TIMECIPS®

BRIDGE-WRT

Wireless Network Bridge



Installation Guide

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Overview

The BRIDGE-WRT wireless network bridge allows a TimeIPS network clock to communicate with a TimeIPS master via a wireless network.

The wireless network bridge uses a special version of a Linksys brand WRT54GL Wireless-G Broadband Router. This unit connects anywhere on the network where a wireless access point is also installed.

The BRIDGE-WRT provides:

- Wireless access to your network
- Security through optional wireless encryption and MAC filtering

If your wireless access point is a cellular/mobile hotspot, some of the instructions in this guide will not apply. Please contact our Technical Support department for assistance.

Requirements

- An IEEE 802.11 b/g wireless access point configured on your network
- An available static IP address on your network
- A computer (in DHCP mode) with a web browser and a wired connection to your network
- If you use a laptop or notebook computer to configure the BRIDGE-WRT, make sure its wireless network interface is turned off, if applicable.

NOTE: These setup instructions assume the bridge has been reset to factory defaults.

Configuration

- 1. Connect one end of the included network cable to port 1 on the bridge. DO NOT connect the network cable to the port marked INTERNET.
- 2. Disconnect your computer from your network and connect the other end of the network cable from the bridge to your computer.
- 3. Connect the power adapter to the bridge. Allow the bridge to boot fully (about 60 seconds).
- 4. Open your web browser on your computer and navigate to 192.168.1.1.
- 5. You should be asked to change the username and password for the bridge. Be sure to record the username and password you set in a safe place. Click Change Password. You should be directed to a screen similar to this:

dd-wrt.	com con	trol panel	Time:	00:04:26 up 4 min, load average:	0.12, 0.12, 0.06 WAN IP: 0.0.0.0	
Setup Wireless Se	ervices Security A	ccess Restrictions	T / Qo5 Admini	stration Status		
System Information						
Router		Servi	es			
Router Name	DD-WRT	DHCP	Server	Enabled		
Router Model	Linksys WRT54G/	GL/GS WRT-r	adauth	Disabled		
LAN MAC	00:25:9C:27:1A:	52 Sputni	k Agent	Disabled		
WAN MAC	00:25:9C:27:1A:	53				
Wireless MAC	00:25:9C:27:1A:	54 Memo	iry			
WAN IP	0.0.0.0	Total #	wailable	12.7 MB / 16.0 MB		
LAN IP	192.168.1.1	Free		3.9 MB / 12.7 MB		
		Used		8.8 MB / 12.7 MB		

- 6. If you can not reach the web interface for the bridge, restart your computer and try again.
- 7. If you still are unable to access the web interface for the bridge, make sure the network settings on your computer are set to DHCP mode. For assistance, contact your network administrator or our Technical Support department at 316.264.1600.
- 8. Select the Setup tab toward the top of the screen and log in with the username and password you set in Step 5. You should see something like this:

dd-w	∼t	5.com	Firmware: DD-WRT + 38 up 1 min, load ave	/24-sp2 (10/10/09) mir erage: 0.19, 0.13, 0.0 WAN IP: 0.0.0.							
Setup Wirel	etup Wireless S		Security	Access Restr	ictions	NAT / QoS	Administratio	in Status			
Basic Setup D	DNS	MAC Address	Clone	Advanced Routing	VLANs	Networking	EoIP Tunnel				
WAN Setup								Help	more		
WAN Connection Type Connection Type Automatic Configuration - DHCP v STP © Enable						Automatic Configuration - DHCP: This setting is most commonly used by Cable operators.					
Optional Settin	gs							Host Name: Enter the host name provided by your ISP.			
Router Name Host Name			DD-WRT					Domain Name: Enter the domain r your ISP,	name provided by		
Domain Name MTU Auto V 1500						Local IP Address: This is the address of the router.					

- 9. Under WAN Connection Type, change the Connection Type setting to "Disabled."
- 10. You may change the name of the bridge under Optional Settings, Router Name, if you would like.
- 11. Under Router IP, set the Local IP Address to a valid available static IP address on your network. Set the Gateway to the IP address of your Internet Gateway. This may be your wireless access point if it is also your Gateway to the Internet. You may leave the Local DNS fields set to zero.

Network Setup		Subnet Mask:
Router IP		This is the subnet mask of the router.
Local IP Address	192 . 168 . 1 . 2	DHCP Server:
Subnet Mask	255 . 255 . 255 . 0	Allows the router to manage your IP addresses.
Gateway	192 . 168 . 1 . 1	
Local DNS	0.0.0.0	Start IP Address: The address you would like to start

12. Under Network Address Server Settings (DHCP), change the DHCP Server setting to "Disable." Click Save at the bottom of the page.

Network Address Server 9	Settings (DHCP)	out.
DHCP Туре	DHCP Server	Time Settings:
DHCP Server	C Enable Disable	Choose the time zone you are in and Summer Time (DST) period. The router

13. Select the Wireless tab toward the top of the screen. You should see something like the following:

dd-wrt.cor	up 15 min, ioad aver	age: 0.24, 0.10, 0 WAN IP: 0.0.				
Setup Wireless Services	Security Access	Restrictions N	T / Qo5	Administration	Status	
Basic Settings Radius Wirele	iss Security MAC Filter	Advanced Settings	WDS			
Wireless Physical Interface	e w10				Help	more
Wireless Mode Wireless Notwork Mode Wireless Network Name (SSID) Wireless Channel Wireless SSID Broadcast	AP V Moved V dd-wrt 6 - 2.437 GHz V © Enable O Disable]			If you wish to exclud clents, choose <i>B-Ox</i> would like to disable choose <i>Disable</i> . Note : when changli some advanced para succeptible to be mo ("Afterburner", "Bas Burst").	de Wireless-G dymode. If you wireless access, ameters are idfied ic Rate" or "Fram
Sensitivity Range (ACK Timing) Network Configuration	2000 O Unbridged ③ Brid	(Default: ;	000 meters)	Sensitivity Range Adjusts the ack timir timing completely for firmwares. On Ather	s: ng. 0 disables ack r broadcom ros based

- 14. Change the Wireless Mode setting to "Client Bridge."
- 15. Change the Wireless Network Mode setting to suit your network (B-Only, G-Only or Mixed).
- 16. You may enter the Wireless Network Name (SSID) of the network you want to connect to but it is not required.
- 17. Change the Wireless Channel to suit your network.
- 18. You may disable Wireless SSID Broadcast if you wish.
- 19. Leave Network Configuration set to "Bridged" and click Save.
- 20. If your network uses wireless encryption, select the Wireless Security tab. If not, you may skip to Step 23. We strongly recommend enabling wireless encryption if your network does not already use it.
- 21. Selecting the Wireless Security tab should take you to a screen similar to the following:

dd-	Time: 02.00									Firmware: DD-WRT v24-sp2 (10/10/09) mi 0:35 up 2:00, load average: 0.00, 0.00, 0.0 WAN: Disable		
Setup	Wireless	Services	Security	Access F	Restrictions	NAT /	QoS	Administration	Status			
Basic Sett	ings Radiu	s Wireless	s Security	MAC Filter	Advanced S	ettings	WDS					
Wireles	s Security	w10							Help	more		
Physical Security I	Physical Interface wI0 SSID [linksys] HWAddr [00:25:9C:27:1A:64] Security Mode Disabled \$						Security Mode You may choos WPA Personal, RADIUS. All dev must use the sa	e from Disable, WEP, WPA Enterprise, or rices on your network me security mode.				
			Save	Apply Se	ttings							

- 22. Configure your security settings (such as Security Mode, WPA Algorithms and Shared Key) to match your network and click Save.
- 23. The following example depicts the required settings for WPA2 Personal encryption.

dd-wrt.com	n contr	ol pane	el	Fi Time: 01:04:1	irmware: DD-WRT v. 1 up 1:04, load aver	24-sp2 (10/10/09) mini rage: 0.16, 0.05, 0.01 WAN: Disabled
Setup Wireless Services	Security Access	s Restrictions	NAT / QoS	Administration	Status	
Basic Settings Radius Wireles	s Security MAC Filter	Advanced Set	tings WDS			
Wireless Security wl0					Help	more
Physical Interface wI0 SSID [dd-wrf Security Mode WPA Algorithms WPA Shared Key Key Renewal Interval (in seconds)	HWRAddr [00:25:9C:41] WPA2 Personal TKIP 3600 Save Apply 1	(Def	Unmask ault: 3600, Range	n 1 - 99999)	Security Mode: You may choose fird WPA Personal, WP/ RADIUS, All devices must use the same	m Disable, WEP; A Enterprise, or s on your network security mode.

- 24. If your network uses MAC filtering, set those parameters on the MAC Filter tab and click Save.
- 25. The following example depicts the MAC Filter tab if MAC Filtering is enabled.

dd-w	Time: 00:17	Firmware: DD-WRT v24-sp2 (10/10/09) mini :45 up 17 min, load average: 0.00, 0.02, 0.02 WAN: Disabled
Setup Win	less Services Security Access Restrictions NAT / QoS Administration	Status
Basic Settings	Radius Wireless Security MAC Filter Advanced Settings WDS	
Wireless MA	C Filter	Help more
wl0 - MAC Filter		
Use Filter	Enable O Disable	
Filter Mode	Prevent clients listed from accessing the wireless network	
	\bigcirc Permit only clients listed to access the wireless network	
-	Edit MAC Filter List	
	Save Apply Settings Cancel Changes	

26. If you changed any settings on the Wireless Security tab, select the Advanced Settings tab. You should see something like the following.

dd-v	rt.			Firmware: DD-WRT ∨24-sp2 (10/10/09) mini Time: 00:19:47 up 19 min, load average: 0.13, 0.03, 0.00 WAN: Disabled					
Setup Wir	eless Se	ervices Security	Access Re	estrictions	NAT /	QoS	Administration	Status	
Basic Settings	Radius	Wireless Security	MAC Filter	Advanced S	Settings	WDS	1		
Advanced W	ireless Se	ettings						Help	more
Advanced Settin	gs							Authenticatio	n Type:
Authentication	Authentication Type		to O Shared	O Shared Key (Default: Auto)				se from Auto or Shared y authentication is more	
Basic Rate Defau		ult 💌		(Default: Default)		secure, but all devices on your network must also support Shared Key			
Transmission Fix	ed Rate	Auto	>		(Default:	Auto)		authentication.	

- 27. Change the Authentication Type setting to "Shared Key." Click Save at the bottom of the page.
- 28. We recommend recording all of the wireless and LAN settings for this bridge in a safe place.
- 29. Select the Status tab toward the top of the page.
- 30. Select the Wireless tab on the Status screen. This is not the same Wireless tab you selected in Step 13. You should see something similar to the following.

		-0.						
dd	-wrt	J.com	Firn Time: 01:06:14	4-sp2 (10/10/09) mini age: 0.14, 0.06, 0.00 WAN: Disabled				
Setup	Wireless	Services	Security	Access Restrictions	NAT / QoS	Administration	Status	
Router	WAN L	Wireless	Bandwidth	Sys-Info			-	
Wirele	:55						Help	more
Wireless 9 MAC Add	Wireless Status MAC Address <u>00:25:9C:41:2A:4C</u>					M T S	1AC Address: his is the Router's I een on your local, v	MAC Address, as wireless network.
Radio Mode Network			Radio is On Client Bridge Mixed		A S	Network: As selected from the Wireless tab, this will display the wireless mode (Mixed, Good & Boole or Disabled) used by		

- 31. Click Site Survey at the bottom of the page.
- 32. Click Join next to the wireless network you are trying to connect to.

	dweta		Firmware: DD-WRT v24-sp2 (10/10/09) min Time: 01:07:25 up 1:07, load average: 0.04, 0.04, 0.04									
	😉 DD-WRT (build 13064											
	(i) 192.168.1.1/Site_Surve	y.asp										
	Neighbor's Wireless Networks											
Wi	SSID	Mode	MAC Address	Channel	Rssi	Noise	beacon	Open	dtim	Rate	Join Site	
	-	AP	00:0C:41:AC:52:D9	1	-38	-97	100	Yes	1	0 54(b/g)	Join	
			Refres	h Ck	se							

33. If the wireless settings were entered correctly, you should see a confirmation screen similar to the following.



34. Click Continue.

35. You should be taken back to the Wireless, Basic Settings tab.

dd-wrt.com control panel						Firmware: DD-WRT v24-sp2 (10/10/09) mini 39 up 1:02, load average: 0.00, 0.02, 0.00 WAN: Disabled		
Setup Wireless Services	Security Access F	Restrictions	NAT / QoS	Administration	Status			
Basic Settings Radius Wirele	ss Security MAC Filter	Advanced Setti	ngs WDS					
Wireless Physical Interface	: w10				Help	more		
Physical Interface wI0 - SSID [dd-wrt] HWAddr [00:25:9C:41:2A:4C] Wireless Node Clent Bridge Wireless Network Mode Mixed Wireless Network Name (SSID) dd-wrt Sensitivity Range (ACK Timing) 2000 (Default: 2000 meters) Network Configuration Unbridged Interface Bridged)	Wireless Networ If you wish to excl. clients, choose B-C would like to disable choose Disable. Note : when chang some advanced par succeptible to be m ("Afterburner", "Ba Burst").	k Mode: Jde Wireless-G Paly mode. If you e wireless access, jing wireless mode, rameters are odified sic Rate" or "Frame		
Save	e Apply Settings	Cancel Changes			Sensitivity Rang Adjusts the ack tim timing completely fi firmwares. On Athe firmwares it will tun timing mode	ie: ing. 0 disables ack or broadcom eros based n into auto ack		

- 36. Click Apply Settings.
- 37. Navigate to the IP address you assigned to the bridge in Step 11.
- 38. If you are unable to reach the web interface for the bridge, restart your computer and try again.
- 39. Under Wireless Nodes at the bottom of the page, you should see an entry for your wireless access point.

ess Point								
MAC Address	Interface	Uptime	TX Rate	RX Rate	Signal	Noise	SNR	Signal Quality
00:0C:41:AC:52:	09 eth1	N/A	N/A	N/A	-43	-97	54	63%

- 40. If you do not see an entry for your wireless access point, wait 5 10 seconds for the page to refresh.
- 41. Open a new tab in your browser and navigate to any web address to test the wireless bridge's connection to your wireless access point.
- 42. Reconnect your computer to your wired network.
- 43. Connect the network cable from the bridge to a TimeIPS network clock.

44. Connect the power adapter to the network clock. Proceed with the setup of your network clock.

Troubleshooting

If the WLAN light on your bridge is flashing about once per second, it means the bridge is attempting to connect to your wireless network. Access the web interface for the bridge and verify the wireless settings.

If your network clock is unable to reach your TimeIPS master, try the following:

- Try accessing the web interface for your TimeIPS master from a PC on your network
- Access the web interface for the bridge and verify the wireless settings
- Power cycle the bridge
- Restart the network clock

Bridged Network Diagram

Your Existing Network



Settings Quick Reference

This section is provided as a quick reference for the various settings of your wireless bridge. Keep this information in a safe and secure location.

Setup – Basic Setup							
Router Name:							
Local IP Address:							
Subnet Mask:							
Gateway:							
Local DNS:							
Wireless – Basic Settings							
Wireless Mode:	reless Mode: Client Bridge						
Wireless Network Mode:							
Wireless Network Name (SSID):							
Network Configuration: Bridged							
Wireless – Wireless Security							
Security Mode:							
Encryption / Algorithms:							

Passphrase / Shared Key: _____

Technical Support

Technical Support Resources:

- 1. Our support web site at http://support.timeips.com offers extensive resources including documentation and our knowledge-base. Please check our support web site first, as it provides complete answers and instructions on almost everything. In the "Knowledge Base Search:" box, enter a few words describing your question. For example, if you have a question on wireless bridging, type "wireless bridge" and browse the articles listed.
- 2. If you have a question not answered on our support site, you can call or email us. A serial number or registration number is required for this service. Additional support can be purchased by calling TimeIPS, or by visiting our web site at http://secure.timeips.com.
- 3. If you have a simple question, or need direction on how to use our support resources, feel free to email us at support@timeips.com. If your question is quick, we'll be happy to help. If it's not, we'll let you know that you need to purchase additional support.

Support website Support e-mail Support phone number http://support.timeips.com support@timeips.com 316.264.1600



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Thank you for reading this manual carefully. If you noticed errors, have any suggestions or found typographical problems, we want to know! Please send an email with the version code below and your feedback to documentation@timeips.com We appreciate your time.

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