

# Using VirtualCenter Database Views

This document describes the relationships of the provided database views in your VMware VirtualCenter database for VirtualCenter 1.1.x or greater. This document does not describe how to create and use database views.

**Note:** The procedures are intended for database administrators. Do not attempt to perform the tasks outlined in this document if you do not have database administrator experience.

The database views are used to view VMware VirtualCenter data stored in the VirtualCenter database. The following views are supported by VMware VirtualCenter:

- vpxv\_FarmGroups
- vpxv\_Farms
- vpxv\_VMGroups
- vpxv\_Hosts
- vpxv\_VMs
- vpxv\_Templates
- vpxv\_Alarms
- vpxv\_Tasks
- vpxv\_Licenses
- vpxv\_Fields
- vpxv\_Host\_Fields
- vpxv\_VM\_Fields
- vpxv\_Perf\_Intervals
- vpxv\_Perf\_Host\_Counters
- vpxv\_Perf\_Host\_Data
- vpxv\_Perf\_VM\_Counters
- vpxv\_Perf\_VM\_Data



## View Relationships

The following provides a brief description of the database elements and their relationship in VMware VirtualCenter.

**Note:** Foreign keys are cross references to the listed table and field. For example, a foreign key to vpxv\_VMGroups.VMGroupID, is a link to the table vpxv\_VMGroups table and the VMGroupID field in that table.

### vpxv\_FarmGroups

This view describes the Farm Groups in VirtualCenter. One and only one Farm Group is the root Farm Group. The root Farm Group does not have a parent.

Object	Object Description	Type
FarmGroupID	The ID of the FarmGroup.	INT
Name	The name of the FarmGroup.	VARCHAR (255)
ParentID	The parent FarmGroup ID. A foreign key to vpxv_FarmGroups.FarmGroupID.	INT

### vpxv\_Farms

This view describes the Farms in VirtualCenter.

Object	Object Description	Type
FarmID	The ID of the Farm.	INT
Name	The name of the Farm.	VARCHAR (255)
FarmGroupID	The ID of the Farm Group. A foreign key to vpxv_FarmGroups.FarmGroupID.	INT
VMGroupID	The ID of the VMGroup. A foreign key to vpxv_VMGroups.VMGroupID.	INT
CloneCount	The number of succeeded virtual machine cloning.	INT
DeployCount	The number of succeeded template deployment.	INT
MigrateCount	The number of succeeded virtual machine migration.	INT

### vpxv\_VMGroups

This view describes the Virtual Machine Groups in VirtualCenter.

Object	Object Description	Type
VMGroupID	The ID of the VMGroup.	INT
Name	The name of the VMGroup.	VARCHAR (255)
ParentID	The parent VMGroup ID. A foreign key to vpxv_VMGroups.VMGroupID. It is null when current VMGroup is the root.	INT



### vpvx\_Hosts

This view describes the Hosts in VirtualCenter.

Object	Object Description	Type
HostID	The ID of the host.	INT
Name	The name of the host.	VARCHAR (255)
FarmID	The ID of the Farm. A foreign key to vpxv_Farms.FarmID.	INT
Port	The port number to connect to the host.	INT
UserName	The user name to connect to the host.	VARCHAR (255)
Password	The password to connect to the host	VARCHAR (255)
Enabled	If connecting to host when VirtualCenter starts up.	INT

### vpvx\_VMs

This view describes the virtual machines in VirtualCenter.

Object	Object Description	Type
VMID	The ID of the virtual machine.	INT
Name	The name of the virtual machine.	VARCHAR (255)
VMGroupID	The ID of the Virtual Machine Group. A foreign key to vpxv_VMGroups.VMGroupID.	INT
HostID	The ID of the Host. A foreign key to vpxv_Hosts.HostID.	INT
ConfigFileName	The path of the virtual machine configuration file.	VARCHAR (255)
VMUniqueID	The UUID of the virtual machine.	VARCHAR (255)

### vpvx\_Templates

This view describes the Templates in VirtualCenter.

Object	Object Description	Type
TemplateID	The ID of the template.	INT
Name	The name of the template.	VARCHAR (255)
Description	The description of the template.	VARCHAR (255)

### vpvx\_Alarms

This view describes the Alarms in VirtualCenter.

Object	Object Description	Type	Value
AlarmID	The ID of the alarm.	INT	
Name	The name of the alarm.	VARCHAR (255)	
Enabled	If the alarm needs to be run.	INT	0 indicates false, the task does not need to be run. 1 indicates true, the task does need to be run.



## vpxv\_Tasks

This view describes the Tasks in VirtualCenter.

Object	Object Description	Type	Value
TaskID	The ID of the task.	INT	
Name	The name of the task.	VARCHAR (255)	
Enabled	If the task needs to be run.	INT	0 indicates false, the task does not need to be run. 1 indicates true, the task does need to be run.
Frequency	How often a task needs to be run.	VARCHAR (255)	There are six possible values: <b>after startup</b> : The scheduled task runs whenever VirtualCenter is restarted <b>once</b> : Task runs once at certain specified time <b>hourly</b> : Task runs every hour <b>daily</b> : Task runs every day <b>weekly</b> : Task runs every week <b>monthly</b> : Task runs every month
Status	The result status of the task.	VARCHAR (255)	It has three possible values <b>done</b> : Task is completed successfully last time <b>error</b> : Task failed last time <b>in progress</b> : Task is running
SendTo	The email address to send notification when the task is done.	VARCHAR (255)	

## vpxv\_Licenses

This view describes the Licenses in VirtualCenter.

Object	Object Description	Type	Values
Type	The type of the license.	VARCHAR (13)	It has four possible values <b>ESX Server</b> : License for managing VMware ESX Server <b>GSX Server</b> : License for managing VMware GSX Server <b>VMotion</b> : License for VMotion in VirtualCenter <b>VirtualCenter</b> : VirtualCenter license
SerialNo	Serial number of the license.	VARCHAR (255)	



### vpvx\_Fields

This view describes the user defined fields for hosts or virtual machines in VirtualCenter.

Object	Object Description	Type	Values
FieldID	The ID of the user defined field.	INT	
FieldName	The name of the field.	VARCHAR (255)	Field name of any attributes for host or virtual machine that have been defined by user through the Custom Attributes option.

### vpvx\_Host\_Fields

This view describes the value for Host fields.

Object	Object Description	Type	Values
FieldID	The ID of the Field. A foreign key to vpxv_Fields.FieldID.	INT	
HostID	The ID of the Host. A foreign key to vpxv_Hosts.HostID.	INT	
FieldValue	The value of the field.	VARCHAR (255)	Description of the user defined attributes which is declared in vpxv_Fields.FieldName.

### vpvx\_VM\_Fields

This view describes the value for virtual machine fields.

Object	Object Description	Type	Values
FieldID	The ID for the Field. A foreign key to vpxv_Fields.FieldID.	INT	
VMID	The ID of the virtual machine. A foreign key to vpxv_VMs.VMID.	INT	
FieldValue	The value of the field.		Description of the user defined attributes which is declared in vpxv_Fields.FieldName.



### vpvx\_Perf\_Intervals

This view describes the intervals for performance data.

Object	Object Description	Type
IntervalID	The ID of the interval.	INT
Name	The name of the interval.	VARCHAR (255)
MaxSamples	The maximum number of samples of the interval.	INT
Interval	The period of the interval in seconds.	INT

### vpvx\_Perf\_Host\_Counters

This view describes the devices on Hosts.

Object	Object Description	Type
HostID	Which host the counter is defined. It's the foreign key of vpxv_Hosts.HostID.	INT
CounterID	The ID of the counter.	INT
Name	The name of the device on Host.	VARCHAR (255)
Instance	The sequence number of the device.	VARCHAR (255)
Description	The description of the device.	VARCHAR (255)

### vpvx\_Perf\_Host\_Data

This view describes the host performance data.

Object	Object Description	Type	Value
HostID	The ID of the Host. A foreign key to vpxv_Hosts.HostID.	INT	
CounterID	The ID of the Counter. Adding the HostID, they are the foreign key of vpxv_Perf_Host_Counters.HostID	INT	
IntervalID	The ID of the interval. A foreign key to vpxv_Perf_Intervals.IntervalID.	INT	
SampleDepth	The sample depth.	INT	Range: 0 to -interval.MaxSamples+1. 0 is the most recent (latest) sample. -(interval.MaxSamples) + (1) is the oldest sample.
SampleTime	When the sample is taken in UTC time.	DATE TIME	
SampleValue	The value of the sample.	INT	Refer to the Resource Tables below.



### vpvx\_Perf\_VM\_Counters

This view describes the devices on virtual machines.

Object	Object Description	Type	Value
VMID	The ID of the virtual machine. It's the foreign key of vpxv_VMs.VMID.	INT	
CounterID	The ID of the counter.	INT	
Name	The name of the device on virtual machine.	VARCHAR (255)	
Instance	The sequence number of the device.	VARCHAR (255)	The sequence number of the device For example, if there are 4 CPUs, their instance number would be 0, 1, 2 and 3.
Description	The description of the device.	VARCHAR (255)	

### vpvx\_Perf\_VM\_Data

This view describes the virtual machine performance data.

Object	Object Description	Type	Value
VMID	The ID of the virtual machine. A foreign key to vpxv_Perf_VM_Data.	INT	
CounterID	The ID of the counter. Adding the VMID, they are foreign key of vpxv_Perf_VM_Counters.VMID/CounterID	INT	
IntervalID	The ID of the interval. A foreign key to vpxv_Perf_Intervals.IntervalID.	INT	
SampleDepth	The sample depth.	INT	The total number of samples is different for each interval. Total samples for each interval could be configured through UI at VMware VirtualCenter Setting' -> 'Performance'. SampleDepth of '0' means most recent sample. '-1' means the second recent sample and so on. Range: 0 to -interval.MaxSamples+1. 0 is the most recent (latest) sample. -(interval.MaxSamples) + (1) is the oldest sample.
SampleTime	When the sample is taken in UTC time.	DATE TIME	
SampleValue	The value of the sample.	INT	Refer to the Resource Tables below.



## CPU Resource

All values are in tenths of a percent of a single CPU (1000 equals one fully-utilized CPU) over the specified time interval. More information about the ESX Server-specific stats is available by running the command, `man 8 cpu`, on an ESX Server.

Resource output	Output description	vpvx_Perf_Host_Data	vpvx_Perf_Vm_Data	Conditions required to include output
milUsage	Total CPU usage	X	X	All cases.
milGuarantee	Amount of CPU time guaranteed to be available to the virtual machine, based on its resource settings (min/max/shares), and the settings of other powered-on virtual machines on the host and the service console.		X	ESX Server only
milSystem	CPU system time		X	ESX Server only <sup>a</sup>
milWait	CPU wait time		X	ESX Server only <sup>a</sup>
milExtra	CPU utilization above the virtual machine's guarantee		X	ESX Server only <sup>a</sup>
milReady	CPU ready time		X	ESX Server only, version 2.5 or greater <sup>a</sup>

a. This output option is included only when the performance level statistics parameter, `perf.level`, is set to `full` in the VMware VirtualCenter Settings dialog.





## Memory Resource

All values are in kilobytes and are average values over the specified time interval. More information is available by executing the command, `man 8 mem` on an ESX Server host.

Resource output	Output description	vpvx_Perf_Host_Data	vpvx_Perf_Vm_Data	Conditions required to include output
The following memory stats are all fundamentally per-VM stats; the host version of each stat is the sum across all virtual machines running on the host.				
kbGranted	Memory granted to the virtual machine.	X	X	All cases.
kbActive	Memory actively used by the virtual machine.	X	X	ESX Server only
kbShared	Memory shared via transparent page sharing.	X	X	ESX Server only, version 2.5 or greater <sup>a</sup>
kbSwapped	Memory swapped to the VMFS swap file.	X	X	ESX Server only, version 2.5 or greater <sup>a</sup>
kbSwapTgt	Target amount of memory swapped to the VMFS swap file.	X	X	ESX Server only, version 2.5 or greater <sup>a</sup>
kbSwapIn/ kbSwapOut	Memory swapped in/out from/to the VMFS swap file.	X	X	ESX Server only, version 2.5 or greater <sup>a</sup>
kbVmmemctl	Memory reclaimed using <code>vmmemctl</code> .	X	X	ESX Server only, version 2.5 or greater <sup>a</sup>
kbVmmemctlTgt	Target amount of memory to reclaim using <code>vmmemctl</code> .	X	X	ESX Server only, version 2.5 or greater <sup>a</sup>
kbOverhead	Overhead memory size.	X	X	ESX Server only, version 2.5 or greater <sup>a</sup>
The following memory stats are host-only, ESX Server -only, and only available in ESX Server 2.5 and later:				
kbUnreserved	Unreserved memory on the host.	X		ESX Server only, version 2.5 or greater <sup>a</sup>
kbSwapUsed	Amount of swap space in use.	X		ESX Server only, version 2.5 or greater <sup>a</sup>
kbSwapUnreserved	Amount of unreserved swap space.	X		ESX Server only, version 2.5 or greater <sup>a</sup>
kbShared	Total amount of shared pages across all virtual machines.	X		ESX Server only, version 2.5 or greater <sup>a</sup>
kbSharedCommon	Amount of physical memory used for implementing shared pages.	X		ESX Server only, version 2.5 or greater <sup>a</sup>
kbHeap	Total amount of VMkernel heap size.	X		ESX Server only, version 2.5 or greater <sup>a</sup>
kbHeapFree	Amount of free VMkernel heap space.	X		ESX Server only, version 2.5 or greater <sup>a</sup>
state	Memory availability state: 0 = high, 1 = soft, 2 = hard, 3 = low	X		ESX Server only, version 2.5 or greater <sup>a</sup>

a. This output option is included only when the performance level statistics parameter, `perf.level`, is set to `full` in the VMware VirtualCenter Settings dialog.



## Disk Resource

Resource output	Output description	vpv_Perf_ Host_Data	vpv_Perf_ Vm_Data	Conditions required to include output
kbpRead/ kbpWritten	Average disk read/write bandwidth (in kilobytes per second) for the specified disk for the specified host or virtual machine.	X	X	All cases.
readsPerSecond/ writesPerSecond	Average number of disk reads/writes per second for the specified disk for the specified host or virtual machine.	X	X	ESX Server only <sup>a</sup>

a. This output option is included only when the performance level statistics parameter, `perf.level`, is set to `full` in the VMware VirtualCenter Settings dialog.

## Network Resource

Resource output	Output description	vpv_Perf_ Host_Data	vpv_Perf_ Vm_Data	Conditions required to include output
kbpRx/kbpTx	Average network receive/transmit bandwidth (in kilobits per second) for the specified NIC for the specified host or virtual machine.	X	X	All cases.
pktsRxPerSecond/ pktsTxPerSecond	Average number of network packets received/transmitted per second for the specified NIC for the specified host or virtual machine.	X	X	ESX Server only <sup>a</sup>

a. This output option is included only when the performance level statistics parameter, `perf.level`, is set to `full` in the VMware VirtualCenter Settings dialog.