

**NAME**

**bwn** - Broadcom BCM43xx SoftMAC IEEE 802.11 wireless network driver

**SYNOPSIS**

To compile this driver into the kernel, add the following lines to the kernel configuration file:

```

device bwn
device bhnd
device bhndb
device bhndb_pci
device bcma
device siba
device gpio
device wlan
device wlan_amrr
device firmware

```

To load the driver as a module at boot, add the following lines to loader.conf(5):

```
if_bwn_load="YES"
```

**DESCRIPTION**

The **bwn** driver provides support for Broadcom BCM43xx based PCI/CardBus network adapters.

It supports **station** and **monitor** mode operation. Only one virtual interface may be configured at any time. For more information on configuring this device, see ifconfig(8).

This driver requires firmware to be loaded before it will work. The *ports/net/bwn-firmware-kmod* port needs to be installed before ifconfig(8) will work. In most cases the *bwn\_v4\_ucode* kernel module from the port should be used. However, if an LP (low power) PHY is being used, the *bwn\_v4\_lp\_ucode* module should be used.

**HARDWARE**

The **bwn** driver supports Broadcom BCM43xx based wireless devices, including:

<i>Card</i>	<i>Chip</i>	<i>Bus</i>	<i>Standard</i>
Apple Airport Extreme	BCM4318	PCI	b/g
ASUS WL-138g	BCM4318	PCI	b/g
Buffalo WLI-CB-G54S	BCM4318	CardBus	b/g
Dell Wireless 1390	BCM4311	Mini PCI	b/g

Dell Wireless 1470	BCM4318	Mini PCI	b/g
Dell Truemobile 1400	BCM4309	Mini PCI	b/g
HP Compaq 6715b	BCM4312	PCI	b/g
HP nx6125	BCM4319	PCI	b/g
Linksys WPC54G Ver 3	BCM4318	CardBus	b/g
Linksys WPC54GS Ver 2			
	BCM4318	CardBus	b/g
US Robotics 5411	BCM4318	CardBus	b/g

Users of older Broadcom chipsets (BCM4301, BCM4303 and BCM4306 rev 2) must use `bwi(4)` because the v4 version of the firmware does not support these chips. The newer firmware is too big to fit into these old chips.

## EXAMPLES

Join an existing BSS network (i.e., connect to an access point):

```
ifconfig wlan create wlandev bwn0 inet 192.168.0.20 \
    netmask 0xfffff00
```

Join a specific BSS network with network name "my\_net":

```
ifconfig wlan create wlandev bwn0 ssid my_net up
```

Join a specific BSS network with 64-bit WEP encryption:

```
ifconfig wlan create wlandev bwn0 ssid my_net \
    wepmode on wepkey 0x1234567890 weptxkey 1 up
```

## LOADER TUNABLES

Tunables can be set at the `loader(8)` prompt before booting the kernel or stored in `loader.conf(5)`.

*hw.bwn.usedma*

This tunable enables DMA operations on the hardware. If the value is 0, PIO mode would be used. The default value is 1.

## SEE ALSO

`arp(4)`, `bcma(4)`, `bhnd(4)`, `bhndb(4)`, `bwi(4)`, `cardbus(4)`, `intro(4)`, `pci(4)`, `siba(4)`, `wlan(4)`, `wlan_amrr(4)`, `ifconfig(8)`, `wpa_supplicant(8)`

## HISTORY

The **bwn** driver first appeared in FreeBSD 8.1. The driver was updated to support the common Broadcom bhnd(4) bus interface in FreeBSD 12.0.

#### **AUTHORS**

The **bwn** driver was written by Weongyo Jeong <[weongyo@FreeBSD.org](mailto:weongyo@FreeBSD.org)>. Support for bhnd(4) was added by Landon Fuller <[landonf@FreeBSD.org](mailto:landonf@FreeBSD.org)>.

#### **CAVEATS**

Some LP PHY devices have DMA operation problems that in that case try to use PIO mode.