System i and System p

Capacity on Demand

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Note

Before using this information and the product it supports, read the information in "Notices" on page 65 and the *IBM Systems Safety Information* manual, G229-9054.

Twelfth Edition (October 2007)

This edition applies to IBM AIX 5L Version 5.3 and to version 5, release 4, modification 0 of IBM i5/OS (product number 5722-SS1) and to all subsequent releases and modifications until otherwise indicated in new editions. This version does not run on all reduced instruction set computer (RISC) models nor does it run on CISC models.

Contents

About this topic

This topic describes Capacity on Demand (CoD) capabilities, and explains how to order and use each offering.

For information about the accessibility features of this product, for users who have a physical disability, see accessibledoc.dita.

Capacity on Demand

Capacity on Demand (CoD) allows you to dynamically activate one or more resources on your server as your business peaks dictate. You can activate inactive processors or memory units that are already installed on your server on a temporary and permanent basis.

CoD is available on select IBM servers. Refer to machine type/model tables within each CoD offering section of this document. Some servers include a number of active and inactive resources. Active processors and active memory units are resources that are available for use on your server when it arrives from the manufacturer. Inactive processors and inactive memory units are resources that are included with your server, but are not available for use until you activate them.

These topics contain information about how to use CoD with the Hardware Management Console (HMC). For information about how to use CoD with the Advanced System Management Interface (ASMI), see Using on-demand utilities.

What's new for Capacity on Demand

Learn about new or updated information for the Capacity on Demand information.

Additions and changes were made to the Capacity on Demand feature tables for IBM System p and System i POWER6 models. *Utility CoD*, a new Capacity on Demand offering, has been announced and is now available on the new System i and System p POWER6 MMA.

New HMC Licensed Machine Code (Version 7) is required to manage POWER6 servers and associated Capacity on Demand features. HMC references (with the exception of Utility CoD) in this document are based on Licensed Machine Code (Version 6). For information about managing CoD using Version 7, see the System i and System p Operations Guide for the Hardware Management Console and Managed Systems Version 7 Release 3.1.0.

PDF file for Capacity on Demand

You can view and print a PDF file of this information.

To view or download the PDF version of this document, select Capacity on Demand (about 730 KB).

You can also view or download these related topics:

- The System i and System p Operations Guide for the Hardware Management Console and Managed Systems Version 7 Release 3.1.0 contains information about the HMC Version 7 or greater.
- The Resource Link™ Web site at http://www.ibm.com/servers/resourcelink contains the complete POWER6 library.

The following topics contain information about the HMC Version 6 or lower:

- Managing your server using the Hardware Management Console (about 750 KB) contains information about how to manage your server using the HMC.
- Partitioning for AIX® (about 330 KB)
- Partitioning for Linux® (about 700 KB)
- Partitioning for i5/OS® (about 960 KB)

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Capacity on Demand offerings

Find out what the different Capacity on Demand (CoD) offerings are and learn the basics of each offering.

The following table provides a brief description of each CoD offering. Consult your IBM Business Partner or IBM sales representative to select the CoD offering most appropriate for your environment.

For more information, such as how to order and use a particular offering, select the offering in the left column.

Table 1. Capacity on Demand offerings

Offering	Description
Capacity Upgrade on Demand	You can permanently activate inactive processors and memory units by purchasing an activation feature and entering the provided activation code. Capacity Upgrade on Demand (CUoD) offers you the capability to permanently activate one or more inactive processors or memory units without requiring you to restart your server or interrupt your business.
Trial Capacity on Demand	You can evaluate the use of inactive processors, memory, or both, at no charge using Trial CoD. After it is started, the trial period is available for 30 power-on days. This means the trial period advances only while the server is powered on. You can use the HMC to stop a current CoD trial for processors or memory units before the trial automatically expires. If you choose to stop the trial before it expires, you cannot restart it and you forfeit any remaining days.
On/Off Capacity on Demand	You can activate processors or memory units for a number of days, as your business peaks demand, by using inactive resources on a temporary basis. With On/Off CoD, you can temporarily activate and deactivate processors and memory units to satisfy business peaks. After you request that a number of processors or memory units be made temporarily available for a specified number of days, those processors and memory units are available immediately. You can start and stop requests for On/Off CoD, and you can also change the number of resources or days in a running On/Off request. This offering has contract requirements.

Table 1. Capacity on Demand offerings (continued)

Offering	Description
Utility Capacity on Demand	Utility CoD is for customers with unpredictable, short workload spikes who need an automated and affordable way to help ensure additional server resource is available as needed. Utility CoD automatically provides additional processor capacity on a temporary basis within the shared processor pool. Use is measured in processor minute increments and is reported at the Utility CoD web site. Payment is required based on the reported use of processor minutes. You must purchase and pay for an order that includes a quantity of Utility CoD Billing Features. Each managed system has a *reporting limit* and a *reporting threshold*. These values are set by the Utility CoD Enablement Code. On managed systems with 1 to 4 processors, the reporting threshold is 500 minutes, and the reporting limit is 1000 minutes. On managed systems with 5 to 16 processors, the reporting threshold is 1000 minutes, and the reporting limit is 2000 minutes.
Reserve Capacity on Demand	You can meet the demands of business peaks by using Reserve CoD to provide prepaid temporary capacity that is automatically used by the server. With Reserve CoD, you can purchase a reserve capacity prepaid feature that represents a number of processor days. You can then activate the inactive processors as your business requires. The reserve processors are put in the server shared processor pool, where they are used as needed by uncapped partitions. Whenever the capacity of the non-Reserve CoD processors in the shared processor pool reaches the maximum capacity of those processors and is no longer sufficient to support the server workload, then the Reserve CoD prepaid balance is charged.
Capacity BackUp	You can use Capacity BackUp to provide an off-site, disaster recovery server using On/Off CoD capabilities. The Capacity BackUp offering has a minimum set of active processors that can be used for any workload and a large number of inactive processors that can be activated using On/Off CoD in the event of a disaster. A specified number of no-charge On/Off CoD processor days is provided with Capacity BackUp.
Virtualization Engine technologies	You can view all of your IT resources by using the IBM® Virtualization Engine, which allows you to better manage your assets. The IBM Virtualization Engine is made up of Virtualization Engine systems technologies and Virtualization Engine systems services. Enterprise Enablement is a Virtualization Engine systems technology that enables the system for 5250 Online Transaction Processing (OLTP) with the i5/OS operating system. Advanced POWER® is a Virtualization Engine systems technology that enables the system for these features: • Virtual I/O hosting (IBM System i5® and IBM System p5®) • Partition Load Manager (IBM System i5 and IBM System p5) • Micro-Partitioning™ (IBM System p5)
Accelerator for System i5	You can use Accelerator to permanently activate the inactive portion of a single processor for an IBM System i5 520. For example, if you have less than a full processor activated on a 1-way system, you can activate the balance of that processor so that you can utilize the entire processor without restarting your server. When activating a partial processor, ensure that you have correctly prepared your server.

Related concepts

"Capacity Upgrade on Demand" on page 9
Capacity Upgrade on Demand (CUoD) allows you to permanently activate one or more inactive processors or memory units without requiring you to restart your server or interrupt your business.

"Trial Capacity on Demand" on page 17
Trial Capacity on Demand provides no-charge temporary capacity to enable you to test new function on your server.

"On/Off Capacity on Demand" on page 23
On/Off Capacity on Demand (CoD) allows you to temporarily activate and deactivate processors and memory units to help meet the demands of business peaks. After you request that a number of processors or memory units are to be made temporarily available for a specified number of days, those processors and memory units are available immediately. You can start and stop requests for On/Off CoD, and you are billed for usage at the end of each quarter

"Reserve Capacity on Demand" on page 40
Reserve Capacity on Demand (CoD) provides prepaid temporary capacity that is automatically used by the server to help meet the demands of business peaks.

"Utility Capacity on Demand" on page 48
Utility Capacity on Demand automatically delivers additional processor capacity on a temporary basis within the system's default Shared Processor Pool.

"Capacity BackUp" on page 51
Capacity BackUp uses On/Off Capacity on Demand (CoD) capabilities to provide an off-site, disaster recovery server.

"Virtualization Engine technologies" on page 53
Virtualization Engine technologies are activated with a code, similar to the way that capacity is activated on IBM Systems and IBM eServer™ hardware.

"Accelerator for System i5" on page 58
Accelerator provides the capability to permanently activate the inactive portion of a single processor for IBM System i5520.

Preparing for Capacity on Demand

Capacity on Demand (CoD) allows you to activate processors and memory units on your server when your workload requires the additional resources. To prepare your server for CoD, consider how you would like to license your software and determine when you need to activate your resources. You also must plan for and setup your environment in preparation for CoD.

Related concepts

"Capacity Upgrade on Demand" on page 9
Capacity Upgrade on Demand (CUoD) allows you to permanently activate one or more inactive processors or memory units without requiring you to restart your server or interrupt your business.

"Capacity Upgrade on Demand concepts" on page 9
Capacity Upgrade on Demand (CUoD) allows you to activate additional processors and memory units on selected servers by purchasing a permanent processor or memory unit activation feature. CUoD adds capacity for new workloads, which enables your server to adapt to unexpected performance demands.

"Trial Capacity on Demand" on page 17
Trial Capacity on Demand provides no-charge temporary capacity to enable you to test new function on your server.

"On/Off Capacity on Demand" on page 23
On/Off Capacity on Demand (CoD) allows you to temporarily activate and deactivate processors and memory units to help meet the demands of business peaks. After you request that a number of processors or memory units are to be made temporarily available for a specified number of days, those processors and memory units are available immediately. You can start and stop requests for On/Off CoD, and you are billed for usage at the end of each quarter

"Reserve Capacity on Demand" on page 40
Reserve Capacity on Demand (CoD) provides prepaid temporary capacity that is automatically used by the server to help meet the demands of business peaks.

Capacity on Demand software licensing considerations

As you select software for activating Capacity on Demand (CoD) resources, you must consider how you would like to license your software. A number of methods are used to license software, such as per user, software tier, or per processor. Typically a tool, such as a license manager, is used to manage the licenses. A license manager detects use of the software, compares it to the entitlement, and then takes action based on the results. A license manager can be provided by IBM (for example, Software License Manager) or can be made available by the software provider

These tables show CoD software licensing considerations for System i and System p.

Table 2. System i software licensing considerations

	IBM System i5 and eServer i5 software	**Capacity Upgrade on Demand (permanent activations)**	**On/Off, Reserve, Utility, and Trial CoD (temporary activations)**
Per user licensing	• IBM and non-IBM middleware • Independent software vendor (ISV) software	No Charge - User entitlement does not change when inactive processors are permanently activated	No Charge - User entitlement does not change when inactive processors are temporarily activated
Software tier licensing	• IBM and non-IBM middleware • ISV software	No Charge - Tier entitlement does not change when inactive processors are permanently activated	No Charge - Tier entitlement does not change when inactive processors are temporarily activated
Per processor licensing	i5/OS, AIX, Linux	Per activation charge - One processor entitlement must be purchased for each permanently activated processor assigned to a partition that uses the software.	No Charge - Processor entitlement does not change when inactive processors are temporarily activated. **Note:** This rule might not apply to Linux, see your Linux distributor for details.

Table 2. System i software licensing considerations (continued)

	IBM System i5 and eServer i5 software	Capacity Upgrade on Demand (permanent activations)	On/Off, Reserve, Utility, and Trial CoD (temporary activations)
Per processor licensing	IBM middleware	Per activation charge - One processor entitlement must be purchased for each permanently activated processor assigned to a partition that uses the software.	Daily user charge - One processor day of entitlement must be purchased each time that any number of inactive processors are temporarily activated.

Table 3. System p Capacity on Demand software licensing considerations

	IBM System p5 and eServer p5 software	Capacity Upgrade on Demand (permanent activations)	On/Off, Reserve, Utility, and Trial CoD (temporary activations)
Per user licensing	• IBM and non-IBM middleware • Independent software vendor (ISV) software	No Charge - User entitlement does not change when inactive processors are permanently activated	No Charge - User entitlement does not change when inactive processors are temporarily activated
Software tier licensing	• IBM and non-IBM middleware • ISV software	No Charge - Tier entitlement does not change when inactive processors are permanently activated	No Charge - Tier entitlement does not change when inactive processors are temporarily activated
Per processor licensing	• AIX, i5/OS, Linux • IBM middleware	Per activation charge - One processor entitlement must be purchased for each permanently activated processor assigned to a partition that uses the software.	Daily use charge - One processor day of entitlement must be purchased each time, any number of inactive processors are temporarily activated. **Notes:** • The daily use charge does not apply to AIX when using Trial CoD. • One processor day of AIX and AIX Software Maintenance Agreement must be licensed for each 100 minute Utility CoD billing feature. • The daily use charge does not apply to i5/OS when using On/Off, Reserve, or Trial CoD. • The daily use charge does not apply to Linux. See your Linux distributor for details.

Determining when to activate resources

Capacity on Demand provides the ability to activate processors and memory units on your server when your workload requires the additional resources. To determine when to activate additional processors or memory units and how many new resources you require, monitor your trends in CPU and memory utilization by using a performance tool. Several performance tools are available to report CPU utilization information.

You can use IBM Performance Management for eServer iSeries®  to identify trends in resource utilization. iSeries Navigator monitors can provide you with more detailed information about how resources are being used, and alert you when utilization reaches a predefined critical level.

When computing average usage of all available processors, the system functions that report CPU utilization do not include the inactive processors in the total amount of CPU capacity. The inactive processors are not considered active within the various system functions that report CPU utilization percentages. The percentage of used CPU capacity is a calculated metric based on the amount of time that the processor was active within an elapsed time. This is typically reported as a percentage, where 100% indicates that the processor was busy for the entire elapsed time. When multiple processors are present, CPU time must be adjusted to represent the average usage of all processors, so utilization is always reported as the percentage of total available capacity.

Processor sparing and memory sparing

Dynamic *processor sparing* allows inactive processors to act as dynamic spares in environments with Capacity on Demand (CoD). *Memory sparing* occurs when on-demand inactive memory is automatically activated by the system to temporarily replace failed memory until a service action can be performed.

Processor sparing helps minimize the impact to server performance caused by a failed processor. An inactive processor is activated if a failing processor reaches a predetermined error threshold, thus helping to maintain performance and improve system availability. Dynamic processor sparing happens dynamically and automatically when using dynamic logical partitioning (DLPAR) and the failing processor is detected prior to failure. If not detected prior to failure or when not using DLPAR, a reboot of the system or partition activates an alternate processor from the inactive spares. You can then re-establish required performance levels without waiting for parts to arrive on-site. Dynamic processor sparing does not require the purchase of an activation code; it requires only that the system have inactive CUoD processors available.

Memory sparing occurs only when inactive CoD memory is present in a system and when an entire memory feature becomes unusable. During an initial program load (IPL), failed memory parts are taken out of use and inactive CoD memory is activated in place of the failed part without operational intervention.

Memory sparing is one example of the reliability, availability, and service (RAS) capabilities available for IBM Systems and IBM eServer hardware products. Other capabilities include bit steering and bit sparing.

Memory sparing is available on the model 9119-590 and 9119-595, as well as the model 9406-595. Memory sparing is also available on the model 9406-MMA and 9117-MMA; however, it is limited to the first feature failure on those models. When all the memory is operational again, then another first feature failure is spared.

Moving activations

You might want to move parts (processors or memory) between compatible systems in an attempt to rebalance your capacity. Sometimes the movement of the resource requires both the movement of the physical component and the movement of the Capacity on Demand (CoD) activation. Under these circumstances, a deactivation of the capacity on the source server is required as the processor or memory activation is being migrated.

It is not usual practice, but if the need arises to move activations, contact your appropriate CoD administrator at one of these e-mail addresses:

- System i: icod@us.ibm.com
- System p: pcod@us.ibm.com

Planning for Capacity on Demand

Capacity planning for servers with inactive processors and memory units uses essentially the same procedures and resources that are used for sizing other servers. The set of tools, resources, and offerings available to help determine the required server capacity supports servers with inactive processors and memory units.

For information about pricing and to determine how much a particular Capacity on Demand activation costs, contact your IBM Business Partner or IBM sales representative for more information.

For help with capacity planning, refer to these resources:

- Partitioning the server

  This information explains how to set up, manage, and troubleshoot partitions on IBM eServer i5 and eServer p5 models.

- eServer Benchmark Center 

  Use this Web site for help with benchmarking application environments.

- eServer Solution assurance advantage 

  IBM eServer Solution Connection can help find the right solution to run your business and can link you with solution developers. Connect to IBM eServer solution options for your business needs across technologies and solution areas such as business intelligence, client relationship management, and enterprise software.

- Workload Estimator 

  Use the IBM eServer Workload Estimator to help you predict a possible IBM System i5 server model processor, interactive feature, memory, and disk storage for a given workload.

- For information on managing CoD using the Version 7 HMC, see the System i and System p Operations Guide for the Hardware Management Console and Managed Systems Version 7 Release 3.1.0.

Setting up your environment for Capacity on Demand

Before you order any activation features, prepare your environment for integrating the additional capacity to ensure that your server is able to fully utilize the activated processors or memory.

To setup your environment for Capacity on Demand (CoD), you should:

- Prepare any logical partitions (LPAR)
- Perform any I/O conditioning
- Perform any disk upgrades

Newly activated processors are immediately available for use by uncapped logical partitions. You can choose to assign these processors to one or more logical partitions, except for processors that are activated by using Reserve CoD. If there are no uncapped partitions, you must assign these processors to one or more logical partitions to begin using them. You must also assign newly activated memory to one or more logical partitions to begin using the memory.

For instructions about any of these tasks:

1. Click **Help** on the menu bar of the Hardware Management Console (HMC).
2. Select **Contents**.
3. In the left pane of the Help window, expand **Server and Partition** under **How do I**.

For information about logical partitions, see Partitioning the server.

Related tasks

Partitioning the server

Dynamically managing processor power

Dynamically managing memory

Capacity Upgrade on Demand

Capacity Upgrade on Demand (CUoD) allows you to permanently activate one or more inactive processors or memory units without requiring you to restart your server or interrupt your business.

Related concepts

"Preparing for Capacity on Demand" on page 4
Capacity on Demand (CoD) allows you to activate processors and memory units on your server when your workload requires the additional resources. To prepare your server for CoD, consider how you would like to license your software and determine when you need to activate your resources. You also must plan for and setup your environment in preparation for CoD.

"Accelerator for System i5" on page 58
Accelerator provides the capability to permanently activate the inactive portion of a single processor for IBM System i5520.

"Capacity on Demand offerings" on page 2
Find out what the different Capacity on Demand (CoD) offerings are and learn the basics of each offering.

Capacity Upgrade on Demand concepts

Capacity Upgrade on Demand (CUoD) allows you to activate additional processors and memory units on selected servers by purchasing a permanent processor or memory unit activation feature. CUoD adds capacity for new workloads, which enables your server to adapt to unexpected performance demands.

Make sure that you have prepared your server before continuing. For more information, see "Preparing for Capacity on Demand" on page 4.

With proper planning, you can determine exactly when to activate CUoD based on your current and future workloads. Without proper planning and preparation, you might not obtain the maximum potential that is available through CUoD.

Related concepts

"Preparing for Capacity on Demand" on page 4
Capacity on Demand (CoD) allows you to activate processors and memory units on your server when your workload requires the additional resources. To prepare your server for CoD, consider how you would like to license your software and determine when you need to activate your resources. You also must plan for and setup your environment in preparation for CoD.

Capacity Upgrade on Demand processors and memory units

This information lists the number of active and inactive processors and memory units available for each server model.

Your managed systems include a number of active processors and memory units. They can also include inactive processors and memory units. *Active* processors or memory units are processors or memory units that are already available for use on your server when it comes from the manufacturer. *Inactive* processors or memory units are processors or memory units that are included with your server, but not available for use until you activate them. Inactive processors and memory units can be permanently activated by purchasing an activation feature and entering the provided activation code on your server. For information about ordering, see "Ordering Capacity Upgrade on Demand activation features" on page 13.

The activation code is unique to your server and is posted at one of these Web sites:

- System i models: www.ibm.com/servers/eserver/iseries/ondemand/cod
- System p models: www.ibm.com/servers/eserver/pseries/ondemand/cod

Allow several days for order processing and activation code posting to take place.

These tables list the number of active and inactive processors and memory units that are available for each server model.

Table 4. System i Capacity Upgrade on Demand server features, processor features, and processor activation features

Machine type-model	*n*-way	Server feature	Active processors	Inactive processors	Processor feature x quantity	CUoD processor activation feature (priced/zero priced)
9406-520	1/2	0906	1	1	8330 x 1	7320/8410
9406-550	1/4	0910	1	3	8312 x 2	7323/8413
9406-550	1/4	0915	1	3	8958 x 2	7871/8450
9406-570	2/4	0920	2	2	8961 x 2	7897/8452
9406-570	1/2	0919	1	1	8961 x 1	7897/8452
9406-570	13/16	0926	13	3	8971 x 8	7897/8452
9406-570	9/12	0924	9	3	8971 x 6	7897/8452
9406-570	5/8	0922	5	3	8971 x 4	7897/8452
9406-570	2/4	0921	2	2	8971 x 2	7897/8452
9406-570	1/2	0930	1	1	8971 x 1	7897/8452
9406-570	8/16	0936	8	8	8338 x 8	7618/7738
9406-570	4/8	0935	4	4	8338 x 4	7618/7738
9406-570	2/4	0934	2	2	8338 x 2	7618/7738
9406-595	32/64	0952	32	32	8981 x 4	7925/8461
9406-595	16/32	0947	16	16	8981 x 2	7925/8461
9406-595	8/16	0946	8	8	8981 x 1	7925/8461
9406-595	32/64	0943	32	32	8966 x 4	7815/8457
9406-595	16/32	0941	16	16	8966 x 2	7815/8457
9406-595	8/16	0940	8	8	8966 x 1	7815/8457
9406-MMA	1/4	4910	1	3	7380 x 2	5403/7783
9406-MMA	2/8	4911	2	6	7380 x 4	5403/7783
9406-MMA	4/16	4912	4	12	7380 x 8	5403/7783
9406-MMA	1/8	4923	1	7	7380 x 4	5403/7783
9406-MMA	2/16	4924	2	14	7380 x 8	5403/7783

Table 5. System p Capacity Upgrade on Demand processor features and processor activation features

Machine type-model	Server *n*-way range	Processor feature n-way	Processor feature	CUoD processor activation feature (priced/zero priced)
9113-550	2/4	0/2	5237 (1.65GHz/DDR1)	7871/8450
9119-590	8/32*	0/16	7981 (1.65GHz/DDR1)	7925

Table 5. System p Capacity Upgrade on Demand processor features and processor activation features (continued)

Machine type-model	Server *n*-way range	Processor feature n-way	Processor feature	CUoD processor activation feature (priced/zero priced)
9119-590	8/32*	0/16	8967 (2.1 GHz/DDR2)	7667
9119-595	16/64*	0/16	7988 (1.65GHz/DDR1)	7990
9119-595	16/64*	0/16	7813, 8969 (1.90GHz)	7815
9119-595	16/64*	0/16	8970 (2.1GHz/DDR2)	7693
9119-595	16/64*	0/16	8968 (2.3GHz/DDR2)	7668
9117-570	2/16	0/2	7830 (1.65GHz/DDR1)	7897/8452
9117-570	2/16	0/2	7832 (1.90GHz/DDR1)	7898/8454
9117-570	2/16	0/2	7833 (1.90GHz/DDR2)	7899/8455
9117-570	2/16	0/2	7782 (1.9 GHz/DDR2)	7665
9117-570	2/16	0/2	8338 (2.2 GHz/DDR2)	7618
9117-MMA	2/16	0/2	0/2 PROC (3.5GHz,DDR2)	5670
9117-MMA	2/16	0/2	0/2 PROC (4.2GHz,DDR2 8x)	5671
9117-MMA	2/16	0/2	0/2 PROC (4.2GHz,DDR2 12x)	5672
9117-MMA	2/16	0/2	7380 (4.7 GHz/DDR2)	5403
* Minimum of 50% activation required.				

Table 6. System i Capacity Upgrade on Demand memory activation features

Machine type-model	Orderable memory feature	1 GB CUoD memory activation feature	256 GB memory activation feature	GBs of active memory	GBs of inactive memory
9406-570	7890	7950	—	4	4
9406-570	7049	7950	—	8	8
9406-570	4495	7663	—	4	4
9406-570	4496	7663	—	8	8
9406-595	7816	7970	7799	2	2
9406-595	7835	7970	7799	4	4
9406-595	7828	—	—	8[1]	0
9406-595	7829	—	—	16[1]	0
9406-595	8195 (32 x 7835)	—	—	128[1]	0
9406-595	8197 (32 x 7828)	—	—	256[1]	0
9406-595	8198 (16 x 7829)	—	—	256[1]	0

Notes:

1. CoD Memory features 7828, 7829, 8195, 8197, and 8198 have 50% of the memory available.
   - New Order: When one of these memory features is ordered, all inactive memory is activated in manufacturing (50% of the total memory for the memory feature) by using a memory activation code.
   - MES Order: When one of these memory features is ordered, a memory activation code is shipped and posted to the Web for use in activating all of the inactive memory (50% of the total memory for the memory feature).
   - Parts Moved: If one of the memory cards that comprise this feature is moved, the provided memory activations remain with the source machine.

Table 7. System p Capacity Upgrade on Demand memory activation features

Machine type-model	Orderable memory feature	1 GB CUoD memory activation feature	256 GB memory activation feature	GB of active memory	GB of inactive memory
9117-570	7890	7950	—	4	4
9117-570	7049	7950	—	8	8
9117-570	4495	7663	—	4	4
9117-570	4496	7663	—	8	8
9119-590 and 9119-595	7816	7970	—	2	2
9119-590 and 9119-595	7835	7970	7799	4	4
9119-590 and 9119-595	4500	7669	7280	2 (2 x FC7669)	2
9119-590 and 9119-595	4501	7669	7280	4 (4 x FC7669)	4
9117-MMA	5692	5680	5681	1 x 5680	1
9117-MMA	5693	5680	5681	2 x 5680	2
9117-MMA	5694	5680	5681	4 x 5680	4
9117-MMA	5695	5680	5681	8 x 5680	8
9117-MMA	5696	5680	5681	16 x 5680	16
9117-MMA	5697	5680	5681	32 x 5680	32
9117-MMA	8129	5680	5681	256 x 5681	0

Notes:

1. CoD Memory features 4500, 4501, 4502, 4503, 8151 have 0% of the memory activated by default.
   - New Order: When one of these memory features is ordered, a quantity of memory activation features must also be purchased to activate GBs of memory (minimum number of activation features must be ordered). The resulting activation code is applied in manufacturing.
   - MES Order: When one of these memory features is ordered, a quantity of memory activation features must also be purchased to activate GBs of memory (minimum number of activation features must be ordered). The resulting activation code is shipped and posted to the Web and must be applied in the field.
   - Parts Moved: If one of the memory cards that comprise this feature is moved, the purchased memory activations remain with the source machine.
2. CoD Memory features 7828, 7829, 8195, 8197, 8198, and 8200 have 50% of the memory activated by default.
   - New Order: When one of these memory features are ordered, all inactive memory is activated in manufacturing (50% of the total memory for the memory feature) by using a memory activation code.
   - MES Order: When one of these memory features is ordered, a memory activation code is shipped and posted to the Web for use in activating all of the inactive memory (50% of the total memory for the memory feature).
   - Parts Moved: If one of the memory cards that comprise this feature is moved, the provided memory activations remain with the source machine.

Capacity Upgrade on Demand activation codes

After you decide to permanently activate some or all of your resources, you must order and purchase one or more activation features. When you order and purchase activation features, you are provided with one or more activation codes that you use to activate resources on your server.

When the order is placed, the order record is combined with vital product data (VPD) from your server. This information generates one or more activation codes that are specific your server.

The activation codes are posted on an IBM Web site for quick access, usually within one business day (24 hours) after the order reaches the IBM manufacturing system. After your activation codes have been generated, you can access them by using your system type and serial number at the appropriate Capacity on Demand Web site:

System i models: www.ibm.com/servers/eserver/iseries/ondemand/cod  System p models: www.ibm.com/servers/eserver/pseries/ondemand/cod 

To order activation features and receive activation codes, see "Ordering Capacity Upgrade on Demand activation features."

Ordering Capacity Upgrade on Demand activation features

You can order activation features for a new server, a server model upgrade, or an installed server. After you place your order, you will receive a code that activates inactive processors or memory units.

For a new server or a server model upgrade, your order can contain one or more activation features for processors or memory units, which results in one or more activation codes. In this case, the activation codes are entered before the server is sent to you.

When you order Capacity Upgrade on Demand (CUoD) activation features for an installed server, you must determine whether you want to permanently activate some or all of your inactive processors or memory units. You must order one or more activation features and then use the resulting one or more activation codes to activate your inactive processors or memory units.

Notes:

- It can take several days to process an order. You can use a one-time no-charge Trial Capacity on Demand for 30 days to satisfy workload requirements while your order for permanent activation of additional capacity is being fulfilled. For more information, see "Ordering Trial Capacity on Demand" on page 17.
- An order for activation features will process more quickly if you do not include any miscellaneous features with the order.

To order one or more CUoD activation features:

1. Determine the number of inactive processors or memory units that you want to activate. For more information, see "Capacity Upgrade on Demand processors and memory units" on page 9.
2. Contact your IBM Business Partner or IBM sales representative to place your order for one or more activation features.

After ordering, see "Activating Capacity Upgrade on Demand" on page 14 to activate inactive resources permanently.

Related concepts

"Trial Capacity on Demand" on page 17
Trial Capacity on Demand provides no-charge temporary capacity to enable you to test new function on your server.

Using Capacity Upgrade on Demand

You can use the Hardware Management Console (HMC) or the Advanced System Management Interface (ASMI) to manage Capacity Upgrade on Demand (CUoD).

To learn more about the HMC, see the Hardware Management Console topic. Most Capacity on Demand (CoD) tasks on the HMC require the HMC Super Administrator user role. For more information about

the HMC Super Administrator user role, see Overview of HMC roles. For information about setting up the HMC for the first time, see the Adding the Hardware Management Console topic.

If you are not using the HMC, you can also use the Advanced System Management Interface (ASMI). For more information about using CoD from the ASMI, see Using on-demand utilities.

Related information

Hardware Management Console

Overview of HMC roles

Adding the Hardware Management Console

HMC error codes

Using on-demand utilities

Activating Capacity Upgrade on Demand

When you purchase one or more activation features, you will receive corresponding activation codes to permanently activate your inactive processors or memory units.

To permanently activate your inactive resources by retrieving and entering your activation code:

1. Retrieve the activation code from either your desktop or from the Hardware Management Console (HMC) as described in this table.

Option	Description
Desktop	1. From your desktop, access the appropriate Web site: • System i models: www.ibm.com/servers/eserver/iseries/ondemand/cod.  Then, click **Search by machine serial** on the right side. • System p models: www.ibm.com/servers/eserver/pseries/ondemand/cod .  Then, click the **Activation** tab, and click **Activation codes by machine serial number** on the right side. 2. Enter the system type and serial number of your server. 3. Record the activation code that is displayed on the Web site.
Hardware Management Console	1. Right-click the HMC desktop and select **Net --> Browser**. 2. Near the bottom of the window, click **IBM** in the line **Go to IBM web site**. 3. Enter http://www-912.ibm.com/pod/pod in the Search box at the top and click **Search**. 4. Under the search results, click the URL that reads http://www-912.ibm.com/pod/pod. 5. Enter the System Type and Serial Number for the system for which you want to retrieve the code and click **Submit**. 6. Record the activation code that is displayed on the Web site. To copy the activation code, left-click and drag the mouse to highlight the code.

2. Enter your activation code on your server using the HMC. To enter your code:
   a. In the navigation area of the HMC window, expand **Server and Partition**.
   b. Select **Server Management**.
   c. In the contents area, right-click the server on which you want enter your enablement code.
   d. Select **Manage On Demand Activations**.
   e. Select **Capacity on Demand**.
   f. Select **Enter CoD Code**.
   g. Type your activation code in the **Code** field. If you have copied the code, click the middle mouse button.

h. Click **OK**.
i. If a confirmation window is displayed, click **Yes** to confirm the activation. Click **Cancel** to cancel the activation.

Any newly activated processors are now available for use by uncapped logical partitions. If there are no uncapped logical partitions, you must assign the processors to one or more logical partitions in order to begin using the processors. Any newly activated memory must be assigned to one or more logical partitions to begin using the newly activated memory. For information about how to dynamically add processors or memory, see Dynamically managing processor power or Dynamically managing memory.

If your server is in the manufacturing default configuration, the server can begin using the newly activated processors or memory immediately after restarting your server operating system. For more information, see Managing operating systems and Manufacturing default configuration. Alternatively, you can dynamically assign the newly activated processors or memory to the default partition. For more information, see Dynamically managing processor power or Dynamically managing memory.

For instructions about any of these tasks:

1. Click **Help** on the menu bar of the Hardware Management Console (HMC).
2. Select **Contents**.
3. In the left pane of the Help window, expand **Server and Partition** under **How do I**.

For information about logical partitions, see Partitioning the server.

You can now begin using the new resources.

Viewing settings for Capacity on Demand resources

You can use the Hardware Management Console (HMC) to view Capacity on Demand (CoD) settings. You can see how many processors or memory units you have, how many are active, and how many are available for activation using CoD with these settings. You can also view information about your On/Off CoD processors and memory units, Trial CoD processors and memory units, and your Reserve CoD processors.

To view the **capacity settings for processors**:

1. In the navigation area of the HMC window, expand **Server and Partition**.
2. Select **Server Management**.
3. In the contents area, right-click the server on which you want to view the processor capacity settings.
4. Select **Manage On Demand Activations**.
5. Select **Capacity on Demand**.
6. Select **Processor > Capacity Settings**.

To view the **capacity settings for memory**:

1. In the navigation area of the HMC window, expand **Server and Partition**.
2. Select **Server Management**.
3. In the contents area, right-click the server on which you want to view the memory capacity settings.
4. Select **Manage On Demand Activations**.
5. Select **Capacity on Demand**.
6. Select **Memory > Capacity Settings**.

Viewing and saving Capacity on Demand code-generation information

You can view and save Capacity on Demand (CoD) code-generation information using the Hardware Management Console (HMC). You might need to do this if the CoD code that was provided for your server does not work.

You can view CoD code-generation information and save it to a file on a remote system or to a file on removable media. The information that is used to generate your CoD codes must exactly match the information that is shown on the HMC CoD Code Information window. To collect the information that is used to generate your CoD codes, use the CoD Code Information window to save the CoD code information to a file on a remote system or to a file on removable media. Then, you can either attach the file to an e-mail, or print the file and fax it to your CoD administrator.

To view and save CoD code-generation information:

1. In the navigation area of the HMC window, expand **Server and Partition**.
2. Select **Server Management**.
3. In the contents area, right-click the server on which you want to view the CoD code information.
4. Select **Manage On Demand Activations**.
5. Select **Capacity on Demand**.
6. Select **Show Code Information**.
7. In the **CoD Code Information** wizard, select the type of CoD code information that you want to view and click **Next**.
8. On the second page of the **CoD Code Information** wizard, click **Save** to save the CoD code information to a file on a remote system or to a file on removable media.
9. In the Save CoD Code Information panel, select one of these options, and then perform the tasks associated with that option.

Option	Description
Save to a file on a remote system	1. Enter the remote system name, file name, user ID, and password. 2. Click **OK** to save the CoD code information or click **Cancel** to exit the panel without saving the CoD code information.
Save to media	1. Click **OK**. 2. Select the required device. These options might be included in the list (the list includes only those removable media devices that are available for use on the HMC): • **Diskette drive** • **Flash memory** • **USB diskette drive** 3. Click **OK** to save the CoD code-generation information, or click **Cancel** to exit the panel without saving the CoD code information.

To fax or e-mail the CoD code information to your CoD administrator, use one of these options to send your information:

- Fax-to Information:
  - **Send to:** Capacity on Demand Administrator
  - **Fax number:** 507-253-4553
  - **Location:** Rochester, Minnesota U.S.
- Fax-from Information:
  - **Customer name:**
  - **Customer contact name:**
  - **Customer address:**

  - **Customer phone number:**
  - **Customer fax number:**
- If you are using e-mail, send the electronic image of the code information in an e-mail to the appropriate address:
  - System i models: icod@us.ibm.com
  - System p models: pcod@us.ibm.com

Trial Capacity on Demand

Trial Capacity on Demand provides no-charge temporary capacity to enable you to test new function on your server.

Related concepts

"Ordering Capacity Upgrade on Demand activation features" on page 13
You can order activation features for a new server, a server model upgrade, or an installed server. After you place your order, you will receive a code that activates inactive processors or memory units.

"Preparing for Capacity on Demand" on page 4
Capacity on Demand (CoD) allows you to activate processors and memory units on your server when your workload requires the additional resources. To prepare your server for CoD, consider how you would like to license your software and determine when you need to activate your resources. You also must plan for and setup your environment in preparation for CoD.

"Capacity on Demand offerings" on page 2
Find out what the different Capacity on Demand (CoD) offerings are and learn the basics of each offering.

Trial Capacity on Demand concepts

You can evaluate the use of inactive processors, memory, or both, at no charge with Trial Capacity on Demand (CoD).

After you start the CoD trial, the trial period is available for 30 power-on days. The trial period only advances while the server is powered on.

You can use the Hardware Management Console to stop a current CoD trial for processors or memory units before the trial automatically expires. If you choose to stop the trial before it expires, you cannot restart it and you forfeit any remaining days.

Ordering Trial Capacity on Demand

If you need to test new function or evaluate inactive processors, memory, or both processors and memory, order Trial Capacity on Demand (CoD) from the appropriate Web site.

To order Trial CoD:

1. At the Capacity on Demand Web site for System i® , select **Make a request under Trial Capacity on Demand**, or at the Capacity on Demand Web site for System p®, select the **Activation** tab, then select **Trial Capacity on Demand**.
2. Submit a request based on your situation.

Before using Trial CoD, you must activate Trial Capacity on Demand. See "Activating Trial Capacity on Demand" on page 18 to activate your inactive processors or memory.

Using Trial Capacity on Demand

You can use the Hardware Management Console (HMC) to manage your Trial Capacity on Demand (CoD) activations.

To learn more about the HMC, see the Hardware Management Console topic. Most Capacity on Demand (CoD) tasks on the HMC require the HMC Super Administrator user role. For more information about the HMC Super Administrator user role, see Overview of HMC roles. For information about setting up the HMC for the first time, see the Adding the Hardware Management Console topic.

Activating Trial Capacity on Demand

You can activate your inactive processors or memory for a trial period by obtaining and entering a trial processor code or a trial memory code with Trial Capacity on Demand (CoD).

For information about Hardware Management Console (HMC) error codes that you might receive when completing a CoD task, see HMC error codes.

To activate Trial CoD:

1. Retrieve the activation code from either your desktop or the HMC as described in this table.

Option	Description
Desktop	1. From your desktop, access the appropriate Web site: • System i models: www.ibm.com/servers/eserver/iseries/ondemand/cod.  Then, click **Search by machine serial** on the right side. • System p models: www.ibm.com/servers/eserver/pseries/ondemand/cod .  Then, click the **Activation** tab, and click **Activation codes by machine serial number** on the right side. 2. Enter the system type and serial number of your server. 3. Record the activation code that is displayed on the Web site.
Hardware Management Console	1. Right-click the HMC desktop and select **Net --> Browser**. 2. Near the bottom of the window, click **IBM** in the line **Go to IBM web site**. 3. Enter http://www-912.ibm.com/pod/pod in the Search box at the top and click **Search**. 4. Under the search results, click the URL that reads http://www-912.ibm.com/pod/pod. 5. Enter the System Type and Serial Number for the system for which you want to retrieve the code and click **Submit**. 6. Record the activation code that is displayed on the Web site. To copy the activation code, left-click and drag the mouse to highlight the code.

2. Enter your activation code on your server using the HMC. To enter your code:
   a. In the navigation area of the HMC window, expand **Server and Partition**.
   b. Select **Server Management**.
   c. In the contents area, right-click the server on which you want enter your enablement code.
   d. Select **Manage On Demand Activations**.
   e. Select **Capacity on Demand**.
   f. Select **Enter CoD Code**.
   g. Type your activation code in the **Code** field. If you have copied the code, click the middle mouse button.
   h. Click **OK**.
   i. If a confirmation window is displayed, click **Yes** to confirm the activation. Click **Cancel** to cancel the activation.

Any newly activated processors are now available for use by uncapped logical partitions. If there are no uncapped logical partitions, you must assign the processors to one or more logical partitions in order to

begin using the processors. Any newly activated memory must be assigned to one or more logical partitions to begin using the newly activated memory. For information about how to dynamically add processors or memory, see Dynamically managing processor power or Dynamically managing memory.

If your server is in the manufacturing default configuration, the server can begin using the newly activated processors or memory immediately after restarting your server operating system. For more information, see Managing operating systems and Manufacturing default configuration. Alternatively, you can dynamically assign the newly activated processors or memory to the default partition. For more information, see Dynamically managing processor power or Dynamically managing memory.

Before the trial period expires, you must either enter a Capacity Upgrade on Demand activation code to permanently activate the Trial CoD resources, or you must return the Trial CoD resources. For more information, see "Activating Capacity Upgrade on Demand" on page 14 or "Returning Capacity on Demand resources" on page 20.

For instructions about any of these tasks:

1. Click **Help** on the menu bar of the Hardware Management Console (HMC).
2. Select **Contents**.
3. In the left pane of the Help window, expand **Server and Partition** under **How do I**.

For information about logical partitions, see Partitioning the server.

Stopping Trial Capacity on Demand

Stop Trial Capacity on Demand on your server.

Trial Capacity on Demand ends when the trial period is over and the resources have been reclaimed by the server. You must return the resources before the trial period has ended. For more information about returning CoD resources, see "Returning Capacity on Demand resources" on page 20. If your server is powered off or loses power before the resources are removed from the logical partitions, you might need to perform "Recovery actions" on page 20 to successfully power on your server.

Trial Capacity on Demand can also end when you enter a Capacity Upgrade on Demand activation code to permanently activate the processors or memory. For more information about permanently activating resources, see "Activating Capacity Upgrade on Demand" on page 14. For more information about Capacity Upgrade on Demand, see "Capacity Upgrade on Demand" on page 9.

Stopping a current trial

You can use the HMC to stop a current Capacity on Demand trial for processors or memory units before the trial automatically expires. If you choose to stop the trial before it expires, you cannot restart it and you forfeit any remaining days.

Additional requests for Trial Capacity on Demand might be available from your Capacity on Demand administrator.

To stop a current Trial Capacity on Demand, follow these steps:

1. Return the trial resources. See "Returning Capacity on Demand resources" on page 20 for more information.
2. In the navigation area of the HMC window, expand **Server and Partition**.
3. Select **Server Management**.
4. In the contents area, right-click the server on which you want to stop Trial Capacity on Demand.
5. Select **Manage On Demand Activations**.
6. Select **Capacity on Demand**.

7. Select **Processor** or **Memory**, depending on the type of Trial Capacity on Demand that you want to stop.
8. Select **Stop Trial CoD**.
9. In the confirmation window, click **Yes** to stop the trial. Click **No** to cancel the request to stop the trial (the trial will remain active).

Trial Capacity on Demand is now stopped and cannot be restarted.

Related information

HMC error codes

Recovery actions:

Perform these recovery actions in the event the server is powered off or loses power when there are unreturned Trial CoD or On/Off CoD resources. Unreturned Trial CoD resources result when the trial period ends before the Trial CoD resources have been removed from your partition. Unreturned On/Off CoD resources result when the On/Off CoD request expires before the On/Off CoD resources have been removed from your partition. These recovery actions need to be used to ensure the successful power on of all partitions that were running prior to the power off or loss of power.

When a server is powered off or loses power, all unreturned Trial CoD or On/Off CoD resources are reclaimed by the server. As a result, when the server is powered back on, all partitions that were running prior to the power off or loss of power might not be able to be restarted since only licensed resources are available for use. Furthermore, when a partition is powered on, if there are not enough licensed resources to satisfy the partition's memory or processor requirements, the power on of that partition will fail. The failure might result in an HMC message of HSCL03F4 (not enough processing resources to meet the allocation setting), or a System Reference Code of B2xx1150 or B2xx1230.

Note: The server can only power on to standby mode if you have specified that option prior to powering on your server.

To successfully power on those partitions, perform either step 1 or 2, or a combination of the 2 steps.

1. Reduce partition resources so that the total of partition resources across all partitions to be powered on does not exceed the total number of activated resources. See Changing partition profile properties for more information.
2. Enter new Capacity on Demand activation codes to satisfy these requirements. Additionally, start an On/Off CoD request (if On/Off CoD is still enabled) or enter a new Trial CoD activation code. If the On/Off CoD enablement is exhausted, a new On/Off CoD enablement code would need to be entered before doing a new On/Off CoD request.

Returning Capacity on Demand resources

To return Trial Capacity on Demand (CoD) processors or memory, you must remove the processors or memory from the logical partitions to which they are assigned, thus making them available to be reclaimed by the server.

You do not need to remove the processors or memory from the same logical partitions to which they were assigned when you started your On/Off CoD request or Trial CoD. You can remove the processors or memory from any of your logical partitions.

It is best to remove processors or memory from a logical partition when the logical partition is running. For information about how to dynamically remove processors or memory, see Dynamically managing processor power or Dynamically managing memory power.

Logical partitions that are not activated might still have processors and memory assigned to them. To remove processors or memory from a logical partition that is not activated, you have these options:

- Modify a partition profile for the logical partition to reduce the number of processors or memory, and then activate the logical partition by using the modified partition profile. For more information, see Changing partition profile properties.
- Delete the logical partition. For more information, see Deleting a logical partition.

Entering a Capacity Upgrade on Demand activation while running Trial Capacity on Demand

To manage the permanent activation of resources while running under a Trial Capacity on Demand (CoD) activation, you select your option based on the number of processors that you would like to activate.

- When the number of processors to be permanently activated is equal to the number of processors that are activated by Trial CoD, these options are presented to convert the trial processor activations into permanent processor activations when the permanent activation code is entered on the Hardware Management Console (HMC):

Option	Description
Yes	The conversion occurs immediately (dynamic conversion from trial processors to permanent processors).
No	• If there are enough inactive processors (not trial or permanent), the permanent activation will be accomplished using the inactive processors that are currently installed on the system. • If there are not enough inactive processors to satisfy the request, the permanent activation will not be accepted.

- When the number of processors to be permanently activated is greater than the number of processors activated through Trial CoD and there are enough inactive processors plus the trial processors to satisfy the permanent activation, these options are presented to convert the trial processor activations into permanent processor activations when the permanent activation code is entered on the HMC:

Option	Description
Yes	The conversion occurs immediately (dynamic conversions from trial processors to permanent processors using as many inactive processors as necessary).
No	• If there are enough inactive processors (not trial or permanent), the permanent activation will be accomplished using the inactive processors that are currently installed on the system. • If there are not enough inactive processors to satisfy the request, then the permanent activation will not be accepted. You should stop the Trial CoD request before attempting to permanently activate processors.

- When the number of processors to be permanently activated is less than the number of processors activated through Trial CoD, these are the results that occur:
  - If there are enough inactive processors (not trial or permanent), then the permanent activation will be accomplished using the inactive processors that are currently installed on the system.
  - If there are not enough inactive processors to satisfy the request, then the permanent activation code will not be accepted. You should stop the Trial CoD request before attempting to permanently activate processors.

Viewing settings for Trial Capacity on Demand resources

You can use the Hardware Management Console (HMC) to view Trial Capacity on Demand (CoD) settings. You can see how many processors or memory units you have, how many are active, and how many are available for activation using CoD with these settings. You can also view information about Trial CoD processors and memory units.

To view the **capacity settings for processors**:

1. In the navigation area of the HMC window, expand **Server and Partition**.
2. Select **Server Management**.
3. In the contents area, right-click the server on which you want to view the processor capacity settings.
4. Select **Manage On Demand Activations**.
5. Select **Capacity on Demand**.
6. Select **Processor > Capacity Settings**.

To view the **capacity settings for memory**:

1. In the navigation area of the HMC window, expand **Server and Partition**.
2. Select **Server Management**.
3. In the contents area, right-click the server on which you want to view the memory capacity settings.
4. Select **Manage On Demand Activations**.
5. Select **Capacity on Demand**.
6. Select **Memory > Capacity Settings**.

Related information

HMC error codes

Viewing and saving Trial Capacity on Demand code-generation information

You can view and save Trial Capacity on Demand (CoD) code-generation information using the Hardware Management Console (HMC). You might need to do this if the CoD code that was provided for your server does not work.

You can view CoD code-generation information and save it to a file on a remote system or to a file on removable media. The information that is used to generate your CoD codes must exactly match the information that is shown on the HMC CoD Code Information window. To collect the information that is used to generate your CoD codes, use the CoD Code Information window to save the CoD code information to a file on a remote system or to a file on removable media. Then, you can either attach the file to an e-mail, or print the file and fax it to your CoD administrator.

To view and save CoD code-generation information:

1. In the navigation area of the HMC window, expand **Server and Partition**.
2. Select **Server Management**.
3. In the contents area, right-click the server on which you want to view the CoD code information.
4. Select **Manage On Demand Activations**.
5. Select **Capacity on Demand**.
6. Select **Show Code Information**.
7. In the **CoD Code Information** wizard, select the type of CoD code information that you want to view and click **Next**.
8. On the second page of the **CoD Code Information** wizard, click **Save** to save the CoD code information to a file on a remote system or to a file on removable media.
9. In the Save CoD Code Information panel, select one of these options, and then perform the tasks associated with that option.

Option	Description
Save to a file on a remote system	1. Enter the remote system name, file name, user ID, and password. 2. Click **OK** to save the CoD code information or click **Cancel** to exit the panel without saving the CoD code information.
Save to media	1. Click **OK**. 2. Select the required device. These options might be included in the list (the list includes only those removable media devices that are available for use on the HMC): • **Diskette drive** • **Flash memory** • **USB diskette drive** 3. Click **OK** to save the CoD code-generation information, or click **Cancel** to exit the panel without saving the CoD code information.

To fax or e-mail the CoD code information to your CoD administrator, use one of these options to send your information:

- Fax-to Information:
  - **Send to:** Capacity on Demand Administrator
  - **Fax number:** 507-253-4553
  - **Location:** Rochester, Minnesota U.S.
- Fax-from Information:
  - **Customer name:**
  - **Customer contact name:**
  - **Customer address:**
  - **Customer phone number:**
  - **Customer fax number:**
- If you are using e-mail, send the electronic image of the code information in an e-mail to the appropriate address:
  - System i models: icod@us.ibm.com
  - System p models: pcod@us.ibm.com

Related information

HMC error codes

On/Off Capacity on Demand

On/Off Capacity on Demand (CoD) allows you to temporarily activate and deactivate processors and memory units to help meet the demands of business peaks. After you request that a number of processors or memory units are to be made temporarily available for a specified number of days, those processors and memory units are available immediately. You can start and stop requests for On/Off CoD, and you are billed for usage at the end of each quarter

You can change the number of resources and number of days in a running On/Off CoD request. Instead of having to stop the current request and start a new request, or wait until the current request expires, you can change the number of resources and number of days in the current request. For more information about how billing works when changing a current request, or how to change a current

request, see “Billing when changing a running On/Off Capacity on Demand request” on page 28 or “Changing a running On/Off Capacity on Demand request” on page 35.

Make sure that you have prepared your server before continuing. For more information, see “Preparing for Capacity on Demand” on page 4.

Related concepts

“Preparing for Capacity on Demand” on page 4
Capacity on Demand (CoD) allows you to activate processors and memory units on your server when your workload requires the additional resources. To prepare your server for CoD, consider how you would like to license your software and determine when you need to activate your resources. You also must plan for and setup your environment in preparation for CoD.

“Capacity on Demand offerings” on page 2
Find out what the different Capacity on Demand (CoD) offerings are and learn the basics of each offering.

On/Off Capacity on Demand concepts

You can activate inactive processors or memory units on a temporary basis with On/Off Capacity on Demand (CoD).

You can turn on inactive processors or memory units for a number of days as your business peaks demand and pay only for the days that the processors or memory units remain activated.

On/Off Capacity on Demand processor days or memory days

Temporary capacity provided by On/Off Capacity on Demand (CoD) is measured and billed in units called processor days or memory days.

Requested processor or memory days

Requested processor days or memory days equal the number of temporarily activated processors or memory units multiplied by the number of days that are specified on a request for temporary capacity using On/Off CoD. After a request for temporary capacity is made on the server, the server records one processor day for each requested processor or one memory day for each requested memory unit at the beginning of each 24-hour period that the request is running. One memory unit is one GB of memory.

[number of processors or memory units] * [number of requested days]

Unreturned processor or memory days

Unreturned processor days or memory days equal the number of days (24-hour periods) that the temporarily activated processors or memory units were used beyond the expiration of the request for temporary capacity, multiplied by the number of requested processors or memory units that are still in use.

[number of days processors or memory units were used beyond expiration of temporary capacity request] * [number of requested processors or memory units still in use]

Tip: Unreturned processor or memory days are charged at the beginning of each 24-hour period that the temporarily activated processors or memory units are still being used after the expiration of the request for temporary capacity.

Related concepts

"Billing for On/Off Capacity on Demand" on page 26
Learn about how billing works for On/Off Capacity on Demand (CoD).

On/Off Capacity on Demand enablement code

After you have decided to take advantage of On/Off Capacity on Demand (CoD), you must order an On/Off CoD enablement feature. The enablement feature provides the On/Off CoD enablement code that allows you to request temporary activation of inactive processors or memory units by entering the code on your server.

Notes:

- You must have an assigned contract for the enablement code before you can obtain the enablement code.
- The enablement code is only available through a MES upgrade order.
- An On/Off CoD enablement code enables you to request temporary capacity on the server. You can make requests for temporary capacity over the life of the machine as long as your total days do not exceed the predefined limit. When the limit is reached, a new On/Off CoD enablement feature must be ordered and a new enablement code entered on your server. Each time a new enablement code is entered, it will reset the limit of processor days or memory days that can be requested as temporary capacity.

Table 8. System i On/Off CoD processor enablement features

Machine type-model	On/Off CoD processor enablement feature
9406-520	7620
9406-550	7930
9406-570	7951
9406-595	7839 (1.65 GHz)
9406-595	7971 (1.9 GHz)
9406-MMA	7951

Table 9. System p On/Off CoD processor enablement features

Machine type-model	On/Off CoD processor enablement feature
9113-550	7930
9117-570	7951
9119-590 (1.65 GHz only)	7839
9119-590	7971
9119-595	7971
9119-595 (1.65 GHz only)	7994
9117-MMA	7951

Table 10. System i On/Off CoD memory enablement features

Machine type-model	On/Off CoD memory enablement feature
9406-570	7954
9406-595 (1.65 and 1.9 GHz)	7973
9406-MMA	7951

Table 11. System p On/Off CoD memory enablement features

Machine type-model	On/Off CoD memory enablement feature
9117-570	7954
9119-590, 9119-595, and 9119-595	7973
9117-MMA	7954

After your On/Off CoD enablement code has been generated, you can access it using your system type and serial number at the appropriate Capacity on Demand Web site:

- System i models: www.ibm.com/servers/eserver/iseries/ondemand/cod
- System p models: www.ibm.com/servers/eserver/pseries/ondemand/cod

Billing for On/Off Capacity on Demand

Learn about how billing works for On/Off Capacity on Demand (CoD).

The customer contract that must be signed prior to receiving your On/Off CoD enablement code requires you to report billing data, at least once per month, regardless of whether you have used the temporary capacity provided by On/Off CoD during the period. The billing data is used to calculate billing amounts at the end of each billing period (calendar quarter). For instructions about setting up a method of reporting, see "Establishing monthly reporting to IBM" on page 34.

Ensure that you report billing data if your server has been enabled for On/Off CoD. Failure to report the billing data results in an estimated bill for 90 processor days or memory days of temporary capacity.

Processor days or memory days of credit are applied against any requested or unreturned processor days or memory days of temporary capacity that are provided by On/Off CoD. This happens automatically until all of the days of credit are used.

If the temporary resources that are provided by On/Off CoD are still assigned to partitions after your request has expired, the processor days or memory days continue to be recorded at the beginning of each 24-hour period, and you continue to be billed for these days at the end of the On/Off CoD billing cycle. You are charged for these unreturned processor days or memory days at the same rate as requested processor days or memory days.

You must return the resources before your request expires, so you are not billed for any unreturned processors or memory units. If your request has already expired and you do not want to be billed for any more unreturned processors or memory units, return the expired processors or memory units immediately. For more information about returning CoD resources, see "Returning On/Off Capacity on Demand resources" on page 38.

These tables list the models, processor features, and billing features for On/Off CoD.

Table 12. System i On/Off CoD processor features and billing features

Machine type-model	Orderable processor feature	On/Off CoD processor day billing feature
9406-520	8330	7621
9406-550	8312	7341
9406-570	8961	7952
9406-570	8962	7953
9406-570	8971	7952
9406-595	8981	7993

Table 12. System i On/Off CoD processor features and billing features (continued)

Machine type-model	Orderable processor feature	On/Off CoD processor day billing feature
9406-595	8966	7972
9406-MMA	7380	5656

Table 13. System p On/Off CoD processor features and billing features

Machine type-model	Orderable processor feature	On/Off CoD processor day billing feature
9113-550	5237	7931
9117-570	7830	7952
9117-570	7832	7953
9117-570	7833	7955
9117-570	7782	7624
9117-570	8338	7718
9117-570	7782	7718
9117-570	8338	7624
9119-590	7981	7993
9119-590	8967	7592
9119-595	7988	7996
9119-595	7813, 8969	7972
9119-595	8970	7588
9119-595	8968	7593
9117-MMA	5620	5650
9117-MMA	5621	5653
9117-MMA	5622	5653
9117-MMA	7380	5656

These tables list the models, memory features, and billing features for On/Off CoD.

Table 14. System i On/Off CoD memory features and billing features

Machine type-model	Orderable memory feature	On/Off memory day billing feature
9406-570	7890, 7049	7957
9406-595	7816, 7835	7974
9406-MMA	5692, 5693, 5694, 5695, 5696, 5697	5691

Table 15. System p On/Off CoD memory features and billing features

Machine type-model	Orderable memory feature	On/Off memory day billing feature
9117-570	7890/7049/4495/4496	7957
9119-590, 9119-595, 9119-595	7835/7816/4500/4501	7974
9117-MMA	5692/5693/5694/5695/5696/8129	5691

Related concepts

"On/Off Capacity on Demand processor days or memory days" on page 24
Temporary capacity provided by On/Off Capacity on Demand (CoD) is measured and billed in units called processor days or memory days.

Billing when changing a running On/Off Capacity on Demand request:

Ensure that you understand the implications to billing before you decide to change a running On/Off Capacity on Demand (CoD) request.

When you issue a change request, the days in the running request are not preserved; however, the time in the current resource day is carried forward from the running request. It is important to understand that the resource days that remain in a request are decremented at the start of each day. Therefore, the number of resource days billed is incremented at the start of each day.

The change request expires in the number of days that are requested in the change request plus the time that remains in the current resource day of the running request since you have already been charged for that entire resource day. For example, if there are 23 hours and 12 minutes in the current On/Off CoD request, and the request is changed to 5 days, the new request will expire in 5 days, 23 hours, and 12 minutes (the 5 days that are specified by the change request plus the time in the current resource day).

Note: In the confirmation message, the time is rounded up to the nearest hour, so it will show 6 days and 0 hours .

Another example, if there are 3 hours and 45 minutes that remain in the current On/Off CoD request, and the request is changed to 5 days, the new request will expire in 5 days, 3 hours, and 45 minutes (the 5 days that are specified by the change request plus the time that remains in the current resource day).

Note: The time displayed by the confirmation message is rounded up to the nearest hour and will be 5 days and 4 hours.

If the change request decreases the amount of resources in the running request, the remainder of the current resource day is forfeited for each of the resources that are being canceled. No credit is given for any partial resource days that are forfeited. If the change request increases the amount of resources in the running request, a charge for the additional resources for the time that remains in the current resource day is immediately applied. That charge is calculated as additional resources multiplied by the quantity (time that remains in the current resource day rounded up to the whole hour and divided by 24). The result is rounded up to whole resource days. The usual charge for any requested days in the change request applies.

The number of resource days in the On/Off CoD enablement is calculated separately from the number of resource days that are billed. When an On/Off CoD request is started, the number of enabled resource days is reduced by the number of requested resource days (number of requested resources multiplied by the number of requested days). When a running On/Off CoD request is changed, the number of enabled resource days is increased by the number of resource days in the running request, then reduced by the number of requested resource days in the change request. If the change request increases the number of resources, the number of enabled resource days is also reduced by the number of resource days that are charged for the additional resources for the time in the current resource day.

If you decide, within the same day, to again activate the On/Off CoD processors, such as during a test period, the implications to billing are slightly different. The 24-hour test period starts when the first On/Off CoD request is made. During the 24-hour test period that your server is powered on, a record is kept of the maximum number of On/Off CoD processors or memory requested when you make On/Off CoD activation or change requests. Therefore, as the testing reactivation occurs, you can start and stop, or change, On/Off CoD requests repeatedly. Any subsequent requests during the same 24-hour period for the same or fewer resources are not charged. Requests that are made for more resources result in a

pro-rated charge for the excess resources. This new, higher level of resources becomes the maximum resource amount for the 24-hour period, and subsequent requests during the same 24-hour period are not charged for resources up to this new maximum amount. For information about testing your On/Off CoD activations, see Testing your On/Off Capacity on Demand activations.

Examples: Changing a running On/Off CoD request

At 9:00 a.m. on Monday, you start a new request for 5 processors for 1 day. The result is:

- 24 hours remain in current processor day
- 1 day plus 0 hours until request expires
- Charge for 5 processor days (5 processors multiplied by 1 day)
- Enablement reduced by 5 processor days

At 11:00 a.m. on Monday, you change the request to 5 processors for 2 days. The result is:

- 22 hours remain in current processor day
- 2 days plus 22 hours until request expires
- No additional charge
- Enablement reduced by 10 processor days (5 processors multiplied by 2 days)

At 3:00 p.m. on Monday, you change the request to 10 processors for 2 days. The result is:

- 18 hours remain in current processor day
- 2 days + 18 hours until request expires
- Charge for 4 processor days (5 additional processors multiplied by 18 hours in current processor day divided by 24 equals 3.75, which is then rounded up to 4)
- Enablement increase by the 10 processor days in the running request, then reduced by 24 processor days (10 processors multiplied by 2 days plus 4 processor days charged for the hours in the current processor day)

At 5:00 p.m. on Monday, you change the request to 2 processors for 2 days. The result is:

- 16 hours remain in current processor day
- 2 days plus 16 hours until request expires
- No charge and no credit for the 8 canceled processors
- Enablement increased by the 20 processor days in the running request, then reduced by 4 processor days (2 processors multiplied by 2 days)

At 7:00 p.m. on Monday, you change the request to 2 processors for 1 day. The result is:

- 14 hours remain in current processor day
- 1 day plus 14 hours until request expires
- No charge and no credit
- Enablement increased by the 4 processor days in the running request, then reduced by 2 processor days (2 processors multiplied by 1 day)

At 9:00 a.m. on Tuesday, the request is still active. The result is:

- Start of new processor day
- 24 hours remain in current processor day
- 1 day plus 0 hours until request expires
- Charge for 2 processor days
- No change to enablement

At 9:00 a.m. on Wednesday, the request expires. The result is:

- No charge or credit
- No change to enablement

At 10:00 a.m. on Wednesday, you start a new request for 5 processors for 2 days. The result is:
- 24 hours remain in current processor day
- Charge for 5 processor days
- Enablement reduced by 10 processor days

Related concepts

"Billing when testing your On/Off Capacity on Demand activations"
You can test your On/Off Capacity on Demand (CoD) and Capacity BackUp activations several times within a 24-hour period without incurring duplicate billing charges.

Billing when testing your On/Off Capacity on Demand activations:

You can test your On/Off Capacity on Demand (CoD) and Capacity BackUp activations several times within a 24-hour period without incurring duplicate billing charges.

Prior to this capability, it might not have been feasible to run multiple tests on your activations. However, with this capability, you can test your activations several times over a 24-hour period while the server is powered on. When performing this test, you are only charged for the maximum number of On/Off CoD processors or memory that you request during that 24-hour period. The 24-hour period only accounts for when your server is powered on, which eliminates the possibility that the period would expire if you power off your system for an extended period of time.

Note: Minimum firmware level SF240 is required for this function.

Here is an example of how billing works if you decide to test your On/Off CoD activations.

Examples: On/Off CoD processor activations and billing results

Table 16. Billing example for testing On/Off CoD activations

Time	Processor activations and billing results
8:00 a.m.	• 5 processors activated • 5 processor days charged • 5 processor maximum
11:00 a.m. (3 hours later)	• 3 processors added • 3 processor day charged • 8 processor maximum
3:00 p.m. (4 hours later)	• 3 processors canceled (no credit) • 8 processor maximum
5:00 p.m. (2 hours later)	• 3 processors added (no charge) • 8 processor maximum
8:00 p.m. (3 hours later)	• 3 processors canceled (no credit) • 8 processor maximum
11:00 p.m. (3 hours later)	• 3 processors added (no charge) • 8 processor maximum
4:00 a.m. (5 hours later; 20 hours since 8:00 a.m. initial activation)	• 3 processors canceled (no credit) • 8 processor maximum

Table 16. Billing example for testing On/Off CoD activations (continued)

Time	Processor activations and billing results
Total charge	8 processor days total

This is billing example when starting and stopping On/Off CoD requests during a test.

Table 17. Billing example for starting and stopping On/Off CoD requests when testing

Time	Processor activations and billing results
8:00 a.m.	• 3 processors activated • 3 processor days charged • 3 processor maximum
9:00 a.m. (1 hour later)	• 1 processor canceled (no credit) • 3 processor maximum
10:00 a.m. (1 hour later)	• 1 processor added • No charge • 3 processor maximum
11:00 a.m. (1 hour later)	• 3 processors stopped (no credit) • 3 processor maximum
12:00 p.m. (1 hour later)	• 4 processors activated • 1 processor day charged (1 multiplied by 20 hours < 24 hours) • 4 processor maximum
1:00 p.m. (1 hour later)	• 4 processors stopped (no credit) • 4 processor maximum
2:00 p.m. (1 hour later)	• 1 processor activated • No charge • 4 processor maximum
4:00 p.m. (2 hours later)	• 1 processor stopped (no credit) • 4 processor maximum
Total charge	4 processor days total

Related concepts

"Billing when changing a running On/Off Capacity on Demand request" on page 28
Ensure that you understand the implications to billing before you decide to change a running On/Off Capacity on Demand (CoD) request.

Ordering On/Off Capacity on Demand

To order On/Off Capacity on Demand (CoD), contact your IBM Business Partner or IBM sales representative.

Your IBM Business Partner or IBM sales representative guides you through the completion of the required On/Off CoD contracts with IBM. Then, your IBM Business Partner or IBM sales representative places a customer order for an On/Off CoD enablement feature. For more information about the enablement feature, see"On/Off Capacity on Demand enablement code" on page 25.

Before using On/Off CoD, you need to enable On/Off CoD. See "Enabling On/Off Capacity on Demand" on page 32 for more information.

Related information

Hardware Management Console

Overview of the HMC roles

Adding the Hardware Management Console

HMC error codes

Using On/Off Capacity on Demand

You must use the Hardware Management Console (HMC) to use and manage On/Off Capacity on Demand (CoD).

To learn more about the HMC, see the Hardware Management Console topic. Most Capacity on Demand (CoD) tasks on the HMC require the HMC Super Administrator user role. For more information about the HMC Super Administrator user role, see Overview of HMC roles. For information about setting up the HMC for the first time, see the Adding the Hardware Management Console topic.

For information about Hardware Management Console (HMC) error codes that you might receive when completing a CoD task, see HMC error codes.

After you have enabled and activated On/Off CoD, minimal day-to-day management of your temporary capacity is required.

Enabling On/Off Capacity on Demand

Before requesting temporary capacity on your server, you must enable your server for On/Off Capacity on Demand (CoD). To enable your server for On/Off CoD, you must use the Hardware Management Console (HMC).

Most CoD tasks on the HMC require the HMC Super Administrator user role.

To enable your server for On/Off CoD:

1. Retrieve the resulting On/Off CoD enablement code from either your desktop or from the HMC.

Option	Description
Desktop	1. From your desktop, access the appropriate Web site: • System i models: www.ibm.com/servers/eserver/iseries/ondemand/cod.  Then, click **Search by machine serial** on the right side. • System p models: www.ibm.com/servers/eserver/pseries/ondemand/cod .  Then, click the **Activation** tab, and click **Activation codes by machine serial number** on the right side. 2. Enter the system type and serial number of your server. 3. Record the activation code that is displayed on the Web site.
Hardware Management Console	1. Right-click the HMC desktop and select **Net --> Browser**. 2. Near the bottom of the window, click **IBM** in the line **Go to IBM web site**. 3. Enter http://www-912.ibm.com/pod/pod in the Search box at the top and click **Search**. 4. Under the search results, click the URL that reads http://www-912.ibm.com/pod/pod. 5. Enter the System Type and Serial Number for the system for which you want to retrieve the code and click **Submit**. 6. Record the activation code that is displayed on the Web site. To copy the activation code, left-click and drag the mouse to highlight the code.

2. Enter your activation code on your server using the HMC. To enter your code:
   a. In the navigation area of the HMC window, expand **Server and Partition**.
   b. Select **Server Management**.
   c. In the contents area, right-click the server on which you want enter your enablement code.
   d. Select **Manage On Demand Activations**.
   e. Select **Capacity on Demand**.
   f. Select **Enter CoD Code**.
   g. Type your activation code in the **Code** field. If you have copied the code, click the middle mouse button.
   h. Click **OK**.
   i. If a confirmation window is displayed, click **Yes** to confirm the activation. Click **Cancel** to cancel the activation.

Your server is now enabled for On/Off CoD. To use your processors or memory, see "Activating On/Off Capacity on Demand."

Activating On/Off Capacity on Demand

You can request activation of On/Off Capacity on Demand (CoD) resources to activate the number of inactive processors or memory units that you specify for the number of days that you specify.

After you have ordered On/Off CoD and enabled On/Off CoD, you can request temporary activation of On/Off CoD resources. For information about entering On/Off CoD enablement codes, see "Ordering On/Off Capacity on Demand" on page 31 and "Enabling On/Off Capacity on Demand" on page 32.

To request activation of On/Off CoD resources:

1. In the navigation area of the Hardware Management Console window, expand **Server and Partition**.
2. Select **Server Management**.
3. In the contents area, right-click the server on which you want to activate processors or memory temporarily.
4. Select **Manage On Demand Activations**.
5. Select **Capacity on Demand**.
6. Select **Processor** or **Memory**, depending on the type of On/Off CoD resource that you want to activate.
7. Select **Manage On/Off CoD**.
8. Follow the steps in the **Manage On/Off CoD** wizard to complete your request for temporary resource activation.

Any newly activated processors are now available for use by uncapped logical partitions. If there are no uncapped logical partitions, you must assign the processors to one or more logical partitions in order to begin using the processors. Any newly activated memory must be assigned to one or more logical partitions to begin using the newly activated memory. For information about how to dynamically add processors or memory, see Dynamically managing processor power or Dynamically managing memory.

If your server is in the manufacturing default configuration, the server can begin using the newly activated processors or memory immediately after restarting your server operating system. For more information, see Managing operating systems and Manufacturing default configuration. Alternatively, you can dynamically assign the newly activated processors or memory to the default partition. For more information, see Dynamically managing processor power or Dynamically managing memory.

For instructions about any of these tasks:

1. Click **Help** on the menu bar of the Hardware Management Console (HMC).

2. Select **Contents**.
3. In the left pane of the Help window, expand **Server and Partition** under **How do I**.

For information about logical partitions, see Partitioning the server.

You can now begin using the new resources. You will be billed for the activated On/Off CoD resources regardless of whether they have been assigned to a logical partition or are being used. You can stop an active request for On/Off Capacity on Demand before it expires. For more information, see "Stopping an On/Off Capacity on Demand request" on page 35.

You can now change a running On/Off CoD request. For more information, see "Changing a running On/Off Capacity on Demand request" on page 35. If you stopped the previous On/Off CoD request that was running on your server, and you start a new On/Off CoD request before the current resource day from the previous request expires (the hours remaining in the current resource day is a non-zero number), the new On/Off CoD request will be handled like a change request for billing purposes. For more information, see "Billing when changing a running On/Off Capacity on Demand request" on page 28.

To avoid being billed for unreturned processor or memory days, you must return the On/Off CoD resources before your On/Off CoD request expires. For more information, see "Returning On/Off Capacity on Demand resources" on page 38.

For information about Hardware Management Console (HMC) error codes that you might receive when completing a CoD task, see HMC error codes.

Establishing monthly reporting to IBM

You can establish monthly reporting to IBM by using the IBM Electronic Service Agent™, fax, or e-mail.

The customer contract that is required prior to receiving your On/Off Capacity on Demand (CoD) enablement code requires you to report billing data, at least once per month, regardless of whether you have used temporary capacity during the period.

You can use several methods to report information about your requests for temporary capacity provided by On/Off CoD to IBM. The preferred method of reporting is to send information electronically using the Electronic Service Agent. Reporting can also be done using fax or e-mail. If fax or e-mail is used, you must sign a separate contract with IBM.

Establish monthly reporting using the Electronic Service Agent

Monthly reporting of your temporary capacity billing information can be sent to IBM electronically by using the Electronic Service Agent, which is part of the Hardware Management Console. The Electronic Service Agent is designed to monitor events and to transmit server inventory information to IBM on a periodic, customer-definable timetable.

For setup and installation instructions, seeElectronic Service Agent.

Establish monthly reporting using fax or e-mail

To fax or e-mail your billing information for On/Off CoD:

1. Save your billing information. For instructions about how to save your billing information, see "Viewing and saving On/Off Capacity on Demand information" on page 39.
2. If you are using fax, prepare a fax document with the following information:
   - Fax-to Information:
     - **Send to:** Capacity on Demand Administrator
     - **Fax number:** 507-253-4553

- **Location:** Rochester, Minnesota USA
- Fax-from Information:
  - **Customer name:**
  - **Customer contact name:**
  - **Customer address:**
  - **Customer phone number:**
  - **Customer fax number:**

3. If you are using e-mail, send the electronic image of the billing information in an e-mail to the appropriate address. For IBM System i5 or eServer i5 models, send to icod@us.ibm.com. For IBM System p5 or eServer p5 models, send to pcod@us.ibm.com.

Stopping an On/Off Capacity on Demand request

You can stop a request for temporary capacity before it expires.

On/Off Capacity on Demand (CoD) remains enabled on your server, but an issued request for temporary capacity will be stopped. For example consider this scenario: you have requested the temporary activation of one inactive processor for 14 days. After seven days of this request, you determine that you do not need the temporarily activated processor for the remaining seven days of the request. You can stop the request and avoid being billed for any unused processor or memory days of your request. Stopping a request does not preclude making any further requests at a later time.

To stop a request for temporary capacity at any time during the period of requested temporary capacity:

1. Return the On/Off CoD resources. See "Returning On/Off Capacity on Demand resources" on page 38 for information about how to return On/Off CoD resources.
2. In the navigation area of the Hardware Management Console (HMC) window, expand **Server and Partition**.
3. Select **Server Management**.
4. In the contents area, right-click the server on which you want to stop the request for temporary capacity.
5. Select **Manage On Demand Activations**.
6. Select **Capacity on Demand**.
7. Select **Processor** or **Memory**, depending on the type of On/Off CoD request that you want to stop.
8. Select **Manage On/Off CoD**.
9. In the **Manage On/Off CoD** wizard, follow the steps to deactivate all On/Off CoD resources, which will stop the active request.

For information about Hardware Management Console (HMC) error codes that you might receive when completing a CoD task, see HMC error codes.

Changing a running On/Off Capacity on Demand request

In a running On/Off Capacity on Demand (CoD) request, you can change the number of resources, number of days, or both the number of resources and number of days. You do not need to stop the current request to start a new request or wait until the current request expires.

Before you change a running On/Off CoD request:

- Ensure that you understand the implications to billing. See "Billing when changing a running On/Off Capacity on Demand request" on page 28 for more information.
- Make sure that your firmware level also supports the change. You can only change a running On/Off CoD request if the firmware level also supports the change. See the IBM Prerequisite Web site (http://www-912.ibm.com/e_dir/eServerPrereq.nsf) for more information.

To successfully change a running On/Off CoD request:

1. If you are decreasing the amount of resources in the running request, return the On/Off CoD resources to be deactivated. See "Returning On/Off Capacity on Demand resources" on page 38 for details about how to return On/Off CoD resources.
2. In the navigation area of the Hardware Management Console window, expand **Server and Partition**.
3. Select **Server Management**.
4. In the contents area, right-click the server on which you want to change future use of On/Off CoD.
5. Select **Manage On Demand Activations**.
6. Select **Capacity on Demand**.
7. Select **Processor** or **Memory**, depending on the type of On/Off CoD resource you want to change.
8. Select **Manage On/Off CoD**.
9. Follow the steps in the Manage On/Off CoD wizard to complete your change request.

Any newly activated processors are now available for use by uncapped logical partitions. If there are no uncapped logical partitions, you must assign the processors to one or more logical partitions in order to begin using the processors. Any newly activated memory must be assigned to one or more logical partitions to begin using the newly activated memory. For information about how to dynamically add processors or memory, see Dynamically managing processor power or Dynamically managing memory.

If your server is in the manufacturing default configuration, the server can begin using the newly activated processors or memory immediately after restarting your server operating system. For more information, see Managing operating systems and Manufacturing default configuration. Alternatively, you can dynamically assign the newly activated processors or memory to the default partition. For more information, see Dynamically managing processor power or Dynamically managing memory.

For instructions about any of these tasks:

1. Click **Help** on the menu bar of the Hardware Management Console (HMC).
2. Select **Contents**.
3. In the left pane of the Help window, expand **Server and Partition** under **How do I**.

For information about logical partitions, see Partitioning the server.

Testing your On/Off Capacity on Demand activations

You can test your On/Off Capacity on Demand (CoD) and Capacity BackUp activations several times within a 24-hour period without incurring duplicate billing charges.

Prior to this capability, it might not have been feasible to run multiple tests on your activations. However, with this capability, you can test your activations several times over a 24-hour period while the server is powered on. When performing this test, you are only charged for the maximum number of On/Off CoD processors or memory that you request during that 24-hour period. The 24-hour period only accounts for when your server is powered on, which eliminates the possibility that the period would expire if you power off your system for an extended period of time.

For an example of how billing works when testing your On/Off CoD activations, see Table 16 on page 30.

Discontinuing On/Off Capacity on Demand

To discontinue the On/Off Capacity on Demand (CoD) function on your server, disabling the capability for future use, you must obtain and enter an On/Off CoD termination code on your server.

To obtain this termination code, send a request for an On/Off CoD termination code to the appropriate CoD administrator at one of these e-mail addresses:

- IBM System i5 or eServer i5: icod@us.ibm.com
- IBM System p5 or eServer p5: pcod@us.ibm.com

A single On/Off CoD termination code disables On/Off CoD for both processors and memory units. The termination code cannot be entered if an active On/Off CoD request exists on the system, or if unreturned On/Off CoD resources are in use on the system. The active request must be stopped and any unreturned resources must be returned before On/Off CoD can be discontinued. For information about how to stop the active On/Off CoD request, see “Stopping an On/Off Capacity on Demand request” on page 35. For information about how to return On/Off CoD resources, see “Returning On/Off Capacity on Demand resources” on page 38.

If your server unexpectedly loses power after you have stopped an On/Off CoD request, you might need to perform “Recovery actions” to successfully power on your server.

To disable future use of On/Off CoD on your server after you have obtained a termination code:

1. In the navigation area of the Hardware Management Console (HMC) window, expand **Server and Partition**.
2. Select **Server Management**.
3. In the contents area, right-click the server on which you want to disable future use of On/Off CoD.
4. Select **Manage On Demand Activations**.
5. Select **Capacity on Demand**.
6. Select **Enter CoD Code**.
7. Type your termination code in the **Code** field.
8. Click **OK**.

For information about Hardware Management Console (HMC) error codes that you might receive when completing a CoD task, see HMC error codes.

Related information

HMC error codes

Recovery actions:

Perform these recovery actions in the event the server is powered off or loses power when there are unreturned Trial CoD or On/Off CoD resources. Unreturned Trial CoD resources result when the trial period ends before the Trial CoD resources have been removed from your partition. Unreturned On/Off CoD resources result when the On/Off CoD request expires before the On/Off CoD resources have been removed from your partition. These recovery actions need to be used to ensure the successful power on of all partitions that were running prior to the power off or loss of power.

When a server is powered off or loses power, all unreturned Trial CoD or On/Off CoD resources are reclaimed by the server. As a result, when the server is powered back on, all partitions that were running prior to the power off or loss of power might not be able to be restarted since only licensed resources are available for use. Furthermore, when a partition is powered on, if there are not enough licensed resources to satisfy the partition’s memory or processor requirements, the power on of that partition will fail. The failure might result in an HMC message of HSCL03F4 (not enough processing resources to meet the allocation setting), or a System Reference Code of B2xx1150 or B2xx1230.

Note: The server can only power on to standby mode if you have specified that option prior to powering on your server.

To successfully power on those partitions, perform either step 1 or 2, or a combination of the 2 steps.

1. Reduce partition resources so that the total of partition resources across all partitions to be powered on does not exceed the total number of activated resources. See Changing partition profile properties for more information.

2. Enter new Capacity on Demand activation codes to satisfy these requirements. Additionally, start an On/Off CoD request (if On/Off CoD is still enabled) or enter a new Trial CoD activation code. If the On/Off CoD enablement is exhausted, a new On/Off CoD enablement code would need to be entered before doing a new On/Off CoD request.

Returning On/Off Capacity on Demand resources

To return On/Off Capacity on Demand (CoD) processors or memory, you must remove the processors or memory from the logical partitions to which they are assigned, thus making them available to be reclaimed by the server.

You do not need to remove the processors or memory from the same logical partitions to which they were assigned when you started your On/Off CoD request or Trial CoD. You can remove the processors or memory from any of your logical partitions.

It is best to remove processors or memory from a logical partition when the logical partition is running. For information about how to dynamically remove processors or memory, see Dynamically managing processor power or Dynamically managing memory power.

Logical partitions that are not activated might still have processors and memory assigned to them. To remove processors or memory from a logical partition that is not activated, you have these options:

- Modify a partition profile for the logical partition to reduce the number of processors or memory, and then activate the logical partition by using the modified partition profile. For more information, see Changing partition profile properties.
- Delete the logical partition. For more information, see Deleting a logical partition.

Viewing settings for On/Off Capacity on Demand resources

You can use the Hardware Management Console (HMC) to view On/Off Capacity on Demand (CoD) settings. You can see how many processors or memory units you have, how many are active, and how many are available for activation using CoD with these settings. You can also view information about On/Off CoD processors and memory units.

To view the **capacity settings for processors**:

1. In the navigation area of the HMC window, expand **Server and Partition**.
2. Select **Server Management**.
3. In the contents area, right-click the server on which you want to view the processor capacity settings.
4. Select **Manage On Demand Activations**.
5. Select **Capacity on Demand**.
6. Select **Processor > Capacity Settings**.

To view the **capacity settings for memory**:

1. In the navigation area of the HMC window, expand **Server and Partition**.
2. Select **Server Management**.
3. In the contents area, right-click the server on which you want to view the memory capacity settings.
4. Select **Manage On Demand Activations**.
5. Select **Capacity on Demand**.
6. Select **Memory > Capacity Settings**.

Related information

HMC error codes

Viewing and saving On/Off Capacity on Demand information

You can use the Hardware Management Console(HMC) to view and save On/Off Capacity on Demand CoD code-generation and billing information. You might need to do this if the CoD code that was provided for your server does not work.

You can view CoD code-generation information and save it to a file on a remote system or to a file on removable media. The information that is used to generate your CoD codes must exactly match the information that is shown on the HMC CoD Code Information window. To collect the information that is used to generate your CoD codes, use the CoD Code Information window to save the CoD code information to a file on a remote system or to a file on removable media. Then, you can either attach the file to an e-mail, or print the file and fax it to your CoD administrator.

To view and save CoD code-generation information:

1. In the navigation area of the HMC window, expand **Server and Partition**.
2. Select **Server Management**.
3. In the contents area, right-click the server on which you want to view the CoD code information.
4. Select **Manage On Demand Activations**.
5. Select **Capacity on Demand**.
6. Select **Show Code Information**.
7. In the **CoD Code Information** wizard, select the type of CoD code information that you want to view and click **Next**.
8. On the second page of the **CoD Code Information** wizard, click **Save** to save the CoD code information to a file on a remote system or to a file on removable media.
9. In the Save CoD Code Information panel, select one of these options, and then perform the tasks associated with that option.

Option	Description
Save to a file on a remote system	1. Enter the remote system name, file name, user ID, and password. 2. Click **OK** to save the CoD code information or click **Cancel** to exit the panel without saving the CoD code information.
Save to media	1. Click **OK**. 2. Select the required device. These options might be included in the list (the list includes only those removable media devices that are available for use on the HMC): • **Diskette drive** • **Flash memory** • **USB diskette drive** 3. Click **OK** to save the CoD code-generation information, or click **Cancel** to exit the panel without saving the CoD code information.

Viewing and saving Capacity on Demand billing information:

You can view CoD billing information and save it to a file on a remote system or to a file on removable media. If you choose to manually report the billing information, use the CoD Billing Information window

on the HMC to save the billing information. Then, you can either attach the file to an e-mail or print the file and fax it to your CoD administrator. To view and save CoD billing information:

1. In the navigation area of the HMC window, expand **Server and Partition**.
2. Select **Server Management**.
3. In the contents area, right-click the server on which you want to view the CoD billing information.
4. Select **Manage On Demand Activations**.
5. Select **Capacity on Demand**.
6. Select **Show Billing Information**.
7. In the **CoD Billing Information** wizard, select the type of CoD billing information that you want to view and click **Next**.
8. On the second page of the **CoD Billing Information** wizard, click **Save** to save the CoD billing information to a file on a remote system or to media.
9. In the Save Billing Information panel, select one of these options, and then perform the tasks associated with that option.

Option	Description
Save to a file on a remote system	1. Enter the remote system name, file name, user ID, and password 2. Click **OK** to save the CoD billing information or click **Cancel** to exit the panel without saving the CoD billing information.
Save to media	1. Click **OK**. 2. Select the required device. The following options might be displayed (the list will include only those removable media devices that are available for use on your HMC): • **Diskette drive** • **Flash memory** • **USB diskette drive** 3. Click **OK** to save the CoD billing information, or click **Cancel** to exit the panel without saving the CoD billing information.

For information about Hardware Management Console (HMC) error codes that you might receive when completing a CoD task, see HMC error codes.

Reserve Capacity on Demand

Reserve Capacity on Demand (CoD) provides prepaid temporary capacity that is automatically used by the server to help meet the demands of business peaks.

With Reserve CoD, you can purchase a reserve capacity prepaid feature that represents a number of processor days. You can then activate the inactive processors using Reserve CoD as your business requires.

The reserve processors are put in the server shared processor pool, where they are used as needed by uncapped partitions. Whenever the capacity of the non-Reserve CoD processors in the shared processor pool reaches the maximum capacity of those processors and is no longer sufficient to support the server workload, then the Reserve CoD processors are used.

When a Reserve CoD processor is used, one processor day is subtracted from the prepaid number of processor days. You pay only for the number of processor days that the reserve processors are actually used. The processors can remain active until all of the reserve processor days that you have paid for have been used.

Make sure that you have prepared your server before continuing. For more information, see “Preparing for Capacity on Demand” on page 4.

Because you have already paid for the reserve capacity before you use it, contracts and reporting are not necessary.

Make sure that you have prepared your server before continuing. For more information, see Preparing for Capacity on Demand.

Related concepts

“Preparing for Capacity on Demand” on page 4
Capacity on Demand (CoD) allows you to activate processors and memory units on your server when your workload requires the additional resources. To prepare your server for CoD, consider how you would like to license your software and determine when you need to activate your resources. You also must plan for and setup your environment in preparation for CoD.

“Capacity on Demand offerings” on page 2
Find out what the different Capacity on Demand (CoD) offerings are and learn the basics of each offering.

Reserve Capacity on Demand concepts

With Reserve Capacity on Demand (CoD), the server automatically uses reserve processors on a temporary basis.

You buy a quantity of reserve capacity prepaid features, each of which represent a number of processor days. When the Reserve CoD processors are put into the shared processor pool, the server automatically uses the reserve processors as your business peaks demand. For each reserve processor used, one processor day is deducted from the number of prepaid processor days.

Reserve Capacity on Demand processor days and billing

Temporary capacity provided by Reserve Capacity on Demand is purchased and measured in units called processor days.

With Reserve Capacity on Demand, you can purchase a reserve capacity prepaid feature that represents a number of processor days. The reserve processors are put in the server shared processor pool, where they are used as needed by uncapped partitions.

A Reserve CoD processor day is consumed when the shared processor pool is 100% utilized (all active non-Reserve processors available to the pool are being fully utilized), and 10% of a Reserve CoD processor is put into use for more than 30 consecutive seconds. Once a Reserve CoD processor day is consumed within a 24 hour period against a specific Reserve CoD processor, no additional Reserve CoD processor days will be charged against that Reserve CoD processor within the same 24 hour period.

Reserve Capacity on Demand prepaid feature and reserve capacity prepaid code

After you have decided to take advantage of Reserve Capacity on Demand (CoD), you must order a reserve capacity prepaid feature. This provides you with a reserve capacity prepaid code that enables you to assign inactive processors to the shared processor pool that can be used for business peaks.

When you have decided to purchase a quantity of processor days in advance for Reserve CoD, you need to order one or more reserve capacity prepaid features. Each reserve capacity prepaid feature represents a number of processor days.

Based on the number of reserve capacity prepaid features ordered, a reserve capacity prepaid code is generated.

A reserve capacity prepaid code enables you to request inactive processors to be put in the shared pool. You can make requests for this capacity over the life of the server as long as there are prepaid reserve processors or days available.

A new reserve capacity prepaid feature must be ordered and a new reserve capacity prepaid code entered on your server before you can use the Reserve CoD function again. Each time a new reserve capacity prepaid code is entered, it adds to the existing limit of processor days that can be used as reserve capacity.

These tables show the reserve CoD processor features and prepaid processor activation features for System i and System p models.

Table 18. System i Reserve CoD processor features and prepaid processor activation features

Machine type-model	Processor feature	Reserve CoD prepaid processor activation feature
9406-520	8330	7622
9406-550	8958	7934
9406-550	8312	7741
9406-570	8338	7728
9406-570	8971	7956
9406-570	8961	7956
9406-595	8981	7926
9406-595	8966	7975

Table 19. System p Reserve CoD processor features and prepaid processor activation features

Machine type-model	Processor feature	Reserve CoD prepaid processor activation feature
9113-550	5237	7934
9117-570	7830	7956
9117-570	7832	7959
9117-570	7833	7959
9117-570	7782	7666
9117-570	8338	7728
9119-590	7981	7926
9119-590	8967	8457
9119-595	7988	7991
9119-595	7813, 8969	7975
9119-595	8970	7694
9119-595	8968	8468

After your reserve capacity prepaid code is generated, you can access it using your system type and serial number at one of these CoD Web sites:

- System i models: www.ibm.com/servers/eserver/iseries/ondemand/cod 

- System p models: www.ibm.com/servers/eserver/pseries/ondemand/cod 

Related tasks

"Enabling Reserve Capacity on Demand"
Before you request temporary capacity on your server, you must enable your server to take advantage of Reserve Capacity on Demand (CoD).

Ordering Reserve Capacity on Demand

To order Reserve Capacity on Demand (CoD), contact your IBM Business Partner or IBM sales representative.

Contact your IBM Business Partner or IBM sales representative to request Reserve Capacity on Demand. Your IBM Business Partner or IBM sales representative places a customer order for a number of reserve capacity prepaid features. Each reserve capacity prepaid feature represents a number of processor days. Based on the number of reserve capacity prepaid features ordered, a reserve capacity prepaid code is generated. For more information about the reserve capacity prepaid feature and reserve capacity prepaid code, see "Reserve Capacity on Demand prepaid feature and reserve capacity prepaid code" on page 41.

Before using Reserve CoD, you need to enable Reserve Capacity on Demand. See "Enabling Reserve Capacity on Demand" for more information.

Using Reserve Capacity on Demand

After you have purchased your reserve capacity prepaid feature, you can enable Reserve Capacity on Demand (CoD) by entering your reserve capacity prepaid code.

You can activate the reserve processors by requesting them to be moved to the shared processor pool. No day-to-day management of your reserve capacity is required. For information about how to enable Reserve CoD and activate reserve processors, see "Enabling Reserve Capacity on Demand."

Note: Dedicated or capped partitions cannot use Reserve CoD.

Reserve processors cannot be assigned to a logical partition or a logical partition profile using the Hardware Management Console (HMC). Reserve capacity is only used if the server detects that the activated non-reserve processors that are available to the uncapped logical partitions are used at maximum capacity. The server automatically uses the activated reserve processors that are available in the shared processor pool and deducts one processor day per processor from the prepurchased number of processor days as they are used.

Although you do not need to actively manage Reserve CoD on your server, you can view various Reserve CoD settings using the HMC. Most CoD tasks on the HMC require the HMC Super Administrator user role.

Related information

Hardware Management Console

Overview of the HMC roles

Adding the Hardware Management Console

HMC error codes

Enabling Reserve Capacity on Demand

Before you request temporary capacity on your server, you must enable your server to take advantage of Reserve Capacity on Demand (CoD).

Using the Hardware Management Console (HMC), you must obtain and enter the reserve capacity prepaid code to enable Reserve CoD. After entering the reserve capacity prepaid code, you can make a Reserve CoD request to choose the number of reserve processors to move to the shared processor pool.

The reserve processors that are in the shared processor pool are used by the server whenever the capacity of the non-Reserve CoD processors in the shared processor pool is no longer sufficient to support the workload.

This task, as well as most other CoD tasks on the HMC, require the HMC Super Administrator user role.

To enable your server for Reserve CoD:

1. Retrieve activation code from one of the options in the following table.

Option	Description
Desktop	1. From your desktop, access the appropriate Web site: • System i models: www.ibm.com/servers/eserver/iseries/ondemand/cod.  Then, click **Search by machine serial** on the right side. • System p models: www.ibm.com/servers/eserver/pseries/ondemand/cod .  Then, click the **Activation** tab, and click **Activation codes by machine serial number** on the right side. 2. Enter the system type and serial number of your server. 3. Record the activation code that is displayed on the Web site.
Hardware Management Console	1. Right-click the HMC desktop and select **Net --> Browser**. 2. Near the bottom of the window, click **IBM** in the line **Go to IBM web site**. 3. Enter http://www-912.ibm.com/pod/pod in the Search box at the top and click **Search**. 4. Under the search results, click the URL that reads http://www-912.ibm.com/pod/pod. 5. Enter the System Type and Serial Number for the system for which you want to retrieve the code and click **Submit**. 6. Record the activation code that is displayed on the Web site. To copy the activation code, left-click and drag the mouse to highlight the code.

2. Enter your reserve capacity prepaid code on your server using the HMC. To enter your reserve capacity prepaid code:
   a. In the navigation area of the Hardware Management Console window, expand **Server and Partition**.
   b. Select **Server Management**.
   c. In the contents area, right-click the server on which you want to enable Reserve CoD.
   d. Select **Manage On Demand Activations**.
   e. Select **Capacity on Demand**.
   f. Select **Enter CoD Code**.
   g. Type your reserve capacity prepaid code in the **Code** field. If you have copied the code, click on the middle mouse button.
   h. Click **OK**.

Your server is now enabled for Reserve CoD. To use your reserve processors, see “Activating Reserve Capacity on Demand” on page 45.

Related concepts

"Reserve Capacity on Demand prepaid feature and reserve capacity prepaid code" on page 41
After you have decided to take advantage of Reserve Capacity on Demand (CoD), you must order a reserve capacity prepaid feature. This provides you with a reserve capacity prepaid code that enables you to assign inactive processors to the shared processor pool that can be used for business peaks.

Related information

Hardware Management Console

Overview of the HMC roles

Adding the Hardware Management Console

HMC error codes

Activating Reserve Capacity on Demand

After your server is enabled for Reserve Capacity on Demand (CoD), you can activate reserve processors so the server can use them. You need to make a request on the Hardware Management Console (HMC) to move some or all of the inactive reserve processors to the shared processor pool.

To request to put reserve processors in the shared processor pool:

1. In the navigation area of the Hardware Management Console window, expand **Server and Partition**.
2. Select **Server Management**.
3. In the contents area, right-click the server on which you want to activate Reserve CoD.
4. Select **Manage On Demand Activations**.
5. Select **Capacity on Demand**.
6. Select **Processor**.
7. Select **Manage Reserve CoD**.
8. Enter the new number of Reserve CoD processors you want to have in the shared processor pool. (When you enter **0**, you deactivate all Reserve CoD processors.)
9. Click **Next**.
10. Verify that the information is accurate.
    - To change the number of reserve processors in the shared processor pool, click **Back**.
    - To confirm the number of processors in the shared processor pool, click **Finish**.
    - To exit without making any changes, click **Cancel**.

The newly activated processors are now available for use by uncapped logical partitions.

Discontinuing Reserve Capacity on Demand

To discontinue Reserve Capacity on Demand (CoD), you need to deactivate reserve processors.

To deactivate the reserve processors:

1. In the navigation area of the Hardware Management Console window, expand **Server and Partition**.
2. Select **Server Management**.
3. In the contents area, right-click the server on which you want to deactivate Reserve CoD.
4. Select **Manage On Demand Activations**.
5. Select **Capacity on Demand**.
6. Select **Processor**.
7. Select **Manage Reserve CoD**.
8. Enter **0** to deactivate all Reserve CoD processors.
9. Click **Next**.
10. Verify that the information is accurate.
    - To deactivate the reserve processors, click **Finish**.

- To exit without making any changes, click **Cancel**.

Viewing settings for Reserve Capacity on Demand processors

You can use the Hardware Management Console (HMC) to view Reserve Capacity on Demand (CoD) settings. You can see how many processors you have, how many are active, and how many are available for activation using CoD with these settings. You can also view information about Reserve CoD processors.

To view the capacity settings for processors:

1. In the navigation area of the HMC window, expand **Server and Partition**.
2. Select **Server Management**.
3. In the contents area, right-click the server on which you want to view the processor capacity settings.
4. Select **Manage On Demand Activations**.
5. Select **Capacity on Demand**.
6. Select **Processor > Capacity Settings**.
7. Select **Reserve CoD**.

On the Reserve CoD page of the CoD Processor Capacity Settings, you can see information about the Reserve CoD state, activated Reserve CoD processors, inactive processors, prepaid processor days remaining for Reserve CoD, and hours remaining for activated Reserve CoD processors.

Viewing shared processor information

You can use the Hardware Management Console (HMC) to view information about shared processor utilization.

To view information about shared processor utilization:

1. In the navigation area of the HMC window, expand **Server and Partition**.
2. Select **Server Management**.
3. In the contents area, right-click the server on which you want to view the processor utilization information.
4. Select **Manage On Demand Activations**.
5. Select **Capacity on Demand**.
6. Select **Processor > Shared Processor Utilization**.

Use the Shared Processor Pool Utilization panel to see the distribution and utilization of Reserve CoD processors and non-Reserve CoD processors in the shared processor pool.

Viewing and saving Reserve Capacity on Demand code-generation information

You can view and save Reserve Capacity on Demand (CoD) code-generation information using the Hardware Management Console (HMC). You might need to do this if the CoD code that was provided for your server does not work.

You can view CoD code-generation information and save it to a file on a remote system or to a file on removable media. The information that is used to generate your CoD codes must exactly match the information that is shown on the HMC CoD Code Information window. To collect the information that is used to generate your CoD codes, use the CoD Code Information window to save the CoD code information to a file on a remote system or to a file on removable media. Then, you can either attach the file to an e-mail, or print the file and fax it to your CoD administrator.

To view and save CoD code-generation information:

1. In the navigation area of the HMC window, expand **Server and Partition**.
2. Select **Server Management**.

3. In the contents area, right-click the server on which you want to view the CoD code information.
4. Select **Manage On Demand Activations**.
5. Select **Capacity on Demand**.
6. Select **Show Code Information**.
7. In the **CoD Code Information** wizard, select the type of CoD code information that you want to view and click **Next**.
8. On the second page of the **CoD Code Information** wizard, click **Save** to save the CoD code information to a file on a remote system or to a file on removable media.
9. In the Save CoD Code Information panel, select one of these options, and then perform the tasks associated with that option.

Option	Description
Save to a file on a remote system	1. Enter the remote system name, file name, user ID, and password. 2. Click **OK** to save the CoD code information or click **Cancel** to exit the panel without saving the CoD code information.
Save to media	1. Click **OK**. 2. Select the required device. These options might be included in the list (the list includes only those removable media devices that are available for use on the HMC): • **Diskette drive** • **Flash memory** • **USB diskette drive** 3. Click **OK** to save the CoD code-generation information, or click **Cancel** to exit the panel without saving the CoD code information.

To fax or e-mail the CoD code information to your CoD administrator, use one of these options to send your information:

- Fax-to Information:
  - **Send to:** Capacity on Demand Administrator
  - **Fax number:** 507-253-4553
  - **Location:** Rochester, Minnesota U.S.
- Fax-from Information:
  - **Customer name:**
  - **Customer contact name:**
  - **Customer address:**
  - **Customer phone number:**
  - **Customer fax number:**
- If you are using e-mail, send the electronic image of the code information in an e-mail to the appropriate address:
  - System i models: icod@us.ibm.com
  - System p models: pcod@us.ibm.com

Utility Capacity on Demand

Utility Capacity on Demand automatically delivers additional processor capacity on a temporary basis within the system's default Shared Processor Pool.

Related concepts

"Capacity on Demand offerings" on page 2
Find out what the different Capacity on Demand (CoD) offerings are and learn the basics of each offering.

Utility Capacity on Demand Concepts

Utility CoD is for customers with unpredictable, short workload increases who need an automated and affordable way to help assure adequate server resource is available as needed.

Utility Capacity on Demand automatically delivers additional processor capacity on a temporary basis within the system's Shared Processor Pool.

Once Utility CoD is enabled on your machine, you can place any number of inactive processors into the Shared Processor Pool.

The processors become available to the pool's resource manager. When the system recognizes that the combined processor utilization within the shared pool exceeds 100% of the level of base (purchased or active) processors assigned across uncapped partitions, a Utility CoD Processor Minute is charged, and this level of performance is available for the next minute of use. If additional workload requires a higher level of performance, the system will automatically allow the additional Utility CoD processors to be used. The system automatically and continuously monitors and charges for the performance needed above the base (permanent) level.

Each managed system has a reporting limit and a reporting threshold. These values are set by the Utility CoD Enablement Code. On managed systems with 1 to 4 processors, the reporting threshold is 500 minutes, and the reporting limit is 1000 minutes. On managed systems with 5 to 16 processors, the reporting threshold is 1000 minutes, and the reporting limit is 2000 minutes.

Utility Capacity on Demand enablement code

Understand the concept of the Utility Capacity on Demand enablement code.

You must "enable" your system to use Utility Capacity on Demand. The Utility CoD web site can provide a Utility CoD Enablement Code (key). To start using the inactive capacity on your system as utility capacity, you must enter the enablement code. The Utility CoD enablement code is valid for 365 server powered-on days.

During this time, your system sends reminders in the form of console messages. Console messages are sent during the last 30 days of the enablement period. This allows you time to return to the CoD web site, accept the terms and conditions for another year and receive a new enablement code.

After you have enabled your machine to use Utility Capacity on Demand, you can move the inactive processors into the Shared Processor Pool. Then you can use them as utility processors in the pool's uncapped partitions.

Utility Capacity on Demand processor minutes

You can use CoD to add processor minutes to your managed system.

Utility CoD automatically delivers additional processor capacity on a temporary basis within the system's Shared Processor Pool. You can place any number of inactive processors into the Shared Processor Pool. Once you have placed the processors in the Shared Processor Pool, the processors become available to the pool's resource manager. When the system recognizes that all the used processors within the shared pool

exceeds 100% of the level of base (purchased or active) processors assigned across uncapped partitions, a Utility CoD Processor Minute is charged. This level of performance is available for the next minute of use. If additional workload requires a higher level of capacity, the system automatically allows the additional Utility CoD processors to be used. The system automatically and continuously monitors and charges for the capacity needed above the base (permanent) level.

When system recognizes that the base processors assigned across uncapped partitions is 100% utilized AND at least 10% of one processor is needed, the additional processor resource is automatically applied and chargeable processor minutes start accruing. Processor minutes stop accruing when the utilization level drops and the base processors assigned can handle the workload.

Utility Capacity on Demand billing features

Read more about the Utility CoD billing features associated with your machine type and model.

The following table describes the System i edition, processor, and billing features.

Table 20. System i processor Utility CoD features

Machine type-model	Edition feature	Processor feature	Billing feature
9406-MMA	5460 (1/4)	7380	5404
9406-MMA	5461 (2/8)	7380	5404
9406-MMA	5462 (4/16)	7380	5404
9406-MMA	7053 (1/4)	7380	5404
9406-MMA	7058 (2/8)	7380	5404
9406-MMA	7063 (4/16)	7380	5404

Note: Each billing feature is purchased to pay for 100 Utility CoD processor minutes.

The following table describes the System p processor and billing features.

Table 21. System p processor Utility CoD features

Machine type-model	Processor feature	Billing feature
9117-MMA	5620	5640
9117-MMA	5621	5641
9117-MMA	5622	5641
9117-MMA	7380	5404

Note: Each billing feature is purchased to pay for 100 Utility CoD processor minutes.

Using Utility Capacity on Demand

Learn more about how to use Utility Capacity on Demand.

Enabling Utility Capacity on Demand

Describes how to enable your managed system to use Utility Capacity on Demand.

Utility CoD allows you to “report” your use based on how your business uses utility processor minutes. There is no fixed reporting schedule, and there are no electronic or screen captures required to report use of utility processor minutes. The managed system notifies you when the reporting threshold has been reached. You can also choose to have the managed system report at any time before the threshold has been reached. The enablement code sets the reporting threshold and reporting limit for the system.

To enable your managed system to use Utility Capacity on Demand, do the following:

1. Go to the appropriate CoD web site. If your managed system is a System i, go to www.ibm.com/systems/i/cod/. If your managed system is a System p, go to www.ibm.com/systems/p/cod.
2. Click **Utility CoD** to accept the Terms and Conditions associated with Utiltiy CoD. A Utility CoD Enablement Code will be provided for your system after you agree to the Terms and Conditions.
3. Enter the Utility CoD Enablement Code (key) into your system using the HMC.
4. Assign a quantity of inactive processors (any number you choose) to the shared processor pool using the HMC.

You can then configure Utility CoD so that you can use the new utility processors based on your business priorities and performance requirements. For example you can set a cap on the maximum amount of usage that Utility CoD consumes. For example, if you want to cap the total usage at 500 minutes, you can use the HMC to set this limit.

Discontinuing Utility Capacity on Demand

Learn more about how to stop using Utility Capacity on Demand.

You can disable Utility CoD by removing all utility processors from the shared processor pool. To stop using Utility CoD, you must request a termination code from the Utility CoD web site. When you enter the termination code on the HMC, Utility CoD functions will be disabled. The termination code will not be accepted by the system if more than 100 minutes of use remain unreported.

Reporting Utility Capacity on Demand processor minutes

Describes how to report the number of Utility CoD processor minutes your managed system has used.

To report utility processor minutes, go to the CoD web site and enter the number of processor minutes you would like to report. You can enter the value currently displayed on your system's HMC Utility CoD screen, or some amount less than what is displayed. You can also report some amount greater than what is displayed, if you would like to purchase minutes before they have been used.

You must report in increments of 100 processor minutes. The web site ensures you only report 100, 200, 300, or any multiple of 100 processor minutes.

After you report a quantity of processor minutes, a Utility CoD reporting code will be provided to you. This code acts like a receipt, showing that you reported processor minutes. You must enter this code on your HMC for the processor minutes you reported to be recorded.

Reporting of used processor minutes should be performed before the reporting threshold is reached. When the reporting threshold is reached, the managed system provides messages and begins a reporting ″grace″ period. At that point, you have 30 powered-on days to report or you have until the reporting limit is reached, whichever comes first. At this time, if the Utility CoD reporting code has not yet been entered at the HMC, Utility CoD will be stopped and all utility processors will be removed from the shared pool.

Paying for Utility Capacity on Demand processor minutes

Describes the Utility Capacity on Demand billing process.

The sales channel you specify at time of enabling your system for Utility CoD will be notified of the processor minutes you report. The sales channel will work with you to process an order for a quantity of 100 Processor minute billing features (as an example, feature code 5404 for the 9406-MMA) so that you can pay for what you have used. If you do not pay for the utility processor minutes you report, the CoD web site will not accept future reported minutes. As a result, you will not be provided another Utility CoD Reporting Code to enter at your system to continue using Utility CoD.

Entering Utility CoD enablement codes and reporting codes

Learn more about how to enter CoD enablement and reporting codes.

Important: Utility CoD is only for POWER6 servers with an HMC Version 7 attached. For information about managing CoD using Version 7, see the System i and System p Operations Guide for the Hardware Management Console and Managed Systems Version 7 Release 3.1.0.

To enter the Utility CoD enablement and reporting codes, do the following:

1. In the Navigation area, click **Systems Management > Servers**.
2. Select the server for which you want to enter the Utility CoD code.
3. Click **Tasks > Capacity on Demand > Enter CoD Code**.
4. Enter the Utility CoD code in the Code field and then click **OK**.

Reviewing used or reported processor minutes

You can review the used or reported processor minutes using the HMC interface.

To review used or reported processor minutes, do the following:

1. In the Navigation area, click **Systems Management > Servers**.
2. Click **Servers** and select the server for which you want to view Utility CoD processor minute information.
3. Click **Tasks > Capacity On Demand (CoD) > Processor > Utility CoD > View Capacity Settings**. The View Capacity Settings window opens.

Setting a processor minute usage limit

Learn more about setting a limit on the processor minutes that you use.

To set a processor minute usage limit, do the following:

1. In the Navigation area, click **Systems Management > Servers**.
2. Click **Servers** and select the server for which you want to set a Utility CoD processor minute usage limit.
3. Click **Tasks > Capacity On Demand (CoD) > Processor > Utility CoD > Manage**.
4. Select **Enable processor minute usage limit**.
5. In the **New limit** field, type the number of processor minutes you want to set as the limit.
6. Click **OK**.

Obtaining the information needed to report processor minutes

Read more about how to view the information you need to report Utility CoD processor minutes.

To view the information you need to report Utility CoD processor minutes for billing, do the following:

1. In the Navigation area, click **Systems Management > Servers**.
2. Select the server for which you want to report Utility CoD processor minutes.
3. Click **Tasks > Capacity on Demand > Processor > Utility CoD > View Code Information**. This window displays the information you need to report processor minutes.

Capacity BackUp

Capacity BackUp uses On/Off Capacity on Demand (CoD) capabilities to provide an off-site, disaster recovery server.

Capacity BackUp is intended for companies that require an off-site, disaster recovery server. The Capacity BackUp offering has a minimum set of active processors that can be used for any workload and a large number of inactive processors that can be activated using On/Off CoD in the event of a disaster. A specified number of no-charge On/Off CoD processor days is provided with Capacity BackUp.

For IBM System i5 or eServer i5 models, a special supplement to the On/Off CoD customer contract must be signed for the Capacity BackUp server. This contract defines the use of the inactive processors in the event of a true disaster. The no-charge On/Off CoD processor days are to be used for disaster testing.

For IBM System p5 or eServer p5 models, use the included On/Off CoD processor days during a true disaster. If you need additional On/Off CoD processor days, they can be purchased with the On/Off CoD offering. Capacity BackUp for System p models requires the same contracts and registration as users of the On/Off CoD.

For more information about On/Off CoD, see "On/Off Capacity on Demand" on page 23.

Make sure that you have prepared your server before continuing. For more information, see "Preparing for Capacity on Demand" on page 4.

You can test your Capacity BackUp activations while not incurring duplicate charges. For more information, see Testing your On/Off activations.

Related concepts

"Capacity on Demand offerings" on page 2
Find out what the different Capacity on Demand (CoD) offerings are and learn the basics of each offering.

Processors available for Capacity BackUp

This information lists the number of active and inactive processors available for each server model.

Capacity BackUp provides a minimum number of active processors that can be used for any workload and a large number of inactive processors that can be used in the event of a disaster. On/Off Capacity on Demand (CoD) is used to temporarily activate the processors for disaster testing or in the event of an actual disaster. For more information about On/Off CoD, see "On/Off Capacity on Demand" on page 23.

The following tables list the server models and processor features that offer inactive processors that can be temporarily activated using Capacity BackUp.

Table 22. System i Capacity BackUp models, processor features, enablement features, and processor information

Machine type and model	CBU edition feature	Processor feature	On/Off CoD Enable. feature	Active processors	Inactive processors	Installed processors	No-charge processor days for test	No-charge processor days for disaster
9406-520	7712	8327	-	1	0	1	0	(1)
9406-520	7720	8330	7620	1	1	2	0	(1)
9406-520	7721	8330	7620	1	1	2	0	(1)
9406-520	7710	8327	-	1	0	1	0	(1)
9406-520	7711	8327	-	1	0	1	0	(1)
9406-550	7921	8312	7930	1	3	4	0	(1)
9406-550	7920	8312	7930	1	3	4	0	(1)
9406-570	7914	8338	7951	1	3	4	0	(1)
9406-570	7916	8338	7951	1	7	8	0	(1)
9406-570	7918	8338	7951	2	14	16	0	(1)
9406-570	7915	8338	7951	1	3	4	0	(1)
9406-570	7917	8338	7951	1	7	8	0	(1)
9406-570	7570	8971 and 8962	7951	2	14	16	42	(1)
9406-570	7760	8338	7951	2	14	16	42	(1)

Table 22. System i Capacity BackUp models, processor features, enablement features, and processor information (continued)

Machine type and model	CBU edition feature	Processor feature	On/Off CoD Enable. feature	Active processors	Inactive processors	Installed processors	No-charge processor days for test	No-charge processor days for disaster
9406-595	7590	8966 (1.9 GHz)	7971	4	28	32	84	(1)
9406-MMA	7053	7380	7954	1	3	4	42	(1)
9406-MMA	7058	7380	7954	2	6	8	42	(1)
9406-MMA	7063	7380	7954	4	12	16	42	(1)
Note: 90 x (primary server active processors - Capacity BackUp active processors)								

Table 23. System p Capacity BackUp models, processor features, enablement features, and processor information

Machine type and model	Processor feature	On/Off CoD Enablement feature	Active processors	Inactive processors	Installed processors	No-charge processor days
9119-590	7730	7839	4	28	32	900
9119-590	7704	7971	4	28	32	900
9119-595	7732	7994	4	28 (60)	32 (64)	900 (1800)
9119-595	7731, 7586	7971	4	28 (60)	32 (64)	900 (1800)
9119-595	7587	7971	4	28 (60)	32 (64)	900 (1800)
9119-595	7705	7971	4	28 (60)	32 (64)	900 (1800)

Software licensing considerations for Capacity BackUp

Software licensing for i5/OS is included with the active processors for the Capacity BackUp server and is not required with the use of temporary capacity. AIX software licensing for permanently active processors is licensed separately. AIX software licensing of inactive processors is typically not required in the event of a disaster. IBM software licensing is not required on the Capacity BackUp server. Non-IBM software licensing is based on the software tier or conditional use licensing explicitly required by the software provider.

Virtualization Engine technologies

Virtualization Engine technologies are activated with a code, similar to the way that capacity is activated on IBM Systems and IBM eServer hardware.

When you purchase a Virtualization Engine technologies feature, a code is provided that can be entered on the Hardware Management Console (HMC) to activate the technology.

Related concepts

"Capacity on Demand offerings" on page 2
Find out what the different Capacity on Demand (CoD) offerings are and learn the basics of each offering.

Virtualization Engine technologies concepts

This information describes the virtualization technologies that are available.

These virtualization technologies are available:

- Enterprise Enablement is a Virtualization Engine technology that enables the system for 5250 Online Transaction Processing (OLTP).

- Advanced POWER is a Virtualization Engine technology that enables the system for the following features:
  - Virtual I/O hosting
  - Partition Load Manager
  - Micro-Partitioning (System p5)

This table contains the System i Enterprise Enablement features. Full Enterprise Enablement means that 100 percent of the processors are enabled.

Table 24. System i Enterprise Enablement features

Machine type and model	Orderable processor feature	Orderable feature		Feature description (5250 OLTP)
		Priced	″0″Price	
9406-595	8981	7579	9286	Enterprise Enablement
9406-595	8981	7598	9298	Full Enterprise Enablement
9406-595	8966	7261	9286	Enterprise Enablement
9406-595	8966	7259	9298	Full Enterprise Enablement
9406-570	8971	7577	9286	Enterprise Enablement
9406-570	8971	7597	9298	Full Enterprise Enablement
9406-570	8338	7260	9286	Enterprise Enablement
9406-570	8338	7258	9298	Full Enterprise Enablement
9406-550	8958	7576	9286	Enterprise Enablement
9406-550	8312	7257	9286	Enterprise Enablement
9406-520	8330	7256	9286	Enterprise Enablement
9406-MMA	7380	5490	9299	Enterprise Enablement
9406-MMA	7380	5491	9298	Full Enterprise Enablement

This table shows the Advanced POWER Virtualization features.

Table 25. System i Advanced POWER Virtualization features

Machine type and model	Orderable POWER feature	Feature description
	Priced	
9406-595	7992	Advanced Power Virtualization
9406-570	7942	Advanced Power Virtualization
9406-550	7941	Advanced Power Virtualization

This table shows the Enterprise Enablement features.

Table 26. System p Enterprise Enablement features

Machine type and model	Orderable processor feature	Orderable feature	Feature description (5250 OLTP)
		Priced	
9117-570 (ordered against I/O subsystem 9411-100	—	7965	Enterprise Enablement
9119-595 or 9119-590 (ordered against I/O subsystem 9411-100	—	7978	Enterprise Enablement

Table 26. System p Enterprise Enablement features (continued)

Machine type and model	Orderable processor feature	Orderable feature	Feature description (5250 OLTP)
		Priced	
Notes: 1. Contact your IBM CoD Administrator to retrieve a Enterprise Enablement feature. 2. Enter the feature against your System p model.			

This table shows the System p Advanced POWER Virtualization features.

Table 27. System p Advanced POWER Virtualization features

Machine type and model	Orderable processor feature	Orderable POWER feature	Feature description
		Priced	
9119-595	—	7992	Advanced Power Virtualization
9119-590	—	7992	Advanced Power Virtualization
9117-570	—	7942	Advanced Power Virtualization
9116-561	—	7304	Advanced Power Virtualization
9113-550, 9133-55A	—	7941	Advanced Power Virtualization
9111-520, 9131-52A	—	7940	Advanced Power Virtualization
9110-510, 9110-51A	—	7432	Advanced Power Virtualization
9115-505	—	7432	Advanced Power Virtualization
OpenPower® 710	—	1965	POWER hypervisor
OpenPower 720	—	1965	POWER hypervisor
9117-MMA	—	7942	Advanced Power Virtualization

Ordering Virtualization Engine technologies

You can order IBM Virtualization Engine technologies features for a new server, a server model upgrade, or an installed server.

For a new server or a server model upgrade, your order can contain one or more Virtualization Engine technologies features, resulting in a single Virtualization Engine technologies code. In this case, the Virtualization Engine technologies code is entered before the server is sent to you.

When you order Virtualization Engine technologies features for an installed server, determine which Virtualization Engine technologies you want to enable and then order the associated features. A single Virtualization Engine technologies code will be generated for you to enter that enables all of the technologies that you ordered.

To order one or more Virtualization Engine technologies features:

1. Determine which Virtualization Engine technologies features you want to enable. For more information, see “Virtualization Engine technologies concepts” on page 53.
2. Contact your IBM Business Partner or IBM sales representative to place your order for one or more Virtualization Engine technologies features.
3. Enter the resulting code on your server to enable Virtualization Engine technologies. See “Activating Virtualization Engine technologies” on page 56 for more information.

Using Virtualization Engine technologies

You can activate Virtualization Engine technologies after you have ordered the features. You can also find information about how to view a history log of your past Virtualization Engine technologies activations and code-generation information.

Related information

Hardware Management Console

Overview of the HMC roles

Adding the Hardware Management Console

Activating Virtualization Engine technologies

To activate Virtualization Engine technologies, you must enter an IBM Virtualization Engine technologies activation code from the Hardware Management Console (HMC) or the Advanced System Management Interface (ASMI) menu interface.

To activate Virtualization Engine technologies on the HMC, you must have an HMC Super Administrator user role.

To enter a Virtualization Engine technologies code:

1. Retrieve the activation code from one of these options:

Option	Description
Desktop	1. From your desktop, access the appropriate Web site: • System i models: www.ibm.com/servers/eserver/iseries/ondemand/cod.  Then, click **Search by machine serial** on the right side. • System p models: www.ibm.com/servers/eserver/pseries/ondemand/cod .  Then, click the **Activation** tab, and click **Activation codes by machine serial number** on the right side. 2. Enter the system type and serial number of your server. 3. Record the activation code that is displayed on the Web site.
Hardware Management Console	1. Right-click the HMC desktop and select **Net --> Browser**. 2. Near the bottom of the window, click **IBM** in the line **Go to IBM web site**. 3. Enter http://www-912.ibm.com/pod/pod in the Search box at the top and click **Search**. 4. Under the search results, click the URL that reads http://www-912.ibm.com/pod/pod. 5. Enter the System Type and Serial Number for the system for which you want to retrieve the code and click **Submit**. 6. Record the activation code that is displayed on the Web site. To copy the activation code, left-click and drag the mouse to highlight the code.

2. Enter your activation code on your server using the HMC. To enter your code:
   a. In the management section of the HMC, expand **Server and Partition**.
   b. Select **Server Management**.
   c. Right-click the server with which you want to work.
   d. Select **Manage on Demand Activations**.
   e. Select **Virtualization Engine Technologies**.
   f. Select **Enter Activation Code**.
   g. Type your activation code in the **Code** field. If you have copied the code, click on the middle mouse button.

h. Click **OK**.

You can now begin using the Virtualization Engine technologies.

Viewing history log for Virtualization Engine technologies activations

You can view past Virtualization Engine technologies activations by using the Hardware Management Console (HMC). You can see what Virtualization Engine technologies activations have been entered and what capabilities have been enabled on your server with the history log.

To view the Virtualization Engine technologies activations that have been entered and the capabilities that have been enabled:

1. In the navigation area of the HMC window, expand **Server and Partition**.
2. Select **Server Management**.
3. In the contents area, right-click the server on which you want to view the Virtualization Engine Technologies Activation history log.
4. Select **Manage On Demand Activations**.
5. Select **Virtualization Engine Technologies**.
6. Select **Show history log**.

Viewing and saving Virtualization Engine technologies code-generation information

You can view and save Virtualization Engine technologies code-generation information using the Hardware Management Console (HMC). You might need to do this if the Virtualization Engine technologies code that was provided for your server does not work.

You can view Virtualization Engine technologies code-generation information, and then save it to a file on a remote system or to a file on removable media. The information used to generate your Virtualization Engine technologies codes must exactly match the information shown on the HMC Virtualization Engine technologies Code Information window. To update the information that is used to generate your Virtualization Engine technologies codes, use the Virtualization Engine technologies Code Information window to save the Virtualization Engine technologies code information to a file on a remote system or to a file on removable media. Then, you can either attach the file to an e-mail, or print the file and fax it to your Capacity on Demand (CoD) administrator.

To view and save Virtualization Engine technologies code-generation information:

1. In the navigation area of the HMC window, expand **Server and Partition**.
2. Select **Server Management**.
3. In the contents area, right-click the server on which you want to view the Virtualization Engine technologies activation code information.
4. Select **Manage On Demand Activations**.
5. Select **Virtualization Engine Technologies**.
6. Select **Show Code Information**.
7. On the **Show Code Information** page, click **Save** to save the activation code information to a file on a remote system or to media.
8. In the Save Activation Code Information panel, select one of these options, and then perform the tasks associated with that option.

Option	Description
Save to a file on a remote system	1. Enter the remote system name, file name, user ID, and password 2. Click **OK** to save the activation code information or click **Cancel** to exit the panel without saving the activation code information.
Save to media	1. Click **OK**. 2. Select the desired device. The following options might be displayed (the list will include only those removable media devices that are available for use on the HMC): • **Diskette drive** • **Flash memory** • **USB diskette drive** 3. Click **OK** to save the CoD code-generation information, or click **Cancel** to exit the panel without saving the CoD code information.

To fax or e-mail the Virtualization Engine technologies code information to your Virtualization Engine technologies or CoD administrator, use one of these options to send your information:

- Fax-to Information:
  - **Send to:** Capacity on Demand Administrator
  - **Fax number:** 507-253-4553
  - **Location:** Rochester, Minnesota U.S.
- Fax-from Information:
  - **Customer name:**
  - **Customer contact name:**
  - **Customer address:**
  - **Customer phone number:**
  - **Customer fax number:**
- If you are using e-mail, send the electronic image of the code information in an e-mail to the appropriate address:
  - IBM System i5 or eServer i5 models: icod@us.ibm.com
  - IBM System p5 or eServer p5 models: pcod@us.ibm.com

Accelerator for System i5

Accelerator provides the capability to permanently activate the inactive portion of a single processor for IBM System i5520.

For example, if you have less than a full processor activated on a 1-way system, you can activate the remainder of that processor, so you can use the entire processor without restarting your server. When you activate a partial processor, make sure that you have correctly prepared your server.

Related concepts

"Capacity Upgrade on Demand" on page 9
Capacity Upgrade on Demand (CUoD) allows you to permanently activate one or more inactive processors or memory units without requiring you to restart your server or interrupt your business.

"Capacity on Demand offerings" on page 2
Find out what the different Capacity on Demand (CoD) offerings are and learn the basics of each offering.

Accelerator for System i5 concepts

This table shows the Accelerator features that are available for the IBM System i5 model.

Table 28. IBM System i5 Accelerator features (express configuration)

Machine type and model	Express configuration feature/Configuration Index Value	Accelerator feature/Configuration Index Value
9405-520	7140/0060	7680/0005
9405-520	7141/0061	7681/0006
9405-520	7142/0062	7682/0007
9405-520	7148/0005	7687/0006
9405-520	7143/0027	7354/0028

Table 29. IBM System i5 Accelerator features (solution edition)

Machine type and model	Solution edition feature/Configuration Index Value	Accelerator feature/Configuration Index Value
9405-520	7542/0662	7682/0007

Table 30. IBM System i5 Accelerator features (value edition)

Machine type and model	Value edition feature/Configuration Index Value	Accelerator feature/Configuration Index Value
9406-520	7350/0010	7355/0020
9406-520	7352/0012	7357/0022

Ordering Accelerator for System i5

You can order Accelerator features for either a new server or an installed server.

To order an Accelerator feature:

1. Determine which Accelerator feature you want to order. For more information, see "Accelerator for System i5 concepts."
2. Contact your IBM Business Partner or IBM sales representative to place your order for Accelerator feature.
3. Enter the resulting code on your server to activate the additional capacity. See "Activating Accelerator for System i5" for more information.

Using Accelerator for System i5

Learn how to activate Accelerator for System i5 after you have ordered the features.

Activating Accelerator for System i5

To activate Accelerator for System i5, you must enter an activation code through the Hardware Management Console (HMC) or the Advanced System Management Interface (ASMI).

To enter an activation code using the ASMI, see “Entering an activation code using the Advanced System Management Interface (ASMI)” on page 61.

To enter an activation code using an HMC (requires the HMC Super Administrator user role), follow these steps:

1. Retrieve the activation code from one of the following options, or use the printed document that you received from IBM with the activation code.

Option	Description
Desktop	1. From your system desktop, access the appropriate Web site: • IBM System i5: www.ibm.com/servers/eserver/iseries/ondemand/cod  2. Click on **Search by machine serial** on the right side. 3. Enter the system type and serial number of your server. 4. Record the activation code that is displayed on the Web site.
Hardware Management Console	1. Right-click the HMC desktop and select **Net --> Browser**. 2. Near the bottom of the window, click **IBM** in the line **Go to IBM web site**. 3. Enter http://www-912.ibm.com/pod/pod in the Search box at the top and click **Search**. 4. Under the search results, click the URL that reads http://www-912.ibm.com/pod/pod. 5. Enter the System Type and Serial Number for the system for which you want to retrieve the code and click **Submit**. 6. Record the activation code that is displayed on the Web site. To copy the activation code, left-click and drag the mouse to highlight the code.

2. To enter your activation code, use the HMC. If you want to use the Advanced System Management Interface (ASMI) to enter your code, see “Entering an activation code using the Advanced System Management Interface (ASMI)” on page 61.
   a. In the navigation area of the HMC window, expand **Server and Partition**.
   b. Select **Server Management**.
   c. In the contents area, right-click the server that you want to work with.
   d. Select **Manage on Demand Activations**.
   e. Select **Capacity on Demand**.
   f. Select **Enter CoD Code**.
   g. Type your activation code in the **Code** field. If you have copied the code, click on the middle mouse button.
   h. Click **OK**.
3. Optional: Verify that the Accelerator activation code was entered correctly and accepted using the following options.

Option	Description
HMC	1. In the navigation area of the HMC window, expand **Server and Partition**. 2. Select **Server Management**. 3. In the contents area, right-click the server that you want to work with. 4. Select **Properties**. 5. Select the **Processors** tab. Verify that the value displayed for Configurable processing units is 1.00. Prior to entering the activation code, the value displayed in this field would have been less than 1.00.
ASMI	1. On the ASMI Welcome pane, specify your user ID and password, and select **Log In**. 2. In the navigation area, expand **On Demand Utilities**. 3. Select **CoD Processor Information** to view information about the CoD processors (you might have to restart the FSP to see the new CoD information). 4. Ensure that the Configuration Index Value is correct (refer to the tables in "Accelerator for System i5 concepts" on page 59 to verify).

Note: If you are using i5/OS V5R4 or later, you can also use the system value QPRCFEAT to view your new feature after you have entered the activation code. If you are using an earlier version of i5/OS, you must perform an Initial program load (IPL) to view your new feature.

You can now begin using the newly activated capacity.

Related information

Using on-demand utilities

Entering an activation code using the Advanced System Management Interface (ASMI):

You can also enter an activation code by using the Advanced System Management Interface (ASMI) to activate Accelerator for System i5.

To enter an Accelerator code using the ASMI:

1. Connect an Ethernet cable from your PC to the Ethernet Port labeled HMC1 or HMC2 on the back of the server.
2. From a PC with Windows® 2000 or Windows XP, access ASMI through your Web browser (Microsoft® Internet Explorer 6.0, NetScape 7.1, or Opera 7.23) by configuring the Ethernet Interface to an IP address that allows it to communicate with the server:
   a. Click **Start >Settings >Control Panel**.
   b. On the control panel, double-click **Network and Dial-Up Connections**.
   c. Right-click **Local Area Connection**.
   d. Click **Properties**.

      Attention: Record the current settings before making any changes. This allows you to restore these settings if you disconnect the PC after setting up the ASMI Web interface.

      Notes: If Internet Protocol (TCP/IP) is not displayed in the list:

      1) Click **Install**.

2) Select **Protocol**, and then click **Add**.
3) Select **Internet Protocol (TCP/IP)**.
4) Click **OK**. This returns you to the Local Area Connection Properties window.

e. Select **Internet Protocol (TCP/IP)**, and then click **Properties**.
f. Select **Using the Following IP Address**.
g. Complete the IP address, Subnet mask, and Default gateway fields based on the Ethernet port that you are using on the back of the server:

Table 31.

Server connector	Subnet mask	IP address
HMC1	255.255.255.0	192.168.2.147
HMC2	255.255.255.0	192.168.3.147

For example, if you connected your PC to HMC1, the IP address for your PC would be 192.168.2.147 and the subnet mask would be 255.255.255.0. Set the gateway IP address to the same IP address as the PC.

h. Click **OK** on the Local Area Connection Properties window. It is not necessary to restart your PC.
i. Use the value from Step 7 to determine the IP address of the Ethernet port that your PC is connected to, and type the IP address in the Address field of your PC Web browser. For example, if you connected your PC to HMC1, type https://192.168.2.147 in your PC Web browser.

3. When the ASMI login display appears, follow one of these steps if it is either your first login or second or thereafter login:

Option	Description
First login	The only menu option available is Change Password. To gain access to the required ASMI menus, you must change the default password (admin) for the user ID (admin) by following these steps: 1. In the navigation area, expand **Login Profile** 2. Select **Change Password** 3. Specify the required Information and click **Continue**
Second or thereafter login	Find the administrator in your area who has the correct password for the user ID (admin).

4. Enter the most recently posted activation code:
   a. In the navigation area, expand **On Demand Utilities**.
   b. Select **CoD Activation**.
   c. Enter the Activation Code into the field, then click **Continue**.

Related information for Capacity on Demand

Product manuals, Web sites, and information center topics contain information related to the Capacity on Demand topic. You can view or print any of the PDF files.

Manuals

- System p 650, 670, 690 Planning Guide for Capacity Upgrade on Demand  (643 KB) This guide provides information that is needed when you are planning to purchase an System p 6*xx* server with Capacity Upgrade on Demand (CUoD) features.

- System i On/Off Capacity on Demand Planning Guide (265 KB) This guide explains in detail all the aspects of planning for, purchasing, and managing an System i 8*xx* server with On/Off Capacity on Demand.
- System i Capacity Upgrade on Demand Planning Guide (119 KB) This guide explains in detail all the aspects of planning for, purchasing, and managing an System i 8*xx* server with Capacity Upgrade on Demand (CUoD).
- System i V5R1/V5R2 Planning Guide for Capacity Upgrade on Demand (96 KB) This guide explains in detail all the aspects of planning for, purchasing, and managing an System i 8*xx* server with Capacity Upgrade on Demand (CUoD).

Web sites

- Resource Link Web site at http://www.ibm.com/servers/resourcelink - Provides the entire POWER6 library.
- Capacity on Demand (www.ibm.com/servers/eserver/iseries/ondemand/cod) - Describes the various Capacity on Demand offerings.
- Capacity Upgrade on Demand for System p servers (http://www.ibm.com/servers/eserver/pseries/ondemand/cod/) - Describes Capacity Upgrade on Demand for processors and memory.

Other information

- Partitioning the server
- Hardware Management Console
- Electronic Service Agent

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