



Program Directory for IBM Debug Tool for z/OS

V13.01.00

Program Number 5655-Q10

FMIDs HADRD10, JADRD1J, JADRD1K

for Use with
z/OS V1.12.0 or later

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Note

Before using this information and the product it supports, be sure to read the general information under 7.0, "Notices" on page 46.

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1.0 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 IBM Debug Tool for z/OS. This publication refers to IBM Debug Tool for z/OS as Debug Tool.

The Program Directory contains the following sections:

- 2.0, “Program Materials” on page 5 identifies the basic program materials and documentation for Debug Tool.
- 3.0, “Program Support” on page 9 describes the IBM support available for Debug Tool.
- 4.0, “Program and Service Level Information” on page 11 lists the APARs (program level) and PTFs (service level) that have been incorporated into Debug Tool.
- 5.0, “Installation Requirements and Considerations” on page 15 identifies the resources and considerations that are required for installing and using Debug Tool.
- 6.0, “Installation Instructions” on page 29 provides detailed installation instructions for Debug Tool. It also describes the procedures for activating the functions of Debug Tool, or refers to appropriate publications.

Before installing Debug Tool, read the *CBPDO Memo To Users* and the *CBPDO Memo To Users Extension* that are supplied with this program in softcopy format and this program directory; then keep them for future reference. Section 3.2, “Preventive Service Planning” on page 9 tells you how to find any updates to the information and procedures in this program directory.

Debug Tool is supplied in a Custom-Built Product Delivery Offering (CBPDO, 5751-CS3). The program directory that is provided in softcopy format on the CBPDO tape is identical to the hardcopy format if one was included with your order. All service and HOLDDATA for Debug Tool are included on the CBPDO tape.

Do not use this program directory if you install Debug Tool with a SystemPac or ServerPac. When you use one of those offerings, use the jobs and documentation supplied with the offering. The offering will point you to specific sections of this program directory as needed.

1.1 Debug Tool Description

IBM Debug Tool z/OS V13.1 helps developers debug applications running in a variety of environments, such as TSO, CICS, IMS, DB2, DB2 Stored Procedures, and UNIX System Services.

Debug Tool V13.1 includes the following new features and enhancements:

- A new method for gathering code coverage is added for the generation, viewing, and reporting of code coverage using the Debug Tool Mainframe interface (MFI) as the engine. This support is provided for

applications written in Enterprise COBOL and Enterprise PLI that are compiled with the TEST compile option and its suboption SEPARATE. This is enabled via the new EQAOPTS CCPROGSELECTDSN, CCOUTPUTDSN and CCOUTPUTDSN commands.

- Debug Tool is enhanced to provide the automatic start of IMS message processing program (MPP) regions and dynamic routing of transactions. This allows a developer to dynamically start an MPP region, route a transaction to that MPP region and at the end of the transaction, shutdown the MPP region created for the developer, thus reducing system resources.
- To help with the ease of use of the MFI mode of Debug Tool for some users, an option has been added that enables breakpoints, the current line, and the line with found text to be identified by a character indicator. This feature is enabled via a new EQAOPTS ALTDISP command.
- Supports Enterprise COBOL for z/OS V5.1; Enterprise PL/I for z/OS V4.4; CICS TS V5.1; DB2 V11; IMS V13; z/OS V2.1; and C/C++ V2.1.
- Debug Tool now supports JCL for Batch Debugging in the DTSP plug-in. This facility is used to instrument JCL to initiate a debug session from the DTSP plug-in.
- Support is added for an IMS transaction that is associated with a generic ID. A new feature is added to the consolidated Language Environment user exit (EQAD3CXT) to search a new cross-reference table for the user ID of a user who wants to debug a IMS transaction that is started from the web and is associated with a generic ID. This enables Debug Tool to debug these transactions that use a generic ID. The user ID from the cross-reference table is used to find the user's Debug Tool user exit data set (userid.DBGTOOL.EQAUOPTS), which specifies the TEST runtime parameters and the display device address. A new option is added to the Debug Tool Utilities ISPF panel, "C IMS Transaction and User ID Cross Reference Table" to allow each user to update the new cross reference table.
- Support is added for tracing load modules loaded by an application. New commands TRACE LOAD and LIST TRACE LOAD are added for Debug Tool's MFI mode. This set of commands allows the user to get a trace of load modules loaded by the application. Start the trace by issuing TRACE LOAD START. Use LIST TRACE LOAD to display the trace. The trace includes load modules known to Debug Tool at the time the TRACE LOAD START command is entered and all that are loaded while the trace is active. End the trace by issuing TRACE LOAD END. Note that when the trace is ended, all trace information is deleted.
- Support is added for terminating an idle Debug Tool session that uses the Terminal Interface Manager. Debug Tool supports a time-out option (via the new EQAOPTS SESSIONTIMEOUT command), which allows the system programmer to establish a maximum wait time for debug sessions using a dedicated terminal or the Terminal Interface Manager. If the debug session exceeds the specified time limit without any user interaction, the session will be terminated with either a QUIT or QUIT DEBUG.
- Enhanced Debug Tool Coverage Utility 'Create HTML Targeted Coverage Report' allows the user to select from a list of COBOL Program-IDs, ignore changes to non-executable code, and produce a summary of the targeted lines with selectable HTML links.
- Adds IMS information to start and stop messages generated by the EQAOPTS STARTSTOPMSG command.

- Adds EQAOPTS STARTSTOPMSGDSN command and a new Debug Tool Utilities option 'Non-CICS Debug Session Start and Stop Message Viewer' to collect and view Debug Tool debugger session start and stop information.
- Enhanced delay debug mode with a new EQAOPTS DLAYDBGXRF command to control CONDITION trapping. In addition, a new EQAOPTS DLAYDBGXRF command is added so that delay debug mode can use the 'IMS Transaction and User ID Cross Reference Table'. Further, NOTEST is now handled in delay debug mode.
- A confirmation message is added to Debug Tool Utilities option 6 'Debug Tool User Exit Data Set' to indicate that the updates have been saved into the EQAUOPTS data set.
- The ON and AT OCCURRENCE commands are enhanced for Enterprise PL/I to support qualifying data.
- Commands have been added, LIST LDD and CLEAR LDD, that display and remove LDD commands known to Debug Tool, and LIST CC and CC (START and STOP) that tell the Debug Tool debugger to gather and display code coverage data.
- Two new EQAOPTS commands are added for remote debug mode. The EQAOPTS HOSTPORTS command specifies the specific host port number or range of host port numbers to use on the host for a TCP/IP connection from the host to a workstation when using remote debug mode. The EQAOPTS TCPIPDATA command provides the data set name for CPIP.DATA (via the SYSTCPD DD NAME) when no GLOBALTCPIPDATA statement is configured.
- A timestamp is added to the EQAY999* messages that the Terminal Interface Manager issues if the +T trace flag is on.
- Debug Tool now allows for GOTO or JUMPTO for programs compiled with OPT and the NOEJPD suboption of the Enterprise COBOL TEST compile option when SET WARNING setting is OFF.
- An updated DTST transaction is included to write messages to the operator log when a user changes storage. These messages are intended to provide an audit trail of DTST storage changes.
- Support is added for remote Playback through the Playback Toolbar in the Debug View.
- The EQALANGP and EQALANGX modules are moved from Debug Tool's EQAW.SEQAMOD library to Common Component's IPV.SIPVMODA library, where they are now aliases of IPVLANGP and IPVLANGX, respectively. This removes duplication between the two tools.

1.2 Debug Tool FMIDs

Debug Tool consists of the following FMIDs:

HADR10
 JADR1J
 JADR1K

You will receive the following materials:

- If you order only the base feature, you will receive the following materials:

- Debug Tool base (FMID HADRD10),
- If you order both the base and Japanese features, you will receive the following materials:
 - Debug Tool base and JPN (FMIDs HADRD10 and JADR1J),
- If you order both the base and Korean features, you will receive the following materials:
 - Debug Tool base and KOR (FMIDs HADRD10 and JADR1K),
- If you order all--the base, Japanese, and Korean features, you will receive the following materials:
 - Debug Tool base, JPN, and KOR (FMIDs HADRD10, JADR1J and JADR1K),

This program directory describes the installation procedure for Debug Tool (HADRD10, JADR1J and JADR1K).

2.0 Program Materials

An IBM program is identified by a program number and feature numbers. The program number for Debug Tool is 5655-Q10. The base feature number is HADRD10 and the optional Japanese and Korean feature numbers are JADR1J, and JADR1K.

Basic Machine-Readable Materials are materials that are supplied under the base license and are required for the use of the product.

The program announcement material describes the features supported by Debug Tool. Ask your IBM representative for this information if you have not already received a copy.

2.1 Basic Machine-Readable Material

The distribution medium for this program is physical media or downloadable files. This program is in SMP/E RELFILE format and is installed by using SMP/E. See 6.0, "Installation Instructions" on page 29 for more information about how to install the program.

You can find information about the physical media for the basic machine-readable materials for Debug Tool in the *CBPDO Memo To Users Extension*.

Figure 1. Program File Content -- Debug Tool Base

Name	O R G	R E C M	L R E C L	BLK SIZE
SMPMCS	SEQ	FB	80	6400
IBM.HADRD10.F1	PDS	FB	80	8800
IBM.HADRD10.F2	PDS	FB	80	8800
IBM.HADRD10.F3	PDS	U	0	6144
IBM.HADRD10.F4	PDS	FB	80	8800
IBM.HADRD10.F5	PDS	FB	80	8800
IBM.HADRD10.F6	PDS	FB	80	8800
IBM.HADRD10.F7	PDS	FB	80	8800
IBM.HADRD10.F8	PDS	FB	80	8800
IBM.HADRD10.F9	PDS	FB	80	8800
IBM.HADRD10.F10	PDS	FB	80	8800

Figure 2. Program File Content -- Debug Tool Japanese

Name	O R G	R E C F M	L R E C L	BLK SIZE
SMPMCS	SEQ	FB	80	6400
IBM.JADRD1J.F1	PDS	FB	80	8800
IBM.JADRD1J.F2	PDS	FB	80	8800
IBM.JADRD1J.F3	PDS	U	0	6144
IBM.JADRD1J.F4	PDS	FB	80	8800
IBM.JADRD1J.F5	PDS	FB	80	8800
IBM.JADRD1J.F6	PDS	FB	80	8800

Figure 3. Program File Content -- Debug Tool Korean

Name	O R G	R E C F M	L R E C L	BLK SIZE
SMPMCS	SEQ	FB	80	6400
IBM.JADRD1K.F1	PDS	FB	80	8800
IBM.JADRD1K.F2	PDS	FB	80	8800
IBM.JADRD1K.F3	PDS	U	0	6144
IBM.JADRD1K.F4	PDS	FB	80	8800
IBM.JADRD1K.F5	PDS	FB	80	8800
IBM.JADRD1K.F6	PDS	FB	80	8800

2.2 Optional Machine-Readable Material

No optional machine-readable materials are provided for Debug Tool.

2.3 Program Publications

The following sections identify the basic publications for Debug Tool.

Figure 4 on page 7 identifies the basic unlicensed publications for Debug Tool. Those that are in softcopy format publications can be obtained from the IBM Publications Center website at <http://www.ibm.com/shop/publications/order/>.

<i>Figure 4. Basic Material: Unlicensed Publications</i>		
Publication Title	Form Number	Media Format
License Information	G113-3003	http://www.ibm.com/shop/publications/order/

2.3.1 Optional Program Publications

Figure 5 identifies the optional unlicensed program publications for Debug Tool. One copy of each of these publications is included when you order the optional materials for Debug Tool. Additional copies can be obtained from the IBM Publications website at URL: <http://www.ibm.com/shop/publications/order/>. For further assistance contact your IBM representative.

<i>Figure 5. Optional Material: Unlicensed Publications</i>		
Publication Title	Form Number	Media Format
IBM Debug Tool for z/OS Customization Guide	SC14-7601	
IBM Debug Tool for z/OS Reference and Messages	SC27-4652	
IBM Debug Tool for z/OS Reference Summary	SC14-7602	
IBM Debug Tool for z/OS Coverage Utility User's Guide and Messages	SC27-4651	
IBM Debug Tool for z/OS User's Guide	SC14-7600	
IBM Debug Tool for z/OS API User's Guide and Reference	SC27-4654	

2.4 Program Source Materials

No program source materials or viewable program listings are provided for Debug Tool.

2.5 Publications Useful During Installation

You might want to use the publications listed in Figure 6 during the installation of Debug Tool.

Figure 6. Publications Useful During Installation

Publication Title	Form Number	Media Format
<i>IBM SMP/E for z/OS User's Guide</i>	SA22-7773	http://www.ibm.com/shop/publications/order/
<i>IBM SMP/E for z/OS Commands</i>	SA22-7771	http://www.ibm.com/shop/publications/order/
<i>IBM SMP/E for z/OS Reference</i>	SA22-7772	http://www.ibm.com/shop/publications/order/
<i>IBM SMP/E for z/OS Messages, Codes, and Diagnosis</i>	GA22-7770	http://www.ibm.com/shop/publications/order/

3.0 Program Support

This section describes the IBM support available for Debug Tool.

3.1 Program Services

Contact your IBM representative for specific information about available program services.

3.2 Preventive Service Planning

Before you install Debug Tool, make sure that you have reviewed the current Preventive Service Planning (PSP) information. Review the PSP Bucket for General Information, Installation Documentation, and the Cross Product Dependencies sections. For the Recommended Service section, instead of reviewing the PSP Bucket, it is recommended you use the IBM.ProductInstall-RequiredService fix category in SMP/E to ensure you have all the recommended service installed. Use the **FIXCAT(IBM.ProductInstall-RequiredService)** operand on the **APPLY CHECK** command. See 6.1.10, "Perform SMP/E APPLY" on page 35 for a sample APPLY command

If you obtained Debug Tool as part of a CBPDO, HOLDDATA is included.

If the CBPDO for Debug Tool is older than two weeks by the time you install the product materials, you can obtain the latest PSP Bucket information by going to the following website:

<http://www14.software.ibm.com/webapp/set2/psearch/search?domain=psp>

You can also use S/390 SoftwareXcel or contact the IBM Support Center to obtain the latest PSP Bucket information.

For program support, access the Software Support Website at <http://www-01.ibm.com/software/support/>.

PSP Buckets are identified by UPGRADEs, which specify product levels; and SUBSETs, which specify the FMIDs for a product level. The UPGRADE and SUBSET values for Debug Tool are included in Figure 7

Figure 7. PSP Upgrade and Subset ID

UPGRADE	SUBSET	Description
DEBUGD10	HADRD10	Debug Tool Base
DEBUGD10	JADRD1J	Debug Tool JPN
DEBUGD10	JADRD1K	Debug Tool KOR

3.3 Statement of Support Procedures

Report any problems which you feel might be an error in the product materials to your IBM Support Center. You may be asked to gather and submit additional diagnostics to assist the IBM Support Center in their analysis.

Figure 8 on page 10 identifies the component IDs (COMPID) for Debug Tool.

<i>Figure 8. Component IDs</i>			
FMID	COMPID	Component Name	RETAIN Release
HADR10	5655Q1000	Debug Tool Base	D10
JADR1J	5655Q1000	Debug Tool JPN	D1J
JADR1K	5655Q1000	Debug Tool KOR	D1K

4.0 Program and Service Level Information

This section identifies the program and relevant service levels of Debug Tool. The program level refers to the APAR fixes that have been incorporated into the program. The service level refers to the PTFs that have been incorporated into the program.

4.1 Program Level Information

The following APAR fixes against previous releases of Debug Tool have been incorporated into this release. They are listed by FMID.

- FMID HADRD10

PK00675	PK27558	PK48240	PK72833	PM02918
PK02447	PK28613	PK49405	PK73568	PM03164
PK03374	PK29548	PK50269	PK74667	PM03949
PK04009	PK30410	PK50522	PK74674	PM05431
PK04304	PK30452	PK53470	PK74749	PM05771
PK04961	PK31034	PK53493	PK75885	PM06114
PK04962	PK31038	PK53826	PK76990	PM06203
PK05285	PK32234	PK55355	PK77037	PM08268
PK05466	PK32888	PK55648	PK81244	PM08594
PK07204	PK33396	PK55719	PK82537	PM09411
PK09226	PK34211	PK56806	PK83511	PM09457
PK10061	PK34664	PK57671	PK84928	PM09615
PK12158	PK35006	PK57838	PK85286	PM10572
PK14451	PK35605	PK57955	PK85357	PM11642
PK14572	PK35655	PK58192	PK85436	PM15165
PK14577	PK36034	PK59078	PK85437	PM15170
PK15170	PK36299	PK59685	PK86668	PM15923
PK15398	PK36707	PK59712	PK87330	PM17328
PK16153	PK37043	PK61137	PK92497	PM20046
PK16434	PK37562	PK61305	PK93012	PM20755
PK17078	PK38081	PK61684	PK93688	PM21383
PK17670	PK39157	PK63156	PK93748	PM23044
PK18521	PK40305	PK65228	PK96419	PM23045
PK19156	PK41235	PK65761	PK99548	PM24028
PK19177	PK41662	PK66732	PK99776	PM24362
PK20260	PK42217	PK67117	PM00321	PM24586
PK23019	PK43404	PK68495	PM00324	PM25989
PK23176	PK45173	PK69617	PM00652	PM26509
PK23583	PK46756	PK70677	PM00777	PM26643
PK23759	PK47234	PK70679	PM00805	PM27232
PK25531	PK48239	PK72478	PM02748	PM27734

PM28464	PM75210	PN78462	PQ49084	PQ77547
PM31248	PM75311	PN80668	PQ49642	PQ77824
PM32025	PM75819	PN86092	PQ53055	PQ78839
PM33215	PM77115	PN88015	PQ53332	PQ79534
PM33452	PM78569	PN88706	PQ54005	PQ79674
PM34470	PM78703	PN88707	PQ54483	PQ80030
PM34813	PM79706	PN88762	PQ54486	PQ80566
PM36348	PM79815	PN89070	PQ55191	PQ80722
PM37028	PM81807	PQ01218	PQ55244	PQ80723
PM37500	PM81870	PQ01220	PQ55444	PQ81519
PM38729	PM82508	PQ03224	PQ57686	PQ81590
PM40717	PM83332	PQ03226	PQ58729	PQ82090
PM41441	PM83747	PQ04955	PQ58730	PQ82201
PM42348	PM85967	PQ06206	PQ59360	PQ84175
PM44285	PM86958	PQ06208	PQ60272	PQ86957
PM45499	PM87176	PQ06440	PQ60858	PQ88120
PM48159	PM87313	PQ08277	PQ61453	PQ88292
PM51153	PM87793	PQ09353	PQ61687	PQ89389
PM52230	PM87843	PQ14291	PQ61884	PQ89866
PM52831	PM88136	PQ14612	PQ63359	PQ90732
PM54307	PM88403	PQ18735	PQ65072	PQ92738
PM54833	PM89106	PQ18736	PQ65285	PQ92740
PM56164	PM89468	PQ20342	PQ65689	PQ92790
PM56684	PM89567	PQ20561	PQ67364	PQ93697
PM57307	PM90332	PQ24033	PQ68386	PQ94150
PM57323	PM91190	PQ24271	PQ68864	PQ94257
PM57408	PM91375	PQ24276	PQ68865	PQ94401
PM58409	PM92709	PQ24651	PQ68866	PQ95624
PM59170	PM95648	PQ25905	PQ69024	PQ95646
PM59373	PM97138	PQ27247	PQ69888	PQ95808
PM61410	PM97139	PQ29348	PQ71158	PQ95849
PM61751	PM97158	PQ30470	PQ71600	PQ96818
PM64370	PN65602	PQ31829	PQ71601	PQ98098
PM65475	PN65603	PQ33668	PQ71603	PQ98492
PM66203	PN66733	PQ337039	PQ71604	PQ98515
PM66673	PN69045	PQ41451	PQ71605	PQ98516
PM69305	PN69895	PQ42373	PQ71801	PQ98604
PM69668	PN70447	PQ43111	PQ73168	PQ99203
PM69781	PN74855	PQ43112	PQ73643	PQ99574
PM71373	PN74858	PQ48578	PQ73713	PQ99811
PM72439	PN77047	PQ48732	PQ75569	
PM73677	PN77957	PQ49058	PQ77358	

- FMID JARDR1J

PK00799	PK49381	PK89041	PM48019	PQ71606
PK01491	PK49384	PK90827	PM51000	PQ71607
PK03524	PK49389	PM00117	PM52073	PQ74715
PK15090	PK50271	PM04337	PM52983	PQ77407
PK15093	PK54129	PM04354	PM57409	PQ77825
PK16025	PK54866	PM06611	PM59374	PQ79675
PK16030	PK57111	PM08487	PM60370	PQ81518
PK16157	PK59741	PM11779	PM65466	PQ81521
PK16248	PK59744	PM16846	PM68311	PQ86560
PK19327	PK64626	PM18561	PM69381	PQ86561
PK21975	PK64636	PM19809	PM72268	PQ89216
PK24386	PK67123	PM24030	PM73504	PQ89229
PK24395	PK68892	PM25991	PM80687	PQ91311
PK28015	PK72206	PM30527	PM81832	PQ94949
PK31478	PK72211	PM30531	PM84816	PQ95259
PK33336	PK72912	PM30600	PM85489	PQ95260
PK33356	PK77013	PM32559	PM90111	PQ96148
PK35604	PK78357	PM33253	PM90853	PQ97094
PK35662	PK80460	PM34477	PM92830	PQ98930
PK42838	PK82582	PM40030	PQ69025	PQ98961
PK44905	PK88857	PM41408	PQ70762	PQ98963

- FMID JARDR1K

PK49393	PK72213	PM04355	PM30610	PM59376
PK54130	PK72924	PM06612	PM32583	PM60372
PK54871	PK77014	PM08503	PM33266	PM65469
PK57117	PK78362	PM11780	PM34479	PM68313
PK59742	PK80462	PM16850	PM40053	PM69388
PK59747	PK82583	PM18580	PM41409	PM72270
PK64632	PK88858	PM19817	PM48022	PM73505
PK64637	PK89042	PM24031	PM51001	PM80695
PK67127	PK90828	PM25996	PM52075	PM90112
PK68897	PM00118	PM30529	PM53009	PM90854
PK72207	PM04351	PM30536	PM57410	PM92831

4.2 Service Level Information

No PTFs against this release of Debug Tool have been incorporated into the product package.

Frequently check the Debug Tool PSP Bucket for HIPER and SPECIAL attention PTFs against all FMIDs that you must install. You can also receive the latest HOLDDATA, then add the **FIXCAT(IBM.PRODUCTINSTALL-REQUIRESERVICE)** operand on your APPLY CHECK command.

This will allow you to review the recommended and critical service that should be installed with your FMIDs.

5.0 Installation Requirements and Considerations

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

- *Driving system*: the system on which SMP/E is executed to install the program.
The program might have specific operating system or product level requirements for using processes, such as binder or assembly utilities during the installation.
- *Target system*: the system on which the program is configured and run.
The program might have specific product level requirements, such as needing access to the library of another product for link-edits. These requirements, either mandatory or optional, might directly affect the element during the installation or in its basic or enhanced operation.

In many cases, you can use a system as both a driving system and a target system. However, you can make a separate IPL-able clone of the running system to use as a target system. The clone must include copies of all system libraries that SMP/E updates, copies of the SMP/E CSI data sets that describe the system libraries, and your PARMLIB and PROCLIB.

Use separate driving and target systems in the following situations:

- When you install a new level of a product that is already installed, the new level of the product will replace the old one. By installing the new level onto a separate target system, you can test the new level and keep the old one in production at the same time.
- When you install a product that shares libraries or load modules with other products, the installation can disrupt the other products. By installing the product onto a separate target system, you can assess these impacts without disrupting your production system.

5.1 Driving System Requirements

This section describes the environment of the driving system required to install Debug Tool.

5.1.1 Machine Requirements

The driving system can run in any hardware environment that supports the required software.

5.1.2 Programming Requirements

Figure 9. Driving System Software Requirements

Program Number	Product Name	Minimum VRM	Minimum Service Level will satisfy these APARs	Included in the shipped product?
Any one of the following:				
5650-ZOS	z/OS	V02.1.00 or later	N/A	No
5694-A01	z/OS	V01.12.0 or later	N/A	No

Note: SMP/E is a requirement for Installation and is an element of z/OS but can also be ordered as a separate product, 5655-G44, minimally V03.05.00.

Note: Installation might require migration to new z/OS releases to be service supported. See http://www-03.ibm.com/systems/z/os/zos/support/zos_eos_dates.html.

5.2 Target System Requirements

This section describes the environment of the target system required to install and use Debug Tool.

Debug Tool installs in the z/OS (Z038) SREL.

5.2.1 Machine Requirements

The target system can run in any hardware environment that supports the required software.

5.2.2 Programming Requirements

5.2.2.1 Installation Requisites

Installation requisites identify products that are required and *must* be present on the system or products that are not required but *should* be present on the system for the successful installation of this product.

Mandatory installation requisites identify products that are required on the system for the successful installation of this product. These products are specified as PREs or REQs.

Figure 10. Target System Mandatory Installation Requisites

Program Number	Product Name	Minimum VRM	Minimum Service Level will satisfy these APARs	Included in the shipped product?
5650-ZOS	z/OS	V02.1.00 or later	N/A	No
5694-A01	z/OS	V1.12.0 or later	N/A	No
<p>Note: Debug Tool V13.1 is tested and supported only for use with the currently supported levels of IBM software and hardware.</p> <p>If your operating system is z/OS V1.11, IBM will undertake to fix any problems that you might encounter when running Debug Tool for z/OS V13.1 on that level of unsupported product. However, IBM must be able to reproduce the problem using a supported level of the same product. If the problem can be reproduced and fixed, the fix will be developed and tested using the supported levels of IBM software. If a fix is made available, it is likely to work on the unsupported product level; however, IBM cannot guarantee that the fix will work in this case.</p>				

Note: Installation might require migration to new z/OS releases to be service supported. See http://www-03.ibm.com/systems/z/os/zos/support/zos_eos_dates.html.

Figure 11 lists the additional service requisites. Install the appropriate PTFs according to the level of your operating system.

Figure 11. Service Requisites for Operating System

FMID	Operating System Level	PTF
HBB7770	z/OS V1.12	UA58696
HDZ1D10	z/OS V1.13	UA65929
HLE7760	z/OS V1.11	UK47789 UK49116 UK49686 UK50816 UK56572 UK56631 UK57880 UK58505 UK60610 UK67011 UK71833 UK72006 UK72296 UK76505 UK76841 UK77503 UK78137 UK80368 UK82908 UK90028 UK91517
HLE7770	z/OS V1.12	UK60611 UK67012 UK71834 UK72007 UK72297 UK76506 UK76842 UK77504 UK78138 UK80369 UK82909 UK90029 UK91518 UK94371
HLE7780	z/OS V1.13	UK71835 UK72082 UK72298 UK76507 UK76843 UK77516 UK78140 UK80370 UK82910 UK91519 UK94372

Conditional installation requisites identify products that are *not* required for successful installation of this product but can resolve such things as certain warning messages at installation time. These products are specified as IF REQs.

Debug Tool has no conditional installation requisites.

5.2.2.2 Operational Requisites

Operational requisites are products that are required and *must* be present on the system or products that are not required but *should* be present on the system for this product to operate all or part of its functions.

Mandatory operational requisites identify products that are required for this product to operate its basic functions. These products are specified as PREs or REQs.

Debug Tool has no mandatory operational requisites.

Conditional operational requisites identify products that are *not* required for this product to operate its basic functions but are required at run time for this product to operate specific functions. These products are specified as IF REQs.

<i>Figure 12 (Page 1 of 2). Target System Conditional Operational Requisites</i>		
Program Number	Product Name and Minimum VRM/Service Level	Function
5696-234	High Level Assembler for MVS & VM & VSE V1.6	Debug of Assembler programs
5724-T07	Rational Developer for System z V8.5.x and V9.0.x	Remote debug on workstation
Any one of the following:		
5655-M15	CICS TS for z/OS V3	CICS support
5655-S97	CICS TS for z/OS V4	CICS support
5655-Y04	CICS TS for z/OS V5.1	CICS support
5722-DFJ	CICS TS for z/OS Value Unit Edition V5.1	CICS support
Any one of the following:		
5635-DB2	DB2 V9 for z/OS	DB2 support
5605-DB2	DB2 10 for z/OS	DB2 support
5615-DB2	DB2 11 for z/OS	DB2 support
5697-P12	DB2 9 for z/OS Value Unit Edition	DB2 support
5697-P31	DB2 10 for z/OS Value Unit Edition	DB2 support
5697-P43	DB2 11 for z/OS Value Unit Edition	DB2 support
Any one of the following:		
5635-A02	IMS V11	IMS support
5635-A03	IMS V12	IMS support
5635-A04	IMS V13	IMS support
5655-DSQ	IMS Database Value Unit Edition, V12	IMS support
5655-DSM	IMS Database Value Unit Edition, V13	IMS support
Any one of the following:		

<i>Figure 12 (Page 2 of 2). Target System Conditional Operational Requisites</i>		
Program Number	Product Name and Minimum VRM/Service Level	Function
5688-216	AD/Cycle C/370 V1.2	Debug of C/370 programs
5655-121	C/C++ for MVS/ESA V3	Debug of C/C++ programs
5694-A01	z/OS V1.12 (or later) C/C++ Element	Debug of C/C++ programs
5650-ZOS	z/OS V2.1 C/C++ Element	Debug of C/C++ programs
Any one of the following:		
5655-H31	IBM Enterprise PL/I for z/OS V3.9	Debug of PL/I programs
5655-W67	IBM Enterprise PL/I for z/OS V4.1 through V4.4	Debug of PL/I programs
Any one of the following:		
5655-G53	IBM Enterprise COBOL for z/OS V3.4	Debug of COBOL programs
5655-S71	IBM Enterprise COBOL for z/OS V4	Debug of COBOL programs
5655-W32	IBM Enterprise COBOL for z/OS V5.1	Debug of COBOL programs
Any one of the following:		
5655-V52	File Manager for z/OS V10.1	Tools for working with z/OS data sets, DB2, CICS and IMS data
5655-W47	File Manager for z/OS V11.1	Tools for working with z/OS data sets, DB2, CICS and IMS data
5655-W68	File Manager for z/OS V12.1	Tools for working with z/OS data sets, DB2, CICS and IMS data
5655-Q12	File Manager for z/OS V13.1	Tools for working with z/OS data sets, DB2, CICS and IMS data
Any one of the following:		
5655-V51	Fault Analyzer for z/OS V10.1	Application abend analysis
5655-W46	Fault Analyzer for z/OS V11.1	Application abend analysis
5655-W69	Fault Analyzer for z/OS V12.1	Application abend analysis
5655-Q11	Fault Analyzer for z/OS V13.1	Application abend analysis

Figure 13 lists the old releases of requisite products that are no longer in service.

IBM will undertake to fix any problems that you might encounter when running Debug Tool for z/OS V13.1 with these unsupported levels. However, IBM must be able to reproduce the problem using a supported level of the same product. If the problem can be reproduced and fixed, the fix will be developed and tested using the supported levels of IBM software. If a fix is made available, it is likely to work on the unsupported product level; however, IBM cannot guarantee that the fix will work in this case.

Figure 13. Unsupported Old-levels of Requisite Products

Program Number	Product Name and Minimum VRM/Service Level	Function
5694-A01	z/OS V1.11	Target system
5696-234	High Level Assembler for MVS & VM & VSE V1.5	Debug of Assembler programs via the disassembly view
5655-147	CICS TS for OS/390 V1.3	CICS support
5697-E93	CICS TS for z/OS V2.2 or V2.3	CICS support
5675-DB2	DB2 UDB for z/OS and OS/390 V7	DB2 support
5625-DB2	DB2 UDB for z/OS V8	DB2 support
5655-J38	IMS V9	IMS support
5635-A01	IMS V10	IMS support
5647-A01	OS/390 V2.10 C/C++ Element	Debug of C/C++ programs
5694-A01	z/OS V1.11 C/C++ Element	Debug of C/C++ programs
5740-CB1	OS/VS COBOL V1.2.4	Debug of COBOL programs (with limitations)
5668-958, 5688-023	VS COBOL II V1.3.1, V1.3.2, V1.4	Debug of COBOL programs (with limitations)
5688-197	IBM COBOL for MVS & VM V1	Debug of COBOL programs
5648-A25	COBOL for OS/390 & VM V2.2	Debug of COBOL programs
5655-G53	IBM Enterprise COBOL for z/OS V3.1 through V3.3	Debug of COBOL programs
5668-909, 5668-910	OS PL/I V2.1, V2.2, V2.3	Debug of PL/I programs (with limitations)
5655-B22	IBM VisualAge PL/I for OS/390 V2	Debug of PL/I programs
5688-235	IBM PL/I for MVS and VM V1.1.1	Debug of PL/I programs
5655-H31	Enterprise PL/I for z/OS V3.1 through V3.8	Debug of PL/I programs

Figure 14 lists the additional service requisites. Install the appropriate PTFs according to the subsystems and compilers at your site.

Figure 14 (Page 1 of 3). Service Requisites for Subsystem and Compiler

FMID	Subsystem/Compiler	PTF
HCI5300	CICS Transaction Server for OS/390 V1.3	UQ81716 UQ82557
HCI6200	CICS Transaction Server for z/OS V2.2	UQ81557 UQ82628
HCI6300	CICS Transaction Server for z/OS V2.3	UQ83866 UQ83946 UK22257 UK25447 UK31617

Figure 14 (Page 2 of 3). Service Requisites for Subsystem and Compiler

FMID	Subsystem/Compiler	PTF
HCI6400	CICS Transaction Server for z/OS V3.1	UK11717 UK18764 UK21469 UK25495 UK31566 UK33555 UK39008 UK40994
HCI6500	CICS Transaction Server for z/OS V3.2	UK27838 UK31567 UK33556 UK39009 UK40995 UK48737
HCI6600	CICS Transaction Server for z/OS V4.1	UK48726 UK62906
HDB7710	DB2 UDB for z/OS and OS/390 V7	UQ57178
HLB7760	z/OS V1.11 XL C/C++ Base	UK51669 UK51670 UK51671
HMQ4150	High Level Assembler for MVS & VM & VSE V1.5	UK33757 UK40904 UK42558 UK59303
HMQ4160	High Level Assembler for MVS & VM & VSE V1.6	UK47103 UK59311
HTV7760	z/OS 1.11 Run-Time Library Extension	UK48773 UK51673 UK51674 UK51803 UK52065 UK59787
H249100	COBOL for OS/390 & VM V2.1	UQ46089 UQ71481 UQ72384
H249200	COBOL for OS/390 & VM V2.2	UQ71482 UQ72385
H26L310	Enterprise COBOL for z/OS and OS/390 V3.1	UQ72888
H26L320	Enterprise COBOL for z/OS and OS/390 V3.2	UK02152 UQ84365
H26L330	Enterprise COBOL for z/OS V3.3	UK02153
H270310	Enterprise PL/I for z/OS and OS/390 V3.1	UQ71463 UQ83139 UQ83548 UQ84228
H270320	Enterprise PL/I for z/OS and OS/390 V3.2	UK01924 UQ71704 UQ82334 UQ83140 UQ83549 UQ84229 UQ96869
H270330	Enterprise PL/I for z/OS V3.3	UK01925 UQ83141 UQ83550 UQ84230 UQ85850 UQ91552 UQ96870
H270340	Enterprise PL/I for z/OS V3.4	UK00175 UK01048 UK01926 UK01955 UK30598 UQ96871
H270350	Enterprise PL/I for z/OS V3.5	UK20097 UK20187 UK22224 UK29177 UK30599
H270360	Enterprise PL/I for z/OS V3.6	UK20098 UK21916 UK22225 UK29178 UK30600 UK31028 UK39549
H270370	Enterprise PL/I for z/OS V3.7	UK31095 UK39550 UK44456
H270380	Enterprise PL/I for z/OS V3.8	UK44457
J249101	COBOL for OS/390 & VM V2.1 (Mixed-case English)	UQ46090
J249102	COBOL for OS/390 & VM V2.1 (JPN)	UQ46091

Figure 14 (Page 3 of 3). Service Requisites for Subsystem and Compiler

FMID	Subsystem/Compiler	PTF
JTV776J	z/OS 1.11 Run-Time Library Extensions Jpn	UK52024

The Coverage Utility support requires the use of one of the following compilers:

- C/C++ feature of OS/390 V2.6 through V2.10 (5647-A01)
- OS/VS COBOL V1.2.4 (5740-CB1)
- VS COBOL II V1.4.0 (5688-958, 5688-023)
- COBOL for MVS & VM V1.2 (5688-197)
- COBOL for OS/390 & VM V2 (5648-A25)
- Enterprise COBOL for z/OS V3 (5655-G53)
- Enterprise COBOL for z/OS V4 (5655-S71)
- Enterprise COBOL for z/OS V5 (5655-W32)
- Assembler H V2 (5668-962)
- High Level Assembler/MVS & VM & VSE V1.2 through V1.6 (5696-234)
- OS PL/I V1.5.1 (5734-PL1, 5734-PL3)
- OS PL/I V2.3 (5688-909, 5688-910)
- VisualAge PL/I for OS/390 V2.2 (5655-B22)
- IBM PL/I for MVS and VM V1.1.1 (5688-235)
- Enterprise PL/I for z/OS V3 (5655-H31)
- Enterprise PL/I for z/OS V4 (5655-W67)

5.2.2.3 Toleration/Coexistence Requisites

Toleration/coexistence requisites identify products that must be present on sharing systems. These systems can be other systems in a multisystem environment (not necessarily sysplex), a shared DASD environment (such as test and production), or systems that reuse the same DASD environment at different time intervals.

Debug Tool has no toleration/coexistence requisites.

5.2.2.4 Incompatibility (Negative) Requisites

Negative requisites identify products that must *not* be installed on the same system as this product.

Debug Tool has no negative requisites.

5.2.3 DASD Storage Requirements

Debug Tool libraries can reside on all supported DASD types.

Figure 15 on page 23 lists the total space that is required for each type of library.

<i>Figure 15. Total DASD Space Required by Debug Tool -- Base</i>	
Library Type	Total Space Required in 3390 Trks
Target	822
Distribution	829

<i>Figure 16. Total DASD Space Required by Debug Tool -- Japanese</i>	
Library Type	Total Space Required in 3390 Trks
Target	115
Distribution	100

<i>Figure 17. Total DASD Space Required by Debug Tool -- Korean</i>	
Library Type	Total Space Required in 3390 Trks
Target	115
Distribution	100

Notes:

- For non-RECFM U data sets, IBM recommends using system-determined block sizes for efficient DASD utilization. For RECFM U data sets, IBM recommends using a block size of 32760, which is most efficient from the performance and DASD utilization perspective.
- Abbreviations used for data set types are shown as follows.
 - U** Unique data set, allocated by this product and used by only this product. This table provides all the required information to determine the correct storage for this data set. You do not need to refer to other tables or program directories for the data set size.
 - S** Shared data set, allocated by this product and used by this product and other products. To determine the correct storage needed for this data set, add the storage size given in this table to those given in other tables (perhaps in other program directories). If the data set already exists, it must have enough free space to accommodate the storage size given in this table.

E Existing shared data set, used by this product and other products. This data set is *not* allocated by this product. To determine the correct storage for this data set, add the storage size given in this table to those given in other tables (perhaps in other program directories). If the data set already exists, it must have enough free space to accommodate the storage size given in this table.

If you currently have a previous release of this product installed in these libraries, the installation of this release will delete the old release and reclaim the space that was used by the old release and any service that had been installed. You can determine whether these libraries have enough space by deleting the old release with a dummy function, compressing the libraries, and comparing the space requirements with the free space in the libraries.

For more information about the names and sizes of the required data sets, see 6.1.8, "Allocate SMP/E Target and Distribution Libraries" on page 34.

3. All target and distribution libraries listed have the following attributes:

- The default name of the data set can be changed.
- The default block size of the data set can be changed.
- The data set can be merged with another data set that has equivalent characteristics.
- The data set can be either a PDS or a PDSE, with following exceptions:
 - SEQALPA and SEQAMOD must be PDSs.

4. All target libraries listed have the following attributes:

- These data sets can be SMS-managed, but they are not required to be SMS-managed.
- These data sets are not required to reside on the IPL volume.
- The values in the "Member Type" column are not necessarily the actual SMP/E element types that are identified in the SMPMCS.

The following figures describe the target and distribution libraries and file system paths required to install Debug Tool. The storage requirements of Debug Tool must be added to the storage required by other programs that have data in the same library or path.

Note: Use the data in these tables to determine which libraries can be merged into common data sets. In addition, since some ALIAS names may not be unique, ensure that no naming conflicts will be introduced before merging libraries.

Figure 18 (Page 1 of 2). Storage Requirements for Debug Tool Target Libraries -- Base

Library DDNAME	Member Type	Target Volume	T Y P E	O R G	R E C E M	L R E C L	No. of 3390 Trks	No. of DIR Blks
SEQALPA	LMOD	ANY	U	PDS	U	0	1	2
SEQAAUTH	LMOD	ANY	U	PDS	U	0	5	4
SEQAMOD	LMOD	ANY	U	PDS	U	0	451	50
SEQABMOD	LMOD	ANY	U	PDS	U	0	7	5

Figure 18 (Page 2 of 2). Storage Requirements for Debug Tool Target Libraries -- Base

Library DDNAME	Member Type	Target Volume	T Y P E	O R G	R E C F M	L R E C L	No. of 3390 Trks	No. of DIR Blks
SEQASAMP	Sample	ANY	U	PDS	FB	80	72	25
SEQAEXEC	EXEC	ANY	U	PDS	FB	80	107	12
SEQAMENU	Message	ANY	U	PDS	FB	80	1	2
SEQAPENU	Panel	ANY	U	PDS	FB	80	79	55
SEQASENU	Skeleton	ANY	U	PDS	FB	80	8	5
SEQATLIB	Table	ANY	U	PDS	FB	80	4	2
SEQAMENP	Message	ANY	U	PDS	FB	80	1	2
SEQAPENP	Panel	ANY	U	PDS	FB	80	79	55
SEQASENP	Skeleton	ANY	U	PDS	FB	80	8	5

- SEQAMENU, SEQAPENU, and SEQASENU are ISPF libraries in mixed-case English.
- SEQAMENP, SEQAPENP, and SEQASENP are ISPF libraries in uppercase English.
- See section "Choosing a method to start Debug Tool Utilities" in chapter "Customizing Debug Tool Utilities" in the *Debug Tool Customization Guide*, SC14-7601, for additional considerations if you want to merge these ISPF libraries into the common system libraries.

Figure 19. Storage Requirements for Debug Tool Target Libraries -- Japanese

Library DDNAME	Member Type	Target Volume	T Y P E	O R G	R E C F M	L R E C L	No. of 3390 Trks	No. of DIR Blks
SEQAMOD	LMOD	ANY	S	PDS	U	0	10	5
SEQABMOD	LMOD	ANY	S	PDS	U	0	4	3
SEQASAMP	Sample	ANY	S	PDS	FB	80	4	3
SEQAEXEC	EXEC	ANY	S	PDS	FB	80	5	3
SEQAMJPN	Message	ANY	U	PDS	FB	80	1	2
SEQAPJPN	Panel	ANY	U	PDS	FB	80	79	55
SEQASJPN	Skeleton	ANY	U	PDS	FB	80	8	5

- SEQAMJPN, SEQAPJPN, and SEQASJPN are ISPF libraries in Japanese.

- See section "Choosing a method to start Debug Tool Utilities" in chapter "Customizing Debug Tool Utilities" in the *Debug Tool Customization Guide* for additional considerations if you want to merge these ISPF libraries into the common system libraries.

Figure 20. Storage Requirements for Debug Tool Target Libraries -- Korean

Library DDNAME	Member Type	Target Volume	T Y P E	O R G	R E C F M	L R E C L	No. of 3390 Trks	No. of DIR Blks
SEQAMOD	LMOD	ANY	S	PDS	U	0	10	5
SEQABMOD	LMOD	ANY	S	PDS	U	0	4	3
SEQASAMP	Sample	ANY	S	PDS	FB	80	4	3
SEQAEXEC	EXEC	ANY	S	PDS	FB	80	5	3
SEQAMKOR	Message	ANY	U	PDS	FB	80	1	2
SEQAPKOR	Panel	ANY	U	PDS	FB	80	79	55
SEQASKOR	Skeleton	ANY	U	PDS	FB	80	8	5

- SEQAMKOR, SEQAPKOR, and SEQASKOR are ISPF libraries in Korean.
- See section "Choosing a method to start Debug Tool Utilities" in chapter "Customizing Debug Tool Utilities" in the *Debug Tool Customization Guide* for additional considerations if you want to merge these ISPF libraries into the common system libraries.

Figure 21. Storage Requirements for Debug Tool Distribution Libraries -- Base

Library DDNAME	T Y P E	O R G	R E C F M	L R E C L	No. of 3390 Trks	No. of DIR Blks
AEQAMOD	U	PDS	U	0	470	160
AEQASAMP	U	PDS	FB	80	72	25
AEQAEXEC	U	PDS	FB	80	107	12
AEQAMENU	U	PDS	FB	80	1	2
AEQAPENU	U	PDS	FB	80	79	55
AEQASENU	U	PDS	FB	80	8	5
AEQATLIB	U	PDS	FB	80	4	2
AEQAMENP	U	PDS	FB	80	1	2
AEQAPENP	U	PDS	FB	80	79	55
AEQASENP	U	PDS	FB	80	8	5

- AEQAMENU, AEQAPENU, and AEQASENU are ISPF libraries in mixed-case English.
- AEQAMENP, AEQAPENP, and AEQASENP are ISPF libraries in uppercase English.

Figure 22. Storage Requirements for Debug Tool Distribution Libraries - Japanese

Library DDNAME	T Y P E	O R G	R E C F M	L R E C L	No. of 3390 Trks	No. of DIR Blks
AEQAMOD	S	PDS	U	0	5	3
AEQASAMP	S	PDS	FB	80	3	2
AEQAEXEC	S	PDS	FB	80	3	2
AEQAMJPN	U	PDS	FB	80	1	2
AEQAPJPN	U	PDS	FB	80	79	55
AEQASJPN	U	PDS	FB	80	8	5

- AEQAMJPN, AEQAPJPN, and AEQASJPN are ISPF libraries in Japanese.

Figure 23. Storage Requirements for Debug Tool Distribution Libraries -- Korean

Library DDNAME	T Y P E	O R G	R E C F M	L R E C L	No. of 3390 Trks	No. of DIR Blks
AEQAMOD	S	PDS	U	0	5	3
AEQASAMP	S	PDS	FB	80	3	2
AEQAEXEC	S	PDS	FB	80	3	2
AEQAMKOR	U	PDS	FB	80	1	2
AEQAPKOR	U	PDS	FB	80	79	55
AEQASKOR	U	PDS	FB	80	8	5

- AEQAMKOR, AEQAPKOR, and AEQASKOR are ISPF libraries in Korean.

5.3 FMIDs Deleted

Installing Debug Tool might result in the deletion of other FMIDs. To see which FMIDs will be deleted, examine the ++VER statement in the SMPMCS of the product.

If you do not want to delete these FMIDs at this time, install Debug Tool into separate SMP/E target and distribution zones.

Note: These FMIDs are not automatically deleted from the Global Zone. If you want to delete these FMIDs from the Global Zone, use the SMP/E REJECT NOFMID DELETEFMID command. See the SMP/E Commands book for details.

5.4 Special Considerations

Debug Tool has no special considerations for the target system.

5.4.1 Debug Tool Base

Target libraries that contain load modules have some special considerations. After you have successfully installed the product, do the following steps:

- Place SEQALPA in the LPA list by adding it to an LPALSTxx member of parmlib that will be used for IPL.
- Place SEQABMOD in the link list by adding a LNKLST ADD statement for it to a PROGxx member of parmlib that will be used for IPL.
- APF-authorize SEQAAUTH and SEQABMOD by adding APF ADD statements for them to a PROGxx member of parmlib that will be used for IPL. The other load module data sets can be APF-authorized, but it is not required.
- To prevent unauthorized execution of the AC(1) programs in the APF-authorized data set hlq.SEQAAUTH, ensure that hlq.SEQAAUTH is access-controlled. The AC(1) programs are:
 - EQAINSVC, which installs the Debug Tool SVCs.
 - EQACUOIN, which installs the Debug Tool Coverage Utility SVCs.
 - EQAYSESM, which is the Debug Tool Terminal Interface Manager.
- For ease of access by the users, you can place SEQAMOD in the link list by adding a LNKLST ADD statement for it to a PROGxx member of parmlib that will be used for IPL.
- A portion of SEQAMOD can be placed in the MLPA. See the sample parmlib update in EQAWMLP2 in hlq.SEQASAMP for more information.

6.0 Installation Instructions

This chapter describes the installation method and the step-by-step procedures to install and to activate the functions of Debug Tool.

Please note the following points:

- If you want to install Debug Tool into its own SMP/E environment, consult the SMP/E manuals for instructions on creating and initializing the SMPCSI and the SMP/E control data sets.
- You can use the sample jobs that are provided to perform part or all of the installation tasks. The SMP/E jobs assume that all DDDEF entries that are required for SMP/E execution have been defined in appropriate zones.
- You can use the SMP/E dialogs instead of the sample jobs to accomplish the SMP/E installation steps.

6.1 Installing Debug Tool

6.1.1 SMP/E Considerations for Installing Debug Tool

Use the SMP/E RECEIVE, APPLY, and ACCEPT commands to install this release of Debug Tool.

6.1.2 SMP/E Options Subentry Values

The recommended values for certain SMP/E CSI subentries are shown in Figure 24. Using values lower than the recommended values can result in failures in the installation. 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.

Subentry	Value	Comment
DSSPACE	300,150,250	Space allocation for SMPTLIB data sets
PEMAX	SMP/E Default	IBM recommends using the SMP/E default for PEMAX.

6.1.3 SMP/E CALLLIBS Processing

Debug Tool uses the CALLLIBS function provided in SMP/E to resolve external references during installation. When Debug Tool is installed, ensure that DDDEFs exist for the following libraries:

- SCEELKED
- CSSLIB
- SEZATCP

Note: CALLLIBS uses the previous DDDEFs only to resolve the link-edit for Debug Tool. These data sets are not updated during the installation of Debug Tool.

6.1.4 Sample Jobs

The following sample installation jobs are provided as part of the product to help you install Debug Tool:

Figure 25. Sample Installation Jobs -- for Debug Tool Base

Job Name	Job Type	Description	RELFILE
EQAWEDIT	MACRO	ISPF Editor macro to aid users in making changes to the sample jobs (optional)	IBM.HADR10.F1
EQAWSMPE	SMP/E	Sample job to define and prime a new SMP/E CSI (optional)	IBM.HADR10.F1
EQAWRECV	RECEIVE	Sample RECEIVE job	IBM.HADR10.F1
EQAWALOC	ALLOCATE	Sample job to allocate target and distribution libraries	IBM.HADR10.F1
EQAWDDEF	DDDEF	Sample job to define SMP/E DDDEFs	IBM.HADR10.F1
EQAWAPLY	APPLY	Sample APPLY job	IBM.HADR10.F1
EQAWACPT	ACCEPT	Sample ACCEPT job	IBM.HADR10.F1
EQAWRPXZ	SMP/E	Sample REPORT CROSSZONE job	IBM.HADR10.F1

Figure 26. Sample Installation Jobs -- for Debug Tool Japanese

Job Name	Job Type	Description	RELFILE
EQAWEDIJ	MACRO	ISPF Editor macro to aid users in making changes to the sample jobs (optional)	IBM.JADR1J.F1
EQAWRECJ	RECEIVE	Sample RECEIVE job	IBM.JADR1J.F1
EQAWALOJ	ALLOCATE	Sample job to allocate target and distribution libraries	IBM.JADR1J.F1
EQAWDEFJ	DDDEF	Sample job to define SMP/E DDDEFs	IBM.JADR1J.F1
EQAWAPLJ	APPLY	Sample APPLY job	IBM.JADR1J.F1
EQAWACPJ	ACCEPT	Sample ACCEPT job	IBM.JADR1J.F1

Figure 27 (Page 1 of 2). Sample Installation Jobs -- for Debug Tool Korean

Job Name	Job Type	Description	RELFILE
EQAWEDIK	MACRO	ISPF Editor macro to aid users in making changes to the sample jobs (optional)	IBM.JADR1K.F1
EQAWRECK	RECEIVE	Sample RECEIVE job	IBM.JADR1K.F1
EQAWALOK	ALLOCATE	Sample job to allocate target and distribution libraries	IBM.JADR1K.F1

Figure 27 (Page 2 of 2). Sample Installation Jobs -- for Debug Tool Korean

Job Name	Job Type	Description	RELFILE
EQAWDEFK	DDDEF	Sample job to define SMP/E DDDEFs	IBM.JADRD1K.F1
EQAWAPLK	APPLY	Sample APPLY job	IBM.JADRD1K.F1
EQAWACPK	ACCEPT	Sample ACCEPT job	IBM.JADRD1K.F1

You can access the sample installation jobs by performing an SMP/E RECEIVE (refer to 6.1.7, “Perform SMP/E RECEIVE” on page 34) then copy the jobs from the RELFILES to a work data set for editing and submission. See Figure 25 on page 30 to find the appropriate relfile data set.

You can also copy the sample installation jobs from the tape or product files by submitting the following jobs. Depending on your distribution medium, use either the //TAPEIN or the //FILEIN DD statement and comment out or delete the other statement. Before you submit the jobs, add a job card and change the lowercase parameters to uppercase values to meet the requirements of your site.

To copy the sample jobs for the Debug Tool Base, use this JCL.

```
//BASEJOBS EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=*
//TAPEIN DD DSN=IBM.HADR10.F1,UNIT=tunit,
// VOL=SER=volser,LABEL=(x,SL),
// DISP=(OLD,KEEP)
//FILEIN DD DSN=IBM.HADR10.F1,UNIT=SYSALLDA,DISP=SHR,
// VOL=SER=filevol
//OUT DD DSNAME=jcl-library-name,
// DISP=(NEW,CATLG,DELETE),
// VOL=SER=dasdvol,UNIT=SYSALLDA,
// SPACE=(TRK,(5,1,2))
//SYSUT3 DD UNIT=SYSALLDA,SPACE=(CYL,(1,1))
//SYSIN DD *
COPY INDD=xxxxIN,OUTDD=OUT
SELECT MEMBER=(EQAWEDIT,EQAWSMPE,EQAWALOC,EQAWDDEF)
SELECT MEMBER=(EQAWRECV,EQAWAPLY,EQAWACPT,EQAWRPXZ)
/*
```

To copy the sample jobs for the Debug Tool JPN feature, use this JCL.

```
//JPNJOBS JOB <job parameters>
//STEP1 EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=*
//TAPEIN DD DSN=IBM.JADRD1J.F1,UNIT=tunit,
// VOL=SER=volser,LABEL=(x,SL),
// DISP=(OLD,KEEP)
//FILEIN DD DSN=IBM.JADRD1J.F1,UNIT=SYSALLDA,DISP=SHR,
// VOL=SER=filevol
//OUT DD DSN=jcl-library-name2,
// DISP=(NEW,CATLG,DELETE),
```

```

//          VOL=SER=dasdvol,UNIT=SYSALLDA,
//          SPACE=(TRK,(5,1,2))
//SYSUT3   DD UNIT=SYSALLDA,SPACE=(CYL,(1,1))
//SYSIN    DD *
          COPY INDD=xxxxIN,OUTDD=OUT
          SELECT MEMBER=(EQAWEDIJ,EQAWALQJ,EQAWDEFJ)
          SELECT MEMBER=(EQAWRECJ,EQAWAPLJ,EQAWACPJ)
/*

```

To copy the sample jobs for the Debug Tool KOR feature, use this JCL.

```

//KORJOBS  JOB <job parameters>
//STEP1    EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=*
//TAPEIN   DD DSN=IBM.JADRD1K.F1,UNIT=tunit,
//          VOL=SER=volser,LABEL=(x,SL),
//          DISP=(OLD,KEEP)
//FILEIN   DD DSN=IBM.JADRD1K.F1,UNIT=SYSALLDA,DISP=SHR,
//          VOL=SER=filevol
//OUT      DD DSN=jcl-library-name3,
//          DISP=(NEW,CATLG,DELETE),
//          VOL=SER=dasdvol,UNIT=SYSALLDA,
//          SPACE=(TRK,(5,1,2))
//SYSUT3   DD UNIT=SYSALLDA,SPACE=(CYL,(1,1))
//SYSIN    DD *
          COPY INDD=xxxxIN,OUTDD=OUT
          SELECT MEMBER=(EQAWEDIK,EQAWALOK,EQAWDEFK)
          SELECT MEMBER=(EQAWRECK,EQAWAPLK,EQAWACPK)
/*

```

See the following information to update the statements in the previous sample:

TAPEIN:

tunit is the unit value that matches the product package.

volser is the volume serial that matches the product package.

x is the tape file number that indicates the location of the data set name on the tape.

See the documentation that is provided by CBPDO for the locations of IBM.HADRD10.F1, IBM.JADRD1J.F1, and IBM.JADRD1K.F1 on the tape.

FILEIN:

filevol is the volume serial of the DASD device where the downloaded files reside.

OUT:

jcl-library-name1, **jcl-library-name2**, and **jcl-library-name3** are the names of the output data sets where the sample jobs are stored.

dasdvol is the volume serial of the DASD device where the output data set resides.

SYSIN:

xxxxIN is either TAPEIN or FILEIN depending on your input DD statement.

6.1.5 Set up ISPF Editor Macro (Optional)

To aid you in making changes to the Debug Tool SMP/E installation jobs:

- EQAWSMPE, EQAWRECV, EQAWALOC, EQAWDDEF, EQAWAPLY, and EQAWACPT for the base product
- EQAWRECJ, EQAWALOJ, EQAWDEFJ, EQAWAPLJ, and EQAWACPJ for the Japanese feature
- EQAWRECK, EQAWALOK, EQAWDEFK, EQAWAPLK, and EQAWACPK for the Korean feature

three ISPF editor macros called EQAWEDIT, EQAWEDIJ, and EQAWEDIK are copied to your output data sets **jcl-library-name1** in job BASEJOBS, **jcl-library-name2** in job JPNJOBS, and **jcl-library-name3** in job KORJOBS above.

Use EQAWEDIT in **jcl-library-name1** if you install only the base product. Use EQAWEDIJ in **jcl-library-name2** if you install both the base and the Japanese feature. Use EQAWEDIK in **jcl-library-name3** if you install both the base and the Korean feature.

These macros let you substitute proper values for all of the required variables in those jobs instead of having you make the changes repeatedly by hand.

Edit macro EQAWEDIT, EQAWEDIJ, or EQAWEDIK and provide the proper values. Consult the instructions in the macro for more information.

After making the changes, either copy EQAWEDIT, EQAWEDIJ, or EQAWEDIK to any data set in your TSO logon procedure SYSEXEC concatenation, or issue the commands below to make EQAWEDIT, EQAWEDIJ, or EQAWEDIK immediately accessible to your current ISPF session:

From ISPF option 6, issue:

```
ALLOCATE FI(SYSUEXEC) DA('dsn') SHR REU
  where dsn is jcl-library-name1, jcl-library-name2
  or jcl-library-name3, depending on where your updated
  EQAWEDIT, EQAWEDIJ, or EQAWEDIK resides.
ALTLIB ACTIVATE USER(EXEC)
```

Then edit your installation jobs from this ISPF session.

Consult the instructions in the macro on how to invoke it.

6.1.6 Allocate and Initialize the SMP/E Data Sets (Optional)

You can install Debug Tool in the same SMP/E zone as z/OS V2.1, or z/OS V1.12.0 (or later) or in a different zone.

- If you install into existing SMP/E data sets, ensure that you have enough space.
- If you plan to install into an existing zone, the cluster should have already been allocated and primed. You can go on to the next step to perform an SMP/E RECEIVE.
- To install into a new zone, edit and submit sample job EQAWSMPE to define and prime a new SMP/E CSI cluster. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages: You will receive a return code of 0 if the job runs correctly.

6.1.7 Perform SMP/E RECEIVE

If you have obtained Debug Tool as part of a CBPDO, use the RCVPDO job in the CBPDO RIMLIB data set to receive the Debug Tool FMIDs, service, and HOLDDATA that are included on the CBPDO package. For more information, see the documentation that is included in the CBPDO.

You can also choose to edit and submit sample job EQAWRECV to perform the SMP/E RECEIVE for Debug Tool. Consult the instructions in the sample job for more information.

If your order contains the Japanese feature, edit and submit sample job EQAWRECJ to perform the SMP/E RECEIVE for that feature. Consult the instructions in the sample job for more information.

If your order contains the Korean feature, edit and submit sample job EQAWRECK to perform the SMP/E RECEIVE for that feature. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages: You will receive return codes of 0s if all jobs run correctly.

6.1.8 Allocate SMP/E Target and Distribution Libraries

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

If your order contains the Japanese feature, edit and submit sample job EQAWALOJ to allocate the target and distribution libraries for that feature. Consult the instructions in the sample job for more information.

If your order contains the Korean feature, edit and submit sample job EQAWALOK to allocate the target and distribution libraries for that feature. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages: You will receive a return code of 0 if the job runs correctly.

6.1.9 Create DDDEF Entries

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

If your order contains the Japanese feature, edit and submit sample job EQAWDEFJ to create DDDEF entries for that feature. Consult the instructions in the sample job for more information.

If your order contains the Korean feature, edit and submit sample job EQAWDEFK to create DDDEF entries for that feature. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages: You will receive a return code of 0 if the job runs correctly.

6.1.10 Perform SMP/E APPLY

1. Ensure that you have the latest HOLDDATA; then edit and submit sample job EQAWAPLY to perform an SMP/E APPLY CHECK for Debug Tool. Consult the instructions in the sample job for more information.

If your order contains the Japanese feature, edit and submit sample job EQAWAPLJ to perform an SMP/E APPLY CHECK for that feature. Consult the instructions in the sample job for more information.

If your order contains the Korean feature, edit and submit sample job EQAWAPLK to perform an SMP/E APPLY CHECK for that feature. Consult the instructions in the sample job for more information.

The latest HOLDDATA is available through several different portals, including <http://service.software.ibm.com/holdata/390holddata.html>. The latest HOLDDATA may identify HIPER and FIXCAT APARs for the FMIDs you will be installing. An APPLY CHECK will help you determine if any HIPER or FIXCAT APARs are applicable to the FMIDs you are installing. If there are any applicable HIPER or FIXCAT APARs, the APPLY CHECK will also identify fixing PTFs that will resolve the APARs, if a fixing PTF is available.

You should install the FMIDs regardless of the status of unresolved HIPER or FIXCAT APARs. However, do not deploy the software until the unresolved HIPER and FIXCAT APARs have been analyzed to determine their applicability. That is, before deploying the software either ensure fixing PTFs are applied to resolve all HIPER or FIXCAT APARs, or ensure the problems reported by all HIPER or FIXCAT APARs are not applicable to your environment.

To receive the full benefit of the SMP/E Causer SYSMOD Summary Report, do *not* bypass the PRE, ID, REQ, and IFREQ on the APPLY CHECK. The SMP/E root cause analysis identifies the cause only of *errors* and not of *warnings* (SMP/E treats bypassed PRE, ID, REQ, and IFREQ conditions as warnings, instead of errors).

Here are sample APPLY commands:

- a. To ensure that all recommended and critical service is installed with the FMIDs, receive the latest HOLDDATA and use the APPLY CHECK command as follows

```
APPLY S(fmid,fmid,...) CHECK
FORFMID(fmid,fmid,...)
SOURCEID(RSU*)
FIXCAT(IBM.ProductInstall-RequiredService)
GROUPEXTEND .
```

Some HIPER APARs might not have fixing PTFs available yet. You should analyze the symptom flags for the unresolved HIPER APARs to determine if the reported problem is applicable to your environment and if you should bypass the specific ERROR HOLDS in order to continue the installation of the FMIDs.

This method requires more initial research, but can provide resolution for all HIPERs that have fixing PTFs available and are not in a PE chain. Unresolved PEs or HIPERs might still exist and require the use of BYPASS.

- b. To install the FMIDs without regard for unresolved HIPER APARs, you can add the BYPASS(HOLDCLASS(HIPER)) operand to the APPLY CHECK command. This will allow you to install FMIDs even though one or more unresolved HIPER APARs exist. After the FMIDs are installed, use the SMP/E REPORT ERRSYSMODS command to identify unresolved HIPER APARs and any fixing PTFs.

```
APPLY S(fmid,fmid,...) CHECK
FORFMID(fmid,fmid,...)
SOURCEID(RSU*)
FIXCAT(IBM.ProductInstall-RequiredService)
GROUPEXTEND
BYPASS(HOLDCLASS(HIPER)) .
..any other parameters documented in the program directory
```

This method is the quicker, but requires subsequent review of the Exception SYSMOD report produced by the REPORT ERRSYSMODS command to investigate any unresolved HIPERs. If you have received the latest HOLDDATA, you can also choose to use the REPORT MISSINGFIX command and specify Fix Category IBM.ProductInstall-RequiredService to investigate missing recommended service.

If you bypass HOLDS during the installation of the FMIDs because fixing PTFs are not yet available, you can be notified when the fixing PTFs are available by using the APAR Status Tracking (AST) function of ServiceLink or the APAR Tracking function of ResourceLink.

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

Note: The GROUPEXTEND operand indicates that SMP/E applies all requisite SYSMODs. The requisite SYSMODs might be applicable to other functions.

Expected Return Codes and Messages from APPLY CHECK: You will receive a return code of 0 if this job runs correctly.

Expected Return Codes and Messages from APPLY: You will receive a return code of 0 if this job runs correctly.

6.1.11 Enable/Register Debug Tool

Ensure that you enable/register Debug Tool before running any applications or any of the Installation Verification Programs below.

If you purchased Debug Tool as part of product code 5655-PDS, IBM Problem Determination Solution Pack for z/OS, and have not already done so for another tool in product code 5655-PDS, include an entry in the IFAPRDxx parmlib member as follows:

```
PRODUCT OWNER('IBM CORP')
NAME('IBM PD SOLTN PAC')
ID(5655-PDS)
VERSION(*) RELEASE(*) MOD(*)
FEATURENAME('PROB-DET-SOL-PAC')
STATE(ENABLED)
```

Sample registration parmlib entry EQAWIFAS, which contains the above statements, is provided in your hlq.SEQASAMP data set.

If you purchased Debug Tool as part of product code 5655-DTS, IBM Problem Determination Testing Solution Pack for z/OS, and have not already done so for another tool in product code 5655-DTS, include an entry in the IFAPRDxx parmlib member as follows:

```
PRODUCT OWNER('IBM CORP')
NAME('IBM PD TS SO PAC')
ID(5655-DTS)
VERSION(*) RELEASE(*) MOD(*)
FEATURENAME('PR-DE-SOL-TS-PAC')
STATE(ENABLED)
```

Sample registration parmlib entry EQAWIFAT, which contains the above statements, is provided in your hlq.SEQASAMP data set.

If you purchased Debug Tool as part of product code 5655-DMS, IBM Problem Determination Modernization Solution Pack for z/OS, and have not already done so for another tool in product code 5655-DMS, include an entry in the IFAPRDxx parmlib member as follows:

```
PRODUCT OWNER('IBM CORP')
NAME('IBM PD MD SO PAC')
ID(5655-DMS)
VERSION(*) RELEASE(*) MOD(*)
FEATURENAME('PR-DE-MD-SOL-PAC')
STATE(ENABLED)
```

Sample registration parmlib entry EQAWIFAM, which contains the above statements, is provided in your hlq.SEQASAMP data set.

If you purchased Debug Tool as part of product code 5697-CDT, IBM Enterprise COBOL Suite for z/OS, you can set up product registration in one of two ways.

You can use a common product registration for all the tools in 5697-CDT. In this case, code this once in the IFAPRDxx parmlib member to allow all the tools to run:

```
PRODUCT OWNER('IBM CORP')
NAME('IBM COBOL SUITE')
ID(5697-CDT)
VERSION(*) RELEASE(*) MOD(*)
FEATURENAME(*)
STATE(ENABLED)
```

Or, you can choose to register each product individually. In this case, code this in the IFAPRDxx parmlib member for Debug Tool:

```
PRODUCT OWNER('IBM CORP')
NAME('IBM COBOL SUITE')
ID(5697-CDT)
VERSION(*) RELEASE(*) MOD(*)
FEATURENAME('DEBUG-TOOL')
STATE(ENABLED)
```

Sample registration parmlib entry EQAWIFAC, which contains the above statements, is provided in your hlq.SEQASAMP data set.

If you purchased Debug Tool directly, include an entry for Debug Tool in the IFAPRDxx parmlib member as follows:

```
PRODUCT OWNER('IBM CORP')
NAME('IBM DEBUG TOOL')
ID(5655-Q10)
VERSION(*) RELEASE(*) MOD(*)
FEATURENAME('IBM-DEBUG')
STATE(ENABLED)
```

Sample registration parmlib entry EQAWIFA, which contains the above statements, is provided in your hlq.SEQASAMP data set.

Update your IFAPRDxx member with the information shown in one of the above listed sample registration parmlib entries.

After you have updated IFAPRDxx, issue the SET PROD=xx operator command. Debug Tool will then be enabled in your z/OS environment.

6.1.12 Disable Old Debug Tool Registration

It is recommended that you remove all old registration entries that belonged to Debug Tool or Debug Tool Utilities and Advanced Functions. To remove old registration entries, do the following two steps:

1. Change the STATE(ENABLED) parameter for the old entries in IFAPRDxx parmlib to STATE(NOTDEFINED). Then issue a SET PROD=xx operator command.
2. Remove the old entries from IFAPRDxx.

6.1.13 Run the Installation Verification Programs (IVPs)

Some IVPs require that certain PTFs be applied before you can successfully run them. To find the requisite PTFs, run the REPORT CROSSZONE job as shown in section 6.1.16, "Run REPORT CROSSZONE" on page 43.

Some IVPs also require certain customization to the product before you can successfully run them. See the specific information in each table below.

Depending on the compiler languages (COBOL, C, PL/I, or assembler) that your site uses, you can run one or all of the IVPs. Consult the instructions in each IVP for the expected return code and output. All of the IVPs are in hlq.SEQASAMP library.

Figure 28 lists the IVPs for batch mode.

<i>Figure 28 (Page 1 of 2). Debug Tool IVPs for Batch Mode</i>	
IVP Name	Description
EQAWIVPA1	Dynamic Debug facility and Language Environment Assembler
EQAWIVPC1	Dynamic Debug facility and Non-Language Environment Assembler
EQAWIVPF1	Dynamic Debug facility and Enterprise PL/I TEST(ALL,SYM,NOHOOK)
EQAWIVPG	z/OS C DEBUG(FORMAT(DWARF),HOOK(LINE,NOBLOCK,PATH),SYMBOL)
EQAWIVPI1	Dynamic Debug facility and Enterprise PL/I TEST(ALL,SYM,NOHOOK,SEPARATE)
EQAWIVPJ1	Dynamic Debug facility and LangX Language Environment COBOL IVP
EQAWIVPM	z/OS C DEBUG(FORMAT(DWARF),HOOK(LINE,NOBLOCK,PATH),SYMBOL), XPLINK
EQAWIVPP1	Dynamic Debug facility and COBOL TEST(NONE,SYM,SEPARATE) COBOL for OS/390 and VM Enterprise COBOL for z/OS and OS/390 V3 Enterprise COBOL for z/OS V3 and V4
EQAWIVPS1	Dynamic Debug facility and Disassembly
EQAWIVPT1	Dynamic Debug facility and COBOL TEST Enterprise COBOL for z/OS V5

<i>Figure 28 (Page 2 of 2). Debug Tool IVPs for Batch Mode</i>	
IVP Name	Description
EQAWIVPV1	Dynamic Debug facility and OS/VS COBOL
EQAWIVPX1	Dynamic Debug facility and Non-Language Environment VS COBOL II
EQAWIVP1	COBOL TEST(ALL) COBOL for MVS and VM COBOL for OS/390 and VM Enterprise COBOL for z/OS and OS/390 V3 Enterprise COBOL for z/OS V3 and V4
EQAWIVP2	C TEST(ALL)
EQAWIVP3	PL/I for MVS and VM TEST(ALL)
EQAWIVP4 ¹	Dynamic Debug facility and COBOL TEST(NONE,SYM) COBOL for OS/390 and VM Enterprise COBOL for z/OS and OS/390 V3 Enterprise COBOL for z/OS V3 and V4
EQAWIVP8	VisualAge or Enterprise PL/I TEST(ALL)
Note:	
1. See chapter "Installing the Debug Tool SVCs" of the <i>Debug Tool Customization Guide</i> before running these particular IVPs.	

Figure 29 lists the IVPs for full-screen mode using the Terminal Interface Manager.

<i>Figure 29 (Page 1 of 2). Debug Tool IVPs for Full-screen Mode using the Terminal Interface Manager</i>	
IVP Name	Description
EQAWIVPB ²	Dynamic Debug facility and Language Environment Assembler
EQAWIVPD ²	Dynamic Debug facility and Non-Language Environment Assembler
EQAWIVPK ²	Dynamic Debug facility and LangX Language Environment COBOL IVP
EQAWIVPU ²	Dynamic Debug facility and COBOL TEST Enterprise COBOL for z/OS V5
EQAWIVPW ²	Dynamic Debug facility and OS/VS COBOL
EQAWIVPY ²	Dynamic Debug facility and Non-Language Environment VS COBOL II
EQAWIVP5 ¹	COBOL TEST(ALL) COBOL for MVS and VM COBOL for OS/390 and VM Enterprise COBOL for z/OS and OS/390 V3 Enterprise COBOL for z/OS V3 and V4
EQAWIVP6 ¹	C TEST(ALL)
EQAWIVP7 ¹	PL/I for MVS and VM TEST(ALL)

<i>Figure 29 (Page 2 of 2). Debug Tool IVPs for Full-screen Mode using the Terminal Interface Manager</i>	
IVP Name	Description
EQAWIVP9 ¹	VisualAge or Enterprise PL/I TEST(ALL)
Note:	
<ol style="list-style-type: none"> 1. See chapter "Enabling debugging in full-screen mode using the Terminal Interface Manager" in the <i>Debug Tool Customization Guide</i> before running these IVPs. 2. See chapter "Enabling debugging in full-screen mode using the Terminal Interface Manager" and chapter "Installing the Debug Tool SVCs" before running these IVPs. Both of these chapters are in the <i>Debug Tool Customization Guide</i>. 	

Figure 30 lists the IVPs for running under CICS.

<i>Figure 30. Debug Tool IVPs for Running under CICS</i>	
IVP Name	Description
EQAWIVCC ²	Dynamic Debug facility and Non-Language Environment Assembler
EQAWIVCG ¹	z/OS C DEBUG(FORMAT(DWARF),HOOK(LINE,NOBLOCK,PATH),SYMBOL)
EQAWIVCI ²	Dynamic Debug facility and Enterprise PL/I TEST(ALL,SYM,NOHOOK,SEPARATE)
EQAWIVCJ ²	Dynamic Debug facility and LangX Language Environment COBOL CICS IVP
EQAWIVCP ²	Dynamic Debug facility and COBOL TEST(NONE,SYM,SEPARATE) COBOL for OS/390 and VM Enterprise COBOL for z/OS and OS/390 V3 Enterprise COBOL for z/OS V3 and V4
EQAWIVCT ²	Dynamic Debug facility and COBOL TEST Enterprise COBOL for z/OS V5
EQAWIVC2 ¹	C TEST(ALL)
EQAWIVC8 ¹	VisualAge or Enterprise PL/I TEST(ALL)
Note:	
<ol style="list-style-type: none"> 1. See chapter "Adding support for debugging under CICS" in the <i>Debug Tool Customization Guide</i> before running these IVPs. 2. See chapter "Adding support for debugging under CICS" and chapter "Installing the Debug Tool SVCs" before running these IVPs. Both of these chapters are in the <i>Debug Tool Customization Guide</i>. 	

Figure 31 lists the IVP for Load Module Analyzer.

<i>Figure 31. Debug Tool IVP for Load Module Analyzer</i>	
IVP Name	Description
EQAWLMA	Load Module Analyzer

Figure 32 lists the IVPs for Debug Tool Coverage Utility.

Figure 32. Debug Tool IVPs for Debug Tool Coverage Utility

IVP Name	Description
EQACU1VM	COBOL for MVS and VM COBOL for OS/390 and VM Enterprise COBOL for z/OS and OS/390 V3 Enterprise COBOL for z/OS V3 and V4
EQACU1VT	Enterprise COBOL for z/OS V5
EQACU2VM	PL/I for MVS and VM
EQACU2VV	VisualAge PL/I
EQACU2VZ	Enterprise PL/I for z/OS
EQACU3VA	OS/390 C V2.6 and V2.10
EQACU4VL	High Level Assembler
Note: See section "Customizing Coverage Utility" in chapter "Customizing Debug Tool Utilities" of the <i>Debug Tool Customization Guide</i> before running these IVPs.	

Figure 33 lists the IVPs for Debug Tool Code Coverage.

Figure 33. Debug Tool IVP for Debug Tool Code Coverage

IVP Name	Description
EQACC1VZ	Enterprise COBOL for z/OS and OS/390 V3 Enterprise COBOL for z/OS V3 and V4
EQACC2VZ	Enterprise PL/I for z/OS V4.2 through V4.4

6.1.14 Verify the Debug Tool Utilities Setup Utility Function

You can verify the installation and customization of the Debug Tool Utilities Setup Utility function by following one (or more) of the samples described in "Appendix D. Examples: Preparing programs and modifying setup files with Debug Tool Utilities" in the *User's Guide*. See "Customizing Debug Tool Utilities" in the *Debug Tool Customization Guide* first for customization information.

6.1.15 Perform SMP/E ACCEPT

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

If your order contains the Japanese feature, edit and submit sample job EQAWACPJ to perform an SMP/E ACCEPT CHECK for that feature. Consult the instructions in the sample job for more information.

If your order contains the Korean feature, edit and submit sample job EQAWACPK to perform an SMP/E ACCEPT CHECK for that feature. Consult the instructions in the sample job for more information.

To receive the full benefit of the SMP/E Causer SYSMOD Summary Report, do *not* bypass the PRE, ID, REQ, and IFREQ on the ACCEPT CHECK. The SMP/E root cause analysis identifies the cause of only *errors* but not *warnings* (SMP/E treats bypassed PRE, ID, REQ, and IFREQ conditions as warnings rather than errors).

Before you use SMP/E to load new distribution libraries, it is recommended that you set the ACCJCLIN indicator in the distribution zone. In this way, you can save the entries that are produced from JCLIN in the distribution zone whenever a SYSMOD that contains inline JCLIN is accepted. For more information about the ACCJCLIN indicator, see the description of inline JCLIN in the SMP/E Commands book for details.

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

Note: The GROUPEXTEND operand indicates that SMP/E accepts all requisite SYSMODs. The requisite SYSMODS might be applicable to other functions.

Expected Return Codes and Messages from ACCEPT CHECK: You will receive a return code of 0 if this job runs correctly.

Expected Return Codes and Messages from ACCEPT: You will receive a return code of 0 if this job runs correctly.

If PTFs that contain replacement modules are accepted, SMP/E ACCEPT processing will link-edit or bind the modules into the distribution libraries. During this processing, the Linkage Editor or Binder might issue messages that indicate unresolved external references, which will result in a return code of 4 during the ACCEPT phase. You can ignore these messages, because the distribution libraries are not executable and the unresolved external references do not affect the executable system libraries.

6.1.16 Run REPORT CROSSZONE

The SMP/E REPORT CROSSZONE command identifies requisites for products that are installed in separate zones. This command also creates APPLY and ACCEPT commands in the SMPPUNCH data set. You can use the APPLY and ACCEPT commands to install those cross-zone requisites that the SMP/E REPORT CROSSZONE command identifies.

After you install Debug Tool, it is recommended that you run REPORT CROSSZONE against the new or updated target and distribution zones. REPORT CROSSZONE requires a global zone with ZONEINDEX entries that describe all the target and distribution libraries to be reported on.

For more information about REPORT CROSSZONE, see the SMP/E manuals.

6.1.17 Cleaning Up Obsolete Data Sets, Paths, and DDDEFs

The following data sets, which were allocated and used by previous releases of this product, and are no longer used in this release. You can delete these obsolete data sets after you delete the previous release from your system.

- SEQACLIS, SEQADUM, SEQAIENU, SEQALPA, SEQAOS2, SEQAPROC, SEQA2ENU: obsolete as of Debug Tool V1.3.0.
- LPALIB is no longer required as of Debug Tool V4.1. However, if you install Debug Tool V13.1 in a zone that currently contains an old release of Debug Tool, ensure that you leave the existing LPALIB allocated so that SMP/E can perform the proper cleanup. After you complete the installation of Debug Tool V13.1, do **not** delete this data set as it may contain other products' modules.
- SEQALPA, which was obsolete as of Debug Tool V1.3, is now required as of Debug Tool V4.1.
- SEQAMLIB, SEQAPLIB, SEQASLIB: obsolete as of Debug Tool V3.1.0.
- SEQABIN: obsolete as of Debug Tool V13.1.0.
- AEQACLIS, AEQAIENU, AEQAMOD2, AEQAOS2, AEQASRC2, AEQA2ENU: obsolete as of Debug Tool V1.3.0.
- AEQAMLIB, AEQAPLIB, AEQASLIB: obsolete as of Debug Tool V3.1.0.
- AEQABIN: obsolete as of Debug Tool V13.1.0.

The following DDDEF entries, which were created and used by previous releases of this product, are no longer used in this release. You can delete these obsolete DDDEF entries after you delete the previous release from your system.

- SEQACLIS, SEQADUM, SEQAIENU, SEQALPA, SEQAOS2, SEQAPROC, SEQA2ENU: obsolete as of Debug Tool V1.3.0.
- LPALIB is no longer required as of Debug Tool V4.1. However, if you install Debug Tool V13.1 in a zone that currently contains an old release of Debug Tool, ensure that you leave the existing DDDEF entry for LPALIB defined so that SMP/E can perform the proper cleanup. After completing the installation of Debug Tool V13.1, you can delete this obsolete DDDEF entry.
- SEQALPA, which was obsolete as of Debug Tool V1.3, is now required as of Debug Tool V4.1.
- SEQAMLIB, SEQAPLIB, SEQASLIB: obsolete as of Debug Tool V3.1.0.
- SEQABIN: obsolete as of Debug Tool V13.1.0.
- AEQACLIS, AEQAIENU, AEQAMOD2, AEQAOS2, AEQASRC2, AEQA2ENU: obsolete as of Debug Tool V1.3.0.
- AEQAMLIB, AEQAPLIB, AEQASLIB: obsolete as of Debug Tool V3.1.0.
- AEQABIN: obsolete as of Debug Tool V13.1.0.

6.2 Activating Debug Tool

The publication *Debug Tool Customization Guide*, SC14-7601, contains the step-by-step procedures to activate and customize the functions of Debug Tool.

The publication *Debug Tool User's Guide*, SC14-7600, contains information on possible compilation and link edit changes you may need to make to your build processes in order to debug your programs with Debug Tool.

6.3 PDTCC and CCCA

Some functions in Debug Tool require functions supplied in the "Problem Determination Tools Common Component (PDTCC)". See the *Problem Determination Tools Common Components Program Directory (G110-8969)* for information on how to install that tool.

Sites that need to handle older COBOL programs will want to install "COBOL and CICS Command Level Conversion Aid for OS/390 and MVS and VM (CCCA)".

See the *CCCA Program Directories (G110-5080 and G110-6976)* for information on how to install that tool.

7.0 Notices

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Reader's Comments

Program Directory for IBM Debug Tool for z/OS, October 2015

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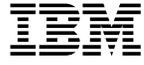
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