
Part 6. Tools Base Diagnostics Aid reference

This section describes the Tools Base Diagnostics Aid utility.

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Chapter 29. Tools Base Diagnostics Aid overview

If you have a problem that you think is not a user error, use the Tools Base Diagnostics Aid to collect the necessary information before you contact IBM Software Support.

1. Run Tools Base Diagnostics Aid (HKTUDIAG) and obtain the Load Module APAR Status report.
2. Attach the report to the other diagnostic documents (such as job dump list or I/O of the utility).
3. Report the error to IBM.

Tools Base Diagnostics Aid (HKTUDIAG) generates the Load Module APAR Status report for the IMS Tools maintenance by IBM. This report shows the latest APAR fixes applied to each module of IMS Tools components.

Tools Base Diagnostics Aid supports the following load modules of IMS Tools products:

Table 7. Load modules supported by the Tools Base Diagnostics Aid

Product name	Load module library low-level qualifier (LLQ)	Load module prefix
IBM Tools Base	SAIILINK	AII
	SFOILOAD	BSN
	SGLXLOAD	FOI
	SHCOLMOD	FPQ
	SHKTLOAD	GEX
		GLX
		GPR
		HCO
		HKT
		IAY
IMS Recovery Solution Pack	SFRXLOAD	FRX
	SHPCLMD0	IRO
		HPC
IMS Cloning Tool	SGCLLOAD	GCL
IMS Administration Tool	SATYLOAD	ATY
IMS DEDB Fast Recovery	SDFRLMD0	DFR
IMS Recovery Expert	SBSYLOAD	BSY
IMS High Performance System Generation Tools	SIOHLINK	IOH
IMS Command Control Facility	SCCFLINK	CCF
IMS Buffer Pool Analyzer	SBPLLINK	BPL
IMS Network Compression Facility	SCFNLINK	CFN
IMS Database Control Suite	SIDLLMD0	IDL
IMS Extended Terminal Option Support	SIZTLINK	IZT
IMS Program Restart Facility	SIRTLOAD	IRT

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Chapter 30. How to run Tools Base Diagnostics Aid with JCL stream

To run Tools Base Diagnostics Aid (HKTUDIAG), supply an EXEC statement and DD statements that define the input and output data sets.

The following figure shows a JCL example for the Tools Base Diagnostics Aid:

```
//HKTUDIAG JOB CLASS=A
//PGM1 EXEC PGM=HKTUDIAG
//STEPLIB DD DISP=SHR,DSN=ITB.SHKTLOAD
//LOADLIB DD DISP=SHR,DSN=ITB.SAILINK
// DD DISP=SHR,DSN=ITB.SHKTLOAD
//SYSUDUMP DD SYSOUT=A
//HKTPRINT DD SYSOUT=A
//HKTRPRT DD SYSOUT=A
```

EXEC

This statement must be in the following form:

```
//stepname EXEC PGM=HKTUDIAG
```

STEPLIB DD

This statement points to the load module library data set where HKTUDIAG load module resides:

```
//STEPLIB DD DISP=SHR,DSN=ITB.SHKTLOAD
```

ITB.SHKTLOAD is the name of the library that contains the IMS Tools Knowledge Base load modules.

LOADLIB DD

This statement defines the libraries that contain the load modules with which you have a problem. The Tools Base Diagnostics Aid will generate the Load Module APAR Status Report from the libraries defined by the LOADLIB DD.

If this DD statement is not provided, the Load Module APAR Status report will be generated from the libraries defined by the STEPLIB DD.

HKTPRINT DD

This statement defines the output data set for the Journal Messages report. The data set contains 133-byte, fixed-length records. It can reside on a tape, direct-access device, or printer; or it can be routed through the output stream. If BLKSIZE is coded in the DD statement, it must be a multiple of 133. However, it is recommended that you use the following:

```
//HKTPRINT DD SYSOUT=A
```

If you do not specify this DD statement, the Tools Base Diagnostics Aid dynamically allocates the data set by using SYSOUT=*.

HKTRPRT DD

This statement defines the output data set for the Load Module APAR Status report. The data set contains 133-byte, fixed-length records. It can reside on a tape, direct-access device, or printer; or it can be routed through the output stream. If BLKSIZE is coded in the DD statement, it must be a multiple of 133. However, it is recommended that you use the following:

| //HKTRPRT DD SYSOUT=A

| If you do not specify this DD statement, the Tools Base Diagnostics Aid
| dynamically allocates the data set by using SYSOUT=*.

|

Chapter 31. Output from the Tools Base Diagnostics Aid

The Tools Base Diagnostics Aid generates a Journal Messages report and a Load Module APAR Status report.

Topics:

- “Journal Messages report” on page 140
- “Load Module APAR Status report” on page 141

Journal Messages report

The Journal Messages report contains processing messages about the Tools Base Diagnostics Aid job. This report is generated in the HKTPRINT data set.

Sample report

The following figure shows an example of the Journal Messages report:

Tools Base for z/OS 5655-V93	Journal Messages	Tools Base Diagnostics Aid Date: 2019-11-25 Time: 22:51:28
2019-11-25 22:51:280 HKT8001I THE TOOLS BASE DIAGNOSTICS AID PROCESS HAS STARTED.		
2019-11-25 22:51:281 HKT8002I THE TOOLS BASE DIAGNOSTICS AID PROCESS HAS ENDED NORMALLY.		

Figure 13. Journal Messages report

Load Module APAR Status report

The Load Module APAR Status report contains information about the modules and their applied APARs.

Sample report

The following figure shows an example of the Load Module APAR Status report for the SHKTLOAD library.

Tools Base for z/OS 5655-V93			Load Module APAR Status Report					Page: 1 Date: 2019-11-25 Time: 23:32:53		
Load Module Library: ITB.SHKTLOAD										
Module Name	Alias-of	CSECT Name	APAR Number	APAR Fix Date	CSECT Name	APAR Number	APAR Fix-Date	CSECT Name	APAR Number	APAR Fix Date
BSN\$RBP0		BSN\$RBP0	PI76011	2017-08-04	HKTAPRS0	None	n/a			
BSNAMD00		BSNAMD00	None	n/a						
BSNAMG00		BSNAMG00	None	n/a						
BSNAMI00		BSNAMI00	None	n/a						
BSNAMP00		BSNAMP00	None	n/a						
BSNAMT00		BSNAMT00	None	n/a						
BSNAMU00		BSNAMU00	None	n/a						
BSNAM000		BSNAM000	None	n/a						
BSNAPRS0		BSNAPRS0	None	n/a						
BSNASM00		BSNASM00	PI93320	2018-03-13						
BSNASM10		BSNASM10	None	n/a						
BSNA1BBE		BSNA1BBE	None	n/a						
BSNA1HFP		BSNA1HFP	None	n/a						
BSNA1IRO		BSNA1IRO	None	n/a						
BSNBASEP		BSNBASEP	PI70647	2017-05-19	BSNBAS10	None	n/a	BSNWMMSG	None	n/a
		BSNBAS12	None	n/a	BSNBAS14	None	n/a			
BSNDDI00		BSNDDI00	PI98323	2018-05-28						
...										

Figure 14. Load Module APAR Status report

Report field descriptions

The Load Module APAR Status report shows the following fields:

Load Module Library

This field shows the data set names specified in the LOADLIB DD statement. If multiple data sets are concatenated, only the first data set is shown with a plus sign (+).

Module Name

This is the name of either the load module member or the alias that is associated with an IMS Tools feature.

Alias-of

This is the name of the original member of the alias. If the module name is not an alias, this field is left blank.

The following fields are repeated if the module contains more than one CSECT.

CSECT Name

This is the name of the CSECT included in the module. The CSECT names are listed in the order in which they are included in the module.

APAR Number

This is the latest APAR number applied to the module represented by the CSECT name. If no APAR is applied, None is shown.

| **APAR Fix Date**

| This is the date on which the modification for the module represented by
| the CSECT name was prepared. If no APAR is applied or no date
| information is included in the CSECT, n/a is shown.

Chapter 32. Tools Base Diagnostics Aid return codes

The Tools Base Diagnostics Aid ends with one of the following return codes:

Table 8. Return codes reported by Tools Base Diagnostics Aid

Return code	Description	User response
0	Job successfully ended.	None.
4	Job ended with a warning message.	Check the messages whose message numbers are suffixed by the letter <i>W</i> . If this is not the expected result, correct the error, and rerun the job.
8	Job ended with an error message.	Check the messages whose message numbers are suffixed by the letter <i>E</i> . Correct the error, and rerun the job.
16	Job failed to initialize the BPE environment.	Correct any errors, and rerun the job. If this situation persists, contact IBM Software Support.

Chapter 33. Tools Base Diagnostics Aid messages

The Tools Base Diagnostics Aid issues messages that can help you diagnose and solve the problems.

Message format

The Tools Base Diagnostics Aid messages adhere to the following format:

HKTnnnx

where:

- HKT** Indicates that the message was issued by the Tools Base Diagnostics Aid.
- nnn** Indicates the message identification number.
- x** Indicates the severity of the message:
- A** Indicates that operator intervention is required before processing can continue.
 - E** Indicates that an error occurred, which might or might not require operator intervention.
 - I** Indicates that the message is informational only.
 - W** Indicates that the message is a warning to alert you to a possible error condition.

Each message also includes the following information:

Explanation:

The Explanation section explains what the message text means, why it occurred, and what its variables represent.

System action:

The System action section explains what the system will do in response to the event that triggered this message.

User response:

The User response section describes whether a response is necessary, what the appropriate response is, and how the response will affect the system or program.

HKT8001I THE *utility_name* PROCESS HAS STARTED.

Explanation: The batch utility named *utility_name* has started.

System action: Processing continues.

User response: None. This message is informational.

HKT8002I THE *utility_name* PROCESS HAS ENDED NORMALLY.

Explanation: The batch utility named *utility_name* has ended normally.

System action: Processing continues.

User response: None. This message is informational.

HKT8003W THE *utility_name* PROCESS HAS ENDED WITH WARNING.

Explanation: The batch utility named *utility_name* has ended with warnings.

System action: Processing ends with a return code of 4.

User response: Check another message whose suffix is W. If this is not the expected result, correct the error, and rerun the job.

HKT8004E THE *utility_name* PROCESS HAS ENDED WITH ERROR.

Explanation: The batch utility named *utility_name* has ended with errors.

System action: Processing ends with a return code of 8.

User response: Check another message whose suffix is *E*. Correct the error, and rerun the job.

**HKT8005E STORAGE OBTAIN FAILED.
RC=*return_code*, SIZE=*size*, MOD=*module*,
ERROR_ID=*error_id*.**

Explanation: The batch utility failed to obtain storage.

return_code

Shows the return code (in hexadecimal) that is returned from the STORAGE macro.

size

Shows the size of the storage that could not be obtained.

module

Shows the name of the failed module.

error_id

Shows the error ID that is associated with the module.

System action: Processing ends with a return code of 8.

User response: Increase the REGION size on the JOB statement in the JCL, and rerun the utility.

**HKT8006E STORAGE RELEASE FAILED.
RC=*return_code*, SIZE=*size*, MOD=*module*,
ERROR_ID=*error_id*.**

Explanation: The batch utility failed to release storage. In the message text,

return_code

Shows the return code (in hexadecimal) that is returned from the STORAGE macro.

size

Shows the size of the storage that could not be released.

module

Shows the name of the failed module.

error_id

Shows the error ID that is associated with the module.

System action: Processing ends with a return code of 8.

User response: This error might be an internal system error. Contact IBM Software Support.

**HKT8007E OPEN FAILED. DDNAME=*ddname*.
RC=*return_code*.**

Explanation: The batch utility failed to open the data set that is specified by the *ddname* DD. The hexadecimal

value *return_code* is the return code from the OPEN macro.

System action: Processing ends with a return code of 8.

User response: See *z/OS DFSMS Macro Instructions for Data Sets* to determine the meaning of the return code. If the problem persists, contact IBM Software Support.

**HKT8009E DYNALLOC SERVICE FAILED FOR
FUNC=[ALLOC | UNALLOC],
[DDNAME=*ddname* |
DSNAME=*dsname*], RC=*return_code*,
RSN=*reason_code*.**

Explanation: The batch utility failed to allocate or unallocate the data set for DD name *ddname* or the data set named *dsname*. The hexadecimal value *return_code* is the return code from SVC99. The hexadecimal value *reason_code* is the S99ERROR and S99INFO contents.

System action: Processing ends with a return code of 8.

User response: Look up the dynamic allocation (SVC99) code in *z/OS MVS Programming: Authorized Assembler Services Guide*. Correct the problem, and rerun the job.

HKT8011E ERRORS DETECTED WHILE xxxxxxxx

Explanation: The batch utility encountered errors during its processing.

xxxxxxx

Indicates one of the following:

- ANALYZING INPUT PARAMETERS
- ANALYZING LOAD MODULES
- GENERATING REPORTS

System action: Processing ends with a return code of 8.

User response: Check the message whose suffix is *E* in the Journal Messages report. Correct the error, and rerun the job.

**HKT8012E LOAD FAILED. MODULE=*modname*,
SC=*code*, RSN=*reason_code*.**

Explanation: The batch utility failed to load the module named *modname*. The hexadecimal value *code* is the abend code, and the hexadecimal value *reason_code* is the reason code associated with the abend.

System action: Processing ends with a return code of 8.

User response: Check if the correct load module library is specified in the STEPLIB DD statement.

HKT8016E BINDER API FAILED. FUNC=*function*,
RC=*return_code*, **RSN=***reason_code*.
 - **DDNAME=***ddname*,
MODULE=*modname*.

Explanation: The binder API (IEWBIND) failed to retrieve information from the load module *modname* in the library *ddname*. *function* is the name of the failed IEWBIND function. The hexadecimal values *return_code* and *reason_code* are the return code and the reason code from the IEWBIND.

System action: Processing ends with a return code of 8.

User response: Check if the correct load module library is specified in the *ddname* DD statement. See *z/OS MVS Program Management: Advanced Facilities* to determine the meaning of the return code and the reason code. If the problem persists, contact IBM Software Support.

HKT8018E RDJFCB FAILED. DDNAME=*ddname*.
RC=*return_code*.

Explanation: The batch utility issued an RDJFCB macro for the specified *ddname*, and the macro returned an error. The hexadecimal value *return_code* is the return code from the RDJFCB macro.

System action: Processing ends with a return code of 8.

User response: Check if the correct load module library is specified in the *ddname* DD statement. See *DFSMS DFSMSdfp Advanced Services* to determine the meaning of the return code. If the problem persists, contact IBM Software Support.

HKT8026W UNABLE TO DIAGNOSE THE CSECT
csectname **IN THE MODULE** *modname*.
REASON: *text*.

Explanation: The Tools Base Diagnostics Aid could not diagnose the CSECT *csectname* in the load module *modname*. *text* shows the reason why the Diagnostics Aid could not diagnose this CSECT. The Tools Base Diagnostics Aid skips this CSECT and continues processing.

System action: Processing continues with a return code of 4.

User response: Check if the correct load module library is specified in the LOADLIB DD statement. If the problem persists, contact IBM Software Support.

HKT8027W THE NUMBER OF CSECTS IN THE
MODULE *modname* **EXCEEDS THE**
LIMIT TO DIAGNOSE.

Explanation: The number of CSECTs in the module *modname* exceeds the limit for the Tools Base Diagnostics Aid. Some CSECTs in the *modname* will not

be shown in the Load Module APAR Status report.

System action: Processing continues with a return code of 4.

User response: Check if the correct load module library is specified in the LOADLIB DD statement. If the problem persists, contact IBM Software Support.

HKT8029E THERE ARE NO MEMBERS TO
DIAGNOSE.

Explanation: The Tools Base Diagnostics Aid could not find any load module member to diagnose.

System action: Processing ends with a return code of 8.

User response: Specify the correct load module library in the LOADLIB DD statement, and rerun the job.

HKT8030E AN ERROR WAS DETECTED WHILE
ANALYZING THE CONTROL
STATEMENT. RC=*return_code*,
FUNC=*function*.
DETAIL OF THE ERROR IS AS
FOLLOWS:
 ...

Explanation: The control statement analysis process detected a syntax error in the control statement.

System action: Processing ends with a return code of 8.

User response: Review the other message, BPE0003E, which explains the details of the error. Correct the control statement, and rerun the job.

HKT8031I THE FOLLOWING OPTIONS ARE
USED FOR THE *utility_name*:
 - *keyword_name1* ... *value1*
 - *keyword_name2* ... *value2*

Explanation: This message shows individual processing options of the batch utility named *utility_name* on each line. This message is for informational purposes only.

System action: Processing continues.

User response: None. This message is informational.

HKT8032E THE VALUE *value* **IS INCORRECT FOR**
THE *keyword* **KEYWORD**

Explanation: The value *value* is incorrect for the *keyword* keyword.

System action: Processing ends with a return code of 8.

User response: Correct the control statement, and rerun the job.

HKT8039E *value1* AND *value2* ARE MUTUALLY EXCLUSIVE FOR *keyword* KEYWORD.

Explanation: The value *value1* was specified with the value *value2* for the *keyword* keyword. These values are mutually exclusive.

System action: Processing ends with a return code of 8.

User response: Correct the control statement, and rerun the job.

HKT8056E NO MEMBERS WERE FOUND IN THE *ddname* DD.

Explanation: The batch utility tried to obtain load module members from the *ddname* DD, but there were no members in the DD.

System action: Processing ends with a return code of 8.

User response: Specify the correct load module library, and rerun the job.

HKT8057E DESERV FAILED. FUNC=*function_code*, RC=*return_code*, RSN=*reason_code*, DDNAME=*ddname*.

Explanation: The batch utility issued the z/OS DESERV macro internally, but the macro failed.

- *function_code*, *return_code*, and *reason_code* show the function code, the return code, and the reason code of the DESERV macro, respectively.
- *ddname* shows the name of the DD statement that caused the error.

System action: Processing ends with a return code of 8.

User response: Check if the correct data set is specified in the *ddname* DD, and rerun the job. If the problem persists, contact IBM Software Support.