

## **Send and Receive Email from your Mac using an Iridium 9505A satellite phone**

This document explains how you can connect your Iridium 9505A satellite telephone handset to your Mac, allowing you to send emails while at sea.

The Iridium 9505A is a wonderful piece of kit, enabling you to make telephone calls and to send and receive text messages from anywhere on the world's surface. It also comes with a CD containing Iridium's Data 2.0 product, which allows you to use it as a modem to connect your computer to the internet. Unfortunately, Data 2.0 only works with Windows. In addition, the handset communicates using a serial cable, and most Macs don't come with a serial port.



The setup process is quite long, and contains many different elements, each of which must be completed successfully before moving on to the next one. I recommend that you find a quiet place where you can think calmly, and work carefully through the document. Be patient with your equipment, especially if you have not used dial-up networking before. Do not attempt to skip any steps, and - most importantly - don't try to do all this just before you leave on a trip. You will also find it much easier if, while setting up, you have a separate working broadband connection that you can use to download any required drivers and software.

In case you find all this discouraging, then you can rest assured that once you have installed the system, you shouldn't have to ever change the settings again, and, in true Mac tradition, "it just works".

The description and screenshots are from my own MacBook Pro OSX 10.5.4, but it should work for any reasonably modern Mac.

### **Complete list of parts that you will need**

- MacBook or MacBook Pro with OSX 10.5.x
- Iridium Satellite phone 9505A
- Antenna (comes with the phone)
- An active Iridium SIM card
- Iridium Data Adaptor with extension serial cable or L-block
- Keyspan USA19H serial to USB adapter
- Keyspan software CD or download

Optional but highly recommended

- External antenna for the Iridium phone
- OCENS Mail account

All or most of this gear can be bought from Andy Cool at [www.explorersatellite.com](http://www.explorersatellite.com)

## **The Iridium 9505A handset**

How to assemble and activate your Iridium phone.

You will need:

- Iridium Satellite phone 9505A
- Stub Antenna (it comes with the phone)
- An active SIM card (either prepaid, or connected to a post-paid account)

Press and hold the lock release button on top of the phone. Then insert the antenna in the 'down' position (i.e. pointing downwards along the length of the phone, not up to the sky). Once it has clicked into place, you can carefully rotate it into the 'up' position. In use, the antenna should be as vertical as possible, and so it naturally clicks into one of two positions 45 degrees from the vertical to cope with left- and right-handed use. This might seem odd at first, but if you hold it to your ear and look in the mirror, you will understand why.

Make sure that the phone is powered off. Rotate the antenna into the 'up' position, and remove the battery cover by pushing on the switch at the rear top of the handset. This will reveal the battery, which you should remove using the switch at its base. You will now be able to see the cradle for the SIM card. Put the SIM card into place and slide the lock to keep it in position. Replace the battery and battery cover.

If you need to charge the phone, do it now. Otherwise, go outside so that you can see as much of the sky as possible, and turn the power on. You will hear a wake-up tone or a warning vibration, and see an animated graphic that reminds you to rotate the aerial. If all is well, you will see "Welcome", "Searching...", "Registering...", "Registered", and finally the word "Iridium". Near the bottom of the display, a small house icon tells you that you are connected to your home network. If the phone does not register, then refer to the manual and/or the supplier of your SIM.

Check the signal strength indicator. If you don't have more than 3 bars, then you probably need to move to somewhere with a better view of the sky, or you may consider a permanent external antenna (definitely a must for cruising use). Generally speaking, though, for testing purposes, if you are on a fibreglass yacht, then you will probably get a full signal even inside the saloon.

Now make a short call to any telephone number, to make sure that the handset is working properly.

## **The Data Kit**

How to connect the data hardware to your Iridium phone

You will need:

- Iridium Data Adapter (this is a grey block that plugs into the bottom of the handset)
- Keyspan USA19H serial to USB adapter (accept no substitute)
- Extension serial cable or L-block

Make sure that your Data Adaptor is grey in colour (there is a black one available that won't work here). It converts signals from the phone into serial data format. Plug it into the base of the handset. You may want to mount the handset on its tripod stand, if you have one.

The Keyspan USA19H converts the serial data signal from the phone's Data Adapter into a USB format that your Mac can understand. It is very important that you buy this particular adapter, as it is the only one that seems to interface correctly with both the Mac and the handset. The standard Iridium data kit comes with a Prolific serial to USB adapter, which works fine for PCs but which does not give reliable results with the Mac. Note that the Prolific (and other) adapters may well work just fine when interfacing other equipment to your Mac (my Prolific works just fine with my Garmin GPS, for instance), but they will likely not work correctly with the Iridium phone.

The Keyspan has quite a chunky body, and is too fat to plug directly into the Iridium's Data Adapter, so you will need a serial extension cable or L-connector to make it fit.

Finally, connect the Keyspan's short silver USB cable into the body of the adapter using the squarish plug provided. You should now have an unbroken chain from the handset to the grey Data Adapter to the serial cable to the Keyspan adapter to a USB plug.

Do not plug the USB into your Mac at this point.

## The Keyspan Software

How to tell your Mac that it now has a serial port

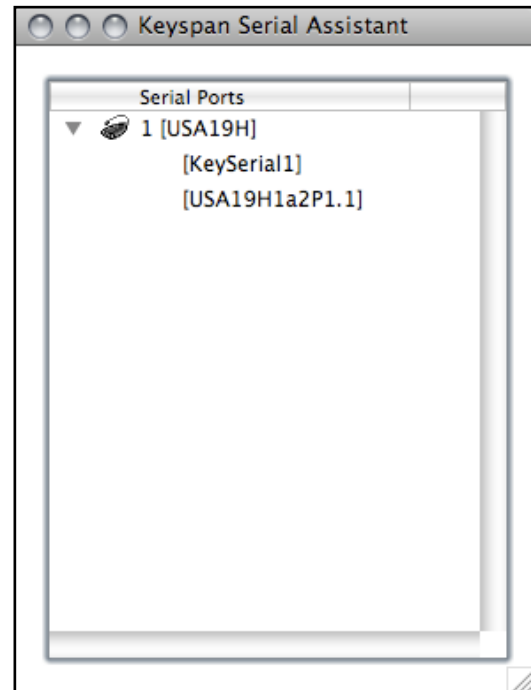
You will need:

- Keyspan adapter software CD

The Keyspan adapter should have come with a CD of programs and drivers; alternatively you could download them from the internet. The installer will install any drivers that you need plus the Keyspan Serial Assistant on your Mac.

Once the software is installed, plug the USB cable from the Keyspan adapter into your Mac, and launch Keyspan Serial Assistant, which should now be displaying your serial ports.

Note that the Assistant shows two ports, one called KeySerial1 and the other beginning with USA19H. This is normal, and in fact KeySerial1 is just an alias of the other port. For the rest of this document, we will use KeySerial1.



## Purchase OCENS Mail

How to get a dial-up ISP

You will need:

- OCENS Mail software
- A current OCENS Mail subscription

If you already have a dial-up ISP, then for testing purposes you could simply use that and move on to the next step. However, if you are going to be spending any time moving data up and down the Iridium system, then you really should consider getting an OCENS Mail account. Not only is it specifically configured to work with the Mac and Iridium (and a host of other wireless systems too), but it also uses a very impressive compression routine that reduces your connection time by up to 15 times. Given the cost of an Iridium call, this software will pay for itself very quickly indeed. For the rest of this document, I will be assuming that you have an OCENS Mail account.

Install both OCENS Mail and Satmon.

Satmon comes for free in the download package.

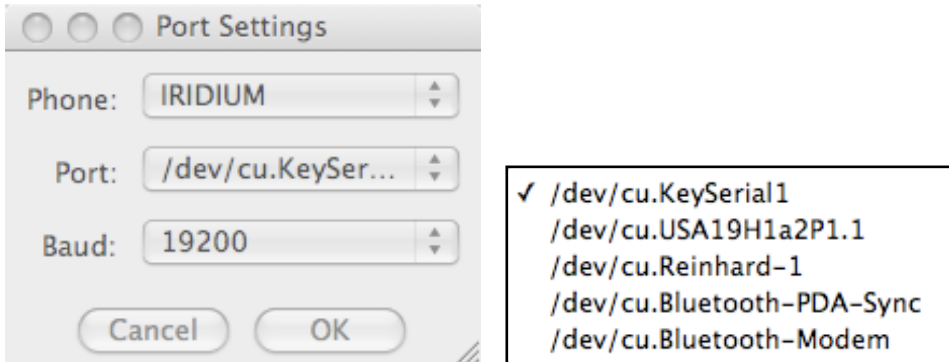
## Configure Satmon

How to confirm that your data cable is working.

You will need:

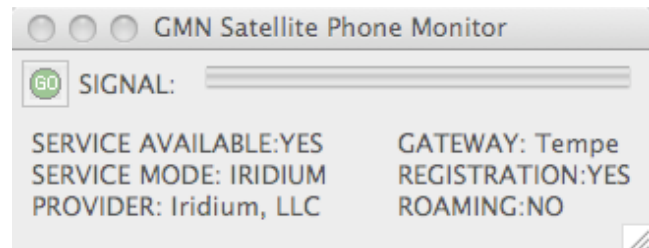
- Satmon (comes free with OCENS Mail)

Plug in the Keyspan adapter and fire up Satmon. In the preferences, select Phone=Iridium, Baud=19200, and your Keyspan serial port from the dropdown list.



If your Iridium handset is turned on and connected, Satmon should display its status. Check that you can see the message 'SERVICE AVAILABLE: YES'.

This doesn't really affect the setup of the system, but it will give you that nice warm feeling because you have now confirmed that your Mac can see your Iridium handset.



Congratulations! Your serial to USB adapter is working.

## Install a Modem Script

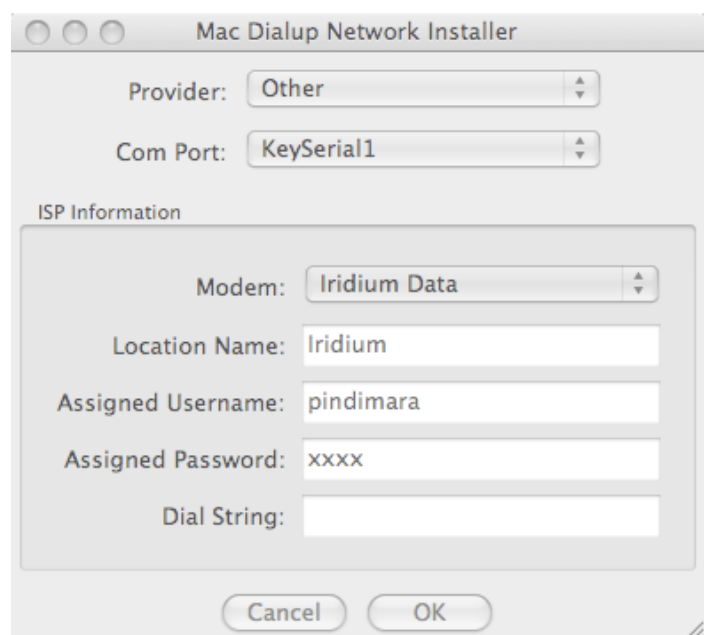
Setting up your Mac's dialup settings.

You will need:

- OCENS Mail

Fire up OCENS Mail, and select 'Modem/Dialup Installer' from the Program menu. Follow the instructions until it appears to hang with the message "Finishing Installation".

Look for an open window called 'Mac Dialup Network Installer', where you need to fill in your Provider (Other), your Com Port (KeySerial1), Modem (Iridium Data), Location Name (Iridium), and username and password (whatever you got from OCENS Mail). Dial string is not necessary. Press OK to finish the installation.



## Network Settings

How to tell your Mac about the Iridium network

Open the System Preferences application and click on the 'Network' icon. You will probably have at least one Location already set up, most likely called 'Automatic', plus the new one that you just created called 'Iridium'.

Select the 'Iridium' location. Remember to click 'Apply' now, and again if you make further changes.

There will be one or more 'Services' listed on the left hand side, one of which will be 'KeySerial'. You can delete any others if you feel like it.

Click on the 'KeySerial' service and set up the connection parameters. The account name and password should have been carried over from the Dial Up Installer, so you'll just need to add the telephone number, which for an OCENS account is 008816000025.

Remember to click on "Apply" after making any changes.

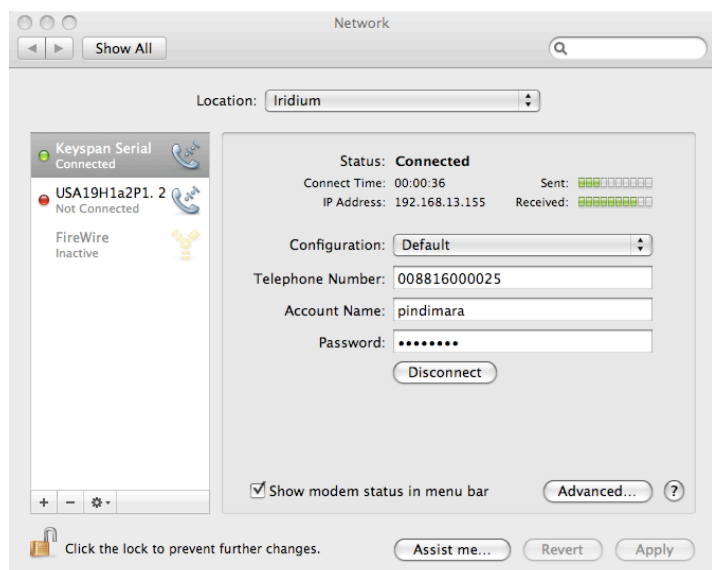
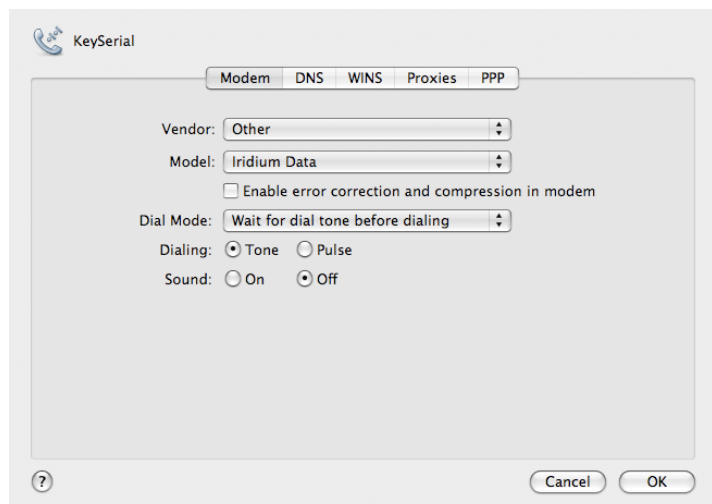
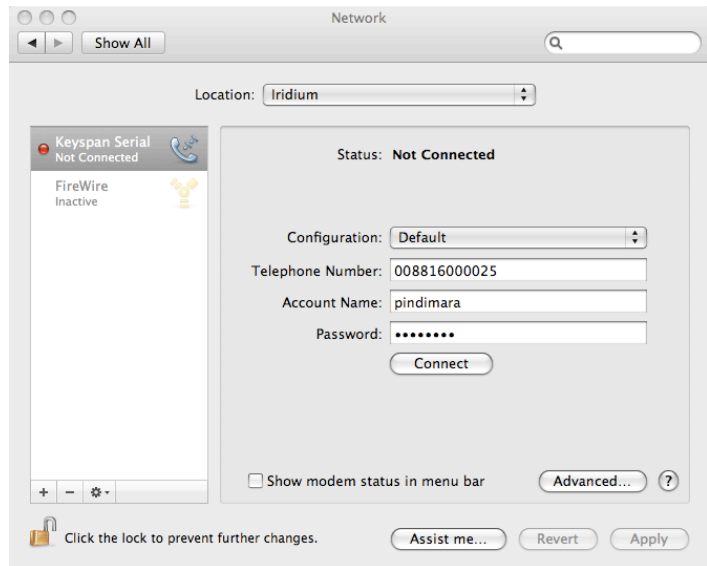
Now click on "Advanced" and select the "Modem" tab. You will see all the other settings that you made using the Dial Up Installer.

Click OK to return to the Network screen

Make sure that the Iridium handset is switched on, registered, and connected to your Mac via the Keyspan serial adapter. Click on the 'connect' button. The handset should display 'data call in progress' and the Network window should show animated green 'Sent' and 'Received' data bars.

You have connected your Mac to the Iridium network! Congratulations.

Now hit 'disconnect' swiftly, because this call is costing you money.



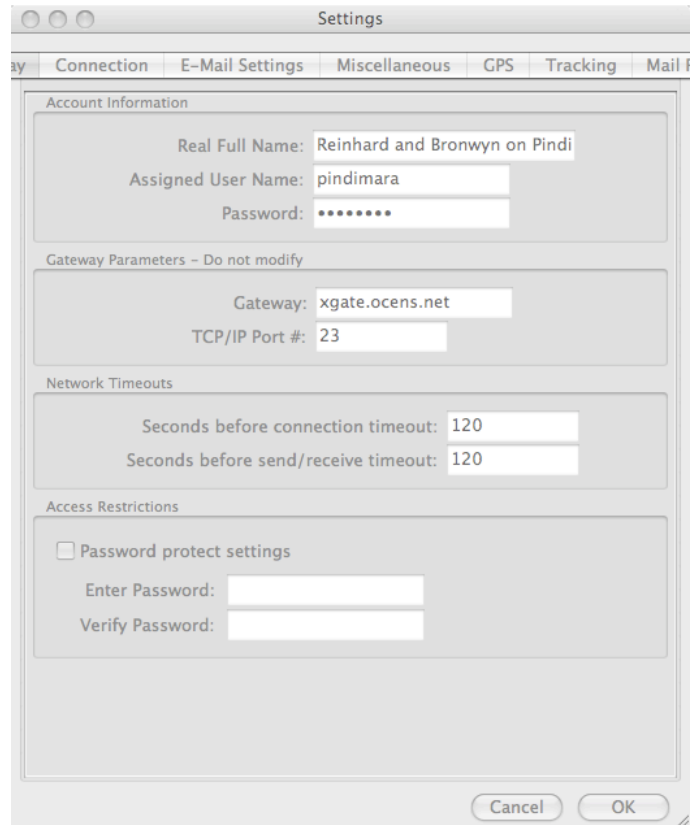
## Configure OCENS Mail

How to tell the OCENS software about the Iridium network connection

Fire up the OCENS Mail application and go to the Preferences menu option.

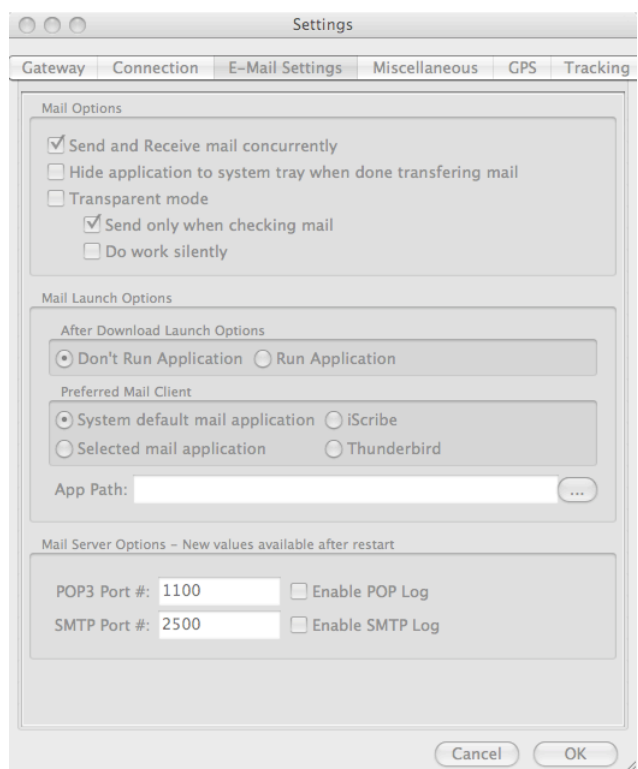
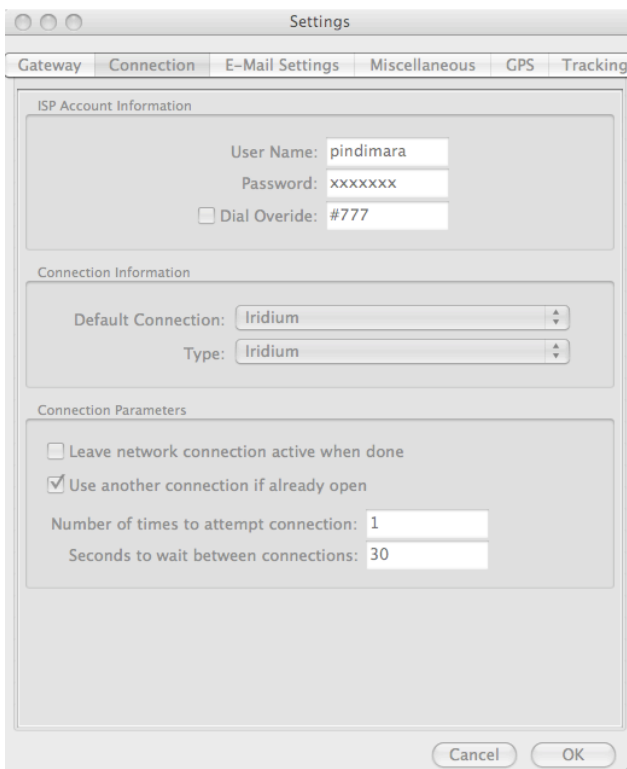
On the Gateway tab, you will need to fill in your OCENS username and password, the gateway `xgate.ocens.net`, and TCP/IP Port 23.

Set both of the timeouts to 120 seconds. This seems to be about right, but you can experiment with higher settings later if you have problems with OCENS Mail timing out.



On the Connection tab, you will need to set the Default Connection to your new 'Iridium' Location, and the Type to 'Iridium'.

On the 'Email Settings' tab, set the POP3 port to 1100 and the SMTP port to 2500.



Click OK. You have completed your OCENS Mail configuration.

## Configure your Apple Mail client

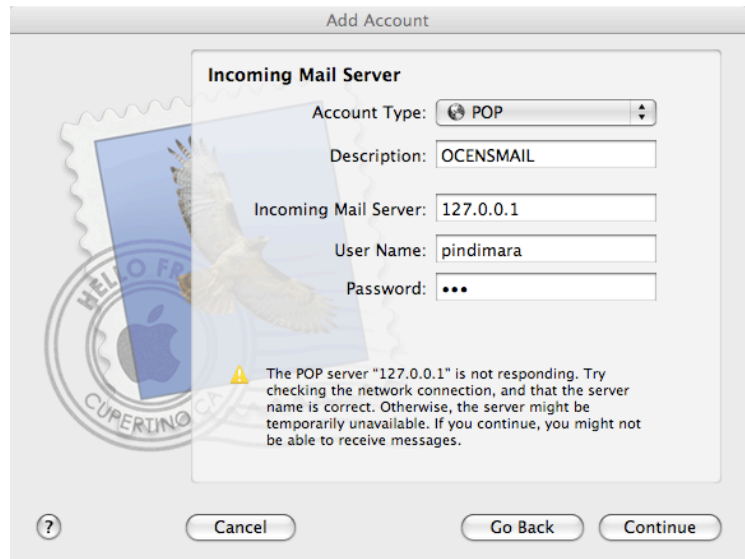
How to make Apple Mail work with OCENS Mail.

You can use OCENS with any mail client (and it comes with Thunderbird as default), but you will probably want to use it with the Mac's own Mail application.

Open the Mac's Mail application, and select File > Add Account. Give it a name, and then fill in your OCENS email address and password.

Click on 'Continue', select Account Type 'POP' from the dropdown and enter 'OCENSMAIL' in the description and '127.0.0.1' in Incoming Mail Server. Your username and password will already have been populated.

When you press 'Continue' you will get a message saying that the POP server is not responding. Ignore it and press 'Continue' again.

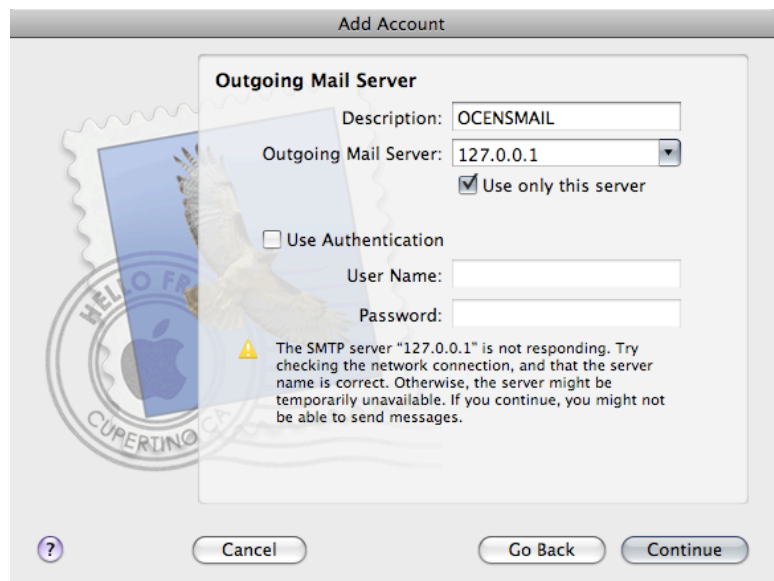


On the next screen, leave the 'Use SSL' unchecked, and leave the 'Authentication' dropdown as 'Password'. Press 'Continue'.

On the next screen, select '127.0.0.1' as the outgoing mail server, and it should populate the 'Description' with 'OCENSMAIL'. Leave the 'Authentication' section unchecked and press 'Continue'.

You will see a message about the SMTP server not responding. Ignore it and press 'Continue' again.

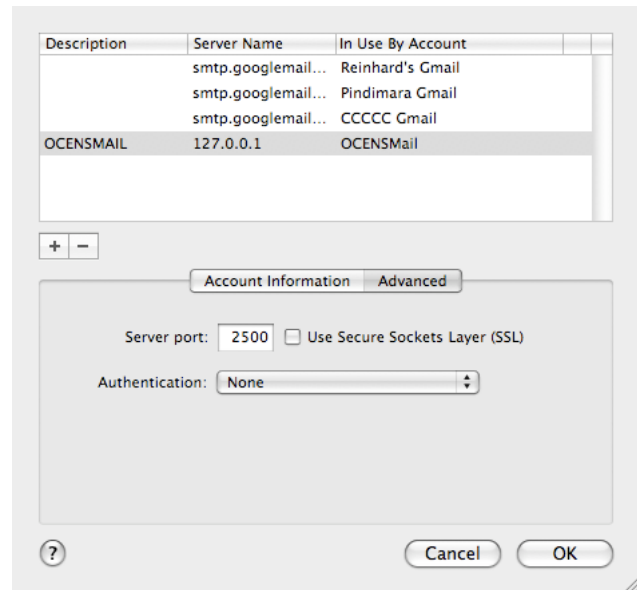
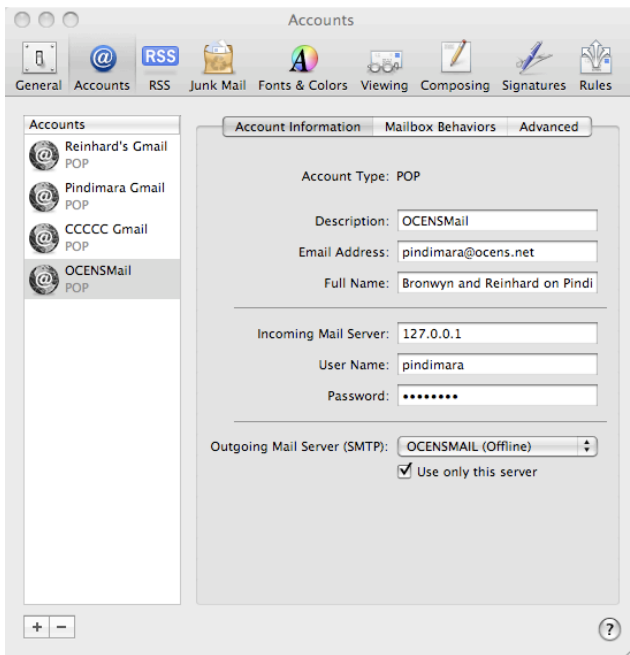
On the next screen, leave 'Outgoing Mail Security' unchecked.



Press 'Continue', and then finally 'Create' to finish the wizard and create the new account.

Now go to Mail > Preferences. Click on the OCENSMAIL account that you have just created. You will see the information that you just added in the 'Account Information' tab. At the bottom, click on the 'Outgoing Mail Server' dropdown and select 'Edit server list'. Click on the 'Advanced' tab for your OCENSMAIL account, and set the server port to '2500', and check 'Use only this server'.

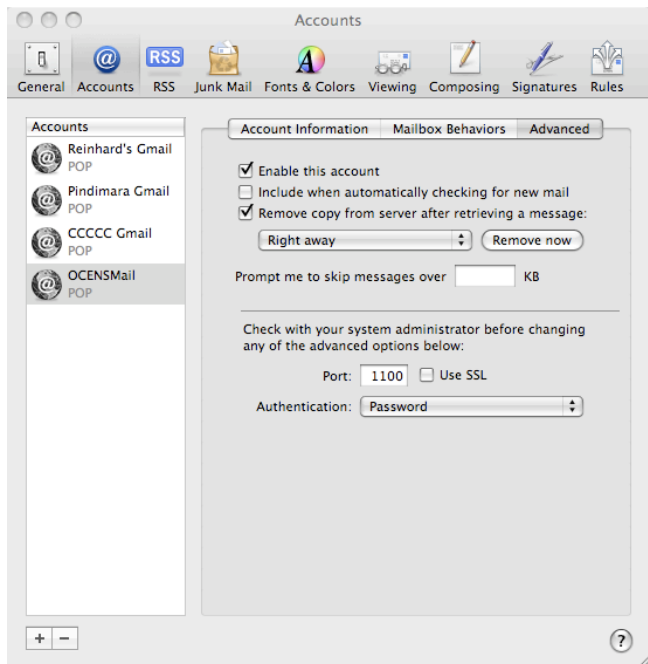
This last setting will force Apple Mail to only use OCENS to send mail from your OCENS account. You can change this later if you like, but set the option now for the purposes of testing.



Back in the main Accounts screen (Mail > Preferences), click on the 'Advanced' tab. Check 'remove copy from server after retrieving a message', and set the POP port number to '1100'.

You're finished with the Mac Mail settings. Close Mac Mail.

There is one final step; you need to tell OCENS Mail application that it should use Mac Mail. Go back to OCENS Mail and under the Tools menu there should be an option to 'Launch Default Email Client'. Once you have done this, or if that option is not there, then press the 'Email' logo in OCENS Mail. Mac Mail should open up.



Using Mac Mail, write a test email to a known email address, ensuring that your OCENS mail account is in the 'send from' dropdown at the top.

Unless somebody else is paying your Iridium bill, your bank manager will thank you if you don't send or receive any html or attachments. Nice simple text emails will do fine.

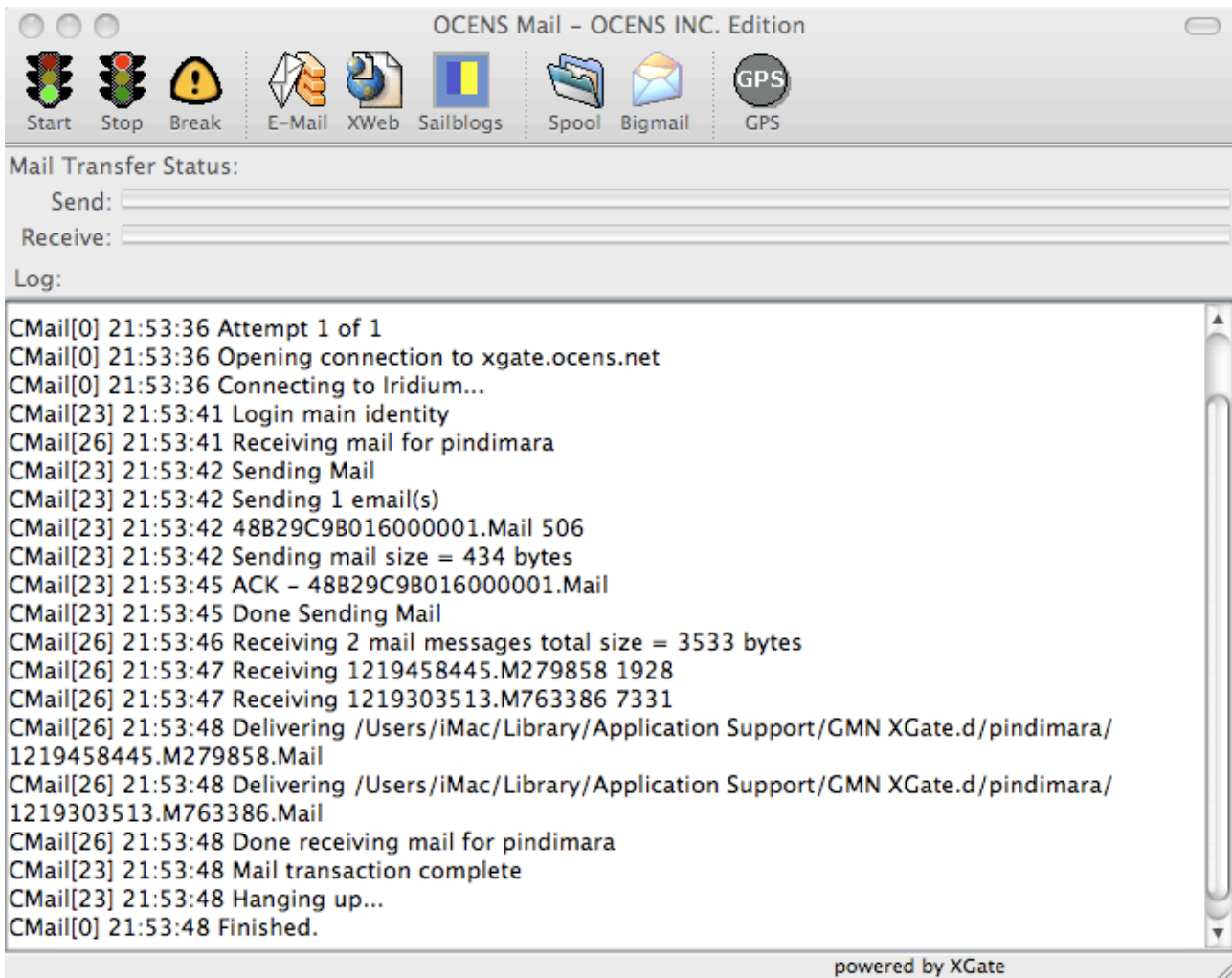
Click on 'Send' and you will get a message saying that it could not connect. Press 'Try Later'. Your mail will now be sitting in your Outbox waiting for you to connect to Iridium.

At this point, for testing purposes you might also want to log on to some other email system and send an email to your OCENS account, ready for you to pick up when you next connect.

## Send and Receive Mail

You did it! It's all set up. Now you can send and receive mail.

Make sure that the Iridium handset is plugged in to your Mac and has a steady strong signal (four bars or more). In OCENS Mail, click on 'Start'. The Satmon window will go blank, the words 'data call in progress' will appear on the window of the Iridium handset, and you will see a log building up in OCENS Mail that looks something like this:



Once it's all over, have a look in Mac Mail. You will see that the test message that you sent has disappeared from your Outbox but, even if the log says that you have received mail, there won't be any in your Inbox. In order to see it, you will need to refresh your mailbox by going to Mailbox > Get New Mail > Oceansmail.

## Troubleshooting

Assuming that you have followed all the steps shown above, and each step has worked correctly as indicated in the text, then almost all problems stem from one of two reasons:

- 1) Your signal strength dropped (even momentarily) below 3 bars.
- 2) Your Iridium account ran out of money and needs to be topped up.