IMS
DB2 for z/OS
Version

IRLM Messages and Codes for IMS and Db2 for z/OS



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Note

Before using this information and the product it supports, be sure to read the general information under "Notices" at the end of this information.

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This edition applies to IMS Version 13 (product number 5635-A04), IMS Version 12 (product number 5635-A03), IMS Version 11 (product number 5635-A02),DB2® 12 for z/OS® (product number 5650-DB2), DB2 11 for z/OS (product number 5615-DB2), and DB2 10 for z/OS (product number 5605-DB2) and to any subsequent releases until otherwise indicated in new editions. Make sure you are using the correct edition for the level of the product.

Specific changes are indicated by a vertical bar to the left of a change. A vertical bar to the left of a figure caption indicates that the figure has changed. Editorial changes that have no technical significance are not noted.

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About this information

This publication describes messages and codes that are issued by the internal resource lock manager (IRLM) of IMS or DB2 for z/OS. Unless otherwise specified, information applies equally to the following products:

- IMS Version 13
- IMS Version 12
- IMS Version 11
- DB2 12 for z/OS
- DB2 11 for z/OS
- DB2 10 for z/OS

Where differences exist by product or version, the differences are identified by text, an image, or both.

In this information, the term "DB2 for z/OS" applies to DB2 12 for z/OS, DB2 11 for z/OS, and DB2 10 for z/OS.

The information in this publication was previously published in the messages and codes publications for the individual products.

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Chapter 1. DXR messages

This section describes the messages issued by the internal resource lock manager (IRLM). The database management system (DBMS) referred to throughout the messages is either DB2 or IMS. Some messages do not apply to DB2 operations.

The messages have the form of DXR*xxxa* and are listed in numeric order.

DXR
The prefix for IRLM messages.

xxx
The numeric part of the message.

a
An alphabetic suffix, as follows:

I
The message is for information only.

E
The message reports an error condition which might require action.

A
Action is required of the user before processing can continue.

IRLM will now direct messages in two ways:

1. If a UN-solicited message is to be issued, the target "console" will be the one in which IRLM was started from.
2. If a solicited message is to be issued, i.e. via "F IRLM,STATUS" opercmd, it will automatically be directed back to the console from which the modify was accepted. Even if it was a TSO session running SDSF.

All messages contain the issuing IRLM subsystem name and ID *irlmx*, where *irlmx* is the concatenation of the IRLMNM and IRLMID specified as EXEC parameters when the IRLM was started, as shown below.

The following table shows the concatenation of IRLMNM and IRLMID into irlmx:

Table 1. Format of irlmx

irlmx	
IRLMNM	IRLMID
4 bytes	1 to 3 bytes

```
If IRLMNM='KRLM' and IRLMID='12' then irlmx='KRLM012'
If IRLMNM='LRLM'  and IRLMID='0' then irlmx='LRLM000'
```

The IRLMID is displayed as three characters in the messages.

DXR100I *irlmx* STOR STATS

Explanation

Message DXR100I is issued in response to the following command:

`F irlmproc,STATUS,STOR`

The message number is followed by multiple lines of output, including some or all of the following information.

PC: *text*
The parameter as specified in the irlmproc. Its value is YES. Monitor the PVT and AHWM value when this is YES.

LTEW: *text*
The lock table entry width, which is the number of bytes needed for each lock table entry in the lock structure. The more users in the group, the more bytes are needed to manage each lock table entry. Expected values are:

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- 2 (for up to six users)
- 4 (for up to 22 users)
- 8 (for up to 32 users)
- N/A (if the IRLM is not connected to a group)

LTE: *num* M
The number of lock table entries in units of 1,048,576 that were available in the coupling facility the last time this IRLM was connected to the group. If the value is less than one unit, the value is zero.

You can set this value initially with the LTE parameter in the IRLMPROC. Use the IRLM modify command **F irlmproc,SET,LTE=** to change this value.

This field is valid only for SCOPE=GLOBAL or NODISCON.

RLE: *num*
The number of record list entries available in the coupling facility the last time this IRLM was connected to the group.

This field is valid only for SCOPE=GLOBAL or NODISCON.

RLEUSE: *num*
The number of record list entries s that were in use in the coupling facility at the time the **MODIFY** command is issued. If the IRLM is disconnected from the CF, this number represents those in use when last updated prior to DISCONNECT.

This field is valid only for SCOPE=GLOBAL or NODISCON.

BB PVT: *num* M
The extended private (below the bar) storage region limit threshold that is monitored for control blocks. When this limit is reached, new lock requests receive reason code 08 out-of-storage reason code unless they are must-complete requests. The default value is determined from the size of the extended private storage value minus 10% for a non-lock buffer to be used for IRLM and system required storage.

Use the IRLM MODIFY command **MODIFY irlmproc,SET,PVT=** to change this value.

AB PVT (MEMLIMIT): *num* P
Displays the current limit to private storage above the bar, also known as the MEMLIMIT, that is managed by MVS™. This storage is used for locks. IRLM monitors the use of above-the-bar storage, and if it exceeds ninety percent of MEMLIMIT, then non-must-complete requests fail with reason code 08, the out-of-storage reason code.

Use the IRLM MODIFY command **MODIFY irlmproc,SET,MLT=** to change this value.

CSA USE:
Displays information about the Common Service Area.

ACNT: *num* K
Is the current CSA + ECSA usage for lock control structures. This storage is called "accountable" because it is accountable against the MAXCSA value. Its value is specified as either K for kilobytes or M for megabytes. When PC=YES, this value will be 0K.

AHWM: *num* K
Is the high water mark or greatest amount of CSA + ECSA allocated by IRLM during this initialization period for lock control structures. Its value is specified as either K for kilobytes or M for megabytes.

CUR: *num* K
Is the current CSA + ECSA usage. Its value is specified as either K for kilobytes or M for megabytes. This value accounts for CSA + ECSA storage obtained in IRLM. IRLM often gets storage for locks under an application's ASID and manages this storage regardless of the status of the owning ASID. The display of *cur* storage accounts for all of these under this IRLM's CSA usage.

HWM: *num* K
Is the high water mark or greatest amount of CSA + ECSA allocated by IRLM during this initialization period. Its value is specified as either K for kilobytes or M for megabytes.

ABOVE 16M: *num num* K
The number of IRLM control block segments above 16M and the amount of storage allocated to those segments. The amount of storage is specified as either K for kilobytes or M for megabytes.

BELOW 16M: *num num* K
The number of IRLM control block segments below 16M and the amount of storage allocated to those segments. The amount of storage is specified as either K for kilobytes or M for megabytes.

AB CUR: *num* M
Applies to DB2 for z/OS Version 11 and later:
The current 64-bit common storage usage. Its value is specified as either M for megabytes or G for gigabytes. This value accounts for all 64-bit common storage obtained in IRLM and it is managed by IRLM.

AB HWM: *num* M
Applies to DB2 for z/OS Version 11 and later: The high water mark or greatest amount of 64-bit common storage allocated by IRLM during this initialization period. Its value is specified as either M for megabytes or G for gigabytes.

PVT USE:
Displays information about private storage.

BB CUR: *num* K
Is the current below the bar private usage. Its value is specified as either K for kilobytes or M for megabytes.

AB CUR: *num* M
Is the current above the bar private usage. Its value is specified as either M for megabytes or G for gigabytes.

BB HWM: *num* M
Applies to DB2 for z/OS Version 11 and later: The high water mark or greatest amount of below the bar private storage allocated by IRLM during this initialization period. Its value is specified as either M for megabytes or G for gigabytes.

AB HWM: *num* M
Applies to DB2 for z/OS Version 11 and later: The high water mark or greatest amount of 64-bit private storage (above the bar) allocated by IRLM during this initialization period for lock control structures. Its value is specified as either M for megabytes or G for gigabytes.

CLASS *text*
A tabular summary of storage allocation, in the format:

```
CLASS   TYPE  SEGS     MEM
```

CLASS *text*
Specifies the category of storage. Expected values are:

ACCNT
The storage allocated to IRLM lock control blocks.

PROC
The storage allocated to IRLM structures used for IRLM processing (including requests). This storage includes CSA, ECSA, and IRLM private storage.

MISC
The storage allocated for the rest of IRLM's needs. This includes trace buffers and other diagnostic structures. This storage includes CSA, ECSA, and IRLM private storage.

TYPE *text*
Specifies the subcategory for CLASS. For example, T-1 is storage for resource block structures, T-2 is storage for resource request structures, and T-3 is storage for requestor structures. The storage for types T-1, T-2, and T-3 is allocated from ECSA when PC=NO or IRLM private storage when PC=YES.

SEGS *num*
The number of storage segments allocated

MEM *num* K
The storage specified as . Its value is specified in one of the following units: K for kilobytes, M for megabytes, or G for gigabytes.

System action

Processing continues normally.

Sample output

See sample output in the information center: DXR100I

DXR101I *irlmx* STATUS SCOPE=*nnnnnn* DEADLOCK: *dddd* SUBSYSTEMS IDENTIFIED

```
NAME  STATUS UNITS HELD WAITING
ssname zzz    wun   reh  rew
                    RET_LKS
                     rtlks
```

Explanation

This message is issued in response to the following command:

```
F irlmproc,STATUS
```

A list of DBMSs identified to the IRLM is displayed. Work unit and lock information is displayed for each DBMS.

The message variables are:

nnnnnn
One of the following:

LOCAL
SCOPE=LOCAL was specified as an EXEC parameter when the IRLM was started.

GLOBAL
SCOPE=GLOBAL was specified in the IRLMPROC and the IRLM is connected to a data sharing group.

DISCON
SCOPE=GLOBAL or SCOPE=NODISCON was specified in the IRLMPROC and the IRLM is not connected to a data sharing group.

NoDISC
SCOPE=NODISCON was specified in the IRLMPROC and the IRLM is connected to a data sharing group.

GINIT
SCOPE=GLOBAL was specified in the IRLMPROC and the IRLM is joining a data sharing group.

GTERM
SCOPE=GLOBAL was specified in the IRLMPROC and the IRLM is terminating from a data sharing group.

dddd
The deadlock detection interval time for IRLM. The value is measured in milliseconds.

ssname
An eight-character DBMS name.

tout
DBMS specified timeout value for the resource timeout. The value is measured in seconds.

zzz
One of the following:

UP
The DBMS is active.

DOWN
The DBMS failed.

UP-RO
The DBMS subsystem is active and is currently identified to the IRLM as a 'read-only' subsystem.

UP-NS
The DBMS subsystem is active and is currently identified to the IRLM as a 'no-share' subsystem.

CLEANUP
The IRLM drove the DBMS STATUS exit, indicating a failure condition, and is waiting for that DBMS to respond with a PURGE, indicating cleanup is complete.

SFAIL
The IRLM to which the DBMS is identified disconnected from the data sharing group. The modify locks for all the subsystems on that IRLM were retained by IRLM. All DBMSs that are identified to IRLMs disconnected from a data sharing group are listed as SFAIL by the surviving IRLMs.

wun
The number of work units under the DBMS that are holding or waiting for a lock. No work units exist for a failed DBMS. The field is set to '...' for a failed DBMS.

reh
The number of resources locked by the DBMS.

rew
The number of waiting lock requests. No waiting requests are permitted for a failed DBMS. The field is set to '...' for a failed DBMS.

rtlks
The number of retained locks held by a subsystem that failed or was running on an IRLM that failed. In most cases, retained locks are purged when a DBMS reidentifies to IRLM; therefore the number is zero for active DBMSs. However, it is possible for a DBMS to hold both active and retained locks if it is recovering from a previous failure.

If no DBMSs are identified to this IRLM, the line beginning with *ssname* is replaced with NO INFORMATION AVAILABLE.

System action

Processing continues normally.

DXR102I ***irlmx* STATUS SUBSYSTEMS IDENTIFIED**

NAME
ssname

STATUS
zzz

RET-LKS
rtlks

IRLMID
id

IRLM_NAME
iname

IRLM_LEVL
ilevel

Explanation

This message is issued in response to the following commands:

```
F irlmproc,STATUS,ALLD
F irlmproc,STATUS,irlmx
```

where *irlmx* is the IRLMX + IRLMID fields as specified in the IRLMPROC whose status is requested.

A list of database subsystems identified to the IRLMs in the data sharing group is displayed.

The message variables are:

ssname
The eight-character name of the database subsystem.

zzz
One of the following:

UP
The database subsystem is active.

DOWN
The database subsystem failed.

UP-RO
The database subsystem is active and is currently identified to the IRLM as a read-only subsystem.

UP-NS
The database subsystem is active and is currently identified to the IRLM as a no-share subsystem.

CLEANUP
The IRLM drove the database subsystem STATUS exit, indicating a failure condition, and is waiting for that database subsystem to respond with a PURGE, indicating cleanup is complete.

SFAIL
The IRLM to which the database subsystem is identified was disconnected from the data sharing group. The modify locks for all the database subsystems on that IRLM were retained by IRLM. All database subsystems that are identified to IRLMs disconnected from a data sharing group are listed as SFAIL by the surviving IRLMs.

rtlks
The number of retained locks held by a subsystem that failed or was running on an IRLM that failed. In most cases, retained locks are purged when a database subsystem reidentifies to IRLM; therefore, the number is zero for active database subsystems. However, it is possible for a database subsystem to hold both active and retained locks if it is recovering from a previous failure.

id
The ID of the IRLM to which the database subsystem is identified.

iname
The name of the IRLM to which the database subsystem is identified.

If no database subsystems are identified to any IRLM or to the IRLM specified, or the IRLM specified is not known, the line beginning with *ssname* is replaced with NO INFORMATION AVAILABLE.

ilevel
The IRLM function level that the database subsystem requests. This IRLM level is the level that the database subsystem requires to perform locking operations. This IRLM level might be less than the actual IRLM function level; however, IRLM still operates at the actual function level. If the database subsystem failed and its IRLM is the last IRLM to disconnect from the group, the value will be zero when displayed by any peer member that joins until the failed database subsystem is restarted.

System action

Processing continues normally.

DXR103I ***irlmx* STATUS IRLMS PARTICIPATING IN DATA SHARING GROUP FUNCTION LEVEL *glv m***

```
IRLM-NAME
iname

IRLMID
id

STATUS
zzz

LEVEL
lv

SERVICE
s

MIN_LEVEL
mlv

MIN_SERVICE
ms
```

Explanation

This message displays the active IRLMs in response to the following command:

```
F irlmproc,STATUS,ALLI
```

A list of IRLMs in the group that are actively data sharing is displayed. If not data sharing, the single IRLM is displayed.

glv
The IRLM function level in use by all the IRLM(s) in the data sharing group.

m
A decimal number such as 1, 2, and so on.

When more than 10 lines are required in response to a status command, multiple messages are issued with *m* incremented by one in each successive message.

iname
A 4-character IRLM name. If there is a '*' appended to the *iname*, that *iname* is the GDM.

id
The ID of the IRLM.

zzz
One of the following:

UP
The IRLM is active.

DOWN
The IRLM failed.

lv
The current IRLM function level.

s
The IRLM service or release that corresponds to the function level given in *lv*.

mlv
The minimum IRLM function level this IRLM can coexist with.

ms
The IRLM service or release that corresponds to the function level given in *mlv*

System action

Processing continues normally.

DXR104I ***irlmx* MAINTENANCE LEVELS**

Explanation

This display is produced by the `MODIFY irlmproc ,STATUS,MAINT` command. Maintenance levels of all IRLM load modules are displayed to the console in two column format except for DXRRL183, DXRRLFTB, DXRRLM50, and DXRRL186. , Modules show the most recent APAR level and the compile date applied to each CSECT.

System action

IRLM processing continues normally.

Operator response

Review the maintenance level for any suspected module. If you are unable to correct the problem, contact your IBM Support Center for assistance.

System programmer response

No action is required.

DXR105E ***irlmx* STOP COMMAND REJECTED. AN IDENTIFIED SUBSYSTEM IS STILL ACTIVE**

Explanation

A `STOP irlmproc` command was entered, but the IRLM still has active DBMSs identified.

System action

The command is not processed, but IRLM processing continues normally.

Operator response

Enter the STOP command after all active DBMSs have terminated, or terminate the IRLM abnormally with the `F irlmproc,ABEND` command.

DXR106E ***irlmx* INVALID MODIFY COMMAND PARAMETER SPECIFIED**

Explanation

A MODIFY command specified the procedure name of this IRLM, but the command either contained parameter values not supported by the IRLM or did not contain a required parameter.

System action

The command is not processed, but IRLM processing continues.

Operator response

Enter the MODIFY command with the correct parameters.

DXR107E ***irlmx* STORAGE NOT AVAILABLE TO PROCESS THIS COMMAND**

Explanation

The IRLM cannot obtain sufficient internal working storage to process the command.

System action

The command is not processed, but IRLM processing continues.

Operator response

Inform the system programmer. Enter the command again after storage is available to process the command.

System programmer response

Increase the region size specified on the IRLM startup procedure.

DXR108I ***irlmx*** **PURGE,** ***nnnnnnnn*** **COMMAND FAILED** ***yyyyyyyy***

Explanation

A PURGE command specified either a name of an active DBMS or a name that is not known to this IRLM.

nnnnnnnn
The *dbmsname* specified on the PURGE,dbmsname command.

yyyyyyyy
The reason the purge command failed:

PURGE IN PROGRESS:
Either another PURGE command is being processed, or the IRLM is in the process of cleaning up from the disconnection of another group member.

NAME NOT FOUND OR ACTIVE:
The DBMS name specified cannot be found, or that DBMS is identified as an active subsystem and cannot be purged by the PURGE command.

System action

The command failed, but IRLM processing continues normally.

Operator response

Enter the PURGE command with the correct parameters.

DXR109I ***irlmx*** **PURGE COMMAND COMPLETED FOR** ***nnnnnnnn***

Explanation

A PURGE command completed successfully.

nnnnnnnn
The DBMS name specified on the PURGE,dbmsname. command

System action

Processing continues normally.

DXR110I ***irlmx*** **STOP COMMAND ACCEPTED**

Explanation

The IRLM accepted the STOP command and is beginning the normal shutdown process.

System action

The IRLM is performing shutdown processing. The IRLM subtasks are being quiesced and detached. If the IRLM is actively part of a data sharing group, then the other IRLMs are informed when this IRLM leaves the data sharing group. If IRLM was autostarted by the DB2 IRLM will issue this message when the DB2 terminates.

Operator response

No action is required.

DXR116E ***irlmx*** **INITIALIZATION FAILED, CODE=***xx* **DETECTED BY** ***zzzzzzzz***

Explanation

The IRLM was unable to complete initialization because of error code *xx*. The name of the module that detected the failure is *zzzzzzzz*.

The values of *xx* are:

01
Unable to allocate global storage.

02
Unable to allocate local storage.

03
The IRLMID was missing or invalid. IRLMID must be specified as a 1 to 3-digit number from 0 through 255. The IRLMID must be unique among all IRLMs belonging to the same data sharing group (having the same GROUP parameter). This code can also be returned if you are using a printable character (such as 'D') for the IRLM identifier. Because of the way z/OS interprets quotes, a printable character must be surrounded by enough single quotes for IRLM to determine that this is a printable character. For the IRLMID parameter in the start-up procedure, there must be seven quotes on either side of the character (''''''D''''''). If you are specifying the IRLMID on the EXEC statement, there must be three quotes on either side ('''D''').

05
The DEADLOCK parameter was missing or invalid. This parameter must be specified as *iiii,kkkk*, where *iiii* and *kkkk* are 1 to 4-digit numbers from 1 through 9999.

06
A z/OS subsystem SSCVT containing the name specified by the IRLMNM parameter does not

exist. IRLM was not properly registered with z/OS to use the subsystem interface.

07
Error in module zzzzzzzz initialization.

08
Error loading IRLM modules.

09
IRLM was already started.

10
The SCOPE parameter was missing or invalid. Specify LOCAL, GLOBAL, or NODISCON.

11
The MAXCSA parameter was missing or invalid. This parameter must be specified as a 1 or 3-digit number from 0 to 999, or blank. The value is ignored, but the parameter must be specified for compatibility.

12
The IRLMNM parameter was missing or a length greater than 4 was specified.

13
The SETDIE for the initial deadlock time interval failed.

14
The PC parameter was specified incorrectly. Specify one of the following values exactly as shown:

```
PC=YES,
PC=NO,
PC=,
```

The value is ignored, but the parameter must be specified for compatibility.

15
The operating system on which IRLM is attempting to start is not MVS/XA or higher.

16
The MAXUSERS parameter was invalid.

17
Invalid group name. A one to eight character group name must be specified if running SCOPE=GLOBAL.

18
Invalid lock table name. The lock table name must be the same as the one defined in the z/OS locking policy, or it must not be specified.

19
The CTRACE DELETE HEAD-level trace failed.

20
The CTRACE DEFINE HEAD-level trace failed.

21
The CTRACE DEFINE SUB trace failed.

22
More than one displayable character was specified for the IRLMID parameter.

23
An invalid value for the TRACE parameter is specified. Specify YES, NO, or a numeric value from 10 to 255 that represents the number of trace buffers IRLM is allowed to use

24
The value specified for LTE= is not in the valid range of 0 - 1024, or it is not an even power of two (for example, 2, 4, 8, 16, and so on).

25
The PGPROT parameter was specified incorrectly. Specify YES, NO, or leave the parameter blank.

System action

IRLM abend 2018 is issued.

Operator response

Notify the system programmer.

System programmer response

Take the following action based on the code:

01
Make global storage available to IRLM. Analyze the dump for more information.

02
Increase the region size on the IRLM start-up procedure. Analyze the dump for more information.

03
Correct the IRLMID parameter on the IRLM start-up procedure.

05
Correct the DEADLOCK parameter on the IRLM start-up procedure.

06
Verify that the IRLM start-up procedure specifies the desired IRLM name. If IRLMNM specifies the desired name, verify that a z/OS subsystem with that name is defined.

07
Analyze the dump to determine the problem.

08
Analyze the dump to determine the problem.

09
Verify that the IRLM start-up procedure specifies the desired IRLM name.

10
Correct the SCOPE parameter on the IRLM start-up procedure.

11
Correct the MAXCSA parameter on the IRLM start-up procedure.

12
Correct the IRLMNM parameter on the IRLM start-up procedure.

13
Analyze the dump to determine the problem.

14
Correct the IRLM PC parameter.

15
IRLM must be run on an MVS/XA or higher system.

16
Correct the MAXUSERS parameter.

17
Correct the XCF group name parameter in the IRLM start-up procedure.

18
Correct the lock table name parameter in the IRLM start-up procedure.

19
Analyze the dump to see what is wrong with CTRACE.

20
Analyze the dump to see what is wrong with CTRACE.

21
Analyze the dump to see what is wrong with CTRACE.

22
Correct the value for the IRLMID parameter.

23
Correct the value for the TRACE parameter.

24
Correct the HASH= value and reissue the START command.

25
Correct the PGPROT parameter and reissue the START command.

For codes 1, 2, 6, 7, 8, 13, 18, 19, and 20, an SDUMP is also created. The IRLM discontinued its initialization processing.

DXR117I ***irlmx*** **INITIALIZATION COMPLETE**

Explanation

The IRLM successfully completed initialization and is available for use. If SCOPE=GLOBAL or NODISCON is specified, message DXR132I is issued when the IRLM connects to the global environment and is capable of inter-system data sharing.

System action

The IRLM is processing normally.

DXR121I ***irlmx*** **END-OF-TASK CLEANUP SUCCESSFUL - HI-CSA *xxxx*K or *xxxx*M - HI-ACCT-CSA *xxxx*K or *xxxx*M - HI-PVT *xxxx*K or *xxxx*M**

Explanation

The IRLM end-of-task routine released all of the z/OS common storage that was in use by the terminating IRLM, except for storage that was required for EOT/EOM processing.

Multiple forms: This message has two forms. The form that is shown above applies to IRLM Version 2.3 or later. The following form applies to versions before IRLM Version 2.3:

irlmx END-OF-TASK CLEANUP SUCCESSFUL - HI-CSA *xxxx*K or *xxxx*M - HI-ACCT-CSA *xxxx*K or *xxxx*M

The HI-CSA is the largest amount of CSA + ECSA allocated to the IRLM during this initialization. The value for HI-CSA is displayed as *xxxx*K for kilobytes or *xxxx*M for megabytes.

The HI-ACCT-CSA is the largest amount of CSA + ECSA allocated to the IRLM for lock control blocks (MAXCSA applies only to this value). The value for HI-CSA is displayed as *xxxx*K for kilobytes or *xxxx*M for megabytes.

The HI-PVT is the largest amount of below-the-bar private storage that is allocated to the IRLM. The value for HI-PVT is displayed as *xxxx*K for kilobytes or *xxxx*M for megabytes.

System action

The IRLM terminated processing.

Operator response

None is required. Enter the `S irlmproc` command to restart the IRLM.

DXR122E ***irlmx*** **ABEND UNDER IRLM TCB/SRB IN MODULE *xxxxxxxx* ABEND CODE *zzzz***

Explanation

The IRLM experienced an unrecoverable programming error while processing under an IRLM execution unit. Global sharing with the IRLM issuing the message is inhibited.

xxxxxxxx
The name of the module that detected the failure.

zzzz
The abend code associated with the failure.

System action

The IRLM is performing abnormal termination processing. An MVS SYS1.LOGREC entry and an SDUMP were requested. An abend is issued to terminate the IRLM job-step task.

Operator response

Notify the system programmer. Ensure that the SYS1.DUMPxx data set containing the SDUMP is not overwritten before the dump is printed. Follow IRLM restart procedures.

System programmer response

Use the IPCS service aid to analyze the dump to determine the cause of the failure.

DXR123E ***irlmx*** **ABEND UNDER DBMS TCB/SRB IN MODULE** ***xxxxxxxx*** **ABEND CODE=***zzzz* **ERROR ID=***wwww*

Explanation

The IRLM experienced an irrecoverable programming error while processing a request that exists under a DBMS execution unit. Global sharing with the IRLM issuing the message is inhibited. An MVS SYS1.LOGREC entry and an SDUMP were requested.

xxxxxxxx
The name of the module that detected the failure

zzzz
The abend code associated with the failure.

wwww
The error ID or dump sequence number for the associated LOGREC entry.

System action

The IRLM performs abnormal termination processing.

Operator response

Notify the system programmer. Ensure the SYS1.DUMPxx data set containing the SDUMP is not overwritten before the dump is printed. Follow IRLM restart procedures.

System programmer response

Use the IPCS service aid to analyze the dump to determine the cause of the failure.

DXR124E ***irlmx*** **ABENDED VIA® MODIFY COMMAND**

Explanation

The IRLM terminated after it received an F `irlmproc , ABEND` command. Global sharing with the IRLM issuing the message is inhibited. An MVS SYS1.LOGREC entry was requested. If the NODUMP parameter was omitted from the `MODIFY` command, an SDUMP was requested. If the NODUMP option is included & the command is issued twice or there is no DBMS identified to the IRLM, a dump is taken and this message is also issued.

System action

The IRLM is performing abnormal termination processing.

Operator response

If an SDUMP was created, ensure that the SYS1.DUMPxx data set containing the SDUMP is not overwritten before the dump is printed. Notify the system programmer.

System programmer response

Use the IPCS service aid to analyze the dump to determine the cause of the failure.

DXR131I ***irlmx*** **OUT OF** ***xxxx*** **STORAGE DETECTED DURING DEADLOCK. DEADLOCK PROCESS DELAYED.**

Explanation

IRLM detected an out-of-storage condition during deadlock detection resolution processing. Rather than abending the IRLM, the deadlock process for this deadlock detection interval was ended before completely detecting or resolving deadlocks. If this condition is permitted to persist, undetected deadlocks might occur.

xxxx
The type of storage IRLM was attempting to get when the out-of-storage condition was detected. It is either ECSA for extended CSA, or PRIVATE for IRLM private storage.

System action

The IRLM cleans up deadlock data structures before completing deadlock detection or resolution. Deadlock

detection or resolution is attempted in one local deadlock cycle as specified on the IRLM startup procedure parameter.

Operator response

Stop and restart the IRLM specifying a larger region size on the IRLM startup procedure. IRLM does not need to be stopped immediately and can remain up indefinitely if DBMS activity is limited to reduce the volume of requests to the IRLM.

DXR132I ***irlmx*** **SUCCESSFULLY JOINED THE DATA SHARING GROUP WITH** ***yyyyM*** **LOCK TABLE ENTRIES AND** ***nnnnnnnn*** **RECORD LIST ENTRIES**

Explanation

The IRLM connected to the data sharing group, joined the XCF group, and connected to the lock structure. (XCF is the cross-system coupling facility of z/OS.) The IRLM can now participate in inter-system data sharing.

In the message text:

yyyy
The number of lock table entries in units of 1,048,576. If the number of LTEs is less than one unit, *yyyy* is zero. The first IRLM to connect to the group will allocate the structure and dictate the values for the group.

nnnnnnnn
The number of record list entries available in the coupling facility. The first IRLM to connect to the group causes structure allocation and dictates these values for the group.

System action

The IRLM continues operation.

Operator response

No action is required.

DXR133I ***irlmx*** **TIMEOUT DURING GLOBAL INITIALIZATION WAITING FOR** ***irlmy***

Explanation

A time-out occurred while the IRLM attempted global initialization. This problem occurs because incorrect lock structure or XCF group names were specified on the LOCKTABL and GROUP parameters. (XCF is the cross-system coupling facility component of z/OS.) However, anything that delays global initialization for at least 30 seconds causes this message to be issued.

In the message text, *irlmy* can be the IRLMNM + IRLMID values for an existing peer member or NOEVENT.

System action

IRLM continues to issue this message until one of the following occurs:

- Global initialization completes.
- The system programmer abends the IRLM.
- IRLM terminates abnormally with abend 2025 after an internal limit of time-out messages is reached.

Operator response

Notify the system programmer.

System programmer response

Use the value of *irlmy* to determine what is delaying the initialization. If *irlmy* is the name of a peer IRLM, that member is not sending the required XCF messages to the new member that is joining. This situation might be due to XCF messaging problems, processing problems such as DXR167E, or lack of XCF EVENTs. If the new joining member had a prior failure, make sure that each existing member issued the DXR137I recovery message. If *irlmy* is NOEVENT, then the problem is probably restricted to the new joining member, and only a dump of this member and XCFAS is likely to be needed.

Check the lock structure and XCF group names to ensure that the names specified for this IRLM match the names of all other group members. You can use XCF commands to display the current members in the XCF group to see if this IRLM joined successfully. If necessary, create a memory dump to assist in failure analysis.

Because this message can be issued as the result of missing interaction with other members, you might need dumps of peer sysplex IRLM members, along with XCFAS. If *irlmy* is a peer IRLM, create storage dumps of that member and the joining member. If you want to get the new member to successfully join, terminate any peer member whose name appears for *irlmy* before attempting to start the new member.

DXR134E ***irlmx*** **JOIN XCF GROUP** ***wwwwwwww*** **FAILED FOR GLOBAL INITIALIZATION, RETURN=***xx***, REASON=***yyyy***

Explanation

The IRLM cannot join the XCF group. (XCF is the cross-system coupling facility component of z/OS.)

wwwwwwww
The IRLMGRP name specified on the IRLM startup procedure

System action

IRLM does not connect to the data sharing group. The identify request for the DBMS attempting to identify is rejected.

Operator response

Notify the system programmer.

System programmer response

Determine why the IRLM cannot join. See the IXCJOIN section of *z/OS MVS Programming: Sysplex Services Reference* (SA22-7618) for an explanation of the return and reason codes. Once the reason for the connection failure is corrected, restart the IRLM and reidentify the DBMS to it.

DXR135E ***irlmx*** **CONNECT TO LOCK TABLE** ***wwwwwwww*** **FAILED FOR GLOBAL INITIALIZATION, RETURN=*xx*, REASON=*yyyy***

Explanation

The IRLM cannot connect to the lock table.

wwwwwwww
The lock table name passed at identify time or the LOCKTAB name specified on the IRLM startup procedure

System action

IRLM does not connect to the data sharing group. The identify request for the DBMS attempting to identify is rejected.

Operator response

Notify the system programmer.

System programmer response

Try to determine why the IRLM cannot connect. See the IXLCONN section of *z/OS MVS Programming: Sysplex Services Reference* for an explanation of the return and reason codes. If the reason for the connection failure was corrected, restart the IRLM and reidentify the DBMS to it.

DXR136I ***irlmx*** **HAS DISCONNECTED FROM THE DATA SHARING GROUP**

Explanation

The IRLM left the data sharing group by disconnecting from both the XCF group and the lock structure. (XCF is the cross-system coupling facility component of z/OS.) IRLM takes this action when all identified DBMSs have issued a QUIT request to the IRLM to terminate their active data sharing activity. The message may also be issued by a new member attempting to join the sysplex while a lock structure rebuild is occurring. In this case, the disconnect is temporary and the IRLM should connect to the group when the rebuild is completed. If the IRLM does not connect to the group when the rebuild is completed, create a storage dump and terminate IRLM.

System action

This IRLM disconnected from the data sharing group.

DXR137I ***irlmx*** **GROUP STATUS CHANGED.** ***irlmx*** **HAS BEEN DISCONNECTED FROM THE DATA SHARING GROUP**

Explanation

IRLM *irlmx* lost connectivity to the data sharing group.

irlmx
The ID of the disconnected IRLM as explained in IRLM messages and codes.

All surviving IRLMs issue this message. The disconnected IRLM might issue the DXR136I message.

System action

IRLM *irlmx* is disconnected from the data sharing group.

Operator response

No response is required on this z/OS system. See the DXR136I message for the proper operator response on the disconnected system.

DXR138E ***irlmx*** **QUERY STRUCTURE FOR LOCK TABLE** ***wwwwwwww*** **FAILED FOR GLOBAL INITIALIZATION, RETURN=*xx*, REASON=*yyyy***

Explanation

This message is issued when IRLM gets a nonzero return code from a QUERY to XCF for the lock structure size.

wwwwwwww
The lock table name passed at identify time or the LOCKTAB name specified on the IRLM startup procedure.

IRLM is unable to connect to the data sharing group if it does not have a valid structure size.

System action

IRLM does not connect to the data sharing group. The identify request for the DBMS attempting to identify is rejected.

Operator response

Use the return and reason codes specified in the message to determine the problem with XCF. See the IXCQUERY section of *z/OS MVS Programming: Sysplex Services Reference* for an explanation of the return and reason codes. Restart the DBMS when the problem is fixed.

System programmer response

If the operator is unable to find the problem, determine why the XCF QUERY request failed.

DXR139E ***irlmxzzzzzzzz*** **REQUEST FAILED, RETURN=*xx*, REASON=*yyyy***

Explanation

An IRLM request to z/OS failed with an unexpected return and reason code. The request type is *zzzzzzzz*.

System action

IRLM terminates with abend 2025.

Operator response

Notify the system programmer.

System programmer response

Use the request type, reason and return codes to find out what caused the failure. See z/OS MVS Programming: Sysplex Services Reference for an explanation of the return and reason codes. Save the IRLM dump for analysis by IBM® service.

DXR140E ***irlmx*** **IRLMID=*zzz* IS NOT UNIQUE FOR THE DATA SHARING GROUP IT ATTEMPTED TO JOIN**

Explanation

An IRLM attempted to join a data sharing group, but IRLMID *zzz* that was specified in the IRLM startup procedure was already in use by another IRLM in the group.

System action

IRLM terminates with abend 2025.

Operator response

Notify the system programmer.

System programmer response

Change the IRLMID in the startup procedure to a number from 1 through 255 that is not already in use by another IRLM in the data sharing group.

DXR141I ***irlmx*** **THE LOCK TABLE *wwwwwwww* WAS ALLOCATED IN A *zzzzzzzz* FACILITY**

Explanation

The z/OS coupling facility containing the lock table being used by IRLM is executing in *zzzzzzzz* state.

zzzzzzzz
Volatile or Nonvolatile

The volatile state indicates that there is no battery backup for the facility if a power failure occurs.

wwwwwwww
The lock table name passed at identify time or the LOCKTAB name specified on the IRLM startup procedure.

System action

Data sharing continues normally.

Operator response

Notify the system programmer.

System programmer response

Take action to move to a nonvolatile structure if that is desired for better availability.

DXR142E ***irlmx*** **THE LOCK STRUCTURE *wwwwwwww* IS *zzz*% IN USE**

Explanation

This message shows what percent of the available capacity of the lock structure is being used by the group and can indicate that some action is needed to relieve the storage. The percentage value that is indicated in the message is the percentage of the capacity in the Record List (RLE) portion of the lock structure.

wwwwwwww
The lock table name currently in use by the IRLM.

zzz
One of the following values: 80, 90, 100.

System action

This message stays on the console until the storage falls below 70% or until the operator removes the message. Data sharing continues, possibly with restrictions, depending on how full the lock structure is.

- At 80% full, data sharing continues with no restrictions, but storage is approaching a critical threshold.
- At 90% full, data sharing continues with restrictions. Only 'must-complete' type of requests that require lock structure storage are processed. All others that require lock structure storage are denied with an 'out of lock structure storage' reason code.
- At 100% full, data sharing continues with additional restrictions. Any request that requires lock structure storage is denied with an 'out of lock structure storage' reason code.

Operator response

Notify the system programmer if there is a concern about running out of space in the lock structure.

System programmer response

Take some action to increase the size of the lock structure if more space is needed. Force update-type transactions to complete in order to free modify locks which will free some lock structure storage.

DXR143I ***irlmx*** **REBUILDING LOCK STRUCTURE BECAUSE IT HAS FAILED OR AN IRLM LOST CONNECTION TO IT**

Explanation

The lock structure failed or one or more IRLMs lost connection to it. The IRLM attempts to rebuild all of the current information into the new lock structure without modifying any of the attributes.

System action

Data sharing is stopped while rebuild is in progress. After the rebuild completes successfully, data sharing continues normally. If rebuild does not succeed, IRLM disconnects from the data sharing group.

Operator response

Notify the system programmer to repair the failed structure or connections to it.

System programmer response

Determine the reason for the structure or connection failure and recover the failed structure.

DXR144I ***irlmx*** **REBUILDING LOCK STRUCTURE BECAUSE ALL CONNECTIONS TO IT ARE IN USE**

Explanation

The last available connection to the lock structure was allocated. IRLM attempts to rebuild into another structure and modify the lock structure attributes to allow more connections.

System action

Data sharing is stopped while the rebuild is in progress. After the rebuild completes successfully, data sharing continues normally with more connections available for the group. If the rebuild does not succeed, data sharing continues but new members are not able to join the group.

Operator response

Determine whether the group needs to be able to handle more members. If the group needs to handle more members, change the MAXUSRS parameter on the IRLMPROC.

System programmer response

Determine why the automatic rebuild was triggered. Take actions to make a bigger structure available to handle the bigger group. Review their MAXUSR value if the number of permanent group members has increased.

DXR145I ***irlmx*** **REBUILDING LOCK STRUCTURE AT OPERATORS REQUEST**

Explanation

The operator started a rebuild with an MVS SETXCF command. IRLM attempts to rebuild into another structure without modifying any of the lock structure attributes.

System action

Data sharing is stopped while rebuild is in progress. After the rebuild completes, data sharing continues normally. If the rebuild failed, data sharing still continues normally.

Operator response

Ensure that the rebuild completes successfully. Notify the system programmer if any problem occurs during the rebuild. If the rebuild failed, contact the system programmer to determine why.

System programmer response

Determine why the automatic rebuild was triggered. Take actions to make the desired structure available.

DXR146I ***irlmx*** **REBUILD OF LOCK STRUCTURE COMPLETED SUCCESSFULLY WITH *yyyy*M LOCK TABLE ENTRIES AND *nnnnnnnn* RECORD LIST ENTRIES**

Explanation

The lock structure was successfully moved to another coupling facility structure and might be rebuilt into the same structure or a different structure. In the message text:

yyyy
The number of lock table entries (LTE) in units of 1,048,576. If the number of LTEs is less than one unit, *yyyy* is zero. The first IRLM to connect to the group, causing structure allocation, dictates these values for the group.

nnnnnnnn
The number of record list entries available in the coupling facility.

System action

Data sharing continues normally.

DXR147I ***irlmx*** **REBUILD OF THE LOCK STRUCTURE WAS STOPPED**

Explanation

The lock structure could not be moved to another coupling facility structure. The rebuild process terminated.

System action

Data sharing continues normally if the old lock structure is still available. If the lock structure failed, IRLM disconnects from the group.

Operator response

Contact the system programmer to determine why the rebuild was stopped.

System programmer response

Determine why the rebuild was stopped. Take actions to make a suitable coupling facility structure available for the rebuild.

DXR148I ***irlmx*** **REBUILD OF LOCK STRUCTURE WAS STOPPED BY THE OPERATOR**

Explanation

The operator issued a console command to stop the rebuild.

System action

The REBUILD is stopped and IRLM will either DISCONNECT from the group or continue to process under the old structure, depending on the reason the rebuild was initiated.

Operator response

If IRLM disconnects from the group, follow local recovery procedures.

System programmer response

Determine why the rebuild was stopped and take appropriate action to restore rebuild capability.

DXR149I ***irlmx*** **REBUILD OF LOCK STRUCTURE WAS STOPPED DUE TO FAILURE OF A REQUIRED IRLM IN THE GROUP**

Explanation

Rebuild was stopped because one of the IRLMs involved in the rebuild failed.

System action

The rebuild is stopped and IRLM will either disconnect from the group or continue to process under the old structure, depending on the reason rebuild was initiated. IRLM may terminate with abend 2025 as a result of a rebuild getting stopped if one of the following conditions occur:

- The rebuild initiates because of the lock structure failure.
- The rebuild initiates because this IRLM lost connectivity to the lock structure.
- The rebuild initiated to change the group function level and the group function level change failed and the change was to downgrade the level because of this IRLM.

Operator response

If IRLM terminates and disconnects from the group, follow local recovery procedures.

System programmer response

Determine why the IRLM failed and take appropriate action to restore rebuild capability.

DXR150I ***irlmx*** **REBUILD OF LOCK STRUCTURE WAS STOPPED DUE TO FAILURE OF THE NEW STRUCTURE**

Explanation

Rebuild was stopped because the NEW STRUCTURE failed.

System action

The REBUILD is stopped and IRLM will either DISCONNECT from the group or continue to process under the old structure, depending on the reason rebuild was initiated.

Operator response

If IRLM disconnects from the group, follow local recovery procedures.

System programmer response

Determine what failure occurred on the new structure and take appropriate action to restore rebuild capability.

DXR151I ***irlmx*** **REBUILD OF LOCK STRUCTURE WAS STOPPED DUE TO FAILURE ON QUERY OR CONNECT OF THE NEW STRUCTURE**

Explanation

Rebuild was stopped because IRLM received a bad return code on the IXCQUERY or IXLCONN request to XCF for the new structure.

System action

The REBUILD is stopped and IRLM will either DISCONNECT from the group or continue to process under the old structure, depending on the reason rebuild was initiated.

Operator response

If IRLM disconnects from the group, follow local recovery procedures.

System programmer response

Determine why the bad return code was received and take appropriate action to restore rebuild capability.

DXR152I ***irlmx*** **REBUILD OF LOCK STRUCTURE WAS STOPPED DUE TO AN OUT OF SPACE CONDITION ON THE NEW STRUCTURE**

Explanation

Rebuild was stopped because the new structure contains insufficient space to hold all of the data from the old structure or from the restart.

System action

The rebuild is stopped and IRLM will either disconnect from the group or continue to process under the old structure, depending on the reason rebuild was initiated.

Operator response

If IRLM disconnects from the group, follow local recovery procedures.

System programmer response

Determine why the new structure was not large enough to contain all of the data from the old structure or restart. Take appropriate action to restore rebuild capability.

DXR153I ***irlmx*** **REBUILD OF LOCK STRUCTURE WAS STOPPED DUE TO AN UNEXPECTED RETURN CODE FROM XES SERVICES**

Explanation

Rebuild was stopped because IRLM received a bad return code on a request to SLM.

System action

The rebuild is stopped and IRLM will either disconnect from the group or continue to process under the old structure, depending on the reason rebuild was initiated.

Operator response

If IRLM disconnects from the group, follow local recovery procedures.

System programmer response

Determine why the return code was received from SLM and take appropriate action to restore rebuild capability.

DXR154I ***irlmx*** **REBUILD OF LOCK STRUCTURE WAS STOPPED DUE TO SUCCESSFUL COMPLETION OF GROUP FUNCTION LEVEL CHANGE**

Explanation

IRLM started a REBUILD to establish a new group function level because a new member with a different service level is joining the group. The IRLM rebuild process then checks to see if a complete rebuild is needed to complete the group function level change. This message is issued when a complete rebuild is not needed for a successful group function level change.

System action

The REBUILD is stopped and the new IRLM member joins the group.

DXR155I ***irlmx*** **REBUILD OF LOCK STRUCTURE WAS STOPPED DUE TO UNSUCCESSFUL COMPLETION OF GROUP FUNCTION LEVEL CHANGE**

Explanation

IRLM started a REBUILD to establish a new group function level because a new member with a different service level is joining the group. The IRLM rebuild process then checks to see if a complete rebuild is needed to complete the group function level change. This message is issued from the existing members when a joining member cannot coexist with one or more of the existing members of the group.

System action

The REBUILD is stopped and the new IRLM member does not join the group. The DBMS that was identifying itself to the new IRLM member is notified that the IDENTIFY call failed. Message DXR157I is issued by the member that was trying to join the group or message DXR158I is issued by other members in the joining member's behalf.

System programmer response

Compare the service level of the IRLM member that failed to join the group with the service level of the other IRLM members in the group. The pertinent service levels can be found by issuing the IRLM modify command "f irlmproc,status,alli" on all of the IRLMs involved.

DXR156I ***irlmx*** **REBUILDING LOCK STRUCTURE TO CHANGE THE GROUP FUNCTION LEVEL**

Explanation

This message is issued when IRLM starts a REBUILD to establish a new group function level when a new member with a different service level is joining the group. Later messages describe further actions IRLM takes during the process of changing the group function level.

System action

The REBUILD is started. This allows IRLM to process a group function level change.

DXR157I ***irlmx*** **FAILED TO JOIN THE DATA SHARING GROUP BECAUSE IT CANNOT COEXIST WITH AT LEAST ONE OF THE EXISTING MEMBERS**

Explanation

The IRLM member, *irlmx*, could not coexist with one or more existing members of the group because of differences in service levels.

System action

The REBUILD is stopped and the new IRLM member does not join the group. The DBMS that was identifying itself to the new IRLM member is notified that the IDENTIFY failed.

System programmer response

Compare the service level of the IRLM member that failed to join the group with the service level of the other IRLM members in the group. The pertinent service levels can be found by issuing the MVS modify command `f irlmproc,status,alli` on all the IRLMs involved.

DXR158I ***irlmx*** **CANNOT COEXIST WITH AT LEAST ONE EXISTING MEMBER. ALL DBMS IDENTIFY REQUESTS TO THAT IRLM WILL BE DENIED.**

Explanation

The IRLM member, *irlmx*, could not coexist with one or more existing members of the group because it does not have the service level that includes coexistence support.

System action

The REBUILD is stopped and the new IRLM member is not allowed to join the group. The DBMS that identified itself to the new IRLM member is notified that the IDENTIFY failed.

System programmer response

Compare the service level of the IRLM member that failed to join the group with the service level of the other IRLM members in the group. The pertinent service levels can be found by issuing the MVS modify command `f irlmproc,status,alli` on all the IRLMs involved.

DXR159I ***irlmx*** **RUNTIMEO:TIMEOUT DATA COLLECTION STARTED.**

Explanation

The MODIFY irlmproc,RUNTIMEO has been successfully issued and time-out detection has been started. When two global deadlock cycles have finished, DXR162I is issued.

System action

IRLM processing continues normally with deadlock detection enabled for two global cycles.

Operator response

Watch for message DXR162I which indicates that data collection has completed. Then use RMF to generate the time-out BLOCKER/WAITER report. If no candidate waiters were found, the report will be null and no further action is required unless the waiters persist. If the waiters persist and no 79.15 records are written, attempt to recover by issuing the SETXCF REBUILD command, if applicable. If a report is generated, follow local operation guidelines. If diagnostic analysis is necessary, take z/OS console dumps of the IMS and IRLM address spaces for each member before taking any recovery action. If this is in a sysplex environment, include XESDATA in the dump options. Contact the system programmer.

System programmer response

Determine if the wait is caused by application logic or other factors. If you are unable to correct the problem, contact your IBM Support Center for assistance. Please be ready with the documentation listed above.

DXR160I ***irlmx*** **RUNTIMEO:COMMAND IS NOT SUPPORTED BY AT LEAST ONE IRLM GROUP MEMBER, AND IS REJECTED.**

Explanation

At least one of the IRLMs in the group does not have the code that is necessary to support TIMEOUT. The TIMEOUT code must be present on all members.

System action

IRLM processing continues normally with no time-out detection.

Operator response

Notify the system programmer.

System programmer response

At least one IRLM in the data sharing group does not have PN79682 applied. The APAR must be applied to all IRLM members of the data sharing group.

DXR161I ***irlmx*** **RUNTIMEO:COMMAND IS NOT SUPPORTED BY ANY DBMS SUBSYSTEM ON THIS IRLM, AND IS REJECTED.**

Explanation

The MODIFY irlmproc,RUNTIMEO has been issued on this IRLM but none of the IMS systems identified to this IRLM provided a time-out exit.

System action

IRLM processing continues normally.

Operator response

Notify the system programmer.

System programmer response

Determine why the IMS does not have time-out support code.

DXR162I ***irlmx*** **CYCLE NUMBER *nnnnnnnn* PROCESSED FOR TIMEOUT.**

Explanation

A TIMEOUT candidate has been detected on at least one IRLM. If an incompatible blocker was found, the IMS TIMEOUT EXIT has been driven to present WAITER/BLOCKER information.

System action

IRLM processing continues normally. DXR162I is issued only by the Global Deadlock Manager (GDM). The message is issued during the next deadlock cycle after the candidate waiter is found, and then once per

minute as long as there is at least one candidate waiter found during the global deadlock cycle. If a cycle occurs and no time-out waiter is found during that time, the flag is reset and DXR162I will be issued the next time a candidate waiter is present.

You can tell which IRLM is the GDM by issuing the F irlmproc,STATUS,ALLI command and finding the IRLM name which is followed by an asterisk ' * '. The first one to join, is the GDM until any member DISCONNECTS, then the GDM is recalculated and the one with the lowest ID becomes the GDM.

Operator response

Based on local operational guidelines, use the Resource Management Facility to generate a report from the 79.15 (4F 0F) SMF records with cycle number *nnnnnnn*. If the message is issued and no 79.15 records are found, one of these situations is likely to have occurred:

- SMF has not been enabled for the 79.15 to be cut to the MAN* data set. Check the *.IEFU84 member for MODNAME(ERBDSSMF) on each system.
- SMF has not presented the 79.15 to the RMF data space due to a setup error in the data space. Make sure the data space has been defined. Enable the 79.15 to the RMF with: RMF,SMFBUF(,RECTYPE(79))
- The 79.15 record with cycle number *nnnnnnnn* was delayed in writing. Request the same cycle number again.
- IRLM did not find an incompatible blocker
- The lock wait was resolved before the lock wait time expired, but after this message was issued. The lock wait time is specified by the LOCKTIME parameter in:
  - The DFSVSMxx member of the IMS-tm PROCLIB data set, for environments other than IMS batch
  - The data set that is specified by the DFSVSAMP DD statement, for IMS batch

If the waiter cannot be identified and you wish to consult Customer Service,, start the IRLM *INTERNAL* CTRACE for subtype XCF on each member, then collect MVS CONSOLE dumps of the IRLM(s) and their IMS DLI and any suspicious dependent regions. If this is in a sysplex environment, you must create and save storage dumps of all IRLMs with XESDATA and associated DBMS regions. Once the dumps are captured, you may turn off XCF tracing. If it appears to be an invalid WAIT condition and this is a sysplex environment, issue a SETXCF REBUILD to attempt a recovery. If this fails to resume the waiter, follow local operation guidelines.

System programmer response

Determine if the wait is caused by application logic, operator error, or other factors. (The most common cause is incorrect dispatch priority). If you are unable to correct the problem, contact your IBM Support Center for assistance.

DXR163I ***irlmx*** **RUNTIMEO:COMMAND IS NOT SUPPORTED BY AT LEAST ONE OF THE OTHER DBMS GROUP MEMBERS, AND IS REJECTED.**

Explanation

The MODIFY irlmproc,RUNTIMEO has been issued on this IRLM and at least one IMS did not specify a time-out exit on this IRLM or another IRLM in the group.

System action

IRLM processing continues normally.

Operator response

Notify the system programmer.

System programmer response

Determine why the IMS does not have time-out support code.

DXR164E ***irlmx*** **CANNOT RECOVER FOR A FAILED MEMBER DUE TO LOSS OF CONNECTIVITY TO THE LOCK STRUCTURE**

Explanation

IRLM detects loss of connectivity to the lock structure during member recovery or global initialization. IRLM is no longer able to support data sharing without the retained lock information.

System action

Disconnect from the data sharing group.

User response

Notify the system programmer to correct the problem with the coupling facility.

Problem determination

See IXC messages in z/OS V1R11.0 MVS System Messages, Vol 10 (IXC-IZP) to determine the root cause of the failure and the appropriate corrective action.

DXR165I ***irlmx*** **TERMINATED VIA IRLM MODIFY COMMAND**

Explanation

An operator issued a MODIFY IRLM,ABEND command.

System action

IRLM shuts down.

DXR166E ***irlmx*** **CONNECT TO LOCK STRUCTURE FAILED FOR GLOBAL INITIALIZATION**

Explanation

IRLM detects loss of connectivity to the lock structure during member recovery or global initialization. IRLM is unable to support data sharing for a longer period of time without the retained lock information.

System action

Disconnect from the data sharing group.

User response

Notify the system programmer to correct the problem with the coupling facility.

Problem determination

See IXC messages in*z/OS MVS System Messages* to determine the root cause of the failure and the appropriate corrective action.

DXR167E ***irlmx*** **IRLM HAS DETECTED A DELAY IN COMPLETION OF** ***vvvvvvvv*** **PROCESS.**

Explanation

IRLM has detected a delay in a process that might prevent other DBMS or IRLM processes from running. *vvvvvvvv* is one of the following values:

vvvvvvvv

ASID*xxxx*
Issued when IRLM is unable to process main latch activity for some period and finds a DBMS agent that appears to be inactive. This is usually the result of low dispatch priority for some task on an over-committed CPU. Can cause all the symptoms listed under System Action.

MAIN_SRB
Issued in a sysplex when IRLM detects that a main latch process has been active for an extended period of time. This is usually caused when there are too many waiters in a sysplex such that the IRLM deadlock SRB must execute for long periods of time in order to resolve all of the waiting relationships. MAIN_SRB might cause all of the symptoms listed under System Action.

DPRIORTY
Issued when IRLM is unable to get its main latch for some period of time but the Health routine cannot identify any delayed request. This is usually the result of having an incorrect dispatch priority set for the IRLM when compared to the rest of the application tasks or DBMS address spaces. Might cause all of the symptoms listed under System Action.

NOTIFY_G
Issued in a sysplex when IRLM detects that this member sent a NOTIFY to peer members and at least one peer has not responded for some period of time. Might cause all of the S2 symptoms listed under System Action.

NOTIFY_L
Issued when IRLM finds a NOTIFY Exit drive to its DBMS subsystem has not returned for some period. If this is a sysplex, the peer member should issue NOTIFY_G. Might cause all of the S2 symptoms listed under System Action.

MAXCYCLE
Issued when IRLM is unable to process all of the waiters during a deadlock cycle because the number of waiting relationships created would require excessive SRB execution time. May result in all S2 symptoms listed below. This is usually the result of an application problem or a temporary lock-up that allowed the number of waiters in the sysplex to become excessive, typically in the hundreds. This lock-up could be the result of an application deadlock occurring and not broken quickly because global deadlock is running too slowly. If the transaction rate is high and a deadlock occurs on key resources and is not detected and broken quickly, it can result in many tasks being suspended and involved in deadlocks.

System action

The IRLM continues operation. This message stays on the console until the delay is no longer detected. When all DXR167E delays are corrected, IRLM issues DXR168I. The delayed completion might prevent other IRLM or DBMS processes from running. These delayed processes might cause any of the following symptoms:

- A new DBMS cannot identify.

- New members might not be able to join a data sharing group. They will time out during global initialization and eventually terminate abnormally.
- A terminated DBMS is not resumed.
- Failed members might not get properly partitioned from the group because recovery actions for them cannot run.
- Transactions do not deadlock or time out.
- REBUILD of the IRLM will not run.
- S2 symptoms:
  - A transaction locks up.
  - Other processes contending with the locked-up process might also lock up, potentially causing a chain reaction.
  - The whole group might lock up.

Operator response

Notify the system programmer. Follow established operation procedures.

System programmer response

This delayed process might not cause a noticeable problem to the users. If no problems are observed or reported, monitor the system for the completion of the delayed process. If problems with the system are observed, take the following actions based on the variable term in the message.

Note: If you plan to pursue the problem with IBM Service, capture the appropriate documentation before taking recovery actions. If dumps are not captured prior to the DXR167E being removed, IBM Service might not have the documentation needed to resolve the problem.

Respond according to the following variables found in *vvvvvvvv*.

ASID*xxxx*
Identify the task in question using *xxxx*, which is the hexadecimal address space identifier (ASID) of the detected task. IRLM will attempt to increase the task's priority in order to get the CPU cycles required to complete the task. The priority of the task will be returned to its previous value when IRLM processing finishes. If message DXR167E with this ASID continues to be displayed and message DXR168I is not displayed, terminate this task to return to normal processing.

Important: Take dumps of this DBMS, IRLM, and ASID*xxxx* before taking any action. Also, include the text of the DXR167E message from the System Console when opening a problem report with IBM Service.

MAIN_SRB
You can continue to wait for it to complete, terminate the DBMS or IRLM with the most WAITers shown by the modify command F `irlfproc, STATUS`, or try to terminate WAITing tasks.

Important: Take dumps of all DBMSs and IRLM ASIDs before taking any action.

DPRIORTY
Correct the dispatching priority order.

Important: Take dumps of this DBMSs and IRLM ASIDs before taking any action.

NOTIFY_G
Terminate the IRLM or DBMS that issued the NOTIFY_L message.

Important: Take dumps of all DBMS and IRLM where the DXR167E is issued. If only NOTIFY_G is seen, create storage dumps of all DBMS and IRLM ASIDs before taking any action.

NOTIFY_L
Terminate the DBMS or IRLM that issued the NOTIFY_L message.

Important: Take dumps of all DBMS and IRLM where the DXR167E is issued. If only NOTIFY_G is seen, create storage dumps of all DBMS and IRLM ASIDs before taking any action.

MAXCYCLE
Consider lowering the first value of the DEADLOCK parameter in the irlmproc. Issue `MODIFY irlmproc, STATUS` on each member. If the message persists, terminate the IRLM with the largest number of waiters.

Important: Take dumps of all DBMSs and IRLM ASIDs before taking any action.

DXR168I *irlmx* DELAYED PROCESSES NO LONGER DETECTED

Explanation

This message appears if all situations reported in a previous DXR167E messages have been resolved.

System action

The IRLM continues normal operation.

Operator response

Notify the system programmer.

System programmer response

Try to determine what might have caused the temporary problem based on the variable insert in the DXR167E message.

DXR169I ***irlmx*** **THE STORAGE SHORTAGE FOR LOCK STRUCTURE *wwwwwwww* HAS BEEN RELIEVED.**

Explanation

The storage shortage indicated by a previously reported DXR142E message is relieved. The amount of the lock structure in use has dropped below 70%.

wwwwwwww
Is the lock table name currently in use by the IRLM.

System action

IRLM resumes normal data sharing with no restrictions.

DXR170I ***irlmx*** **THE LOCK STRUCTURE *wwwwwwww* IS *zz*% IN USE**

Explanation

This message shows what percent of the available capacity of the lock structure is being used by the group. The values are 50%, 60% and 70%. This message is issued only once at each of the three levels of usage and gives an indication of peak usage during the execution of an IRLM subsystem.

wwwwwwww
The lock table name currently in use by the IRLM.

zz
One of the following values: 50, 60, 70.

System action

The IRLM continues operation.

Operator response

Notify the system programmer.

System programmer response

This message is a warning that there is a potential to overcommit the storage for the lock structure named in the message. Track the occurrences of this message to determine a growth trend. If a growth pattern is detected, increase the storage size specifications for the lock structure in the coupling facility policy and activate the revised policy.

DXR171I ***irlmxxxxxxxxx*** **ARM REGISTRATION FAILED, MVS ARM RETURN CODE = *yyyyyyyy*, MVS ARM REASON CODE = *xxxxxxxx***

Explanation

IRLM encountered an error using the specified z/OS automatic restart manager (ARM) function. The *xxxxxxxx* is the IRLM ARM element name. For data sharing environments, it is a concatenation of the IRLM group name, the IRLM subsystem name, and the IRLM ID. For non-datasharing environments, it is the IRLM subsystem name and the IRLM ID.

System action

IRLM continues. However, if IRLM abends, the z/OS ARM cannot automatically restart IRLM.

System programmer response

Refer to the z/OS MVS Programming: Sysplex Services Reference for the function, return code, and reason code from the IXCARM request.

DXR172I ***irlmxxxxxxxxx*** **ARM READY COMPLETED. MVS ARM RETURN CODE = *yyyyyyyy*, MVS ARM REASON CODE = *xxxxxxxx***

Explanation

IRLM initialization progressed and enabled the automatic restart manager (ARM) to restart dependent element types (SYSDB2, SYSIMS). *xxxxxxxx* is the IRLM ARM element name. In a data sharing environment the element name is a concatenation of the IRLM group name, the IRLM subsystem name and the IRLM ID. In a non-data sharing environment the element name is the IRLM subsystem name and the IRLM ID. If the return and reason codes are not zero, IRLM encountered an error using the specified z/OS automatic restart manager (ARM) function.

System action

IRLM continues. However, if the return and reason codes are not zero, and IRLM abnormally terminates, the z/OS ARM cannot automatically restart IRLM.

System programmer response

Refer to z/OS MVS Programming: Sysplex Services Reference for the function, return code, and reason code from the IXCARM request.

DXR173I ***irlmx xxxxxxxx*** **ARM DEREGISTRATION FAILED. MVS ARM RETURN CODE = *yyyyyyyy*,**

MVS ARM REASON CODE = *xxxxxxxx*

Explanation

IRLM encountered an error using the specified z/OS automatic restart manager (ARM) function. *xxxxxxxx* is the IRLM ARM element name. For data sharing environments, it is a concatenation of the IRLM group name, the IRLM subsystem name and the IRLM ID. For non-data sharing environments, it is the IRLM subsystem name and the IRLM ID.

System action

IRLM continues. However, if IRLM terminates normally or abnormally, the z/OS ARM automatically restarts IRLM.

System programmer response

Refer to z/OS MVS Programming: Sysplex Services Reference for the function, return code, and reason code from the IXCARM request.

DXR174E *irlmxxxxxxxxxcsect-name* ARM EVENT EXIT FAILED.

Explanation

IRLM ARM event exit encountered an error while attempting to define the IRLM subsystem to z/OS.

System action

The automatic restart of the IRLM subsystem stops.

System programmer response

Refer to z/OS MVS Programming: Sysplex Services Reference for return and reason codes from the IEFSSI request. You can manually start IRLM by using the *S* irlmproc command on any system where the IRLM subsystem is defined.If IRLM is not active and AUTO START = *yes* for IRLM defined in DSNZPARM, then DB2 will attempt to start IRLM when DB2 is started.

DXR175E *irlmx* IRLM IS UNABLE TO OBTAIN STORAGE - *storage_type*

Explanation

IRLM is attempting to acquire storage from CSA, ECSA, or extended private storage. The storage type needed is exhausted, or the monitored threshold was exceeded.

The value in field *storage-type* specifies the cause of the error:

MCSA
MAXCSA has been exceeded.

Possible causes are:

- The value for the IRLM startup parameter is too low.
- The IRLM workload has an unexpected peak.

CSA
CSA has been exhausted.

Possible causes are:

- The system was generated with too little CSA.
- The demand for CSA storage by jobs and tasks had an unexpected peak.

ECSA
System ECSA has been exhausted.

Possible causes are:

- The system was generated with too little ECSA.
- The demand for ECSA storage by jobs and tasks had an unexpected peak.

PVT
The extended private storage threshold has been reached.

Possible causes are:

- An application did not issue enough COMMITs.
- An application is caught in a loop.
- The IRLM region size is too small.
- A failed subsystem is not recovering retained locks.
- The MEMLIMIT value is too low.

System action

The IRLM continues to operate. This message stays on the console until IRLM is able to acquire the needed storage. Some database manager requests might be processed successfully, some might be rejected with out-of-storage return and reason codes, and some might hang.

Operator response

Notify the system programmer. Try to reduce the work load on the system or the number of transactions running in the database manager.

When the out-of-storage condition is relieved, normal IRLM operation resumes. Because storage is unavailable, the following symptoms might occur:

- Transactions might abend with out of storage indications.
- Message DXR167E might be issued.

- Transactions might hang.
- Other processes contending with a hung process also hang, potentially causing a chain reaction.
- The system hangs.
- In a data sharing environment:
  - The whole group might hang.
  - New members might not be able to join. They will time out during global initialization and eventually terminate abnormally.
  - Failed members might not get properly partitioned from the group because recovery actions for them cannot run.

System programmer response

Take one of the following actions, depending on the value of *storage-type*:

MCSA
Specify a larger value for MAXCSA, or change the PC parameter to YES.

CSA or ECSA
Generate more CSA or ECSA into the system or reduce the number of running tasks that are dependent on CSA or ECSA.

PVT
Issue `MODIFY irlmproc,STATUS` to determine how many locks are held or if there are retained locks. Issue `MODIFY irlmproc,STATUS,STOR` to determine how much private region storage is available. The storage threshold can be increased by issuing `MODIFY irlmproc,SET,MLT`. Ensure that the amount of MEMLIMIT that you specify is less than or equal to the amount of MEMLIMIT storage that is available. IRLM does not validate that the specified amount of storage is available.

If the condition is caused by an operational error that can be corrected without shutting down IRLM, correct it as soon as possible. Otherwise, shut down IRLM, correct the problem, and restart IRLM.

DXR176I *irlmx* IRLM STORAGE SHORTAGE RELIEVED

Explanation

This message appears if a situation reported in a previous DXR175E message has been resolved.

System action

The IRLM continues operation.

Operator response

Notify the system programmer.

System programmer response

Try to determine what might have caused the temporary problem as reported in a previous DXR175E message. The most likely reasons are too small a value for the IRLM startup parameter MAXCSA or insufficient CSA or ECSA for the combined tasks running in z/OS. The `MODIFY irlmproc,SET` command can be used to change certain IRLM tuning parameters, such as MAXCSA, without restarting IRLM. If possible, correct the problem without shutting down IRLM.

DXR177I *irlmx* THE VALUE FOR *nnnnnnnn* IS SET TO *xxxx*

Explanation

This message is issued in response to the following command:

```
F irlmproc,SET,TRACE=nnn
```

In the message text, *nnnnnnnn* is one of the following values:

- DEADLOCK
- LTE
- PVT
- MAXCSA
- TIMEOUT
- TRACE
- MLT

System action

DEADLOCK
When *nnnnnnnn* is DEADLOCK, *xxxx* is a value between 100 and 5000 an represents the number of milliseconds used for the IRLM deadlock interval. The value displayed will be in even 100 millisecond increments.

If this IRLM is connected to the group, this message appears on each member currently connected as they update their control block during deadlock processing.

The DEADLOCK interval frequency is changed to the number of milliseconds displayed in the message as each IRLM updates its local control blocks. The global deadlock interval is aborted and global deadlock processing re-initialized to synchronize all members.

LTE
When *nnnnnnnn* is LTE, *xxxx* is a value between 0 and 2048 and represents the number of Lock Table Entries available in the Coupling Facility. The

value must be either zero or a power of two with each increment representing 1048576 entries.

If this IRLM is connected to the group, this message appears on each member currently connected as they update their control block during deadlock processing. The value entered with the SET command, does not take affect unless the IRLM is the first to join the group. This can be either during normal group startup or during a REBUILD. If the value specified is zero or too large for the IXCQUERY policy size returned, then the IRLMPROC LTE value is used. If the IRLMPROC LTE value is blank, zero, or also too large, the number of entries is calculated by IRLM to the nearest power of two after dividing the returned size by two.

MLT
The value of MEMLIMIT is set to xxxx megabytes, gigabytes, terabytes, or petabytes, as indicated by a one character unit indicator in the set (M, G, T, or P). MLT controls the amount of above the bar storage made available by the operating system for the IRLM's use in managing locks.

MAXCSA
When *nnnnnnnn* is MAXCSA, *xxxx* is the value of MAXCSA set in megabytes. MAXCSA controls storage use for lock structures. The lock control structures are allocated from ECSA when PC=NO. If PC=YES has been specified, this command has no affect. The system automatically adjusts *xxxx* to a number between 0 and 999 if the number specified is not in this range. If the new MAXCSA value is smaller than the current IRLM CSA allocation for accountable lock structures, IRLM will reduce its CSA storage when the storage is no longer needed.

PVT
The value of PVT is set to *xxxx* megabytes.

PVT controls the below the bar private storage that is used by IRLM. The system automatically adjusts *xxxx* to a number between 1 and 1800, if the number specified is not in this range. If the new PVT value is smaller than the value that is already in use, the command receives error message DXR106E. No validation of the value is performed to check if the address space contains the storage that is specified.

TIMEOUT
When *nnnnnnnn* is TIMEOUT, *xxxx* is a value between 1 and 3600 seconds. This value must be a multiple of the local deadlock parameter. If the value entered by the user is not an even multiple, the next higher multiple is used. If the value specified is out of range, the maximum or minimum is used. Since serialization is needed to change the internal time-out value, it is done during the next deadlock cycle. The DXR177I message is not issued until the input has been validated and the value changed during a deadlock cycle. The message also displays the name of the DBMS subsystem whose time-out value was changed.

TRACES
When *nnnnnnnn* is TRACES, *xxxx* is a value between 10 and 255. Each trace buffer requires 64KB of ECSA storage. IRLM can use a maximum of 255 and a minimum number of 10 trace buffers for each trace type. The system automatically adjusts *xxxx* to the maximum or minimum allowed if the value specified is out of range. The value specified does not apply if the EXTERNAL CTRACE write is active. If the number of trace buffers set by the command is less than the current buffer allocation, IRLM frees the oldest buffers until the number allocated equals the number set by the command.

Programmer response

No action is required.

DXR179I ***irlmx* TRACE USAGE TRACE BUFFER STORAGE IN USE: *nnnnn*KB MAXIMUM NUMBER OF TRACE BUFFERS ALLOWED PER TRACE TYPE: *nnn* TRACE TYPE ACTIVE BUFFERS IN USE CTRACE WRITER**

Explanation

This message is issued in response to the following command:

```
F irlmproc,STATUS,TRACE
```

The message indicates the maximum number of 64KB buffers that IRLM can use for each of its subcomponent trace types.

TRACE TYPE
The trace types are:

SLM
Traces interactions with z/OS locking component. Applicable only for data sharing

XIT
Traces asynchronous interactions with the z/OS locking component. Applicable only for data sharing

XCF
Traces interactions with z/OS cross-system coupling services. Applicable only for data sharing.

DBM
Traces interactions with the DBMS identified to this IRLM.

EXP
Traces exception conditions.

INT
Traces member and group events outside normal locking activity.

RLE
Traces interactions between z/OS and IRLM specific to Record List Entries.

ACTIVE
Whether the trace is active. (You cannot deactivate the EXP and INT traces.)

BUFFERS IN USE
How many 64KB buffers are currently being used by this trace.

CTRACE WRITE
Whether the external CTRACE writer is on.

System action

Processing continues normally.

Operator response

Trace buffers can be set using the `modify irlmproc,set,trace=nnn` command. You can activate or deactivate traces by using the **TRACE CT** command of z/OS. You cannot turn off the EXP, RLE and INT traces. The XIT, EXP, RLE and INT are automatically activated when you start IRLM All traces are automatically activated when TRACE=YES is specified on the IRLMPROC.

DXR180I ***irlmx*** **AUTOMATIC RESTART MANAGER IS NOT ENABLED**

Explanation

IRLM attempts to utilize the z/OS Automatic Restart Manager (ARM) function, but either the system does not have access to an ARM couple data set or the ARM is not set up in the user's environment.

System action

IRLM continues. However, if IRLM abends, the z/OS ARM cannot automatically restart IRLM.

Operator response

Notify the system programmer.

System programmer response

Determine why the system does not have access to an automatic restart manager couple data set. If there is no automatic restart manager couple data set defined, determine if the ARM should be set up so that IRLM can take advantage of the z/OS ARM function. The purpose of using the ARM is to reduce the time IRLM is down. When IRLM stops abnormally, the z/OS ARM restarts it automatically.

DXR181I ***irlmx*** **RUNTIMEO COMMAND DISABLED**

Explanation

The IRLMs are performing automatic time-out detection and the command is not needed.

System action

IRLM processing continues.

DXR182I ***irlmx*** **MODIFY DIAG COMMAND PROCESSED**

Explanation

This message is issued in response to an `IRLM MODIFY irlmproc,DIAG` command.

System action

IRLM processing continues.

DXR183I ***irlmx*** **DEADLOCK PROCESSING RESTARTED**

Explanation

An operator issued the `MODIFY irlmproc,DIAG,HANG` command to collect dumps for problem analysis.

System action

The IRLM restarted deadlock processing following an operator `MODIFY DIAG,HANG` command to collect dumps for problem analysis.

Operator response

If this message is NOT issued by any IRLM after this command has been used, that IRLM must be terminated and restarted.

DXR184I ***irlmx*** **REBUILDING LOCK STRUCTURE AT REQUEST OF DBMS IRLM QUERY**

Explanation

This message is issued when IRLM starts a REBUILD as the result of a special request from the DBMS. For DB2 this occurs if a normal RESTART stall is detected by the restart monitor agent. If the stall is caused by incompatible LOCK information between the SYSPLEX members, a REBUILD is in place and the restart continues.

System action

The REBUILD is started and should complete normally.

DXR185I ***csect-name*** **IXLFORCE SUCCESSFUL FOR IRLM LOCK STRUCTURE**

Explanation

IRLM has deleted its lock structure due to a request made by the associated database subsystem. If DB2 is the associated subsystem, lock structure deletion is done if the setting of the DEL_CFSTRUCT_ON_RESTART ZPARM is YES.

System action

The lock structure is deleted and recovered by restart process.

DXR186I ***irlmx*** **WAITER COUNT IS** ***nnnnnnn*** **FOR RESOURCE** ***res-name*** **HELD BY WU** ***wu-addr*****.**

Explanation
When the deadlock cycle runs again after abort processing due to exceeding time limit, DXR187I may be followed by a message DXR186I to display the first resource which still has more than or equal to 50 waiters. The delay in IRLM deadlock processing may be temporary and might not cause a noticeable problem to the users.

nnnnnn is the count of waiters for a resource that has more than or equal to 50 waiters.

res-name is a 32 byte long resource name.

wu-addr is the address of the lock holders work unit.

Note: If IRLM cannot find the lock holder's workunit address, it will display '********' in place of WU address.

System action

IRLM aborts the current cycle of deadlock detection processing and remains up.

System programmer response:
If problems with the system are observed, take dumps of all DBMSs and IRLM ASIDs when this message appears before taking any action.

User response:
Notify the system programmer.

DXR187I ***irlmx nnnnnnnn*** **WAITERS EXIST DURING DEADLOCK DETECTION CYCLE**

Explanation

IRLM has aborted deadlock processing due to exceeding the time limit. *nnnnnnnn* is the count of all lock waiters on an IRLM member at the time of the deadlock abort. The delay in IRLM deadlock processing may be temporary and might not cause a noticeable problem to the users.

System action

IRLM aborts the current cycle of deadlock detection processing and remains up.

System programmer response

If problems with the system are observed, take dumps of all DBMSs and IRLM ASIDs when this message appears before taking any action.

User response:
Notify the system programmer.

Chapter 2. IRLM return and reason codes

The IRLM return and reason codes are listed below. The database management system (DBMS) referred to throughout the return and reason codes is either DB2 or IMS. Some return and reason codes do not apply to DB2 operation.

The values in the 'return code' column show the request completion status:

00
The request completed successfully.

04
The request completed successfully, but the state of lock remained unchanged.

08
The request completed unsuccessfully because of a system error or condition, not a problem in the request.

12
The request completed unsuccessfully because of a logic error in the request.

16
The request completed unsuccessfully because of an invalid request specification.

20
The request completed unsuccessfully because IRLM resources are not available.

CHANGE request

The following table shows the return codes, reason codes, and descriptions for CHANGE requests:

Return code	Reason code (byte 1)	Reason code (byte 2)	Description
04 (X'04')	X'80'		Ownership or duration, or both was specified, but no locks were changed for one of these reasons: • The 'set of locks' specified included no held locks. • All specified locks had a duration value greater than or equal to the specified duration. • PSTATE=TSTATE was specified.
	X'20'		Other holders of the lock exist.
	X'10'		The CHANGE ALL request specified the from-duration, but the from-duration did not match the held-duration for at least one lock. The mismatched lock is not altered, but other locks might have been altered.
	X'08'		This lock was involved in a deadlock condition, but was not selected as the victim.
	X'02'		The CHANGE STATE request specified a 'tstate' value that was less restrictive than the current held state of the lock.
		X'04'	At least one other work unit holds the lock with the repeatable read (RR) attribute.
		X'02'	The work unit that submitted this lock request holds the lock with the repeatable read (RR) attribute.

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Return code	Reason code (byte 1)	Reason code (byte 2)	Description
08 (X'08')	X'80'		A non-recoverable system error occurred while processing this request.
	X'40'		The lock is not available in the requested state. MODE=COND was specified.
	X'20'		The request was rejected because of a deadlock.
	X'10'		The lock request cannot be granted because another DBMS failed. That DBMS holds a retained lock in a state that is incompatible with the requested state of this request. This subcode is also issued when the lock cannot be granted because of an incompatibility with a lock in NOWAIT status. A lock is placed in this status when a QUIT,HELD=WORKUNIT is issued to the IRLM.
	X'08'		The DBMS is operating in CLEANUP mode because a system failure occurred or because retained locks were deleted without a guarantee that database recovery was done. The DBMS must issue a PURGE request before any global lock request is allowed to wait.
	X'01'		There is insufficient storage for the IRLM to process the CHANGE request. After all other subsystems identified to the IRLM have quit, terminate the IRLM and increase the storage available to the IRLM before restarting it.
		X'80'	This request is in lock negotiation with other DBMSs and was denied.
		X'40'	This request is involved in lock negotiation with other DBMSs. A DBMS downgraded its held state to a still incompatible state or a reason code to deny the conflicting request was not provided.
		X'20'	The request specified the repeatable read (RR) attribute, but not a resource name (RNA) or token.
		X'10'	No more record list entries are available.
		X'08'	An environmental error occurred in the System Lock Manager (SLM)) component of z/OS.
		X'04'	At least one other work unit holds the lock with the repeatable read (RR) attribute.
		X'02'	The work unit that submitted this lock request holds the lock with the repeatable read (RR) attribute.

Return code	Reason code (byte 1)	Reason code (byte 2)	Description
12 (X'0C')	X'80'		An invalid request to change a work unit's Compatibility Class Token was issued. The value in RLPOLDCT did not match what was specified on a previous lock or change request for this work unit.
	X'40'		The work unit does not hold the lock.
	X'20'		No lock exists for the specified resource hash and name values.
	X'10'		From-duration was specified on a change single request, but the from-duration did not match the held-duration for that lock. The lock is not altered.
	X'08'		The lock is not held in the state specified by 'fstate'.
	X'04'		The resource is not locked by the work unit in the specified class.
	X'02'		A suspended LOCK or CHANGE request exists against the lock. If an ownership/duration change of a group of locks was requested, some locks might have changed before this condition was detected.
	X'01'		The target work unit (TWU) already holds a lock or is waiting for a lock on a resource for which this request is attempting to transfer lock ownership. Ownership/duration change of other locks specified by this request might have occurred before this condition was detected.
16 (X'10')	X'80'		An invalid 'tstate' was specified. The value is greater than 11.
	X'40'		The CLASS is invalid. The value is greater than 31.
	X'20'		The count-by-state lock has a valid 'tstate', but the 'fstate' is zero.
	X'10'		Both STATE and TWU were specified.
	X'08'		STATE was specified, but TOKEN and RNA were omitted.
	X'04'		The TOKEN is invalid. It cannot be resolved to a lock held by the specified owning work unit.
	X'02'		The resource name length is invalid. The length is less than 2 or greater than 32 bytes.
	X'01'		The 'fstate' is invalid for a count-by-state lock. The value is greater than 11.
		X'20'	A target work unit was given but no owner was specified or the target & owner are the same.
		X'40'	Repeatable reader was specified and no token or resource name was given.
20 (X'14')	N/A		IRLM services are not available.

IDENT request

The following table shows the return codes, reason codes, and descriptions for IDENT requests:

Return code	Reason code	Description
04 (X'04')	X'80'	Scope=NoDiscon specified on the irlmproc, identify is successful.
	X'40'	IRLM is registered with the Automatic Restart Manager (ARM).
	X'10'	Locks are held from the previous IDENT request. Locks held by the identifying DBMS from a previous failure are still in protected status. For additional information, see the **MODIFY (F) irlmproc,STATUS** command.
08 (X'08')	X'80'	A non-recoverable system error occurred while processing this request.
	X'40'	A z/OS subsystem interface (SSI) error occurred during identification. Ensure that the 4-character IRLM name is defined as a z/OS subsystem, and that the IRLM subsystem with the same name was started.
	X'04'	Identify for recovery (SSTYPE=RECON) was requested, but this IRLM has no retained information about this DBMS.
	X'01'	There is insufficient storage for the IRLM to process the IDENT request. After all other subsystems identified to the IRLM have quit, terminate the IRLM and increase the storage available to the IRLM before restarting it.
16 (X'10')	X'80'	The lock table name is invalid. It probably contains blanks.
	X'40'	The SSNAME is invalid. An active DBMS in the data sharing group is already using this name.
	X'20'	A required exit is missing. If a TIMEOUT exit is specified, TIMEV must be greater than 0.
	X'10'	A read-only request is not allowed. Locks are retained for this DBMS.
	X'08'	This request violates the single DBMS/IRLM rule.
	X'04'	The address of the BACKUP subsystem name pointed to inaccessible storage.
	X'02'	This IRLM does not support the requested function level. A probable cause is the version/release of this IRLM does not support this version/release of the DBMS. IRLM is back-level.
	X'01'	The IRLM failed to connect to the data sharing group and abended. After fixing the connection error, reconnect the IRLM to the data sharing group. This error can also occur when two versions of IRLM with the same IRLMID, running on separate images, are using the same IRLM JOBNAME.
20 (X'14')	N/A	IRLM services are not available.

LOCK request

The following table shows the return codes, reason codes, and descriptions for LOCK requests:

Return code	Reason code (byte 1)	Reason code (byte 2)	Description
04 (X'04')	X'80'		A restart lock successfully reacquired a retained lock.
	X'40'		A modify lock was granted, but no Record List Entry (RLE) was requested in the CF.
	X'20'		Other lock holders exist.
	X'10'		The lock is already held.
	X'08'		This lock was involved in a deadlock, but was not selected as a victim.
	X'04'		Another work unit holds the lock private.
		X'04'	At least one other work unit holds the lock with the repeatable read (RR) attribute.
		X'02'	The work unit that submitted this lock request holds the lock with the repeatable read (RR) attribute.

Return code	Reason code (byte 1)	Reason code (byte 2)	Description
08 (X'08')	X'80'		A non-recoverable system error occurred while processing this request.
	X'40'		The lock is not available in the requested state. MODE=COND was specified.
	X'20'		The request was rejected because of a deadlock or time-out.
	X'10'		The lock request cannot be granted because of the failure of another DBMS that holds a retained lock in a state incompatible with the requested state of this request. This subcode is also issued when the lock cannot be granted because of an incompatibility with a lock in NOWAIT status. A lock is placed in this status when a QUIT,HELD=WORKUNIT command is issued to the IRLM.
	X'08'		The DBMS is operating in CLEANUP mode because a system failure occurred or because retained locks were deleted without a guarantee that database recovery was done. The DBMS must issue a PURGE request before any global lock request is allowed to wait. The same reason code is presented if the LOCK request is canceled by a SYNC request.
	X'04'		Another holder holds the restart lock in an incompatible state.
	X'02'		This work unit exceeded the maximum number of locks that it can hold. The LOCKMAX parameter specifies the maximum.
	X'01'		There is insufficient storage for the IRLM to process the LOCK request. After all other subsystems identified to the IRLM have quit, terminate the IRLM and increase the storage available to the IRLM before restarting it.
		X'80'	This request was involved in lock negotiation with other DBMSs and was denied.
		X'40'	This request was involved in lock negotiation with other DBMSs. Either a DBMS downgraded its held state to a still incompatible state, or a reason code to deny the conflicting request was not provided.
		X'20'	Two different work units executing on the same IRLM tried to get the same P-lock. Only one work unit is allowed for each resource name on an IRLM.
		X'10'	No more record list entries are available.
		X'08'	An environmental error occurred in the System Lock Manager (SLM) component of z/OS.
		X'04'	One other work unit holds this lock with the repeatable read (RR) attribute.
		X'02'	The work unit that submitted this request also holds the lock with the repeatable read (RR) attribute.

Return code	Reason code (byte 1)	Reason code (byte 2)	Description
12 (X'0C')	X'01'		This IRLM already has a modify lock.
		X'80'	A work unit within this IRLM already holds the P-lock. Only one owning work unit is allowed to hold interest in a P-lock within an IRLM.
		X'40'	An illegal attempt was made to change a Compatibility Class Token (CCT). A previous lock or change request had specified a CCT (non-zero), and the most recent request specified a CCT that did not match.
16 (X'10')	X'40'		The CLASS is invalid. The value is greater than 31.
	X'20'		The STATE is invalid. The value is 0 or greater than 11.
	X'08'		The SCOPE is invalid. A previous request defined a different SCOPE for the resource.
	X'04'		The TOKEN or PARENT TOKEN is invalid.
	X'02'		The resource name (RNA) length is invalid. The length specified is less than 2 or greater than 32 bytes.
	X'01'		An invalid retained state was specified. The retained state is greater than the requested state. If the lock was granted and then retained, it could exist in an incompatible state with other holders.
	X'0080'		TYPE=SINGLE lock request specified but: • It is not a P-lock or • a Compatibility class token was also specified or • a parent was also specified
20 (X'14')	N/A		IRLM services are not available.

NOTIFY request

The following table shows the return codes, reason codes, and descriptions for NOTIFY requests:

Return code	Reason code	Description
04 (X'04')	X'80'	An asynchronous request was accepted.
	X'40'	The receiver returned additional return code information to the requester.
	X'20'	A selective notify request was made, but there were no DBMSs with the right qualifications to receive this request.
	X'02'	One or more DBMSs that are holding locks failed and could not be notified.
08 (X'08')	X'80'	A non-recoverable system error occurred while processing this request.
	X'08'	The NOTIFY request is purged by sync.
	X'01'	There is insufficient storage for the IRLM to process the NOTIFY request. After all other subsystems identified to the IRLM have quit, terminate the IRLM and increase the storage available to the IRLM before restarting it.

Return code	Reason code	Description
12 (X'0C')	X'40'	The lock is not held by the specified owning work unit.
	X'20'	No lock exists for the specified resource hash and name values.
16 (X'10')	X'80'	The message area address is invalid.
	X'08'	The message length is zero.
	X'04'	The TOKEN is invalid.
	X'02'	An invalid resource name was specified. The length is less than 2 or greater than 32 bytes.
20 (X'14')	N/A	IRLM services are not available.

PLEXIT request

The following table shows the return codes, reason codes, and descriptions for PLEXIT requests:

Return code	Reason code	Description
4 (X'04')	X'80'	The P-lock exit is already enabled.
	X'40'	The P-lock exit is already disabled.
8 (X'08')	X'80'	A non-recoverable system error occurred while processing this request.
	X'01'	There is insufficient storage for the IRLM to process the PLEXIT request. After all other subsystems identified to the IRLM have quit, terminate the IRLM and increase the storage available to the IRLM before restarting it.
12 (X'0C')	X'80'	The P-lock exit was not defined at IDENTIFY time.
20 (X'14')	N/A	IRLM services are not available.

PURGE request

The following table shows the return codes, reason codes, and descriptions for PURGE requests:

Return code	Reason code	Description
04 (X'04')	X'10'	The locks are already released.
	X'08'	The PURGE-required count was decremented.
08 (X'08')	X'80'	A non-recoverable system error occurred while processing this request.
	X'01'	There is insufficient storage for the IRLM to process the PURGE request. After all other subsystems identified to the IRLM have quit, terminate the IRLM and increase the storage available to the IRLM before restarting it.
12 (X'0C')	X'80'	A PURGE TYPE=TAKEOVER was issued, but the requester did not issue a corresponding TAKEOVER request.
	X'40'	A PURGE TYPE=SFAIL was issued, but this IRLM is still part of the data sharing group. An IRLM cannot be in system failed state while it is part of a data sharing group. This code indicates that the DBMS has invalid information about its status in the group.
	X'20'	A PURGE-BY-WORK-UNIT was issued but no owning work unit was specified.
	X'10'	A PURGE-BY-WORK-UNIT was issued but is not supported by all members.

Return code	Reason code	Description
16 (X'10')	X'01'	A GENERIC PURGE request was made, but the resource name is zero or the name length is out of range.
20 (X'14')	N/A	IRLM services are not available.

QUERY request

The following table shows the return codes, reason codes, and descriptions for QUERY requests:

Return code	Reason code	Description
04 (X'04')	X'80'	There is no information meeting the criteria of the specified parameters.
	X'01'	The QUERY request did not specify an area large enough to contain all the data requested.
08 (X'08')	X'80'	A non-recoverable system error occurred while processing this request.
	X'01'	There is insufficient storage for the IRLM to process the QUERY request. After all other subsystems identified to the IRLM have quit, terminate the IRLM and increase the storage available to the IRLM before restarting it.
16 (X'10')	X'80'	The AREA address is invalid or zero.
	X'40'	An invalid continuation token was specified.
	X'08'	The AREA length is invalid. The AREA length is less than 4.
	X'04'	The TOKEN is invalid. The TOKEN value does not correspond to an existing lock, or the lock is not held by the designated work unit.
	X'02'	The resource name length is invalid. The length specified is less than 2 or greater than 32 bytes.
	X'01'	The DATA=RETAIN parameter is invalid. SCOPE=WU, OWU, or TOKEN was specified.
20 (X'14')	N/A	IRLM services are not available.

QUIT request

The following table shows the return codes, reason codes, and descriptions for QUIT requests:

Return code	Reason code	Description
04 (X'04')	X'10'	Modify locks are retained.
08 (X'08')	X'80'	A non-recoverable system error occurred while processing this request.
	X'01'	There is insufficient storage for the IRLM to process the QUIT request. After all other subsystems identified to the IRLM have quit, terminate the IRLM and increase the storage available to the IRLM before restarting it.

Return code	Reason code	Description
12 (X'0C')	X'80'	The owning work unit (OWU) specified on a HELD=WORKUNIT request was not found.
	X'40'	A HELD=WORKUNIT request did not specify the owning work unit (OWU) parameter.
	X'20'	A QUIT HELD=RETAIN request was already processed.
	X'10'	This IRLM has no knowledge of this DBMS. Either a QUIT HELD=RELEASE was already processed or the DBMS was never identified to this IRLM.
	X'01'	Locks are held, but the HELD parameter was omitted.
20 (X'14')	N/A	IRLM services are not available.

RETLOCK request

The following table shows the return codes, reason codes, and descriptions for QUIT requests:

Return code	Reason code	Description
04(X'04')	X'80'	A retained lock already exists for this resource by this DBMS.
	X'40'	A retained lock on the resource in a different state already exists. The states merged and the resultant state updated the existing retained lock.
	X'20'	The child retained lock was not created because it is covered by the parent retained lock specified in PTOKEN or PNAME.
16(X'10')	X'80'	DBMS name specified on the request is either zero or blank.

STAT request

The following table shows the return codes, reason codes, and descriptions for STAT requests:

Return code	Reason code	Description
8 (X'08')	X'80'	A non-recoverable system error occurred while processing this request.
	X'01'	There is insufficient storage for the IRLM to process the STAT request. After all other subsystems identified to the IRLM have quit, terminate the IRLM and increase the storage available to the IRLM before restarting it.
12 (X'0C')	X'80'	The SSNAME specified a subsystem that is unidentified to this IRLM.
16 (X'10')	X'80'	The AREA address is invalid or zero.
	X'08'	The AREA length is invalid.
20 (X'14')	N/A	IRLM services are not available.

SYNC request

The following tables show the return codes, reason codes, and descriptions for SYNC requests:

Return code	Reason code	Description
04 (X'04')	X'80'	At least one request matched the cancel criteria. IRLM canceled the request.
	X'01'	There is insufficient storage for the IRLM to process the SYNC request. After all IRLM identified subsystems have quit, terminate the IRLM and increase the storage available to the IRLM before restarting it
08 (X'08')	X'80'	A nonrecoverable system error occurred while processing this request.
	X'01'	There is insufficient storage for the IRLM to process the SYNC request. After all IRLM identified subsystems have quit, terminate the IRLM and increase the storage available to the IRLM before restarting it.
12 (X'0C')	X'80'	CANCEL=YES was specified, but the work unit held no locks.
	X'40'	The caller specified RESUME=NO, but did not give the TAGET RLPL of the request to cancel.
14 (X'0E')	X'10'	The work unit was not found.
20 (X'14')	N/A	IRLM services are not available.

TAKEOVER request

The following table shows the return codes, reason codes, and descriptions for TAKEOVER requests:

Return code	Reason code	Description
00 (X'00')	N/A	Takeover completed successfully for a DBMS that was identified either to this IRLM or to the IRLM in XCF communication with this IRLM. Restart locks might be requested.
04 (X'04')	X'80'	Takeover completed successfully for a DBMS that this IRLM did not know.
	X'20'	Takeover completed successfully for a DBMS that this IRLM did not know.
08 (X'08')	X'80'	A non-recoverable system error occurred while processing this request.
	X'01'	There is insufficient storage for the IRLM to process the TAKEOVER request. After all other subsystems identified to the IRLM have quit, terminate the IRLM and increase the storage available to the IRLM before restarting it.
12 (X'0C')	X'80'	The DBMS that issued the request was not identified as an alternate DBMS.
	X'40'	The DBMS being taken over identified itself as an alternate DBMS, or another DBMS already issued a takeover request.
	X'20'	The DBMS being taken over was not identified to either this IRLM or to any other IRLM that is participating in data sharing.
20 (X'14')	N/A	IRLM services are not available.

UNLOCK request

The following table shows the return codes, reason codes, and descriptions for UNLOCK requests:

Return code	Reason code	Description
04 (X'04')	X'80'	One or more locks are held. Some locks did not satisfy the generic resource specification.
	X'20'	Additional locks are held in other states. This applies only to count-by-state locks.
	X'10'	The IRLM cannot release one or more parent locks because child locks exist.
	X'08'	The lock was not fully released.
	X'04'	The work unit holds locks in other classes.
	X'02'	Locks could not be released because the duration specified on the request was lower than the duration previously set.
08 (X'08')	X'80'	A non-recoverable system error occurred while processing this request.
	X'40'	A P-lock conditional request would have had to wait on a held resource latch. The resource latch could have been held by an in-progress P-lock negotiation or a Notify with Latch request.
	X'01'	There is insufficient storage for the IRLM to process the UNLOCK request. After all other subsystems identified to the IRLM have quit, terminate the IRLM and increase the storage available to the IRLM before restarting it.
12 (X'0C')	X'40'	The work unit does not hold the lock.
	X'20'	No lock exists for the specified resource hash and name values.
	X'10'	The IRLM cannot release the parent lock because child locks exist.
	X'08'	The lock is not held in the specified STATE.
	X'04'	The lock is not held in the specified class.
16 (X'10')	X'40'	The CLASS is invalid. The value is greater than 31.
	X'20'	The STATE is invalid. The value is greater than 11.
	X'10'	The owning work unit (OWU) parameter is not specified.
	X'04'	The TOKEN is invalid.
	X'02'	The resource name (RNA) length is invalid. The length specified is less than 2 or greater than 32 bytes.
	X'01'	TYPE=GENERIC was specified, but no resource name (RNA) was specified.
20 (X'14')	N/A	IRLM services are not available.

VERIFY request

The following table shows the return codes, reason codes, and descriptions for VERIFY requests:

Return code	Reason code	Description
00 (X'00')	X'80'	The VERIFY request completed successfully, but IRLM did not recognize one entry in the VERIFY list.
	X'40'	IRLM recognized at least one entry in the VERIFY list, but the entry did not have matching DBRC RECON status.

Return code	Reason code	Description
08 (X'04')	X'80'	A non-recoverable system error occurred while processing this request.
	X'01'	There is insufficient storage for the IRLM to process the VERIFY request. After all other subsystems identified to the IRLM have quit, terminate the IRLM and increase the storage available to the IRLM before restarting it.
16 (X'10')	X'80'	The VERIFY SSNAREA area address is invalid.
20 (X'14')	N/A	IRLM services are not available.

Chapter 3. IRLM abend codes

This section describes the abend codes issued by the internal resource lock manager (IRLM). The database management system (DBMS) referred to throughout the abend codes is either DB2 or IMS. Some abend codes do not apply to DB2 operations.

2017

Explanation

This is an internal error. IRLM processing of a request from a database management system (DBMS) failed. The IRLM issues message DXR123E containing the error ID.

Analysis

IRLM established a functional recovery routine (FRR) to intercept abends that occur during its execution under the IMS execution unit (TCB or SRB) during the processing of an RLMREQ request.

The RLMREQ request or IMS exit routine processing terminated abnormally. An IRLM FRR intercepted the abend and requested a z/OS SYS1.LOGREC entry and an SDUMP of the failure. The FRR issued a CALLRTM to terminate the IRLM with abend code 2017. Console message DXR123E, issued when the IRLM terminates, contains the z/OS error ID recorded in the SYS1.LOGREC record and in the SDUMP.

This is a standard abend issued by DXRRLID0 and DXRRL170. User abend 2017 terminated the IRLM. The original problem was intercepted by the FRR to avoid abnormal termination of the IMS system.

Analyze and, if necessary, report the original failure, not abend 2017.

Analyze the SDUMP to determine the original problem. The problem usually is a program check within IRLM code.

1. Locate the program status word (PSW) and register contents at entry to abend, either from the software LOGREC entry, or from the RTM2WA summary in the formatted section of the SDUMP.

   If the program status word (PSW) is not within an IRLM module, determine the system component where the abend occurred, and use the diagnostic procedure for that component to resolve the problem. IRLM modules are prefixed with DXR.
2. Use the software LOGREC entry or the RTM2WA summary entry for the original error in the related SRB for problem diagnosis.
3. Register 9 normally contains the address of the RLMCB if the error occurred during IRLM processing.
4. Register 12 normally contains the base register contents for the module in control at the time of the error.

System action

The IRLM terminates abnormally. An SDUMP of the IRLM address space is requested.

System programmer response

Obtain the SDUMP and check the error ID in the message. If you are unable to correct the problem, contact your IBM Support Center for assistance.

Problem determination

The problem is usually a program check within the IRLM code. The dump title includes a module name and an offset into the module where the abend was issued.

Source:
IMS abends

Module

DXRRL1D0, DXRRL170

2018

Explanation

An unrecoverable error occurred during IRLM initialization. The IRLM issues message DXR116E containing an error code.

Analysis

This is a standard abend issued by DXRRL010.

An analysis of the SDUMP or z/OS dump is necessary to determine the reasons for specific failures. Register 15 at the time the abend command was issued contained one of the following reason codes:

Register
Contents

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X'01'
An invalid EXEC parameter was issued.

X'02'
A parameter or option was invalid, or a required option was missing or invalid.

X'03'
An invalid SCOPE parameter value was issued.

X'04'
IRLM was already active.

X'05'
IRLM was not defined as a z/OS subsystem.

X'06'
An error building IRLM RLMCB occurred.

X'07'
A failure occurred in an IRLM initialization routine.

X'09'
The IRLM is already active.

X'0B'
A COMPARE-and-SWAP instruction failed to activate the IRLM SSVT. The IRLM is already active.

X'0C'
The SETDIE service failed to establish a first deadlock time interval.

X'0D'
Invalid PC parameter specified.

X'0E'
PC=yes specified at z/OS and does not support close memory.

X'0F'
Invalid ITRACE keyword.

X'10'
Too many APPL parameters specified.

X'11'
APPL parameter not specified in pairs.

X'12'
Invalid RULES parameter specified.

System action

The IRLM terminates abnormally. An SDUMP of the IRLM address space is requested.

System programmer response

Analyze the error code in message DXR116E or DXR008E to determine the reason for this failure. If you are unable to correct the problem, contact your IBM Support Center for assistance.

Source:
IMS abends

Module

DXRRL010

2019

Explanation

This is an internal error. The IRLM detected either a destroyed storage pool or an invalid request. The IRLM storage manager detected invalid or inconsistent control information within its storage pool structure and did not attempt to complete the request that detected this error. The IRLM issues message DXR122E to the console.

Analysis

This is a standard abend issued by DXRRL400. Analyze the SDUMP to determine the problem.

Register 9 contains the address of the RLMCB. Register 12 contains the base register contents for the module in control at the time of the error. Register 14 contains the return address of the caller of storage management. Register 15 at the time the abend was issued contained one of the following reason codes:

Register
Contents

X'01'
A GET serialized request detected a destroyed storage pool.

X'02'
A GET unserialized request detected a destroyed storage pool.

X'03'
A FREE serialized request attempted to free an element that was already freed.

X'04'
A FREE serialized request detected a destroyed storage pool.

X'05'
A FREE unserialized request attempted to free an element that was already freed.

X'06'
A FREE unserialized request detected a destroyed storage pool.

System action

The IRLM terminates abnormally. A SYS1.LOGREC entry and an SDUMP of the IRLM address space is requested.

System programmer response

Obtain the SDUMP. If you are unable to correct the problem, contact your IBM Support Center for assistance.

Problem determination

The dump title includes a module name and an offset into the module where the abend was issued.

Source:
IMS abends

Module

DXRRL400

2020

Explanation

The IRLM was abended by the `F irlmproc,ABEND` command and global sharing with the IRLM was consequently terminated. The IRLM issues message DXR124E to the console.

Analysis

This is a standard abend issued by DXRRL020. The IRLM control block structure is formatted when the SDUMP is printed. This structure shows the IRLM status at the time the SDUMP was taken.

Register 9 contains the address of the RLMCB.

System action

The IRLM terminates abnormally. A z/OS SYS1.LOGREC record and an SDUMP are requested. If the NODUMP parameter was omitted, an SDUMP is requested.

System programmer response

The SDUMP shows the status of the IRLM.

Source:
IMS abends

Module

DXRRL020

2022

Explanation

This is an internal error. IRLM issues this abend because one of its subtasks abended. The end-of-task (ETXR) routine specified for the subtask by an ATTACH parameter was entered. The end-of-task routine issued abend 2022 to force IRLM to terminate and issues message DXR122E to the console.

Analysis

This is a standard abend issued by DXRRL010 and DXRRL020. When the GLS TASK subtask abnormally terminates, its ESTAE requests the recording of the failure in SYS1.LOGREC and an SDUMP. Abend 2022 does not take a second SDUMP.

When other IRLM subtasks abnormally terminate, no ESTAE exists, so z/OS takes an abend dump (the default action). In these cases, the SYSABEND or SYSUDUMP dump can provide additional information. In addition, an SDUMP is taken.

Analyze and, if necessary, report the original abend on the subtask (GLS TASK, DXRRL080 or DXRRL0B0), not abend 2022. Analyze the SDUMP to determine the reason for the original abend.

1. Locate the program status word (PSW) and register contents at entry to abend either from the LOGREC entry or from the RTM2WA summary in the formatted section of the SDUMP.

   If the program status word (PSW) is not within an IRLM module, determine the system component where the abend occurred. Use the diagnostic procedure for that component to resolve the problem. IRLM modules are prefixed with DXR.
2. Use the LOGREC entry or the RTM2WA summary entry for the original error in the subtask for problem diagnosis.
3. Register 9 normally contains the address of the RLMCB if the error occurred during IRLM processing.
4. Register 12 normally contains the base register contents for the module in control at the time of the error.

System action

The IRLM terminates abnormally. Global sharing with the IRLM terminated and a SYS1.LOGREC record and an SDUMP were requested.

System programmer response

Obtain the SDUMP. If you are unable to correct the problem, contact your IBM Support Center for assistance.

Problem determination

The dump title includes a module name and an offset into the module where the abend was issued.

Source:

IMS abends

Module

DXRRL010, DXRRL020

2023

Explanation

The IRLM encountered an out-of-storage condition from either a logic error, a subsystem definition error, or an error from a z/OS service that must be performed for the IRLM to continue processing. An example of an IRLM internal error is the detection of an invalid function code in an internal queue element. An example of a z/OS service failure is a nonzero return code from SETDIE. The IRLM deadlock and Intersystem Communication (ISC) functions cannot be performed without SETDIE services. Do not force termination of the IRLM. The IRLM issues message DXR175E to the console to help identify the error, followed by the message DXR122E, which describes the abend.

Analysis

This is a standard abends issued by various modules. Analyze the SDUMP to determine the reasons for the specific failures.

1. Locate the program status word (PSW) and register contents at entry to abend either from the LOGREC entry or from the RTM2WA summary in the formatted section of the SDUMP.

   If the program status word (PSW) is not within an IRLM module, determine the system component where the abend occurred. Use the diagnostic procedure for that component to resolve the problem. IRLM modules are prefixed with DXR.
2. Register 9 normally contains the address of the RLMCB if the error occurred during IRLM processing.
3. Register 12 normally contains the base register contents for the module in control at the time of the error.

Register 15 contains one of the following reason codes:

Register
Contents

X'01'
Module DXRRL210 GETMAIN for the ISL-SEND RLMQE element failed.

X'02'
Module DXRRL210 ISL-MERGE detected the same IMS subsystem identified to both IRLMs.

X'03'
Module DXRRL210 GETMAIN for merged ISL storage failed.

X'04'
Module DXRRL300 SETDIE return code for initial PTB process-delay-time interval failed.

X'05'
Module DXRRL310 SETDIE return code for PTB wait-time interval failed.

X'06'
Module DXRRL310 SETDIE return code for PTB process-delay-time interval failed.

X'07'
Module DXRRL330 detected an unexpected RLMQE element while processing request queues.

X'08'
Module DXRRL330 attempted to free an RH-owned RLMQE element. A logic error in the PTB-RH protocols was found.

X'09'
Module DXRRL330 request for a storage pool for the RLMPPTBQ element failed.

X'0A'
Module DXRRL370 issued a request to obtain storage for an RLMPPTBQ element that failed.

X'0B'
Module DXRRL370 issued a request to obtain storage for an RLMPQE60 element that failed.

X'0C'
Module DXRRL370 issued a request to obtain storage for an RLMPNCB element that failed.

X'0D'
Module DXRRL370 GETMAIN for an RLMQE element failed.

X'0E'
Module DXRRL240 GETMAIN for the deadlock workspace failed.

X'0F'
Module DXRRL250 GETMAIN for the deadlock parameter list (DPL) storage failed.

X'10'
Module DXRRL250 SETDIE for the deadlock-time interval failed.

X'11'
Module DXRRL2A0 or DXRRL2E0 issued a request to obtain storage for an RMLPCOMQ element that failed.

X'13'
Module DXRRL2A0 issued a request to obtain storage for an RLMPQE28 element that failed.

X'14'
Module DXRRL1F0 issued a request to obtain storage for an MLB that failed.

X'15'
Module DXRRL2K0 issued a request to obtain storage for an 11-25 RLMQE that failed.

X'16'
Module DXRRL2K0 issued a request to obtain storage for an MLB that failed.

X'17'
Module DXRRL2K0 issued a request to obtain storage for an 11-20 RLMQE that failed.

X'l8'
Module DXRRL2K0 issued a request to obtain storage for a dummy WHB that failed.

X'19'
Module DXRRL220 issued a request to obtain storage for a dummy WHB that failed.

X'1A'
Module DXRRL2E0 issued a request to obtain storage for a dummy WHB that failed.

X'1B'
Module DXRRL2C0 issued a request to obtain storage for an RLSPL that failed.

X'1C'
Module DXRRL2C0 issued a request to obtain storage for an SRB that failed.

X'1D'
Module DXRRL2G0 issued a request to obtain storage for an 07-05 RLMQE that failed.

X'1E'
Module DXRRL350 issued a double DXRRFSAV macro.

X'1F'
Module DXRRL350 failed to obtain PQE28 storage.

X'20'
Module DXRRL200 encountered a zero secondary latch use count (RLMUCNT/RLMRHSTA).

X'21'
Module DXRRL200 failed to get storage for an SRB or RHWKA.

System action

Global sharing with this IRLM terminated. A z/OS SYS.LOGREC record and an SDUMP of the IRLM address space are requested and issued unless superseded or suppressed.

System programmer response

Refer to the DXR175E message to determine which storage was in error and what the probable cause is. If IBM service is required, obtain the SDUMP. If you are unable to correct the problem, contact your IBM Support Center for assistance.

Problem determination

The dump title includes a module name and an offset into the module where the abend was issued.

Source:
IMS abends

Module

DXRRL210, DXRRL220, DXRRL240, DXRRL250, DXRRL300, DXRRL310, DXRRL330, DXRRL370, DXRRL1F0, DXRRL2A0, DXRRL2E0, DXRRL2G0, DXRRL2J0, DXRRL2K0.

2024

Explanation

This is an internal error. The database management system (DBMS) parameter list is invalid.

IRLM established a functional recovery routine (FRR) to intercept abends that occur while executing under the IMS execution unit (TCB or SRB), during the processing of some RLMREQ request.

The IRLM encountered a program check while attempting to access an IMS-owned storage area, either an RLPL (RLMREQ interface control block), or some other storage address passed to the IRLM by the RLPL (hat is, a VERIFY list). The error, as well as symptom string data, was recorded in SYS1.LOGREC, and the FRR retried to DXRRLI00 to clean up the IRLM-owned structures.

Analysis

The user abend did not terminate the IRLM, but abended the IMS execution unit.

Examine the SYS1.LOGREC entry recorded by the IRLM FRR to extract the program status word (PSW) and registers at the time of the abend. At the time the abend was issued, register 10 contained one of the following codes:

Register
Contents

X'05'
An invalid IMS owned RLPL storage address was detected after completion of the IRLM request. The request was processed in cross-memory mode (PC=YES).

X'07'
An invalid IMS owned RLPL storage address was detected before completion of the IRLM request.

The request was processed in cross-memory mode (PC=YES).

X'09'
An invalid IMS owned storage address (other than the RLPL) was detected, while processing the request in cross-memory mode (PC=YES).

In all cases, the invalid IMS-owned storage address is available from the variable recording area (VRA) of the SDWA, recorded within the SYS1.LOGREC entry.

System action

The requesting DBMS is abended with user abend 2024. The IRLM continues processing.

System programmer response

Obtain the dump of the requesting DBMS. If you are unable to correct the problem, contact your IBM Support Center for assistance.

Source:
IMS abends

Module

DXRRL100

2025

Explanation

This is an internal error. The IRLM request to the cross-system extended services (XES) or the cross-system coupling facility (XCF) failed. The job step ESTAE issued message DXR139E with the failing return and reason codes. Message DXR122E is also issued.

Analysis

See messages DXR122E and DXR139E for more information. Obtain the SDUMP of the requesting IMS subsystem. The dump title includes a module name and an offset into the module where the abend was issued.

System action

The IRLM terminates abnormally. An SDUMP of the IRLM address space is requested.

System programmer response

Obtain the SDUMP. If you are unable to correct the problem, contact your IBM Support Center for assistance.

Problem determination

The dump title includes a module name and an offset into the module where the abend was issued.

Source:
IMS abends

Module

DXRCHNGP, DXRRL120, DXRRL2E0, DXRRL2R0, DXRRL2R1, DXRRL2R2, DXRRL2R3, DXRRL2R4, DXRRL2T0, DXRRL2T1, DXRRL2U0, DXRRL2V0, DXRRL7C1, DXRRL7C2, DXRRL711, DXRRL712, DXRRL730, DXRRL732, DXRRL750, DXRRL752, DXRRL753, DXRRL754, DXRRL760, DXRRL770, DXRRL780

2027

Explanation

This is an internal error. The IRLM detected a logical inconsistency in either its processing or the local lock structure. IRLM issues message DXR122E to the console.

Analysis

Obtain the SDUMP. The dump title includes a module name and an offset into the module where the abend was issued. Contact the IBM Support Center for help in determining the problem.

System action

The IRLM terminates abnormally. An SDUMP of the IRLM address space is requested.

System programmer response

Obtain the SDUMP. If you are unable to correct the problem, contact your IBM Support Center for assistance.

Problem determination

The dump title includes a module name and an offset into the module where the abend was issued.

Source:
IMS abends

Module

DXRGLBL, DXRRL2R1, DXRRL2R4, DXRRL2S0, DXRRL2T0, DXRRL2T2, DXRRL2V0, DXRRL200, DXRRL220, DXRRL248, DXRRL7B1, DXRRL700, DXRRL711, DXRRL712, DXRRL770

2031

Explanation

This is an internal error. The IRLM requested that z/OS terminate the IRLM address space because of a previous error. An abend occurred while processing an SRB dispatched to a cross-system coupling facility (XCF) exit or to an System Lock Manager (SLM) exit in the IRLM address space. The exit functional recovery routine (FRR) issued a CALLRTM with a completion code of 2031 to terminate the IRLM address space. The z/OS error ID was placed in the IRLM RLMCB control block. The job step ESTAE issued message DXR122E.

Analysis

See message DXR122E for more information. Obtain the SDUMP. The dump title includes a module name and an offset into the module where the abend was issued.

System action

The IRLM terminates abnormally. A SYS1.LOGREC record was written. An SDUMP of the IRLM address space is requested.

System programmer response

Obtain the SDUMP. If you are unable to correct the problem, contact your IBM Support Center for assistance.

Problem determination

The dump title includes a module name and an offset into the module where the abend was issued.

Source:
IMS abends

Module

DXRRL2F0

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