Problem Determination Tools for z/OS

IBM

Common Component Customization Guide and User Guide

Version 1 Release 6

> **Note**
> Before using this document, read the general information under "Notices" on page 27.

First Edition (May 2012)

This edition applies to Version 1 Release 6 Modification Level 0 of IBM Problem Determination Tools for z/OS® Common Component (program number 5655-IPV), and to Version 12 Release 1 Modification Level 0 of IBM File Manager for z/OS (program number 5655-W68), IBM Fault Analyzer for z/OS (program number 5655-W69), IBM Debug Tool for z/OS (program number 5655-W70), and to all subsequent releases and modifications until otherwise indicated in new editions.

IBM welcomes your comments. For information on how to send comments, see "How to send your comments to IBM" on page v.

This publication is available on the Web at:

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Preface

This document provides information for installing, configuring, and using the IBM Problem Determination Tools Common Component server.

Who should use this document

This document is intended for those persons responsible for installing and using the IBM Problem Determination Tools Common Component server, and assumes a working knowledge of:

- z/OS operating system
- system programming
- configuration of servers

Terminology used in this document

In this document, the IBM Problem Determination Tools Common Component server is referred to as the "PD Tools Common Component" server, or "PDTCC" server.

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LookAt is an online facility that lets you look up explanations for most messages you encounter, as well as for some system abends and codes. Using LookAt to find information is faster than a conventional search because in most cases LookAt goes directly to the message explanation.

You can access LookAt from the Internet at: http://www.ibm.com/eserver/zseries/zos/bkserv/lookat/ or from anywhere in z/OS or z/OS.e where you can access a TSO/E command line (for example, TSO/E prompt, ISPF, z/OS UNIX System Services running OMVS).

The LookAt Web site also features a mobile edition of LookAt for devices such as Pocket PCs, Palm OS, or Linux-based handhelds. So, if you have a handheld device with wireless access and an Internet browser, you can now access LookAt message information from almost anywhere.

To use LookAt as a TSO/E command, you must have LookAt installed on your host system. You can obtain the LookAt code for TSO/E from a disk on your *z/OS Collection* (SK3T-4269) or from the LookAt Web site's **Download** link.

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Chapter 1. Introduction to IBM Problem Determination Tools Common Component server

The IBM Problem Determination Tools Common Component, hereafter referred to as PD Tools Common Component, or PDTCC, consists of three major features which are shared by the IBM Problem Determination Tools products:

1. Common Server
2. IPVLANGX
3. Interactive Panel Viewer

1. Common Server

The Common Server is an extensible server program which runs on a z/OS system to serve clients. Multiple clients can connect to a single instance of the server program and request a service by invoking a specific extension of the server. The server needs to be customized to install various extensions. Without installing the extensions, the Common Server program alone does not serve any purpose.

The following products use the Common Server:

Debug Tools DTSP plug-in for Eclipse
See *Debug Tool for z/OS Customization Guide V12.1 (SC19-3708)* for details on customization.

Fault Analyzer plug-in for Eclipse
See *Fault Analyzer for z/OS User's Guide and Reference V12.1 (SC19-3671)* for details on customization.

File Manager plug-in for Eclipse
See *File Manager for z/OS Customization Guide V12.1 (SC19-3673)* for details on customization.

File Manager for CICS V12.1.
See *File Manager for z/OS Customization Guide V12.1 (SC19-3673)* and *File Manager for z/OS User's Guide and Reference for CICS V12.1 (SC19-3677)* for details on customization.

See the product specific customization guide for further information about configuring the product specific extensions to the Common Server.

2. IPVLANGX

The IPVLANGX feature consists of two utility programs; IPVLANGX and IPVLANGP. Currently, the following product uses IPVLANGX feature:

Fault Analyzer for z/OS.
See *Fault Analyzer for z/OS User's Guide and Reference V12.1 (SC19-3671)* for details on customization.

IPVLANGX
A utility program which can be used to convert a compiler listing, or SYSADATA file, to a PDT side file. A PDT side file is typically a lot smaller in size than a compiler listing.

IPVLANGP
>A utility program which can be used to create a readable listing from a PDT IPVLANGX side file, or a SYSDEBUG side file, generated by using the COBOL TEST(NONE,SYM,SEPARATE) option.
>
>This might be useful if side files, rather than compiler listings, are kept in order to conserve DASD space, as the utility program is able to format the side file in a way that resembles the original compiler listing.

3. Interactive Panel Viewer

The Interactive Panel Viewer feature enables ISPF-based applications to display panels under CICS. The following products use the Interactive Panel Viewer feature:

Fault Analyzer for z/OS
>See *Fault Analyzer for z/OS User's Guide and Reference V12.1 (SC19-3671)* for details on customization.

File Manager for CICS V12.1
>See *File Manager for z/OS Customization Guide V12.1 (SC19-3673)* for details on customization.

Chapter 2. Server overview

The PDTCC server runs a process that identifies a connection request on a specific port. The PDTCC server can be started manually, or during an IPL, by running a customized procedure. A sample procedure, IPVSRV1, is supplied in the sample library hlq.SIPVSAM1.

Multiple servers may be simultaneously run, provided different port numbers are used for each server.

For products such as File Manager, Fault Analyzer, and Debug Tool, that use the PDTCC server, the server negotiates SSL encrypted communications if configured to do so, then verifies the client user ID, password, or passphrase. If valid, the server creates a new process for that user.

The PDTCC server consists of a main program module, IPVSRV, and supporting message and API related modules; IPVSRVSL, IPVSRVRF, IPVSRVSF, IPVMSGT, IPVCMENU, IPVCMJPN, and IPVCMKOR.

IPVSRV requires a parameter string **'port family trace'** where:

port   describes the port number used to bind and accept incoming connections.

family pertains to the addressing family to bind to. For example, `AF_INET`, or `AF_INET6`.

trace N, T, D, or omitted. This parameter specifies the level of tracing to be performed by the server. N is for no tracing, and is intended only for diagnostic purposes. T or D will produce IPVTRACE, or STDOUT, outputs of undocumented messages showing flow and processing details for diagnostic purposes.

Sample server procedure

The PDTCC server is recommended to run as a started task, although it may be run as a job.

A sample procedure, IPVSRV1, is supplied in the hlq.IPVSAM1 data set and should be copied to your procedure library.

```
//IPVSRV1  PROC PORT=2800,FAMILY='AF_INET',TRACE=N
//*          5655-V52 IBM PDTOOLS Common component for z/OS
//* FAMILY=AF_INET|AF_INET6   for TCP/IP V4 or V6 socket and bind
//* TRACE =N|D                No server trace or detailed trace
//*
//* This is not a complete JCL procedure. It requires customisation
//* before running. To customise,
//* 1. replace IPV. with your high level qualifier for the PDTCC product
//* 2. replace CEE. with your high level qualifier for the LE C runtime
//* 3. Create a configuration dataset, or use individual datasets
//* 4. Choose between (a copy of) the server configuration member
//*    IPVSSLOF for nonSSL or
//*    IPVSSLON for SSL'ed communications or a customized version of
//*    IPVSSLOU for SSL'ed communications with your own keydatabase
//* 5. Add (a copy of) PDTOOLS family product configuration files to the
//*    concatenation
//RUN      EXEC PGM=IPVSRV,REGION=40M,
//             PARM=('&PORT &FAMILY &TRACE')
```



```
//STEPLIB  DD DISP=SHR,DSN=CEE.SCEERUN          <== LE C RUNTIME
//* Common component program controlled library
//         DD DISP=SHR,DSN=IPV.SIPVMODA         <== PDTCC LIBRARY
//SYSPRINT DD SYSOUT=*
//STDOUT   DD SYSOUT=*
//* Server wide, then participating product configurations
//*ONFIG   DD DISP=SHR,DSN=IPV.SIPVSAM1(IPVSSLOU)
//*ONFIG   DD DISP=SHR,DSN=IPV.SIPVSAM1(IPVSSLOF)
//CONFIG   DD DISP=SHR,DSN=IPV.SIPVSAM1(IPVSSLON)
//*        DD DISP=SHR,DSN=prod1.SFMNSAM1(FMNSRV)
//*        DD DISP=SHR,DSN=prod2.CONFIG(prod2mbr)
```

Startup, shutdown, and activity tracing

The START procname operator command can be used to start the server.

To stop the server, the P procname operator command can be used.

To enable activity tracing, usually as an IBM support request, the following modify command can used:

```
F procname,APPL=TRACEON
```

To disable activity tracing, the following modify command can be used

```
F procname,APPL=TRACEOFF
```

Configuration file keyword descriptions

The configuration data may contain line comments. Line comments begin with an * or a #, and continue to the end of the line.

CONFIG=_name_
  name is the name of the configuration as specified by the client. At least one configuration is expected with a name of DEFAULT. Other configuration keywords apply to the current CONFIG name, in top-down order.

WORKDIR=/path
  For the CONFIG=DEFAULT set of parameters, there should be an occurence of the WORKDIR=path keyword to specify the location where the server can write semi-permanent (existing at least for the duration of the server task) files.

SSL_REQUIRED=YES|NO (optional, default is NO)
  Determines if SSL encrypted communications are mandatory for the server. SSL communications are achieved by utilising the System SSL APIs. If SSL_REQUIRED=YES, then the server checks the existence of the file as specified in the SSL_CERT keyword. If it is not specified, it checks and creates, if necessary, a key database and certificate for this server.

SSL_CERT=/path/keyringfile (optional, for use of user created certificate)
  The path and name of a key database which contains a stored certificate that is used by the server. This is passed to the gsk toolkit as the GSK_KEYRING_FILE setting. If this parameter is omitted, the server attempts to create a key database and self signed certificate as it starts up.

SSL_CERTPW=keyringpw (optional, for use of user created certificate)
  The password to be used to access the certificate repository. If omitted, the server uses a default password.

SSL_LABEL=labelstring (optional, for use of user created certificate)

The label of the certificate from the key database to be used.

SPAWN_PROGRAM=PROGRAM

Specification of the program launched for the client connection. The server checks the existence of the named program. If you want to specify the name of a z/OS Unix executable file, rather than a load module located in a STEPLIB data set, include the path. Otherwise the server, in order to achieve this, creates a sticky bit file (sticky bit is the mechanism in the z/OS Unix file system of indicating that this file is actually a load library member) in the WORKDIR specified location . The program is launched as a USS process, but can be a traditional z/OS program.

SPAWN_STEPLIB=steplib1:steplib2 (optional)

Allows specification of the run libraries used for the spawned address space. Support for continuing library specifications is provided by ending a line with the colon character.

Configuration file keyword descriptions

Chapter 3. Customizing the PDTCC Server

This chapter provides you with instructions on how to customize the PDTCC Server.

Required Authorizations

The STEPLIB hlq.SIPVMODA must be APF-authorized.

The started task used to run the Common Server should be associated with a user ID with an OMVS segment, and should be permitted READ access to the BPX.SERVER facility. Write access to the z/OS Unix directory should be available, as specified by the WORKDIR= configuration parameter. Furthermore, any users logging into the Common Server require read access to this location. Similarly, if you configure the Common Server to a key database of your own creation, the Common Server, and any users logging into the Common Server, require read access to the specified key database.

Products that make use of the SPAWN_JOBNAME configuration keyword, require the user ID to be permitted to the BPX.SUPERUSER facility.

If enhanced program security is enabled, at a minimum the following programs must be defined to program control, unless BPX.DAEMON.HFSCTL has been set up:

- IPVSRV
- IPVTMSG
- IPVCMENU
- IPVCMJPN
- IPVCMKOR

Alternatively, you could define the library, IPV.SIPVMODA, to program control, rather than specify individual programs.

If enhanced program security is enabled, IPVSRV must be defined with the MAIN attribute via the APPLDATA operand on the PROGRAM profile.

Example commands for RACF

To activate program control if not already active, use the following command:
```
SETROPTS WHEN(PROGRAM)
```

To add a library to program control, use the following command:
```
RDEFINE PROGRAM *  ADDMEM('IPV.SIPVMODA'//NOPADCHK)
```

To add individual programs, use the following command:
```
RDEFINE PROGRAM IPVSRV  ADDMEM('IPV.SIPVMODA'//NOPADCHK)
```

To refresh, use the following command:
```
SETROPTS WHEN(PROGRAM) REFRESH
```

Note:

1. If you are using Japanese, then include the module IPVCMJPN in program control.
2. If you are using Korean, then include the module IPVCMKOR in program control.

If RACF, or an equivalent security product is implemented, the PDTCC Server (IPVSRV1) started task must also be defined to the STARTED class. For example, to add IPVSRV1 as an STC, the RACF commands in the example shown here could be used, where ISPSRV1 is the name of your PDTCC Server procedure and *userid* is the userid that the started task runs under:

```
RDEFINE STARTED IPVSRV1.* STDATA(USER(userid))

SETROPTS RACLIST(STARTED) REFRESH
```

See the z/OS Security Server RACF Security Administrator's Guide, or equivalent documentation for your security product, for more information about started tasks and security.

Setting SSL encrypted communications

An example of this can be found in the sample library member IPVSSLON.

Alter, or add to, the configuration file with the CONFIG=DEFAULT section, to contain the following blank or line delimited keywords and value:

```
SSL_REQUIRED=YES
```

Add ports to TCPIP reservation list

It is recommended that you add the ports for the server, or servers, you want to run to the reserved port list in your TCPIP configuration data.

Appendix A. Messages

Common Server messages

For the Common Server messages, selected batch messages are listed in alphanumeric order. For each message, the information provided comprises:
- The message identifier.
- The text of the message.
- An explanation of the message.
- The required user response.

The messages issued have a unique alphanumeric identifier with the format:

IPV*nnnns*

where:
nnnn   Is a 4-digit number.
s   Is a severity level indicator with the following meanings:
- I - Informational
- W - Warning
- S - Severe

IPV0001I   **Server on port %i exiting**

Explanation: The server is finished processing. Either errors occurred during startup, running, or the server is responding to a shutdown command.

User response: If the shutdown was unexpected, examine previous messages for the cause.

System action: The server finishes processing.

IPV0002I   **Error establishing SSL environment: %i**

Explanation: An error occurred while establishing the SSL environment.

User response: Examine previous messages for reasons for environment failure. If previous messages do not help, contact IBM support.

System action: The PD TOOLS Common Component Server attempts to continue.

IPV0003S   **Console modify/stop interface failed rc=%i, errno=%i error= %s**

Explanation: An error occurred while establishing the console interface.

User response: Examine the provided error for reasons for failure. If previous messages do not help, contact IBM support.

System action: The PD TOOLS Common Component Server exits.

IPV0004I   **Number of configurations %i**

Explanation: During start or configuration refresh, the CONFIG data was read and the specified number of configurations were recognized.

User response: If the number of configurations is unexpected, check the CONFIG concatenations and contents.

System action: None.

IPV0005I   **Config number %i startup %s**

Explanation: During start or configuration refresh, the configuration specified an initial program to run.

User response: None.

System action: None.

IPV0006W   **System call rc=%i error=%s**

Explanation: A call to run a program according to a configuration failed.

User response: None.

System action: None.

IPV0007W   **Expected a portnumber integer. Received %s**

Explanation: The server expects an integer portnumber as the first parameter.

User response: Check the invocation parameter for the server.

System action: The server attempts to continue starting up using port 2800.

IPV0008W   Expected AF_INET or AF_INET6. Received %s

Explanation: The server expects the address family type as the second parameter.

User response: Check the invocation parameter for the server.

System action: The server attempts to continue starting up using the AF_INET family.

IPV0009I   Using address family %s.

Explanation: The server is using the specified address family.

User response: None.

System action: None.

IPV0010I   Using port %i.

Explanation: The server is using the specified port number.

User response: None.

System action: None.

IPV0011S   listen() error: %s

Explanation: The listen call failed with the specified error.

User response: Correct the listed error if possible and restart the server.

System action: The server is shutdown.

IPV0012W   Spawn failure for %s. Error: %s __errno2 = %08x

Explanation: The attempt to spawn the specified program failed with the listed error and error code.

User response: Examine the error and possibly examine the CONFIG file ensuring that customization occurred correctly.

System action: The server continues to run.

IPV0013W   Missing value for keyword '%s'

Explanation: While reading the CONFIG file, an expected value for a keyword was missing.

User response: Check the CONFIG file for the specified keyword and specify an appropriate value.

System action: The server continues to run.

IPV0014W   Failure to acquire storage for configuration instance %i

Explanation: While preparing configurations, a failure to acquire storage occurred.

User response: Check the REGION specification for the server. Increase and restart the server.

System action: The server attempts to continue to run.

IPV0015I   PDTCC Server Running on port %i.

Explanation: Console message to indicate the server is now accepting connections.

User response: None.

System action: None.

IPV0016I   Established SSL environment.

Explanation: The call to System SSL to initialize an environment was successful.

User response: None.

System action: None.

IPV0017W   Unable to create temporary file %s. %s

Explanation: The call to create a temporary file for a configuration failed.

User response: Examine the file path and error condition as shown. Correct the configuration file or update the directory permissions and restart or refresh the server.

System action: The server attempts to continue, however the configuration may be unusable.

IPV0018W   Unable to verify dsn %s

Explanation: The existence of dataset %s in a STEPLIB= value could not be verified.

User response: Examine the named dataset and ensure it is the correct name. If necessary, update the configuration file and restart or refresh the server.

System action: The server attempts to continue, however the configuration may be unusable.

IPV0019W   Unable to open CONFIG %s

Explanation: During startup, or a refresh command, the DD CONFIG was unable to be opened.

User response: Examine the error and the CONFIG datasets to ensure they exist. If necessary, update the configuration file and restart or refresh the server.

System action: If this occurs during initial start of the server, the server will terminate. During a refresh, no new configurations are loaded.

IPV0020I   **REFRESH completed, %i configs processed.**

Explanation: A REFRESH console command has now completed. The server has re read the configurations as specified in the CONFIG DD..

User response: None.

System action: None.

IPV0021W   **REFRESH found errors in new configs, not activated.**

Explanation: A REFRESH console command was issued, but during reading of the CONFIG DD, some errors occurred.

User response: Check the server output for possible further information on the problems found in the CONFIG file(s)

System action: The server continues with its prior configuration.

IPV0022S   **Creation of key database at %s failed, error %s**

Explanation: The configuration specifies that the server create a certificate to be used, however an error as described occurred when attempting to create the key database..

User response: f the error is an IO error, check the specified location for enough space (65KB). Otherwise check that the location is writeable. To specify an alternate location, set the configuration keyword WORKDIR to the directory to be used.

System action: The server terminates.

IPV0023S   **Creation of self signed certificate failed, error %s**

Explanation: The configuration specifies that the server create a certificate to be used, however an error as described occurred when attempting to create the self signed certificate in the key database.

User response: Check the listed error and check documentation for the gsk_create_self_signed_certificate API.

System action: The server terminates.

IPV0024I   **Traceon received, trace already active.**

Explanation: The Server received a modify command to turn on tracing, but it is already on.

User response: None.

System action: None.

IPV0025I   **Traceon received, trace turned on.**

Explanation: The Server received a modify command to turn on tracing and has done so. Trace output will go to the IPVTRACE file(DD) if present, or to the STDOUT file if not.

User response: None.

System action: None.

IPV0026I   **Traceoff received, trace already off.**

Explanation: The Server received a modify command to turn off tracing but it is already off.

User response: None.

System action: None.

IPV0027I   **Traceoff received, trace turned off.**

Explanation: The Server received a modify command to turn off tracing and has done so.

User response: None.

System action: None.

IPV0028I   **Unrecognized modify command.**

Explanation: The Server received a modify command, but did not recognize it.

User response: Check that modify contained one of the valid requests; TRACEON, TRACEOFF or REFRESH.

System action: None.

IDILANGX messages

These messages are issued by the IDILANGX program, which is used internally by Fault Analyzer or invoked by the user when creating side files.

IDISF8001I   IDILANGX Version *version* **(Release** *release***)**

Explanation: This message shows the IDILANGX program identification, version, and release date.

System action: Processing continues.

User response: None

IDISF8002I   Output file: *member_name DDname*

Explanation: This message identifies the file to which the extract data information will be written by IDILANGX.

The *member_name* field is not included in the message if using a sequential file.

System action: Processing continues.

User response: None

IDISF8003I   ... scanning *txt1*

Explanation: This message indicates that the information specified in *txt1* is being read from the associated file and processed.

System action: Processing continues.

User response: None

IDISF8004I   ... checking *txt1*

Explanation: This message indicates that the information specified in *txt1* is checked for consistency.

System action: Processing continues.

User response: None

IDISF8005I   *txt1* Pass *dec2* **processing begins**

Explanation: This message indicates pass *dec2* of the multi-pass processing task specified in *txt1* is now being performed.

System action: Processing continues.

User response: None

IDISF8006I   Post-processing begins

Explanation: This message indicates that all necessary information has been read from the associated file(s), and post-processing of this information is being performed.

System action: Processing continues.

User response: None

IDISF8007I   ... matching *txt1*

Explanation: This message indicates that the information specified in *txt1* is now being correlated.

System action: Processing continues.

User response: None

IDISF8008I   ... performing *txt1*

Explanation: This message indicates that the processing step specified in *txt1* is now being performed.

System action: Processing continues.

User response: None

IDISF8010I   *txt1* records scanned: *dec2*

Explanation: This message indicates that *dec2* records were read from the *txt1* file when the current compile unit was processed by IDILANGX.

System action: Processing continues.

User response: None

IDISF8011I   ...Symbols *txt1*.. *dec2*

Explanation: This message indicates that the current compile unit contained *dec2* symbols with characteristics of type *txt1*

System action: Processing continues.

User response: None

IDISF8012I   ...Long Name Resolution IDs: *dec1*

Explanation: This message indicates that the current compile unit contained *dec1* Long Name Resolution Identifiers.

System action: Processing continues.

User response: None

IDISF8013I   ...Total symbols: *dec1*

Explanation: This message indicates that the current compile unit contained *dec1* symbols.

System action: Processing continues.

User response: None

IDISF8014I   Records written to output file: *dec1*

Explanation: This message shows the number of records of extract data information which were written to the output file.

System action: Processing continues.

User response: None

IDISF8015I   Operation completed for this compile unit

Explanation: Processing has been completed for the current compile unit.

System action: Processing continues if additional compile unit(s) are present.

User response: None

IDISF8016I   *txt1 member_name DDname*

Explanation: This message identifies the input file(s) which were processed by IDILANGX

The *txt1* field will normally be "Input file:" or "Input files:".

The *member_name* field is not included in the message if using a sequential file.

System action: Processing continues.

User response: None

IDISF8017I   Operation completed for this extract file

Explanation: This is the last message to be displayed by IDILANGX, and indicates that processing has been completed for this IDILANGX extract data file.

System action: Processing has completed.

User response: None

IDISF8018I   *txt1* **bytes scanned:** *dec2*

Explanation: This message indicates that *dec2* bytes of data were read from the *txt1* file when the current compile unit was processed by IDILANGX.

System action: Processing continues.

User response: None

IDISF8020I   ...Blocks of dead code eliminated....... *dec1*

Explanation: This message indicates that *dec1* blocks of code which had been removed by optimization by the compiler have been identified. The source code and variables associated with these has been eliminated from the extract data.

System action: Processing continues.

User response: None

IDISF8050W Argument missing for *txt1* **option.** *txt2*

Explanation: The argument for IDILANGX option *txt1* was not found during processing of the IDILANGX invocation parameters.

System action: The default argument for the *txt1* option is assumed.

User response: If you are using IDILANGX directly to create a side file, specify the invocation options as explained in *Fault Analyzer for z/OS User's Guide and Reference*, chapter "Providing compiler listings or Fault Analyzer side files", section "Creating side files using IDILANGX". If the message is issued during fault analysis, contact your IBM service representative.

IDISF8051S   Argument/Option too long, "*txt1***"**

Explanation: The invocation parameter *txt1* is not recognized as a valid IDILANGX argument (or option). It exceeds the maximum length of a valid argument (or option), and may be spelled incorrectly.

System action: Processing is terminated.

User response: If you are using IDILANGX directly to create a side file, specify the invocation options as explained in *Fault Analyzer for z/OS User's Guide and Reference*, chapter "Providing compiler listings or Fault Analyzer side files", section "Creating side files using IDILANGX". If the message is issued during fault analysis, contact your IBM service representative.

IDISF8052S   Argument/Option not recognized, "*txt1***"**

Explanation: The invocation parameter *txt1* is not recognized as a valid IDILANGX argument (or option).

System action: Processing is terminated.

User response: If you are using IDILANGX directly to create a side file, specify the invocation options as explained in *Fault Analyzer for z/OS User's Guide and Reference*, chapter "Providing compiler listings or Fault Analyzer side files", section "Creating side files using IDILANGX". If the message is issued during fault analysis, contact your IBM service representative.

IDISF8055S   A left parenthesis was found inside options

Explanation: An additional left parenthesis, after the initial left parenthesis which signals the start of the IDILANGX options, was encountered during processing of the IDILANGX invocation parameters.

System action: Processing is terminated.

User response: If you are using IDILANGX directly to create a side file, specify the invocation options as explained in *Fault Analyzer for z/OS User's Guide and*

Reference, chapter "Providing compiler listings or Fault Analyzer side files", section "Creating side files using IDILANGX". If the message is issued during fault analysis, contact your IBM service representative.

IDISF8056S   No file name was specified

Explanation: The PDS or PDSE data set member name of the primary program information file from which source and variable data is to be extracted was not found during processing of the IDILANGX invocation parameters.

System action: Processing is terminated.

User response: If you are using IDILANGX directly to create a side file, specify the invocation options as explained in *Fault Analyzer for z/OS User's Guide and Reference*, chapter "Providing compiler listings or Fault Analyzer side files", section "Creating side files using IDILANGX". If the message is issued during fault analysis, contact your IBM service representative.

IDISF8057S   Argument/Option already specified, "*txt1*"

Explanation: The argument (or option) *txt1* has been encountered more than once during processing of the IDILANGX invocation parameters.

System action: Processing is terminated.

User response: If you are using IDILANGX directly to create a side file, specify the invocation options as explained in *Fault Analyzer for z/OS User's Guide and Reference*, chapter "Providing compiler listings or Fault Analyzer side files", section "Creating side files using IDILANGX". If the message is issued during fault analysis, contact your IBM service representative.

IDISF8058S   Argument/Option "*txt1*" conflicts with previous Argument/Option

Explanation: A conflict between the argument (or option) *txt1* and another previously specified argument (or option) has been detected during processing of the IDILANGX invocation parameters.

System action: Processing is terminated.

User response: If you are using IDILANGX directly to create a side file, specify the invocation options as explained in *Fault Analyzer for z/OS User's Guide and Reference*, chapter "Providing compiler listings or Fault Analyzer side files", section "Creating side files using IDILANGX". If the message is issued during fault analysis, contact your IBM service representative.

IDISF8059I   Application language not specified, option "*txt1*" assumed

Explanation: In the absence of an IDILANGX option which explicitly specifies the application programming language, the IDILANGX option *txt1* was assumed.

System action: Processing continues.

User response: If you are using IDILANGX directly to create a side file, specify the invocation options as explained in *Fault Analyzer for z/OS User's Guide and Reference*, chapter "Providing compiler listings or Fault Analyzer side files", section "Creating side files using IDILANGX". If the message is issued during fault analysis, contact your IBM service representative.

IDISF8100S   *txt1* contains NO recognized records

Explanation: The input file identified in *txt1* did not contain the expected records. This could happen if, for example, the IDIADATA DDname was accidentally directed at a compiler listing data set.

System action: Processing is terminated.

User response: Ensure that the input file used is correct.

IDISF8103S   *txt1* has unrecognized records following last valid section

Explanation: The input file for IDILANGX (the compiler listing) contains more output than just from the compile step. That is, there might be pre or post compiler output, such as from a DB2 precompiler step or a link-edit step. Once this information is removed, the message will no longer be produced and the side file should be created as expected.

System action: Processing is terminated.

User response: Ensure that the input file used is correct.

IDISF8110W   Compiler option(s) incorrectly specified

Explanation: The format of the input file is insufficient for IDILANGX processing because one or more of the required compiler options have not been specified.

System action: Processing is terminated.

User response: Recompile the module with the required compiler options as specified in *Fault Analyzer for z/OS User's Guide and Reference*, chapter "Providing compiler listings or Fault Analyzer side files", section "Required compiler options for IDILANGX".

IDISF8114S   *txt1* required for source support - fatal

Explanation: *txt1* specifies the compiler options required for a successful IDILANGX execution. Source code information can not be complete without these options. This message might be preceded by message IDISF8110W.

System action: Processing is terminated.

User response: Recompile the module with the

required compiler options as specified in *Fault Analyzer for z/OS User's Guide and Reference*, chapter "Providing compiler listings or Fault Analyzer side files", section "Required compiler options for IDILANGX".

IDISF8115W *txt1* **required for symbol support**

Explanation: *txt1* specifies the compiler options required for a successful IDILANGX execution. Source code information can not be complete without these options. This message is preceded by message IDISF8110W.

System action: Processing continues, however, the analysis report may be missing information.

User response: Recompile the module with the required compiler options as specified in *Fault Analyzer for z/OS User's Guide and Reference*, chapter "Providing compiler listings or Fault Analyzer side files", section "Required compiler options for IDILANGX".

IDISF8116W *txt1* **required for structure/union support**

Explanation: *txt1* specifies the compiler options required for a successful IDILANGX execution. Source code information can not be complete without these options. This message is preceded by message IDISF8110W.

System action: Processing continues, however, the analysis report may be missing information.

User response: Recompile the module with the required compiler options as specified in *Fault Analyzer for z/OS User's Guide and Reference*, chapter "Providing compiler listings or Fault Analyzer side files", section "Required compiler options for IDILANGX".

IDISF8120W *txt1* **detected.** *txt2* **option assumed**

Explanation: The format of the input file indicates that the specified option is no longer in effect.

System action: Processing continues, assuming an appropriate option to match the format of the input file.

User response: Use the correct compiler option, or make the compiler directive which adjusted the compiler option visible to IDILANGX, as appropriate. If the problem persists, contact your IBM service representative.

IDISF8130S **File not found "***txt1***"**

Explanation: The IDILANGX input compiler listing or SYSADATA file *txt1* could not be found to allow IDILANGX processing to begin.

System action: Processing is terminated.

User response: Correct the file specification, or make the file available to IDILANGX, as appropriate. If the

problem persists, contact your IBM service representative.

IDISF8131S **Files not found "***txt1***", and "***txt2***"**

Explanation: The IDILANGX extract data file could not be found using either the primary file identifier *txt1*, or the alternative file identifier *txt2* to allow IDILANGX processing to begin.

System action: Processing is terminated.

User response: Correct the file specification, or make the file available to IDILANGX, as appropriate. If the problem persists, contact your IBM service representative.

IDISF8132S **Input or Output file format invalid**

Explanation: The attributes or contents of a file have been found to be inappropriate, during IDILANGX processing.

One or more preceding messages will identify the file which was being processed when the error occurred and/or the reason for the failure. Reasons for this message might be error messages in the input compiler listing or missing required compiler options. For details on required compiler options, refer to *Fault Analyzer for z/OS User's Guide and Reference*, chapter "Providing compiler listings or Fault Analyzer side files", section "Required compiler options for IDILANGX".

System action: Processing is terminated.

User response: Correct the problem identified in the preceding message. If the problem persists, contact your IBM service representative.

IDISF8133S **File DD not allocated "***txt1***"**

Explanation: The Data Definition (DD) for the *txt1* file was found to be unallocated.

System action: Processing is terminated.

User response: Allocate the file, using a JCL DD statement, or TSO ALLOCATE statement, as appropriate. If the problem persists, contact your IBM service representative.

IDISF8134S **File DDs not allocated "***txt1***", and "***txt2***"**

Explanation: The Data Definitions (DDs) for the both the primary *txt1* file and the alternative *txt2* file were found to be unallocated.

System action: Processing is terminated.

User response: Allocate the file, using a JCL DD statement, or TSO ALLOCATE statement, as appropriate. If the problem persists, contact your IBM service representative.

IDISF8135S *txt1* **file incorrectly defined**

Explanation: The attributes of the *txt1* file have been examined, and found to be inappropriate.

System action: Processing is terminated.

User response: Ensure that the correct data set has been specified in the *txt1* file allocation. If the correct data set was specified, the data set has been allocated with incorrect attributes, in which case it must be reallocated. If the problem persists, contact your IBM service representative.

IDISF8136S **Premature** *txt1* **End-of-File encountered**

Explanation: IDILANGX had begun scanning the *txt1* file data, but the file ended before all expected data records had been scanned.

System action: Processing is terminated.

User response: Ensure that the correct data set has been specified in the *txt1* file allocation. If the correct data set was specified, the file may have been truncated and must be replaced with the complete data. If the problem persists, contact your IBM service representative.

IDISF8137S *txt1* **disk/directory is full**

Explanation: There is insufficient space to write further records to the *txt1* file.

This may be caused by :
- PDS directory has no free entries
- data set has maximum number of extents
- insufficient free space on the DASD volume for another extent

System action: Processing is terminated.

User response: Determine the resource which has been exhausted, and correct as appropriate. If the problem persists, contact your IBM service representative.

IDISF8138T **Insufficient virtual memory available**

Explanation: There is insufficient free storage for IDILANGX to continue processing.

System action: Processing is terminated.

User response: Free up virtual storage which is currently in use, or make additional virtual storage available, as appropriate. If the problem persists, contact your IBM service representative.

Note: IDILANGX will exploit storage above the 16MB line, if it is available.

IDISF8139S **File is TERSEd or PACKed "***txt1***"**

Explanation: The specified file was found to have a Fixed record format, and 1024-byte record length. It was likely compressed using TERSE or COPYFILE.

System action: Processing is terminated.

User response: Restore the file to its original format, using the appropriate utility program. If the problem persists, contact your IBM service representative.

IDISF8150T **Maximum number of symbols exceeded**

Explanation: The maximum number of symbols that a single compile unit can contain is 65534. This limit is exceeded by the current compile unit.

System action: Processing is terminated.

User response: Reduce the number of symbols below the limit. If the problem persists, contact your IBM service representative.

IDISF8152W **Incomplete info for symbol "***txt1***" (ident:** *dec2***)**

Explanation: During the extraction process, complete information was not available for the symbol shown. The extract data for unrelated symbols and program source is not affected.

System action: Processing continues.

User response: Use IDILANGX to format the extract data, and determine the missing information. Given this, examine the IDILANGX input file(s) and determine the cause of the problem. If the problem persists, contact your IBM service representative.

IDISF8158T **Invalid COBOL source column indicators - fatal**

Explanation: Expected source column indicators were not found in the COBOL listing.

System action: Processing is terminated.

User response: Check if the attributes of file read might have been altered from that of the original compiler listing file.

IDISF8231S **Missing** *txt1* **ESD information**

Explanation: The name of a CSECT could not be determined.

System action: Processing continues but analysis might be incomplete.

User response: Ensure that CSECTs are named in accordance with the requirements in *Fault Analyzer for z/OS User's Guide and Reference*, chapter "Providing compiler listings or Fault Analyzer side files", section "Naming CSECTs for Fault Analyzer".

IDISF8233S   Unable to determine identity of unnamed PC Section

Explanation: The name of a CSECT could not be determined.

System action: Processing continues but analysis might be incomplete.

User response: Ensure that CSECTs are named in accordance with the requirements in *Fault Analyzer for z/OS User's Guide and Reference*, chapter "Providing compiler listings or Fault Analyzer side files", section "Naming CSECTs for Fault Analyzer".

IDISF8250A   SYSADATA input record *record-number*, **invalid ESDID ignored**

Explanation: An invalid ESDID was encountered on a SYSADATA record read. The ESDID was ignored.

System action: Processing continues.

User response: None.

IDILANGX return codes

The following return codes are issued by IDILANGX:

RC   Meaning

0   Operation successful, output file has been written.

0*xxx*   Error discovered while parsing arguments/options, values for *xxx* are:

   1   Token too long

   2   Left parenthesis found inside options

   3   Unknown option

1*xyy* or 2*xyy*
         Error occurred during scan of compiler listing or SYSADATA file.

3*xyy*   Error occurred while writing output file.

For return codes 1*xyy*, 2*xyy*, and 3*xyy*, the values for *xyy* are:

0*yy*   *yy* is the return code from the file WRITE routine

1*yy*   *yy* is the return code from the file OPEN routine

2*yy*   *yy* is the return code from the file READ routine

3*yy*   *yy* is the return code from the file WRITE routine

4*yy*   *yy* is the return code from the file POINT routine

5*yy*   *yy* is the return code from the memory ALLOCATE routine

6*yy*   *yy* is the return code from the memory FREE routine

7*yy*   *yy* is the return code from the file CLOSE routine

8*yy*   *yy* is the return code from the file NOTE routine

Examples of IDILANGX return codes

0310   Compiler listing file is not in the expected format. A possible reason is that the required compiler options have not been used.

1128   Input compiler listing file could not be found. A possible reason is that a member name of a PDS(E) data set has not been specified, either in the parameters for IDILANGX, or added to the data set name of the PDS(E).

3128   Output IDILANGX file could not be found, or the attributes of an existing file do not match those required by IDILANGX (RECFM=VB and LRECL≥1562).

IDILANGX return codes

3315 One or more records written to IDILANGX were truncated due to insufficient logical record length. The minimum required logical record length for the IDILANGX data set is 1562 bytes. Unpredictable results might occur if attempting to use the truncated side file as input.

Appendix B. Troubleshooting

Error scenarios and tracing

If the installed library has not been added to program control, this message will appear in the JESMSGLG for the server task:

```
ICH420I PROGRAM IPVSRV FROM LIBRARY IPV.V1R6M0.SIPVMODA CAUSED
THE ENVIRONMENT TO BECOME UNCONTROLLED.  BPXP014I ENVIRONMENT MUST
BE CONTROLLED FOR SERVER (BPX.SERVER) PROCESSING.
```

Messages similar to the following may be generated if the user connecting to the server does not have read access to the SIPVMODA library:

```
ICH408I USER(VIKRAMM ) GROUP(USERCOD ) NAME(MANCHALA, VIKRAM ) 218
IPV.V160.SIPVMODA CL(DATASET ) VOL(COD035)
INSUFFICIENT ACCESS AUTHORITY
FROM IPV.V160.* (G)
ACCESS INTENT(READ ) ACCESS ALLOWED(NONE )
IEC150I 913-38,IFG0194E,VIKRAMM,OS390,ISP19502,8E10,COD035,IPV.V160.SIPVMODA
```

Messages on SYSLOG at the time of attempted connection, like the ones shown here, will be generated should the relevant CONFIG contain an invalid library, or is missing a library from the SPAWN_STEPLIB statement:

```
IEA995I SYMPTOM DUMP OUTPUT
SYSTEM COMPLETION CODE=EC6   REASON CODE=0B26C032
 TIME=11.37.04  SEQ=38113  CPU=0000  ASID=00ED
 PSW AT TIME OF ERROR  070C3000   82C44CE8  ILC 2  INTC 0D
   NO ACTIVE MODULE FOUND
   NAME=UNKNOWN
   DATA AT PSW  02C44CE2 - C06C18F2  0A0D41B0  D4D0180B
   AR/GR 0: 00000000/00000026_00000648   1: 00000000/00000000_04EC6000
         2: 01FF000C/00000000_0B26C032   3: 00000000/00000000_8286F5B8
         4: 00000000/00000000_00000000   5: 00000000/00000000_00000000
         6: 01FF000C/00000000_00000700   7: 01FF000C/00000000_09BFC3F8
         8: 00000000/00000000_11F4B610   9: 00000000/00000000_163031FF
         A: 00000000/00000000_11F4B610   B: 01FF000C/00000000_7FFC3A00
         C: 00000000/00000000_02C47AC0   D: 00000000/00000000_16302200
         E: 00000000/00000000_82C44CB0   F: 00000000/00000000_0B26C032
END OF SYMPTOM DUMP
```

If the above are not occurring, but connections are still not successful, shutdown the server and start it again with tracing active. If using the supplied sample, this can be done on the start command. For example, S IPVSRV,TRACE=D. This will produce trace entries in the server task on the IPVTRACE DD.

A typical trace, with SSL active, before connections are made, looks similar to the one shown here. The main entries of interest confirming startup was successful are highlighted:

```
2012-04-10-10:54:39.442 [IPVSRV:266] Server built at: Apr 10 2012 10:54:03
2012-04-10-10:54:39.601 [IPVSRV:952] Record in length:1903
2012-04-10-10:54:39.601 [IPVSRV:969] Token: CONFIG Value: DEFAULT
2012-04-10-10:54:39.601 [IPVSRV:989] Config DEFAULT allocated.
2012-04-10-10:54:39.601 [IPVSRV:969] Token: SSL_REQUIRED Value: YES
2012-04-10-10:54:39.601 [IPVSRV:969] Token: WORKDIR Value: /tmp
2012-04-10-10:54:39.602 [IPVSRV:1070] Confirmed temporary write access ok dir=/tmp.
2012-04-10-10:54:39.602 [IPVSRV:969] Token: SPAWN_STEPLIB Value: IPV16SVC.SOPERW.LOAD ...
2012-04-10-10:54:39.602 [IPVSRV:969] Token: CONFIG Value: FM
2012-04-10-10:54:39.602 [IPVSRV:989] Config FM allocated.
2012-04-10-10:54:39.602 [IPVSRV:969] Token: SPAWN_PROGRAM Value: FMNCSEP
2012-04-10-10:54:39.602 [IPVSRV:1089] Creating temp filename.
2012-04-10-10:54:39.602 [IPVSRV:1106] Created temporary spawn image file ok.
2012-04-10-10:54:39.602 [IPVSRV:1116] spawn_program /tmp/FMNCSEP
2012-04-10-10:54:39.602 [IPVSRV:1117] spawn_fn FMNCSEP
2012-04-10-10:54:39.602 [IPVSRV:969] Token: SPAWN_JOBNAME Value: FMCLIENT
```

```
2012-04-10-10:54:39.602 [IPVSRV:969] Token: SPAWN_STEPLIB Value: FMN.V12R1M0.OPTIONS...
2012-04-10-10:54:39.602 [IPVSRV:969] Token: SPAWN_PARMS_SECTION Value:
2012-04-10-10:54:39.602 [IPVSRV:969] Token: CONFIG Value: UTPLX
2012-04-10-10:54:39.602 [IPVSRV:989] Config UTPLX allocated.
2012-04-10-10:54:39.602 [IPVSRV:969] Token: SPAWN_PROGRAM Value: IPVPSAMP
2012-04-10-10:54:39.602 [IPVSRV:1089] Creating temp filename.
2012-04-10-10:54:39.602 [IPVSRV:1106] Created temporary spawn image file ok.
2012-04-10-10:54:39.602 [IPVSRV:1116] spawn_program /tmp/IPVPSAMP
2012-04-10-10:54:39.602 [IPVSRV:1117] spawn_fn IPVPSAMP
2012-04-10-10:54:39.602 [IPVSRV:969] Token: SPAWN_STEPLIB Value: FMN12SVC...
2012-04-10-10:54:39.602 [IPVSRV:969] Token: SPAWN_PARMS_SECTION Value:
2012-04-10-10:54:39.602 [IPVSRV:969] Token: CONFIG Value: UTCAPI
2012-04-10-10:54:39.602 [IPVSRV:989] Config UTCAPI allocated.
2012-04-10-10:54:39.602 [IPVSRV:969] Token: SPAWN_PROGRAM Value: IDIGMAIN
2012-04-10-10:54:39.602 [IPVSRV:1089] Creating temp filename.
2012-04-10-10:54:39.602 [IPVSRV:1106] Created temporary spawn image file ok.
2012-04-10-10:54:39.602 [IPVSRV:1116] spawn_program /tmp/IDIGMAIN
2012-04-10-10:54:39.602 [IPVSRV:1117] spawn_fn IDIGMAIN
2012-04-10-10:54:39.602 [IPVSRV:969] Token: SPAWN_STEPLIB Value: FMN12SVC...
2012-04-10-10:54:39.602 [IPVSRV:969] Token: SPAWN_PARMS_SECTION Value:
2012-04-10-10:54:40.495 [IPVSRV:1956] Environment open rc=0 Handle=16AB09A8 Ha=16AA6490
2012-04-10-10:54:40.495 [IPVSRV:1965] Set SSLV2 on rc=0
2012-04-10-10:54:40.495 [IPVSRV:1973] Set SSLV3 on rc=0
2012-04-10-10:54:40.495 [IPVSRV:1982] Set TLSV1 on rc=0
2012-04-10-10:54:40.495 [IPVSRV:1997] Certfile=/tmp/IPVSRVC3-IPVCERT.kdb
2012-04-10-10:54:40.495 [IPVSRV:1998] Set keyring rc=0
2012-04-10-10:54:40.495 [IPVSRV:2006] Set pw rc=0
2012-04-10-10:54:40.511 [IPVSRV:2014] Environment init rc=0 Handle=16AB09A8
2012-04-10-10:54:40.511 [IPVSRV:281] Mixed case password support is off
2012-04-10-10:54:40.512 [IPVSRV:1902] Set socket linger rc=0
2012-04-10-10:54:40.512 [IPVSRV:1906] Set socket reuseaddr rc=0
2012-04-10-10:54:40.512 [IPVSRV:1910] Set socket keepalive rc=0
2012-04-10-10:54:40.512 [IPVSRV:301] Launching accept thread socket 0, listen code 0
2012-04-10-10:54:40.512 [IPVSRV:513] Acceptor thread running.
2012-04-10-10:54:40.512 [IPVSRV:527] About to accept.
```

If the highlighted statements are similar to the example shown here, all rc=0, then try to connect.

Several trace entries are created by the server that are similar to the ones shown here. Again, those that are of interest are highlighted.

```
2012-04-10-10:55:02.943 [IPVSRV:543] Connect received.
2012-04-10-10:55:02.943 [IPVSRV:549] Set client socket linger rc=0
2012-04-10-10:55:02.944 [IPVSRV:570] Thread launch
2012-04-10-10:55:02.944 [IPVSRV:527] About to accept.
2012-04-10-10:55:02.944 [IPVSRV:428] Conversation thread started.
2012-04-10-10:55:02.944 [IPVSRV:451] Server and peer on different hosts.
2012-04-10-10:55:02.944 [IPVSRV:1461] Outgoing message length=111, message=SSL=Y,
SERVERVERSION=01.01,SERVERNAME=IPVSRVC3,SYSNAME=z/OS,NODENAME=FMD2,
RELEASE=11.00,VERSION=01,MACHINE=2094
2012-04-10-10:55:02.944 [IPVSRV:1524] Sent 115 bytes
2012-04-10-10:55:02.945 [IPVSRV:2028] gsk_secure_socket_open rc=0
2012-04-10-10:55:02.945 [IPVSRV:2040] Set native socket rc=0
2012-04-10-10:55:02.945 [IPVSRV:2049] Set keyring label PDTCC Server Certificate rc=0
2012-04-10-10:55:02.945 [IPVSRV:2058] Set session type rc=0
2012-04-10-10:55:03.980 [IPVSRV:2081] Secure socket init rc=0
2012-04-10-10:55:03.980 [IPVSRV:1328] RecvSSL
2012-04-10-10:55:04.191 [IPVSRV:1360] Header indicates length 50
2012-04-10-10:55:04.722 [IPVSRV:1423] Incoming message: >>user=SOPERW3 pass=AXXXXXXX
config=UTCAPI DEBUG=YES<<
2012-04-10-10:55:04.723 [IPVSRV:1640] Uppercasing password 8 chars
2012-04-10-10:55:04.723 [IPVSRV:588] process_launch trying to match config UTCAPI.
2012-04-10-10:55:04.723 [IPVSRV:657] Parms: SOCKETH=00000001 ....
2012-04-10-10:55:04.723 [IPVSRV:658] Steplib: STEPLIB=IPV16SVC ...
2012-04-10-10:55:04.723 [IPVSRV:1828] Authenticated ok for user SOPERW3.
2012-04-10-10:55:04.724 [IPVSRV:1461] Outgoing message length=7, message=AUTH=Y
2012-04-10-10:55:04.724 [IPVSRV:1524] Sent 11 bytes
2012-04-10-10:55:05.282 [IPVSRV:702] gsk_secure_socket_close okay
2012-04-10-10:55:05.285 [IPVSRV:739] Spawned /tmp/IDIGMAIN Process 83886421
2012-04-10-10:55:05.285 [IPVSRV:745] Close client sock rc=0
```

If the Spawned trace line is present, check the SYSLOG at the time of the spawn for any messages issued by a started task. If there are no log messages, then look for output produced by the spawned user. For instance, in the example shown here, the user SOPERW3 will have generated some output. Once you have this information, and the servers IPVTRACE output, contact IBM support.

Support resources and problem solving information

This section shows you how to quickly locate information to help answer your questions and solve your problems. If you have to call IBM® support, this section provides information that you need to provide to the IBM service representative to help diagnose and resolve the problem.

For a comprehensive multimedia overview of IBM software support resources, see the IBM Education Assistant presentation "IBM Software Support Resources for System z Enterprise Development Tools and Compilers products" at http://publib.boulder.ibm.com/infocenter/ieduasst/stgv1r0/index.jsp?topic=/com.ibm.iea.debugt/debugt/6.1z/TrainingEducation/SupportInfoADTools/player.html.
- "Searching IBM support Web sites for a solution"
- "Obtaining fixes" on page 22
- "Receiving support updates through e-mail notification" on page 23
- "Receiving support updates through RSS feeds" on page 24
- "If you need to contact IBM Software Support" on page 24

Searching IBM support Web sites for a solution

You can search the available knowledge bases to determine whether your problem was already encountered and is already documented.
- "Searching the information center"
- "Searching product support documents"
- "IBM Support Assistant" on page 22

Searching the information center

You can find this publication and documentation for many other products in the IBM System z Enterprise Development Tools & Compilers information center at http://publib.boulder.ibm.com/infocenter/pdthelp/v1r1/index.jsp. Using the information center, you can search product documentation in a variety of ways. You can search across the documentation for multiple products, search across a subset of the product documentation that you specify, or search a specific set of topics that you specify within a document. Search terms can include exact words or phrases, wild cards, and Boolean operators.

To learn more about how to use the search facility provided in the IBM System z Enterprise Development Tools & Compilers information center, you can view the multimedia presentation at http://publib.boulder.ibm.com/infocenter/pdthelp/v1r1/index.jsp?topic=/com.ibm.help.doc/InfoCenterTour800600.htm.

Searching product support documents

Use the System z Enterprise Development Tools & Compilers information center or the IBM support site at www.ibm.com/software/support to search for the latest, most complete information that might help you resolve your problem.

When you access the IBM support site, you can specify any of the following products for which you want information to be displayed:

- Application Performance Analyzer for z/OS
- Debug Tool for z/OS
- Enterprise COBOL for z/OS
- Enterprise PL/I for z/OS
- Fault Analyzer for z/OS
- File Manager for z/OS
- Optim Move for DB2
- WebSphere Developer Debugger for System z
- Workload Simulator for z/OS and OS/390 Support

When you access the IBM support site, you can also use the IBM Support Portal to customize the support information to be displayed and save product names that you specify. There is also a search facility provided with the IBM Support Portal that allows you to narrow the search scope and search only product support documents for the products that you specify. The IBM Support Portal can be accessed through the IBM support site at www.ibm.com/software/support or directly at www.ibm.com/support/entry/portal. For information about customizing your IBM support site experience using the IBM Support Portal, refer to https://www.ibm.com/blogs/SPNA/entry/the_ibm_support_portal_videos?lang=en_us.

IBM Support Assistant

The IBM Support Assistant (also referred to as ISA) is a free local software serviceability workbench that helps you resolve questions and problems with IBM software products. It provides quick access to support-related information. You can use the IBM Support Assistant to help you in the following ways:

- Search through IBM and non-IBM knowledge and information sources across multiple IBM products to answer a question or solve a problem.
- Find additional information through product and support pages, customer news groups and forums, skills and training resources and information about troubleshooting and commonly asked questions.

In addition, you can use the built in Updater facility in IBM Support Assistant to obtain IBM Support Assistant upgrades and new features to add support for additional software products and capabilities as they become available.

For more information, and to download and start using the IBM Support Assistant for IBM System z Enterprise Development Tools & Compilers products, please visit http://www.ibm.com/support/docview.wss?rs=2300&context=SSFMHB&dc=D600 &uid=swg21242707&loc=en_US&cs=UTF-8&lang=en.

General information about the IBM Support Assistant can be found on the IBM Support Assistant home page at http://www.ibm.com/software/support/isa.

Obtaining fixes

A product fix might be available to resolve your problem. To determine what fixes and other updates are available, the following information is available from the IBM support site. You can also view the following information from the IBM Support Portal when you specify the applicable products.

- Latest PTFs for Application Performance Analyzer for z/OS
- Latest PTFs for Debug Tool for z/OS

- Latest PTFs for Fault Analyzer for z/OS
- Latest PTFs for File Export for z/OS
- Latest PTFs for File Manager for z/OS
- Latest fixes for Optim Move for DB2
- Latest PTFs for WebSphere Studio Asset Analyzer for Multiplatforms
- Latest PTFs for Workload Simulator for z/OS and OS/390

When you find a fix that you are interested in, click the name of the fix to read its description and to optionally download the fix.

The IBM Support Portal is a way for you to specify specific products for which you want to display support information. The Support Portal can be accessed through the IBM support site at www.ibm.com/software/support or directly at www.ibm.com/support/entry/portal. For information about how to customize your IBM support site experience using the IBM Support Portal, refer to https://www.ibm.com/blogs/SPNA/entry/the_ibm_support_portal_videos?lang=en_us.

For more information about the types of fixes that are available, see the *IBM Software Support Handbook* at http://techsupport.services.ibm.com/guides/handbook.html.

Receiving support updates through e-mail notification

To receive e-mail notifications about fixes and other software support news, follow the steps below. Additional information is provided at http://www.ibm.com/support/docview.wss?rs=615&uid;=swg21172598.

1. Go to the IBM software support site at http://www.ibm.com/software/support.
2. Click **Request e-mail updates** in the **Additional support links** section of the page.
3. Click any **My Notifications** link on the page that is displayed.
4. If you have already registered for **My notifications**, sign in and skip to the next step. If you have not registered, click **register now**. Complete the registration form using your e-mail address as your IBM ID and click **Submit**.
5. In the **My notifications** tool, click the **Subscribe** tab to specify products for which you want to receive e-mail updates.
6. To specify Problem Determination Tools products, click **Other software** and then select the products for which you want to receive e-mail updates, for example, **Debug Tool for z/OS** and **File Manager for z/OS**.
7. To specify a COBOL or PL/I compiler, click **Rational** and then select the products for which you want to receive e-mail updates, for example, **Enterprise COBOL for z/OS** .
8. After selecting all products that are of interest to you, scroll to the bottom of the list and click **Continue**.
9. Determine how you want to save your subscription. You can use the default subscription name or create your own by entering a new name in the **Name** field. It is recommended that you create your own unique subscription name using a something easily recognized by you. You can create a new folder by entering a folder name in the **New** field or select an existing folder from the pulldown list. A folder is a container for multiple subscriptions.
10. Specify the types of documents you want and the e-mail notification frequency.

11. Scroll to the bottom of the page and click **Submit**.

To view your current subscriptions and subscription folders, click **My subscriptions**.

If you experience problems with the **My notifications** feature, click the **Feedback** link in the left navigation panel and follow the instructions provided.

Receiving support updates through RSS feeds

To receive RSS feeds about fixes and other software support news, go to the following web site and select the products in which you are interested:

- http://www.ibm.com/software/support/rss/other/index.html.

If you need to contact IBM Software Support

IBM Software Support provides assistance with product defects.

Before contacting IBM Software Support, your company must have an active IBM software maintenance contract, and you must be authorized to submit problems to IBM. The type of software maintenance contract that you need depends on the type of product you have:

- For IBM distributed software products (including, but not limited to, Tivoli®, Lotus®, and Rational® products, as well as DB2® and WebSphere® products that run on Windows, or UNIX operating systems), enroll in Passport Advantage® in one of the following ways:

  Online
  Go to the Passport Advantage Web site at http://www.lotus.com/services/passport.nsf/ WebDocs/Passport_Advantage_Home and click **How to Enroll**.

  By phone
  For the phone number to call in your country, go to the IBM Software Support Web site at http://techsupport.services.ibm.com/guides/contacts.html and click the name of your geographic region.

- For customers with Subscription and Support (S & S) contracts, go to the Software Service Request Web site at https://techsupport.services.ibm.com/ssr/login.

- For customers with IBMLink, CATIA, Linux, S/390®, iSeries®, pSeries®, zSeries®, and other support agreements, go to the IBM Support Line Web site at http://www.ibm.com/services/us/index.wss/so/its/a1000030/dt006.

- For IBM eServer™ software products (including, but not limited to, DB2 and WebSphere products that run in zSeries, pSeries, and iSeries environments), you can purchase a software maintenance agreement by working directly with an IBM sales representative or an IBM Business Partner. For more information about support for eServer software products, go to the IBM Technical Support Advantage Web site at http://www.ibm.com/servers/eserver/techsupport.html.

If you are not sure what type of software maintenance contract you need, call 1-800-IBMSERV (1-800-426-7378) in the United States. From other countries, go to the contacts page of the *IBM Software Support Handbook* on the Web at http://techsupport.services.ibm.com/guides/contacts.html and click the name of your geographic region for phone numbers of people who provide support for your location.

To contact IBM Software support, follow these steps:
1. "Determining the business impact"
2. "Describing problems and gathering information"
3. "Submitting problems" on page 26

Determining the business impact

When you report a problem to IBM, you are asked to supply a severity level. Therefore, you need to understand and assess the business impact of the problem that you are reporting. Use the following criteria:

Severity 1
> The problem has a **critical** business impact. You are unable to use the program, resulting in a critical impact on operations. This condition requires an immediate solution.

Severity 2
> The problem has a **significant** business impact. The program is usable, but it is severely limited.

Severity 3
> The problem has **some** business impact. The program is usable, but less significant features (not critical to operations) are unavailable.

Severity 4
> The problem has **minimal** business impact. The problem causes little impact on operations, or a reasonable circumvention to the problem was implemented.

Describing problems and gathering information

When describing a problem to IBM, be as specific as possible. Include all relevant background information so that IBM Software Support specialists can help you solve the problem efficiently.

To save time, if there is a Mustgather document available for the product, refer to the Mustgather document and gather the information specified. Mustgather documents contain specific instructions for submitting your problem to IBM and gathering information needed by the IBM support team to resolve your problem. To determine if there is a Mustgather document for this product, go to the product support page and search on the term Mustgather. At the time of this publication, the following Mustgather documents are available:

* Mustgather: Read first for problems encountered with Application Performance Analyzer for z/OS: http://www.ibm.com/support/docview.wss?rs=2300 &context=SSFMHB&q1=mustgather&uid=swg21265542&loc=en_US&cs=utf-8 ⟨=en
* Mustgather: Read first for problems encountered with Debug Tool for z/OS: http://www.ibm.com/support/docview.wss?rs=615&context=SSGTSD &q1=mustgather&uid=swg21254711&loc=en_US&cs=utf-8&lang=en
* Mustgather: Read first for problems encountered with Fault Analyzer for z/OS:http://www.ibm.com/support/docview.wss?rs=273&context=SSXJAJ &q1=mustgather&uid=swg21255056&loc=en_US&cs=utf-8&lang=en
* Mustgather: Read first for problems encountered with File Manager for z/OS: http://www.ibm.com/support/docview.wss?rs=274&context=SSXJAV &q1=mustgather&uid=swg21255514&loc=en_US&cs=utf-8&lang=en

- Mustgather: Read first for problems encountered with Enterprise COBOL for z/OS: http://www.ibm.com/support/docview.wss?rs=2231&context=SS6SG3 &q1=mustgather&uid=swg21249990&loc=en_US&cs=utf-8&lang=en
- Mustgather: Read first for problems encountered with Enterprise PL/I for z/OS: http://www.ibm.com/support/docview.wss?rs=619&context=SSY2V3 &q1=mustgather&uid=swg21260496&loc=en_US&cs=utf-8&lang=en

If the product does not have a Mustgather document, please provide answers to the following questions:

- What software versions were you running when the problem occurred?
- Do you have logs, traces, and messages that are related to the problem symptoms? IBM Software Support is likely to ask for this information.
- Can you re-create the problem? If so, what steps were performed to re-create the problem?
- Did you make any changes to the system? For example, did you make changes to the hardware, operating system, networking software, and so on.
- Are you currently using a workaround for the problem? If so, be prepared to explain the workaround when you report the problem.

Submitting problems

You can submit your problem to IBM Software Support in one of two ways:

Online

Click **Open service request** on the IBM Software Support site at http://www.ibm.com/software/support/probsub.html. In the Other support tools section, select IBMLink to open an Electronic Technical Response (ETR). Enter your information into the appropriate problem submission form.

By phone

Call 1-800-IBMSERV (1-800-426-7378) in the United States or, from other countries, go to the contacts page of the *IBM Software Support Handbook* at http://techsupport.services.ibm.com/guides/contacts.html and click the name of your geographic region.

If the problem you submit is for a software defect or for missing or inaccurate documentation, IBM Software Support creates an Authorized Program Analysis Report (APAR). The APAR describes the problem in detail. Whenever possible, IBM Software Support provides a workaround that you can implement until the APAR is resolved and a fix is delivered. IBM publishes resolved APARs on the Software Support Web site daily, so that other users who experience the same problem can benefit from the same resolution.

After a Problem Management Record (PMR) is open, you can submit diagnostic MustGather data to IBM using one of the following methods:

- FTP diagnostic data to IBM
- If FTP is not possible, email diagnostic data to techsupport@mainz.ibm.com. You must add PMR xxxxx bbb ccc in the subject line of your email. xxxxx is your PMR number, bbb is your branch office, and ccc is your IBM country code. Click here http://itcenter.mainz.de.ibm.com/ecurep/mail/subject.html for more details.

Always update your PMR to indicate that data has been sent. You can update your PMR online or by phone as described above.

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