

my-vmware-cmd.sh - Custom management script for administering a large amount of virtual machines on ESX 3.x and ESXi

“my-vmware-cmd” was developed to aid in the day-to-day management of our VDI environment. This script allows specific operations to be executed across a specified set of virtual machines by utilizing a subset of available VMware service console operations. Although specific to our VDI environment, the script is versatile in that it can be extended to other virtual machine environments.

Compatible with:

- VMware ESX 3.5 Update 3
- VMware ESXi 3.5 Installable Update 3
- VMware ESX 3.5 Update 2
- VMware ESXi 3.5 Installable Update 2
- VMware ESX 3.5 Update 1
- VMware ESXi 3.5 Installable Update 1
- VMware ESX 3.5
- VMware ESXi 3.5 Installable
- VMware ESX Server 3.0.3
- VMware ESX Server 3.0.2 Update 1
- VMware ESX Server 3.0.2
- VMware ESX Server 3.0.1
- VMware ESX Server 3.0.0

The script accepts a text file that specifies virtual machine display names. In addition to running the script locally on an ESX/ESXi host, the script can be executed remotely from a **centralized host** such as an administrative UNIX/Linux system that has access to the ESX/ESXi hosts that the virtual machines reside on.

Usage:

```
Local execution-
    my-vmware-cmd.sh [operation] [vm_input_file]
<optional_arguments>
Remote execution-
    my-vmware-cmd.sh remote [ESX_ESXI_IP_ADDRESS]
[operation] [vm_input_file] <optional_arguments>

Operations:
    start [vm_input_file]
        -- Start all VMs in the input file
    stop [vm_input_file]
        -- Stop all VMs in the input file
    suspend [vm_input_file]
        -- Suspend all VMs in the input file
    resume [vm_input_file]
        -- Resume all suspended VMs in the input file
```

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```
    reset [vm_input_file]
        -- Hard reset all VMs in the input file
    shutdown [vm_input_file]
        -- Shutdown all VMs in the input file (VMware Tools
required)
    reboot [vm_input_file]
        -- Reboot all VMs in the input file (VMware Tools
required)
    snap [vm_input_file]
        -- Create administrative pristine snapshot of all VMs in
the input file
    revert [vm_input_file]
        -- Revert all VMs in the input file back to pristine
state
    purge [vm_input_file]
        -- Removes from local inventory and purges all VMs in
the input file
    mac [vm_input_file] [generic|nixdhcp] [http://NETWORK
(172.30.0)|http://NETWORK (172.30.0)] [HOST_COUNT_START (200)]
<NIC_#> default=0
        -- Extracts MAC addresses and generates either a generic
file or one compatible with *nix dhcpd
        ( e.g. my-vmware-cmd.sh mac [vm_input_file] generic
)
        ( e.g. my-vmware-cmd.sh mac [vm_input_file] nixdhcp
172.30.0 200 )
    vnic [vm_input_file] <NIC_#> default=0
        -- Change vNic portgroup for all VMs in the input file
        ( e.g. my-vmware-cmd.sh vnic [vm_input_file] 3 )
```

The majority of operations are relatively self explanatory; this document will focus on three operations that are specific to our VDI environment.

- purge
- mac
- vnic

These operations will be demonstrated across 32 linked clones that have been generated from the developed [ghetto-esx-linked-clones.sh](#) script.

purge

This operation unregisters and removes specified linked clones that have been generated from **ghetto-esx(i)-linked-clones.sh**. Linked clones must be purged prior to updating the Master VM image associated to the clones. The issue arises from the fact that linked clones are tied to the Master VMDK. Modifications to respective Master images are not possible until associated LCs are destroyed. When a “**delete from disk**” operation is issued in VIClient on said VMs, all attributes of the VMs will be removed including referenced VMDKs. In this circumstance, the Master VMDK in which all linked clones are referencing will be removed.

Basically, the purge operation handles linked clone deletions properly by locally unregistering specified linked clones and deleting their respective directories while leaving the Master VM image intact. One caveat to this process is that

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the inventory change will be reflected on Virtual Center as an orphaned VM. In this case, one just needs to issue **"remove from inventory"** operations on the orphaned VMs.

Virtual Machine Input file(s):

```
[root@olga lamw]# cat
vm_input_file_1
LinkedCLones-1
LinkedCLones-2
LinkedCLones-3
LinkedCLones-4
LinkedCLones-5
LinkedCLones-6
LinkedCLones-7
LinkedCLones-8
LinkedCLones-9
LinkedCLones-10
LinkedCLones-11
LinkedCLones-12
LinkedCLones-13
LinkedCLones-14
LinkedCLones-15
LinkedCLones-16

[root@olga lamw]# cat vm_input_file_2
LinkedCLones-17
LinkedCLones-18
LinkedCLones-19
LinkedCLones-20
LinkedCLones-21
LinkedCLones-22
LinkedCLones-23
LinkedCLones-24
LinkedCLones-25
LinkedCLones-26
LinkedCLones-27
LinkedCLones-28
LinkedCLones-29
LinkedCLones-30
LinkedCLones-31
LinkedCLones-32
```

- [Local Execution on ESX host:](#)

Scenario: Purge Linked Clones 1-16 on local ESX Host

```
[root@olga lamw]# vmware -v
VMware ESX Server 3.5.0 build-123630

[root@olga lamw]# ./my-vmware-cmd.sh purge vm_input_file_1
#####
```

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```
#
# UCSB ResNet Virtual Machine Management Tool for VMware ESX 3.5+
and ESXi
# Author: william2003[at]gmail[dot]com
# Created: 07/05/2008
#
#####

Validating Virtual Machine list against VMs on ESX Server:
olga.resnet.ucsb.edu

"LinkedCLones-1"
"LinkedCLones-2"
"LinkedCLones-3"
"LinkedCLones-4"
"LinkedCLones-5"
"LinkedCLones-6"
"LinkedCLones-7"
"LinkedCLones-8"
"LinkedCLones-9"
"LinkedCLones-10"
"LinkedCLones-11"
"LinkedCLones-12"
"LinkedCLones-13"
"LinkedCLones-14"
"LinkedCLones-15"
"LinkedCLones-16"

Purge the following 16 Virtual Machine(s) y/n?
y
```

[Purging Virtual Machines in the specified list:](#)

```
Purging has been confirmed for
the following 16 Virtual machine(s)

Unregistering "LinkedCLones-1" VM_ID=15856 and removing
/vmfs/volumes/dlgCore-FC-LUN200.Templates/LinkedCLones-1
Unregistering "LinkedCLones-2" VM_ID=15872 and removing
/vmfs/volumes/dlgCore-FC-LUN200.Templates/LinkedCLones-2
Unregistering "LinkedCLones-3" VM_ID=15888 and removing
/vmfs/volumes/dlgCore-FC-LUN200.Templates/LinkedCLones-3
Unregistering "LinkedCLones-4" VM_ID=15904 and removing
/vmfs/volumes/dlgCore-FC-LUN200.Templates/LinkedCLones-4
Unregistering "LinkedCLones-5" VM_ID=15920 and removing
/vmfs/volumes/dlgCore-FC-LUN200.Templates/LinkedCLones-5
Unregistering "LinkedCLones-6" VM_ID=15936 and removing
/vmfs/volumes/dlgCore-FC-LUN200.Templates/LinkedCLones-6
Unregistering "LinkedCLones-7" VM_ID=15952 and removing
/vmfs/volumes/dlgCore-FC-LUN200.Templates/LinkedCLones-7
Unregistering "LinkedCLones-8" VM_ID=15968 and removing
/vmfs/volumes/dlgCore-FC-LUN200.Templates/LinkedCLones-8
Unregistering "LinkedCLones-9" VM_ID=15984 and removing
/vmfs/volumes/dlgCore-FC-LUN200.Templates/LinkedCLones-9
```

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```
Unregistering "LinkedCLones-10" VM_ID=16000 and removing
/vmfs/volumes/dlgCore-FC-LUN200.Templates/LinkedCLones-10
Unregistering "LinkedCLones-11" VM_ID=16016 and removing
/vmfs/volumes/dlgCore-FC-LUN200.Templates/LinkedCLones-11
Unregistering "LinkedCLones-12" VM_ID=16032 and removing
/vmfs/volumes/dlgCore-FC-LUN200.Templates/LinkedCLones-12
Unregistering "LinkedCLones-13" VM_ID=16048 and removing
/vmfs/volumes/dlgCore-FC-LUN200.Templates/LinkedCLones-13
Unregistering "LinkedCLones-14" VM_ID=16064 and removing
/vmfs/volumes/dlgCore-FC-LUN200.Templates/LinkedCLones-14
Unregistering "LinkedCLones-15" VM_ID=16080 and removing
/vmfs/volumes/dlgCore-FC-LUN200.Templates/LinkedCLones-15
Unregistering "LinkedCLones-16" VM_ID=16096 and removing
/vmfs/volumes/dlgCore-FC-LUN200.Templates/LinkedCLones-16

Start time: Mon Dec  8 22:45:36 PST 2008
End   time: Mon Dec  8 22:46:11 PST 2008
Duration   : 35 Seconds

Completed purge for all specified Virtual Machines!
```

- Remote Execution on non-ESX host (VIMA):

Scenario: Purge Linked Clones 17-32 from remote VIMA host

```
[vi-admin@vima-primp-industries
~]$ vmware -v
-bash: vmware: command not found
[vi-admin@vima-primp-industries ~]$ uname -a
Linux vima-primp-industries.com 2.6.18-92.el5 #1 SMP Tue Apr 29
13:16:15 EDT 2008 x86_64 x86_64 x86_64 GNU/Linux
[vi-admin@vima-primp-industries ~]$ cat /etc/redhat-release
Red Hat Enterprise Linux Server release 5.2 (Tikanga)
[vi-admin@vima-primp-industries ~]$

[vi-admin@vima-primp-industries ~]$ ./my-vmware-cmd.sh remote
172.30.0.64 purge vm_input_file_2
#####
#
# UCSB ResNet Virtual Machine Managment Tool for VMware ESX 3.5+
and ESXi
# Author: william2003[at]gmail[dot]com
# Created: 07/05/2008
#
#####

Executing remote operation: "purge" on host: 172.30.0.64 with the
following specified Virtual Machines:

#####
LinkedCLones-17
LinkedCLones-18
```

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```
LinkedCLones-19
LinkedCLones-20
LinkedCLones-21
LinkedCLones-22
LinkedCLones-23
LinkedCLones-24
LinkedCLones-25
LinkedCLones-26
LinkedCLones-27
LinkedCLones-28
LinkedCLones-29
LinkedCLones-30
LinkedCLones-31
LinkedCLones-32
#####
OPERATION WILL BE EXECUTED IMMEDIATELY ONCE AUTHENTICATION ON
REMOTE HOST SUCCEEDS!
Would you like to continue y/n?
y
```

Purging Virtual Machines in the specified list:

```
root@172.30.0.64's password:
Validating Virtual Machine list against VMs on ESX Server:
olga.resnet.ucsb.edu

Unregistering "LinkedCLones-17" VM_ID=16112 and removing
/vmfs/volumes/dlgCore-FC-LUN200.Templates/LinkedCLones-17
Unregistering "LinkedCLones-18" VM_ID=16128 and removing
/vmfs/volumes/dlgCore-FC-LUN200.Templates/LinkedCLones-18
Unregistering "LinkedCLones-19" VM_ID=16144 and removing
/vmfs/volumes/dlgCore-FC-LUN200.Templates/LinkedCLones-19
Unregistering "LinkedCLones-20" VM_ID=16160 and removing
/vmfs/volumes/dlgCore-FC-LUN200.Templates/LinkedCLones-20
Unregistering "LinkedCLones-21" VM_ID=16176 and removing
/vmfs/volumes/dlgCore-FC-LUN200.Templates/LinkedCLones-21
Unregistering "LinkedCLones-22" VM_ID=16192 and removing
/vmfs/volumes/dlgCore-FC-LUN200.Templates/LinkedCLones-22
Unregistering "LinkedCLones-23" VM_ID=16208 and removing
/vmfs/volumes/dlgCore-FC-LUN200.Templates/LinkedCLones-23
Unregistering "LinkedCLones-24" VM_ID=16224 and removing
/vmfs/volumes/dlgCore-FC-LUN200.Templates/LinkedCLones-24
Unregistering "LinkedCLones-25" VM_ID=16240 and removing
/vmfs/volumes/dlgCore-FC-LUN200.Templates/LinkedCLones-25
Unregistering "LinkedCLones-26" VM_ID=16256 and removing
/vmfs/volumes/dlgCore-FC-LUN200.Templates/LinkedCLones-26
Unregistering "LinkedCLones-27" VM_ID=16272 and removing
/vmfs/volumes/dlgCore-FC-LUN200.Templates/LinkedCLones-27
Unregistering "LinkedCLones-28" VM_ID=16288 and removing
/vmfs/volumes/dlgCore-FC-LUN200.Templates/LinkedCLones-28
Unregistering "LinkedCLones-29" VM_ID=16304 and removing
/vmfs/volumes/dlgCore-FC-LUN200.Templates/LinkedCLones-29
Unregistering "LinkedCLones-30" VM_ID=16320 and removing
```

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```
/vmfs/volumes/dlgCore-FC-LUN200.Templates/LinkedClones-30
Unregistering "LinkedClones-31" VM_ID=16336 and removing
/vmfs/volumes/dlgCore-FC-LUN200.Templates/LinkedClones-31
Unregistering "LinkedClones-32" VM_ID=16352 and removing
/vmfs/volumes/dlgCore-FC-LUN200.Templates/LinkedClones-32

Start time: Mon Dec 8 22:56:45 PST 2008
End time: Mon Dec 8 22:57:19 PST 2008
Duration : 34 Seconds

Completed purge for all specified Virtual Machines!
```

mac

This operation extracts MAC addresses associated with specified VMs and outputs a file named: **"dhcp-eth#-YYYY-MM-DD-HHMMSS"**. This outputted file can then be used to reserve IPs on either Windows or *nix DHCP servers. There are two output options, one being a generic output relating VM names to their respective MAC address and the other a prepared file that is compatible with popular *nix dhcpd releases.

Scenario: Extract MAC Addresses for the 32 Linked Clones and output in a generic form.

- [Local Execution on ESXi host:](#)

```
~ # vmware -v
VMware ESX Server 3i 3.5.0 build-123629
~ # ./my-vmware-cmd.sh mac vm_input_file generic
#####
#
# UCSB ResNet Virtual Machine Management Tool for VMware ESX 3.x and
ESXi
# Author: william2003[at]gmail[dot]com
# Created: 07/05/2008
#
#####

Validating Virtual Machine list against VMs on ESX Server:
olga.resnet.ucsb.edu

Start time: Sat Dec 20 03:38:55 UTC 2008
End time: Sat Dec 20 03:38:58 UTC 2008
Duration : 3 Seconds

Completed "dhcp-eth0-2008-12-20-033855" generation file for all
specified Virtual Machines!

~ #
~ # cat dhcp-eth0-2008-12-20-033855
LinkedClones1 005056b45d33
```

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```
LinkedClones10 005056b45a2f
LinkedClones11 005056b450ec
LinkedClones12 005056b44182
LinkedClones13 005056b43790
LinkedClones14 005056b40346
LinkedClones15 005056b407fb
LinkedClones16 005056b42a3f
LinkedClones17 005056b44c11
LinkedClones18 005056b41f24
LinkedClones19 005056b42308
LinkedClones2 005056b4440f
LinkedClones20 005056b47039
LinkedClones21 005056b44219
LinkedClones22 005056b4699b
LinkedClones23 005056b42e7c
LinkedClones24 005056b4028b
LinkedClones25 005056b46f1c
LinkedClones26 005056b42299
LinkedClones27 005056b4225e
LinkedClones28 005056b42eed
LinkedClones29 005056b425fd
LinkedClones3 005056b42502
LinkedClones30 005056b45556
LinkedClones31 005056b477c3
LinkedClones32 005056b425df
LinkedClones4 005056b428d7
LinkedClones5 005056b4602f
LinkedClones6 005056b46e43
LinkedClones7 005056b41139
LinkedClones8 005056b4683d
LinkedClones9 005056b40566
~ #
```

Scenario: Create DHCP IP reservation file for the 32 Linked Clones on Network: " 172.30.200", starting from Host: " 50" and increment to the last VM.

- Remote Execution on non ESX host (VIMA):

```
[vi-admin@vima-primp-industries
~]$ vmware -v
-bash: vmware: command not found
[vi-admin@vima-primp-industries ~]$ uname -a
Linux vima-primp-industries.com 2.6.18-92.el5 #1 SMP Tue Apr 29
13:16:15 EDT 2008 x86_64 x86_64 x86_64 GNU/Linux
[vi-admin@vima-primp-industries ~]$ cat /etc/redhat-release
Red Hat Enterprise Linux Server release 5.2 (Tikanga)
[vi-admin@vima-primp-industries ~]$
[vi-admin@vima-primp-industries ~]$ ./my-vmware-cmd.sh remote
```

my-vmware-cmd.sh - Custom management script for administering a large amount of virtual machines on ESX 3.x and ESXi

```
172.30.0.64 mac vm_input_file linux 172.30.200 50
#####
#
# UCSB ResNet Virtual Machine Management Tool for VMware ESX 3.x and
ESXi
# Author: william2003[at]gmail[dot]com
# Created: 07/05/2008
#
#####

Connecting to 172.30.0.64 to extract MAC Addresses:
root@172.30.0.64's password:

Completed "dhcp-2008-12-06-182712" generation file for all
specified Virtual Machines!

[vi-admin@vima-primp-industries ~]$ cat dhcp-2008-12-06-182712
host LinkedClones-1      { hardware ethernet 00:50:56:b4:19:f8;
fixed-address 172.30.200.50; }
host LinkedClones-2      { hardware ethernet 00:50:56:b4:3f:7b;
fixed-address 172.30.200.51; }
host LinkedClones-3      { hardware ethernet 00:50:56:b4:36:af;
fixed-address 172.30.200.52; }
host LinkedClones-4      { hardware ethernet 00:50:56:b4:0a:13;
fixed-address 172.30.200.53; }
host LinkedClones-5      { hardware ethernet 00:50:56:b4:4c:cb;
fixed-address 172.30.200.54; }
host LinkedClones-6      { hardware ethernet 00:50:56:b4:26:a9;
fixed-address 172.30.200.55; }
host LinkedClones-7      { hardware ethernet 00:50:56:b4:7c:f0;
fixed-address 172.30.200.56; }
host LinkedClones-8      { hardware ethernet 00:50:56:b4:31:6f;
fixed-address 172.30.200.57; }
host LinkedClones-9      { hardware ethernet 00:50:56:b4:1f:75;
fixed-address 172.30.200.58; }
host LinkedClones-10     { hardware ethernet 00:50:56:b4:55:9b;
fixed-address 172.30.200.59; }
host LinkedClones-11     { hardware ethernet 00:50:56:b4:3b:8d;
fixed-address 172.30.200.60; }
host LinkedClones-12     { hardware ethernet 00:50:56:b4:45:b8;
fixed-address 172.30.200.61; }
host LinkedClones-13     { hardware ethernet 00:50:56:b4:1f:29;
fixed-address 172.30.200.62; }
host LinkedClones-14     { hardware ethernet 00:50:56:b4:5d:14;
fixed-address 172.30.200.63; }
host LinkedClones-15     { hardware ethernet 00:50:56:b4:03:98;
fixed-address 172.30.200.64; }
host LinkedClones-16     { hardware ethernet 00:50:56:b4:4f:81;
fixed-address 172.30.200.65; }
host LinkedClones-17     { hardware ethernet 00:50:56:b4:3b:43;
fixed-address 172.30.200.66; }
host LinkedClones-18     { hardware ethernet 00:50:56:b4:0b:85;
fixed-address 172.30.200.67; }
host LinkedClones-19     { hardware ethernet 00:50:56:b4:5e:0a;
```

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```
fixed-address 172.30.200.68; }
host LinkedClones-20      { hardware ethernet 00:50:56:b4:12:14;
fixed-address 172.30.200.69; }
host LinkedClones-21      { hardware ethernet 00:50:56:b4:06:08;
fixed-address 172.30.200.70; }
host LinkedClones-22      { hardware ethernet 00:50:56:b4:45:55;
fixed-address 172.30.200.71; }
host LinkedClones-23      { hardware ethernet 00:50:56:b4:67:b0;
fixed-address 172.30.200.72; }
host LinkedClones-24      { hardware ethernet 00:50:56:b4:48:12;
fixed-address 172.30.200.73; }
host LinkedClones-25      { hardware ethernet 00:50:56:b4:48:c3;
fixed-address 172.30.200.74; }
host LinkedClones-26      { hardware ethernet 00:50:56:b4:38:50;
fixed-address 172.30.200.75; }
host LinkedClones-27      { hardware ethernet 00:50:56:b4:3f:ac;
fixed-address 172.30.200.76; }
host LinkedClones-28      { hardware ethernet 00:50:56:b4:68:c9;
fixed-address 172.30.200.77; }
host LinkedClones-29      { hardware ethernet 00:50:56:b4:72:a4;
fixed-address 172.30.200.78; }
host LinkedClones-30      { hardware ethernet 00:50:56:b4:66:78;
fixed-address 172.30.200.79; }
host LinkedClones-31      { hardware ethernet 00:50:56:b4:53:e7;
fixed-address 172.30.200.80; }
host LinkedClones-32      { hardware ethernet 00:50:56:b4:2f:8b;
fixed-address 172.30.200.81; }
```

vnic

This operation reconfigures the portgroup of the specified vNic (default eth0) for a given set of VMs. This operation supports remote execution but requires 2 SSH authentications by design. The operation also requires that the VMs in question be powered off prior to execution. Unfortunately due to the limitation of the CLI, there is currently no dynamic way of modifying the vNic portgroup while the VM is powered on.

Scenario: Change 16 of the 32 Linked Clones from "IsolatedNetwork" to "labs.90-172.30.90-23" network

1. Portgroup Selection:

```
[root@olga lamw]#
./my-vmware-cmd.sh vnic vm_input_file_1
#####
#
# UCSB ResNet Virtual Machine Management Tool for VMware ESX 3.x and
ESXi
# Author: william2003[at]gmail[dot]com
# Created: 07/05/2008
#
```

my-vmware-cmd.sh - Custom management script for administering a large amount of virtual machines on ESX 3.x and ESXi

```
#####  
Validating Virtual Machine list against VMs on ESX Server:  
olga.resnet.ucsb.edu  
CHOICE          VLAN ID          PORTGROUP  
-----  
1              4095             trunk.PassThrough  
2              3252             dev.3252-172.30.52-24  
3              3249             dev.3249-172.30.49-24  
4              3248             dev.3248-172.30.48-24  
5              333              nc.333-172.30.0-24  
6              90               labs.90-172.30.90-23  
7              333              SC.NC333  
8              100              SC.Core100  
9              3251             VMk.3251  
10             0                IsolatedNetwork  
11             Quit  
  
Please select a portgroup to apply to the following Virtual  
Machine(s):  
10
```

2. Portgroup configuration:

```
"LinkedClones-1"  
"LinkedClones-2"  
"LinkedClones-3"  
"LinkedClones-4"  
"LinkedClones-5"  
"LinkedClones-6"  
"LinkedClones-7"  
"LinkedClones-8"  
"LinkedClones-9"  
"LinkedClones-10"  
"LinkedClones-11"  
"LinkedClones-12"  
"LinkedClones-13"  
"LinkedClones-14"  
"LinkedClones-15"  
"LinkedClones-16"  
  
Would you like to update the Network configuration for "eth0" to  
apply "labs.90-172.30.90-23" to the following 16 Virtual Machine(s)  
y/n?  
Y  
VM Network Portgroup update will take affect for the following 16  
Virtual machine(s)  
  
Completed configuring LinkedClones-1 from "IsolatedNetwork" to  
"labs.90-172.30.90-23"  
Completed configuring LinkedClones-2 from "IsolatedNetwork" to  
"labs.90-172.30.90-23"  
Completed configuring LinkedClones-3 from "IsolatedNetwork" to  
"labs.90-172.30.90-23"
```

my-vmware-cmd.sh - Custom management script for administering a large amount of virtual machines on ESX 3.x and ESXi

```
Completed configuring LinkedClones-4 from "IsolatedNetwork" to
"labs.90-172.30.90-23"
Completed configuring LinkedClones-5 from "IsolatedNetwork" to
"labs.90-172.30.90-23"
Completed configuring LinkedClones-6 from "IsolatedNetwork" to
"labs.90-172.30.90-23"
Completed configuring LinkedClones-7 from "IsolatedNetwork" to
"labs.90-172.30.90-23"
Completed configuring LinkedClones-8 from "IsolatedNetwork" to
"labs.90-172.30.90-23"
Completed configuring LinkedClones-9 from "IsolatedNetwork" to
"labs.90-172.30.90-23"
Completed configuring LinkedClones-10 from "IsolatedNetwork" to
"labs.90-172.30.90-23"
Completed configuring LinkedClones-11 from "IsolatedNetwork" to
"labs.90-172.30.90-23"
Completed configuring LinkedClones-12 from "IsolatedNetwork" to
"labs.90-172.30.90-23"
Completed configuring LinkedClones-13 from "IsolatedNetwork" to
"labs.90-172.30.90-23"
Completed configuring LinkedClones-14 from "IsolatedNetwork" to
"labs.90-172.30.90-23"
Completed configuring LinkedClones-15 from "IsolatedNetwork" to
"labs.90-172.30.90-23"
Completed configuring LinkedClones-16 from "IsolatedNetwork" to
"labs.90-172.30.90-23"

Start time: Tue Dec 9 18:37:05 PST 2008
End time: Tue Dec 9 18:37:49 PST 2008
Duration : 44 Seconds

Completed Network Configurations for all specified Virtual
Machines!
```

Known Issues:

1. When running "**my-vmware-cmd**" on ESXi and using operation "**vnic**", you may see the following warning output, this can be ignored, this is due to some of the limited capabilities of the binaries in the busy box environment.

Warning Message

```
Please select a portgroup to
apply to the following Virtual Machine(s):

bash: Network: unknown operand
```