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WDS (Wireless Distribution System) vs R (Repeater) vs RB (Repeater Bridge)

This is a summary of issues related to repeating using "WDS" vs "Repeater" vs "Repeater Bridge" modes. Please note that some lines still require confirmation ("TODO: Confirm"). If you experiment and your results differ from those indicated here, please add comments providing your HW and DD-WRT version.

- On both WDS and R/RB (both R and RB), the repeater and base can broadcast different SSIDs.
 - ◆ On WDS with WPA, both routers need to have the same SSID (TODO: Confirm).
 - ◆ On WDS, both routers need to have the same SSID, which will be broadcast by both routers (TODO: Confirm).
 - ◆ On R/RB, the base SSID will not only be used for joining the main-router, but also be repeated by the repeater (TODO: Confirm).
 - ◆ On R, two SSIDs with the same name will collide (give problems) (TODO: Confirm). On RB, having the same SSID on the main-router and the repeater allows "roaming", ie. keeping a connection active or reconnect? (TODO: CONFIRM) when a client switches to another router.
 - ◆ After RC6.2, virtual interfaces have BSSID with MAC address 02:XX:XX:XX:XX:01 for R mode. If the main-router and the repeater broadcast a BSSID with the same MAC, they probably will collide. For RB mode the MAC address is 00:XX:XX:XX:XX:01. - redhawk
- WDS and R/RB both will reduce effective bandwidth in half for all wireless clients (but not for wired clients). Wireless repeating means that each packet is repeated, ie re-transmitted, thereby taking twice as much air time.
- WDS must be configured on both routers (requires access) and requires a compatible WDS implementation. R/RB only needs to configure the repeater and doesn't rely on the main-router's HW or firmware version.
- WDS can support WEP, WPA, and WPA2 Personal (TKIP+AES) as of v24sp1 (and earlier?). [tested with wrt150n1.1 AP + wrt54g6 R] (TODO: test other hardware). R/RB support all encryption algorithms.
- WDS supports building a network of routers, where each repeater can connect to multiple other "main-routers" (WAN-routers) at the same time (TODO: Confirm). R/RB only connects to one router at a time, by SSID. Both WDS and R support connecting multiple repeaters in series ("repeat a repeater"), however a RB must connect to a DHCP serving unit (UPDATE - it is now possible to connect and RB through another RB unit now svn11296 tested 01/09/09- redhawk) (TODO: Clarify - does this have anything to do with DHCP, or does it mean "each RB will only connect to a wired (non-repeating) AP"? Clarification: Yes it has something to do with DHCP. It will connect to a regular repeater (R) just fine. See [here](#) for further info.)

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- WDS does not perform MAC address translation (MAT). R/RB does translate MACs : the main-router sees all connections from clients which connects through the repeater belonging to the same MAC as the repeater. This causes problems with some applications which rely on a MAC address.

I'm still confused! Which mode should I use?

The following are just some general guidelines for helping you choose the proper repeater mode.

- Use WDS if
 - ◆ you have control over all routers **and** they each have compatible WDS implementations(BCM to BCM or QCA to QCA; No mixing).
 - ◆ you want to repeat your wireless signal and/or connect multiple networks together.
- Use R (Repeater) if
 - ◆ you don't have control over the host access point/router.
 - ◆ you want to repeat a wireless signal coming from your ISP.
 - ◆ you're staying at a hotel and want to boost an otherwise weak wireless signal to your laptop.
- Use RB (Repeater Bridge) if
 - ◆ your host router/access point doesn't support WDS.
 - ◆ you want to repeat a wireless signal and have all clients on the same network (same subnet).

Router Mode Comparison Table

	WDS	Client Mode	Client Bridge	Repeater	Repeater Bridge	Two routers (1 Client Mode, 1 AP Mode)
Requires admin control over all routers, and the routers must have compatible WDS implementations						
Does not require control over host access point/routers; can connect to a host you don't control						
Supports multiple wired client devices			*		*	
Supports multiple wireless client devices					*	
Bandwidth is halved for wireless clients		n/a	n/a			Not if you use two channels
All routers and clients share the same subnet	in LAN mode					
Each router is on its own subnet with its client devices	in P2P mode					

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Creates a true transparent bridge compatible with all protocols						
Uses MAC address translation (MAT) (proxy ARP) (not compatible with some applications and protocols that depend on MAC addresses) (potential ARP problems) *			*		*	
Allows different SSID on repeated network	depends on encryption choice	n/a	n/a			
Encryption support	WEP, WPA2 (caveats)	any	any	any	any	any
Can repeat signal from a wireless ISP						
Can repeat a weak wireless signal in a hotel						

* As some problems only surface when multiple client devices are connected, having only one client device is a way to resolve some compatibility issues.

See Also

Linking Routers Category below.