

IBM Application Delivery Foundation for z Systems, V3.1.1 adds simplified licensing terms and IBM Dependency Based Build, intelligent application building for z/OS development

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Overview

IBM^(R) Application Delivery Foundation for z Systems^(R), V3.1.1 delivers simplified licensing and introduces IBM Dependency Based Build, the intelligent build system for the Rocket Software port of Git for z/OS^(R).

Version 3.1.1 of Application Delivery Foundation for z Systems includes enhancements for the following components:

- IBM Explorer for z/OS
- IBM Fault Analyzer for z/OS
- IBM File Manager for z/OS
- IBM Developer for z Systems Enterprise Edition
- IBM Application Performance Analyzer for z/OS
- IBM Debug for z Systems

Application Delivery Foundation for z Systems delivers the core set of tools to help you accelerate the delivery of z/OS applications. Whether you are developing a new z/OS application, or enhancing or performing problem analysis of existing z/OS applications, it provides a robust toolset to help perform tasks efficiently while incorporating agile development practices. Individual products included in this solution pack are enhanced significantly to assist in development and maintenance of complex z/OS applications.

Application Delivery Foundation for z Systems is a bundle that includes multiple development tools that can be obtained as part of this bundle or individually. Application Delivery Foundation for z Systems, V3.1.1 and the individual products in the bundle were established on IBM's Continuous Delivery (CD) support model to assist enterprises in receiving function and service more quickly. CD updates for the development tools within Application Delivery Foundation for z Systems, V3.1.1 are applied as cumulative PTFs; the specific update information for each tool in the bundle is discussed as follows:

- Explorer for z/OS is the strategic integration platform for IBM Eclipse-based offering offerings for z/OS application developers and system programmers. Explorer for z/OS, V3.1.1 is updated by fixpack to V3.1.1.6.
- Fault Analyzer for z/OS is designed to improve developer productivity and decrease deployment costs by helping to analyze and correct application failures quickly. A 3270 interface and an Eclipse GUI interface are provided through

the Explorer for z/OS platform. This tool can be used in both development and production environments. Fault Analyzer for z/OS V14.1 is updated by program temporary fix (PTF) to V14.1.2

- File Manager for z/OS enables you to manipulate production, test, and development data in a variety of data stores, including Db2^(R), IMSTM, CICS^(R), MQ, data sets, and HFS files. A 3270 interface and an Eclipse GUI interface are provided through the Explorer for z/OS platform. File Manager V14.1 is updated by PTF to V14.1.2
- Developer for z Systems Enterprise Edition includes Developer for z Systems, Debug for z Systems, Explorer for z/OS, and added debug capabilities. This product provides a robust development and debugging solution for z/OS application developers. Developer for z Systems Enterprise Edition V14.1 is updated by PTF, the addition of IBM Dependency Based Build (a new FMID), and an enhanced client to V14.1.2.
- Application Performance Analyzer for z/OS identifies z/OS application performance and response time problems, and assists in reducing resource consumption. It is highly customizable to provide a performance view of an application and the statements creating performance degradation and is accessible by both a 3270 interface and an Eclipse GUI interface. Application Performance Analyzer for z/OS, V14.1 is updated by PTF to V14.1.2.
- Debug for z Systems is available as a stand-alone product or part of Developer for z Systems Enterprise Edition. This debugging solution for z/OS application developers is accessible by both a 3270 and an Eclipse GUI interface. IBM Debug for z Systems V14.1 is updated by PTF and an enhanced client to V14.1.2.

These products and PTFs are available on [Shopz](#) with client updates available on the [Mainframe DEV](#) website.

Key prerequisites

Application Delivery Foundation for z Systems, Application Performance Analyzer for z/OS, Developer for z Systems Enterprise Edition, Explorer for z/OS, Fault Analyzer for z/OS, File Manager for z/OS, and Debug for z Systems run on any hardware configuration supported by the specified licensed z/OS programs.

For details, see the [Hardware requirements](#) and [Software requirements](#) sections.

Planned availability date

March 23, 2018

Description

Application Delivery Foundation for z Systems, V3.1.1 includes:

- Explorer for z/OS, V3.1.1
- Fault Analyzer for z/OS, V14.1.2
- File Manager for z/OS, V14.1.2
- Developer for z Systems Enterprise Edition, V14.1.2
- Application Performance Analyzer for z/OS, V14.1.2

Developer for z Systems Enterprise Edition, V14.1.2 includes:

- Developer for z Systems, V14.1.2
- Debug for z Systems, V14.1.2
- Dependency Based Build V1.0.0
- Additional debug capabilities

Enhancements that span all Application Delivery Foundation for z Systems, V3.1.1 products

Application Delivery Foundation for z Systems, V3.1.1 licensing is simplified so that the IBM Developer for z Systems component no longer has the product-unique entitlement ratio of one Authorized User to one Value Unit. All software in the bundle has the same license metric.

IBM Explorer for z/OS, V3.1.1 enhancements

All products included in Application Delivery Foundation for z Systems are built on the IBM Explorer for z/OS platform, which is the IBM strategic integration and continuous delivery platform.

IBM Explorer for z/OS, V3.1.1 introduces a new Remote Edit History view. This view lets users see which members and files have been recently opened in the editors. Instead of navigating directly to the resource previously worked on, it can be easily accessed through this view.

Previous versions of IBM Explorer for z/OS included support for remote browsing and managing of .jar, .zip, .war, and .ear files on the zFS. In Explorer for z/OS, V3.1.1, additional support is provided for .tar and .pax files (note this requires a server update).

Fault Analyzer for z/OS, V14.1.2 enhancements

Fault Analyzer for z/OS, V14.1.1 and V14.1.2 combined improvements and enhancements include:

- Filtering of event summary list to suppress system events.
- FA CICS control transaction enhancement to enable display of abend analysis history.
- New Fault Entry list display line command to enable locking and unlocking of fault entries.
- Actual data set name for CICS "open files" rather than just the CICS 8-character file name.
- Link to File Manager for the data set name.
- Implement **IDIJAVA** option support. Much like other sidefile location options (IDILCOB, IDILPLE, and so on), IDIJAVA enables the user to specify the location of Java™ source files to be used when attempting to display the Java source line during analysis.
- Support for COBOL 6.2 SEPARATE option. (For example, DWARF data written to external data set rather than imbedded in the load module.)
- Link to File Manager load module analyzer from Fault Analyzer interactive analysis session.
- New subsection in the CICS Information section of the report to provide CICS program resource definition details.
- New "P" option in the ISPF Fault Entry list to enable the Packaging of related Fault Entry data ready for transmission to IBM/HCL.
- Enhancement to interactive reanalysis whereby LIBPATH, PATH, and CLASSPATH variables (if available) can be displayed as a list of the individual directories and for each directory ISPF or FM can be invoked to view the contents of that directory.

File Manager for z/OS, V14.1.2 enhancements

File Manager Service Provider for z/OS Connect enables client applications to access data sources through File Manager for z/OS using REST APIs generated by z/OS Connect.

The File Manager Service Provider enables clients to read data sequentially, by relative record position, or by key.

Data sources supported by the File Manager Service Provider include:

- MVS™ data sets (including VSAM)
- UNIX® System Services files
- CICS files (including VSAM, TS and TD queues)
- MQ queues

Developer for z Systems Enterprise Edition, V14.1.2 enhancements

Developer for z Systems Enterprise Edition provides a robust development and debugging solution for z/OS application developers. It includes the visual debugging feature to assist in comprehensive diagnosis of complex z/OS applications by displaying and annotating program execution flow. Developer for z Systems Enterprise Edition consists of IBM Developer for z Systems and Debug for z Systems, plus unique, value add capabilities.

With Developer for z Systems Enterprise Edition, V14.1.2, licensing is simplified to remove the unique entitlement ratio of one Authorized User to one Value Unit for the Developer for z Systems component.

Developer® for z Systems Enterprise Edition, V14.1.2 delivers additional, value add capability with the inclusion of IBM Dependency Based Build, an IBM-only build capability for z/OS that can be used with Git and Jenkins.

Dependency Based Build provides the capabilities to build traditional z/OS applications such as those written in COBOL and PL/I. The goal of Dependency Based Build is to provide a modern scripting-language-based automation capability that can be used on z/OS. Dependency Based Build is built as a stand-alone component that does not require a specific source code manager or pipeline automation tool.

Dependency Based Build includes a Java API to support the running of tasks on z/OS and to create and use dependency information for the source code that is being processed. Dependency Based Build consists of the following toolset that runs on z/OS:

- Java APIs
- Dependency scanner
- Apache Groovy scripting language, and a set of script samples to demonstrate the use of the APIs for building applications
- Web application that stores and manages the dependency information and build reports

Dependency Based Build is designed with Git and Jenkins (as examples of a source control manager (SCM) and pipeline automation tool), but these are not prerequisites; instead, they serve as examples to demonstrate the capabilities. Specific samples are provided to work with Git.

Developer for z Systems, V14.1.2 (5724-T07) is an Eclipse-based Integrated Development Environment for creating and maintaining z/OS applications efficiently. It is a core component of IBM Developer for z Systems Enterprise Edition, but is also available as a stand-alone offering in Passport Advantage®.

Developer for z Systems, V14.1.2 adds Dependency Based Build Integration to enable submission of User Builds in conjunction with Dependency Based Build. And if you have embraced SonarQube to enable continuous inspection, Developer for z Systems, V14.1.2 offers the capability to export Developer for z Systems code coverage and test case results into SonarQube format.

COBOL editing and related tools have been enhanced in support of the Enterprise COBOL 6.2 PTF for APAR PI91584. This modification supports the use of the new COPYLOC compiler option to add either a PDS or PDSE or z/OS UNIX directory as an additional location to be searched for copy members.

Application developers often want to leave behind code that future generations can understand and maintain. In support of this goal the COBOL Formatter has been significantly enhanced making it simple for developers to write logic that is neat and easy to read. Various preferences can be set to personalize formatting styles such as PICTURE and VALUE clause alignment, custom indentation lengths, and wrapping code on the next line.

Software metrics for COBOL have been available in IBM Developer for z for several releases. However, developers had to make an extra effort to run the Software Analyzer in order to see the results. With this new release, the software metrics are calculated dynamically with each change made in the editor. The Properties view now provides basic metrics such as lines of code and number of comments in addition to well-known measures of code quality characteristics.

Developer for z Systems, V14.1 introduced refactoring tools for COBOL, providing accelerated time to value while also reducing risk for developers attempting to improve maintainability, achieve modularity, or reuse business logic for new APIs and services. This release provides the capability to identify and remove unused variables thus making an application easier to maintain.

For PL/I application developers, various improvements have been made to the z/OS Automated Unit Testing Framework (zUnit), as well as the capability to generate PL/I symbolic maps for BMS.

Many organizations have REXX and CLISTS they would like to integrate with their modern development environment. Previous versions of Developer for z Systems provided this integration capability through the Menu Manager feature. This feature has been enhanced to support conversational REXX and CLISTS when the latest version of the client and server are being used.

With the delivery of Developer for z Systems V14.1.1, the client software is now available for macOS. The majority of features are available. However, there are currently some known limitations which are described in the [support document](#).

For more information about the enhancements and improvements incorporated into version 14.1 of Developer for z Systems, see Software Announcement [217-359](#), dated July 17, 2017.

Capability deprecations and removals

Deprecation of support for DFDL - Data Format Description Language. Generation of DFDL Schema from COBOL source is deprecated in Developer for z Systems V14.1.2. IBM does not intend to enhance the support of DFDL within Developer for z Systems in the future.

Deprecation of the Measured Capability Improvement Framework data collection. The metrics collection of workbench activities using the Measured Improvement preference is deprecated in Developer for z Systems V14.1.2. IBM recommends using host based information for similar metrics collection such as the audit.log or operator commands.

Removal of the UML to COBOL generation feature. The UML Profiles for COBOL Development extensions provided by Rational^(R) Software Architect were previously announced as deprecated. The corresponding UML to COBOL generation capability has been removed from Developer for z Systems, V14.1.2.

Debug for z Systems, V14.1.2 enhancements

Debug for z Systems is progressing towards one remote debug mode based on Debug Tool Compatibility Mode. In support of this direction, Debug Tool compatibility mode can be selected, where specified in the user interface, by default in the V14.1.2 release. Any existing launches, property groups or updated preferences will remain unchanged.

Code Coverage Enhancements

The headless compiled code coverage collector now supports exporting to SonarQube format, in addition to the currently supported format.

For programs written in COBOL, Code Coverage now presents structural results for programs, sections, and paragraphs. Both the file report view and the workbench report view support structural results.

Debug hovers

Structures and arrays are no longer limited to 100 entries when you inspect variables in the debug hover help during a debug session.

COBOL V6.2

When using line mode, batch mode, full screen mode and remote mode with Debug Tool compatibility mode, and compiling with the TEST(SEPARATE, SOURCE) option of the Enterprise COBOL V6.2 compiler, if the name of the side file does not match the PROGRAM-ID, the debugger will now be able to locate the side file, as long as it is in the specified data sets or directories.

In addition, now when you specify the side file location, you can specify a z/OS UNIX System Services directory through a SET DEFAULT LISTING command, EQUEDAT user exit, EQADEBUG DD card, or EQA_DBG_SYSDEBUG environment variable.

IMS transaction isolation

Version 14.2.1 of Debug for z Systems adds another runtime options field to the Manage Additional Libraries and Delay Debug panel (EQAPMPRG). With this new field, Language Environment^(R) options can be specified for the private message region.

V14.1.2 also includes the following customer request for enhancements (RFEs):

- RFE 86148: Allow re-activating the z/OS Debugger with CEETEST after QUIT DEBUG
- RFE 48766: When creating an AT CHANGE breakpoint in MFI for COBOL programs with varying length variables, changes will be caught even if the change took place outside the initial length of the variable. Similarly, those changes will be caught when setting a Watch breakpoint in IBM Developer for z Systems in Debug Tool compatibility mode.

Application Performance Analyzer for z/OS, V14.1.2 enhancements

Application Performance Analyzer for z/OS measures and reports how applications use available resources. This tool is designed to be easy to use, help you identify system constraints, and improve application performance.

Application Performance Analyzer for z/OS, V14.1.2 delivers the following enhancements:

- Automatic report generation. The automatic report generation feature enables the user to request the automatic generation of observation reports immediately upon completion of a successful observation session.
- Display command for CONFIG. Enhancement to the MODIFY command to display CONFIG settings of the current APA STC (CONFIG DISPLAY).
- Enhancements to multijob measurements:
 - Full 8-byte job name capability in job name mask when creating multijob measurements
 - Support for non-active jobs
- Add ASID or PID as selection criteria when creating a new observation. Users can now specify a job name and pattern, ASID, or Process ID (PID) as selection criteria when scheduling a measurement.
- A02 report enhancements

- Additional global and category select/deselect fields to enable quick selection or deselection of reports.
- Capability to dynamically allocate JCL data set if one does not exist.

Accessibility by people with disabilities

A US Section 508 Accessibility Compliance Report containing details on accessibility compliance can be found on the [Product accessibility information](#) website.

Value Unit-based pricing

Value Unit pricing for eligible IBM z Systems^(R) IBM International Program License Agreement (IPLA) programs enables a lower cost of incremental growth and enterprise aggregation. Each z Systems IPLA product with Value Unit pricing has a single price per Value Unit and a conversion matrix, called Value Unit Exhibit, for converting from some designated measurement to Value Units. Most commonly, Millions of Service Units (MSUs) is the measurement designated by IBM to be converted to Value Units. Some other measurements are engines or messages. Since MSUs are the most common measurement, that measurement will be used for the remainder of this description.

Value Unit pricing offers price benefits for you. For each z Systems IPLA program with Value Unit pricing, the quantity of that program needed to satisfy applicable IBM terms and conditions is referred to as the **required license capacity**. Each of the various Value Unit Exhibits stipulate that the larger your required license capacity, the fewer Value Units per MSU you will need. Value Unit Exhibits are uniquely identified by a three digit code and referred to using the nomenclature VUExxx, where xxx is the three digit code.

Subsequent acquisitions of Value Unit priced programs offer additional price benefits. The quantity of each z Systems IPLA program that you have acquired is referred to as **entitled license capacity**. If you wish to grow your entitled license capacity for a z Systems IPLA program, the calculation to determine additional needed Value Units is based upon the number of Value Units already acquired.

For each z Systems IPLA program with Value Unit pricing, you should:

- Determine the required license capacity, in MSUs
- Aggregate the MSUs across the enterprise
- Convert the total MSUs to Value Units, using the applicable Value Unit Exhibit
- Multiply the price per Value Unit by the total number of Value Units to determine the total cost

To simplify conversion from the designated measurement to Value Units or vice-versa, use the Value Unit Converter Tool. For additional information or to obtain a copy of the Value Unit Converter Tool, visit the Value Unit Converter Tool, go to the [IBM System z^{\(R\)} Software Pricing](#) website.

Note that Value Units of a given product cannot be exchanged, interchanged, or aggregated with Value Units of another product.

To determine the required license capacity for the z Systems IPLA program you selected, see the [Terms and conditions](#) section.

Reference information

For more information about IBM Application Delivery Foundation for z Systems, see Software Announcement [217-360](#), dated July 17, 2017.

Program number

Program number	VRM	Program name
5655-AC6	3.1.1	IBM Application Delivery Foundation for z Systems
5655-AC5	14.1.2	IBM Developer for z Systems Enterprise Edition
5655-Q41	14.1.0	IBM Fault Analyzer for z/OS
5655-Q42	14.1.0	IBM File Manager for z/OS
5655-Q49	14.1.0	IBM Application Performance Analyzer for z/OS
5655-Q50	14.1.0	IBM Debug for z Systems

Product identification number

Program ID	Subscription & Support PID
5655-AC6	5697-CDS
5655-AC5	5655-AC7
5655-Q41	5697-G59
5655-Q42	5697-G60
5655-Q49	5697-N38
5655-Q50	5655-J19

Offering Information

Product information is available on the [IBM Offering Information](#) website.

Business Partner information

If you are a Direct Reseller - System Reseller acquiring products from IBM, you may link directly to Business Partner information for this announcement. A PartnerWorld^(R) ID and password are required (use IBMid).

[BP Attachment for Announcement Letter 218-134](#)

Publications

Technical documentation can be found in [IBM Knowledge Center](#).

Services

Software Services

IBM Software Services has the breadth, depth, and reach to manage your services needs. You can leverage the deep technical skills of our lab-based, software services team and the business consulting, project management, and infrastructure expertise of our IBM Global Services team. Also, we extend our IBM Software Services reach through IBM Business Partners to provide an extensive portfolio of capabilities. Together, we provide the global reach, intellectual capital, industry insight, and technology leadership to support a wide range of critical business needs.

To learn more about IBM Software Services, contact your Lab Services Sales or Delivery Leader.

Technical information

Specified operating environment

Hardware requirements

The products IBM Fault Analyzer for z/OS, V14.1.2, IBM File Manager for z/OS, V14.1.2, IBM Developer for z Systems Enterprise Edition, V14.1.2, IBM Application Performance Analyzer for z/OS, V14.1.2, and IBM Debug for z Systems, V14.1.2 require one of the following IBM Z servers:

- z14
- z13^(R) or z13sTM
- zEnterprise^(R) EC12 or BC12
- zEnterprise 196 or 114
- z10TM Enterprise or Business Class

One of the following z/OS systems is also required:

- z/OS V2.1
- z/OS V2.2
- z/OS V2.3

For detailed product system requirements, see:

- [IBM Application Delivery Foundation for z Systems](#)
- [IBM Explorer for z/OS](#)
- [IBM Fault Analyzer for z/OS](#)
- [IBM File Manager for z/OS](#)
- [IBM Developer for z Systems Enterprise Edition](#)
- [IBM Application Performance Analyzer for z/OS](#)
- [IBM Debug for z Systems](#)

Software requirements

See the [Hardware requirements](#) section.

The program's specifications and specified operating environment information may be found in documentation accompanying the program, if available, such as a readme file, or other information published by IBM, such as an announcement letter. Documentation and other program content may be supplied only in the English language.

Planning information

Packaging

- Tape media
 - 3590
 - 3592
- DVD
- License CD

This program, when downloaded from a website, contains the applicable IBM license agreement and License Information, if appropriate, which will be presented for acceptance at the time of installation of the program. For future reference, the license and License Information will be stored in a directory such as LICENSE.TXT.

Ordering information

Value Unit exhibit VUE001

Level	Minimum	Maximum	Value Units/MSU
Base	1	3	5.25
Tier A	4	45	0.83
Tier B	46	175	0.35
Tier C	176	315	0.26
Tier D	316	+	0.20

Value Unit exhibit VUE007

	MSUs minimum	MSUs maximum	Value Units/MSU
Base	1	3	1
Tier A	4	45	0.45
Tier B	46	175	0.36
Tier C	176	315	0.27
Tier D	316	+	0.20

Ordering example

The total number of Value Units is calculated according to the following example.

If your required license capacity is 1,500 MSUs for your selected z Systems IPLA product, the applicable Value Units would be:

Tier	MSUs	Multiplied by Value Units per MSU	Equal Value Units
Base	3	1.00	3.00
Tier A	42	.45	18.90
Tier B	130	.36	46.80
Tier C	140	.27	37.80
Tier D	1,185	.20	237.00
Total	1,500		343.50

When calculating the total number of Value Units, the sum is to be rounded up to the next integer.

The products in this announcement have one charge unit - Value Units.

Translation from MSUs to Value Units example using VUE001

	MSUs	Value Units/MSU
Base	1-3	5.25
Tier A	4-45	.83
Tier B	46-175	.35
Tier C	176-315	.26
Tier D	316+	.20

Note: For the actual translation from MSUs to Value Units for this product, see the table that follows.

Ordering example

The total number of Value Units is calculated according to the following example.

If the client has installed 1,000 MSUs, the applicable Value Units would be:

Translation from MSUs to Value Units (VUE001)

	MSUs	*	Value Units/MSU	=	Value Units
Base	3	*	5.25	=	15.75
Tier A	42	*	.83	=	34.86

	MSUs	*	Value Units/ MSU	=	Value Units
Tier B	130	*	.35	=	45.50
Tier C	140	*	.26	=	36.40
Tier D	685	*	.20	=	137
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Total	1,000				270

When calculating the total number of Value Units, the total is to be rounded up to the next integer.

Value Units for non-MSU-based S/390^(R) processors using VUE001:

Model	Value Units per machine
H30	21.00
H50	22.00
H70	26.00
ESL models	9

Charge metric

The charge metrics that apply to this offering remain unchanged. For more information about charge metrics, see Software Announcement [217-360](#), dated July 17, 2017.

Basic license

Translation from MSUs to Value Units (VUE001)

	MSUs	Value Units/MSU
Base	1-3	5.25
Tier A	4-45	0.83
Tier B	46-175	0.35
Tier C	176-315	0.26
Tier D	316+	0.20

To order, specify the program product number and the appropriate license or charge option. Also, specify the desired distribution medium. To suppress shipment of media, select the license-only option in CFSW.

Program name: Application Performance Analyzer for z/OS

Program PID: 5655-Q49

Entitlement identifier	Description	License option/Pricing metric
S017PMS	App Performance Analyzer	Basic OTC, Value Units Basic OTC, per MSU-day TUC
		MultiVersion Measurement No Charge
Orderable supply ID	Language	Distribution Medium
S017PMN	English US	1/2 Inch Data Cartridge - IBM 3590 - 30 GB - 128 Track
S017PMP	Japanese	1/2 Inch Data Cartridge - IBM 3590 - 30 GB - 128 Track
S017PMR	Korean	1/2 Inch Data Cartridge - IBM 3590 - 30 GB - 128 Track

Subscription and Support PID: 5697-N38

Entitlement Identifier	Description	License Option/Pricing Metric
S011W5F	App Performance Analyzer S&S	Basic ASC, per Value Unit SW S&S
		No Charge, Decline SW S&S
		Per MSU SW S&S registration
		MultiVersion Measurement S&S No Charge
Orderable Supply ID	Language	Distribution Medium
S011W5G	Japanese	Paper
S011W5H	English US	Paper
S01331K	Korean	Paper

Translation from MSUs to Value Units VUE007

- Application Delivery Foundation for z Systems
- IBM Developer for z Systems Enterprise Edition
- IBM Debug for z Systems
- IBM File Manager for z/OS
- IBM Fault Analyzer for z/OS

	MSUs	Value Units/MSU
Base	1-3	1.0
Tier A	4-45	0.45
Tier B	46-175	0.36
Tier C	176-315	0.27
Tier D	316+	0.20

To order, specify the program product number and the appropriate license or charge option. Also, specify the desired distribution medium. To suppress shipment of media, select the license-only option in CFSW.

Program name: IBM Fault Analyzer for z/OS**Program PID: 5655-Q41**

Entitlement Identifier	Description	License Option/Pricing Metric
S017SLG	IBM Fault Analyzer for z/OS	Basic OTC, per MSU-day TUC, Basic OTC, per Value Units
		MultiVersion Measurement No Charge
Orderable Supply ID	Language	Distribution Medium
S017SLF	English US	1/2 Inch Data Cartridge - IBM 3590 - 30 GB - 128 Track
S017SLC	Japanese	1/2 Inch Data Cartridge - IBM 3590 - 30 GB - 128 Track
S017SLD	Korean	1/2 Inch Data Cartridge - IBM 3590 - 30 GB - 128 Track

Subscription and Support PID: 5697-G59

Entitlement Identifier	Description	License Option/Pricing Metric
S00V7ZL	IBM Fault Analyzer for z/OS	Basic ASC, per Value Unit SW S&S
		No Charge, Decline SW S&S
		Per MSU SW S&S registration
		MultiVersion Measurement S&S No Charge
Orderable Supply ID	Language	Distribution Medium
S00TZD4	English US	Paper - App Delivery Found z Sys S&S
S01331H	Korean	Paper - App Delivery Found z Sys S&S
S00VP6X	Japanese	Paper - App Delivery Found z Sys S&S

Program name: IBM File Manager for z/OS

Program PID: 5655-Q42

Entitlement Identifier	Description	License Option/Pricing Metric
S017SLM	IBM File Manager for z/OS	Basic OTC, per MSU-day TUC, Basic OTC, per Value Units
		MultiVersion Measurement No Charge
Orderable Supply ID	Language	Distribution Medium
S017SLL	English US	1/2 Inch Data Cartridge - IBM 3590 - 30 GB - 128 Track
S017SLJ	Japanese	1/2 Inch Data Cartridge - IBM 3590 - 30 GB - 128 Track
S017SLK	Korean	1/2 Inch Data Cartridge - IBM 3590 - 30 GB - 128 Track

Subscription and Support PID: 5697-G60

Entitlement Identifier	Description	License Option/Pricing Metric
S00V7ZM	IBM File Manager for z/OS	Basic ASC, per Value Unit SW S&S
		No Charge, Decline SW S&S
		Per MSU SW S&S registration
		MultiVersion Measurement S&S No Charge
Orderable Supply ID	Language	Distribution Medium
S00TZD5	English US	Paper - App Delivery Found z Sys S&S
S01331J	Korean	Paper - App Delivery Found z Sys S&S
S00VLRJ	Japanese	Paper - App Delivery Found z Sys S&S

Program name: Application Delivery Foundation for z Systems

Program PID: 5655-AC6

Entitlement Identifier	Description	License Option/Pricing Metric
S01812J	Appl Del Foundation z V3	Basic OTC, per MSU-day TUC, Basic OTC, per Value Units
		MultiVersion Measurement No Charge
Orderable Supply ID	Language	Distribution Medium
S01812F	English US	1/2 Inch Data Cartridge - IBM 3590 - 30 GB - 128 Track
S01812G	Japanese	1/2 Inch Data Cartridge - IBM 3590 - 30 GB - 128 Track
S01812H	Korean	1/2 Inch Data Cartridge - IBM 3590 - 30 GB - 128 Track

Subscription and Support PID: 5697-CDS

Entitlement Identifier	Description	License Option/Pricing Metric
S017SMG	App Delivery Found z Sys S&S	Basic ASC, per Value Unit SW S&S
		No Charge, Decline SW S&S
		Per MSU SW S&S registration
		MultiVersion Measurement S&S No Charge
Orderable Supply ID	Language	Distribution Medium
S017SMC	English US	Paper - App Delivery Found z Sys S&S
S017SMD	Korean	Paper - App Delivery Found z Sys S&S
S017SMF	Japanese	Paper - App Delivery Found z Sys S&S

Program name: IBM Developer for z Systems Enterprise Edition

Program PID: 5655-AC5

Entitlement Identifier	Description	License Option/Pricing Metric
S01812C	IBM Developer for z Sys V14	Basic OTC, per MSU-day TUC, Basic OTC, per Value units
		MultiVersion Measurement No Charge
Orderable Supply ID	Language	Distribution Medium
S018128	Japanese	1/2 Inch Data Cartridge - IBM 3590 - 30 GB - 128 Track
S018129	Korean	1/2 Inch Data Cartridge - IBM 3590 - 30 GB - 128 Track
S01812B	English US	1/2 Inch Data Cartridge - IBM 3590 - 30 GB - 128 Track

Subscription and Support PID: 5655-AC7

Entitlement Identifier	Description	License Option/Pricing Metric
S01812P	IBM Dev for z Sys Ent Ed S&S	Basic ASC, per Value Unit SW S&S

Entitlement Identifier	Description	License Option/Pricing Metric
		No Charge, Decline SW S&S
		Per MSU SW S&S registration
		MultiVersion Measurement S&S No Charge
Orderable Supply ID	Language	Distribution Medium
S01812L	Korean	Paper
S01812M	Japanese	Paper
S01812N	English US	Paper

Program name: IBM Debug for z Systems

Program PID: 5655-Q50

Entitlement Identifier	Description	License Option/Pricing Metric
S0181Z9	IBM Debug for z Systems V14	Basic OTC, per MSU-day TUC Basic OTC, per Value units
		MultiVersion Measurement No Charge
Orderable Supply ID	Language	Distribution Medium
S0181Z6	English US	1/2 Inch Data Cartridge - IBM 3590 - 30 GB - 128 Track
S0181Z7	Japanese	1/2 Inch Data Cartridge - IBM 3590 - 30 GB - 128 Track
S0181Z8	Korean	1/2 Inch Data Cartridge - IBM 3590 - 30 GB - 128 Track

To order, specify the program product number and the appropriate license or charge option. Also, specify the desired distribution medium. To suppress shipment of media, select the license-only option in CFSW.

Subscription and Support PID: 5655-J19

Entitlement Identifier	Description	License Option/Pricing Metric
S00X82R	Debug Tool S&S	Basic ASC, per Value Unit, SW S&S
		No Charge, Decline SW S&S
		Per MSU SW S&S registration
		MultiVersion Measurement S&S No Charge
Orderable Supply ID	Language	Distribution Medium
S00X82S	English US	Paper
S00X82T	Japanese	Paper
S01331F	Korean	Paper

Program name: IBM Explorer for z/OS

Program PID: 5655-EX1

Entitlement Identifier	Description	License Option/Pricing Metric
S0181NS	IBM Explorer for z/OS V3	No Charge - Unlimited installs
		MultiVersion Measurement NC

Orderable Supply ID	Language	Distribution Medium
S0181NR	English US	1/2 Inch Data Cartridge -IBM 3590 30 GB - 128 Track

To order, specify the program product number and the appropriate license or charge option. Also, specify the desired distribution medium. To suppress shipment of media, select the license-only option in CFSW.

Subscription and Support PID: 5655-EX2

Entitlement Identifier	Description	License Option/Pricing Metric
S0181NW	IBM Explorer for z/OS S&S	SW SUB SUP REG No Charge - Unlimited installs MultiVersion Measurement S&S NC
Orderable Supply ID	Language	Distribution Medium
S0181NV	English US	Paper

Subscription and Support

To receive voice technical support via telephone and future releases and versions at no additional charge, Subscription and Support must be ordered. The capacity of Subscription and Support (Value Units) must be the same as the capacity ordered for the product licenses.

To order, specify the Subscription and Support program number (PID) referenced above and the appropriate license or charge option.

IBM is also providing Subscription and Support for these products via a separately purchased offering under the terms of the IBM International Agreement for Acquisition of Software Maintenance. This offering:

- Includes and extends the support services provided in the base support to include technical support via telephone.
- Entitles you to future releases and versions, at no additional charge. Note that you are not entitled to new products.

When Subscription and Support is ordered, the charges will automatically renew annually unless canceled by you.

The combined effect of the IPLA license and the Agreement for Acquisition of Software Maintenance gives you rights and support services comparable to those under the traditional ICA S/390^(R) and z Systems license or its equivalent. To ensure that you continue to enjoy the level of support you are used to in the ICA business model, you must order **both** the license for the program **and** the support for the selected programs at the same Value Unit quantities.

Customized Offerings

Product deliverables are shipped only through CBPDO and ServerPac. These customized offerings are offered for internet delivery in countries where Shopz product ordering is available. Internet delivery reduces software delivery time and allows you to install software without the need to handle tapes. For more details on Internet delivery, go to the Help section on the [Shopz](#) website.

You choose the delivery method when you order the software. IBM recommends internet delivery. In addition to internet and DVD, the supported tape delivery options include:

- 3590
- 3592

Most products can be ordered in ServerPac the month following their availability in CBPDO. z/OS can be ordered through CBPDO and ServerPac at general availability.

Many products will also be orderable in a Product ServerPac without also having to order the z/OS operating system or subsystem.

Shopz and CFSW will determine the eligibility based on product requisite checking. For more details on the product ServerPac, go to the Help section on the [Shopz](#) website.

For additional information about the Product ServerPac option, see Software Announcement [212-272](#), dated July 31, 2012.

Production of software product orders will begin on the planned general availability date.

- CBPDO shipments will begin one week after general availability.
- ServerPac shipments will begin four weeks after general availability.

Terms and conditions

The information provided in this announcement letter is for reference and convenience purposes only. The terms and conditions that govern any transaction with IBM are contained in the applicable contract documents such as the IBM International Program License Agreement, IBM International Passport Advantage^(R) Agreement, and the IBM Agreement for Acquisition of Software Maintenance.

Licensing

IBM International Program License Agreement including the License Information document and Proof of Entitlement (PoE) govern your use of the program. PoEs are required for all authorized use.

Agreement for Acquisition of Software Maintenance

The following agreement applies for Software Subscription and Support (Software Maintenance) and does not require client signatures:

- IBM Agreement for Acquisition of Software Maintenance (Z125-6011)

These programs are licensed under the IBM Program License Agreement (IPLA) and the associated Agreement for Acquisition of Software Maintenance, which provide for support with ongoing access to releases and versions of the program. These programs have a one-time license charge for use of the program and an annual renewable charge for the enhanced support that includes telephone assistance (voice support for defects during normal business hours), as well as access to updates, releases, and versions of the program as long as support is in effect. IBM z Systems Operational Support Services - SoftwareXcel is an option if you desire added services.

License Information number

Program number IBM Debug for z Systems V14

PID	VRM	Offering name	LI Number
5655-AC6	3.1.1	IBM Application Delivery Foundation for z Systems	L-SCHK-AVDSBJ
5655-AC5	14.1.2	IBM Developer for z Systems Enterprise Edition	L-SCHK-AVDS4X
5655-Q41	14.1.0	IBM Fault Analyzer for z/OS	L-KEDS-A8ZPGG

PID	VRM	Offering name	LI Number
5655-Q42	14.1.0	IBM File Manager for z/OS	L-KEDS-A8ZPJQ
5655-Q49	14.1.0	IBM Application Performance Analyzer for z/OS	L-SCHK-AM7JZJ
5655-Q50	14.1.0	IBM Debug for z Systems	L-JWOG-AM8MHY

See the [License Information documents](#) page on the IBM Software License Agreement website for more information.

Limited warranty applies

Yes

Limited warranty

IBM warrants that when the program is used in the specified operating environment, it will conform to its specifications. The warranty applies only to the unmodified portion of the program. IBM does not warrant uninterrupted or error-free operation of the program or that IBM will correct all program defects. You are responsible for the results obtained from the use of the program.

IBM provides you with access to IBM databases containing information about known program defects, defect corrections, restrictions, and bypasses at no additional charge. For further information, see the [IBM Software Support Handbook](#).

IBM will maintain this information for at least one year after the original licensee acquires the program (warranty period).

Program technical support

Technical support of a program product version or release will be available for a minimum of two years from the general availability date, as long as your Software Subscription and Support (also referred to as Software Maintenance) is in effect.

This technical support allows you to obtain assistance (by telephone or electronic means) from IBM for product-specific, task-oriented questions regarding the installation and operation of the program product. Software Subscription and Support (Software Maintenance) also provides you with access to versions, releases, and updates (CD releases, Long Term Support Releases or fixes) of the program. You will be notified, through an announcement letter, of discontinuance of support with six months' notice. If you require additional technical support from IBM, including an extension of support beyond the discontinuance date, contact your IBM representative or IBM Business Partner. This extension may be available for a fee.

For additional information about the IBM Software Support Lifecycle Policy, see the [IBM Software Support Lifecycle Policy](#) website.

Money-back guarantee

If for any reason you are dissatisfied with the program and you are the original licensee, you may obtain a refund of the amount you paid for it, if within 30 days of your invoice date you return the program and its PoE to the party from whom you obtained it. If you downloaded the program, you may contact the party from whom you acquired it for instructions on how to obtain the refund.

For clarification, note that for programs acquired under any of IBM's On/Off Capacity on Demand (On/Off CoD) software offerings, this term does not apply since these offerings apply to programs already acquired and in use by you.

Volume orders (IVO)

No

Passport Advantage applies

No

Software Subscription and Support applies

Yes. During the Software Subscription and Support period, for the unmodified portion of a program, and to the extent problems can be recreated in the specified operating environment, IBM will provide the following:

- Defect correction information, a restriction, or a bypass.
- Program updates: Periodic releases of collections of code corrections, fixes, functional enhancements and new versions and releases to the program and documentation.
- Technical assistance: A reasonable amount of remote assistance by telephone or electronically to address suspected program defects. Technical assistance is available from the IBM support center in the organization's geography.

Additional details regarding Technical Assistance, which includes IBM contact information, are provided in the [IBM Software Support Handbook](#).

Software Subscription and Support does not include assistance for:

- The design and development of applications.
- Your use of programs in other than their specified operating environment.
- Failures caused by products for which IBM is not responsible under the IBM Agreement for Acquisition of Software Maintenance.

Software Subscription and Support is provided only if the program is within its support timeframe as specified in the Software Support Lifecycle policy for the program.

For operating system software, the revised IBM Operational Support Services - SoftwareXcel offering will provide support for those operating systems and associated products that are not available with the Software Subscription and Support (Software Maintenance) offering.

This will ensure total support coverage for your enterprise needs, including IBM and selected non-IBM products. For complete lists of products supported under both the current and revised offering, go to the [Supported product list](#) website.

Variable charges apply

No

Educational allowance available

Yes. A 15% education allowance applies to qualified education institution clients.

Multi-Version Measurement

Multi-Version Measurement (MVM) replaces the previously announced Migration Grace Period time limit of six months and allows unlimited time for clients to run more than one eligible version of a software program. Clients may run multiple versions of a program simultaneously for an unlimited duration during a program version upgrade. Clients may also choose to run multiple versions of a program simultaneously for an unlimited duration in a production environment. MVM does not extend support dates for programs withdrawn from service.

For more information about MVM, including requirements for qualification, see the [MVM](#) web page. For a list of eligible programs, see the [IPLA Execution-Based](#) web page.

Sub-capacity terms and conditions

For each z Systems IPLA program with Value Unit pricing, the quantity of that program needed to satisfy applicable IBM terms and conditions is referred to as the required license capacity. Your required license capacity is based upon the following factors:

- The z Systems IPLA program you select.
- The applicable Value Unit Exhibit.
- The applicable terms.
- Whether your current mainframes are full capacity or sub-capacity.

For more information about the Value Unit Exhibit for the z Systems IPLA program you selected, see the [Ordering information](#) section.

Full-capacity mainframes

In cases where full capacity is applicable, the following terms apply.

Execution based, z/OS based, full machine based: The required capacity of a z Systems IPLA program with these terms equals the MSU-rated capacity of the machines where the z Systems IPLA program executes.

For more information about mainframe MSU-rated capacities, go to the [IBM System z Software Contracts](#) website.

Reference based: The required license capacity of a z Systems IPLA program with these terms equals the license capacity of the applicable monthly license charge (MLC) program. This MLC program is called the parent program.

Sub-capacity mainframes

In cases where sub-capacity is applicable, the following terms apply.

Execution based: The required capacity of a z Systems IPLA sub-capacity program with these terms equals the capacity of the LPARs where the z Systems IPLA program executes.

z/OS based: The required license capacity of a z Systems IPLA program with these terms equals the license capacity of z/OS on the machines where the z Systems IPLA program executes.

Reference based: The required license capacity of a z Systems IPLA program with these terms equals the license capacity of the applicable monthly license charge (MLC) program. This MLC program is called the parent program.

Full machine based: The required license capacity of a z Systems IPLA program with full machine based terms equals the MSU-rated capacity of the machines where the z Systems IPLA program executes.

For more information about mainframe MSU-rated capacities, see *The IBM z Systems Machines Exhibit*, Z125-3901, or visit the Mainframes section of the z Systems Exhibits website.

For additional information for products with reference-based terms, z Systems IPLA sub-capacity programs with reference-based terms adds value to the parent program across the environment, regardless of where in the environment the z Systems IPLA program executes.

An environment is defined as either a single or stand-alone machine or a qualified Parallel Sysplex^(R). You may have one or more different environments across the enterprise. To determine the required license capacity for each z Systems IPLA program with referenced-based terms, each environment should be assessed separately.

When a z Systems IPLA sub-capacity program with reference-based terms is used in a qualified Parallel Sysplex environment, the required license capacity of the z Systems IPLA program must equal with the license capacity of the parent program across the Parallel Sysplex. Qualified Parallel Sysplex refers to one:

- Where MLC pricing is aggregated across the sysplex.

Sub-capacity eligibility

To be eligible for sub-capacity charging on select z Systems IPLA programs, you must first implement and comply with all terms of either sub-capacity Workload License Charges (WLC) or sub-capacity Entry Workload License Charges (EWLC). To implement sub-capacity WLC or EWLC, a machine must be z Systems (or equivalent). On that machine:

- All instances of the OS/390^(R) operating system must be migrated to the z/OS operating systems.
- Any licenses for the OS/390 operating system must be discontinued.
- All instances of the z/OS operating systems must be running in z/Architecture^(R) (64-bit) mode.

For that machine, you must create and submit a Sub-Capacity Report to IBM each month. Sub-Capacity Reports must be generated using the Sub-Capacity Reporting Tool (SCRT). For additional information or to obtain a copy of SCRT, go to the [IBM System z Software Pricing](#) website.

You must comply with all of the terms of the WLC or EWLC offering, whichever is applicable:

- The complete terms and conditions of sub-capacity WLC are defined in the *IBM Customer Agreement - Attachment for z Systems Workload License Charges (Z125-6516)*.
- The complete terms and conditions for sub-capacity EWLC are defined in the *IBM Customer Agreement - Attachment for EWLC, TWLC, zELC, and z/OS.e License Charges (Z125-6587)*.

Additionally, you must sign and comply with the terms and conditions specified in the amendment to the IPLA contract - *Amendment for Amendment for IBM z Systems Programs Sub-Capacity Pricing (Z125-6929)*. Once the amendment is signed, the terms in the amendment replace any and all previous z Systems IPLA sub-capacity terms and conditions.

Statement of good security practices

IT system security involves protecting systems and information through intrusion prevention, detection, and response to improper access from within and outside your enterprise. Improper access can result in information being altered, destroyed, or misappropriated or can result in misuse of your systems to attack others. Without a comprehensive approach to security, no IT system or product should be considered completely secure and no single product or security measure can be completely effective in preventing improper access. IBM systems and products are designed to be part of a regulatory compliant, comprehensive security approach, which will necessarily involve additional operational procedures, and may require other systems, products, or services to be most effective.

Important: IBM does not warrant that any systems, products, or services are immune from, or will make your enterprise immune from, the malicious or illegal conduct of any party.

Prices

For additional information and current prices, contact your local IBM representative.

Business Partner information

If you are an IBM Business Partner acquiring products from IBM, you may link to Passport Advantage[®] Online for resellers where you can obtain Business Partner pricing information. An IBMid and password are required to access the [IBM Passport Advantage](#) website.

Registered external customers and IBM Business Partners can access [IBMLink](#) to view pricing information.

Specify "Price type," "Search type," and "Search value," then click "Search."

Note: Enter program number in the "Search value."

You can also contact your local IBM representative or IBM Business Partner for the applicable charges.

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