VMware® vSphere™ PowerCLI 4.1.1

Guest OS

Get-VMGuestNetworkInterface
Set-VMGuestNetworkInterface
Get-VMGuestRoute
New-VMGuestRoute
Remove-VMGuestRoute
Get-VMGuest
Restart-VMGuest
Shutdown-VMGuest
Suspend-VMGuest
Invoke-VMScript
Dismount-Tools
Mount-Tools
Update-Tools
Wait-Tools
Copy-VMGuestFile

Network Operations

Get-iSciHbaTarget
New-iSciHbaTarget
Remove-iSciHbaTarget
Set-iSciHbaTarget
Get-NicTeamingPolicy
Set-NicTeamingPolicy
Get-OSCustomizationNicMapping
New-OSCustomizationNicMapping
Remove-OSCustomizationNicMapping
Set-OSCustomizationNicMapping
Get-ScsiController
New-ScsiController
Set-ScsiController
Get-ScsiLun
Set-ScsiLun
Get-ScsiLunPath
Set-ScsiLunPath
Get-VirtualPortGroup
New-VirtualPortGroup
Remove-VirtualPortGroup
Set-VirtualPortGroup
Get-VirtualSwitch
New-VirtualSwitch
Remove-VirtualSwitch
Set-VirtualSwitch
Get-VMGuestNetworkInterface
Set-VMGuestNetworkInterface
Get-VMGuestRoute
New-VMGuestRoute
Remove-VMGuestRoute
Get-VMHostFirewallDefaultPolicy
Set-VMHostFirewallDefaultPolicy
Get-VMHostFirewallException
Set-VMHostFirewallException
Get-VMHostHba
Set-VMHostHba
Get-VMHostNetwork
Set-VMHostNetwork
Get-VMHostNetworkAdapter
New-VMHostNetworkAdapter
Remove-VMHostNetworkAdapter
Set-VMHostNetworkAdapter
Add-VmHostNtpServer
Get-VMHostNtpServer
Remove-VMHostNtpServer
Test-VMHostSnmp
Get-VMHostSnmp
Set-VMHostSnmp

Logs/Reporting/Configuration

Get-ErrorReport
Get-Log
Get-LogType
Get-OSCustomizationSpec
New-OSCustomizationSpec
Remove-OSCustomizationSpec
Set-OSCustomizationSpec
Get-Stat
Get-StatType
Get-VIEvent
Get-StatInterval
New-StatInterval
Remove-StatInterval
Set-StatInterval
Get-VICredentialStoreItem
New-VICredentialStoreItem
Remove-VICredentialStoreItem
Get-VMHostSysLogServer
Set-VMHostSysLogServer
Get-VMResourceConguration

Datacenter Operations

Get-Datacenter
Set-Datacenter
New-Datacenter
Move-Datacenter
Remove-Datacenter

Cluster Operations

Get-Cluster
Set-Cluster
New-Cluster
Move-Cluster
Remove-Cluster

Resource Pool Operations

Get-ResourcePool
Set-ResourcePool
New-ResourcePool
Move-ResourcePool
Remove-ResourcePool

Virtual Machine Operations

Get-VM
Move-VM
New-VM
Remove-VM
Set-VM
Start-VM
Stop-VM
Restart-VM
Suspend-VM
Get-CDDrive
New-CDDrive
Remove-CDDrive
Set-CDDrive
Get-FloppyDrive
New-FloppyDrive
Remove-FloppyDrive
Set-FloppyDrive
Copy-HardDisk
Get-HardDisk
New-HardDisk
Remove-HardDisk
Set-HardDisk
New-NetworkAdapter
Remove-NetworkAdapter
Set-NetworkAdapter
Add-PassthroughDevice
Get-PassthroughDevice
Remove-PassthroughDevice
Get-Snapshot
New-Snapshot
Remove-Snapshot
Set-Snapshot
Get-Template
Move-Template
New-Template
Remove-Template
Set-Template
Get-UsbDevice
Remove-UsbDevice
Get-VMQuestion
Set-VMQuestion
Get-VMResourceConfiguration
Set-VMResourceConfiguration
Get-VMStartPolicy
Set-VMStartPolicy

vCenter Update Manager

Attach-Baseline
Detach-Baseline
Get-Baseline
Remove-Baseline
Get-Compliance
Download-Patch
Get-Patch
Stage-Patch
Get-PatchBaseline
New-PatchBaseline
Set-PatchBaseline
Remediate-Inventory
Scan-Inventory

For latest documentation, sample code, and information, visit:
http://vmware.com/go/powercliupdate

VMware vSphere Client

Scripts/Third Party Code

vSphere Web Services SDK | vSphere SDK for Perl | vSphere PowerCLI | vSphere vCLI

VMware vSphere API

VMware vCenter™

VMware ESXi™ and ESX® | VMware ESXi and ESX | VMware ESXi and ESX

VMware vSphere Server

Get-AdvancedSetting
New-AdvancedSetting
Remove-AdvancedSetting
Set-AdvancedSetting
Get-AlarmAction
New-AlarmAction
Remove-AlarmAction
Get-AlarmActionTrigger
New-AlarmActionTrigger
Remove-AlarmActionTrigger
Get-AlarmDefinition
Set-AlarmDefinition
Get-Annotation
Set-Annotation
Get-CustomAttribute
New-CustomAttribute
Remove-CustomAttribute
Set-CustomAttribute
New-Datastore
Remove-Datastore
Set-Datastore
Get-Datastore
Copy-DatastoreItem
Apply-DrsRecommendation
Get-DrsRecommendation
Get-DrsRule
New-DrsRule
Remove-DrsRule
Set-DrsRule
Move-Folder
New-Folder
Remove-Folder
Set-Folder
Get-Folder
Get-Inventory
Move-Inventory
Remove-Inventory
Get-NetworkAdapter
Get-Task
Stop-Task
Wait-Task
Get-VIPermission
New-VIPermission
Remove-VIPermission
Set-VIPermission
Get-VIPrivilege
New-VIProperty
Remove-VIProperty
Get-VIRole
New-VIRole
Remove-VIRole
Set-VIRole
Get-EsxCli
Get-EsxTop
Get-View
Get-VIObjectByVIView
Connect-VIServer
Disconnect-VIServer

Virtual Machine Host Operations

Get-HAPrimaryVMHost
Add-VMHost
Get-VMHost
Move-VMHost
Remove-VMHost
Restart-VMHost
Set-VMHost
Start-VMHost
Stop-VMHost
Suspend-VMHost
Get-VMHostAccount
New-VMHostAccount
Remove-VMHostAccount
Set-VMHostAccount
Get-VMHostAdvancedConfiguration
Set-VMHostAdvancedConfiguration
Get-VMHostAvailableTimeZone
Get-VMHostDiagnosticPartition
Set-VMHostDiagnosticPartition
Get-VMHostDisk
Format-VMHostDiskPartition
Get-VMHostDiskPartition
Get-VMHostFirmware
Set-VMHostFirmware
Get-VMHostModule
Set-VMHostModule
Get-VMHostPatch
Install-VMHostPatch
Get-VMHostRoute
New-VMHostRoute
Remove-VMHostRoute
Set-VMHostRoute
Get-VMHostStorage
Set-VMHostStorage
Get-VMHostService
Restart-VMHostService
Set-VMHostService
Start-VMHostService
Stop-VMHostService
Get-VMHostStartPolicy
Set-VMHostStartPolicy
Get-VMHostSysLogServer
Set-VMHostSysLogServer

Resources

PowerGUI a graphical user interface and script editor for Microsoft Windows Powershell - http://powergui.org

For more information and help with the VMware vSphere PowerCLI, use the following cmdlets:
`Get-VICommand` `Get-PowerCLIHelp` `Get-PowerCLICommunity`

Important third party Web sites:
http://virtu-al.net
http://www.lucd.info
http://get-scripting.blogspot.com
http://powerscripting.net
http://ict-freak.nl
http://www.van-lieshout.com

VMware scripting support - http://vmware.com/go/sdksupport
VMware PowerCLI training - http://vmware.com/go/vsphereautomation

Third-Party PowerCLI Training from Trainsignal: http://trainsignal.com

Special Thanks to our PowerCLI VIP Community members for helping us improve PowerCLI.

PowerCLI Settings

Get-ErrorReport
Get-PowerCLICommunity
Get-PowerCLIConfiguration
Set-PowerCLIConfiguration
Get-PowerCLIDocumentation
Get-PowerCLIVersion

PowerCLI Books

Automating vSphere Administration
ISBN-10: 0470890797

vSphere 4.0 Quick Start Guide
ISBN-10: 1439263450

Managing VMware Infrastructure with Windows PowerShell
ISBN-10: 0982131402

vApps

Export-vApp
Get-vApp
Import-vApp
New-vApp
Remove-vApp
Set-vApp
Start-vApp
Stop-vApp

Host Profiles

Get-VMHostProfile
Set-VMHostProfile
New-VMHostProfile
Apply-VMHostProfile
Remove-VMHostProfile
Import-VMHostProfile
Export-VMHostProfile
Test-VMHostProfileCompliance

VMware vSphere PowerCLI is a powerful, easy-to-use scripting interface to manage the vSphere platform. Administrators can leverage more than 230 commandlets to simplify everyday tasks.

For latest documentation, sample code, and information, visit:
http://vmware.com/go/powercli

Official VMware PowerCLI Blog:
http://blogs.vmware.com/vipowershell

* Indicated new Commandlets for 4.1.1 Release

VMware vSphere PowerCLI Quick Reference

PowerCLI Quick Reference by Alan Renouf version 4.1.1

Virtual Machine Operations

To list all VMs on the connected VMware vSphere server and some of their properties: `Get-VM`

To create a new VM:
```
$esxhost = Get-VMHost "ESXHost01.mydomain.com"
New-VM -Name XPVM -VMHost $esxhost -DiskMB 4000 -MemoryMB 256
```

To remove a VM:
```
Remove-VM -VM myVM -DeleteFromDisk
```

To move a VM:
```
Get-VM -Name XP_VC_Tech | Move-VM -Destination
(Get-VMHost 192.168.0.10)
```

To change the configuration of a VM:
```
Set-VM -VM "Win XP SP1" -Name "Win XP SP2" -GuestId "winXP-ProGuest" -Description "My updated Win XP virtual machine."
```

To run a script or command inside a VM:
```
Invoke-VMScript -VM myVM -ScriptText "dir"
```

Other VM-specific cmdlets include:
`Start-VM` `Suspend-VM` `Stop-VM` `Restart-VM`

The following is a list of all other VM-related cmdlets; use the Get-Help function with the **-Examples switch for example use**:

`Get-CDDrive` `New-CDDrive`
`Remove-CDDrive` `Set-CDDrive`
`New-FloppyDrive` `Get-FloppyDrive`
`Set-FloppyDrive` `Remove-FloppyDrive`
`Get-HardDisk` `New-HardDisk`
`Set-HardDisk` `New-NetworkAdapter`
`Get-NetworkAdapter` `Remove-NetworkAdapter`
`Set-NetworkAdapter` `Get-VMGuest`
`Restart-VMGuest` `Shutdown-VMGuest`
`Suspend-VMGuest` `Set-VMResourceConfiguration`
`Get-VMResourceConfiguration` `Get-VMStartPolicy`
`Set-VMStartPolicy` `Set-VMGuestRoute`
`Set-VMGuestNetworkInterface` `Remove-VMGuestRoute`
`Set-VMQuestion` `Get-VMQuestion`
`Copy-VMGuestFile` `Get-VMGuestNetworkInterface`
`Get-VMGuestRoute` `New-VMGuestRoute`

Virtual Switch Operations

To list all virtual switches attached to a VM and some of their properties, use:
`Get-VirtualSwitch -VM (Get-VM -Name "MS Win XP SP2")`

To create a new virtual switch:
`New-VirtualSwitch -VMHost (Get-VMHost -Name 192.168.0.10) -Name Switch02`

To remove a virtual switch:
`$vs = Get-VirtualSwitch -VMHost 192.168.0.10 -Name VS23`
`Remove-VirtualSwitch -VirtualSwitch $vs`

To change the configuration of a virtual switch:
`$vs = New-VirtualSwitch -Host 192.168.0.10 -Name VirtSwitch`
`Set-VirtualSwitch -VirtualSwitch $vs -MTU 500`

Port Group Operations

To list all the port groups and some of their properties:
`$vs = Get-VirtualSwitch -VMHost 192.168.0.10 -Name Switch02`
`Get-VirtualPortGroup -VirtualSwitch $vs`

To add a new port group to a virtual switch:
`$vs = Get-VirtualSwitch -VMHost 192.168.0.10 -Name Switch02`
`$vpg = New-VirtualPortGroup -VirtualSwitch $vs -Name VPG1`

Other cmdlets include:
`Remove-VirtualPortGroup`
`Set-VirtualPortGroup`

Resource Pool Operations

To list all resource pools on the connected VMware vSphere server and some of their properties: `Get-ResourcePool`

To create a new resource pool:
```
$clusterRootRP = Get-ResourcePool -Location
(Get-Cluster ResearchAndDevelopmentCluster ) -Name Resources

New-ResourcePool -Location $clusterRootRP -Name Developmen-tResources -CpuExpandableReservation $true -CpuReservationMhz 500 -CpuSharesLevel high -MemExpandableReservation $true -MemReservationMB 500 -MemSharesLevel high
```

Other resource pool cmdlets:
`Move-ResourcePool`
`Remove-ResourcePool`
`Set-ResourcePool`

Task Information

To list all tasks for a VMware vSphere server and some of their properties:
`Get-Task -Server (Connect-VIServer -Server 192.168.0.10) -Status Error`

To stop a task (example: stops the task of removing the VM):
`Stop-Task -Task (Remove-VM -VM "MS Win XP SP2" -Confirm -RunAsync)`

To wait until a task is completed before continuing:
`Wait-Task -Task (Remove-VM -VM "MS Win XP SP2" -Confirm -RunAsync)`

Snapshot Operations

To list all the snapshots for all virtual machines:
`Get-VM | Get-Snapshot`

To snapshot a VM:
`New-Snapshot -VM "XP SP2" -Name BeforePatch1`

To remove a snapshot:
`Remove-Snapshot -Snapshot $snapshot1 -RemoveChildren`

Other cmdlets include:
`Set-Snapshot`

Cluster Operations

To list all the clusters on the connected VMware vSphere server and some of their properties: `Get-Cluster`

To add a new cluster:
`New-Cluster -Name MyCluster -DRSEnabled -DRSMode FullyAutomated`

Other cluster cmdlets include:
`Move-Cluster` `Remove-Cluster` `Set-Cluster`

API Operations

Returns a VMware vSphere.Net view object by specified search criteria.
```
$vm = Get-View -ViewType VirtualMachine -Filter @("Name" = "MS Win XP SP2")
$hostView = Get-View -ID $vm.Runtime.Host
$hostView.Summary.Runtime
```

Another example:
```
(Get-View (Get-VMHost 'ESX1' | get-view).ConfigManager
.VmotionSystem).SelectVnc('vmk0')
```

API Reference:
http://www.vmware.com/support/developer/vcsdk/visdk41pubs/ApiReference/index.html

Virtual Machine Host Operations

To list all the VMware vSphere servers (VMHost) on the connected vSphere server and some of their properties:
`Get-VMHost`

To add a new VMHost:
`Add-VMHost 192.168.0.10 -Location (Get-Datacenter Main) -User root -Password MyPass`

To remove a VM Host:
```
$myVMHost = Get-VMHost 192.168.0.10
Remove-VMHost $myHost
```

To move a VM Host:
`Move-VMHost 192.168.0.10 -Destination (Get-Datacenter MyDatacenter)`

To change the state of a VMHost:
`Set-VmHost -VmHost Host01 -State "Disconnected"`

The followingis a list of all other VMHost-related cmdlets: use the Get-Help function for example uses:

`Get-VMHostAccount` `New-VMHostAccount`
`Remove-VMHostAccount` `Set-VMHostAccount`
`Set-VMHostAdvancedConfiguration` `Set-VMHostFirmware`
`Get-VMHostDiagnosticPartition` `Get-VMHostModule`
`Set-VMHostFirewallDefaultPolicy` `Set-VMHostNetwork`
`Set-VMHostFirewallException` `New-VMHostNetworkAdapter`
`Get-VMHostFirmware` `Set-VMHostNetworkAdapter`
`Set-VMHostModule` `Add-VMHostNtpServer`
`Get-VMHostNetwork` `Restart-VMHostService`
`Remove-VMHostNetworkAdapter` `Start-VMHostService`
`Get-VMHostAdvancedConfiguration` `Set-VMHostSnmp`
`Set-VMHostDiagnosticPartition` `Set-VMHostStartPolicy`
`Get-VMHostFirewallDefaultPolicy` `Get-VMHostStorage`
`Get-VMHostFirewallException` `Get-VMHostNtpServer`
`Get-VMHostService` `Remove-VMHostNtpServer`
`Set-VMHostService` `Get-VMHostStartPolicy`
`Stop-VMHostService` `Get-VMHostSysLogServer`
`Get-VMHostSnmp` `Set-VMHostSysLogServer`
`Test-VMHostSnmp` `Stop-VMHost`
`Restart-VMHost` `Suspend-VMHost`
`Start-VMHost` `*-VMHostRoute`
`*-VMHostPatch`

vApp Operations

The following is a list of vApp cmdlets; use the Get-Help function for example uses:
```
New-vApp -Name MyvApp -CpuLimitMhz 4000 -CpuReservationMhz 1000
-Location (Get-VMHost MyHost)
```

Other vApp cmdlets:
`Remove-vApp` `Export-vApp`
`Set-vApp` `Get-vApp`
`Start-vApp` `Import-vApp`
`Stop-vApp`

Getting Started

http://communities.vmware.com/docs/DOC-13700

VMware vSphere PowerCLI frequently asked questions (FAQs) link:
http://communities.vmware.com/docs/DOC-13700

To find out what cmdlets are available: `Get-VICommand`

To show documentation for all available cmdlets: `Get-PowerCLIDocumentation`

For help with a cmdlet: `Get-Help cmdlet-name -Full | More`

How to Connect to vCenter Server or ESX and ESXi

To connect to a VMware vSphere server. Start a new session or reestablish a previous session with a VMware vSphere server.
```
$srv = Connect-VIServer -Server 192.168.0.10 -User Admin
-Password Pass01
```

To disconnect from the connected vSphere server.
`Disconnect-VIServer -Server $srv -Confirm:$false`

Security Operations

The following is a list of security cmdlets; use the Get-Help function for example uses:
`Get-VIPermission -Entity (Get-Datacenter) -Principal Administrator`

Other security cmdlets:
`Get-VIPrivilege` `Set-VIRole` `Remove-VIPermission`
`Get-VIRole` `New-VIPermission` `Remove-VIRole`
`Set-VIPermission` `New-VIRole`

Datacenter Operations

To list all datacenters from a VMware vSphere server:
`Get-Datacenter`

To add a new datacenter:
`New-Datacenter -Name France`

Other datastore cmdlets:
`Move-Datacenter`
`Remove-Datacenter`
`Set-Datacenter`

DRS Rules

Retrieve a list of DRS rules for the specified clusters:
`Get-DrsRule -Cluster (Get-Cluster "Production")`

Other DRS rule cmdlets:
`New-DrsRule`
`Remove-DrsRule`
`Set-DrsRule`

ESXTOP through PowerCLI

```
Get-EsxTop -Counter
# View the fields available for VCPU counter:
(Get-EsxTop -Counter -CounterName VCPU).Fields
Get-EsxTop -TopologyInfo
# View the entries of a specific topology:
(Get-EsxTop -TopologyInfo -Topology SchedGroup).Entries | Format-Table
# Retrieve the counter values for "VCPU" and "SchedGroup" counters:
Get-EsxTop -CounterName VCPU | Format-Table * -AutoSize
Get-EsxTop -CounterName SchedGroup | Format-Table * -AutoSize
```

Managing Events Alarms

```
Get-AlarmDefinition # Returns all the defined alarms on the servers you're connected to.
Get-AlarmDefinition -Name "virtual machine*" -Enabled $false
# Returns all the disabled alarm definitions with names starting with "virtual machine"
Get-VMHost hostname | Get-AlarmDefinition # Returns all alarms that apply to the host "hostname". Includes alarms defined on this host and alarms inherited from the parent entity, or from any ancestors in the inventory hierarchy.
```

Modify an alarm definition:
```
Get-AlarmDefinition "Host memory status" |
Set-AlarmDefinition -Name "Host memory" -Enabled $false
# This will rename the alarm to "Host memory" and disable it
```

Datastore Operations

For a list of datastores and other properties:
`Get-Datastore`

Other datastore cmdlets include:
`New-Datastore` `Set-Datastore`
`Remove-Datastore`

Folder Operations

The following is a list of all folder-related cmdlets; use the Get-Help function for example uses:
`Get-Folder` `Remove-Folder`
`Move-Folder` `Set-Folder`
`New-Folder`

Official vSphere PowerCLI Training latest course information. All courses subject to change without notice. http://vmware.com/go/vsphereautomation.

Online
10 Jan 11 VMware Education Services
13 Jan 11 VMware Education Services

Austria
28 Feb 11 Wien / Magirus - Austria

France
22 Feb 11 Paris la Defense 9 / IB Groupe Cegos
31 May 11 Paris la Defense 9 / IB Groupe Cegos
04 Oct 11 Paris la Defense 9 / IB Groupe Cegos

Germany
13 Jan 11 Koeln / Tech Data Azlan - GY
27 Jan 11 Hallbergmoos / Fast Lane - Germany
09 Feb 11 Unterschleißheim (AddOn) / AddOn - GY
09 Feb 11 Berlin (AddOn) / AddOn - GY
09 Feb 11 Köln (AddOn) / AddOn - GY
09 Feb 11 Dresden (AddOn) / AddOn - GY
09 Feb 11 Walldorf (AddOn) / AddOn - GY
09 Feb 11 Böblingen (AddOn) / AddOn - GY
10 Feb 11 Dusseldorf / Fast Lane - Germany
21 Feb 11 München / Tech Data Azlan - GY
29 Mar 11 Berlin / Fast Lane - Germany
06 Apr 11 Unterschleißheim (AddOn) / AddOn - GY
06 Apr 11 Dresden (AddOn) / AddOn - GY
06 Apr 11 Walldorf (AddOn) / AddOn - GY
06 Apr 11 Böblingen (AddOn) / AddOn - GY
06 Apr 11 Köln (AddOn) / AddOn - GY
06 Apr 11 Berlin (AddOn) / AddOn - GY
07 Apr 11 Hamburg / Tech Data Azlan - GY
20 Apr 11 Stuttgart / Fast Lane - Germany
26 Apr 11 Hamburg / Fast Lane - Germany
19 May 11 München / Tech Data Azlan - GY
25 May 11 Dresden (AddOn) / AddOn - GY
25 May 11 Unterschleißheim (AddOn) / AddOn - GY
25 May 11 Köln (AddOn) / AddOn - GY
25 May 11 Walldorf (AddOn) / AddOn - GY
25 May 11 Böblingen (AddOn) / AddOn - GY
25 May 11 Berlin (AddOn) / AddOn - GY
16 Jun 11 Hallbergmoos / Fast Lane - Germany
16 Jun 11 Hannover / Tech Data Azlan - GY
16 Jun 11 Leipzig / Tech Data Azlan - GY
06 Jul 11 Walldorf (AddOn) / AddOn - GY
06 Jul 11 Böblingen (AddOn) / AddOn - GY
06 Jul 11 Berlin (AddOn) / AddOn - GY
06 Jul 11 Köln (AddOn) / AddOn - GY
06 Jul 11 Unterschleißheim (AddOn) / AddOn - GY
06 Jul 11 Dresden (AddOn) / AddOn - GY
07 Jul 11 Berlin / Fast Lane - Germany
28 Jul 11 Dusseldorf / Fast Lane - Germany
18 Aug 11 Stuttgart / Fast Lane - Germany
01 Sep 11 Eschborn / Fast Lane - Germany
07 Sep 11 Köln (AddOn) / AddOn - GY
07 Sep 11 Berlin (AddOn) / AddOn - GY
07 Sep 11 Unterschleißheim (AddOn) / AddOn - GY
07 Sep 11 Böblingen (AddOn) / AddOn - GY
07 Sep 11 Dresden (AddOn) / AddOn - GY
07 Sep 11 Walldorf (AddOn) / AddOn - GY
21 Sep 11 Berlin / Fast Lane - Germany
04 Oct 11 Dusseldorf / Fast Lane - Germany
27 Oct 11 Hallbergmoos / Fast Lane - Germany
27 Oct 11 Hallbergmoos / Fast Lane - Germany
08 Nov 11 Hamburg / Fast Lane - Germany
16 Nov 11 Walldorf (AddOn) / AddOn - GY
16 Nov 11 Böblingen (AddOn) / AddOn - GY
16 Nov 11 Berlin (AddOn) / AddOn - GY
16 Nov 11 Unterschleißheim (AddOn) / AddOn - GY
16 Nov 11 Dresden (AddOn) / AddOn - GY
29 Nov 11 Stuttgart / Fast Lane - Germany
13 Dec 11 Eschborn / Fast Lane - Germany

Hungary
03 Feb 11 Budapest / Szamalk Ltd - Hungary
12 May 11 Budapest / Szamalk Ltd - Hungary
04 Aug 11 Budapest / Szamalk Ltd - Hungary
20 Oct 11 Budapest / Szamalk Ltd - Hungary
15 Dec 11 Budapest / Szamalk Ltd - Hungary

Poland
20 Jan 11 Warszawa / Arrow ECS Services Sp. z.o.o.

Sweden
03 Mar 11 Kista / Arrow ECS Sweden AB
19 May 11 Kista / Arrow ECS Sweden AB

The Netherlands
13 Jan 11 Nieuwegein / Global Knowledge - NL

United Kingdom
13 Jan 11 Edinburgh / QA-IQ Ltd
10 Feb 11 Leeds / QA-IQ Ltd
07 Apr 11 Leeds / QA-IQ Ltd
02 Jun 11 Leeds / QA-IQ Ltd

United States
14 Mar 11 HP RAIL (MST) / HP Education - United States
04 Apr 11 Washington, DC / VMware Education Services

United States
29 Aug-01 Sep 11 Las Vegas/ VMworld 2011

Europe
Location and Dates coming soon/ VMworld 2011

Rev. 0009

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