The connection manager panel is redisplayed. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Modules: DFHRPC03, DFHRPC05

XMEOUT Parameters: *date, time, applid, tranid, filename*

DFHRP1583 *date time applid tranid* **The CICS ONC RPC connection manager found no entry for this 4-tuple in the CICS ONC RPC data set, CICS file filename.**

Explanation: The connection manager has not found this 4-tuple in the CICS ONC RPC data set *filename*.

System Action: None.

User Response: Enter a 4-tuple that has already been saved in the data set.

Destination: Terminal End User

Module: DFHRPC09

DFHRP1584 *date time applid tranid* **The CICS ONC RPC connection manager detected an error while accessing the CICS ONC RPC data set, CICS file *filename*. EIBRESP: *eibresp*.**

Explanation: The connection manager could not access the CICS ONC RPC data set. An EXEC CICS DELETE was issued, but received the response *eibresp*. The data set has not been correctly defined to CICS for one of the following reasons:

- No file definition has been found for *filename*. CICS ONC RPC has therefore not been installed correctly.
- DELETE operations are not allowed on the file.
- The file has been disabled, either due to an incorrect file definition, or due to operator intervention.
- The file cannot be opened because it has not been defined correctly, or because it has been closed by operator intervention.
- The connection manager, or the user running it, does not have the necessary level of authority to access the file.

System Action: The requested operation is not performed. The connection manager cannot perform any operation requiring access to the data set.

User Response: Use Appendix A of the *Application Programming Reference* manual to find out what the EIBRESP value means, and take appropriate action.

Investigate whether the operator has changed the status of the data set for any reason.

Destination: CRPO

Module: DFHRPC09

XMEOUT Parameters: *date, time, applid, tranid, filename, eibresp*

DFHRP1585 *date time applid tranid* **The CICS ONC RPC connection manager detected an error while accessing the CICS ONC RPC data set, CICS file *filename*. EIBRESP: *eibresp*.**

Explanation: The connection manager could not access CICS ONC RPC data set, CICS file *filename*. An EXEC CICS DELETE was issued, but received the response *eibresp*. The error can occur for one of the following reasons:

- The file is defined as remote, and there is an error on the connection to the owning system.
- VSAM has returned an unexpected response to CICS.
- An I/O error occurred on the DELETE.

System Action: A system dump is taken. The requested operation is not performed. The connection manager cannot perform any function requiring access to the data set. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: Use Appendix A of the *Application Programming Reference* manual to find out what the EIBRESP value means, and take appropriate action.

Destination: CRPO

Module: DFHRPC09

XMEOUT Parameters: *date, time, applid, tranid, filename, eibresp*

DFHRP1586 *date time applid tranid* **The CICS ONC RPC connection manager detected a logic error accessing the CICS ONC RPC data set *filename*.**

Explanation: The connection manager detected an unexpected error when accessing the CICS ONC RPC data set. This is a logic error. The connection manager has received an unexpected response from CICS following an EXEC CICS command.

System Action: A system dump is taken. The connection manager cannot perform any function requiring access to the CICS ONC RPC data set. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC09

XMEOUT Parameters: *date, time, applid, tranid, filename*

DFHRP1596 *date time applid tranid* **The CICS ONC RPC connection manager cannot continue enable processing because it cannot determine the status of CICS ONC RPC.**

Explanation: The connection manager was trying to enable CICS ONC RPC, but detected an invalid global work area address, or found that CICS ONC RPC was enabled.

System Action: The enable attempt is abandoned.

User Response: Investigate whether CICS ONC RPC has been disabled. Investigate whether operator command have been issued against the task-related user DFHRPTRU.

Destination: CRPO

Module: DFHRPC4C

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1600 *date time applid tranid* **The CICS ONC RPC connection manager has completed backout of enable processing.**

Explanation: CICS ONC RPC cannot be enabled. This may be the result of an error detected by the connection manager during enable processing or it may be due to CICS shutdown. The connection manager has completed backout of enable processing.

System Action: Processing continues.

User Response: See associated messages for the reason why the enable request failed.

Destination: CRPO

Module: DFHRPC4C

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1601 *date time applid tranid* **The CICS ONC RPC connection manager cannot continue enable processing because it has detected that CICS is shutting down.**

Explanation: CICS ONC RPC cannot be enabled when CICS is in shutdown.

System Action: The connection manager initiates backout of enable processing. If this is an immediate CICS shutdown, then transaction CRPC terminates.

User Response: Exit transaction CRPC to enable CICS shutdown to continue.

Destination: CRPO

Module: DFHRPC4C

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1602 *date time applid tranid* **The CICS ONC RPC connection manager has detected an internal error during backout of enable processing.**

Explanation: The connection manager has detected an error attempting to shut down the RPC caller. This is during backout of enable processing initiated by the connection manager in response to a failed enable request. This could either be as a result of problems with CICS ONC RPC, which will probably be reflected in other CICS ONC RPC diagnostics, or as a result of problems with CICS which will probably be reflected in CICS diagnostics.

System Action: CICS ONC RPC continues backout of enable processing.

User Response: See associated messages for the reason why the enable request failed. If message DFHRP0002 was issued to the console, the explanation of that message might contain more information. If the problem is not a symptom of a wider problem, you need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed.

Destination: CRPO

Module: DFHRPC4C

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1603 *date time applid tranid* **The CICS ONC RPC connection manager has detected an error when attempting to issue a FREEMAIN for the RPC caller program.**

Explanation: The connection manager has detected an error issuing a FREEMAIN for the RPC caller program to remove it from storage. This is during backout of enable processing initiated by the connection manager in response to a failed enable request. This could either be as a result of problems with CICS ONC RPC, which will probably be reflected in other CICS ONC RPC diagnostics, or as a result of problems with CICS which will probably be reflected in CICS diagnostics.

System Action: CICS ONC RPC continues backout of enable processing.

User Response: See associated messages for the reason why the enable request failed. If the problem is not a symptom of a wider problem, you need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed.

Destination: CRPO

Module: DFHRPC4C

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1604 *date time applid tranid* **The CICS ONC RPC connection manager has detected an error when attempting to issue a RELEASE for the alias list program.**

Explanation: The connection manager has detected an error issuing a release for the alias list program. This is during backout of enable processing initiated by the connection manager in response to a failed enable request. This could either be as a result of problems with CICS ONC RPC, which will probably be reflected in other CICS ONC RPC diagnostics, or as a result of problems with CICS which will probably be reflected in CICS diagnostics.

System Action: CICS ONC RPC continues backout of enable processing.

User Response: See associated messages for the reason why the enable request failed. If the problem is not a symptom of a wider problem, you need further assistance from IBM

to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed.

Destination: CRPO

Module: DFHRPC4C

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1605 *date time applid tranid* **The CICS ONC RPC connection manager has detected an internal error during backout of enable processing.**

Explanation: The connection manager has detected an internal error during backout of enable processing initiated by the connection manager in response to a failed enable request. This could either be as a result of problems with CICS ONC RPC, which will probably be reflected in other CICS ONC RPC diagnostics, or as a result of problems with CICS which will probably be reflected in CICS diagnostics.

System Action: CICS ONC RPC continues backout of enable processing.

User Response: See associated messages for the reason why the enable request failed. If the problem is not a symptom of a wider problem, you need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed.

Destination: CRPO

Module: DFHRPC4C

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1606 *date time applid tranid* **The CICS ONC RPC connection manager has detected an internal error during backout of enable processing.**

Explanation: The connection manager has detected an internal error during backout of enable processing initiated by the connection manager in response to a failed enable request. This could either be as a result of problems with CICS ONC RPC, which will probably be reflected in other CICS ONC RPC diagnostics, or as a result of problems with CICS which will probably be reflected in CICS diagnostics.

System Action: CICS ONC RPC continues backout of enable processing.

User Response: See associated messages for the reason why the enable request failed. If the problem is not a symptom of a wider problem, you need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed.

Destination: CRPO

Module: DFHRPC4C

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1607 *date time applid tranid* **The CICS ONC RPC connection manager has detected an error when attempting to disable the ONC RPC TRUE (DFHRPTRU).**

Explanation: The connection manager detected an error attempting to disable the task-related user exit (TRUE). This is during backout of enable processing initiated by the connection manager in response to a failed enable request. It may be that the TRUE is already disabled, which may be the result of operator intervention. Alternatively, this could either be as a result of problems with CICS ONC RPC, which will probably be reflected in other CICS ONC RPC diagnostics, or as a result of problems with CICS which will probably be reflected in CICS diagnostics.

System Action: CICS ONC RPC continues backout of enable processing.

User Response: See associated messages for the reason why the enable request failed. Take steps to prevent operator interference with the TRUE.

Destination: CRPO

Module: DFHRPC4C

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1608 *date time applid tranid* **The CICS ONC RPC connection manager has detected an internal error during backout of enable processing.**

Explanation: The connection manager has detected an internal error attempting to disable the task-related user exit (TRUE). This is during backout of enable processing initiated by the connection manager in response to a failed enable request. This could either be as a result of problems with CICS ONC RPC, which will probably be reflected in other CICS ONC RPC diagnostics, or as a result of problems with CICS which will probably be reflected in CICS diagnostics.

System Action: CICS ONC RPC continues backout of enable processing.

User Response: See associated messages for the reason why the enable request failed. If the problem is not a symptom of a wider problem, you need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed.

Destination: CRPO

Module: DFHRPC4C

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1609 *date time applid tranid* **The CICS ONC RPC connection manager is not authorized to disable the task-related user exit (DFHRPTRU) during backout of enable processing.**

Explanation: The connection manager transaction does not have the necessary authority to use the CICS system programming interface and cannot disable its task related user exit (TRUE). This is during backout of enable processing initiated by the connection manager in response to a failed enable request. This could either be as a result of problems with CICS ONC RPC, which will probably be reflected in other CICS ONC RPC diagnostics, or as a result of problems with CICS which will probably be reflected in CICS diagnostics.

System Action: CICS ONC RPC continues backout of enable processing.

User Response: See associated messages for the reason why the enable request failed. If the problem is not a symptom of a wider problem, you need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed.

Destination: CRPO

Module: DFHRPC4C

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1610 *date time applid tranid* **The CICS ONC RPC connection manager is not authorized to disable the task-related user exit (DFHRPTRU) during backout of enable processing.**

Explanation: The connection manager transaction does not have the necessary authority to disable its task-related user exit (TRUE). This is during backout of enable processing initiated by the connection manager in response to a failed enable request. This could either be as a result of problems with CICS ONC RPC, which will probably be reflected in other CICS ONC RPC diagnostics, or as a result of problems with CICS which will probably be reflected in CICS diagnostics.

System Action: CICS ONC RPC continues backout of enable processing.

User Response: See associated messages for the reason why the enable request failed. If the problem is not a symptom of a wider problem, you need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed.

Destination: CRPO

Module: DFHRPC4C

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1611 *date time applid tranid* **The CICS ONC RPC connection manager has detected an internal error during backout of enable processing.**

Explanation: The connection manager has detected an error attempting to unregister for problem determination. This is during backout of enable processing initiated by the connection manager in response to a failed enable request. This could either be as a result of problems with CICS ONC RPC, which will probably be reflected in other CICS ONC RPC diagnostics, or as a result of problems with CICS which will probably be reflected in CICS diagnostics.

System Action: CICS ONC RPC continues backout of enable processing.

User Response: See associated messages for the reason why the enable request failed. If the problem is not a symptom of a wider problem, you need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed.

Destination: CRPO

Module: DFHRPC4C

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1650 *date time applid tranid* **The CICS ONC RPC connection manager found that CICS ONC RPC is disabled. Requests to disable CICS ONC RPC are ignored.**

Explanation: A request has been made to disable CICS ONC RPC, but the current status indicates it is already disabled, or in the process of being disabled.

System Action: The request is ignored. The connection manager panel is redisplayed.

User Response: Request another option.

Destination: Terminal End User

Modules: DFHRPC01, DFHRPC04

DFHRP1651 *date time applid tranid* **The CICS ONC RPC connection manager detected a logic error.**

Explanation: The connection manager has received an unexpected response from CICS following an EXEC CICS command.

System Action: A system dump is taken. The connection manager abends with abend code ARPV. The rest of CICS ONC RPC continues. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC04

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1652 *date time applid tranid* **The CICS ONC RPC connection manager detected a logic error.**

Explanation: The connection manager received an unexpected response from CICS following an EXEC CICS command.

System Action: A system dump is taken. The requested operation is not performed. The connection manager continues. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC04

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1750 *date time applid tranid* **The CICS ONC RPC connection manager has unregistered the 4-tuple. Program: X'prognum' Version: X'versnum' Procedure: X'procnum' Protocol: protocol. Host IP address: hostaddr.**

Explanation: The 4-tuple has been unregistered.

System Action: Processing continues.

User Response: None.

Destination: CRPO

Module: DFHRPC06

XMEOUT Parameters: *date, time, applid, tranid, X'prognum', X'versnum', X'procnum', protocol, hostaddr*

DFHRP1751 *date time applid tranid* **The CICS ONC RPC connection manager detected an error while accessing an internal table. Host IP address: hostaddr**

Explanation: The connection manager detected an error whilst accessing the list of 4-tuples registered with CICS ONC RPC.

System Action: The connection manager panel is redisplayed. The requested action is not performed

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed.

Destination: CRPO

Module: DFHRPC06

XMEOUT Parameters: *date, time, applid, tranid, hostaddr*

DFHRP1752 *date time applid tranid* **The CICS ONC RPC connection manager detected an error while accessing an internal table. Host IP address: *hostaddr***

Explanation: The connection manager has detected an internal error while accessing the list of 4-tuples registered with CICS ONC RPC.

System Action: The connection manager panel is redisplayed.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed.

Destination: CRPO

Module: DFHRPC06

XMEOUT Parameters: *date, time, applid, tranid, hostaddr*

DFHRP1753 *date time applid tranid* **A CICS ONC RPC operation could not be performed because CICS is short on storage. Host IP address: *hostaddr*.**

Explanation: The connection manager could not to perform an unregister operation because CICS is short on storage.

System Action: The connection manager continues.

User Response: Retry the unregister operation when the CICS storage problem has been resolved.

Destination: CRPO

Module: DFHRPC06

XMEOUT Parameters: *date, time, applid, tranid, hostaddr*

DFHRP1754 *date time applid tranid* **The CICS ONC RPC connection manager detected an internal error when unregistering a 4-tuple. Host IP address: *hostaddr*.**

Explanation: The connection manager detected an internal error when unregistering a 4-tuple.

System Action: A system dump is taken. The connection manager continues. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC06

XMEOUT Parameters: *date, time, applid, tranid, hostaddr*

DFHRP1755 *date time applid tranid* **The CICS ONC RPC connection manager could not perform an unregister operation because CICS ONC RPC is not enabled. *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol*.**

Explanation: The connection manager cannot complete the current unregister operation because CICS ONC RPC it is not enabled. It might have been disabled by another connection manager transaction.

System Action: The connection manager continues, but the unregister operation is not completed.

User Response: None.

Destination: CRPO

Module: DFHRPC06

XMEOUT Parameters: *date, time, applid, tranid, X'prognum', X'versnum', X'procnum', protocol*

DFHRP1756 *date time applid tranid* **CICS ONC RPC is being disabled. Requested operation not performed. Program:** *X'prognum'* **Version:** *X'versnum'* **Procedure:** *X'procnum'* **Protocol:** *protocol*. **Host IP address:** *hostaddr*.

Explanation: The connection manager is unable to complete the current unregister operation because CICS ONC RPC is in disable processing.

System Action: The connection manager continues, but the unregister operation currently being performed is not completed.

User Response: None. The unregister will be performed as part of disable processing

Destination: CRPO

Module: DFHRPC06

XMEOUT Parameters: *date, time, applid, tranid, X'prognum', X'versnum', X'procnum', protocol, hostaddr*

DFHRP1757 *date time applid tranid* **The CICS ONC RPC connection manager cannot unregister the requested 4-tuple because it is not registered. Program:** *X'prognum'* **Version:** *X'versnum'* **Procedure:** *X'procnum'* **Protocol:** *protocol*. **Host IP address:** *hostaddr*.

Explanation: The connection manager is unable to complete the current unregister operation because the requested 4-tuple is not registered.

System Action: The connection manager continues, but the unregister operation currently being performed is not completed.

User Response: If message DFHRP0002 was issued to the console, the explanation of that message might contain more information.

Destination: CRPO

Module: DFHRPC06

XMEOUT Parameters: *date, time, applid, tranid, X'prognum', X'versnum', X'procnum', protocol, hostaddr*

DFHRP1758 *date time applid tranid* **The CICS ONC RPC connection manager detected an error when freeing storage associated with the requested 4-tuple. Program:** *X'prognum'* **Version:** *X'versnum'* **Procedure:** *X'procnum'* **Protocol:** *protocol*. **Host IP address:** *hostaddr*.

Explanation: The connection manager is unable to complete the current unregister operation because an error occurred freeing storage associated with the 4-tuple.

System Action: The connection manager continues. If the requested 4-tuple was the only instance of a particular program/version/protocol 3-tuple registered with TCP/IP for MVS, then this 3-tuple has been unregistered with TCP/IP for MVS.

User Response: See the associated diagnostics issued by CICS and TCP/IP for MVS for problem determination.

Destination: CRPO

Module: DFHRPC06

XMEOUT Parameters: *date, time, applid, tranid, X'prognum', X'versnum', X'procnum', protocol, hostaddr*

DFHRP1759 *date time applid tranid* **The CICS ONC RPC connection manager could not perform an unregister operation because an invalid global work area was detected. Program: X'prognum' Version: X'versnum' Procedure: X'procnum' Protocol: protocol.**

Explanation: The connection manager cannot complete the unregister operation because it has detected an invalid global work area address. CICS ONC RPC might have been disabled by another connection manager transaction.

System Action: The connection manager continues, but the unregister operation is not completed.

User Response: If message DFHRP0002 was issued to the console, the explanation of that message might contain more information.

Destination: CRPO

Module: DFHRPC06

XMEOUT Parameters: *date, time, applid, tranid, X'prognum', X'versnum', X'procnum', protocol*

DFHRP1760 *date time applid tranid* **The CICS ONC RPC connection manager detected an error while unregistering a program-version pair with TCP/IP for MVS. Program: X'prognum' Version: X'versnum' Procedure: X'procnum' Protocol: protocol. Host IP address: hostaddr.**

Explanation: The connection manager detected an error while unregistering a program-version pair with TCP/IP for MVS, and is unable to complete the current unregister operation.

System Action: The connection manager continues, but the unregister operation is not completed.

User Response: See the associated diagnostics issued by CICS and TCP/IP for MVS for problem determination. If message DFHRP0002 was issued to the console, the explanation of that message might contain more information.

Destination: CRPO

Module: DFHRPC06

XMEOUT Parameters: *date, time, applid, tranid, X'prognum', X'versnum', X'procnum', protocol, hostaddr*

DFHRP1761 *date time applid tranid* **The CICS ONC RPC connection manger could not unregister a 4-tuple as it was not registered Program: X'prognum' Version: X'versnum' Procedure: X'procnum' Protocol: protocol. Host IP address: hostaddr.**

Explanation: The 4-tuple cannot be unregistered as it is not registered.

System Action: Processing continues.

User Response: None.

Destination: CRPO

Module: DFHRPC06

XMEOUT Parameters: *date, time, applid, tranid, X'prognum', X'versnum', X'procnum', protocol, hostaddr*

DFHRP1762 *date time applid tranid* **Enter the Program Number, Version Number, Procedure Number and Protocol for the 4-tuple to be unregistered.**

Explanation: You have not entered all the information needed to identify the 4-tuple to be unregistered.

System Action: Processing continues.

User Response: Enter the required data.

Destination: Terminal End User

Module: DFHRPC06

DFHRP1763 *date time applid tranid* **The CICS ONC RPC connection manager cannot display the requested 4-tuple because it is not registered with CICS ONC RPC. Program: X'prognum' Version: X'versnum' Procedure: X'procnum' Protocol: protocol. Host IP address: hostaddr.**

Explanation: The 4-tuple is not displayed.

System Action: Processing continues.

User Response: None.

Destination: CRPO

Module: DFHRPC06

XMEOUT Parameters: *date, time, applid, tranid, X'prognum', X'versnum', X'procnum', protocol, hostaddr*

DFHRP1764 *date time applid tranid* **The CICS ONC RPC connection manager detected an internal error while processing 4-tuple definitions on the CICS ONC RPC data set, CICS file filename.**

Explanation: The connection manager detected an internal error while accessing 4-tuples on the data set.

System Action: A system dump is taken. The connection manager panel is redisplayed. The requested operation is not performed. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC0A

XMEOUT Parameters: *date, time, applid, tranid, filename*

DFHRP1765 *date time applid tranid* **The CICS ONC RPC connection manager found no records in the CICS ONC RPC data set, CICS file filename, when processing a request to access 4-tuple definitions.**

Explanation: The connection manager found no records on the data set while processing a request to access 4-tuple definitions. This indicates that the CICS ONC RPC definition record is missing.

System Action: A system dump is taken. The connection manager panel is displayed. No 4-tuples are displayed. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: Investigate the reason why there are no records. You must use the connection manager to create a new CICS ONC RPC definition record.

Destination: CRPO

Module: DFHRPC0A

XMEOUT Parameters: *date, time, applid, tranid, filename*

DFHRP1766 *date time applid tranid* **The CICS ONC connection manager detected an error while accessing the CICS ONC RPC data set, CICS file *filename*.**
EIBRESP: *eibresp*.

Explanation: The connection manager could not access the CICS ONC RPC data set. The error occurred while processing a request to display 4-tuple definitions from the data set.

An EXEC CICS STARTBR, EXEC CICS READNEXT or EXEC CICS ENDBR was issued, but received the response *eibresp*. The error can occur for one of the following reasons:

- No file definition has been found for DFHRPCD, implying that CICS ONC RPC has not been installed correctly.
- BROWSE or READ operations are not allowed, implying that CICS ONC RPC has not been installed correctly.
- The file is DISABLED, either due to an incorrect file definition, or due to operator intervention.
- The file is NOTOPEN, either due to an incorrect file definition, or due to operator intervention.
- BROWSE or READ operations are not authorized, implying that security has not been set up correctly.

System Action: A system dump is taken. Without access to the data set, CICS ONC RPC cannot display 4-tuple definitions. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: Use Appendix A of the *Application Programming Reference* manual to find out what the EIBRESP value means, and take appropriate action.

Destination: CRPO

Module: DFHRPC0A

XMEOUT Parameters: *date, time, applid, tranid, filename, eibresp*

DFHRP1767 *date time applid tranid* **The CICS ONC RPC connection manager detected an error while accessing the CICS ONC RPC data set, CICS file *filename*.**
EIBRESP: *eibresp*.

Explanation: The connection manager cannot access the CICS ONC RPC data set.

The error occurred while processing a request to display 4-tuple definitions from the data set.

An EXEC CICS STARTBR, EXEC CICS READNEXT or EXEC CICS ENDBR was issued, but received the response *eibresp*. The error can occur for one of the following reasons:

- The file is defined as remote, and there is an error on the connection to the owning system.
- VSAM has returned an unexpected response to CICS.
- An I/O error occurred on the BROWSE or READ command.

System Action: A system dump is taken. Without access to the data set, CICS ONC RPC cannot display 4-tuple definitions. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: Use Appendix A of the *Application Programming Reference* manual to find out what the EIBRESP value means, and take appropriate action.

Destination: CRPO

Module: DFHRPC0A

XMEOUT Parameters: *date, time, applid, tranid, filename, eibresp*

DFHRP1768 *date time applid tranid* **The CICS ONC RPC connection manager detected a logic error while accessing the CICS ONC RPC data set, CICS file *filename*.**

Explanation: The connection manager could not access the CICS ONC RPC data set. This is a logic error since the connection manager has received an unexpected response from CICS following an EXEC CICS STARTBR, EXEC CICS READNEXT or EXEC CICS ENDBR command.

The error occurred while processing a request to display 4-tuple definitions from the data set.

Without access to the data set, the connection manager cannot process requests to display information from it.

System Action: A system dump is taken. The connection manager panel is redisplayed. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC0A

XMEOUT Parameters: *date, time, applid, tranid, filename*

DFHRP1769 *date time applid tranid* **The CICS ONC RPC connection manager found no records on the CICS ONC RPC data set, CICS file *filename*, when processing a request to access 4-tuple information.**

Explanation: The connection manager has found no records on the CICS ONC RPC data set when processing a request to access 4-tuple definitions.

System Action: A system dump is taken. The connection manager panel is redisplayed. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: Investigate the reason why there are no records. You must use the connection manager to create a new CICS ONC RPC definition record.

Destination: CRPO

Module: DFHRPC0A

XMEOUT Parameters: *date, time, applid, tranid, filename*

DFHRP1770 *date time applid tranid* **The CICS ONC RPC connection manager found no 4-tuple definitions in the CICS ONC RPC data set, CICS file *filename*.**

Explanation: The connection manager has found no 4-tuple definitions in the CICS ONC RPC data set while processing a request to access 4-tuple definitions.

System Action: The connection manager panel is redisplayed. No 4-tuple definitions are displayed.

User Response: Use the connection manager to save 4-tuple definitions in the data set.

Destination: CRPO

Module: DFHRPC0A

XMEOUT Parameters: *date, time, applid, tranid, filename*

DFHRP1771 *date time applid tranid* **The CICS ONC RPC connection manager detected an internal error while accessing 4-tuple definitions in the CICS ONC RPC data set, CICS file *filename*.**

Explanation: The connection manager has detected an internal error while processing a request to access 4-tuple definitions in the CICS ONC RPC data set.

System Action: A system dump is taken. The connection manager panel is redisplayed. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC0A

XMEOUT Parameters: *date, time, applid, tranid, filename*

DFHRP1772 *date time applid tranid* **The CICS ONC RPC connection manager could not complete the requested operation. It could not obtain the required CICS storage.**

Explanation: A GETMAIN issued by the connection manager when attempting to build a list of 4-tuples defined in the CICS ONC RPC data set returned an error response.

System Action: A system dump is taken. Processing continues. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: CICS may be temporarily short on storage. Retry the operation. If the condition persists, contact your system administrator to see if there are problems with CICS storage. If CICS is not short on storage, you need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC0A

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1773 *date time applid tranid* **The CICS ONC RPC connection manager detected an error when freeing storage.**

Explanation: A FREEMAIN issued by connection manager returned an error response. The connection manager was trying to free storage used to build a list of 4-tuples defined in the CICS ONC RPC data set.

System Action: A system dump is taken. Processing continues. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC0A

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1774 *date time applid tranid* **The CICS ONC RPC connection manager cannot display the requested 4-tuple because it is not saved to the CICS ONC RPC data set. Program: X'prognum' Version: X'versnum' Procedure: X'procnum' Protocol: protocol.**

Explanation: The 4-tuple is not displayed.

System Action: Processing continues.

User Response: None.

Destination: CRPO

Module: DFHRPC0A

XMEOUT Parameters: *date, time, applid, tranid, X'prognum', X'versnum', X'procnum', protocol*

DFHRP1775 *date time applid tranid* **The CICS ONC RPC connection manager cannot register 4-tuples because CICS ONC RPC is disabled.**

Explanation: A request to register a 4-tuple cannot be performed because CICS ONC RPC was not enabled when the request was made.

System Action: Processing continues.

User Response: Enable CICS ONC RPC.

Destination: CRPO

Module: DFHRPC0A

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1800 *date time applid tranid* **The CICS ONC RPC connection manager has purged an alias task. Task status: status Program: X'prognum' Version: X'versnum' Procedure: X'procnum' Protocol: protocol. Host IP address: hostaddr.**

Explanation: The alias for the 4-tuple has been purged by the connection manager.

System Action: *Status* indicates the status of the alias task when the purge request was issued. The following actions are taken:

- *Running* indicates that the alias task was running. The connection manager removes the entry from the alias list. The alias abends with abend code ARPJ and message DFHRP0173 is issued.
- *Scheduled* indicates that the alias task was scheduled to run and may still do so. The connection manager removes the entry from the alias list. The alias abends with abend code ARPJ and messages DFHRP0113 and DFHRP0173 are issued.

User Response: None.

Destination: CRPO

Module: DFHRPC10

XMEOUT Parameters: *date, time, applid, tranid, status, X'prognum', X'versnum', X'procnum', protocol, hostaddr*

DFHRP1801 *date time applid tranid* **The CICS ONC RPC connection manager has detected an internal error while processing the alias list.**

Explanation: The connection manager has detected an internal error while processing a request to display or purge entries in the alias list.

System Action: A system dump is taken. The connection manager panel is redisplayed. No alias tasks are displayed or purged. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC10

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1802 *date time applid tranid* **The CICS ONC RPC connection manager has detected an internal error while processing the alias list.**

Explanation: The connection manager has detected an internal error while processing a request to display or purge entries in the alias list.

System Action: A system dump is taken. The connection manager panel is redisplayed. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC10

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1803 *date time applid tranid* **The CICS ONC RPC connection manager received an error response while attempting to browse the alias list.**

Explanation: The connection manager attempted to start browsing the alias list, but received a response that indicated a severe error had occurred.

System Action: The connection manager panel is redisplayed. No alias tasks are displayed.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed.

Destination: CRPO

Module: DFHRPC10

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1804 *date time applid tranid* **The CICS ONC RPC connection manager could not process the alias list. It could not obtain the required CICS storage.**

Explanation: A GETMAIN issued by the connection manager when attempting to build the alias list returned an error response.

System Action: A system dump is taken. The connection manager panel is redisplayed. No alias tasks are displayed. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: CICS may be temporarily short on storage. Retry the operation. If the condition persists, contact your system administrator to see if there are problems with CICS storage. If CICS is not short on storage, you need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC10

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1805 *date time applid tranid* **The CICS ONC RPC connection manager has detected an error when freeing storage.**

Explanation: A FREEMAIN issued by the connection manager when attempting to free storage used to build the alias list returned an error response.

System Action: A system dump is taken. Processing continues. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC10

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1806 *date time applid tranid* **The CICS ONC RPC connection manager received an error response while attempting to retrieve an entry from the alias list.**

Explanation: The connection manager tried to retrieve an entry from the alias list, but received a response that indicated a severe error had occurred.

System Action: The connection manager panel is redisplayed.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed.

Destination: CRPO

Module: DFHRPC10

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1807 *date time applid tranid* **The CICS ONC RPC connection manager received an error response while attempting to complete its browse of the alias list.**

Explanation: The connection manager attempted to finish browsing the alias list, but received a response that indicated a severe error had occurred.

System Action: The connection manager panel is redisplayed.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed.

Destination: CRPO

Module: DFHRPC10

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1810 *date time applid tranid* **The CICS ONC RPC connection manager received an error response while attempting to delete an entry from the alias list.**

Explanation: The connection manager tried to delete an entry from the alias list, but received a response that indicated a severe error had occurred.

System Action: The connection manager panel is redisplayed.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed.

Destination: CRPO

Module: DFHRPC10

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1861 *date time applid tranid* **The CICS ONC RPC connection manager has detected an internal error while accessing an internal table. Host IP address: *hostaddr*.**

Explanation: An internal error has occurred in the connection manager while accessing an internal table.

System Action: A system dump is taken. Processing continues. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC08

XMEOUT Parameters: *date, time, applid, tranid, hostaddr*

DFHRP1862 *date time applid tranid* **The CICS ONC RPC connection manager detected an internal error while accessing an internal table.**

Explanation: The connection manager detected an error while accessing an internal table.

System Action: A system dump is taken. If the error occurs during CICS ONC RPC enable processing, CICS ONC RPC remains disabled. If the error occurs during the processing of a client request, an **svcerr_systemerr** call is used to send a reply to the client. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC08

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1863 *date time applid tranid* **The CICS ONC RPC connection manager has detected an internal error while accessing an internal table. Host IP address: *hostaddr*.**

Explanation: An internal error has occurred in the connection manager while accessing an internal table.

System Action: A system dump is taken. Processing continues. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC08

XMEOUT Parameters: *date, time, applid, tranid, hostaddr*

DFHRP1864 *date time applid tranid* **The CICS ONC RPC connection manager has detected an internal error while accessing an internal table. Host IP address: *hostaddr*.**

Explanation: An internal error has occurred in the connection manager while accessing an internal table.

System Action: A system dump is taken. Processing continues. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC08

XMEOUT Parameters: *date, time, applid, tranid, hostaddr*

DFHRP1865 *date time applid tranid* **The CICS ONC RPC connection manager has detected an internal error while accessing an internal table. Host IP address: *hostaddr*.**

Explanation: An internal error has occurred in the connection manager while accessing an internal table.

System Action: A system dump is taken. Processing continues. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC08

XMEOUT Parameters: *date, time, applid, tranid, hostaddr*

DFHRP1866 *date time applid tranid* **The CICS ONC RPC connection manager detected an internal error while accessing an internal table. Host IP address: *hostaddr*.**

Explanation: An internal error has occurred in the connection manager while accessing an internal table.

System Action: A system dump is taken. Processing continues. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC0E

XMEOUT Parameters: *date, time, applid, tranid, hostaddr*

DFHRP1867 *date time applid tranid* **The CICS ONC RPC connection manager could not complete the requested operation as an invalid CICS ONC RPC global work area address has been detected.**

Explanation: The connection manager was attempting to access or initialize the list of registered 4-tuples, but detected an invalid global work area address. This may indicate that CICS ONC RPC is disabled.

System Action: A system dump is taken. The requested operation is not completed. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: Retry the operation when CICS ONC RPC is enabled. If this occurred during enable processing, check that another connection manager transaction has not disabled CICS ONC RPC.

Destination: CRPO

Module: DFHRPC08

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1868 *date time applid tranid* **The CICS ONC RPC connection manager could not complete the requested operation. It could not obtain the required CICS storage. Host IP address: *hostaddr*.**

Explanation: A GETMAIN issued by connection manager when attempting to build a list of registered 4-tuples returned an error response.

System Action: A system dump is taken. Processing continues. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: CICS may be temporarily short on storage. Retry the operation. If the condition persists, contact your system administrator to see if there are problems with CICS storage. If CICS is not short on storage, you need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the *CICS/ESA Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC08

XMEOUT Parameters: *date, time, applid, tranid, hostaddr*

DFHRP1869 *date time applid tranid* **The CICS ONC RPC connection manager detected an error when freeing storage. Host IP address: *hostaddr*.**

Explanation: A FREEMAIN issued by connection manager when attempting to free storage used to build a list of registered 4-tuples returned an error response.

System Action: Processing continues.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the *CICS/ESA Problem Determination Guide* for guidance on how to proceed.

Destination: CRPO

Module: DFHRPC08

XMEOUT Parameters: *date, time, applid, tranid, hostaddr*

DFHRP1879 *date time applid tranid* **The CICS ONC RPC connection manager has detected an internal error while accessing an internal table. Host IP address: *hostaddr*.**

Explanation: An internal error has occurred in the connection manager while accessing an internal table.

System Action: A system dump is taken. Processing continues. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC08

XMEOUT Parameters: *date, time, applid, tranid, hostaddr*

DFHRP1900 *date time applid tranid* **The CICS ONC RPC connection manager could not find the global work area.**

Explanation: The connection manager could not find the global work area. The task related user exit DFHRPTRU has been wrongly defined.

System Action: A system dump is taken. CICS ONC RPC remains disabled. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: Ensure that all the CEDA groups for CICS ONC RPC have been installed correctly, then try to enable CICS ONC RPC again.

Investigate whether the operator has disabled DFHRPTRU for any reason.

Destination: CRPO

Module: DFHRPC0B

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1901 *date time applid tranid* **The CICS ONC RPC connection manager could not find the task-related user exit, program DFHRPTRU.**

Explanation: The connection manager cannot find the task-related user exit, DFHRPTRU, for one of the following reasons:

- DFHRPTRU has not been defined to CICS
- DFHRPTRU is not in the CICS load library
- DFHRPTRU has been disabled

System Action: A system dump is taken. CICS ONC RPC remains disabled. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: Ensure that all the CEDA groups for CICS ONC RPC have been installed correctly, then try the enable request again.

Destination: CRPO

Module: DFHRPC0B

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1902 *date time applid tranid* **The CICS ONC RPC connection manager does not have sufficient authority to issue the EXEC CICS EXTRACT EXIT command.**
EIBRESP2: *eibresp2*.

Explanation: The connection manager does not have the correct authority to issue the privileged EXEC CICS EXTRACT EXIT command. It cannot function without this authority.

System Action: A system dump is taken. The connection manager abends with abend code ARPZ. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: Use the EIBRESP2 value to identify the problem. Ensure that the connection manager and its associated program DFHRPC00 have the necessary level of security to issue the EXEC CICS EXTRACT EXIT command for the CICS ONC RPC task related user exit DFHRPTRU.

Destination: CRPO

Module: DFHRPC0B

XMEOUT Parameters: *date, time, applid, tranid, eibresp2*

DFHRP1903 *date time applid tranid* **The CICS ONC RPC connection manager has received an unexpected response from CICS.**

Explanation: The connection manager received an unexpected response from CICS to an EXEC CICS command.

This is a logic error.

System Action: A system dump is taken. CICS ONC RPC is disabled. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed.

Destination: CRPO

Module: DFHRPC0B

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1906 *date time applid tranid* **The CICS ONC RPC connection manager found an error in the length of the CICS ONC RPC global work area.**

Explanation: The connection manager found that the length of its global work area is not correct.

System Action: A system dump is taken. CICS ONC RPC is disabled. It is not possible to enable CICS ONC RPC until DFHRPTRU has been correctly defined to CICS. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: Ensure that DFHRPTRU has not been enabled by an operator command.

Destination: CRPO

Module: DFHRPC0B

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1907 *date time applid tranid* **The CICS ONC RPC connection manager found invalid data in the global work area.**

Explanation: The connection manager found invalid data in the global work area. This is probably caused by a storage overwrite.

System Action: A system dump is taken. CICS ONC RPC is disabled. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: Investigate the reason for the storage overwrite

Destination: CRPO

Module: DFHRPC0B

XMEOUT Parameters: *date, time, applid, tranid*

DFHRP1950 *date time applid tranid* **The CICS ONC RPC connection manager detected a logic error. Program: X'prognum' Version: X'versnum' Procedure: X'procnum' Protocol: protocol. Host IP address: hostaddr.**

Explanation: The connection manager has received an unexpected response from CICS following an EXEC CICS command.

System Action: A system dump is taken. Registration of the 4-tuple currently being processed is not possible. The 4-tuple is not registered. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC0E

XMEOUT Parameters: *date, time, applid, tranid, X'prognum', X'versnum', X'procnum', protocol, hostaddr*

DFHRP1951 *date time applid tranid* **The CICS ONC RPC connection manager could not load the requested XDR program *xdrname*. EIBRESP: *eibresp* EIBRESP2: *eibresp2* Program: X'prognum' Version: X'versnum' Procedure: X'procnum' Protocol: protocol. Host IP address: hostaddr.**

Explanation: The connection manager used EXEC CICS LOAD for the CICS program *xdrname*, which has been requested as the XDR routine for the 4-tuple being processed, but received an error response.

System Action: The 4-tuple is not registered.

User Response: The problem is probably due to an error in defining the requested program *xdrname* to CICS, or to wrongly defining an XDR routine name for the 4-tuple. Use the values provided in *eibresp* and *eibresp2* to identify the reason for the error in the LOAD, and use the CICS CEDA transaction or the connection manager to rectify the problem.

Destination: CRPO

Module: DFHRPC0E

XMEOUT Parameters: *date, time, applid, tranid, xdrname, eibresp, eibresp2, X'prognum', X'versnum', X'procnum', protocol, hostaddr*

DFHRP1952 *date time applid tranid* **The CICS ONC RPC connection manager could not load the XDR routine *xdrname*. EIBRESP: *eibresp* EIBRESP2: *eibresp2* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol*. Host IP address: *hostaddr*.**

Explanation: The connection manager used EXEC CICS LOAD for CICS program with name *xdrname*, which has been requested as the XDR routine for the 4-tuple being processed, but received an error response.

System Action: The 4-tuple is not registered.

User Response: Use the values provided in EIBRESP and EIBRESP2 to identify the reason for the error in the LOAD.

Destination: CRPO

Module: DFHRPC0E

XMEOUT Parameters: *date, time, applid, tranid, xdrname, eibresp, eibresp2, X'prognum', X'versnum', X'procnum', protocol, hostaddr*

DFHRP1953 *date time applid tranid* **The CICS ONC RPC connection manager detected a logic error when loading XDR routine *xdrname*. EIBRESP: *eibresp* EIBRESP2: *eibresp2* Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol*. Host IP address: *hostaddr*.**

Explanation: The connection manager used EXEC CICS LOAD for the CICS program *xdrname*, which has been requested as the XDR routine for the 4-tuple being processed, but it received an unexpected response.

System Action: A system dump is taken. The 4-tuple is not registered. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC0E

XMEOUT Parameters: *date, time, applid, tranid, xdrname, eibresp, eibresp2, X'prognum', X'versnum', X'procnum', protocol, hostaddr*

DFHRP1954 *date time applid tranid* **The CICS ONC RPC connection manager detected a logic error detected while registering a 4-tuple. Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol*. Host IP address: *hostaddr*.**

Explanation: The connection manager has received an unexpected response from CICS following an EXEC CICS command.

System Action: A system dump is taken. The connection manager abends with abend code ARPV. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC0E

XMEOUT Parameters: *date, time, applid, tranid, X'prognum', X'versnum', X'procnum', protocol, hostaddr*

DFHRP1955 *date time applid tranid* **The CICS ONC RPC connection manager could not register a 4-tuple because of an internal error. Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol*. Host IP address: *hostaddr*.**

Explanation: The connection manager could not add an XDR routine name to an internal table.

System Action: The 4-tuple is not registered.

User Response: Try to register the 4-tuple again. If the condition persists, you need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed.

Destination: CRPO

Module: DFHRPC0E

XMEOUT Parameters: *date, time, applid, tranid, X'prognum', X'versnum', X'procnum', protocol, hostaddr*

DFHRP1956 *date time applid tranid* **CICS ONC RPC is being disabled. Requested operation not performed. Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol*. Host IP address: *hostaddr*.**

Explanation: The connection manager is unable to complete the current register operation because CICS ONC RPC is in disable processing.

System Action: The 4-tuple is not registered.

User Response: Once CICS ONC RPC has completed disable processing, enable it again using the connection manager, and try the register operation again.

Destination: CRPO

Module: DFHRPC0E

XMEOUT Parameters: *date, time, applid, tranid, X'prognum', X'versnum', X'procnum', protocol, hostaddr*

DFHRP1957 *date time applid tranid* **CICS ONC RPC is not enabled, so the register operation could not be performed. Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol*. Host IP address: *hostaddr*.**

Explanation: The connection manager is unable to complete the current register operation because CICS ONC RPC is not currently enabled. It may have been disabled by another connection manager transaction.

System Action: The 4-tuple is not registered.

User Response: Use the connection manager to enable CICS ONC RPC, and try the register operation again.

Destination: CRPO

Module: DFHRPC0E

XMEOUT Parameters: *date, time, applid, tranid, X'prognum', X'versnum', X'procnum', protocol, hostaddr*

DFHRP1958 *date time applid tranid* **The CICS ONC RPC connection manager could not register the 4-tuple because it was already registered. Program: X'prognum' Version: X'versnum' Procedure: X'procnum' Protocol: protocol. Host IP address: hostaddr.**

Explanation: The connection manager is unable to complete the current register operation because the requested 4-tuple is already registered.

System Action: The connection manager continues, but the 4-tuple is not registered.

User Response: This may be a temporary condition, so try the register again. If message DFHRP0002 was issued to the console, the explanation of that message might contain more information. If the condition persists, see the *CICS for MVS/ESA ONC RPC Guide* for further guidance on how to proceed.

Destination: CRPO

Module: DFHRPC0E

XMEOUT Parameters: *date, time, applid, tranid, X'prognum', X'versnum', X'procnum', protocol, hostaddr*

DFHRP1959 *date time applid tranid* **The CICS ONC RPC connection manager detected an error while registering a 3-tuple with TCP/IP for MVS. Program: X'prognum' Version: X'versnum' Procedure: X'procnum' Protocol: protocol. Host IP address: hostaddr.**

Explanation: The connection manager is unable to complete the current register operation because an error was returned by TCP/IP for MVS.

System Action: The connection manager continues, but the 4-tuple is not registered.

User Response: See the associated diagnostics issued by CICS and TCP/IP for MVS for problem determination. If message DFHRP0002 was issued to the console, the explanation of that message might contain more information.

Destination: CRPO

Module: DFHRPC0E

XMEOUT Parameters: *date, time, applid, tranid, X'prognum', X'versnum', X'procnum', protocol, hostaddr*

DFHRP1960 *date time applid tranid* **The CICS ONC RPC connection manager detected an error while registering a 3-tuple with TCP/IP for MVS. Program: X'prognum' Version: X'versnum' Procedure: X'procnum' Protocol: protocol. Host IP address: hostaddr.**

Explanation: The connection manager is unable to complete the current register operation because an error was returned by TCP/IP for MVS. This may be on an **svcdup_create** or **svctcp_create** operation.

System Action: The connection manager continues, but the 4-tuple is not registered.

User Response: See the associated diagnostics issued by CICS and TCP/IP for MVS for problem determination. If message DFHRP0002 was issued to the console, the explanation of that message might contain more information.

Destination: CRPO

Module: DFHRPC0E

XMEOUT Parameters: *date, time, applid, tranid, X'prognum', X'versnum', X'procnum', protocol, hostaddr*

DFHRP1961 *date time applid tranid* **Data entered in field *fieldname1* is incompatible with data entered in field *fieldname2*.**

Explanation: Data was entered on a connection manager panel in *fieldname1* that is incompatible with data entered in *fieldname2*.

System Action: The connection manager panel is redisplayed and the field in error is highlighted.

User Response: Enter compatible data in the fields indicated.

Destination: Terminal End User

Modules: DFHRPC0D, DFHRPC05

DFHRP1962 *date time applid tranid* **Enter the Program Number, Version Number, Procedure Number and Protocol for the 4-tuple to be displayed.**

Explanation: To retrieve information about a 4-tuple in the CICS ONC RPC data set you must supply the program number, version number, procedure number, and protocol.

System Action: None.

User Response: Enter the required data.

Destination: Terminal End User

Modules: DFHRPC0D, DFHRPC03

DFHRP1963 *date time applid tranid* **Enter the following fields before register or save to data set: Program Number, Version Number, Procedure Number, XDR Routines, and Program Name.**

Explanation: The following fields are required before registration or saving of the 4-tuple: the Program Number, Version Number, Procedure Number, Inbound XDR Routine, Outbound XDR Routine (if RPC Call Type of blocking), and Program Name.

System Action: The connection manager panel is redisplayed.

User Response: Enter valid data in the field(s) indicated.

Destination: Terminal End User

Modules: DFHRPC0D, DFHRPC05

DFHRP1964 *date time applid tranid* **Data entered in the Getlengths field is incompatible with data entered in the Server Input Length or Server Output Length fields.**

Explanation: Either you have specified YES for Getlengths and put information in Server Input Length or Server Output Length, or you have specified NO for Getlengths but put no information in Server Input Length and Server Output Length.

System Action: The connection manager panel is redisplayed.

User Response: Decide whether the lengths are to be specified on this panel, or to be supplied by the **Getlengths** function of the converter for this 4-tuple.

Destination: Terminal End User

Modules: DFHRPC0D, DFHRPC05

DFHRP1965 *date time applid tranid* **With Server Data Format of CONTIGUOUS, the Server Input Length and Server Output Length together must not exceed 32767 Bytes.**

Explanation: An invalid server data length has been detected on a CRPC panel. The maximum total data length which can pass between the alias and the CICS program that services the client request is 32767. If server data format of CONTIGUOUS is specified, the Server Input Length and the Server Output Length added together must not exceed this value.

System Action: The connection manager panel is redisplayed.

User Response: Enter valid data in the fields.

Destination: Terminal End User

Modules: DFHRPC0D, DFHRPC05

DFHRP1966 *date time applid tranid* **Procedure Number of 0 is not allowed.**

Explanation: A value of zero has been entered in the Procedure Number field. This is not allowed.

System Action: The connection manager panel is redisplayed, and the field in error is highlighted.

User Response: Enter valid data in the field indicated.

Destination: Terminal End User

Modules: DFHRPC0D, DFHRPC05, DFHRPC06

DFHRP1967 *date time applid tranid* **The CICS ONC RPC connection manager detected an internal error while trying to register a 4-tuple. Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol*. Host IP address: *hostaddr*.**

Explanation: The connection manager detected an internal error while trying to register a 4-tuple.

System Action: A system dump is taken. The connection manager continues. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: See associated messages to find out whether the 4-tuple was registered. You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPC0E

XMEOUT Parameters: *date, time, applid, tranid, X'prognum', X'versnum', X'procnum', protocol, hostaddr*

DFHRP1968 *date time applid tranid* **The CICS ONC RPC connection manager has not performed a register operation because it detected an invalid global work area. Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol*. Host IP address: *hostaddr*.**

Explanation: The connection manager is unable to complete the current register operation because it has detected an invalid global work area address. CICS ONC RPC may have been disabled by another connection manager transaction.

System Action: The connection manager continues, but the 4-tuple is not registered.

User Response: Use the connection manager to enable CICS ONC RPC, and try the register operation again. If message DFHRP0002 was issued to the console, the explanation of that message might contain more information.

Destination: CRPO

Module: DFHRPC0E

XMEOUT Parameters: *date, time, applid, tranid, X'prognum', X'versnum', X'procnum', protocol, hostaddr*

DFHRP1969 *date time applid tranid* **The CICS ONC RPC connection manager detected an abend in converter *progname* during Getlengths processing. Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol*. Host IP address: *hostaddr*.**

Explanation: The connection manager is unable to complete the current register operation because it has detected an abend in the converter when invoking it for the **Getlengths** function.

System Action: The connection manager continues, but the 4-tuple is not registered.

User Response: Use CICS diagnostics to correct the converter.

Destination: CRPO

Module: DFHRPC0E

XMEOUT Parameters: *date, time, applid, tranid, progname, X'prognum', X'versnum', X'procnum', protocol, hostaddr*

DFHRP1970 *date time applid tranid* **The CICS ONC RPC connection manager has registered the 4-tuple. Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol*. Host IP address: *hostaddr*.**

Explanation: The 4-tuple has been registered.

System Action: None.

User Response: None.

Destination: CRPO

Module: DFHRPC0E

XMEOUT Parameters: *date, time, applid, tranid, X'prognum', X'versnum', X'procnum', protocol, hostaddr*

DFHRP1980 *date time applid tranid* **The CICS ONC RPC connection manager cannot register the 4-tuple because it has already been registered. Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol*. Host IP address: *hostaddr*.**

Explanation: The 4-tuple has already been registered.

System Action: The connection manager panel is redisplayed.

User Response: Enter a new 4-tuple for registration.

Destination: CRPO

Module: DFHRPC0E

XMEOUT Parameters: *date, time, applid, tranid, X'prognum', X'versnum', X'procnum', protocol, hostaddr*

DFHRP1981 *date time applid tranid* **The CICS ONC RPC connection manager detected an internal error while registering a 4-tuple. Program: X'prognum' Version: X'versnum' Procedure: X'procnum' Protocol: protocol. Host IP address: hostaddr.**

Explanation: The connection manager has detected an internal error while registering the 4-tuple.

System Action: The 4-tuple is not registered.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed.

Destination: CRPO

Module: DFHRPC0E

XMEOUT Parameters: *date, time, applid, tranid, X'prognum', X'versnum', X'procnum', protocol, hostaddr*

DFHRP1982 *date time applid tranid* **The CICS ONC RPC connection manager detected an internal error detected while registering a 4-tuple. Program: X'prognum' Version: X'versnum' Procedure: X'procnum' Protocol: protocol. Host IP address: hostaddr.**

Explanation: The connection manager has detected an internal error while registering the 4-tuple.

System Action: Processing continues.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed.

Destination: CRPO

Module: DFHRPC0E

XMEOUT Parameters: *date, time, applid, tranid, X'prognum', X'versnum', X'procnum', protocol, hostaddr*

DFHRP1983 *date time applid tranid* **The CICS ONC RPC connection manager detected an error while linking to the converter *converter_program_name*. EIBRESP: *eibresp* EIBRESP2: *resp2val* Program: X'prognum' Version: X'versnum' Procedure: X'procnum' Protocol: protocol. Host IP address: hostaddr.**

Explanation: The connection manager used EXEC CICS LINK for the converter to perform **Getlengths** processing for the 4-tuple. The response was PGMIDERR.

System Action: The 4-tuple is not registered.

User Response: Use the EIBRESP2 value to identify the problem.

Destination: CRPO

Module: DFHRPC0E

XMEOUT Parameters: *date, time, applid, tranid, converter_program_name, eibresp, resp2val, X'prognum', X'versnum', X'procnum', protocol, hostaddr*

DFHRP1984 *date time applid tranid* **The CICS ONC RPC connection manager cannot link to converter** *converter_program_name* **because it is remote. EIBRESP:** *eibresp* **EIBRESP2:** *resp2val* **Program:** *X'prognum'* **Version:** *X'versnum'* **Procedure:** *X'procnum'* **Protocol:** *protocol*. **Host IP address:** *hostaddr*.

Explanation: The connection manager used EXEC CICS LINK for the converter to perform **Getlengths** processing, but the response was TERMERR or SYSIDERR. The connection manager passes pointers to the converter, so the converter must be in the same CICS region as CICS ONC RPC.

System Action: The 4-tuple is not registered.

User Response: Install and define the converter program in the same CICS region as CICS ONC RPC.

Destination: CRPO

Module: DFHRPC0E

XMEOUT Parameters: *date, time, applid, tranid, converter_program_name, eibresp, resp2val, X'prognum', X'versnum', X'procnum', protocol, hostaddr*

DFHRP1985 *date time applid tranid* **The CICS ONC RPC connection manager received an unexpected response from CICS while linking to converter** *converter_program_name*. **EIBRESP:** *eibresp* **EIBRESP2:** *resp2val* **Program:** *X'prognum'* **Version:** *X'versnum'* **Procedure:** *X'procnum'* **Protocol:** *protocol*. **Host IP address:** *hostaddr*.

Explanation: The connection manager used EXEC CICS LINK for the converter to perform **Getlengths** processing, but received an unexpected response.

System Action: The 4-tuple is not registered.

User Response: See the associated diagnostics issued by CICS for problem determination.

Destination: CRPO

Module: DFHRPC0E

XMEOUT Parameters: *date, time, applid, tranid, converter_program_name, eibresp, resp2val, X'prognum', X'versnum', X'procnum', protocol, hostaddr*

DFHRP1986 *date time applid tranid* **The CICS ONC RPC connection manager is not authorized to link to converter** *converter_program_name*. **EIBRESP:** *eibresp* **EIBRESP2:** *resp2val* **Program:** *X'prognum'* **Version:** *X'versnum'* **Procedure:** *X'procnum'* **Protocol:** *protocol*. **Host IP address:** *hostaddr*.

Explanation: The connection manager used EXEC CICS LINK for the converter to perform **Getlengths** processing, but received a NOTAUTH response.

System Action: The 4-tuple is not registered.

User Response: When CICS ONC RPC is next disabled, redefine connection manager with RESSEC=NO.

Destination: CRPO

Module: DFHRPC0E

XMEOUT Parameters: *date, time, applid, tranid, converter_program_name, eibresp, resp2val, X'prognum', X'versnum', X'procnum', protocol, hostaddr*

DFHRP1988 *date time applid tranid* **The CICS ONC RPC connection manager encountered an error in Getlengths processing in converter *converter_program_name*. Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol*. Host IP address: *hostaddr*.**

Explanation: **Getlengths** returned URP_EXCEPTION.

System Action: The **Getlengths** parameter area is traced. The 4-tuple is not registered.

User Response: Use the trace information to correct the converter.

Destination: CRPO

Module: DFHRPC0E

XMEOUT Parameters: *date, time, applid, tranid, converter_program_name, X'prognum', X'versnum', X'procnum', protocol, hostaddr*

DFHRP1989 *date time applid tranid* **The CICS ONC RPC connection manager encountered an error in Getlengths processing in converter *converter_program_name*. Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol*. Host IP address: *hostaddr*.**

Explanation: **Getlengths** returned URP_INVALID.

System Action: The **Getlengths** parameter area is traced. The 4-tuple is not registered.

User Response: Use the trace information to correct the converter.

Destination: CRPO

Module: DFHRPC0E

XMEOUT Parameters: *date, time, applid, tranid, converter_program_name, X'prognum', X'versnum', X'procnum', protocol, hostaddr*

DFHRP1990 *date time applid tranid* **The CICS ONC RPC connection manager encountered an error during Getlengths processing in converter *converter_program_name*. Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol*. Host IP address: *hostaddr*.**

Explanation: **Getlengths** returned URP_DISASTER.

System Action: The **Getlengths** parameter area is traced. The 4-tuple is not registered.

User Response: Use the trace information to correct the converter.

Destination: CRPO

Module: DFHRPC0E

XMEOUT Parameters: *date, time, applid, tranid, converter_program_name, X'prognum', X'versnum', X'procnum', protocol, hostaddr*

DFHRP1991 *date time applid tranid* **The CICS ONC RPC connection manager has detected an invalid server data length returned by the Getlengths function of converter *converter_program_name*. Program: *X'prognum'* Version: *X'versnum'* Procedure: *X'procnum'* Protocol: *protocol*. Host IP address: *hostaddr*.**

Explanation: The communication area length calculated from the **glength_server_data_format**, **glength_server_input_data_len**, and **glength_server_output_data_len** parameters exceeds 32767.

System Action: The **Getlengths** parameter area is traced. The 4-tuple is not registered.

User Response: Use the trace information to correct the converter.

Destination: CRPO

Module: DFHRPC0E

XMEOUT Parameters: *date, time, applid, tranid, converter_program_name, X'prognum', X'versnum', X'procnum', protocol, hostaddr*

DFHRP2000 *date time applid tranid* **A browse of the CICS ONC RPC alias list could not be performed because another browse is active.**

Explanation: Only one task can browse the alias list at a time. This is enforced by use of an ENQ in the connection manager. However, the alias list component has been called to start a browse and has found that there is already a browse active. This is due either to a logic error in CICS ONC RPC code, or to a storage overwrite.

System Action: A system dump is taken. The browse request is rejected. Message DFHME0116 is normally produced containing the symptom string for this problem.

User Response: If the problem is due to a storage overwrite, it is almost certain that there are errors in other CICS functions for no apparent reason. If this is not the case, you may need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the CICS/ESA *Problem Determination Guide* for guidance on how to proceed. Report the details of the symptom string given in message DFHME0116.

Destination: CRPO

Module: DFHRPAL

XMEOUT Parameters: *date, time, applid, tranid*

Abend codes

The following CICS abend codes are produced by CICS ONC RPC.

ARPF

Explanation: The alias could not be initialized.

System Action: One of the following messages is issued: DFHRP0103, DFHRP0104, DFHRP0106, DFHRP0108, DFHRP0109.

User Response: See the user response for the message.

Module: DFHRPAS

ARPG

Explanation: The alias was not able to link to the CICS program or the **Encode** function of the converter for one of the following reasons:

- The user ID supplied for the alias was not valid.
- The CICS program is not defined as a resource to the external security manager.
- The CICS program name is not valid.
- The CICS program was on a different system from CICS ONC RPC, and the specified system name was not valid.
- The converter program name was not valid.
- The converter program is defined as remote.
- The alias is not authorized to use the converter.

System Action: One of the following messages is issued: DFHRP0121, DFHRP0131, DFHRP0138, DFHRP0139, DFHRP0141, DFHRP0156, DFHRP0157, DFHRP0159.

User Response: See the user response for the message.

Module: DFHRPAS

ARPH

Explanation: The alias detected a global work area error.

System Action: The following message is issued: DFHRP0118.

User Response: See the user response for the message.

Module: DFHRPAS

ARPI

Explanation: The alias detected a logic error.

System Action: One of the following messages is issued: DFHRP0107, DFHRP0133, DFHRP0135, DFHRP0137, DFHRP0143, DFHRP0144, DFHRP0148, DFHRP0149, DFHRP0155, DFHRP0164, DFHRP0168, DFHRP0170.

User Response: See the user response for the message.

Module: DFHRPAS

ARPJ

Explanation: The alias ends for one of the following reasons:

- An unexpected response was received from CICS during transaction initialization.
- The external security manager is no longer available.
- The remote CICS region in which the CICS program was running abended.
- The CICS program, which was running in a remote CICS region, abended.
- The reply could not be sent to the client. This can happen if the client has been timed out.

System Action: One of the following messages is issued: DFHRP0105, DFHRP0132, DFHRP0136, DFHRP0140, DFHRP0145, DFHRP0146, DFHRP0147, DFHRP0150, DFHRP0165, DFHRP0166, DFHRP0167.

User Response: See the user response for the message.

Module: DFHRPAS

ARPK

Explanation: The alias detected a CICS logic error.

System Action: One of the following messages is issued: DFHRP0102, DFHRP0122, DFHRP0142, DFHRP0160.

User Response: See the user response for the message.

Module: DFHRPAS

ARPL

Explanation: The alias detected an authorization error.

System Action: One of the following messages is issued: DFHRP0119, DFHRP0120, DFHRP0132, DFHRP0134.

User Response: See the user response for the message.

Module: DFHRPAS

ARPM

Explanation: The alias detected an error in user code.

System Action: One of the following messages is issued: DFHRP0161, DFHRP0162, DFHRP0163, DFHRP0169.

User Response: See the user response for the message.

Module: DFHRPAS

ARPN

Explanation: The alias detected an error while trying to switch TCBs.

System Action: The following message is issued: DFHRP0151.

User Response: See the user response for the message.

Module: DFHRPAS

ARPO

Explanation: The alias program detected an abend.

System Action: One of the following messages is issued: DFHRP0181, DFHRP0182, DFHRP0183.

User Response: See the user response for the message.

Module: DFHRPAS

ARPU

Explanation: The connection manager could not access the CICS ONC RPC data set, and received an error response when it tried to send message DFHRP1512.

System Action: None.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the *CICS/ESA Problem Determination Guide* for guidance on how to proceed.

Module: DFHRPC01

ARPV

Explanation: The connection manager received an unexpected response from CICS following an EXEC CICS command.

System Action: One of the following messages is issued: DFHRP1540, DFHRP1651, DFHRP1954.

User Response: See the user response for the message.

Module: DFHRPC0E

ARPW

Explanation: The connection manager received an unexpected response from CICS following an EXEC CICS command.

System Action: The following message is issued: DFHRP1969.

User Response: See the user response for the message.

Module: DFHRPC0E

ARPX

Explanation: The connection manager was started against an invalid terminal.

System Action: The following message is issued: DFHRP1522.

User Response: See the user response for the message.

Module: DFHRPC01

ARPZ

Explanation: The connection manager has insufficient authority.

System Action: The following message is issued: DFHRP1902.

User Response: See the user response for the message.

Module: DFHRPC0B

ARP2

Explanation: The server controller detected an internal error during CICS ONC RPC enable processing.

System Action: One of the following messages is issued: DFHRP0508, DFHRP0509, DFHRP0528, DFHRP0529, DFHRP0590, DFHRP0591.

User Response: See the user response for the message.

Module: DFHRPMS

ARP4

Explanation: The server controller has performed an exception disable because of an internal error.

System Action: One of the following messages is issued: DFHRP0503, DFHRP0559, DFHRP0697, DFHRP0726, DFHRP0728, DFHRP0730, DFHRP0741.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the *CICS/ESA Problem Determination Guide* for guidance on how to proceed.

Module: DFHRPMS

ARP5

Explanation: An invalid attempt was made to start the server controller.

System Action: The following message is issued: DFHRP0640.

User Response: See the user response for the message. See Chapter 7, "Problem determination" on page 85, and Part 4 of the *CICS/ESA Problem Determination Guide* for guidance on how to proceed.

Module: DFHRPMS

ARP9

Explanation: There was not enough storage for the connection manager.

System Action: None.

User Response: You need further assistance from IBM to resolve this problem. See Chapter 7, "Problem determination" on page 85, and Part 4 of the *CICS/ESA Problem Determination Guide* for guidance on how to proceed.

Module: DFHRPC01

Glossary

This glossary contains terms that may be unfamiliar to the reader. For the most part, these consist of CICS ONC RPC terms, ONC RPC terms, some TCP/IP for MVS terms, and a selection of CICS and MVS terms. It does not include a glossary of CICS terms in general. Please refer to the relevant CICS for MVS/ESA manual for any CICS terms that are not contained here.

Numeric

3-tuple. An ordered set of three elements. In ONC RPC, a 3-tuple of program number, version number, and procedure number is used to identify remote procedures. In TCP/IP for MVS, a 3-tuple of program number, version number, and protocol is associated with a port at registration.

4-tuple. An ordered set of four elements. In CICS ONC RPC, a 4-tuple of program number, version number, procedure number, and protocol is used to identify the resources to be used to service a client request.

4-tuple records. The records in the CICS ONC RPC data set that contain details of 4-tuples.

A

alias list. A list of aliases started by the server controller but not yet ended.

alias transaction. A CICS ONC RPC transaction that is started by the server controller to process a client request.

authentication. The RPC term for the security checking, or validation, of incoming client requests that is supplied by ONC RPC. There are three forms of ONC RPC authentication; CICS ONC RPC allows UNIX and null authentication (but not DES authentication). Note that CICS ONC RPC offers its own security-checking facilities in addition to UNIX authentication.

Automatic Enable. This is a CICS ONC RPC option. When it is set, users may start CICS ONC RPC by entering the connection manager transaction ID (CRPC) without inputting any other information. All CICS ONC RPC operating options and 4-tuple details are taken from the CICS ONC RPC data set.

B

blocking call. A synchronous remote procedure call. The client program makes the call and waits for a reply.

C

callback RPC. An asynchronous remote procedure call. The client program makes the call, and continues with other work. The reply is notified to the client in an asynchronous routine supplied by the client. (Not supported by CICS ONC RPC.)

callrpc. **callrpc** is called by the client to locate and then request the execution of a remote procedure. It is a high-level RPC call. By invoking **callrpc**, you perform everything needed to complete a client request. You can only use the UDP transport with **callrpc**. You must use low-level calls if you want to use TCP.

CICS ONC RPC data set. The data set that contains details of CICS ONC RPC operating options and 4-tuples that have been input by the user.

CICS ONC RPC definition record. The record in the CICS ONC RPC data set that contains details of CICS ONC RPC operating options.

CICS program. A program in a CICS for MVS/ESA system that can be accessed by EXEC CICS LINK. In CICS ONC RPC, the term is restricted to the CICS application programs that will process a remote procedure call.

client. A client always operates in a pair with a server. Any process (or program) that provides resources or services to other processes is a *server*. Any process that employs the services provided by a server is a *client*.

client stub. Source program that handles all the client communication involved in a remote procedure call. When linked in with a client stub, a client application can make requests to a remote procedure as if it were local. Client stubs may be generated by the RPCGEN compiler.

communication area. A communication area (COMMAREA) is a CICS facility used to transfer information between two programs.

connection manager. The connection manager is a component of CICS ONC RPC that presents an interface to users, allowing them to enable or disable

CICS ONC RPC, and set and inquire on various options. Its CICS transaction ID is CRPC.

contiguous. A method of organizing the CICS program communication area so that the input data occupies the first part and the output data occupies the rest.

converter. A user-replaceable program that contains the **Getlengths**, **Decode**, and **Encode** functions as required.

CRPA. The default transaction ID for the alias.

CRPC. The transaction ID for the connection manager.

CRPM. The transaction ID for the server controller.

D

data format. In CICS ONC RPC, the manner in which data is arranged in the CICS program communication area.

DCE. Distributed Computing Environment. A range of software produced by the Open Software Foundation that includes an RPC implementation that is not compatible with ONC RPC.

Decode. A function of the converter. If a 4-tuple requires it, it is called by the server controller.

Disable. A connection manager option used to disable CICS ONC RPC.

dotted decimal. A method of displaying a 32-bit number as four decimal numbers, one for each eight bits, with dots between them.

DPL. CICS distributed program link.

E

Enable. A connection manager option used to enable CICS ONC RPC.

Encode. A function of the converter. If a 4-tuple requires it, it is called by the alias.

ephemeral port. A port used by a client.

eXternal Data Representation (XDR). XDR is the definition of the data format used in transmitting remote procedure calls. XDR routines encode data into the correct format for transmission, and decode it after transmission.

external security manager (ESM). Any software product that can be used by CICS to manage user and resource security profiles.

F

fast-path command. A command that has options that may be specified with the command and in abbreviated form. This is a quick alternative to setting options by making entries in fields on panels. Fast-path commands are used in the connection manager.

G

Getlengths. A function of the converter. If a 4-tuple requires it, it is called when the 4-tuple is registered in the connection manager.

H

host ID. In ONC RPC, same as internet address. In CICS ONC RPC, the internet address of the TCP/IP for MVS host that the server controller is connected to.

I

inbound data. Data from an external source for local processing.

internet address. A 32-bit number that identifies a host on a TCP/IP network. It is usually displayed in dotted decimal notation.

IP. Internet Protocol.

N

nonblocking call. A remote procedure call to which no reply is to be sent.

O

ONC. Open Network Computing.

Open Network Computing. A range of software produced by Sun Microsystems. The range includes RPC and XDR.

OSI. Open Systems Interconnection.

outbound data. Data from a local source for external transmission.

overlaid. A method of organizing the CICS program communication area so that the input data is overwritten by the output data.

P

passticket. A one-time-only password that is used by a requesting client. Various data items including user id, time, and date are fed into an algorithm to generate the passticket. Its use avoids password transmission in clear text across a network.

port. A means of accessing services in a TCP/IP host.

Portmapper. A component of TCP/IP for MVS that manages the association between ports and program-version-protocol 3-tuples.

procedure number. In CICS ONC RPC, the third element of the 4-tuple used to identify the resources for servicing a remote procedure call.

program number. In CICS ONC RPC, the first element of the 4-tuple used to identify the resources for servicing a remote procedure call.

protocol. In CICS ONC RPC, the fourth element of the 4-tuple used to identify the resources for servicing a remote procedure call.

Q

quasi-reentrant task control block (QR TCB). The TCB under which CICS application code runs. It is the only TCB in CICS that has EXEC CICS command support.

R

RACF. Resource Access Control Facility. An IBM product that acts as an external security manager.

registration. In TCP/IP for MVS, allocating a port to a program-version-protocol 3-tuple. In CICS ONC RPC, making a 4-tuple available to service client requests.

remote procedure. In ONC RPC, a procedure on one system that is intended to be accessed by clients on another.

remote procedure call (RPC). A mechanism for transferring data to a remote procedure and getting back a result.

resource checker. A user-written module that performs checks on a client's supplied user ID, password, requested program, and so on. It is optionally called by CICS ONC RPC during processing of an incoming request.

RP TCB. A CICS TCB used by CICS ONC RPC.

RPC. remote procedure call.

RPCGEN. A compiler supplied with ONC RPC. It produces C source code for programs and data structures from a definition of an RPC interface in RPCL.

RPCL. RPC language. An interface definition language, part of ONC RPC.

S

secured signon. The RACF facility that allows the use of a *passticket*.

server. See **client**.

server controller. A component of CICS ONC RPC that monitors the TCP/IP for MVS interface for incoming RPC requests, and starts alias transactions to service those requests. Its CICS transaction ID is CRPM.

server stub. Source program that handles all the remote communication involved in servicing a remote procedure call. It is not used in CICS ONC RPC.

SNA. Systems Network Architecture.

sockets interface. An interface into TCP/IP between the fourth and fifth OSI layers.

T

task control block (TCB). A task control block (TCB) is associated with each MVS task.

task-related user exit (TRUE). A CICS module usually used to invoke a resource manager outside the CICS system. CICS ONC RPC includes a TRUE, but not for this purpose. CICS ONC RPC uses a TRUE to anchor shared storage and to help manage the CICS ONC RPC response to CICS for MVS/ESA shutdown.

TCP. Transmission Control Protocol.

TCP/IP. Transmission Control Protocol/Internet Protocol. TCP/IP is a family of communication protocols named after two of its most important members.

U

UDP. User Datagram Protocol.

V

version number. In CICS ONC RPC, the second element of the 4-tuple used to identify the resources for servicing a remote procedure call.

W

well-known port. A port number reserved for use by a standard TCP/IP service.

why-value. A value returned by an ONC RPC server to a client to explain the reason for an error.

X

XDR. eXternal Data Representation.

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CICS/ESA 3.3 and CICS for MVS/ESA 4.1**

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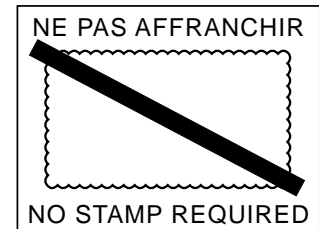
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