



GlobalTalk in UTM – A Quick Guide

with Extraneous Notes and Observations

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About

While the easiest way to join **GlobalTalk** as an Apple Internet Router (AIR) node is to use original hardware, the beauty of emulation is the ease of replication.

This document provides information and links to help configure the UTM emulation application as an Apple Internet Router and AppleTalk client to participate in **GlobalTalk**.

As UTM is based on QEMU, it can only emulate a Quadra 800, and to date, installing AIR in System 7.1 seems easiest/most stable. The files accompanying this Read Me allow you to either setup UTM from scratch and install all the required components in turn (including base System 7.1), or to use an image with System 7.1 and Apple Internet Router 3.0 pre-installed, just waiting for you to create a new Zone to join **GlobalTalk**.

I highly recommend the latter path. Feel free get everything installed from scratch, and I'll see you back here when you've got a pristine install of all components ready.

While I can't *guarantee* support for the included information, files, and applications, I am more than happy to receive DMs in relation to all this to try and help more people join GlobalTalk via emulation.

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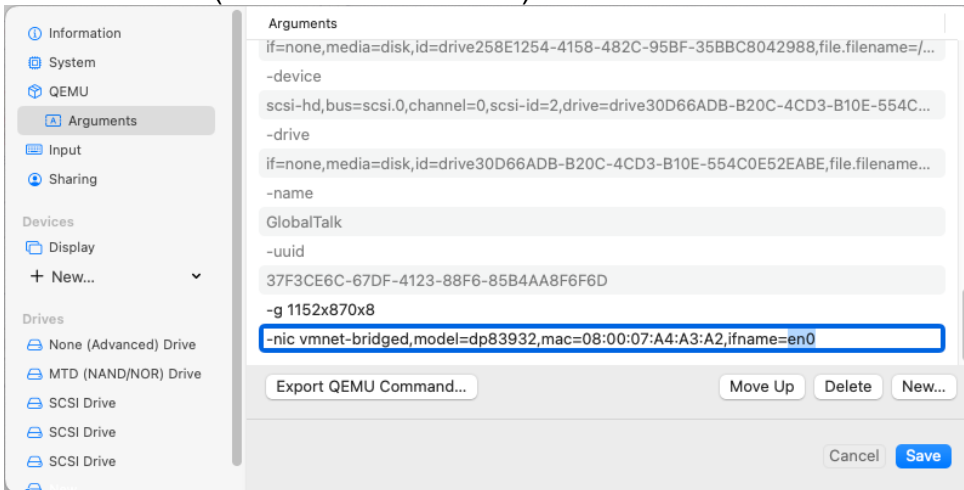
The archive you have downloaded includes:

- **Read Me** – this document.
- **GlobalTalk.utm** – a UTM configuration file which includes the following disk images already imported:
 - **GlobalTalk_HD** – the disk image with System 7.1 and Apple Internet Router 3.0 pre-installed, mounted as boot disk in the above .command/.bat files
 - **Sys7.1-GlobalTalk_install** – a bootable disk image with additional installers and apps, mounted as a secondary disk in the above .command/.bat files

¹ #MARCHintosh Event Logo concept and design by J. Rivera

How to Use These Files

1. Download UTM: go to <https://docs.getutm.app/installation/macOS/> and download the latest QEMU system available there
2. Download and unzip the GlobalTalk.UTM.zip file from <https://drive.google.com/file/d/15NQqslYvav4lomtnG8scRmoNKZJ3ljOt/view?usp=sharing>
This file is based on a System 7.1 config file from <https://github.com/adespoton/utmconfigs>
3. Double-click on the GlobalTalk.UTM file.
4. Right-click on the GlobalTalk virtual machine in UTM and choose Edit, then change the network port referenced in the custom -nic argument to the relevant port on your Mac. You can list active Ethernet ports and their addresses with the “`scutil --nwi`” command at the command line (note the double dash).



Note: Be sure to click away from the command after editing and before clicking Save – if you don't, the change will likely not be saved. It's best to go back into the Arguments section to confirm the change has saved.

5. Click Play on the GlobalTalk virtual machine within UTM.

Next steps

Once the OS has successfully booted, follow the instructions in the *Apple Internet Router Administrator's Guide—Addendum* (available at <https://drive.google.com/drive/folders/1ZCZok5wRWGB3eLsRRyJrf3mRyHMmPrpV?usp=sharing>) to configure your Apple Internet Router.

System Software 7 Pro* – with PowerTalk!

While it *is* possible to update to System 7.1.1, AIR 3.0.1 and Network Software 1.5.1. I've left the main release at the same versions Paul Rickard originally described, but I have successfully updated these components in my own setup.

System 7.1.1 brings AppleScript and PowerTalk (which includes AppleMail [serverless e-mail/messaging]). The installers are in the GlobalTalk Installers folder on the install image, just follow the additional numbered installers in order.

*aka System 7.1.1

Known Issues

If you meddle with your setup (most especially System-related installs or updates), your system may report that the EtherTalk port is not available for AIR when starting up. If this happens, try opening the Network control panel and choosing EtherTalk again. Once EtherTalk is successfully selected, you can open the AIR Router Management app and choose “Start Router...” from its Control menu.

Assorted Miscellany

- If you use Disk Jockey <https://diskjockey.onegeekarmy.eu/> to open the images in my original GlobalTalk QEMU configuration files (available at <>), you can extract the individual partition with the data as an image, which is mountable (and even bootable) in mini vMac II (and possibly other emulators).
- Classic Mac (HFS) allocation block size is a function of disk size. O...K...(I hear you say) WTF does that mean? Basically, HFS volumes can only have 65,536 allocation blocks – the larger the disk, the larger the allocation block size (think file size quantum).

My boot image is 2GB, so each allocation block is $2\text{GB} \div 65,536 = 32\text{kB}$. A 1-byte file will be allocated a 32kB block! At 32,769 (32k+1) bytes, a second 32kB block will be allocated to that file, using 64kB on the 2GB volume. This is less than optimal.

The wastage is worse the more small files there are on a volume as a percentage of the total number of files. The solution is basically multiple volumes of smaller size. Historically, that's meant partitioning (which can still be done in QEMU with the 2GB image – split it into 2 x 1GB partitions, and the allocation block size halves to 16kB on each partition, for example). In emulation, you can just mount multiple disk images of smaller sizes.

No matter what you do, understanding this “one weird trick” of Mac disk sizes is useful. I wrote an article about this in the September 1996 issue of *Australian MacUser* – I'll try and scan it (or find a link to it) to reference here.

Credits

Special thanks to the following people, without whom the WOzFest HQ **GlobalTalk** zone and this guide would not be possible:

QEMU Maintainers <https://www.qemu.org> – for creating an emulator engine which is compatible with both System 7.1 and bridged Ethernet networking

Macintosh Garden, Macintosh Repository, Emaculation, and other archive maintainers – without having the required installers and information files available, none of this would be possible

The Retrocomputing Community on Mastodon – I've deleted my Twitter and Facebook accounts, and steer clear almost 100% of Slack and Discord. While this might seem like I'm being *more* insular, I have in fact found my community of peers and involvement have both expanded and been richer (not monetarily – *any* involvement in retrocomputing does not make you monetarily richer) – love you guys and gals and others! <3

No doubt countless other giants on whose shoulders I stand.