

## Setting Up Your Sunny Webbox and Sunny Boy Inverter

This document is intended as a quick guide to setting up Splash Monitoring and assumes your inverter is already connected to the PV panels and grid/batteries, and where necessary programmed according to your requirements. For more details please refer to the Sunny Boy User Manual.

### Installation Guidelines

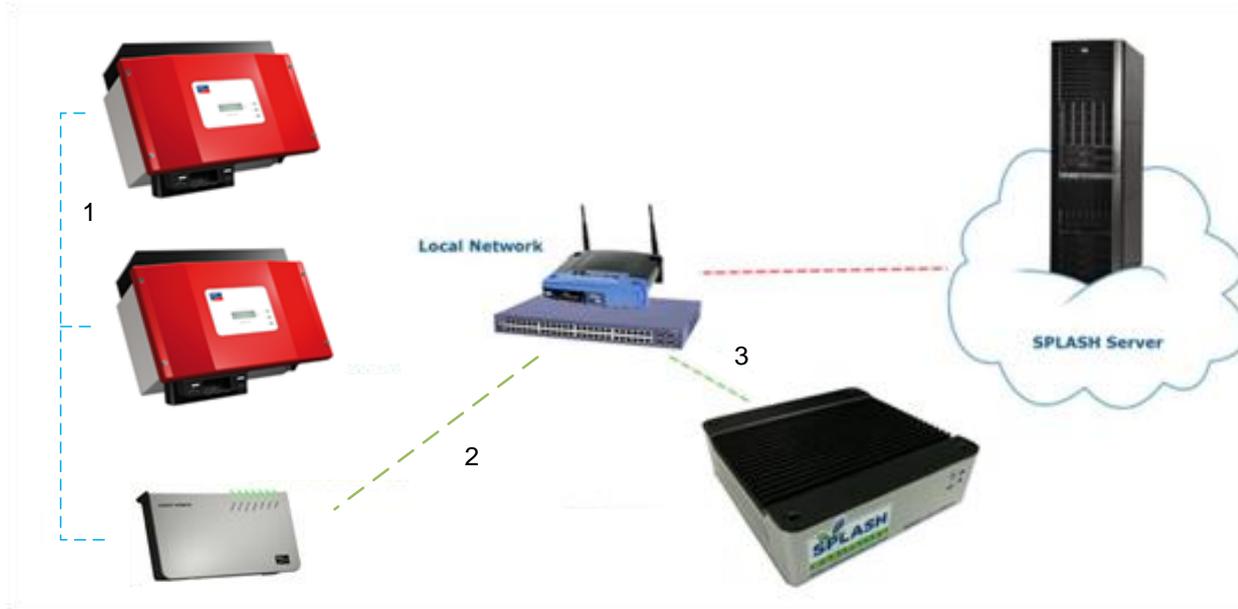
We have found that the most reliable long-term results are achieved when the Streambox, Sunny Webbox and their respective power supplies are installed well away from daily operational areas. The problem is that the loss of the Splash Monitoring service is not immediately obvious, so it can be many days or weeks before someone realises that their system is not being updated. We are in the process of developing a mechanism to detect the loss of communication which optionally sends an email alert to one or more nominated recipients, but it is always prudent to minimise the risk of disruption by following these guidelines:

- If possible install the equipment and power supplies well away from daily operational areas such as someone's desk or work bench.
- Try and secure the equipment by attaching it to a wall or shelf with screws, Velcro or double sided tape. This should prevent it from slipping and becoming disconnected.
- Always secure the STREAMbox power cord to the STREAMbox using the P clip supplied. The P clip should be located on the back of the STREAMbox using one of the existing jack posts, as illustrated:



- Always ensure the LAN cables you use are in sound condition with their retaining clips intact, and make sure they are securely fitted to the equipment by giving them a gentle tug.
- Always ensure that all cables are secured using cable ties to protect them from accidental snagging.
- Never stretch cables to the point where any movement could cause them to become dislodged.
- Always install the STREAMbox with the ridged heat sink outwards and the side vents unobstructed. It doesn't matter what orientation is used; horizontally on its bottom (the flat black surface); or vertically on its side.
- The equipment and power supplies will be labelled 'DO NOT SWITCH OFF', but you should inform people with access to the installation area that this equipment should not be turned off; for example cleaning and maintenance personnel.

## Basic Connectivity



The diagram above shows the connectivity between the various devices. The connections are:

- 1 – RS485 data bus between the inverter(s) and the Sunny Webbox.
- 2 – CAT5 or CAT6 LAN cable between the Sunny Webbox and your Network Access Device.
- 3 – CAT5 or CAT6 LAN cable between the STREAMbox and your Network Access Device.

Network Access Device: This may be a Router, ADSL Modem, Switch or other network device connected to the Internet.

Please take care when connecting the inverter(s) to the Sunny Webbox, if the distances are long then the twisted pairs are critical. Also the terminating jumpers on either end of the bus are critical. Please refer to the Sunny Webbox User Manual for details.

### Choosing an IP Address:

By default the STREAMbox will scan IP addresses `aaa.bbb.ccc.210` through `aaa.bbb.ccc.219`, where `aaa.bbb.ccc` is the network address provided by your router. You can find this address by going to the command prompt on your network attached Windows PC and typing `ipconfig /all` at the command prompt. You should see something like:

```
C:\WINDOWS\system32\cmd.exe
> ipconfig /all

Windows IP Configuration

   Host Name . . . . . : ECOARLW001
   Primary Dns Suffix . . . . . : ecd.local
   Node Type . . . . . : Unknown
   IP Routing Enabled. . . . . : No
   WINS Proxy Enabled. . . . . : No
   DNS Suffix Search List. . . . . : ecd.local
                                     ecd.local

Ethernet adapter Local Area Connection:

   Connection-specific DNS Suffix . . : ecd.local
   Description . . . . . : Realtek RTL8168C(P)/8111C(P) PCI-E G
igabit Ethernet NIC
   Physical Address. . . . . : 00-21-9B-00-7E-F2
   Dhcp Enabled. . . . . : Yes
   Autoconfiguration Enabled . . . . : Yes
   IP Address. . . . . : 192.168.12.12
   Subnet Mask . . . . . : 255.255.255.0
   Default Gateway . . . . . : 192.168.12.1
   DHCP Server . . . . . : 192.168.12.6
   DNS Servers . . . . . : 192.168.12.6
   Lease Obtained. . . . . : Friday, 9 March 2012 9:04:54 a.m.
   Lease Expires . . . . . : Saturday, 17 March 2012 9:04:54 a.m.
```

Take the first three octets from the Default Gateway address (192.168.12) in the above example and add .210 to the end. Therefore the IP address for the first Bootloader in this example will be 192.168.12.210. Subsequent Bootloaders attached to the same network will be given IP addresses of 192.168.12.211, 192.168.12.212 and so on.

### Sunny Webbox Basic Configuration

As it comes from the factory the Sunny Webbox is pre-programmed with an IP address of 192.168.0.168. Unless your supplier has changed it you will need to change this to one of the static IP addresses the Splash Monitoring STREAMbox uses to scan for solar devices. By default these are `<network>.210-219`, where `<network>` is the first three octets of the IP address you determined above, ie. 192.168.0 in this example.

Try accessing the Sunny Webbox by entering 192.168.0.168 into the web browser on your PC. If you don't get its home page displayed then you'll probably need to configure your PC to talk to it. This process is described in the Sunny Webbox User Manual, but outlined in the "Setting up your PC to talk to the default Sunny Webbox" section later. Make a note of any settings you change because you will need to return the PC back to its original configuration.

If you get the Sunny Webbox Home page:

1. Enter "sma" in the password field and click "Login".
2. Click the "Webbox" link to the right of the "Home" link.
3. Click the "Network" link under the "Webbox" link.
4. Click the "Static" button.
5. Enter the chosen IP Address in the slot under the "Static" button (ie 192.168.0.210).
6. Enter the chosen network mask in the subnet mask box (ie. 255.255.255.0).
7. Enter 0.0.0.0 as the Gateway address.
8. Enter 0.0.0.0 as the DNS server address.
9. Public virtual HTTP port, webserver port and Webservice port should be left set to 80.
10. Click "Save" button at the bottom right of the page.
11. Check the values carefully and click "Confirm" at the bottom right of the page.
12. The Webbox will now restart and become available on the IP address you set.
13. Enter the chosen IP address into your web browser and check you can see the Sunny Webbox again. If you had to reconfigure your PC to see the Sunny Webbox in the first place, you will have to reconfigure it back to its original configuration.
14. Connect the STREAMbox to the network and power it up.
15. After about 4 minutes check web access to the STREAMbox by entering <http://splash/> into your web browser. This requires a network name resolver (DNS) to be accessible on your network which isn't always available, so it may not work. The password is the first 5 characters of your fingerprint. \*
16. After about 8 minutes log onto the Splash Monitoring web site and enter your fingerprint into the Dashboard and click "Scan". If the installation was successful you will see data from the inverter appear.
17. If you have data on the Dashboard then you can go on to configure your site as described in the "Getting Started" document.

## Setting up your PC to talk to the default Sunny Webbox:

This section is reproduced from the Sunny Webbox manual. Please make a note of everything you change because you'll need to reset your configuration back to its original state.

If you use a different operating system, refer to the manual of your operating system to find out how to set the computer IP address to 192.168.0.100 and the subnet mask to 255.255.255.0.

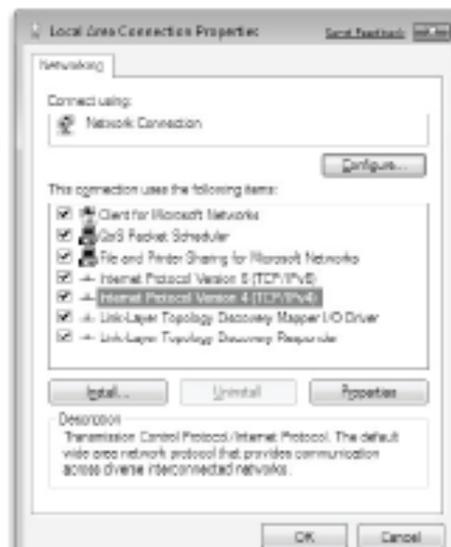


### User rights in the operating system

You will need the appropriate user rights in order to change your computer's network settings. Without the necessary user rights, you will not be able to start up the Sunny WebBox. If you have any questions, consult your system administrator.

## 6.4.2 Windows 7, Windows Vista

1. Start the computer.
2. In Windows select "Start"
3. Enter "ncpa.cpl" in the search field and press enter.
  - The "Network connections" window opens.
4. Double click on the LAN connection via which the Sunny WebBox is connected.
  - If Windows displays several LAN connections, there are probably several network connections installed in the computer. Ensure that you select the correct network connection, with which the computer is connected to the Sunny WebBox. If necessary, refer to the manual for your computer.
  - In the event that no LAN connection is displayed, please refer to section 14 "Troubleshooting" (page 76).
5. Select [Properties].
  - The "Local Area Connection Properties" window opens.
6. Note down the existing network settings so that you can restore the settings in your computer after starting up the Sunny WebBox.
7. Mark "Internet protocol version 4 (TCP/IPv4)" and select [Properties].
  - The "Internet Protocol (TCP/IP) Properties" window opens.



8. In the "Internet Protocol Version 4 (TCP/IPv4) Properties" window enter the following properties and confirm with [OK].

"IP address": 192.168.0.100

"Subnet mask" 255.255.255.0

9. Select [OK] in order to save the settings. Select [OK] in order to close the next dialog.

- The computer is set to the network settings of the Sunny WebBox.

You can now log in for the first time on the Sunny WebBox user interface (see page 23).



### 6.4.3 Windows XP, Windows 2000

1. Start the computer.
2. In Windows select "Start > Run".
3. In the "Open" field enter "ncpa.cpl" and select [OK]
  - The "Network connections" window opens.
4. Double click on the LAN connection via which the Sunny WebBox is connected.
  - If Windows displays several LAN connections, there are probably several network connections installed in the computer. Ensure that you select the correct network connection, with which the computer is connected to the Sunny WebBox. If necessary, refer to the manual for your computer.
  - In the event that no LAN connection is displayed, please refer to section 1.4 "Troubleshooting" (page 76).

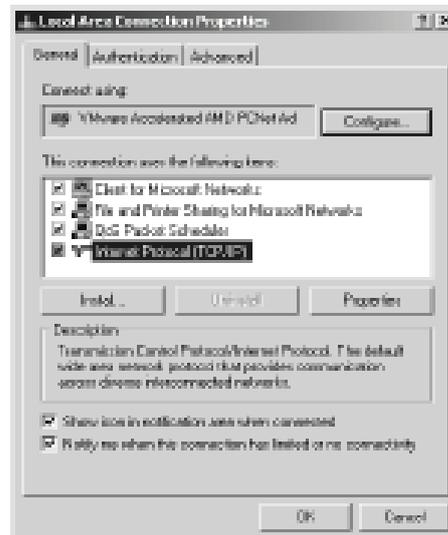
5. Select [Properties].

- The "Local Area Connection Properties" window opens.

6. Note down the existing network settings so that you can restore the settings in your computer after starting up the Sunny WebBox.

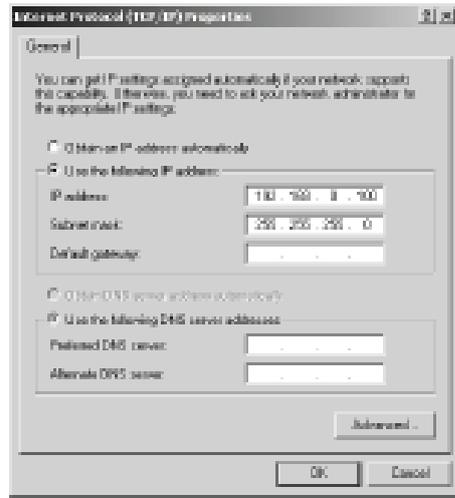
7. Mark "Internet protocol (TCP/IP)" and select [Properties].

- The "Internet Protocol (TCP/IP) Properties" window opens.



- 8. In the "Internet Protocol (TCP/IP) Properties" window, enter the following properties and confirm with [OK].  
"IP address": 192.168.0.100  
"Subnet mask" 255.255.255.0
- 9. Select [OK] in order to save the settings. Select [OK] in order to close the next dialog.
- The computer is set to the network settings of the Sunny WebBox.

You can now log in for the first time on the Sunny WebBox user interface (see page 23).



## Trouble Shooting:

“No Stream Found” on the SM Web site:

This is because the web site hasn't received any data from the STREAMbox.

- Samil inverters can't be interrogated for data if there is no DC power from the PV panels, so setting up your STREAMbox for the first time at night is not going to work.
- Allow at least 10 minutes after powering up the STREAMbox before starting your diagnostic checks.
- Check the connections between the STREAMbox and your router and ensure you have a solid green light at the top left of the RJ45 socket and a flashing green light at the top right of the socket.
- No solid green light could indicate: the STREAMbox is switched off (check the power light on the front of the STREAMbox); or the router isn't powered up, or the LAN cable isn't connected to the router; or the LAN cable is faulty. To eliminate the LAN cable and router, connect the LAN cable to a known working device like your laptop or PC and if you can get a web session, then the LAN connectivity is OK.
- Try power cycling the STREAMbox – switch it off, wait 5 sec, switch it back on.
- Try logging on to the STREAMbox: enter “splash” in your web browser's address line, or if your STREAMbox has a fixed IP address, enter that into your web browser. For instructions on how to use the STREAMbox's 'Web Information Page' go to <http://www.splashmonitoring.com/assets/SM-STREAMbox-Web-Information-Page.html>
- The most common issue we encounter is the site's network firewall not allowing outbound traffic. This is rarely an issue with domestic routers, but very common in managed commercial networks. Unless you have someone you can ask (like a network administrator) a good way to detect this issue is to log onto the STREAMbox and run a 'Healthcheck' report. This will give you lots of information including whether the STREAMbox can 'see' the internet.
- The STREAMbox is not able to work with a proxy server. If you have a proxy server you will need to make special arrangements with your network administrator to have the STREAMbox circumnavigate it by issuing a fixed IP address with appropriate privileges.