Zinwave 3000
Distributed Antenna System

Tune-up Guide

3000_DAS_TG_v-08

zinwave

Edition

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1.1 Detailed Hub configuration

This guide explains how to:

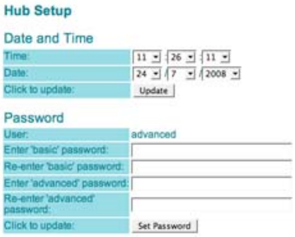
- Configure the Hub from the standalone PC (don't forget to change the standalone PC's IP address to be on the same subnet)
- Connect the Hub to your LAN and access the web configuration GUI from any network-attached PC.

1.1.1 Log in to the web configuration GUI

1. Knowing the Hub's IP address, log back into the web configuration GUI.
2. For example:
   - If you gave the Primary Hub the static IP address 10.10.10.5, you log in from the URL https://10.10.10.5
   - If you changed the Hub to be a DHCP client, you need to discover its IP address from the lookup table on your DHCP server (you'll need to know the Hub's MAC address). DHCP server instructions are beyond the scope of this manual.
3. For now, log in as the *advanced* user with the default password (supervisor).

1.1.2 Set the date, time and passwords

1. In the web configuration GUI, display the Hub Setup page.
2. Set the date and time and click **Update**.
3. Change the default passwords for basic and advanced users and click **Set Password**.



Hub Setup

Date and Time

Time: 11 : 26 : 11

Date: 24 / 7 / 2008

Click to update: Update

Password

User: advanced

Enter 'basic' password:

Re-enter 'basic' password:

Enter 'advanced' password:

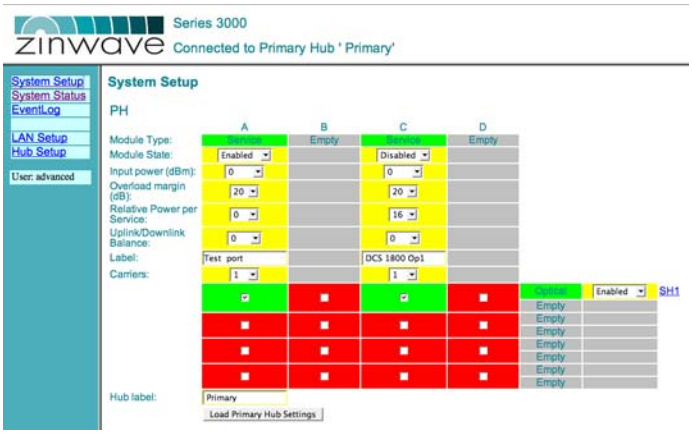
Re-enter 'advanced' password:

Click to update: Set Password

1.1.3 Set up the operating parameters and switching matrix

1. Display the System Setup page.

   This shows the switching matrix for your system (which Service inputs are connected to which outputs on the Primary Hub. Lower down the page there are configuration options for the Secondary Hub and any RUs. Initially, all settings are defaults.



User: advanced

System Setup

PH

	A	B	C	D			
Module Type:	Service	Empty	Service	Empty			
Module State:	Enabled		Disabled				
Input power (dBm):	0		0				
Overload margin (dB):	20		20				
Relative Power per Service:	0		16				
Uplink/Downlink Balance:	0		0				
Label:	Test port		DCS 1800 Op1				
Carriers:	1		1				
	☑	☐	☑	☐	Optical Empty	Enabled	SH1
	☐	☐	☐	☐	Empty Empty		
	☐	☐	☐	☐	Empty Empty		
	☐	☐	☐	☐	Empty Empty		

Hub label: Primary

Load Primary Hub Settings

2 Tell the system which of the available Service inputs you want it to use by setting them to **Enabled**.

3 For each Service, select the Input power in dBm. This is the value that you know you should be getting from the donor Service. We assume 0dB, but change this if necessary.

⚠ **Caution:** The Input power must not exceed the safe operating limit of +25dBm.

4 Set the Overload margin.

This is in effect an alarm threshold for input power. If, for example, you had your system all set up then added another Service, your input power might rise by 3dB. You might set the Overload margin to 3dB to flag this. Alternatively, you might want to know whenever the input power level changed, for any reason, in which case you'd set the Overload margin to a very low threshold.

5 Set the Relative Power per Service.

Here you are setting the relative power level for each Service, based on values you should have calculated as part of your system design. This should take into account all Service inputs that contribute to the composite power level.

The maximum that all Services can add up to is 18dBm in Europe and 20dBm in the USA & Canada (the maximum power that an RU can handle). The maximum EIRP is 20dBm for WLAN in Europe and 28dBm for all approved services in USA & Canada. This corresponds to antenna gains of 2dBi for WLAN in Europe and 8dBi for USA & Canada.

6 Set the Uplink/Downlink balance.

Set the relative gain according to your system design parameters.

7 Enter a label (name) for each Service (e.g. Tetra, or DCS 1800).

8 Set the number of carriers for each Service.

9 Enable or disable the links to the Secondary Hub as appropriate.

10 Click to tick (enable) boxes in the switching matrix. This is where you tell the system which Services are output on which link.

11 Enter a label (name) for the Primary Hub.

12 Click **Load Primary Hub Settings** below the Primary Hub table to make your settings take effect.

1.1.4 Set up the Secondary Hubs

Note: You'll need to follow the steps in this section for each Secondary Hub in turn.

1 On the System Setup page, scroll to the Secondary Hub table.

SH1

	A	B	C	D
Module Type:	Empty	Optical	Empty	Empty
Module State:		Enabled		
Label:				
	☐	☑	☐	☐
	☐	☐	☐	☐
	☐	☐	☐	☐
	☐	☐	☐	☐

RUdrv	Enabled	RU11
Empty		
Empty		
Empty		
Empty		
Empty		
Empty		
Empty		

Hub label:

2 Enter a label (name) for the Secondary Hub.

3 Set up your switching matrix (which Optical Link Modules are connected to which RU Drive Module).

4 Enter a label (name) for the Secondary Hub.

5 Click **Load Secondary Hub Settings** below the Secondary Hub table to make your settings take effect.

6 Repeat steps 1 through 5 for other Secondary Hubs (each will have their own table).

1.1.5 Set up the RUs

1 On the System Setup page, scroll to the RU table.

There is one row per RU in this table. Set up all the RUs before loading the settings.

RU Table

Name	Label	Downlink Pwr	Uplink Pwr max	Tx State
RU11		0	0	Enabled

2 Enter a label (name) for the RU.

3 Set the Downlink power.

4 Set the upper limit for the Uplink power.

This value should come from your system design. It limits the power back from the RU, and is also an alarm threshold.

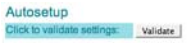
5 Set the RU Tx state (Enabled or Disabled).

6 If necessary, repeat steps 2 through 5 for other RUs in the table.

7 Click **Load Remote Unit Settings** below the RU table to make your settings take effect.

1.1.6 Run Autosetup

So far, we have applied configuration changes to the Hubs, but the system has not made any automatic gain calculations or 'switched on' the RF.



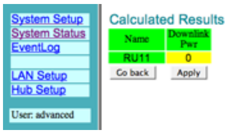
Autosetup

Click to validate settings: Validate

1 At the bottom of the System Setup page, click **Validate**.

The system will automatically make gain calculations, based on the values you've supplied. It will take into account any path losses due to cable lengths.

2 When you calculations are complete, you'll see the downlink power available to each RU.

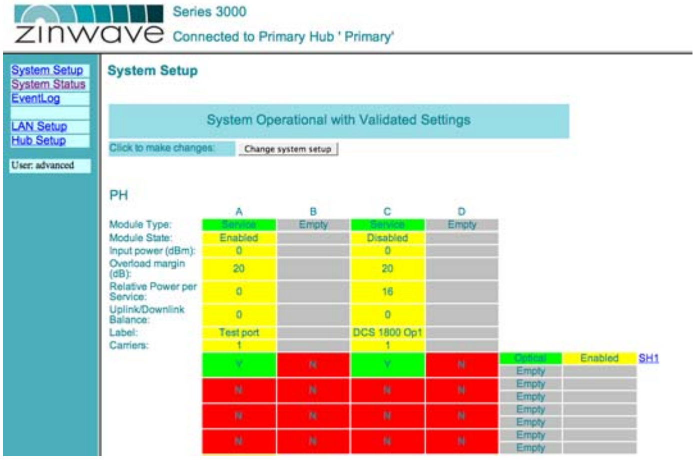


Calculated Results

Name	Downlink Pwr
RU11	0

3 If there are no errors, click **Apply**.
If there are errors, click **Go Back** to return to the System Setup page and check the settings. Click **Validate** again once you're sure they're OK.

Once the settings have been applied and there are no errors, the System Setup page will redisplay. Note that, now the settings are correct, you can't edit them (as the system is operational, with those values in operation):



System Setup

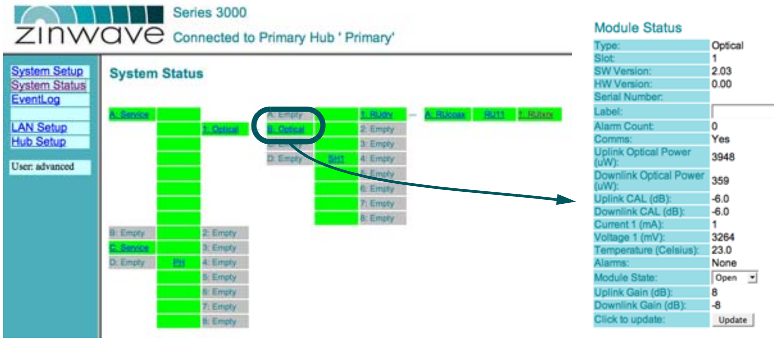
System Operational with Validated Settings

Click to make changes: Change system setup

PH

	A	B	C	D			
Module Type:	Service	Empty	Service	Empty			
Module State:	Enabled		Disabled				
Input power (dBm):	0		0				
Overload margin (dB):	20		20				
Relative Power per Service:	0		16				
Uplink/Downlink Balance:	0		0				
Label:	Test port		DCS 1800 Op1				
Carriers:	1		1				
	Y	N	Y	N	Optical	Enabled	SH1
					Empty		
	N	N	N	N	Empty		
					Empty		
	N	N	N	N	Empty		
					Empty		
	N	N	N	N	Empty		
					Empty		

4 Once you've finished, take a look at the System Status page. Click on the links to see detailed status information for a particular unit.

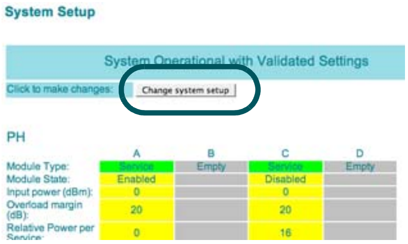


Module Status

Type:	Optical
Slot:	1
SW Version:	2.03
HW Version:	0.00
Serial Number:	
Label:	
Alarm Count:	0
Comms:	Yes
Uplink Optical Power (uW):	3948
Downlink Optical Power (uW):	359
Uplink CAL (dB):	-6.0
Downlink CAL (dB):	-6.0
Current 1 (mA):	1
Voltage 1 (mV):	3264
Temperature (Celsius):	23.0
Alarms:	None
Module State:	Open
Uplink Gain (dB):	8
Downlink Gain (dB):	-8
Click to update:	Update

1.1.7 Changing the System Setup

Once you’ve clicked **Validate** and made your settings active, they are not immediately editable in the System Setup page. If you want to make more changes, you can do so by clicking the **Change System Setup** button at the top of the System Setup page.



System Setup

System Operational with Validated Settings

Click to make changes:

PH

	A	B	C	D
Module Type:	Service	Empty	Service	Empty
Module State:	Enabled		Disabled	
Input power (dBm):	0		0	
Overload margin (dB):	20		20	
Relative Power per Service:	0		16	