IBM Capacity Management Analytics on z/OS, V2.1 contains new features that help manage applications across the data center and optimize resources

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Overview

IBM® Capacity Management Analytics on z/OS®, V2.1 turns machine data to insight and provides built-in expertise in capacity management, which empowers IT infrastructure systems managers, system administrators, and data center executives to optimize IT performance, availability, and scalability. Capacity Management Analytics on z/OS, V2.1 consists of an operational intelligence platform together with an IT infrastructure capacity management expert-based application.

The operational intelligence platform provides IT data ingestion, reporting, predictive analytics, and prescriptive analytic engines. It includes the following products:

- IBM Tivoli® Decision Support for z/OS V1.8.2 *
- IBM Cognos® Business Intelligence for z/OS V10.2.2 *
- IBM SPSS® Modeler Gold with Scoring Adapter for z Systems™ V17.0 *
- IBM ILOG® CPLEX® Optimization Studio V12.6.2 * **

The Capacity Management Analytics application includes:

- IBM Capacity Management Analytics Solutions Kit V2.1.

The Capacity Management Analytics application provides built-in expertise on capacity management, which is designed to support the core capabilities associated with capacity management for IBM z Systems™ and distributed-based infrastructures. It consists of a predefined data model to warehouse machine data from across the data center, a set of predefined reports to visualize what is defined and how it is being used, a set of predictive models to understand what is needed in the future and likely usage scenarios, and a set of prescriptive models to optimize the use of IT resources by producing a best possible configuration, action plan, or schedule of resources.

The Capacity Management Analytics application leverages the operational intelligence platform using industry best practices and prebuilt integration between the components to get you up and running quickly and effectively, focusing on the following core capabilities:

- System management: Sophisticated reporting capabilities to allow analysts, systems managers, and executives to view, interact, and personalize their reporting based on their unique requirements.
- Problem identification and resolution: A top-down view of z Systems and distributed system workloads with the ability to drill into further detail, perform
ad hoc analysis, create system alerts, or monitor performance to predict potential issues before they impact the business.

- **Capacity planning:** Ability to forecast your future requirements to ensure capacity is available when the business needs it.
- **Software cost analysis:** Ability to help manage IBM z/OS software costs and enable capacity management planners to identify when and where workloads need to be adjusted and when more capacity is required.
- **Real-time anomaly detection:** Ability to improve systems management response time with a tool that can detect IBM CICS® transaction anomalies in real time.

New and enhanced in Capacity Management Analytics on z/OS, V2.1

- **Optimization:**
  - By including CPLEX, Capacity Management Analytics significantly improves the ability to optimize the use of IT resources by producing a best possible configuration, action plan, or schedule of resources.
  - The Capacity Management Analytics application includes CPLEX models that determine the best possible setting of z Systems LPAR weights for a given time period that reduces the amount of overutilization or underutilization in an LPAR's guaranteed weight. Applying the suggested optimization ensures that your z System shared CPU engines are not sitting idle when other LPARs could be using that capacity.

- **Application analytics:**
  - Reports on both distributed and z/OS operating systems: Ability to track and improve utilization of existing server assets by viewing which applications or lines of business consume the most servers and which servers are overutilized or underutilized.
  - SPSS predictive models for applications and line of business provide a view of future usage, ensuring more accurate capacity planning.

- **System management:** CPU usage reporting enables you to quickly identify how resources are being used during peak and off-peak periods, and plan changes easily and efficiently by viewing the shared processor pool on a central processor complex (CPC) with respect to which LPARs are using it and how much they are using.

- **Capacity planning:** Peak utilization reporting enables you to perform better capacity planning by tracking peak and average utilization.

- **Software cost analysis:** Ability to manage software costs with a matrix view of all the registered products.

- **Transaction anomaly detection:** Enhanced CICS anomaly detecting streams: The anomaly detecting modeling methodology now provides better accuracy when scoring. It also reduces the effort needed to calibrate the model.

The Capacity Management Analytics application leverages the operational intelligence platform using industry best practices and prebuild integration between the components to get you up and running quickly and effectively.

- **IBM Tivoli Decision Support for z/OS is required by Capacity Management Analytics because it enables the data collection for the solution. It builds the warehouse for supported data in IBM DB2® on z/OS and provides the batch jobs to load collected data. Note that the Capacity Management Analytics Solution Kit will extend this warehouse with additional schemas and tables.**

- **IBM Cognos Business Intelligence is required by Capacity Management Analytics and must be installed on z/OS since only the z/OS version is included. Cognos Business Intelligence provides industry-leading reporting, analysis, dashboards, collaboration, and mobile business intelligence on a single infrastructure. You can confidently manage the system activity while significantly improving your ability to identify potential issues and pinpoint their cause. You can author, share, and analyze all the data from all the enterprise sources necessary for a complete view of the ever changing business conditions.**

- **IBM SPSS Modeler Gold includes a number of components of which only SPSS Modeler Server on a Linux™ environment is required by Capacity Management Analytics.**
Analytics. SPSS Modeler Client, which only runs on Microsoft™ Windows™, is required for development purposes to make changes or create new modeler streams. The scoring adapter to DB2 on z/OS runs on z/OS and is only needed to do real-time scoring of models. SPSS Modeler Gold helps organizations use predictive analytics to forecast their future requirements and ensure the capacity required is available when the business needs it. You can discover the hidden relationships in platform data and predict the outcome of future events and interactions. SPSS Modeler Gold easy-to-use graphical interface puts the power of data mining in the hands of those responsible for managing the capacity of z Systems and distributed systems, so they can discover new insight and increase productivity.

- IBM ILOG CPLEX Optimization Studio is an optional component of Capacity Management Analytics that is installed on Linux for z Systems or other supported distributed systems but not z/OS. It provides capabilities to optimize the use of IT resources by producing a best possible configuration, action plan, or schedule of resources. Install it if you plan to run the optimization features shipped in the Capacity Management Analytics Solution Kit.

* These programs cannot be used outside the scope of Capacity Management Analytics, as described in the Capacity Management Analytics User’s Guide.

** CPLEX usage in Capacity Management Analytics is limited to less than 1,000 variables. Additional licenses must be purchased if the number of variables used exceeds 1,000.

For ordering, contact your IBM representative or an IBM Business Partner. For more information, contact the Americas Call Centers at: 800-IBM-CALL (426-2255).

Reference: LE001

Key prerequisites

For more details, refer to the Software requirements section.

Planned availability date

September 4, 2015: Media availability

Description

IBM Capacity Management Analytics on z/OS, V2.1 is built on IBM Cognos Business Intelligence for z/OS, IBM SPSS Modeler Gold with Scoring Adapter for z Systems, IBM ILOG CPLEX Optimization Studio, IBM Capacity Management Analytics Solution Kit, and IBM Tivoli Decision Support for z/OS. Capacity Management Analytics gives you the ability to manage the complete lifecycle of IBM z Systems and distributed systems.

- IBM Cognos Business Intelligence for z/OS provides a complete range of analysis capabilities necessary to optimize the performance and return of investment of z Systems and distributed systems. With the industry-leading reporting, analysis, dashboards, collaboration, and mobile business intelligence on a single infrastructure, you can confidently manage the system activity while significantly improving your ability to identify potential issues and pinpoint their cause. You can author, share, and analyze all the data from all the enterprise sources necessary for a complete view of the ever changing business conditions.

- IBM SPSS Modeler Gold with Scoring Adapter helps organizations use predictive analytics to forecast their future requirements and ensure the capacity required is available when the business needs it. You can discover the hidden relationships in platform data and predict the outcome of future events and interactions. IBM SPSS Modeler Gold’s easy-to-use graphical interface puts the power of
data mining in the hands of those responsible for managing the capacity of z Systems and distributed systems, so they can discover new insight and increase productivity. It allows organizations to quickly realize a positive return on investment (ROI).

- Tight integration with IBM Tivoli Decision Support for z/OS enables data collection and provides easy access to that data by Cognos Business Intelligence and SPSS Modeler for all analysis. It ensures that IT can utilize the information necessary for use in performance reporting, service-level management, and usage accounting.

To help you get started in your pursuit of the efficient management of distributed systems, included in Capacity Management Analytics is a set of predefined reports so you can quickly and efficiently begin to understand exactly how distributed systems are being used.

**Application Analytics Reporting**

- Application Analytics - Distributed CPU Usage: Shows the 90% CPU busy line for applications and can be displayed as hourly, daily, weekly, monthly, or yearly. It provides a summary of the CPU usage of all the servers associated with an application.
- Application Analytics - MIPs Used - Application: Shows the average MIPS used by each application or line-of-business (LOB) grouping against all central processor complex (CPC) and LPARs. It compares the MIPS usage of all applications that are mapped in the application mapping table.
- Application Analytics - MIPs Used - Application by Function: Shows the average or peak MIPS used by the selected application or LOB grouping against all CPCs and LPARs, according to function and includes a forecast option.
- Application Analytics - MIPs Used - Application by LPAR: Shows the MIPS used by all applications or LOB grouping on the selected LPAR.
- Application Analytics - MIPs Used - Report Class by Job Name: Shows the average MIPS used for a detailed list of the job names that were mapped with IBM Workload Manager to a Report Class. Report Classes are used to map to functions within an application.

**Application Analytics Modeling**

- Application Average Forecast Stream: Used to predict the application future values of CP_SECONDS, IFA_SECONDS, and IIP_SECONDS for hourly and daily levels.
- Application Peak Value Forecast Stream: Analyzes a defined time range of the history data for CPU seconds, calculates its peak value of MIPS, and forecasts its one-year peak value at an application level for the future.

**Peak Utilization Reports**

- CPU: MIPs Used - z Systems Server/LPAR Level: Provides insights into potential processing overage, similar to the MIPS used. It gathers and analyzes information about IBM z Systems Integrated Information Processor (zIIP) and IBM z Systems Application Assist Processor (zAAP) workloads and lets you allocate some workloads to a more cost-effective partition for processing.
- CPU: MIPs Used - z Systems Server/LPAR Level with Forecast: Extends the value of the MIPS reports by including forecasted MIPS information. More reliable forecasting leads to efficiency gains through better workload allocation.
- CPU: MIPs Used - LPAR Level by Workload Management (WLM) Importance: Shows the average or peak CPU MIPS used at LPAR level. This is displayed for each processor type at each interval band and is broken down by the WLM importance level.

**CPU Over or Under Share Weight Reporting**

- CPU: Over or Under Share Weight - CPC by LPAR: Shows the stacked usage of each LPAR against the total number of engines of each type in the shared pool of a CPC; shows the usage percentage over or under its guaranteed share of each LPAR due to the competition among LPARs.
Software Cost Analysis Registered Products Matrix Report

- LPAR MSU utilization: Shows various MSU utilization metrics in different scenarios from an LPAR perspective, such as LPAR utilization MSU, LPAR for Hour Rolling Average (HRA) utilization MSU, LPAR billable MSU and product MSU utilization for each scenario, observed (can also display data at the System Management Facility (SMF) collection interval), forecasted, and optimized.
- Product MSU and price: Shows the IBM product billable MSUs and monetary cost, from a single CPC, and the LPARs within, perspective for each scenario, observed, forecasted, and optimized.
- No SMF 89 (NO89) product MSU and price: Shows the billable MSUs for the IBM NO89, unregistered, products along with their price.
- NO89 products matrix: A listing of which LPARs and CPCs where the IBM NO89, unregistered, products run.

Workspaces

- Software cost analysis summary: Shows MSU utilization and pricing information for all the registered IBM products for CPCs within an enterprise for each scenario, observed, forecasted, and optimized. A listing of IBM NO89, unregistered, products is also provided.
- Enterprise dashboard: Shows high level information for all the supported servers across the enterprise such as server counts, and percentile of underutilized and overutilized servers.

Software cost analysis streams modeling

- LPAR MSU forecasting: Looks at the observed data for each LPAR and product MSU usage, and forecasts future LPAR MSU usage through a time series model for each product by adding the forecasted product MSU values.
- Product MSU forecasting: Looks at the observed data for each IBM registered product and forecasts future product MSU usage a time series model.
- Product optimization: Uses the LPAR and product MSU forecasts to recommend the optimal LPAR and product placement combination to reduce overall MSU usage.
- Anomaly detection streams modeling: Provides better accuracy when scoring and also reduces the effort needed to calibrate the model.
- CICS anomaly detection: Looks at the observed CICS SMF data and creates a model around response time and CPU time to determine if a CICS transaction is considered anomalous.

Migration script: Helps organizations migrate from Capacity Management Analytics on z/OS, V1.2 to Capacity Management Analytics on z/OS, V2.1.

For a full description and details of all features, refer to the IBM Capacity Management Solutions Guide on IBM Knowledge Center

http://www.ibm.com/support/knowledgecenter/SSUFR9_2.1.0

Program number

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<th>Program number</th>
<th>VRM</th>
<th>Program name</th>
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<td>2.1.0</td>
<td>IBM Capacity Management Analytics on z/OS</td>
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Product identification number

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<th>VRM</th>
<th>Program name</th>
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</thead>
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<td>2.1.0</td>
<td>IBM Capacity Management Analytics on z/OS</td>
</tr>
</tbody>
</table>
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® ID and password are required (use IBM ID).

BP Attachment for Announcement Letter 215-312

Offering Information

Product information is available via the Offering Information website

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

Publications

The following documents are shipped with the product:

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<td>GC27-6578-00</td>
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<tr>
<td>IBM Capacity Management Analytics on z/OS Solution Guide V2.1.0</td>
<td>GC27-6579-00</td>
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<tr>
<td>Program Directory for Capacity Management Analytics on z/OS</td>
<td>GI13-4147-00</td>
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<td>Program Directory for IBM Capacity Management Analytics Solution Kit V2.1</td>
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The IBM Publications Center portal is located at

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. A large number of publications are available online in various file formats, and they can all be downloaded by all countries.

The Capacity Management Solution Guide V2.1 is located in the IBM Knowledge Center at

http://www.ibm.com/support/knowledgecenter/SSUFR9_2.1.0

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 or to contact a Software Services sales specialist, visit
Technical information

Specified operating environment

Hardware requirements
For information about hardware requirements, refer to

Software requirements
For information about software requirements, refer to

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

Ordering information

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

<table>
<thead>
<tr>
<th>Program number</th>
<th>Program name</th>
<th>Value Unit exhibit</th>
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<tbody>
<tr>
<td>5698-CMA</td>
<td>IBM Capacity Management on z/OS</td>
<td>VUE007</td>
</tr>
</tbody>
</table>

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

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

### Value Unit exhibit VUE007

<table>
<thead>
<tr>
<th></th>
<th>MSUs minimum</th>
<th>MSUs maximum</th>
<th>Value Units/MSU</th>
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<td>Base</td>
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<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Tier A</td>
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<td>45</td>
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<tr>
<td>Tier B</td>
<td>46</td>
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<td>0.36</td>
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<td>Tier C</td>
<td>176</td>
<td>315</td>
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<td>Tier D</td>
<td>316</td>
<td>+</td>
<td>0.2</td>
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</tbody>
</table>

Ordering example

The total number of Value Units is calculated according to the following example.
If your required license capacity is 1,500 MSUs for your selected z Systems IPLA product, the applicable Value Units would be:

**Translation from MSUs to Value Units**

<table>
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<tr>
<th>MSUs</th>
<th>Value Units/MSU</th>
<th>Value Units</th>
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<tr>
<td>Tier B</td>
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<td>* .36</td>
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<tr>
<td>Tier C</td>
<td>140</td>
<td>* .27</td>
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<tr>
<td>Tier D</td>
<td>1,185</td>
<td>* .20</td>
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Total 1,500 343.50

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

**Charge metric**

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<th>Program name</th>
<th>PID number</th>
<th>Charge metric</th>
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<tr>
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<td>5698-CMA</td>
<td>Per Value Unit</td>
</tr>
<tr>
<td>IBM Capacity Management Analytics on z/OS Software Subscription and Support</td>
<td>5698-AA7</td>
<td>Per Value Unit</td>
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</table>

IBM Capacity Management Analytics on z/OS: VUE007

**Value Unit exhibit VUE007**

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<td>= 237.00</td>
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Total 1,500 343.50

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

Fixes for all distributed products can be downloaded from Fix Central. Fix Central provides fixes and updates for your system's software, hardware, and operating system. To access FixCentral, go to

https://www-933.ibm.com/support/fixcentral/

Fixes for IBM z/OS products can be downloaded from Shopz. Shopz is the online solution for ordering and delivering System z software. Shopz is used to plan, place, and track orders, 24 x 7. To access Shopz, go to
IBM United States Software Announcement 215-312

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Basic license

On/Off CoD

IBM Capacity Management Analytics for z/OS 2.1 is eligible for On/Off CoD with a temporary use charge calculated based on MSUs per-day usage.

Program name: IBM Capacity Management Analytics on z/OS, V2.1

Program PID: 5698-CMA

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<td>Tier D</td>
<td>316+</td>
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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 Capacity Management Analytics for z/OS, V2.1

Program PID: 5698-CMA

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Orderable supply ID

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Subscription and Support PID: 5698-AA7

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Subscription and Support

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

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

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

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

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

The combined effect of the IPLA license and the Agreement for Acquisition of Software Maintenance gives you rights and support services comparable to those under the traditional ICA S/390® and System 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 via CBPDO and ServerPac. These customized offerings are offered for Internet delivery in countries where Shopz product ordering is available. Internet delivery reduces software delivery time and allows you to install software without the need to handle tapes. For more details on Internet delivery, refer to the Shopz help information at

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

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

- 3590
- 3592

Most products can be ordered in ServerPac the month following their availability in CBPDO. z/OS can be ordered via CBPDO and ServerPac at general availability. Many products will also be orderable in a Product ServerPac without also having to order the z/OS operating system or subsystem.

Shopz and CFSW will determine the eligibility based on product requisite checking. For more details on the product ServerPac, visit the Help section on the Shopz website at

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

For additional information on the Product ServerPac option, refer to Software Announcement 212-272, dated July 7, 2012.

Production of software product orders will begin on the planned general availability date.
- CBPDO shipments will begin one week after general availability.
- ServerPac shipments will begin two 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 Agreement, and the IBM Agreement for Acquisition of Software Maintenance.

Licensing

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

Agreement for Acquisition of Software Maintenance

The following agreement applies for Software Subscription and Support (Software Maintenance) and does not require 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 z Systems Operational Support Services - SoftwareXcel is an option if you desire added services.

License Information number

L-JKAN-9X6KUJ: IBM Capacity Management Analytics on z/OS, V2.1

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


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

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

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.

Volume orders (IVO)

No

Passport Advantage applies

No

Software Subscription and Support applies

Yes. During the S&S 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 via telephone or electronically to address suspected program defects. Technical assistance is available from the IBM Support Center in the customer’s geography.

Additional details regarding Technical Assistance, that includes IBM contact information, are provided in the IBM Software Support at http://www.ibm.com/support/handbook

S&S does not include assistance for:

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

S&S 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, visit

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

**IBM Operational Support Services - SoftwareXcel**

| No |

**System i Software Maintenance applies**

| No |

**Variable charges apply**

| No |

**Educational allowance available**

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

**Sub-capacity terms and conditions**

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

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

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

<table>
<thead>
<tr>
<th>Program number</th>
<th>Program name</th>
<th>Terms</th>
<th>Parent, if applicable</th>
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</thead>
<tbody>
<tr>
<td>5698-CMA</td>
<td>IBM Capacity Management on z/OS</td>
<td>Execution based</td>
<td>Not applicable</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 z Systems IPLA program with these terms equals the MSU-rated capacity of the machines where the z Systems IPLA program executes.

For more information on mainframe MSU-rated capacities, visit


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

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

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

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

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

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

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


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

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

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

- Where MLC pricing is aggregated across the sysplex.

**Sub-capacity eligibility**

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

- All instances of the OS/390® 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 z Systems Software Pricing website

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

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

**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 z Systems ((or equivalent) server).

**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 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 comprehensive security approach, which will necessarily involve additional operational procedures, and may require other systems, products, or services to be most effective. IBM does not warrant that systems and products are immune from the malicious or illegal conduct of any party.

**Prices**

Information on charges is available at

http://www.ibm.com/support

Choose the option entitled Purchase/upgrade tools.

**Program name: IBM Capacity Management Analytics on z/OS, V2.1**

**Program PID: 5698-CMA**

<table>
<thead>
<tr>
<th>Entitlement identifier</th>
<th>Description</th>
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<td>IBM Capacity Management Analytics on z/OS, V2.1</td>
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<td>English</td>
<td>Cap Mgt Analytics on zDBS, ENU CST3590-128T</td>
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**Subscription and Support PID: 568-AA7**

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<td>Hardcopy pub</td>
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To order, contact your Americas Call Centers, local IBM representative, or your IBM Business Partner. To identify your local IBM representative or IBM Business Partner call 800-IBM-4YOU (426-4968). For more information, contact the Americas Call Centers.

Phone: 800-IBM-CALL (426-2255)

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For IBM representative: callserv@ca.ibm.com

For IBM Business Partner: pwcs@us.ibm.com

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**Reference: LE001**
The Americas Call Centers, our national direct marketing organization, can add your name to the mailing list for catalogs of IBM products.

**Note:** Shipments will begin after the planned availability date.

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