

HCL Z Abend Investigator

Version 16.1.0

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FMID:

- AHFZ1G0

Program Directory

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Note

Before using this information and the product it supports, be sure to read the general information under Notices on page 19.

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1. Introduction

This program directory is intended for system programmers who are responsible for program installation and maintenance. It contains information about the material and procedures associated with the installation of HCL Z Abend Investigator. This publication also refers to HCL Z Abend Investigator as ZAI.

The Program Directory contains the following sections:

- Package Content on page 2 identifies the basic program materials and documentation for ZAI.
- Program Support on page 3 describes the HCL support available for ZAI.
- Installation Requirements and Considerations on page 4 identifies the resources and considerations that are required for installing and using ZAI.
- Installation Instructions on page 8 provides detailed installation instructions for ZAI.

1.1 ZAI Description

HCL Z Abend Investigator is a comprehensive problem determination tool that captures information at the time of an application abend in order to speed up problem resolution by a development team.

1.2 ZAI FMID

Z Abend Investigator consists of the following FMID:

AHFZG10 Z Abend Investigator

2. Package Content

ZAI is delivered as a separately installable package.

2.1 Downloaded Materials

The distribution medium for this program is downloadable files. This program is in SMP/E RELFILE format and is installed by using SMP/E.

The downloaded materials for ZAI consist of these files:

AHFZG10.pax.Z	Compressed SMP/E RELFILES and SMPMCS
AHFZG10.readme.txt	Readme file with instructions and sample JCL

For more details see the Package Files tables in section **Upload the web download package to the host** on page 10.

See **Installation Instructions** on page 8 for more information about how to install the program.

2.2 Program Publications

This section identifies the publications for ZAI.

These publications can be obtained from:

<https://help.hcl-software.com/zai/welcome/index.html>

ZAI Publications	
Publication Title	Media Format
HCL Z <i>Abend Investigator</i> User's Guide and Reference	PDF

3. Program Support

This section describes the HCL support available for ZAI.

Report any problems which you feel might be an error in the product materials to HCL Support.

HCL Support can be contacted via the Contact Support Form located at:

<https://support.hcl-software.com/csm>

You may be asked to gather and submit additional diagnostics to assist HCL Support in their analysis.

Product IDs			
FMID	PID	Component Name	Release
AHFZG10	19OP1230	ZAI Base	1610

4. Installation Requirements and Considerations

The following sections identify the system requirements for installing and activating ZAI.
The following terminology is used:

- *Driving system*: the system on which SMP/E is executed to install the program.
- *Target system*: the system on which the program is configured and run.

4.1 Driving and Target System Requirements

4.1.1 System Software Requirements

Requires a supported version of z/OS® plus hardware sufficient to run z/OS.

System Software Requirements		
Program Number	Product Name	Minimum VRM
5650-ZOS	z/OS	V02.05.00 or higher

Note:

See the following link to view supported z/OS levels:

<https://www.ibm.com/support/pages/lifecycle/>

Refer to product documentation for any additional target system software requisites.

4.1.2 DASD Storage Requirements

ZAI libraries can reside on all supported DASD types.

The figures in this section list the total space that is required for each type of library and describe the target and distribution libraries required to install ZAI.

Total DASD Space Required by ZAI		
Library Type	Total Space Required in 3390 Trks	Description
Target	6100 Tracks	All components installed
Distribution	6100 Tracks	All components installed
Extracted RELFILES and SMPMCS	3500 Tracks (approximate)	All components extracted. These are temporary data sets that can be removed after the SMP/E install.

The storage allocation values for both Target (TLIB) and Distribution (DLIB) data sets can be found in sample HFZALLOC.

Note:

The data sets allocated by this product are used only by this product. This table provides all the required information to determine the correct storage for the data sets.

ZAI Target Libraries					
Library DDNAME	Member Type	Target Volume	ORG	RECFM	LRECL
SHFZAUTH	LMOD	ANY	PDSE	U	0
SHFZALPA	LMOD	ANY	PDS	U	0
SHFZSAM1	Sample	ANY	PDS	FB	80
SHFZPLIB	Panel	ANY	PDS	FB	80
SHFZMLIB	Messages	ANY	PDS	FB	80
SHFZSLIB	Skeleton	ANY	PDS	FB	80
SHFZTLIB	Table	ANY	PDS	FB	80
SHFZEXEC	Exec	ANY	PDS	FB	80
SHFZDOC1	Data	ANY	PDS	VB	255
SHFZMAPS	Data	ANY	PDS	VB	1024
SHFZDOC2	Data	ANY	PDS	VB	8196

- SHFZAUTH must be a PDSE.

ZAI Distribution Libraries			
Library DDNAME	ORG	RECFM	LRECL
AHFZAUTH	PDSE	U	0
AHFZALPA	PDS	U	0
AHFZPLIB	PDS	FB	80
AHFZMLIB	PDS	FB	80
AHFZSLIB	PDS	FB	80
AHFZTLIB	PDS	FB	80
AHFZEXEC	PDS	FB	80
AHFZSAM1	PDS	FB	80
AHFZDOC1	PDS	VB	255
AHFZMAPS	PDS	VB	1024
AHFZDOC2	PDS	VB	8196

- AHFZAUTH must be a PDSE.

5. Installation Instructions

This chapter describes the installation method and the step-by-step procedures to install and to activate the functions of ZAI. It is recommended that the sample jobs detailed in section **Sample jobs** are used for the installation.

5.1 Installing ZAI

5.1.1 SMP/E Considerations for Installing ZAI

Use the SMP/E RECEIVE, APPLY, and ACCEPT commands to install this release of ZAI (see HFZRECEV, HFZAPPLY and HFZACCEP in section **Sample jobs**)

It is recommended that ZAI is installed into a new SMP/E environment, see sample HFZALSMP.

5.1.2 SMP/E Options Subentry Values

The following table shows the recommended values for certain SMP/E CSI subentries, which are specified in sample job HFZALSMP.

Attention:

Using values lower than the recommended values can result in failures in the installation.

SMP/E Options Subentry Values		
Subentry	Value	Comment
DSSPACE	(900,300,500)	Space allocation
PEMAX	SMP/E Default	HCL recommends using the SMP/E default for PEMAX.

DSSPACE is a subentry in the GLOBAL options entry. PEMAX is a subentry of the GENERAL entry in the GLOBAL options entry.

See the SMP/E manuals for instructions on updating the global zone.

5.1.3 Overview of the installation steps

Overview of steps required to install HCL Z Abend Investigator.

1. Allocate file system to hold web download package.
2. Upload the ZAI package to the host.
3. Extract and expand the compressed SMPMCS and RELFILES.
4. Extract the sample jobs that are used in the following steps.
5. Create new SMP/E environment for ZAI (HFZALSMP).
6. Perform SMP/E RECEIVE (HFZRECEV).
7. Allocate SMP/E target and distribution libraries (HFZALLOC).
8. Create DDDEF entries (HFZDDDEF).
9. Perform SMP/E APPLY (HFZAPPLY).
10. Perform SMP/E ACCEPT (HFZACCEP).
11. Clean Up Installation Data Sets and Files.
12. Post Installation Tasks.

5.1.4 Allocate file system to hold web download package

To install HCL Z Abend Investigator the SMP/E input data sets are provided as compressed files in an archive AHFZG10.pax.Z which must be uploaded to z/OS as a z/OS UNIX file.

You can either create a new z/OS UNIX file system (zFS) or create a new directory in an existing file system to place the download package.

You can use the sample JCL in AHFZG10.readme.txt file to create a new file system, and directory, for the download package.

5.1.5 Upload the web download package to the host

Upload the AHFZG10.readme.txt file, and the AHFZG10.pax.Z file to the z/OS UNIX file system. See the following table for the files and formats.

Upload files for the optional components as required.

Package Files		
File Name	Format	Size (approximate)
Required ZAI Base files		
AHFZG10.pax.Z	Binary	75 MB
AHFZG10.readme.txt	ASCII	20 KB
License utility files		
HCLLICSA.xmi	Binary	2 KB
HCLLICSA.readme.txt	ASCII	20 KB

5.1.6 Extract and expand the compressed SMPMCS and RELFILES

The AHFZG10.readme.txt file uploaded in the previous step holds a sample JCL to expand the compressed SMPMCS and RELFILES from the uploaded AHFZG10.pax.Z files into data sets for use by the SMP/E RECEIVE job.

The following table lists extracted data sets that are used for the installation of ZAI.

Data Set Name	ORG	RECFM	LRECL
Required ZAI Base RELFILES and SMPMCS			
HCL.AHFZG10.F1	PDS	FB	80
HCL.AHFZG10.F2	PDSE	U	0
HCL.AHFZG10.F3	PDS	FB	80
HCL.AHFZG10.F4	PDS	FB	80
HCL.AHFZG10.F5	PDS	FB	80
HCL.AHFZG10.F6	PDS	FB	80
HCL.AHFZG10.F7	PDS	FB	80
HCL.AHFZG10.F8	PDS	VB	255
HCL.AHFZG10.F9	PDS	VB	1024
HCL.AHFZG10.F10	PDS	VB	8196
HCL.AHFZG10.F11	PDS	U	0
HCL.AHFZG10.SMPMCS	SEQ	FB	80

Note:

These are temporary data sets, which can be removed after the SMP/E install.

5.1.7 Sample jobs

The following sample installation jobs are provided in RELFILE F1 to help you install ZAI. It is recommended that you copy these files to another data set before making any changes.

Sample Installation Jobs			
Job Name	Job Type	Description	RELFIL
HFZALSMP	ALLOCATE	Sample to allocate new SMP/E environment for ZAI and related products	HCL.AHFZG10.F1
HFZRECEV	RECEIVE	Sample SMP/E RECEIVE job	HCL.AHFZG10.F1
HFZALLOC	ALLOCATE	Sample job to allocate target and distribution libraries	HCL.AHFZG10.F1
HFZDDDEF	DDDEF	Sample job to define SMP/E DDDEFs	HCL.AHFZG10.F1
HFZAPPLY	APPLY	Sample SMP/E APPLY job	HCL.AHFZG10.F1
HFZACCEP	ACCEPT	Sample SMP/E ACCEPT job	HCL.AHFZG10.F1

Expected Return Codes and Messages:

Return code of 0 is expected for all steps if each job runs correctly.

5.1.8 Create new SMP/E Environment for ZAI (Optional)

Edit and submit sample job HFZALSMP to create a new SMP/E environment for ZAI.

5.1.9 Perform SMP/E RECEIVE

Edit and submit sample job HFZRECEV to perform the SMP/E RECEIVE for ZAI. Consult the instructions in the sample job for more information.

5.1.10 Allocate SMP/E Target and Distribution Libraries

Edit and submit sample job HFZALLOC to allocate the SMP/E target and distribution libraries for ZAI. Consult the instructions in the sample job for more information.

5.1.11 Create DDDEF Entries

Edit and submit sample job HFZDDDEF to create DDDEF entries for the SMP/E target and distribution libraries for ZAI. Consult the instructions in the sample job for more information.

5.1.12 Perform SMP/E APPLY

Edit and submit sample job HFZAPPLY to perform an SMP/E APPLY CHECK for ZAI. Consult the instructions in the sample job for more information.

After you take actions that are indicated by the APPLY CHECK, remove the CHECK operand and run the job again to perform the APPLY.

5.1.13 Perform SMP/E ACCEPT

Edit and submit sample job HFZACCEP to perform an SMP/E ACCEPT CHECK for ZAI. Consult the instructions in the sample job for more information.

After you take actions that are indicated by the ACCEPT CHECK, remove the CHECK operand and run the job again to perform the ACCEPT.

5.1.14 Clean Up Installation Data Sets and Files

The following data sets and files are only required during ZAI installation and may be deleted after a successful install.

- z/OS UNIX files uploaded as part of step 5.1.5
- The SMPMCS and RELFILES extracted as part of step 5.1.6

5.1.15 Post Installation Tasks

Refer to the Z Abend Investigator User's Guide and Reference, "ZAI Installation and Administration" section, for information about these tasks. These tasks include the

installation of the exits that invoke ZAI, and unless they are performed, the IVPs will not work.

5.2 HCL License Certificate Implementation

If you do not have a license certificate for ZAI contact your HCL representative.

This section describes how you install the license certificate on your systems and how you can bypass the requirement for users to have read access to the data sets in the system PARMLIB concatenation.

5.2.1 Installing an HCL Software Z product certificate

HCL Software Z products validate entitlement by examining a license certificate during execution. Accordingly, these license certificates must be made available to executing software by performing the steps listed below. Some steps may have already been performed if this is not the first time that an HCL Software Z licensed product has been installed on your system.

HCL Software Z product license certificates are 800 bytes in size, and the first 80-byte section contains readable EBCDIC text to help support staff identify the systems, products, and date ranges to which individual certificates pertain.

License certificate installation steps

1. Create a **TEMPCERT** DASD sequential data set with fixed-length 800-byte records to hold the license certificate to be uploaded. One track is sufficient for this temporary holding data set. A suggested name is *prefix*.TEMPCERT where *prefix* would typically be your user ID.
2. BINARY transfer any license certificates you have received to the **TEMPCERT** data set.
3. Make the certificate data accessible to address spaces executing on your system as follows:

If you have already performed the first-time set up necessary for HCL Software Z products then proceed to step 3.b.

- a. If this is the first HCL Software Z product you have licensed, you will need to perform these once-only steps:

- i. Create a **HCLZCERT** HCL Software Z product license certificate repository. Ideally it will have a data set name that facilitates sufficiently wide read access. This data set will be read by all address spaces which execute HCL Software Z product components that verify license entitlement. You may elect to place this data set on shared DASD and use it for multiple z/OS systems. The ability to update this data set should be restricted to support personnel.

The attributes of this DASD sequential data set are RECFM=FB and LRECL=800. An allocation of 2 tracks primary and 1 secondary should suffice. It must be cataloged on all systems from which it is to be referenced.

- ii. Create a member in the system PARMLIB concatenation called **HCLLICFN**. Create this member in any suitable library in the concatenation. If you are going to share the license repository across multiple systems, and these systems share a common PARMLIB library, you may wish to add the member to that library.

The member is to contain a single record which has the data set name of the system's **HCLZCERT** HCL Software Z license repository data set. Start the data set name in column 1. The name must be completely specified within the first 71 columns of the record. Leave the rest of the columns blank.

- iii. Load the data in the **TEMPCERT** data set into **HCLZCERT** data set. Since the **HCLZCERT** data set has no previous data to preserve you can simply copy the records across using IEBGENER, IDCAMS REPRO, ISPF Move/Copy Utility, or your preferred equivalent copy utility program.
- iv. When the license certificates are stored in the permanent **HCLZCERT** data set you can delete the **TEMPCERT** data set. Take a backup of the **HCLZCERT** data set using DFDSS or other means for data recovery purposes.

- b. If you have already set up a **HCLZCERT** data set and the associated PARMLIB pointer to it, all you must do to activate the new licenses is to load the new certificates into the permanent **HCLZCERT** data set.

Be careful not to overwrite any previous certificates which may still be active. Be sure to have a backup of the HCLZCERT data set before updating it.

The simplest procedure is to append the new records after any pre-existing records. Specifying DISP=MOD in JCL when using IEBGENER and setting the Sequential

Disposition to Mod when using the ISPF Move/Copy Utility are two easy ways to achieve this.

After the update, back up your HCLZCERT data set again and then delete the TEMPCERT data set.

After the new certificate information has been loaded into the **HCLZCERT** data set, the newly licensed HCL Software Z product software should be able to verify entitlement successfully.

5.2.2 Bypassing the requirement for system PARMLIB access

License checking is performed each time a user runs the product.

In its default mode of operation, the license checker obtains the license repository data set name from the HCLLICFN PARMLIB member. Consequently, there is a requirement for all users to have read access to the data sets in the system PARMLIB concatenation. As at many installations, this requirement may not be acceptable, a method of bypassing the requirement has been provided.

Supplied program HCLLICSA loads the contents of the HCLLICFN PARMLIB member into extended CSA storage and creates a Name/Token pair. The license checker always looks for the HCLLICFN data in the extended CSA storage first, so if HCLLICSA is run beforehand, users don't require access to the data sets in the system PARMLIB concatenation.

This then is how you eliminate the requirement for users to have read access to the data sets in the system PARMLIB concatenation: Include in your automated system initialization process, a job or started task which executes program HCLLICSA.

See HCLLICSA.readme.txt in the download package for instructions on how to obtain the license utility programs.

Here is sample JCL which runs the HCLLICSA program:

```
//STEP1 EXEC PGM=HCLLICSA  
//STEPLIB DD DISP=SHR,DSN=library.ofHCL.software
```

The STEPLIB data set must be APF authorized and contain the HCLLICSA program and the HCLLICCK program which HCLLICSA calls.

The user ID that the job runs under must be able to read all the data sets in the system PARMLIB concatenation.

A job step based on this JCL should be run soon after a system IPL. It would not need to be run again until the next IPL unless the license repository data set name is changed.

To delete the Name/Token pair and free the extended CSA storage, supply a program parameter as shown:

```
//STEP1 EXEC PGM=HCLLCSA,PARM=PURGENAME  
//STEPLIB DD DISP=SHR,DSN=library.ofHCL.software
```

If the extended CSA storage has been corrupted and cannot be freed, or it is decided for integrity reasons that the storage should not be freed, but the requirement to delete the Name/Token pair still exists, then use this program parameter:

```
//STEP1 EXEC PGM=HCLLCSA,PARM=DELETEPTR  
//STEPLIB DD DISP=SHR,DSN=library.ofHCL.software
```

In the cases where the PURGENAME or DELETEPTR parameters are used, the program does not access the system PARMLIB concatenation. Any other program parameter value is treated as if no parameter is present, and the extended CSA storage will be refreshed with the PARMLIB data accordingly.

5.3 Product Customization

Refer to section **Z Abend Investigator installation and administration** in the Z Abend Investigator User's Guide and Reference.

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