

# ghettoClone.sh - Automate cloning VM(s) for ESX/ESXi 3.5u2+ utilizing VMware VIMA: RCLI + VI Perl Toolkit

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## Description

This script utilizes [VMware RCLI](#) (Remote command line interface) and [VMware VI Perl Toolkit](#) found in [VMware VIMA](#).

VMware currently provides few automated options to clone existing virtual machines that require the use of Virtual Center. That is, virtual machine cloning can be achieved through the use of VI Client and tools like “**vmclone.pl**” (which is part of the VI Perl Toolkit) however it is a stringent requirement that Virtual Center must be present in the virtual infrastructure to take advantage of these options. In contrast, virtual machine cloning can also be achieved manually by executing a sequence of commands through the Service Console. The benefit of this option is that Virtual Center is not needed however it quickly becomes cumbersome and impractical if a large number of virtual machines are to be cloned.

The motivation for this script ( **ghettoClone.sh** ) then is to provide administrators with a means to automatically clone and deploy a large subset of virtual machines into a virtual environment without requiring tedious Service Console work or Virtual Center. Furthermore, for ease of accessibility, the free VMware VIMA appliance was chosen as the central launch point for the cloning process. **ghettoClone.sh** is executed from within VIMA and is compatible with both ESX and ESXi 3.5u2+. It accepts a single source virtual machine along with inputted configuration parameters to tailor cloned virtual machines.

Please note that **ghettoClone.sh** will generate full one to one copies of the source VM (which include all VMDK files associated with it). Each cloned virtual machine will inherit all attributes pertaining to the source VM except that of the UUID bio/location ID's and display name which will be unique across all generated clones. If you're looking to deploy Linked Clones, please refer to this script instead: <http://communities.vmware.com/docs/DOC-9020>

**Important Note:** Upon execution of the cloning process, the user will be prompted to select an available datastore where cloned virtual machines will be stored. It is up to the user to ensure that there is enough space prior to executing the cloning process. This includes but is not limited to considering swap file sizes and room for possible snapshots. The cloning process will begin immediately after confirmation of the datastore so please proceed with caution. It is recommended that the **dry run** process is executed before committing to a configuration.

## Requirements:

- VMware VIMA (virtual appliance)
- ESX/ESXi 3.5u2+
- my-vmregister.pl (modified version of the sample code provided by VMware) [Download at the bottom]

## Usage:

**ghettoClone.sh** input parameters:

```
Usage: ./ghettoClone.sh [-h
SERVER] [-v VM_TO_CLONE] [-n NAMING_CONVENTION] [-s START] [-e END]
[-f NAME_FILE] -d
```

Please quote your params if you dare to use spaces in your naming conventions!

Ensure this script is being executed on VMware VIMA and your ESX/ESXi hosts are 3.5u2+

#### OPTIONS:

```
-h ESX/ESXi 3.5+ Server IP or Hostname
-v VM to clone (VM display name)
-n Clone naming convention
-s Starting value
-e Ending value
-f File containg naming convention for VM clones (separate
each name with newline)
-d Dry run, produces only text output of what would be
executed based on input parameters
```

(e.g.)

```
./ghettoClone.sh -h olga.resnet.ucsb.edu -v UCSB_TEST -n
"UCSB-CLONE-" -s 1 -e 10
./ghettoClone.sh -h olga.resnet.ucsb.edu -v UCSB_TEST -n
"UCSB-CLONE-" -s 1 -e 10 -d
./ghettoClone.sh -h olga.resnet.ucsb.edu -v UCSB_TEST -f
cloneInputFile.txt
./ghettoClone.sh -h olga.resnet.ucsb.edu -v UCSB_TEST -f
cloneInputFile.txt -d
```

## Use cases

There are 2 supported use cases:

**Option 1 - Deploy clones from source VM by specifying a cloned VM naming convention and amount (start/end parameter) of clones.**

**Option 2 - Deploy clones from source VM by specifying a subset of VM names through an input file. The amount of cloned VMs will directly correlate with the amount of display names present in the input file.**

Both use cases support the “Dry Run” feature which allows the user to simulate and validate execution of the script before actual execution of the cloning process.

## Prerequisite

Prior to starting, ensure that the VMware VIMA host is managing the appropriate ESX or ESXi 3.5u2+ hosts (those that will be utilizing the ghettoClone.sh script). The script uses VMware VI Fast Pass authentication to connect to the ESX/ESXi server(s). The following steps will demonstrate how to set this up prior to executing the script.

### 1. Add ESX/ESXi hosts to VIMA management using **vifp**

A password prompt for the vi-admin account and root password to the pertinent ESX/ESXi host(s) will be presented.

```
[vi-admin@vima-primp-industries
~]$ sudo vifp addserver olga.resnet.ucsb.edu
root@olga.resnet.ucsb.edu's password:
[vi-admin@vima-primp-industries ~]$
```

### 2. Verify that the appropriate hosts are being managed by VIMA

```
[vi-admin@vima-primp-industries
~]$ sudo vifp listservers
olga.resnet.ucsb.edu
himalaya.primp-industries.com
```

3. Lastly, prior to running any of the RCLI or VI Perl Toolkits that utilize VI Fast Pass (not all can), run the following command on the appropriate ESX/ESXi host(s).

```
[vi-admin@vima-primp-industries
~]$ vifpinit olga.resnet.ucsb.edu
```

To remove a server from VIMA, use the argument “**removeserver**” on the host and provide the appropriate credentials.

Now, you're ready to begin!

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## Example execution

### Environment

- ESXi 3.5u3 host
- Source VM 1 is Windows XP SP2 with 2 VMDK's (10 GB and 50 MB) named **UCSB\_TEST** stored on local storage
- Source VM 2 is Windows XP SP2 with 2 VMDK's (10 GB and 100 MB) named **UCSB-ENGINEERING** stored on FC LUN
- Clone 3 VMs

## Option 1

### 1. Dry run execution

```
./ghettoClone.sh -h olga.resnet.ucsb.edu -v UCSB_TEST -n "UCSB-RESNET-CLONE-" -s 1 -e 3 -d
```

```
[vi-admin@vima-primp-industries
~]$ ./ghettoClone.sh -h olga.resnet.ucsb.edu -v UCSB_TEST -n
"UCSB-RESNET-CLONE-" -s 1 -e 3 -d

Retrieving info from: olga.resnet.ucsb.edu ...
Selection      Available space      Maximum Capacity      Type
      Name
1)      34.18 GB      124.75 GB      VMFS
      dlGCore-FC-LUN200.Templates
2)      244.61 GB      255.25 GB      VMFS
      olga-local-SAS.Storage
3)      91.58 GB      151.75 GB      VMFS
      dlGCore-FC-LUN202.VMstorage2
4)      29.19 GB      152.75 GB      VMFS
      dlGCore-FC-LUN203.VMstorage3
5)      53.29 GB      150.75 GB      VMFS
      dlGCore-FC-LUN201.VMstorage1
6)      exit

Please select a datastore in which the cloned virtual machines will
be stored:
2
##### DRY RUN MODE #####
# Temp working directory: tmp_clone_2009-01-09_144356
# ESX Server to initiate clone: olga.resnet.ucsb.edu
# SOURCE VM: UCSB_TEST
# SOURCE VM PATH:
[http://olga-local-SAS.Storage|http://olga-local-SAS.Storage]
UCSB_TEST/UCSB_TEST.vmx
# SOURCE VM DIR:
[http://olga-local-SAS.Storage|http://olga-local-SAS.Storage]
UCSB_TEST
# SOURCE VM DATASTORE:
[http://olga-local-SAS.Storage|http://olga-local-SAS.Storage]
# DESTINATION VM DATASTORE:
[http://olga-local-SAS.Storage|http://olga-local-SAS.Storage]
# VMDK-[0]: ->UCSB_TEST_1.vmdk<-
# VMDK-[1]: ->UCSB_TEST.vmdk<-
# 2 valid VMDK(s) total
# Clone naming convention: UCSB-RESNET-CLONE-{1-3}
# 3 clone(s) to create
#####

Start time: Fri Jan 9 14:36:59 PST 2009
End time: Fri Jan 9 14:37:04 PST 2009
Duration : 5 Seconds
```

2. Select a datastore and start clone duplication ( **note**: in this instance, duplication will take place on the same datastore [local storage: source and destination]. Duplication may be faster on FC/iSCSI/NFS and dissimilar source and destination datastores.)

```
./ghettoClone.sh -h olga.resnet.ucsb.edu -v UCSB_TEST -n "UCSB-RESNET-CLONE-" -s 1 -e 3
```

```
[vi-admin@vima-primp-industries
~]$ ./ghettoClone.sh -h olga.resnet.ucsb.edu -v UCSB_TEST -n
"UCSB-RESNET-CLONE-" -s 1 -e 3

Retrieving info from: olga.resnet.ucsb.edu ...
Selection    Available space      Maximum Capacity     Type
      Name
1)          34.18 GB          124.75 GB           VMFS
   dlgCore-FC-LUN200.Templates
2)          244.61 GB          255.25 GB           VMFS
   olga-local-SAS.Storage
3)          91.57 GB           151.75 GB           VMFS
   dlgCore-FC-LUN202.VMstorage2
4)          29.19 GB           152.75 GB           VMFS
   dlgCore-FC-LUN203.VMstorage3
5)          53.29 GB           150.75 GB           VMFS
   dlgCore-FC-LUN201.VMstorage1
6)          exit

Please select a datastore in which the cloned virtual machines will
be stored:
2

0% Complete! - Creating clone "UCSB-RESNET-CLONE-1" - 0/3 - Time
elapsed: 5 Seconds
0% Complete! - Creating clone "UCSB-RESNET-CLONE-1" - 0/3 - Time
elapsed: 31 Seconds
...
0% Complete! - Creating clone "UCSB-RESNET-CLONE-1" - 0/3 - Time
elapsed: 6.67 Minutes
33% Complete! - Creating clone "UCSB-RESNET-CLONE-2" - 1/3 - Time
elapsed: 6.77 Minutes
...
33% Complete! - Creating clone "UCSB-RESNET-CLONE-2" - 1/3 - Time
elapsed: 13.43 Minutes
66% Complete! - Creating clone "UCSB-RESNET-CLONE-3" - 2/3 - Time
elapsed: 13.52 Minutes
...
66% Complete! - Creating clone "UCSB-RESNET-CLONE-3" - 2/3 - Time
elapsed: 20.45 Minutes
100% Complete! - Creating clone "UCSB-RESNET-CLONE-3" - 3/3 - Time
elapsed: 20.53 Minutes

Start time: Fri Jan  9 14:48:23 PST 2009
End   time: Fri Jan  9 15:08:56 PST 2009
Duration  : 20.55 Minutes
```

## Option 2

### 0. Input file

```
[vi-admin@vima-primp-industries
~]$ cat toCloneList
ALima
AAmbrosio
MKerr
```

The script accepts a file listing display names of the VM clones to be created. Each needs to be separated by a newline.

### 1. Dry run execution

```
./ghettoClone.sh -h olga.resnet.ucsb.edu -v UCSB-ENGINEERING -f toCloneList -d
[vi-admin@vima-primp-industries
~]$ ./ghettoClone.sh -h olga.resnet.ucsb.edu -v UCSB-ENGINEERING -f
toCloneList -d

Retrieving info from: olga.resnet.ucsb.edu ...
Selection    Available space      Maximum Capacity     Type
            Name
1)           52.83 GB           124.75 GB            VMFS
            dlGCore-FC-LUN200.Templates
2)           244.61 GB           255.25 GB            VMFS
            olga-local-SAS.Storage
3)           91.50 GB            151.75 GB            VMFS
            dlGCore-FC-LUN202.VMstorage2
4)           29.19 GB            152.75 GB            VMFS
            dlGCore-FC-LUN203.VMstorage3
5)           53.29 GB            150.75 GB            VMFS
            dlGCore-FC-LUN201.VMstorage1
6)           exit

Please select a datastore in which the cloned virtual machines will
be stored:
3
##### DRY RUN MODE #####
# Temp working directory: tmp_clone_2009-01-09_151630
# ESX Server to initiate clone: olga.resnet.ucsb.edu
# SOURCE VM: UCSB-ENGINEERING
# SOURCE VM PATH:
[http://dlGCore-FC-LUN200.Templates|http://dlGCore-FC-LUN200.Templates]
UCSB-ENGINEERING/UCSB-ENGINEERING.vmx
# SOURCE VM DIR:
[http://dlGCore-FC-LUN200.Templates|http://dlGCore-FC-LUN200.Templates]
UCSB-ENGINEERING
# SOURCE VM DATASTORE:
[http://dlGCore-FC-LUN200.Templates|http://dlGCore-FC-LUN200.Templates]
# DESTINATION VM DATASTORE:
[http://dlGCore-FC-LUN202.VMstorage2|http://dlGCore-FC-LUN202.VMstorage2]
# VMDK-[0]: ->UCSB-ENGINEERING_1.vmdk<-
```

```
# VMDK-[1]: ->UCSB-ENGINEERING.vmdk<-
# 2 valid VMDK(s) total
# Clone naming convention: [ AAmbrosio ALima MKerr ]
# 3 clone(s) to create
#####

Start time: Fri Jan  9 15:16:36 PST 2009
End   time: Fri Jan  9 15:16:41 PST 2009
Duration  : 5 Seconds
```

2. Select datastore and start clone duplication ( **note:** in this instance, duplication will take place from one source FC datastore to different destination FC datastore)

```
./ghettoClone.sh -h olga.resnet.ucsb.edu -v UCSB-ENGINEERING -f toCloneList
```

```
[vi-admin@vima-primp-industries
~]$ ./ghettoClone.sh -h olga.resnet.ucsb.edu -v UCSB-ENGINEERING -f
toCloneList
```

```
Retrieving info from: olga.resnet.ucsb.edu ...
Selection    Available space    Maximum Capacity    Type
Name
1)           52.83 GB          124.75 GB           VMFS
   dlGCore-FC-LUN200.Templates
2)           244.61 GB          255.25 GB           VMFS
   olga-local-SAS.Storage
3)           91.50 GB           151.75 GB           VMFS
   dlGCore-FC-LUN202.VMstorage2
4)           29.19 GB           152.75 GB           VMFS
   dlGCore-FC-LUN203.VMstorage3
5)           53.29 GB           150.75 GB           VMFS
   dlGCore-FC-LUN201.VMstorage1
6)           exit
```

Please select a datastore in which the cloned virtual machines will be stored:

```
3

0% Complete! - Creating clone "AAmbrosio" - 0/3 - Time elapsed: 10
Seconds
...
0% Complete! - Creating clone "AAmbrosio" - 0/3 - Time elapsed:
2.62 Minutes
33% Complete! - Creating clone "ALima" - 1/3 - Time elapsed: 2.70
Minutes
...
33% Complete! - Creating clone "ALima" - 1/3 - Time elapsed: 5.42
Minutes
66% Complete! - Creating clone "MKerr" - 2/3 - Time elapsed: 5.50
Minutes
...
66% Complete! - Creating clone "MKerr" - 2/3 - Time elapsed: 8.12
Minutes
100% Complete! - Creating clone "MKerr" - 3/3 - Time elapsed: 8.20
```

Minutes

```
Start time: Fri Jan 9 15:21:35 PST 2009  
End time: Fri Jan 9 15:29:49 PST 2009  
Duration : 8.23 Minutes
```