

WDS ON ROUTERTECH “1350A” WIRELESS FIRMWARES

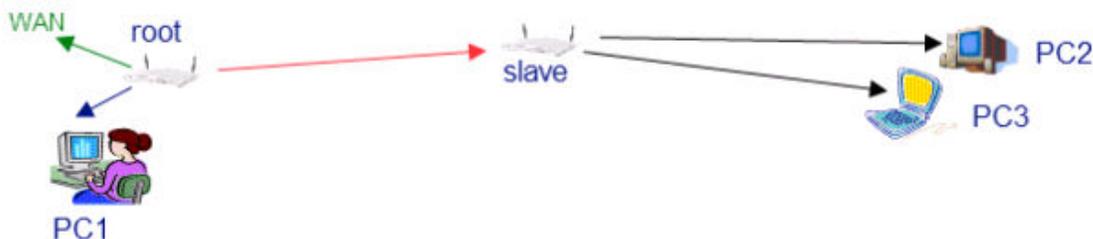
This tutorial explains how to use the *Wireless Distribution System* (“WDS”) features of the RouterTech firmwares (v2.97 or higher) for “TNETW1350A” wireless routers.

There are 3 WDS modes - “**Bridge**”, “**Repeater**” and “**Crude**”. This tutorial covers the “**Crude**” and “**Repeater**” modes. They seem to work well when all routers are running RouterTech. In the “**Crude**” mode, WDS connections are validated only through the wireless MAC addresses of the routers. In “**Repeater**” mode, WDS connections can be validated with a password “secret” shared between the ROOT and SLAVE access points.

This tutorial assumes that:

- **all** the routers involved have “**1350A**” (i.e., *TNETW1350A*) wireless chips, and are running RouterTech 1350A wireless firmware **v2.97 or higher**;
- there is at least one **ROOT** (or **SERVER**) wireless router (access point) that is connected to the internet, and there is at least one **SLAVE** (or **CLIENT**) wireless router (access point) that will be connected to the **ROOT** access point via WDS;
- the wireless functionality of all the routers has been enabled, properly configured, and secured with (preferably) WPA or WEP encryption. This tutorial will therefore not cover such basic wireless configuration issues;
- each of the routers involved in the process has a **uniquely different SSID** from all the others (i.e., each SSID is **completely unique**);
- you know the MAC addresses of the wireless chips in each of the routers involved in the process (shown as “*AP MAC*” in the “*Status->Product Information*” menu);
- and that the MAC addresses (wireless, DSL, ethernet) on each router are completely unique;
- you have deleted the default “*quickstart*” connection and all other ISP connections on the **SLAVE/CLIENT** routers.

WDS Topology:



In the above example, the **ROOT** router is connected to the WAN (internet). **PC1** is connecting to the internet through it. It is also connected to the **SLAVE** router via WDS. It is giving out IP addresses via DHCP to all clients connected to the **SLAVE** router. Through the **SLAVE** router, **PC2** and **PC3** can access the internet. They can also access shared resources on **PC1** (and vice versa).

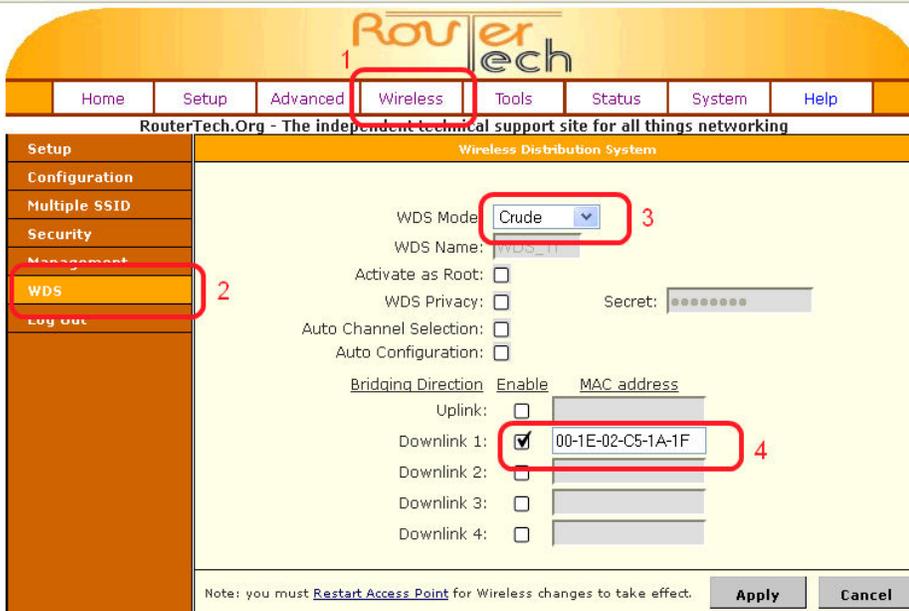
Setting up a ROOT (SERVER) access point (**CRUDE MODE**)

The **ROOT/SERVER** access point should be the one that is connected to the WAN (internet). Other access points (SLAVES/CLIENTs) will connect to this device, and, through it, to the internet.

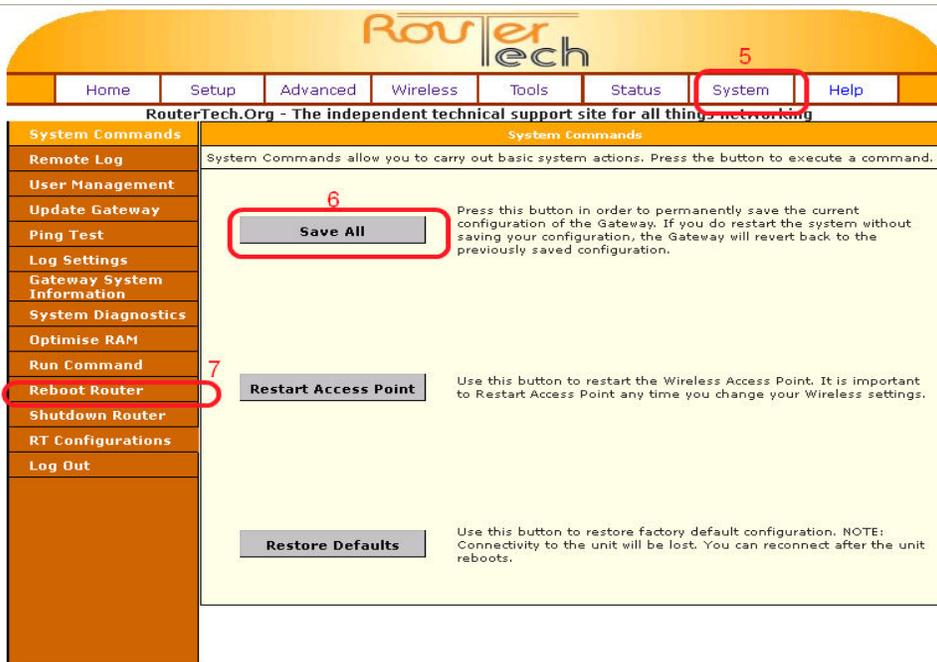
To set up WDS on the **ROOT/SERVER** router, take the following steps;

1. Click on “*Wireless*”

2. Click on “WDS”
 3. In the “WDS Mode” list, select “Crude”
 4. To create an entry for the first SLAVE/CLIENT device, tick “Downlink 1”, insert the MAC ADDRESS of the SLAVE/CLIENT device, and then click on “Apply”. For each additional SLAVE/CLIENT, repeat this process, selecting a new “Downlink” entry each time
 5. Click on “System”
 6. Click on “Save All”
 7. Click on “Reboot Router”, and confirm that you want to reboot the router
- * The following screenshots (Screen 1 and Screen 2) provide visual references for each of these above steps.



Screen 1



Screen 2

Setting up a SLAVE (CLIENT) access point (CRUDE MODE)

The routers that will act as **SLAVES/CLIENTS** for the **ROOT/SERVER** router will access the internet through the **ROOT/SERVER**.

To set up WDS on a **SLAVE/CLIENT** router, take the following steps:

1. Click on “*Wireless*”
2. Click on “*WDS*”
3. In “*WDS Mode*”, select “*Crude*”
4. To link to the **ROOT/SERVER** access point, tick “*Uplink*”, insert the **MAC ADDRESS** of the **ROOT/SERVER** access point, and then click on “*Apply*”.
5. Click on “*Setup*”
6. Click on “*LAN Configuration*”
7. Click on “*Ethernet 1*”
8. Click on “*Configure*”
9. Tick “*Use the following Static IP address*”, and, in the “*IP Address*” box, type the IP address that you wish to use to connect to the **SLAVE/CLIENT** access point. It must be within the same IP range as the **ROOT/SERVER** (e.g., 192.168.1.x), but should NOT be 192.168.1.1 (which is the IP address of the **ROOT/SERVER**). In the example screenshots below, an IP address of 192.168.1.180 was selected
10. Tick “*Server and Relay Off*”, and then click on “*Apply*”.
11. Click on “*System*”
12. Click on “*Save All*”
13. Click on “*Reboot Router*”, and confirm that you want to reboot the router

* The following screenshots (Screens 3-6) provide visual references for each of these above steps.

RouterTech

Home Setup Advanced **Wireless** Tools Status System Help

RouterTech.Org - The independent technical support site for all things networking

Setup Configuration Multiple SSID Security Management **WDS** Log out

Wireless Distribution System

WDS Mode: **Crude** 3

WDS Name: WDS_11

Activate as Root:

WDS Privacy: Secret:

Auto Channel Selection:

Auto Configuration:

Bridging Direction Enable MAC address

Uplink: **00-1E-02-C5-2F-1D** 4

Downlink 1:

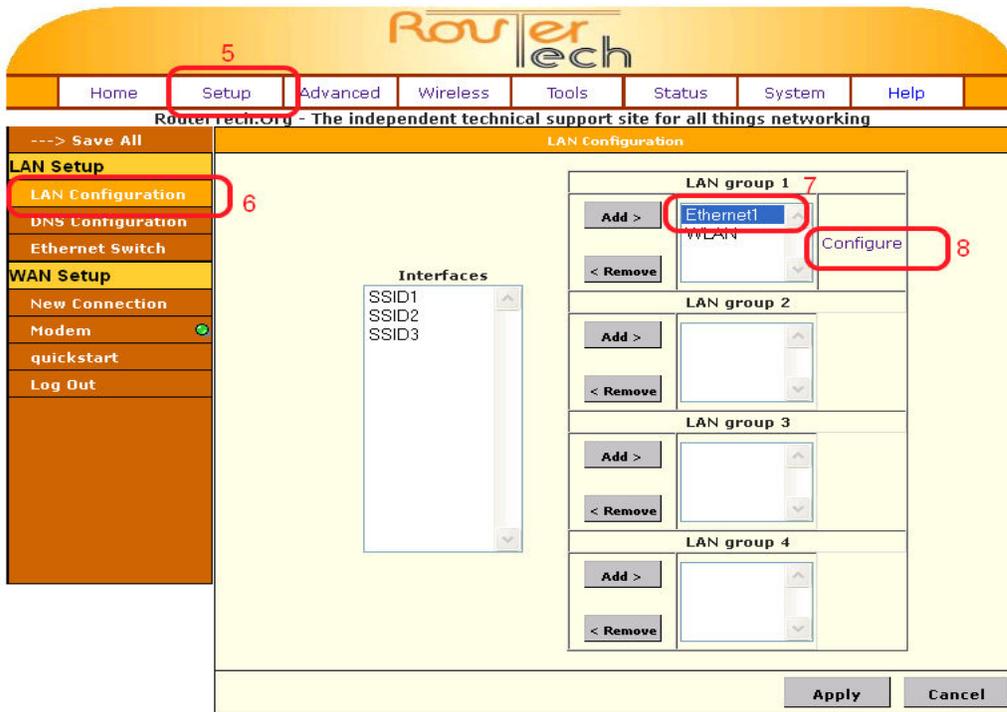
Downlink 2:

Downlink 3:

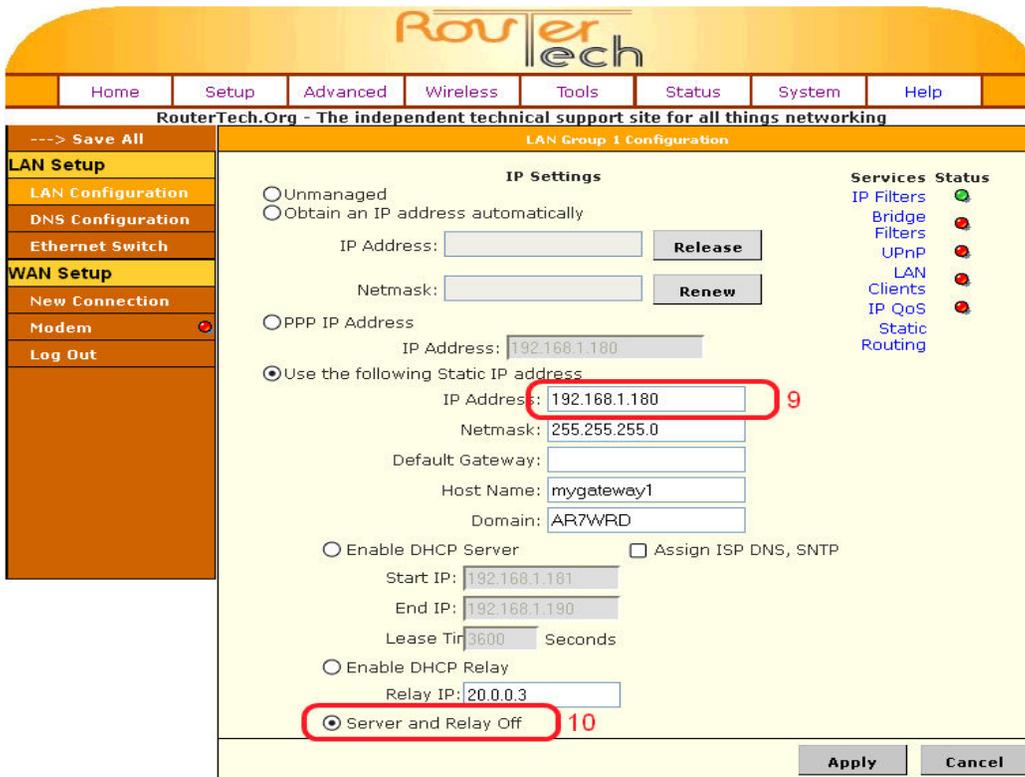
Downlink 4:

Note: you must [Restart Access Point](#) for Wireless changes to take effect. **Apply** **Cancel**

Screen 3



Screen 4



Screen 5

The screenshot shows the RouterTech website interface. At the top, the RouterTech logo is displayed. Below it is a navigation menu with buttons for Home, Setup, Advanced, Wireless, Tools, Status, System, and Help. The 'System' button is circled in red and labeled with the number 11. Below the navigation menu is a banner for RouterTech.Org. On the left side, there is a vertical menu of system commands. The 'Reboot Router' option is circled in red and labeled with the number 13. The main content area is titled 'System Commands' and contains three buttons: 'Save All' (circled in red and labeled 12), 'Restart Access Point', and 'Restore Defaults'. Each button has a corresponding text description explaining its function.

Screen 6

----- End of Tutorial for CRUDE mode -----

**THE TUTORIAL FOR “REPEATER” MODE
FOLLOWS ...**

Setting up a ROOT (SERVER) access point (**REPEATER MODE**)

The **ROOT/SERVER** access point should be the one that is connected to the WAN (internet). Other access points (SLAVES/CLIENTs) will connect to this device, and, through it, to the internet.

To set up WDS on the **ROOT/SERVER** router, take the following steps;

1. Click on “Wireless”
2. Click on “WDS”
3. In the “WDS Mode” list, select “Repeater”
4. Tick “Activate as Root”
5. Tick “WDS Privacy”
6. Enter a password in the box labelled “Secret” – you must also enter exactly the same password in the SLAVE/CLIENT access points
7. To create an entry for the first SLAVE/CLIENT device, tick “Downlink 1”, insert the MAC ADDRESS of the SLAVE/CLIENT device, and then click on “Apply”. For each additional SLAVE/CLIENT, repeat this process, selecting a new “Downlink” entry each time
8. Click on “System”
9. Click on “Save All”
10. Click on “Reboot Router”, and confirm that you want to reboot the router

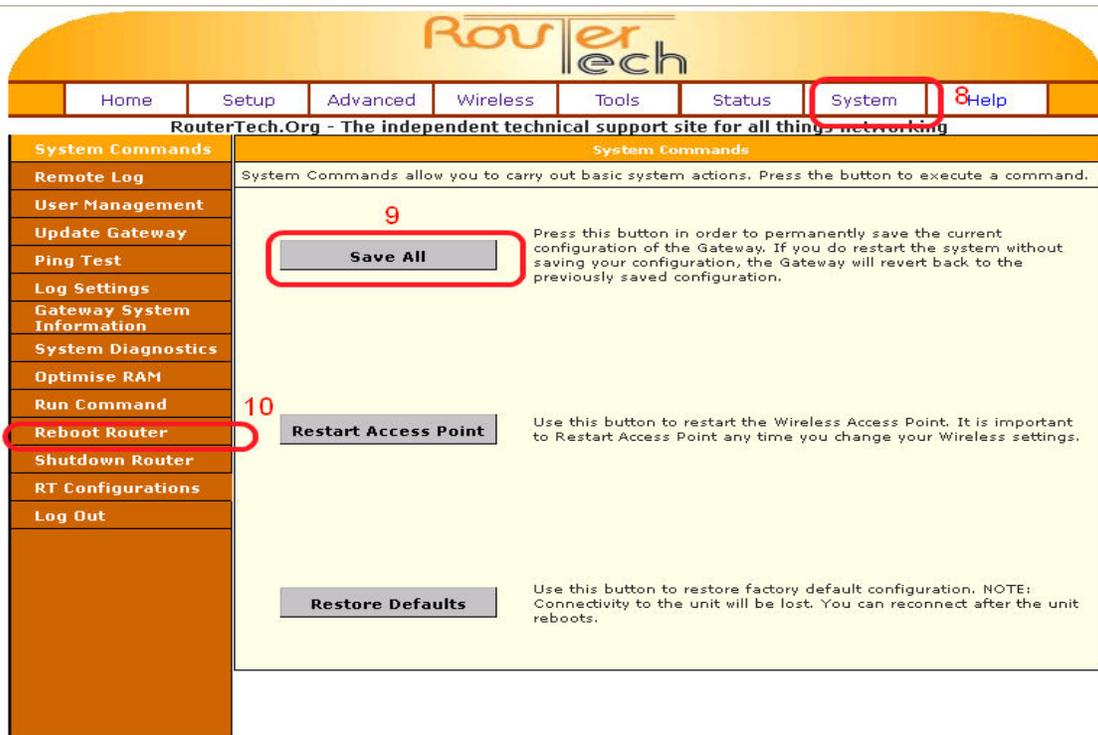
* The following screenshots (Screen 1 and Screen 2) provide visual references for each of these above steps.

The screenshot shows the RouterTech web interface for configuring the Wireless Distribution System (WDS). The page title is "RouterTech - The independent technical support site for all things networking". The navigation menu includes Home, Setup, Advanced, Wireless, Tools, Status, System, and Help. The "Wireless" menu item is highlighted with a red box and labeled '1'. The left sidebar menu includes Setup, Configuration, Multiple SSID, Security, Management, WDS (highlighted with a red box and labeled '2'), and Log Out. The main content area is titled "Wireless Distribution System" and contains the following configuration options:

- WDS Mode: Repeater (dropdown menu, highlighted with a red box and labeled '3')
- WDS Name: RT_WDS
- Activate as Root: (checkbox, highlighted with a red box and labeled '4')
- WDS Privacy: (checkbox, highlighted with a red box and labeled '5')
- Secret: [password field with dots, highlighted with a red box and labeled '6']
- Auto Channel Selection:
- Auto Configuration:
- Bridging Direction: Enable (checkbox), MAC address (text input)
- Uplink:
- Downlink 1: [MAC address: 02-30-1A-..., highlighted with a red box and labeled '7']
- Downlink 2: [MAC address: 00-1D-7E-...]
- Downlink 3: [MAC address: 00-1C-F0-...]
- Downlink 4:

At the bottom, there is a note: "Note: you must Restart Access Point for Wireless changes to take effect." and two buttons: "Apply" and "Cancel".

Screen 1 (this example creates entries for 3 clients)



Screen 2

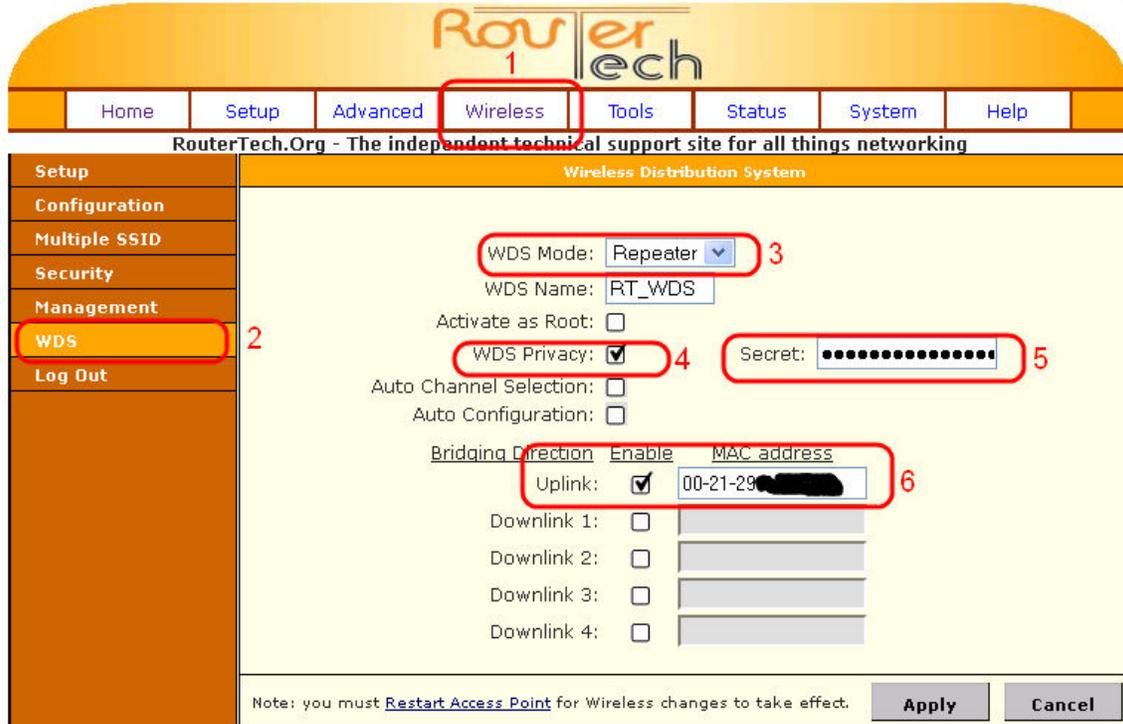
Setting up a SLAVE (CLIENT) access point (**REPEATER MODE**)

The routers that will act as **SLAVES/CLIENTS** for the **ROOT/SERVER** router will access the internet through the **ROOT/SERVER**.

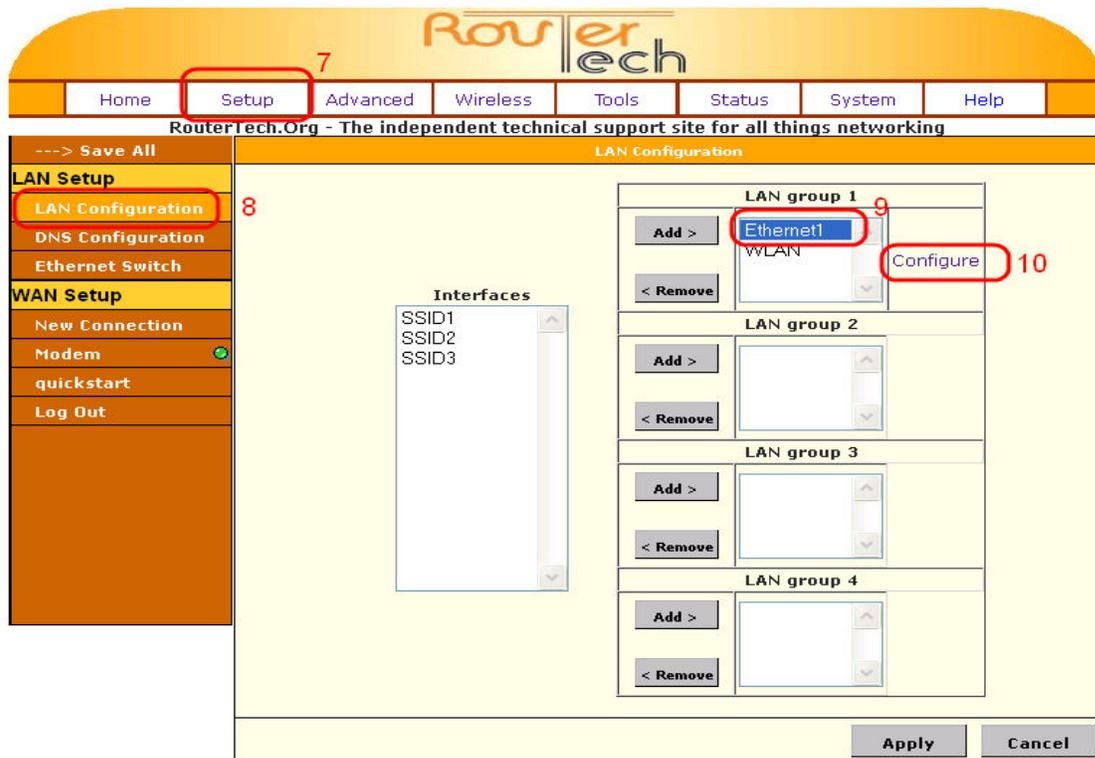
To set up WDS on a **SLAVE/CLIENT** router, take the following steps:

1. Click on “*Wireless*”
2. Click on “*WDS*”
3. In “*WDS Mode*”, select “*Repeater*”
4. Tick “*WDS Privacy*”
5. Enter a password in the box labelled “*Secret*” – this must be exactly the same password that was entered in the **ROOT/SERVER** access point
6. To complete the link to the **ROOT/SERVER** access point, tick “*Uplink*”, insert the **MAC ADDRESS** of the **ROOT/SERVER** access point, and then click on “*Apply*”.
7. Click on “*Setup*”
8. Click on “*LAN Configuration*”
9. Click on “*Ethernet 1*”
10. Click on “*Configure*”
11. Tick “*Use the following Static IP address*”, and, in the “*IP Address*” box, type the IP address that you wish to use to connect to the **SLAVE/CLIENT** access point. It must be within the same IP range as the **ROOT/SERVER** (e.g., 192.168.1.x), but should **NOT** be 192.168.1.1 (which is the IP address of the **ROOT/SERVER**). In the example screenshots below, an IP address of *192.168.1.180* was selected
12. Tick “*Server and Relay Off*”, and then click on “*Apply*”.
13. Click on “*System*”
14. Click on “*Save All*”
15. Click on “*Reboot Router*”, and confirm that you want to reboot the router

* The following screenshots (Screens 3-6) provide visual references for each of these above steps.



Screen 3



Screen 4

RouterTech

Home Setup Advanced Wireless Tools Status System Help

RouterTech.Org - The independent technical support site for all things networking

LAN Group 1 Configuration

IP Settings

Unmanaged
 Obtain an IP address automatically
 PPP IP Address
 Use the following Static IP address

IP Address: **11**
 Netmask:
 Default Gateway:
 Host Name:
 Domain:

Enable DHCP Server Assign ISP DNS, SNTP
 Start IP:
 End IP:
 Lease Time: Seconds

Enable DHCP Relay
 Relay IP:

Server and Relay Off **12**

Services Status

- IP Filters
- Bridge Filters
- UPnP
- LAN Clients
- IP QoS
- Static Routing

Apply Cancel

Screen 5

RouterTech

Home Setup Advanced Wireless Tools Status **System** Help **13**

RouterTech.Org - The independent technical support site for all things networking

System Commands

System Commands allow you to carry out basic system actions. Press the button to execute a command.

14

Save All

Press this button in order to permanently save the current configuration of the Gateway. If you do restart the system without saving your configuration, the Gateway will revert back to the previously saved configuration.

15

Restart Access Point

Use this button to restart the Wireless Access Point. It is important to Restart Access Point any time you change your Wireless settings.

Restore Defaults

Use this button to restore factory default configuration. NOTE: Connectivity to the unit will be lost. You can reconnect after the unit reboots.

System Commands

- Remote Log
- User Management
- Update Gateway
- Ping Test
- Log Settings
- Gateway System Information
- System Diagnostics
- Optimise RAM
- Run Command
- Reboot Router**
- Shutdown Router
- RT Configurations
- Log Out

Screen 6

DISCLAIMER

While the steps outlined in the above tutorial work fine in our tests, your mileage may vary. This tutorial is supplied **WITHOUT ANY WARRANTIES WHATSOEVER**. You follow the instructions in this tutorial **ENTIRELY AT YOUR OWN PERIL**. If they work for you, fine. If your router ends up getting fried, then do not complain.

If these terms are not acceptable to you, then please close this document immediately, and **DO NOT FOLLOW THESE INSTRUCTIONS**.

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Revision 1.1, 18 September 2011 (for RouterTech firmware v2.97 or higher)