

# VM@Work Tokamak

Network Utility

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## ABSTRACT

VM@Work Tokamak 2.0.0 Network Scripts

## 1.0 Introduction

### 1.1 Background

These scripts replace the default network configuration processing for VMware Fusion. New features are made available that match those found in the other hosted VMware products, such as Workstation and Server. The new capabilities introduced by these scripts are based on the functionality provided by VMware Workstation 6.0 for Linux. This includes the capability of:

- Adding new vmnets
- Deleting vmnets
- Modifying connection types: e.g. bridged, hostonly, nat
- Changing IP addresses
- Changing the physical interface used for bridged connections

Reference material for the use of this software can be found in documentation for the network configuration scripts for VMware Workstation 6.0 for Linux. This is available online at the VMware web site, and can also be downloaded in PDF format. Questions can be asked at the VMware Communities in the Fusion forum, and also check out the search facility to see if the question has been answered before.

The code is copyrighted Dave Parsons and also contains copyrighted VMware code. I must please ask that you do not re-post the code or modify without consulting me first. VMware kindly gave me explicit permission to re-distribute their code. I am happy to take feedback and any patches that may be useful to others.

### 1.2 What's New?

Version	Feature
2.0.0	Fixed scripts to work on Fusion 1.0.3 and 2.0.0.
1.0.3	New "reapply" command to re-apply current settings
1.0.2	Fixed issues where daemons stopped due to incorrect start/stop order.
1.0.1	Private test version
1.0.0	Initial version

## 2.0 Getting Started

### 2.1 System Requirements

The current release of the VM@Work Tokamak scripts have been tested with the following releases of VMware Fusion:

- VMware Fusion 1.0.0 (build 51348)
- VMware Fusion 1.1.0 (build 62573)
- VMware Fusion 1.1.1 (build 72241)
- VMware Fusion 1.1.2 (build 87978)
- VMware Fusion 1.1.3 (build 94249)
- VMware Fusion 2.0.0 (build 116369)

Versions of Mac OS X were used during testing include:

- Leopard
  - 10.5.4
  - 10.5.5

Also you will need to be comfortable using the terminal to run bash and Perl scripts, plus running with root privileges. Running as root can be accomplished either with the “sudo” command or enabling the root account. The commands shown do not shown sudo on the command line for brevity.

## 2.2 Installation



Close VMware Fusion before doing any network changes!

Decompress the archive into a folder using Finder or the Terminal “gzip” command. Now all operations need to be carried out either using sudo or root account, as we will be modifying files owned by root. We need to setup the system to use the scripts as well as backup the existing configuration files. Open installation folder in the console and run the following command:

```
./tokamak.sh --install
```

You will get output similar to this, although there may be differences due to IP addresses and other machine specific network settings.



When the network settings are displayed, the script pauses for you to view the information. Press the “Esc” key to continue.

```
VM@work Tokamak 2.0.0: Installer started
VM@work Tokamak 2.0.0: Stop daemons and kexts
VM@work Tokamak 2.0.0: Create backup folder
VM@work Tokamak 2.0.0: Save original files
VM@work Tokamak 2.0.0: Set boot script
You have already setup networking.

would you like to skip networking setup and keep your old settings as they are?
(yes/no) [yes]

VM@work Tokamak 2.0.0: Display settings
The following virtual networks have been defined:

. vmnet1 is a host-only network on private subnet 192.168.48.0.
. vmnet8 is a NAT network on private subnet 192.168.197.0.

VM@work Tokamak 2.0.0: Extended network scripting - Dave Parsons
Host-only/NAT networking on vmnet1 using 192.168.48.1/255.255.255.0 is running
DHCP server on vmnet1 is running
Host-only/NAT networking on vmnet8 using 192.168.197.1/255.255.255.0 is running
DHCP server on vmnet8 is running
NAT networking on vmnet8 is running
VM@work Tokamak 2.0.0: Installer completed
```

During the installation existing network configuration is maintained, and a backup is stored in the “backup” folder. When uninstalling the software, your original files and network settings will be restored.

The main script is called “tokamak.sh” and has a variety of options:

```
VM@work Tokamak 2.0.0
-----
Usage: ./tokamak.sh [--install|--uninstall|--reinstall|--modify|--reset|--reapply|--
display]
--install - setup the Tokamak replacement scripts and configure networks
--uninstall - remove the Tokamak replacement scripts and reset networks
--reinstall - reset and reinstall Tokamak
--modify - modify networks
--reset - reset and reconfigure networks
--reapply - reapply current configuration
--display - display current network settings
```

### 3.0 Configuring Network

The network configuration is modified using the “tokamak.sh” command. Again this operation must be done with root privileges.

```
./tokamak.sh --modify
```

This will take you through the configuration of the network settings. At the end of the re-configuration the Fusion network components will be restarted. In this sample I am re-configuring the vmnet1 and vmnet8 IP addresses used.

```
You have already setup networking.

would you like to skip networking setup and keep your old settings as they are?
(yes/no) [yes] n

Do you want networking for your virtual machines? (yes/no/help) [yes]

would you prefer to modify your existing networking configuration using the
wizard or the editor? (wizard/editor/help) [wizard] e

The following virtual networks have been defined:

. vmnet1 is a host-only network on private subnet 192.168.48.0.
. vmnet8 is a NAT network on private subnet 192.168.197.0.

Do you wish to make any changes to the current virtual networks settings?
(yes/no) [no] y

which virtual network do you wish to configure? (0-99) 1

The network vmnet1 has been reserved for a host-only network. You may change it, but
it is highly recommended that you use it as a host-only network. Are you sure you
want to modify it? (yes/no) [no] y

what type of virtual network do you wish to set vmnet1?
(bridged,hostonly,nat,none) [hostonly]

Configuring a host-only network for vmnet1.

The host-only network is currently configured to use the private subnet
192.168.48.0/255.255.255.0. Do you want to keep these settings? [yes] n

Do you want this program to probe for an unused private subnet? (yes/no/help) [yes] n

what will be the IP address of your host on the private network? 172.16.1.1

what will be the netmask of your private network? 255.255.255.0

The following virtual networks have been defined:

. vmnet1 is a host-only network on private subnet 172.16.1.0.
. vmnet8 is a NAT network on private subnet 192.168.197.0.

Do you wish to make additional changes to the current virtual networks settings?
```

```

(yes/no) [yes] y
which virtual network do you wish to configure? (0-99) 8
The network vmnet8 has been reserved for a NAT network. You may change it, but it is
highly recommended that you use it as a NAT network. Are you sure you want to modify
it? (yes/no) [no] y
what type of virtual network do you wish to set vmnet8?
(bridged,hostonly,nat,none) [nat]
Configuring a NAT network for vmnet8.
The NAT network is currently configured to use the private subnet
192.168.197.0/255.255.255.0. Do you want to keep these settings? [yes] n
Do you want this program to probe for an unused private subnet? (yes/no/help)
[yes] n
what will be the IP address of your host on the private network? 172.16.8.1
what will be the netmask of your private network? 255.255.255.0
The following virtual networks have been defined:
. vmnet1 is a host-only network on private subnet 172.16.1.0.
. vmnet8 is a NAT network on private subnet 172.16.8.0.
Do you wish to make additional changes to the current virtual networks settings?
(yes/no) [yes] n
VM@work Tokamak 2.0.0: Display settings
The following virtual networks have been defined:
. vmnet1 is a host-only network on private subnet 172.16.1.0.
. vmnet8 is a NAT network on private subnet 172.16.8.0.
VM@work Tokamak 2.0.0: Extended network scripting - Dave Parsons
Host-only/NAT networking on vmnet1 using 172.16.1.1/255.255.255.0 is running
DHCP server on vmnet1 is running
Host-only/NAT networking on vmnet8 using 172.16.8.1/255.255.255.0 is running
DHCP server on vmnet8 is running
NAT networking on vmnet8 is running

```

There are many other things possible:



**Do NOT remove the vmnet0, vmnet1 and vmnet8 adapters. Doing so will cause the VMware daemons for networking to fail. It is OK to change the IP addresses.**

## 4.0 Modify Guest VMX File

If you have added network adapters other than the defaults, which Fusion currently uses, you will need to edit the VMX file held in the “vmwarevm” package. To edit the VMX file, you can show the package contents in Finder, and edit using your favourite text editor. Alternatively use Eric Tung’s VMX Extras editor. It can be found at:

<http://communities.vmware.com/thread/92087>

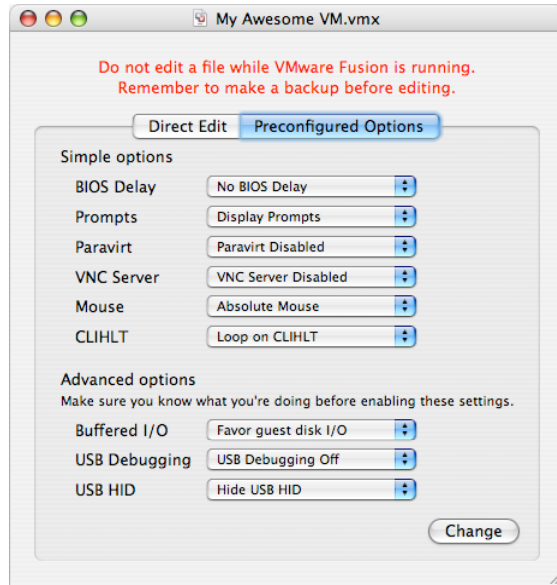
Once you have the file open you can then start adding parameters. For example if you have defined vmnet3, add these statements to the VMX file. Save and close the file, then fire up Fusion and check that the networking has worked.

```

ethernet1.present = "TRUE"
ethernet1.connectionType = "custom"
ethernet1.vnet = "VMnet3"

```

Picture of VMX editor:



## 5.0 Uninstallation

To remove and rollback the settings to the original configuration run the following:

```
./tokamak.sh --uninstall
```

The original VMware Fusion settings will be restored and the network configuration reset to settings in place before Tokamak was used.

## 6.0 Other Options

There are several other options that can be used with the main script.

- **reinstall** - is the equivalent of uninstall plus install
- **reapply** – reapplies the current custom settings
- **reset** - useful if you have a configuration you are not happy with. It wipes out the current configuration database and then runs the modify function to re-configure the networks
- **display** - display current network settings and status of daemons. Some sample output is shown

```
VM@work Tokamak 2.0.0: Display settings
The following virtual networks have been defined:

. vmnet1 is a host-only network on private subnet 172.16.1.0.
. vmnet8 is a NAT network on private subnet 172.16.8.0.

VM@work Tokamak 2.0.0: Extended network scripting - Dave Parsons
Host-only/NAT networking on vmnet1 using 172.16.1.1/255.255.255.0 is running
DHCP server on vmnet1 is running
Host-only/NAT networking on vmnet8 using 172.16.8.1/255.255.255.0 is running
DHCP server on vmnet8 is running
NAT networking on vmnet8 is running
```

## 7.0 Acknowledgements

Thanks to Pat Lee, the Fusion Product Manager at VMware, for giving me the permission to re-distribute the modified code.

Thanks to Paul Rockwell for investigating and merging in the changes from Fusion 2.

Thanks to ActiveState for the great Komodo IDE product that makes debugging simple.

Finally thanks to the VMware Fusion team for a great product.

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