IBM Tivoli Directory Integrator for z/OS V7.1 -- a reliable, scalable, flexible, and easy-to-deploy data integration platform for a broad range of protocols and applications

Table of contents
1 Overview 5 Publications
2 Key prerequisites 6 Technical information
2 Planned availability date 12 Ordering information
2 Description 15 Terms and conditions
4 Product positioning 21 Prices
5 Program number 21 Announcement countries

At a glance

IBM® Tivoli® Directory Integrator for z/OS® V7.1 delivers:

• New components such as Database connector, CDM components, and IT Registry
• Reduced integration efforts by providing Tivoli Directory Integrator as a service using the Representational State Transfer (REST) interface
• New and simplified interface in Configuration Editor, called Easy ETL, to develop point-to-point integrations
• New Data Stepper in Configuration Editor which provides ability to visually step through data processed by an AssemblyLine
• Support for SolidDB in-memory database

IBM Tivoli Directory Integrator for z/OS V7.1 also:

• Helps improve usability and increase productivity with Eclipse-based development environment and redesigned Configuration Editor
• Can simplify monitoring with an enhanced administrative management console with a customizable view, and new triggers and actions

Overview

IBM Tivoli Directory Integrator for z/OS V7.1 is an open-architecture, metadirectory solution that synchronizes and exchanges information across multiple applications and platforms, providing a consistent enterprise-level view of identity or generic data.

IBM Tivoli Directory Integrator for z/OS offers a reliable, scalable, standards-based directory and data integration platform that interoperates with a broad range of protocols, operating systems, and applications. The strong scalability and flexibility offered by Tivoli Directory Integrator for z/OS can benefit third-party applications as well as IBM solutions for which Tivoli Directory Integrator for z/OS is the default integration infrastructure, such as IBM Tivoli Identity Manager, IBM Tivoli Service Request Manager®, IBM Tivoli Access Manager, IBM Tivoli Change and Configuration Management Database, IBM Lotus Notes® Connections, and IBM Lotus Notes Domino®. Using the Representational State Transfer (REST) interface, third-party applications can use Tivoli Directory Integrator for z/OS as a service.
Tivoli Directory Integrator for z/OS Identity Edition and Directory Integrator for z/OS General Purpose Edition can help you create an authoritative data infrastructure by serving as a flexible integration service for identity or generic data residing in heterogeneous directories, databases, files, collaborative systems, and applications. Similarly, Tivoli Directory Integrator for z/OS provides an efficient integration service for asset and ticket integration.

IBM Tivoli Directory Integrator for z/OS V7.1 continues to grow as a key integration middle layer and development platform. It delivers:

- New components such as Database connector, CDM components, and IT Registry
- Better integration efforts by providing Tivoli Directory Integrator for z/OS as a service using the REST interface
- A new and simplified interface, called Easy ETL, in Configuration Editor to develop point-to-point integration
- New Data Stepper in Configuration Editor, which provides the ability to visually step through data processed by an AssemblyLine
- SolidDB in-memory database support (refer to the product documentation for more information)

Key prerequisites

Refer to the Hardware requirements and Software requirements sections.

Planned availability date

July 9, 2010

Refer to the complete letter for national language availability.

Description

IBM Tivoli Directory Integrator for z/OS V7.1 complements the IBM Tivoli integrated identity management portfolio by helping you quickly and effectively integrate data residing in heterogeneous directories, databases, files, collaborative systems, and applications. You are able to create authoritative data infrastructure that helps maximize the value and accelerate the deployment of critical On Demand business applications such as identity management and portal solutions.

Tivoli Directory Integrator Identity Edition for z/OS can help you create a powerful and authoritative enterprise directory infrastructure by serving as a flexible, synchronized layer between your company's identity structure and the application sources of identity data. Tivoli Directory Integrator General Purpose Edition for z/OS provides batch and real-time synchronization between multiple generic data sources and targets, to consolidate information into a single accurate repository across the enterprise, which can decrease administrative costs.

IBM Tivoli Directory Integrator for z/OS V7.1 enhancements

Configuration Editor enhancement (Eclipse-based development environment)

- Easy-to-create solutions using Easy ETL
- New Data Stepper in Configuration Editor, which provides ability to visually step through data processed by an AssemblyLine
- Can improve ease of JavaScript™ editing to help reduce development and debugging time, including support for the use of shorthand in JavaScripts in expressions
- Enhanced stepping and debugging of AssemblyLines
– Enables users to easily see the attribute flows and changes in attribute values
– Can debug AssemblyLines started by other processes

Enhanced manageability, usability, and scalability

• Easy to use and deploy, offering the ability to scale from small to very large deployments.
• Enhanced administrative management console helps simplify monitoring of Tivoli Directory Integrator for z/OS, unifying even complex deployments with multiple servers into a single customizable view. Some key enhancements:
  – Deploys and executes in the Integrated Solutions Console (ISC) Standard Edition (SE) and ISC Advanced Edition (AE) environments
  – Delivers new triggers and actions, including the ability to send e-mail in response to an event
  – Supports alternate databases
• Provides logging flexibility and customization with new pluggable logging capabilities and a new Log Connector.
• Provides audit services to allow for customized monitoring of solution specific events in Tivoli Directory Integrator for z/OS.
• Can reduce time to value for users by providing better education content and improved javadocs.
• Helps increase ability to test solutions in production systems with a new Simulate mode for AssemblyLines.

Enhanced Tivoli Directory Integrator for z/OS V7.1 components and support

• Enhanced support for IBM’s data integration initiative with CDM components and IT Registry
• Provides Tivoli Directory Integrator for z/OS as a service so that frameworks and applications can develop a user interface on top of Tivoli Directory Integrator for z/OS and access Tivoli Directory Integrator for z/OS connectors directly instead of creating the AssemblyLine
• Has easy-to-use interface to JDBC connector to connect to the databases
• Supports SolidDB in-memory database (refer to the product documentation for more information)

The deliverable package for IBM Tivoli Directory Integrator for z/OS V7.1 includes IBM Tivoli Directory Server V6.2, at no additional charge, if you are interested in deploying a reliable, scalable, enterprise directory for exclusive use with your Tivoli Directory Integrator for z/OS solution. Tivoli Directory Integrator for z/OS V7.1 can be used to connect disparate data sources to the IBM Tivoli Directory Server V6.2 data store to create a consistent view of enterprise data.

Accessibility by people with disabilities

A U.S. Section 508 Voluntary Product Accessibility Template (VPAT) containing details on accessibility compliance can be requested at


Value Unit-based pricing

Value Unit pricing for eligible IBM System z® IBM International Program License Agreement (IPLA) programs enables a lower cost of incremental growth and enterprise aggregation. Each System z 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 System 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**. 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 System z IPLA program that you have acquired is referred to as **entitled license capacity**. If you wish to grow your entitled license capacity for a System z IPLA program, the calculation to determine additional needed Value Units is based upon the number of Value Units already acquired.

For each System z 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 Web site [http://ibm.com/zseries/swprice/vuctool](http://ibm.com/zseries/swprice/vuctool)

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 System z IPLA program you selected, refer to the **Terms and conditions** section.

### Product positioning

Tivoli Directory Integrator for z/OS provides real-time synchronization between data sources.

Tivoli Directory Integrator Identity Edition for z/OS can help you create an authoritative enterprise directory infrastructure by serving as a flexible, synchronized layer between a company’s identity structure and the application sources of identity data.

Tivoli Directory Integrator General Purpose Edition for z/OS provides batch and real-time synchronization between multiple generic data sources and targets, to consolidate information into a single accurate repository across the enterprise, which can decrease administrative costs.

### Availability of national languages

IBM Tivoli Directory Integrator for z/OS is enabled to support all language environments and is translated into the following languages on the dates shown below.
Language                       Availability date

English, French,  
German, Italian                July 9, 2010

Program number

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<tr>
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<td></td>
<td>Identity Edition for z/OS</td>
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<td>5698-B33</td>
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<td></td>
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<td>General Purpose Edition for z/OS</td>
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</table>

Product identification number

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<td>5698-R09</td>
</tr>
<tr>
<td>5698-B33</td>
<td>5698-R23</td>
</tr>
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</table>

Education support

Comprehensive education for IBM Tivoli products is offered through Worldwide Tivoli Education Delivery Services. A wide range of training options are available, including classes led by instructors, learning on demand, on-site training, and blended learning solutions.

For additional information, visit


Offering Information

Product information is available via the Offering Information Web site

http://www.ibm.com/common/ssi

Publications

The following English and national language product manuals may be downloaded from the following Web site

http://publib.boulder.ibm.com/tividd/td/link/tdprodlist.html

The Tivoli Directory Integrator for z/OS Program Directory can be found by accessing the support Web site and following the links to the product

http://www-ibm.com/software/sysmgmt/products/support/

English publications will be available on the product’s general availability date. National language publications will be available within 60 days of general availability.
IBM Tivoli Directory Integrator for z/OS V7.1

<table>
<thead>
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<th>Title</th>
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<tr>
<td>Getting Started</td>
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</tr>
<tr>
<td>Quick Start Guide</td>
<td>GI11-9327-00</td>
</tr>
<tr>
<td>Release Notes</td>
<td>GI11-9326-00</td>
</tr>
<tr>
<td>Reference Guide</td>
<td>SC27-2707-00</td>
</tr>
<tr>
<td>Installation and Administrator Guide</td>
<td>SC27-2705-00</td>
</tr>
<tr>
<td>Users Guide</td>
<td>SC27-2706-00</td>
</tr>
<tr>
<td>Problem Determination Guide</td>
<td>GC27-2709-00</td>
</tr>
<tr>
<td>Message Guide</td>
<td>GC27-2710-00</td>
</tr>
<tr>
<td>Password Synchronization Plug-ins Guide</td>
<td>SC27-2708-00</td>
</tr>
<tr>
<td>Program Directory for IBM Tivoli Directory</td>
<td>GI11-8758-01</td>
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The IBM Publications Center

http://www.ibm.com/shop/publications/order

The Publications Center is a worldwide central repository for IBM product publications and marketing material with a catalog of 70,000 items. Extensive search facilities are provided. Payment options for orders are via credit card (in the U.S.) or customer number for 20 countries. A large number of publications are available online in various file formats, and they can all be downloaded by all countries, free of charge.

Technical information

Specified operating environment

Hardware requirements

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

Software requirements

The following are the supported platforms:

Native s/390 and System z

• z/OS V1.10 and z/OS V1.11

Notes:

1. Program number 5655-N98 (Java™ 5.0 for z/OS V5.0 Service Release 1 (z/OS) (pmz31dev-20080315) (J9-5)) must be installed.
2. Tivoli Directory Integrator Server and other components run in 31-bit tolerance mode because it requires and uses a 32-bit JRE.
3. Tivoli Directory Integrator Configuration Editor is not supported locally on native S/390® and System z. The Configuration Editor will have to be run remotely from a supported operating system.

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
IBM Tivoli Directory Integrator for z/OS V7.1 is distributed with:

- International Program License Agreement (Z125-3301)
- License Information document
- Tape and DVD
- Publications (refer to the Publications section)

Security, auditability, and control
IBM Tivoli Directory Integrator for z/OS V7.1 uses the security and auditability features of the operating system software. The customer is responsible for evaluation, selection, and implementation of security features, administrative procedures, and appropriate controls in application systems and communication facilities.

Global Technology Services
Contact your IBM representative for the list of selected services available in your country, either as standard or customized offerings for the efficient installation, implementation, or integration of this product.

Licensing metric definitions and pricing examples

Licensing metric definitions

Value Unit (VU)

The VU is a unit of measure by which the program can be licensed. A single price per VU is established for the program, and Proofs of Entitlement (PoEs) for VUs are based on a designated measurement category (for example, Million Service Units (MSUs) capacity of a machine, engines, messages, users) specified by IBM for the program which is used to calculate the required VUs based on a conversion matrix or Value Unit Exhibit (VUE). The VUE that applies to this program is VUE 020 which can be found at


Value Units for this program may not be exchanged, interchanged, or aggregated with Value Units for any other program.

Value Unit pricing for this program is based upon MSUs. This program is z/OS-based, which means that in a full capacity environment required licensing will be the full capacity number of MSUs of each machine where the program is running. In sub-capacity pricing, because licensee's required license capacity is equal to z/OS MSUs, IBM will determine licensee's required license capacity for the program by reviewing the billable z/OS MSUs shown on the Sub-Capacity Reports for the machines where the program executes. Under these terms, the System z IPLA required license capacity is reevaluated based upon the monthly Sub-Capacity Reports.

Translation from MSUs to Value Units:

For 1-3 MSUs, 1 Value Unit per MSU is required.
For 4-45 MSUs, .15 Value Units per MSU is required.
For 46-175 MSUs, .08 Value Units per MSU is required.
For 176-315 MSUs, .04 Value Units per MSU is required.
For 316+ MSUs, .03 Value Units per MSU is required.
The result of the calculation for MSU Value Units must be rounded up to the next highest integer value for the pricing calculation.

**Standby or backup systems**

For programs running or resident on backup machines, IBM defines three types of situations: cold, warm and hot. In cold and warm situations, a separate entitlement for the copy on the backup machine is normally not required and typically no additional charge applies. In a hot backup situation, the customer needs to acquire other license or entitlements sufficient for that server. All programs running in backup mode must be solely under the customer's control, even if running at another enterprise's location.

As a practice, the following are definitions and allowable actions concerning the copy of the program used for backup purposes.

**Cold:** A copy of the program may reside, for backup purposes, on a machine as long as the program is not started. There is no additional charge for this copy.

**Warm:** A copy of the program may reside for backup purposes on a machine and is started, but is idling, and is not doing any work of any kind. There is no additional charge for this copy.

**Hot:** A copy of the program may reside for backup purposes on a machine, is started, and is doing work. The customer must acquire a license or entitlements for this copy and there will generally be an additional charge.

Doing work includes, for example, production, development, program maintenance, and testing. It also could include other activities such as mirroring of transactions, updating of files, synchronization of programs, data or other resources (for example, active linking with another machine, program, database or other resource, and so on), or any activity or configurations that would allow an active hot switch or other synchronized switch over between programs, databases, or other resources to occur.

In the case of a program or system configuration that is designed to support a high availability environment by using various techniques (for example, duplexing, mirroring of files, or transactions, maintaining a heartbeat, active linking with another machine, program, database, or other resource), the program is considered to be doing work in the hot situation and a license or entitlement must be purchased.

**Value Units (VU)**

The VU is a unit of measure by which the program can be licensed. A single price per VU is established for the program, and Proofs of Entitlement (PoEs) for VUs are based on a designated measurement category (for example, Million Service Units (MSUs) capacity of a machine, engines, messages, users) specified by IBM for the program which is used to calculate the required VUs based on a conversion matrix or Value Unit Exhibit (VUE). The VUE that applies to this program is VUE 030 which can be found at


Value Units for this program may not be exchanged, interchanged, or aggregated with Value Units for any other program.

Licensee must obtain the appropriate number of VU entitlements based on the type of user given access to the program. The types of users are:

- An internal user is a unique person that is given access to the program that is part of, a contractor performing work on behalf of, or an employee of the licensee. Each internal user equals one user for the purpose of calculating Value Units.
- An external user is a unique person that is given access to the program that is not part of, a contractor performing work on behalf of, or an employee of the licensee. A ratio of 15 external users equals 1 user for the purpose of calculating Value Units.
• An infrequent internal user is an internal user who accesses the program less than five times a year. Infrequent internal users must be grouped so as to be trackable and auditable. A ratio of 15 infrequent internal users equals 1 user for the purpose of calculating Value Units.

Users are added up and the volume tiering information below is then utilized to calculate the total Value Unit entitlements required.

For 1 to 5,000 users, 1 Value Unit per user
For 5,001 to 15,000 users, 0.5 Value Unit per user
For 15,001 to 50,000 users, 0.3 Value Unit per user
For 50,001 to 150,000 users, 0.2 Value Unit per user
For 150,001 to 500,000 users, 0.1 Value Unit per user
For 500,001 to 1 million users, 0.05 Value Unit per user
For greater than 1 million to 3 million users, 0.025 Value Unit per user
For greater than 3 million users, 0.01 Value Unit per user

Pricing examples

The following examples are provided to illustrate your licensing requirements.

Pricing example for IBM Tivoli Directory Integrator Identity Edition for z/OS V7.1

The examples provided for IBM Tivoli Directory Integrator Identity Edition for z/OS show how users are counted in calculating Value Units. An external user is one that is not part of the enterprise. Tivoli Directory Integrator for z/OS uses a ratio of 15 external authorized users equal 1 chargeable user for the purpose of calculating Value Units.

Each internal user equals one chargeable user for the purpose of calculating Value Units. Internal and external authorized users are combined to calculate total chargeable users required. Infrequent internal users who utilize their IDs less than five times a year, and are grouped so as to be trackable and auditable, will be granted a ratio of 15 infrequent internal users equal to 1 chargeable user for the purpose of calculating Value Units.

Chargeable users are added up and the volume tiering table is then utilized to calculate the total Value Units required to cover entitlements.

Scalable usage levels are determined by the number of users required. The Value Unit requirement covers all chargeable users within a scalable usage level. For IBM Tivoli Directory Integrator Identity Edition for z/OS the following scalable usage table will be used to determine the required Value Unit.

Value Unit Exhibit 30 (VUE030)

<table>
<thead>
<tr>
<th>Scalable usage level</th>
<th>1-5K</th>
<th>&gt;5K-15K</th>
<th>&gt;15K-50K</th>
<th>&gt;50K - 150K</th>
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</thead>
<tbody>
<tr>
<td>Chargeable users</td>
<td>1,000</td>
<td>500</td>
<td>300</td>
<td>200</td>
</tr>
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<td>Value Units per 1,000 Users</td>
<td></td>
<td></td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Scalable usage level</th>
<th>5-6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chargeable users</td>
<td>&gt;150K-500K</td>
<td>1M-3M</td>
<td>&gt;3M</td>
</tr>
<tr>
<td>Value Units per 1,000 Users</td>
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<table>
<thead>
<tr>
<th></th>
<th>100</th>
<th>50</th>
<th>25</th>
<th>10</th>
</tr>
</thead>
</table>
Scenario 1

Transaction 1: The customer is using Tivoli Directory Integrator Identity Edition for z/OS for an environment comprised of three connected systems with a total of 3,000 unique users. Each of these 3,000 internal users equals one chargeable user (or 3,000 total chargeable users).

In this scenario, since all of the users that require a charge fall into the first tier and are a straight one-to-one (chargeable users to Value Units), the 3,000 chargeable users equates to 3,000 Value Units to order.

Scenario 2

Transaction 1: A customer is using IBM Tivoli Directory Integrator Identity Edition for z/OS for an environment comprised of 3 connected systems with 30,000 unique internal corporate users and 15,000 infrequent factory employees (usage less than 5 times per year).

The chargeable authorized users are counted as follows:

- The 30,000 internal users equate to 30,000 chargeable users (at 1 internal user equals 1 chargeable user).
- The 15,000 infrequent factory workers (infrequent internal users) equate to 1,000 chargeable users (at 15 infrequent internal users equals 1 chargeable user, whose usage must be trackable and auditable at less than 5 times per year).

This equates to 31,000 chargeable users for the purpose of calculating Value Units.

All users are counted one time regardless of the number of connections.

Based on 31,000 chargeable users, the total number of Value Units required is as follows:

<table>
<thead>
<tr>
<th>Pricing metric</th>
<th>Quantity in customer environment (A)</th>
<th>Value Units per 1,000 chargeable users (B)</th>
<th>Value Units required (A*B)/1,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tier 1</td>
<td>5,000</td>
<td>1,000</td>
<td>5,000</td>
</tr>
<tr>
<td>Tier 2</td>
<td>10,000</td>
<td>500</td>
<td>5,000</td>
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<tr>
<td>Tier 3</td>
<td>16,000</td>
<td>300</td>
<td>4,800</td>
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<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>14,800</strong></td>
</tr>
</tbody>
</table>

Value Units

Transaction 2: The customer, 6 months after Transaction 1, now requires IBM Tivoli Directory Integrator Identity Edition for z/OS for its environment which has grown to 4 connections and now includes 375,000 external users in addition to the existing 31,000 internal chargeable users. Applying the 15 to 1 ratio of external users to chargeable users, the 375,000 external users equates to 25,000 chargeable users, and a new total of 56,000 chargeable users.

Based on 56,000 chargeable users, the total number of Value Units required is as follows:

<table>
<thead>
<tr>
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<th>Value Units per 1,000 chargeable users (B)</th>
<th>Value Units required (A*B)/1,000</th>
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<tbody>
<tr>
<td>Tier 1</td>
<td>5,000</td>
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<td>5,000</td>
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<td>Tier 2</td>
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<td><strong>Total</strong></td>
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<td><strong>21,700</strong></td>
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Value Units
Pricing example for IBM Tivoli Directory Integrator General Purpose Edition for z/OS V7.1

In pricing IBM Tivoli Directory Integrator General Purpose Edition for z/OS, the examples provided show how MSUs are counted in calculating Value Units.

Value Unit Exhibit 20 (VUE020)

<table>
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<th>Value Level</th>
<th>Minimum</th>
<th>Maximum</th>
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<tr>
<td>Base</td>
<td>1</td>
<td>3</td>
<td>1.00</td>
</tr>
<tr>
<td>Tier A</td>
<td>4</td>
<td>45</td>
<td>0.15</td>
</tr>
<tr>
<td>Tier B</td>
<td>46</td>
<td>175</td>
<td>0.08</td>
</tr>
<tr>
<td>Tier C</td>
<td>176</td>
<td>315</td>
<td>0.04</td>
</tr>
<tr>
<td>Tier D</td>
<td>316</td>
<td>+</td>
<td>0.03</td>
</tr>
</tbody>
</table>

The result of the calculation for MSU Value Units must be rounded up to the next highest integer value for the pricing calculation.

Scenario 3

Transaction 1: Company A wants to entitle usage of Tivoli Directory Integrator General Purpose Edition for z/OS with Change and Configuration Management Database (CCMDB) and use Tivoli Directory Integrator General Purpose Edition for z/OS to pull systems information from their custom applications into CCMDB. In addition, they want to use Tivoli Directory Integrator General Purpose Edition for z/OS to directly integrate other custom data with MRO Maximo® on two other servers, which is outside the scope of the CCMDB license. (Tivoli Directory Integrator for z/OS is only bundled for CCMDB integration.) The desired data spans three geographic locations, driving the requirements for three separate installations. In location A1, Company A plans to install Tivoli Directory Integrator General Purpose Edition for z/OS on a z9™ EC server with 600 MSUs, while in locations A2 and A3, z9 BC servers, each with 15 MSUs, are utilized.

<table>
<thead>
<tr>
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<th>z9-BC</th>
<th>z9-EC</th>
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<td>Base:</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Tier A:</td>
<td>12</td>
<td>42</td>
</tr>
<tr>
<td>Tier B:</td>
<td></td>
<td>130</td>
</tr>
<tr>
<td>Tier C:</td>
<td></td>
<td>140</td>
</tr>
<tr>
<td>Tier D:</td>
<td></td>
<td>285</td>
</tr>
<tr>
<td>VU:</td>
<td>4.8</td>
<td>33.85</td>
</tr>
<tr>
<td>Round-up VU:</td>
<td>5</td>
<td>34</td>
</tr>
</tbody>
</table>

To support their configuration, the customer must purchase 34 MSU Value Units at site A1, 5 MSU Value Units at site A2, and 5 MSU Value Units at site A3, which equals 44 total MSU VUs on 3 servers.

Scenario 4

Transaction 1: Company B wants to deploy Alphablox® but needs to bring enterprise data from a number of Excel spreadsheets into the Alphablox environment. They want to use Tivoli Directory Integrator General Purpose Edition for z/OS for this purpose because they recognize that, even though initial data is in Excel format, later expansion of the Alphablox usage may be able to leverage the wide range of data sources from which Tivoli Directory Integrator General Purpose Edition for z/OS can extract data. For this entitlement, Tivoli Directory Integrator General Purpose Edition...
Edition for z/OS is installed on one dual-processor computer, requiring Company B to purchase MSUs required to entitle both processors on the server.

Transaction 2: In addition, Company B has 15 trading partners that need to similarly extract data from their own systems and provide such data to Company B on a regular basis. As the initiator of this initiative, Company B has requested that its trading partners use Tivoli Directory Integrator General Purpose Edition for z/OS to move their data. Company B plans to install Tivoli Directory Integrator General Purpose Edition for z/OS on a z9 EC server, with 600 MSUs, and therefore must purchase 34 MSU VUs required to entitle the server. In addition, most of the trading partners have chosen to participate in setting up their environments in support of this initiative. Each of these trading partners has installed IBM Tivoli Directory Integrator General Purpose Edition for z/OS on a z9 BC server. Each customer is required to purchase 5 MSU VUs for their server.

Licensees of the previous Tivoli Directory Integrator for z/OS releases available through Passport Advantage®, current on Software Maintenance, are entitled to receive Tivoli Directory Integrator for z/OS V7.1. Contact your IBM representative for details on the necessary steps to get entitlement to Tivoli Directory Integrator for z/OS V7.1.

**Ordering information**

Consult your IBM representative.

The programs in this announcement have Value Unit-based pricing.

<table>
<thead>
<tr>
<th>Program number</th>
<th>Program name</th>
<th>Value Unit exhibit</th>
</tr>
</thead>
<tbody>
<tr>
<td>5698-B09</td>
<td>Tivoli Directory Integrator Identity Edition for z/OS V7.1</td>
<td>VUE030</td>
</tr>
<tr>
<td>5698-B33</td>
<td>Tivoli Directory Integrator General Purpose Edition for z/OS V7.1</td>
<td>VUE020</td>
</tr>
</tbody>
</table>

For each System 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 System 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 VUE020

<table>
<thead>
<tr>
<th>Value Level</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Units/MSU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base</td>
<td>1</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Tier A</td>
<td>4</td>
<td>45</td>
<td>0.15</td>
</tr>
<tr>
<td>Tier B</td>
<td>46</td>
<td>175</td>
<td>0.08</td>
</tr>
<tr>
<td>Tier C</td>
<td>176</td>
<td>315</td>
<td>0.04</td>
</tr>
<tr>
<td>Tier D</td>
<td>316</td>
<td>+</td>
<td>0.03</td>
</tr>
</tbody>
</table>

Value Units for mainframes without MSU ratings:

<table>
<thead>
<tr>
<th>Value HW</th>
<th>Units/machine</th>
</tr>
</thead>
<tbody>
<tr>
<td>MP3000 H30</td>
<td>3</td>
</tr>
<tr>
<td>MP3000 H50</td>
<td>4</td>
</tr>
</tbody>
</table>
MP3000 H70     6
ESL models     1

Value Unit exhibit VUE030

<table>
<thead>
<tr>
<th>Cumulative user range</th>
<th>Value Units per user</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 5,000 users</td>
<td>1 VU/user</td>
</tr>
<tr>
<td>5,001 - 15,000 users</td>
<td>0.500 VUs/user</td>
</tr>
<tr>
<td>15,001 - 50,000 users</td>
<td>0.300 VUs/user</td>
</tr>
<tr>
<td>50,001 - 150,000 users</td>
<td>0.200 VUs/user</td>
</tr>
<tr>
<td>150,001 - 500,000 users</td>
<td>0.100 VUs/user</td>
</tr>
<tr>
<td>500,001 - 1,000,000 users</td>
<td>0.050 VUs/user</td>
</tr>
<tr>
<td>1,000,001 - 3,000,000 users</td>
<td>0.025 VUs/user</td>
</tr>
<tr>
<td>3,000,001+ users</td>
<td>0.010 VUs/user</td>
</tr>
</tbody>
</table>

Ordering z/OS through the Internet

ShopzSeries 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). ShopzSeries is available in the U.S. and several countries in Europe. In countries where ShopzSeries is not available yet, contact your IBM representative (or IBM Business Partner) to handle your order via the traditional IBM ordering process. For more details and availability, visit the ShopzSeries Web site at


Current licensees

Current licensees, with support in effect, will automatically be shipped the update.

Current licensees of Tivoli Directory Integrator for z/OS must place a new order for the desired distribution medium.

New licensees

Orders for new licenses will be accepted now.

Shipment will begin on the planned availability date.

Basic license

Ordering information for 5698-B09 non-MSU-based System z offerings

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 Tivoli Directory Integrator Identity Edition for z/OS V7.1
Program PID: 5698-B09

<table>
<thead>
<tr>
<th>Entitlement identifier</th>
<th>Description</th>
<th>License option/ pricing metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>S015K6C</td>
<td>Tivoli Directory Integrator Identity Edition on z/OS</td>
<td>Basic OTC, per Value Unit</td>
</tr>
</tbody>
</table>

Orderable supply ID Language Distribution medium
S01667X Multilingual 3590 tape

Subscription and Support PID: 5698-R09
Translation from MSUs to Value Units

<table>
<thead>
<tr>
<th>MSUs</th>
<th>Value Units/MSU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base</td>
<td>1-3</td>
</tr>
<tr>
<td></td>
<td>Tier A</td>
</tr>
<tr>
<td></td>
<td>Tier B</td>
</tr>
<tr>
<td></td>
<td>Tier C</td>
</tr>
<tr>
<td></td>
<td>Tier D</td>
</tr>
</tbody>
</table>

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 Tivoli Directory Integrator General Purpose Edition for z/OS V7.1
Program PID: 5698-B33

Subscription and Support must be ordered to receive voice technical support via telephone during normal business hours, and future releases and versions, at no additional charge. The capacity of Subscription and Support (for example, Value Units or number of processors) must be the same as the capacity ordered for the product licenses.

To order, specify the Subscription and Support program product number 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 Support Maintenance. This offering:

- Includes and extends the support services provided in the base support to include technical support via telephone during normal business hours.
• Entitles customers to future releases and versions, at no additional charge. Note that the customer is not entitled to new products.

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

**Delivery services - Custom QuickShip Program**

This product is eligible for the IBM Custom QuickShip Program.

Custom QuickShip combines flexible configurations with fast delivery. Customers and Business Partners are able to create product configuration of their choice by using a combination or standalone selection of hardware, software, and a menu of additional features, including the option for software preload. The inclusion of feature number 1748 will ensure Custom QuickShip delivery of the complete product configuration or standalone order.

The committed response time under Custom QuickShip is six business days from order acceptance by IBM to customer delivery.

**Customized Offerings**

Product deliverables are shipped only via Customized Offerings (for example, CBPDO, ServerPac, SystemPac®).

CBPDO and ServerPac are offered for Internet delivery, where ShopzSeries product ordering is available. Internet delivery of ServerPac may help improve automation and software delivery time. For more details on Internet delivery, refer to the ShopzSeries help information at

http://www.software.ibm.com/ShopzSeries

Media type for this software product is chosen during the Customized Offerings ordering process. Based on your customer environment, it is recommended that the highest possible density tape media is selected. Currently offered media types are:

- CBPDOs - 3480, 3480 Compressed, 3490E, 3590, 3592*
- ServerPacs - 3480, 3480 Compressed, 3490E, 3590, 3592*
- SystemPacs - 3480, 3480 Compressed, 3490E, 3590, 3592*

*3592 is highest density media. Selecting 3592 will ship the fewest number of media.

Once a product becomes generally available, it will be included in the next ServerPac and SystemPac monthly update.

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 two weeks after inclusion in ServerPac.
- SystemPac shipments will begin four weeks after inclusion in SystemPac due to additional customization, and data input verification.

**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 Agreement, and the IBM Agreement for Acquisition of Software Maintenance.
**Licensing**

IBM International Program License Agreement including the License Information document and 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 customer 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 System z Operational Support Services - SoftwareXcel is an option if you desire added services.

**License Information form number**

- IBM Tivoli Directory Integrator General Purpose Edition for z/OS V7.1: L-ARCY-83FEXH (G111-8759-01)
- IBM Tivoli Directory Integrator Identity Edition for z/OS V7.1: L-ARCY-83FEHN (G111-8758-01)

The program’s License Information will be available for review on the IBM Software License Agreement Web site


**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 on known program defects, defect corrections, restrictions, and bypasses at no additional charge. For further information, consult the IBM Software Support Handbook found at


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

**Program support**

Enhanced support, called Subscription and Support, includes telephone assistance, as well as access to updates, releases, and versions of the program as long as support is in effect. You will be notified of discontinuance of support with 12 months' notice.
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.

Authorization for use on home/portable computer
You may not copy and use this program on another computer without paying additional license fees.

Other terms

Volume orders (IVO)
No

IBM International Passport Advantage Agreement
Passport Advantage applies
No

Usage restriction
Yes. Usage is restricted to the quantity of Value Units licensed.

For additional information, refer to the License Information document that is available on the IBM Software License Agreement Web site


Software Subscription and Support (Software Maintenance) applies
No. 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, visit

   http://www.ibm.com/services/sl/products

System i Software Maintenance applies
No

Variable charges apply
No

Educational allowance available
Yes. When ordering through the program number process, a 15% education allowance applies to qualified education institution customers.

Education Software Allowance Program applies when ordering through the program number process.
ESAP available

Yes, to qualified customers.

Sub-capacity terms and conditions

For each System 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 System 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 on the Value Unit Exhibit for the System z IPLA program you selected, refer to the Ordering information section.

<table>
<thead>
<tr>
<th>Program number</th>
<th>Program name</th>
<th>Terms</th>
</tr>
</thead>
<tbody>
<tr>
<td>5698-B33</td>
<td>IBM Tivoli Directory Integrator General Purpose Edition for z/OS</td>
<td>z/OS-based</td>
</tr>
</tbody>
</table>

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 System z IPLA program with these terms equals the MSU-rated capacity of the machines where the System z IPLA program executes.

For more information on mainframe MSU-rated capacities, visit


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

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

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

For more information on mainframe MSU-rated capacities, refer to The IBM System z Machines Exhibit Z125-3901, or visit the Mainframes section of the System z Exhibits Web site.
For more information on sub-capacity System z IPLA terms and conditions, refer to Software Announcement ZA04-0227, dated August 10, 2004.

For additional information for products with reference-based terms, System 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 System z IPLA program executes.

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

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

- That meets the criteria defined in Hardware Announcement ZA98-0120, dated January 13, 1998
- Where MLC pricing is aggregated across the sysplex

### Sub-capacity eligibility

To be eligible for sub-capacity charging on select System 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 System z (or equivalent). On that machine:

- All instances of the OS/390® 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® (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, visit the System z Software Pricing Web site http://ibm.com/zseries/swprice

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 System z Workload License Charges (Z125-6516).
- The complete terms and conditions for sub-capacity EWLC are defined in the IBM Customer Agreement - Attachment for IBM System z 890 and 800 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 IBM System z9® and System z Programs Sub-Capacity Pricing (Z125-6929). Once the amendment is signed, the terms in the amendment replace any and all previous System z IPLA sub-capacity terms and conditions.

IBM Getting Started Sub-capacity Pricing for z/OS IPLA Software applies.
**Sub-capacity pricing terms and conditions**

To be eligible for sub-capacity pricing, the machine on which the eligible products are installed and running must be eligible for sub-capacity pricing terms and conditions. Software pricing, at less than full machine capacity for eligible products, apply when running:

- AIX 5L™ V5.1, or later, on an IBM System p® 690 or equivalent partition-capable operating system and machine
- OS/400® V5R1, or later, running on an IBM System i®
- Linux® running in an LPAR under AIX 5L V5.1, OS/400 V5R1, or in a partition on an equivalent partition-capable operating system and server

Sub-capacity pricing for eligible products is based on the current program pricing methodology, but the number of processors will be determined based on the sum of processors for all partitions where the program is defined (used). To obtain pricing at less than full machine capacity for eligible products, you are required to:

- Install and use, when available, IBM’s license use management program, which installs with eligible IBM programs.
- Install available updates to the operating system and eligible products such that license use can be accurately managed.
- Determine if the use of sub-capacity pricing terms results in a reduced requirement for entitlements; you can reallocate the entitlement difference by distributing entitlements across a larger or different set of systems, or reserve them for future growth. There will be no refunds for these freed up entitlements. Subscription, Software Maintenance and support volumes, and entitlements for existing contracts will continue at the same levels as the acquired licenses.

**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 a System z or equivalent server).

**On/Off Capacity on Demand (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 Customer Initiated Upgrade and IBM eServer™ On/Off Capacity on Demand - Software (Z125-6611) must be signed prior to use.

**IBM Electronic Services**

IBM has transformed its delivery of hardware and software support services to help you achieve higher system availability. Electronic Services is a Web-enabled solution that offers an exclusive, no-additional-charge enhancement to the service and support available for IBM servers. These services are designed to provide the opportunity for greater system availability with faster problem resolution and preemptive monitoring. Electronic Services comprises two separate, but complementary, elements: Electronic Services news page and Electronic Services Agent.

The Electronic Services news page is a single Internet entry point that replaces the multiple entry points traditionally used to access IBM Internet services and support. The news page enables you to gain easier access to IBM resources for assistance in resolving technical problems.

The Electronic Service Agent™ is no-additional-charge software that resides on your server. It monitors events and transmits system inventory information to IBM on a periodic, client-defined timetable. The Electronic Service Agent automatically
reports hardware problems to IBM. Early knowledge about potential problems enables IBM to deliver proactive service that may result in higher system availability and performance. In addition, information collected through the Service Agent is made available to IBM service support representatives when they help answer your questions or diagnose problems. Installation and use of IBM Electronic Service Agent for problem reporting enables IBM to provide better support and service for your IBM server.

To learn how Electronic Services can work for you, visit

http://www.ibm.com/support/electronic

**Prices**

For all local charges, contact your IBM representative.

**Announcement countries**

All European, Middle Eastern, and African countries except Iran, Sudan, and Syria.

**Trademarks**

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