



IBM Passport Advantage Software

## Sub-capacity (Virtualization) License Counting Rules

x86 Virtualization Environment

**NOTE:** Please use these rules along with the Passport Advantage Agreement

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## Summary of Virtualization Capacity Licensing Requirements

- **Customers must:**
  - ▶ Adhere the to Sub-capacity licensing terms of the Passport Advantage agreement, including:
    - *Use Eligible Sub-capacity Products*
    - *Use Eligible Virtualization Technologies*
    - *Use Eligible Processor Technologies*
    - *Use the IBM License Metric Tool (ILMT) and maintain report documentation*
      - *Tivoli Asset Discovery for Distributed (TADd) or IBM BixFix Inventor may be used in lieu of IBM License Metric Tool*
      - *Certain ILMT / TADd / BigFix use exceptions may apply*
  - ▶ Follow Virtualization Capacity License Counting rules for their Eligible Virtualization Environment(s)

**PLEASE NOTE:**

- *The above is only a summary. For details about sub-capacity licensing requirements, see the Sub-capacity Attachment and other information referred to above, at [Passport Advantage Virtualization Capacity website](#)*
- *Customers are responsible for the installation of the IBM License Metric Tool and for the server it runs on.*

# x86 Virtualization Technology - Definitions

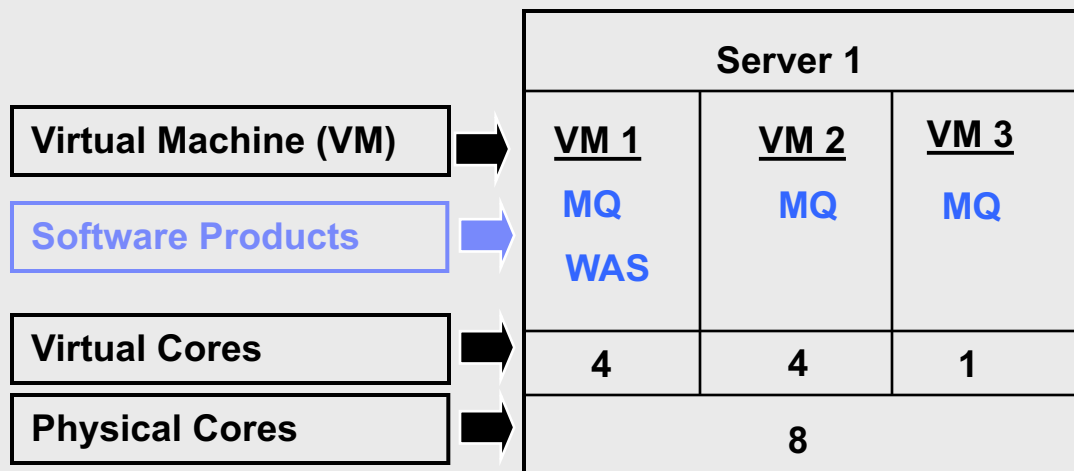
- **VM – Virtual Machine**
  - ▶ A VM represents a complete system with processors, memory, disk and network resources
  - ▶ Multiple VMs can share physical resources and run side by side on the same server
- **Virtual Core (also vCPU)**
  - ▶ Each VM is assigned a virtual core quantity
  - ▶ Each virtual core is equal to one core for PVU licensing
- **Server**
  - ▶ A machine that provides resources (i.e. processor core capacity) to the VMs
  - ▶ Includes single standalone servers or servers within clusters or resource pools
- **Resource Pool**
  - ▶ A group of servers, with resource pool master, that provide resources (i.e. processor core capacity) to the VMs.

# x86 Virtualization Technology - Definitions

- **Cluster**
  - ▶ A group of servers, that are linked together using vCenter Server or Microsoft Failover Clustering Feature to provide resources (i.e. processor core capacity) to the VMs
  
- **Mobility Event**
  - ▶ Movement of a running VM from one physical server to another

# License counting in a Server

1 Server	9 Virtual Cores	8 Physical Cores
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## License counting for x86

- Eligible Virtualization Technology can be used to create Virtual Machines (VMs)
- Each VM is assigned a quantity of virtual cores
- Each virtual core is equal to one core for PVU licensing.
- License PVUs for the maximum number of virtual cores in the VM(s) available to the product
  - the lower of the sum of virtual cores or full capacity of the server

▶ For above example, the PVU Virtualization Capacity licensing requirement is based on the maximum number of virtual cores in the VM(s) available to a product

▶ License Rule: lower of the Virtualization Capacity or Full (Physical) Capacity available in the Server

Cores to License	VM 1	VM 2	VM3	Virtualization Capacity	Full capacity
MQ software	4	4	1	9	8
WAS software	4	-		4	8

## ILMT Licensing Counting Rules

- ▶ the Virtualization Capacity licensing requirement is based on the maximum number of virtual cores in the VM(s) available to a product
  - ▶ License Rule: lower of the Virtualization Capacity or Full (Physical) Capacity available in the Server

### License Rule for Qualified Mobility:

- ▶ Count the maximum processor core capacity for each program concurrently within an ILMT Region.

### Requirements:

- ▶ Using ILMT 9.2.2 or later version: A single ILMT server can be used to manage each ILMT Region using IBM sub-capacity region functionality
- ▶ Using ILMT 9.2 or earlier version: A minimum of one ILMT server must be installed per ILMT Region where sub-capacity programs are installed

### ILMT Regions:

- ▶ Region 1: North America & South America
- ▶ Region 2: Europe & Africa
- ▶ Region 3: Asia & Australia

## Manual Calculation of Virtualization Capacity

- The licensing rules in the preceding pages reflect how ILMT will operate to calculate PVUs
- If ILMT does not yet support a Eligible Virtualization Environment, or you qualify for an exception to use ILMT, you will need to follow the Manual Calculation of Virtualization Capacity.
- The Manual Calculation of Virtualization Capacity rules can be found in the following pages
- To find out if a Eligible Virtualization Technology is supported by ILMT visit [Passport Advantage Sub-capacity licensing information](#)



## Manual Calculation of Virtualization Capacity

- Eligibility Criteria: Customers must use the IBM License Metric Tool, with the following exceptions
  - ▶ ILMT does not support the Eligible Virtualization Environment
  - ▶ Customer has fewer than 1000 employees and contractors - [Tool recommended](#)
  - ▶ Customer server Full Capacity licensing for a PVU product is less than 1000 PVUs (on servers with an Eligible Virtualization Environment) - [Tool recommended](#)
- Requirements: For the above exceptions, customers must manually manage, track and prepare Audit Reports
  - ▶ An Audit Report must be prepared at least once per quarter using the Worksheet for Manual Calculation of Virtualization Capacity.
  - ▶ Audit Reports must identify the following detail: Each Eligible Sub-Capacity Product deployed in each Eligible Virtualization Environment
  - ▶ In addition to the above detail, the report should provide a summary total of the required number of PVUs by and for each Eligible Sub-Capacity Product
  - ▶ Audit Reports must be prepared as frequently as is required to maintain a history of increases to Virtualization Capacity and Full Capacity
  - ▶ Each Audit Report must be **generated**, at least once per quarter

*The above is only a summary. For detailed terms please see the [Passport Advantage Sub-capacity licensing information](#)*

# Manual Calculation of Virtualization Capacity - Worksheet Example

## Worksheet has 3 tabs

- Instructions & Information
- Single Server

[Web Link: Worksheet for Manual Calculation of Virtualization Capacity](#)

<b>VIRTUALIZATION ENVIRONMENT - SINGLE SERVER</b>		
<b>- This worksheet is for one standalone server for one Software Product</b>		
<b>- Per the Instructions on the first tab, you may choose to leverage this approach or develop / leverage your own processes and reporting format so long as you capture all the mandatory information below</b>		
<b>- Enter data in input fields below (shaded area)</b>		<b>* Mandatory</b>
Date of this Audit Report *	March 31, 2009	
Product Name *	IBM WEBSHERE APPLICATION SERVER NETWORK DEPLOYMENT	
Program Identification Number (57xx-xxx)	5724-H88	
P/N Description	IBM WEBSHERE APPLICATION SERVER NETWORK DEPLOYMENT PROCESSOR VALUE UNIT (PVU)	
Part Number	D55WJLL	
Server ID / Location	Server ID # F6015; Bldg 1, Room 1, Somers, NY	
Server Vendor / Brand	IBM System x	
Server Model	xxxxx	
Virtualization Technology used *	VMware ESX 3.5	
Processor Technology (Vendor, Brand, Type, Model#) * (A)	Intel Xeon Quad Core Model 35XX	
PVUs per core * (A)	70	
Total Activated Cores on Server * (C)	8	
Full Capacity PVUs for Server * (C)	560	
	DO NOT DELETE	ROW
VM, Partition ID * (whatever identifier used for any subdivision of a server such as LPAR #, IP address, hostname, etc.)	Cores (B) per Partition or VM *	User Comments
A	4	
B	4	
C	2	
D	2	
Sum of Virtual Cores *	12	
PVUs per core *	70	
Virtualization Capacity PVUs by Product for Server *	840	
PVU Licenses required by Product for Server * (C)	<b>560</b>	
<b>* Mandatory Field</b>		
(A) PVU's required for each physical processor core are listed on the PVU table (see link below, including vendor/brand designations) <a href="http://www-01.ibm.com/software/lotus/passportadvantage/pvu_licensing_for_customers.html">http://www-01.ibm.com/software/lotus/passportadvantage/pvu_licensing_for_customers.html</a>		
(B) For purposes of 'Manual Calculation' of Virtual Capacity, 1 virtual core (or CPU) is equivalent to 1 physical core. Enter values in whole cores.		
(C) Lower of Full Capacity or Virtualization Capacity		

## Key Web Links

- PVU

- [PVU table and other information](#)

- Sub-capacity

- [Passport Advantage Sub-capacity licensing information](#)

- [Virtualization Capacity License Counting Rules](#)

- [Passport Advantage Sub-capacity licensing terms](#)