

Connect Dolphin online with MacOS BigSur on Apple M1

Step 1. Tunnelblick Setup

Download and install the latest stable version of Tunnelblick

<https://tunnelblick.net/downloads.html>

Tunnelblick is an Open Source implementation of OpenVPN with kernel extensions (kexts) notarized by Apple and able to run on the latest M1/ Intel Macs running BigSur

You will have to start your Mac in recovery mode to adjust the System Extensions Policies to allow the installation of the tap kernel extensions.

Step 2. Dolphin Setup

Set up Dolphin to use the Broadband Adapter

Config -> Gamecube Tab -> SP1 select "Broadband Adapter (TAP)"

Set up the Log Viewer to display Broadband Adapter debug messages

View -> Show Log

View -> Show Log Configuration

Set the logging Verbosity to display Info messages and under Log Types check the Serial Port 1 (SP1) Box

Step3. Preparing to connect (Dolphin Official)

Verify you successfully installed the taps opening a Terminal and navigate to the /dev/ directory

If you see taps 1~15 means you successfully installed them on your Mac

```
stdout
tap0
tap1
tap10
tap11
```

Take ownership of the one that Dolphin uses **tap0** so you don't have to run the emulator with sudo

```
sudo chown -R $(whoami) /dev/tap0
```

Create a network bridge between your current internet interface (your wifi or ethernet) with the tap and allow it to connect to the internet

```
sudo ifconfig bridge1 create
```

Assign the bridge an IP address range of your network in my case my network uses the format 192.168.68.1 so the command is like this

```
sudo ifconfig bridge1 192.168.68.1/24
```

Enable IP forwarding

```
sudo sysctl -w net.inet.ip.forwarding=1
```

Add your default internet interface (Example: Mac's Wifi is en0)

```
sudo ifconfig bridge1 addm en0
```

With the bridge operational run the game you want to play and attempt to connect it online.

By default Dolphin will enable the tap0 when it really needs it so you have to check in the emulator log for the entry "*BBA Initialized*". Once you see this entry, type the last command to add the tap to the bridge

```
36:48:445 Core/HW/EXI/EXI_DeviceEthernet.cpp:348 I[SP1]: Software rese
36:48:445 Core/HW/EXI/BBA/TAP_Apple.cpp:28 I[SP1]: BBA initialized.
36:53:593 Core/HW/EXI/BBA/TAP_Apple.cpp:50 I[SP1]: SendFrame 60
```

Add the tap to the bridge

```
sudo ifconfig bridge1 addm tap0
```

Important: Dolphin will destroy and unlink from the bridge the tap0 **every** time you stop the emulation so you will have to repeat this last step every time you start a new game.

You can verify both interfaces are correctly bridged by typing **ifconfig** and see a similar output to this

```
bridge1: flags=8863<UP, BROADCAST, SMART, RUNNING, SIMPLEX, MULTICAST> mtu 1500
options=3<RXCSUM, TXCSUM>
ether 1a:3e:ef:0d:e4:01
inet 192.168.68.1 netmask 0xffffffff broadcast 192.168.68.255
Configuration:
    id 0:0:0:0:0:0 priority 0 hellotime 0 fwddelay 0
    maxage 0 holdcnt 0 proto stp maxaddr 100 timeout 1200
    root id 0:0:0:0:0:0 priority 0 ifcost 0 port 0
    ipfilter disabled flags 0x0
member: en0 flags=8003<LEARNING, DISCOVER, MACNAT>
    ifmaxaddr 0 port 11 priority 0 path cost 0
member: tap0 flags=3<LEARNING, DISCOVER>
    ifmaxaddr 0 port 19 priority 0 path cost 0
media: autoselect
status: active
```

It's very likely you will have to redo some of these steps if you reset your Mac.

For Phantasy Star Online Episode 1&2 and Episode 3 you have to manually setup an IP address and a private server DNS to connect online via the in-game network setup.