

IBM Cloud Tape Connector for z/OS, V2.1 adds virtual tape emulation capability and supports lifecycle encryption

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At a glance

IBM Cloud™ Tape Connector for z/OS^(R), V2.1 enhances its feature set to make it easier, faster, and more secure to take advantage of cloud storage in your z/OS environment. IBM Cloud Tape Connector for z/OS, V2.1 adds the following new features:

- Robust virtual tape emulation solution with e-vaulting to the cloud or other systems for efficient local virtual tape usage as well as cloud-based offsite storage for cold, archival, or backup data
- Automatic application recall of data from cloud, whether e-vaulted through virtual tape emulation or copied directly to the cloud
- Lifecycle encryption control, enabling enterprises to ensure that any data copied to the cloud is encrypted before it is transmitted, with control of encryption keys remaining on the originating system
- Support for data encryption using asymmetric keys that are managed on the system where the data is created
- Sequential z/OS data set cloud storage and retrieval
- Additional options for optimizing data transfer speeds to the cloud
- Additional cloud storage targets

IBM Cloud Tape Connector for z/OS, V2.1 is available individually or as part of the IBM^(R) Advanced Storage Management Suite for z/OS, V2.2.3.

Overview

IBM Cloud Tape Connector for z/OS is a solution for leveraging the benefits of cloud storage as a new storage tier for mainframe (z/OS) data, offering additional options with new flexibility, security, and economic characteristics for the z/OS environment. IBM Cloud Tape Connector for z/OS supports on-premises storage, remote private, public, and hybrid cloud storage environments, and several other cloud storage platforms for optimum flexibility.

IBM Cloud Tape Connector for z/OS is independent of either your mainframe storage hardware (disk, tape, virtual tape) or the supported cloud target environments. In addition, IBM Cloud Tape Connector for z/OS is a completely software-defined solution, which does not require any hardware gateways.

Because IBM Cloud Tape Connector for z/OS integrates with your current tape or virtual tape processing -- with or without the new virtual tape emulation capability -- it provides a seamless additional tier of storage. This can be managed in the same manner as your distributed platform cloud storage, with the same skills and personnel. Additionally, familiarity with the mainframe platform is not required to manage the target cloud environment. No changes to your applications are required to take advantage of cloud for archival, backup, or additional secured data copies.

IBM Cloud Tape Connector for z/OS works within a security-rich framework to protect your data. Data security is enhanced by lifecycle encryption control which optionally requires that any data transferred to the cloud must be encrypted before transfer through the use of either hardware encryption or software (ICSF). Additionally, data can be further protected in-flight by Secure Sockets Layer (SSL) through the use of Application Transparent Transport Layer Security (AT/TLS). Alternatively, some VPN connections might provide their own encryption support instead of the mainframe-managed SSL. Many supported cloud storage systems provide their own options for encryption at-rest to ensure that your data remains even further protected throughout its lifecycle. Where lifecycle encryption control is used, other encryption would not be required.

For some organizations, a disconnected cloud environment can provide an additional air-gapped security-rich storage mechanism to guard against various types of cyber attacks. Some cloud options also provide methods to distribute data so that no single physical location contains the entire data set, and data can be restored even if one of the storage sites is unavailable.

For organizations with small volumes of tape data, who currently rely on direct-attached physical tape drives, a combination of virtual tape emulation to meet modest local tape usage needs and cloud storage for long-term archival and backup of cold data provides a cost-effective use of the cloud storage tier.

IBM Cloud Tape Connector for z/OS, V2.1 introduces several key features:

- Robust virtual tape emulation solution with e-vaulting to the cloud or other systems for efficient local virtual tape usage as well as cloud-based offsite storage for cold, archival, or backup data. Virtual tape emulation simulates IBM compatible tape controllers, tape drives, and tape volumes. It replaces real tape devices with logical, memory resident, virtual tape devices. Tape volumes are replaced with virtual tape data sets that are maintained on any IBM z/OS-compatible disk subsystem. Virtual tape emulation in IBM Cloud Tape Connector for z/OS provides several vault, transfer, and recovery options to support business continuity and resiliency.
- Automatic application recall of data from cloud, whether e-vaulted through virtual tape emulation or copied directly to the cloud. Automatic recall can seamlessly keep track of where managed data resides, on virtual tape or on the cloud, and will return the data automatically when called for. This feature is designed to return cloud-stored data without requiring the location of that data.
- Pervasive encryption support. This feature enables enterprises to ensure that any data copied to the cloud is encrypted before it is transmitted, automatically protecting and handling the encryption keys.
- Sequential z/OS data set cloud storage and retrieval. Sequential data sets stored on disk or flash storage can be moved to the cloud by IBM Cloud Tape Connector for z/OS without the requirement of performing a tape-write operation.
- Additional tuning and multithreading options for optimizing data transfer speeds to the cloud.
- Support for Amazon S3, IBM Cloud Object Storage using S3 protocol, Hitachi HCP protocol, and EMC Elastic Cloud Service Protocol.

Key prerequisites

See the [Software requirements](#) and [Hardware requirements](#) sections.

Planned availability date

November 16, 2018

See the [Availability of national languages](#) section for national language availability.

Description

Key highlights of IBM Cloud Tape Connector for z/OS, V2.1

Virtual tape emulation

Virtual tape emulation simulates IBM-compatible tape controllers, tape drives, and tape volumes. It does not introduce new hardware; rather, real tape devices are replaced by logical, memory resident, virtual tape devices. Tape volumes are replaced with virtual tape data sets that are maintained on any IBM z/OS compatible disk subsystem.

Virtual tape emulation virtual tapes can be configured in a virtual tape emulation complex that enables concurrent access to tape volumes. Virtual tape emulation supports standard-label and no-label tapes, as well as multiple data set volumes and multiple volume data sets.

Implementation does not require any changes to existing job control language (JCL) or applications. The user can code rules into the virtual tape emulation server parameter list to permit sharing of virtual tapes by applications within the same z/OS.

Virtual tape emulation can provide up to 256 virtual tape devices per server and can handle an unlimited number of virtual tapes. Additionally, the virtual tape library can be shared among systems. Additional media capacity is achieved by adding more disk space to the system.

Virtual tape emulation virtual tapes are managed by the site's tape management system or can be system managed by using Interactive System Productivity Facility (ISPF) or another online browser.

The virtual tape emulation capability in IBM Cloud Tape Connector for z/OS provides several options to support business continuity and resiliency:

- The virtual tape emulation capability can seamlessly electronically vault virtual tape data to one or more onsite or offsite cloud object storage locations.
- In conjunction with IBM Extended Remote Copy (XRC) or IBM Peer to Peer Remote Copy (PPRC), virtual tape emulation offers quick recovery of and access to virtual tape libraries in a disaster recovery situation.
- XRC or PPRC can also be used to electronically transfer tape data while migrating or merging data centers.
- In conjunction with an FTP, Storage Virtual Tape Facility Mainframe (VTFM) can also electronically vault virtual tapes to one or more remote off-site storage locations.

Note: IBM Cloud Tape Connector Virtual Tape Emulation incorporates in its entirety the functions that were formerly available in IBM System Storage^(R) Virtual Tape Facility (VTF) Mainframe V3.0.0 (5655-V43), which was withdrawn from Marketing effective March 12, 2018.

Automatic recall

If you use the virtual tape emulation capability in IBM Cloud Tape Connector for z/OS, it will seamlessly keep track of where managed data resides, on virtual tape or on the cloud, and will return the data automatically when called for. For data not being managed by virtual tape emulation, IBM Cloud Tape Connector for z/OS is

also capable of updating Integrated Catalog Facility (ICF) catalog entries to ensure that cloud-stored data is returned when called for, regardless of whether the user or application is aware of the location.

Lifecycle encryption control

IBM Cloud Tape Connector for z/OS can optionally require that all data be encrypted, using ICSF or hardware encryption if available, prior to any transfer to the cloud. Encryption in flight by AT/TLS or other methods can optionally be utilized, as can encryption at-rest provided by the chosen cloud repository. When lifecycle encryption control is used, encryption keys are controlled solely by the originating system.

Sequential data set usage

IBM Cloud Tape Connector for z/OS no longer requires that data is written to tape (virtual or physical) as part of the data movement process. Sequential data sets stored on disk or flash storage can be moved to the cloud by IBM Cloud Tape Connector for z/OS without the requirement of doing a tape-write operation.

Tuning and multithreading options

IBM Cloud Tape Connector for z/OS now offers additional options in multithreading and object size to optimize throughput and system performance levels, balancing CPU or zIIP processor usage with transmission speed over TCP/IP, for the right balance in each enterprise.

Additional cloud target options

IBM Cloud Tape Connector for z/OS supports Amazon S3, IBM Cloud Object Storage using S3 protocol, Hitachi HCP protocol, and now EMC Elastic Cloud Service (ECS). IBM Cloud Tape Connector for z/OS also continues to support FTP for cloud storage.

Package options geared for flexibility and business agility

IBM Cloud Tape Connector for z/OS, V2.1 is available as a stand-alone offering or as a component of the IBM Advanced Storage Management Suite for z/OS, V2.2.3.

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^(R) 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

See the following Software Announcements for more information about the products that are included in Service Management Suite for z/OS, V1.5.0:

- IBM System Automation for z/OS, V4.1, in Software Announcement [217-086](#), dated February 28, 2017
- IBM Tivoli^(R) NetView^(R) for z/OS, V6.2, in Software Announcement [213-445](#), dated October 22, 2013
- IBM Tivoli Asset Discovery for z/OS, V8.1, in Software Announcement [213-036](#), dated February 12, 2013

See the following Software Announcements for more information about the products that are included in IBM OMEGAMON^(R) Performance Management Suite for z/OS, V5.5.0:

- IBM Tivoli OMEGAMON XE for DB2^(R) Performance Expert on z/OS, V5.4.0, in Software Announcement [216-345](#), dated October 4, 2016
- IBM OMEGAMON for JVM on z/OS, V5.4.0, IBM OMEGAMON for Storage on z/OS, V5.4.0, in Software Announcement [216-345](#), dated October 4, 2016
- IBM Tivoli Composite Application Manager for z/OS, V7.1, in Software Announcement [209-424](#), dated December 01, 2009

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 218-493](#)

Availability of national languages

Translation information, if available, can be found at the [Translation Reports](#) website.

Program number

Program number	VRM	Program name
5698-ABM	2.1.0	IBM Cloud Tape Connector for z/OS

Program number	VRM	Program name
5698-AAJ	2.2.3	IBM Advanced Storage Management Suite for z/OS

Product identification number

Program PID number	Subscription and Support PID number
5698- ABM	5698-ABE
5698-AAJ	5698-Z10

Education support

IBM training provides education to support many IBM offerings. Descriptions of courses for IT professionals and managers can be found on the [IBM authorized training](#) website.

Call IBM training at 800-IBM-TEACH (426-8322) for catalogs, schedules, and enrollments.

Offering Information

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

Publications

The following publications will be available for ordering on the general availability date. To order, use IBM Knowledge Center, or contact your IBM representative.

IBM Cloud Tape Connector for z/OS (5698-ABM)

Title	Publication number
IBM Cloud Tape Connector for z/OS Program Directory	GI13-4154
IBM Cloud Tape Connector for z/OS User's Guide	SC27-9403
IBM Cloud Tape Connector for z/OS License Information CD	LC27-8719

IBM Advanced Storage Management Suite for z/OS, V2.2.2 (5698-AAJ)

Title	Publication number
IBM Advanced Storage Management Suite for z/OS Program Directory	GI13-2258
IBM Advanced Storage Management Suite for z/OS License Information CD	LC27-4898

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

To install and use the virtual tape emulation capability in IBM Cloud Tape Connector for z/OS, you must have sufficient disk space available. The minimum required to store the tape is one 3390 disk volume. Virtual tape emulation must have a console to perform system installation and maintenance.

One console (monitor, keyboard, and mouse) is required. Confer with your IBM representative for console configuration alternatives.

A supported cloud storage environment is required to store data in the cloud. Supported object storage environments include:

Supported environment	Storage	API
IBM Cloud Object Storage	Object	S3 compatibility V4 auth only
IBM SoftLayer ^(R)	Object	OpenStack SWIFT
Amazon S3	Object	V4 auth only
HDS HCP	Object	V7
EMC ECS	Object	S3 compatibility V4 auth only

Software requirements

The minimum software requirements for IBM Cloud Tape Connector for z/OS are:

- IBM z/OS V2.2 (5650-ZOS), or later.
- Optional Application Transparent TLS (AT-TLS) feature of z/OS Communications Server
- Optional software prerequisite:
 - 5695-013 IBM Library for SAA REXX/370 V1.4.0, or later
 - Execute REXX compiled programs (Compression type-3)

For more information, see the Program Directory or the *Planning and Installation Manual*.

Other products that are part of Advanced Storage Management Suite for z/OS, V2.2.3 might have different minimum hardware and software requirements. See the [Reference information](#) section for links to the individual product announcements. The **Software requirements** section in each announcement provides detailed information for each product.

Planning information

Packaging

The programs in this announcement are distributed with:

- International Program License Agreement (Z125-3301)
- License Information document
- Publications (see the [Publications](#) section)
- Media

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.

Direct client support

For technical support or assistance, contact your IBM representative or go to the [IBM Support Portal](#) website.

Security, auditability, and control

The programs in this announcement use the security and auditability features of the operating system software.

The client is responsible for evaluation, selection, and implementation of security features, administrative procedures, and appropriate controls in application systems and communication facilities.

Ordering information

Consult your IBM representative.

The programs in this announcement all have Value Unit-Based pricing.

Program number	Program name	Value Unit exhibit
5698-ABM	IBM Cloud Tape Connector for z/OS	VUE007
5698-AAJ	IBM Advanced Storage Management Suite for z/OS	VUE007

For each IBM Z^(R) 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 IBM Z IPLA program you select
- The applicable Value Unit Exhibit
- The applicable terms
- Whether your current mainframes are full capacity or sub-capacity

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 IBM Z 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	MSUs	Multiplied by Value Units per MSU	Equal Value Units
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.

Ordering z/OS through the internet

Shopz provides an easy way to plan and order your z/OS ServerPac or CBPDO. It will analyze your current installation, determine the correct product migration, and present your new configuration based on z/OS. Additional products can also be added to your order (including determination of whether all product requisites are satisfied). Shopz is available in the US and several countries in Europe. In countries where Shopz is not available yet, contact your IBM representative (or IBM Business Partner) to handle your order through the traditional IBM ordering process. For more details and availability, visit [Shopz](#).

Charge metric

Definitions of the charge metrics for these licensed products can be found in the following License Information documents:

Program name	PID number	Charge metric	License Information document number
IBM Cloud Tape Connector for z/OS, V2.1.0	5698-ABM	Value Unit	L-ESMH-B4JNBT
IBM Advanced Storage Management Suite for z/OS, V2.2.2	5698-AAJ	Value Unit	L-LARL-B37MXA

Select your language of choice and scroll down to the Charge Metrics section.

Basic license

On/Off CoD

The products in this announcement are eligible for On/Off Capacity on Demand (CoD) with a temporary use charge calculated based on MSUs per-day usage.

Translation from MSUs to Value Units

	MSUs	Value Units/MSU
Base	1-3	1.00
Tier A	4-45	.45
Tier B	46-175	.36
Tier C	176-315	.27
Tier D	316 or greater	.20

To order, specify the program ID number and the appropriate license or charge option. To suppress shipment of media, select the license-only option in CFSW.

Program name: IBM Cloud Tape Connector for z/OS, V2.1.0

Program ID: 5698-ABM

Entitlement identifier	Description	License option/Pricing metric
S018D66	Cloud Tape Connector for z/OS	MultiVersion Measurement No Charge Value Units On Off Capacity on demand Temporary Use charge MSU-DAY(s)User-Based License One-Time Charge Value Units
Orderable supply ID	Language	
S018D67	English	

You choose the delivery method when you order the software. IBM recommends internet delivery. However, if you still require physical media, you can choose DVD.

Subscription and Support Program ID: 5698-ABE

Entitlement identifier	Description	License option/Pricing metric
S017ZB0	Cloud Tape Connector for z/OS S&S	Basic ASC, per Value Unit SW S&S, No charge, decline SW S&S, Per MSU SW S&S registration, Multi-Version Measurement S&S NC
Orderable supply ID	Language	
S017Z9Z	English	

For more information about IBM Advanced Storage Management Suite for z/OS (5698-AAJ), see the **Ordering information** section in Software Announcement [216-052](#), dated September 13, 2016.

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 ID referenced above and the appropriate license or charge option.

IBM is also providing Subscription and Support for these programs with 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 by telephone.
- Entitles you to future releases and versions, at no additional charge. Note that you are not entitled to new programs.

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 IBM Z[®] 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. 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. However, if you still require physical media, you can choose DVD.

Many 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 about product ServerPac, go to the Help section on the [Shopz](#) website.

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.

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 Operational Support Services - SoftwareXcel is an option if you desire added services.

License Information number

The following License Information documents apply to the offerings in this announcement:

Program identifier	License Information document title	License Information document number
5698-ABM	IBM Cloud Tape Connector on z/OS	L-ESMH-B4JNBT
5698-AAJ	IBM Advanced Storage Management Suite for z/OS	L-ESMH-B37N97

Follow-on releases, if any, may have updated terms. See the [License Information documents](#) 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 five 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 updates (modifications or fixes), releases, and versions of the program. You will be notified, through an announcement letter, of discontinuance of support with 12 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.

IBM Operational Support Services - SoftwareXcel

Yes

Variable charges apply

Yes

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 IBM Z 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 IBM Z 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 IBM Z IPLA program you selected, see the [Ordering information](#) section.

Program number	Program name	Terms
5698-ABM	IBM Cloud Tape Connector for z/OS, V2.1	z/OS-based
5698-AAJ	IBM Advanced Storage Management Suite for z/OS V2.2.3	z/OS-based

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 an IBM Z IPLA program with these terms equals the MSU-rated capacity of the machines where the IBM Z IPLA program executes.

IBM full-capacity ratings that can be found on the Mainframe Exhibits section of the [IBM Z software pricing \(z Systems Software Contracts\)](#) website.

Reference based: The required license capacity of a IBM Z 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 an IBM Z IPLA sub-capacity program with these terms equals the capacity of the LPARs where the IBM Z IPLA program executes.

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

Reference based: The required license capacity of an IBM Z 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 an IBM Z IPLA program with full machine based terms equals the MSU-rated capacity of the machines where the IBM Z IPLA program executes.

For more information about mainframe MSU-rated capacities, see *The IBM z Systems Machines Exhibit*, Z125-3901, or see the Mainframe Exhibits section of the [IBM Z software pricing \(z Systems Software Contracts\)](#) website.

For additional information for products with reference-based terms, IBM Z IPLA sub-capacity programs with reference-based terms adds value to the parent program across the environment, regardless of where in the environment the IBM Z 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 IBM Z IPLA program with referenced-based terms, each environment should be assessed separately.

When an IBM Z IPLA sub-capacity program with reference-based terms is used in a qualified Parallel Sysplex environment, the required license capacity of the IBM Z 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 IBM Z 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 IBM Z (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, see the [IBM Z \(z Systems Software Pricing\)](#) 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 (z Systems Programs Sub-Capacity Pricing) (Z125-6929)*. Once the amendment is signed, the terms in the amendment replace any and all previous IBM Z IPLA sub-capacity terms and conditions.

Sub-capacity utilization determination

Sub-capacity utilization is determined based on the utilization of an eligible operating system and machine, for example, z/OS running in z/Architecture (64-bit) mode on an IBM Z, or equivalent, server.

Sub-capacity utilization is determined based on the product's own execution as reported to IBM in accordance with the requirements for reporting sub-capacity utilization for products.

On/Off CoD

To be eligible for On/Off CoD pricing, you must be enabled for temporary capacity on the corresponding hardware, and the required contract, Attachment for IBM z Systems On/Off Capacity on Demand (Z125-7883) must be signed prior to use.

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.

Registered external customers and IBM Business Partners can access IBMLink for charges. See [Purchase/upgrade tools](#) on the IBMLink website.

For software prices, select "Look up IBM System z software prices (ESWPrice)" under "Prices." Specify "Price type," "Search type," and "Search value," then click "Search."

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

Variable charges: The applicable processor-based one-time charge will be based on the group of the designated machine on which the program is licensed for use. If the program is designated to a processor in a group for which no charge is listed, the charge of the next higher group listed applies. For movement to a machine in a higher group, an upgrade charge equal to the difference in the then-current charges between the two groups will apply. For movement to a machine in a lower group, there will be no adjustment or refund of charges paid.

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