



Wireless Communications, Inc.

**Addendum for the  
BR500 and BR100  
Technical Reference Manual**

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**Aironet Wireless Communications, Inc.**

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**NOTICE:**

This document is intended to be used as a supplement to the Technical reference manual. It contains updates pertaining to Aironet firmware release versions 7.x.

There has been a major change in the firmware operation. Aironet recommends that when using a product with version 7.x for Access Points, Bridges, Universal Clients or Multi-clients, or version 2.x for PCI, ISA and PCMCIA clients, that ALL products in the system be upgraded to the latest firmware, for maximum performance. Please see the parameter 'Modulation' on page 12 of this addendum. New version of firmware can be found on the Aironet Web site at: <http://www.aironet.com/support/ftp/index.html>.

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The following are replacements or additions to the sections listed below.

## Web Access

The Web Browser menus have also changed in format. Here is the typical menu screen, replacing the one shown on page 2-7.

Aironet BR500E V7.05		BR500E_230528		IP Address Shows Here	
<a href="#">HOME</a>	<a href="#">Help</a>	<a href="#">Configuration</a>		<a href="#">Filter</a>	<a href="#">Diagnostics</a>
<a href="#">Allow Config</a>	<a href="#">Radio</a>	<a href="#">Ethernet</a>	<a href="#">Multicast</a>	<a href="#">Linktests</a>	<a href="#">Statistics</a>
<a href="#">Changes</a>	<a href="#">Ident</a>	<a href="#">Console</a>	<a href="#">Node</a>	<a href="#">Load</a>	<a href="#">Association</a>
	<a href="#">Stp</a>	<a href="#">Mobile-IP</a>	<a href="#">Protocols</a>		<a href="#">Logs</a>
	<a href="#">Time</a>	<a href="#">Tip</a>			
Uptime : 0:08:47			IP: 149.023.130.100		
Radio					
SID	: tsunami	Bitrate	: 1.11 Mb/s	Radio	: 4500
Root	: on	Frequency	: 2437 MHz	Carrier	: US_Can
Mode	: bridge_only			Power	: full
Autoreg	: on	Nodes	: 0 connected		
Ethernet					
Active	: on (STP Forward)	Rcv/Xmt	: 17/0	Pkt/sec	
Filters					
Multicast	: forward (0 set)	Protocols	: off	(1 set)	
Radio	: forward (0 set)	Source	: off	(0 set)	
Ethernet	: forward (0 set)				

## Using the Configuration Console Menu

```

Aironet Bridge V7.05          Configuration Console Menu          BRXXXX_1419d8

      Option          Value          Description
1 - Rpassword          - Set readonly privilege password
2 - Wpassword          - Set write privilege password
3 - Remote          [ on ] - Allow remote operators
4 - Display          - Display the remote operator list
5 - Add          - Add an operator host
6 - Delete          - Remove an operator host
7 - Communities          [ menu ] - SNMP community properties
8 - Type          [ teletype ] - Terminal type
9 - Port          [ menu ] - Serial port set-up
01 - Linemode          [ off ] - Console expects complete lines

Enter an option number or name, "=" main menu, <ESC> previous menu
>

```

### Remote

The Remote Access Control Menu is used to restrict remote access to a list of specific hosts. The list controls access to the Bridge via telnet, HTTP, or FTP or SNMP. If the list is empty, any host in the infrastructure is allowed to attempt to connect. When the appropriate password is provided, the connection is allowed. If the list contains entries, any host not on the list will not be allowed access. An entry in the list may be specified as either an IP address or a MAC address.



### Display

Will display a list of any stations MAC or IP addresses permitted to access the Console port remotely.

### Add

Use the *add* option to add a host the remote host list. You will be prompted for the name of the host to add.

### Delete

Use the *remove* option to remove a host from the remote host list. You will be prompted for the name of the host to remove.

### Communities

See Page 7-3 of the Tech Ref. Manual.

The following menu items have been removed:

**Telnet-** (Page 2-10 and 2-14) Allowing telnet connections is now handled by the remote parameter (above)

**HTTP-**(Page 2-10 and 2-14) HTTP access is now handled by the remote parameter (above)

## Viewing the Configuration Menu-

Page 3-2

```

Aironet Bridge V7.05          Configuration Menu          BRXXXX_1419d8

  Option      Value      Description
1 - Radio    [ menu ] - Radio network parameters
2 - Ethernet [ menu ] - Ethernet configuration
3 - Ident    [ menu ] - Identification information
4 - Console  [ menu ] - Control console access
5 - Stp      [ menu ] - Spanning Tree Protocol
6 - Mobile-IP [ menu ] - Mobile IP Protocol Configuration
7 - Time     [ menu ] - Network Time Setup
8 - Tip      [ menu ] - TIP Configuration
9 - Dump     [ menu ] - Dump configuration to console

Enter an option number or name, "=" main menu, <ESC> previous menu

```

## Utilizing the Mobile IP Menu-

Mobile-IP is a feature that allows roaming across different IP subnets. It requires a Mobile IP stack to be set up on the client device as well. This IP stack is available from FTP corporation and other IP stack vendors. It is not available through Aironet.

```

Aironet Bridge V7.05  Configuration Mobile-IP Menu  BRxxxx_230528

  Option  Value  Description
1 - AgentType  [ off ] - Home / Foreign Agent
2 - Mobile                    - Home Agent Active Mobile Nodes
3 - Visitors                    - Foreign Agent Visitor List
4 - Add                    - Add Mobile Nodes
5 - Remove                    - Remove Mobile Nodes
6 - Display                    - Display Home Agent Authorized Addresses
7 - Setup                [ menu ] - Agent Configuration
8 - Advert                [ menu ] - Advertisement Setup

Enter an option number or name, "=" main menu, <ESC> previous menu

```



### ***Agent Type***

Determine the type of agent the unit is configured for, Home or Foreign. Setting this to OFF disables the Mobile IP processing.

### ***Mobile***

Displays the IP Address and/or Masks of all Mobile Nodes presently active on this Home Agent.

### ***Visitors***

Displays a list of all Mobile Nodes for which this Foreign Agent is providing Mobility services, along with the Mobile Node's Home Agent, its current registration state, and its lifetime.

### ***Add***

Allows addition of an IP Address to the list of Mobile Nodes authorized to register to this Home Agent. The IP Addresses of all Mobile Nodes for which this Home Agent is to supply mobility services must be added to this list before the Home Agent will grant mobility to those Mobile Nodes.

### ***Remove***

Allows removal of an IP Address or Mask value from the list of Mobile Nodes authorized to register to this Home Agent.

### ***Display***

Displays the IP Address and/or Masks of all Mobile Nodes authorized to register to this Home Agent.

## **Setup Menu**

Aironet BR500E V7.05 Configuration Mobile-IP Setup Menu BR500E_230528		
Option	Value	Description
1 - Lifetime	[ 600 ]	- Max Registration Lifetime
2 - ReplayProt	[ timestamps ]	- Replay Protection Method
3 - Broadcasts	[ off ]	- Broadcast Forwarding
4 - RegRequired	[ on ]	- Registration Required
5 - HostRedirects	[ off ]	- Enable ICMP Host Redirects to MN
Enter an option number or name, "=" main menu, <ESC> previous menu		

### ***Lifetime***

This parameter has two functions:

The maximum amount of time the Home Agent will grant a Mobile Node to be registered on a foreign network before renewing its registration. Note that the lifetime a Mobile Node asks for during the registration process may be more or less than this value. However the Home Agent will only grant a lifetime up to this value.

The value used by both Home and Foreign Agents for the Registration Lifetime field of the Agent Advertisements. Mobile Nodes typically use this field from the Foreign Agent advertisements to generate the Lifetime value for the Registration Request.



### ***ReplayProt***

Two replay protection methods are allowed in Mobile IP: timestamps (mandatory) and nonces (optional). Due to a patent that may apply to nonce-based replay protection, we do not support nonces at this time. This value must be set to timestamps.

### ***Broadcasts***

If the Mobile Node requires broadcasts packets from its home network to maintain proper operation (i.e. NetBIOS), setting this value to on causes the Home Agent to tunnel all broadcasts from the home network directly to the Mobile Node while visiting a foreign network. Unless needed, this option should be left at the default value of off to avoid unnecessary traffic.

### ***RegRequired***

Mobile IP allows Mobile Nodes the option of registering to a Home Agent without the use of a Foreign Agent via a co-located care-of-address dynamically acquired while on the foreign network. This is useful in cases where Foreign Agents have not yet been deployed on the foreign network, however this scheme consumes IP addresses on that network. Setting this value to on will force Mobile Nodes on this network to always register using a Foreign Agent.

### ***HostRedirects***

This value indicates whether or not the Foreign Agent will send an ICMP message to Mobile Nodes registered through it specifying the Address of an IP Router for the Mobile Node to use. If set to “off” (default), the Mobile Node will always use the Foreign Agent as its default gateway (router). Setting this value to “on” may improve performance while visiting a foreign network, however there may be connectivity problems which result due to ARP broadcasts from the Mobile Node

## **Advert Menu**

```
Aironet BR500E V7.05 Configuration Mobile-IP Advert Menu BR500E_230528

Option      Value      Description
1 - AdvertType    [ multicast ] - Advertisement type
2 - AdvertInterval [ 5 ]      - Advertisement interval
3 - PrefixLen     [ off ]    - Advertise prefix length extension
4 - AdvertRtrs    [ on ]     - Advertise routers

Enter an option number or name, "=" main menu, <ESC> previous menu
```

### ***AdvertType***

This value specifies the type of datagram the Mobile Agent will use when sending out ICMP Agent Advertisements. The RFC 1256 recommendation and the default for the Access Point is to use the All Hosts Multicast address (224.0.0.1). In testing, it was discovered that some mobile nodes were not automatically joining this multicast group and thus were ignoring the agent advertisements. For these mobile nodes this value should be changed to ‘broadcast’ which will use the limited broadcast address (255.255.255.255) for all unsolicited agent advertisements.



### ***AdvertInterval***

This value specifies how frequently (in seconds) the Mobile Agent will send out an ICMP Router Advertisement multicast. These advertisements are used by the Mobile Nodes to locate the Mobile Agents, and to determine to which network they are currently attached. The more frequent the advertisement, the sooner the Mobile Node will be aware that it has attached to a new network and start the registration/de-registration process (if necessary). Since these are either multicast or broadcast datagrams (see below), the Access Point must be configured to forward these types of frames onto the RF network. We are currently working on a scheme to allow link layer notification of re-attachment resulting in a Router Solicitation from the Mobile Node. This will prompt a unicasted Router Advertisement from the Mobile Agent to the Mobile Node and allow multicast/broadcast forwarding on the Access Point to be turned off.

### ***PrefixLen***

This option allows the Prefix Length extension to the Mobility Agent (router) advertisement to be enabled or disabled. This extension is used to indicate the number of bits in the subnet mask for the Mobility Agent generating the advertisement. The presence of the Prefix Length extension may be helpful to some Mobile Nodes in determining if they have attached to a foreign network. The default value is off. (note: should be “on” for FTP TSR stacks, “off” for VxD stacks)

### ***AdvertRtrs***

RFC 2002 (Mobile IP) states that IP Routers MAY be included in the Router Advertisement (RFC 1256) portion of the Agent Advertisement. However, since the IP Address of the Agent itself is included in the router list, doing so may cause some hosts to select the Mobility Agent as its default router. In an attempt to minimize this situation, the Mobile Agent also includes the IP Address of its default router in the list of advertised routers with a higher “preference” value. If a host continues to select a Mobility Agent as its default router, the Agent can be configure to advertise zero routes by setting this value to “off”. The default value is “on”.

## **Utilizing the Time Menu**

```

Aironet Bridge V7.05          Configuration Time Menu  BRXXXX_1419d8

  Option                      Value                Description
1 - Time_server [ 000.000.000.000 ] - Time protocol server
2 - Sntp_server  [ 000.000.000.000 ] - Network time server
3 - Offset      [          0          ] - GMT offset in minutes
4 - Dst         [          off         ] - Use daylight savings time

Enter an option number or name, "=" main menu, <ESC> previous menu

```

### ***Time\_Server***

When entering an address of a Time protocol server into this parameter the Client will send a request to that server to acquire the time from that server.

### ***Sntp\_Server***

When entering an address of an Sntp protocol server into this parameter the Client will send a request to that server to acquire the time from that server.

### ***Offset***

Number minutes from Greenwich Mean Time. This must be set properly.



### ***Dst***

When set to “on”, accounts for Daylight Savings time changes in Spring and Fall.

**TIP-** Proprietary setting for OEM usage. These settings should be left at the default state.

## **Using the Configuration Radio Menu**

Page 4-3

The radio network is configured using the Configuration Radio Menu. To access this menu, select **Configuration** from the Main Menu then select **Radio** from the Configuration Menu.

Option	Value	Description
1 - Ssid	[ "tsunami" ]	- Service set identification
2 - Root	[ on ]	- Enable root mode
3 - Rates	[ 1_11 ]	- Allowed bit rates in megabits/second
4 - Basic_rates	[ 1 ]	- Basic bit rates in megabits/second
5 - Frequency	[ 2437 ]	- Center frequency in MHz
6 - Distance	[ 0 ]	- Maximum separation in kilometers
7 - I80211	[ menu ]	- 802.11 parameters
8 - Linktests	[ menu ]	- Test the radio link
9 - Extended	[ menu ]	- Extended parameters

Enter an option number or name, "=" main menu, <ESC> previous menu

### ***Distance***

As the distance increases between two RF devices, the time required for a signal to travel between them increases. This parameter allows the timing required for the ACKnowledge for a packet to be increased slightly to account for RF signal travel time. Enter the distance to the farthest remote device, in kilometers.

## **Using the Configuration Radio IEEE 802.11 Menu**

Page 4-5

Option	Value	Description
1 - Beacon	[ 100 ]	- Beacon period in Kusec
2 - Dtim	[ 2 ]	- DTIM interval
3 - Extend	[ on ]	- Allow proprietary extensions
4 - Bcast_ssid	[ on ]	- Allow broadcast SSID
5 - Rts	[ 2048 ]	- RTS/CTS packet size threshold
6 - Privacy	[ menu ]	- Privacy configuration
7 - Encapsulation	[ menu ]	- Configure packet encapsulation

### ***Bcast\_SSID***

Setting this parameter will allow the Access Point to accept packets with the SSID set to a NULL character.



## Privacy Menu

WEP (Wired Equivalent Privacy) is an optional IEEE 802.11 feature used to provide data confidentiality that is equivalent to the confidentiality of a wired LAN that does not employ crypto techniques to enhance privacy. WEP will only make the wireless LAN link in a system as secure as the wired link. This option is only available at 1 and 2Mb datarates. It will not operate at 5.5 or 11Mb (4800 series only).

Aironet Bridge V7.05 Configuration Radio I80211 Privacy Menu BRXXXX_1419d8		
Option	Value	Description
1 - Encryption	[ off ]	- Encrypt radio packets
2 - Client	[ open ]	- Client authentication modes allowed
3 - Key		

### ***Encryption***

This parameter will invoke encryption on all datapackets except association and some control packets. Setting this to off will turn off all encryption. Setting this to “on” will require all data transfers to be encrypted. All remotes or clients wishing to use the Access Point will be required to have encryption active and a key set properly.

### ***Client***

This parameter determines which method of authentication the client and Access Point will use. Aironet recommends the use of the OPEN parameter. The IEEE 802.11 specification allows also the Shared Key authentication. For more information on Shared Key, see the IEEE 802.11 specification

### ***Key***

The value here must match all authorized users on the system. This is the key to the encryption algorithm. Enter in up to 10 hex characters.

## Using the Configuration Radio Install Menu

Page 4-9

The items in this menu have been moved to various other listings, mainly the Linktest menu.



## Using the Linktest Menu

```
Aironet Bridge V7.05 Configuration Radio Linktests Menu BRXXXX_1419d8
```

Option	Value	Description
1 - Strength		- Run a signal strength test
2 - Carrier		- Carrier busy statistics
3 - Multicast		- Run a multicast echo test
4 - Unicast		- Run a unicast echo test
5 - Remote		- Run a remote echo test
6 - Destination	[ any ]	- Target address
7 - Size	[ 512 ]	- Packet size
8 - Count	[ 100 ]	- Number of packets to send
9 - Errors		- Radio error statistics
01 - Autotest	[ once ]	- Auto echo test
02 - Continuous	[ 0 ]	- Repeat echo test once started

### ***Running a Signal Strength Test (Strength)***

See Page 4-9

### ***Running a Carrier Test***

This test will scan the frequencies for other RF signals. It will enable you to determine if there are other radio signals in the band, and assist in determining the best channel to use.

## Using the Configuration Radio Extended Menu

Page 4-13

```
Aironet Bridge V7.05 Configuration Radio Extended Menu BRXXXX_1419d8
```

Option	Value	Description
1 - Bridge_mode	[ bridge_only ]	- Bridging mode
2 - Time_retry	[ 8 ]	- Number of seconds to retry transmit
3 - Count_retry	[ 0 ]	- Maximum number transmit retries
4 - Balance	[ off ]	- Load balancing
5 - Diversity	[ off ]	- Enable the diversity antennas
6 - Modulation	[ cck ]	
7 - Power		- Transmit power level
8 - Fragment	[ 2048 ]	- Maximum fragment size

### ***Bridge\_Mode***

This parameter allows the removal of some overhead associated with communications to client devices such as PC cards, ISA cards and Universal Clients. When using the bridge to communicate to only other bridges, this should be set to `bridge_only`. If you are going to use wireless client cards, Universal Clients or Multi Clients, in the system, this should be set to `access_point`, which will allow it to perform like an Access Point AND a Bridge.

### ***Balance***

This setting determines if Load Balancing between Bridges is enabled.



### **Modulation**

This selects the type of modulation for the 5.5 and 11Mb rates. All units in the system must be set to the same modulation type to operate at the higher datarates. CCK is the modulation that is specified under the proposed IEEE 802.11 specification draft for high speed LANS (5.5 and 11Mb).

## **Using the Configuration Ident Menu**

Page 6-2

Aironet Bridge V7.05		Configuration Ident Menu BRXXXX_1419d8	
Option	Value	Description	
1 - Inaddr	[ 149.023.130.100 ]	- Internet address	
2 - Inmask	[ 255.255.000.000 ]	- Internet subnet mask	
3 - Gateway	[ 000.000.000.000 ]	- Internet default gateway	
4 - Routing	[ menu ]	- IP routing table configuration	
5 - Dns1	[ 000.000.000.000 ]	- DNS server 1	
6 - Dns2	[ 000.000.000.000 ]	- DNS server 2	
7 - Domain	[ " " ]	- Domain name	
8 - Nid	[ 0040961419d8 ]	- Network address	
9 - Name	[ "BRXXXX_1419d8" ]	- Node name	
01 - Location	[ " " ]	- System location	
02 - Contact	[ " " ]	- System contact name	
03 - Bootp_DHCP	[ off ]	- Use BOOTP/DHCP on startup	
04 - Class	[ "AP4800E" ]	- DHCP class id	

### **DNS1**

This allows the use of DNS names instead of using numerical IP address for management packet routing. Enter the IP address of the DNS server on the system.

### **DNS2**

Provides a secondary DNS name server

### **Domain**

Provides the ability to offer a Domain name, allowing shortened entries for DNS names.

### **BootP/DHCP**

See Page 13-11

### **Class**

See Page 13-14

## **Using the Configuration SNMP Menu**

Page 7-2

The community parameters have been moved to the Console Menu. The Trap parameters have been moved to the logs menu (see page 14 of the document).



## Viewing the Statistics Menu

Page 9-2

Aironet Bridge V7.05		Statistics Menu	BRXXXX_1419d8
Option	Value	Description	
1	- Throughput	- Throughput statistics	
2	- Radio	- Radio error statistics	
3	- Ethernet	- Ethernet error statistics	
4	- Status	- Display general status	
5	- Map	- Show network map	
6	- Watch	- Record history of a statistic	
7	- History	- Display statistic history	
8	- Nodes	- Node statistics	
9	- ARP	- ARP table	
01	- Display_time [ 10 ]	- Time to re-display screens	
02	- IpAdr [ off ]	- Determine client IP addresses	

### *Ethernet Error Statistics*

The Ethernet Error Statistics Display provides a detailed summary of the Ethernet receive and transmit errors that have occurred on the unit. To access this display, select **Statistics** from the Main Menu then select **Ethernet** from the Statistics Menu.

### *Displaying the Network Map (Map)*

See Page 10-6

### *IpAdr*

This parameter allows the Map Function to display the IP addresses of all clients. However setting this parameter to “on” will create traffic used for only identifying the IP addresses. Unless necessary, this parameter should be set to “off”, unless actively viewing the MAP function.

## Using the Association Menu

Page 10-3

Aironet Bridge V7.05		Association Menu	BRXXXX_1419d8
Option	Value	Description	
1	- Display	- Display the table	
2	- Summary	- Display the table summary	
3	- Maximum [ 1024 ]	- Maximum allowed child nodes	
4	- Autoreg [ on ]	- Allow automatic table additions	
5	- Add	- Control node access	
6	- Remove	- Remove access control	
7	- Staletime [ 350 ]	- Backbone LAN node stale out time	
8	- Niddisp [ numeric ]	- Node Ids display mode	

Enter an option number or name, "=" main menu, <ESC> previous menu



**Association Monitor Menu (Monitor)**- Map function moved to Statistics Menu (see above)

## Using the Logs Menu

Page 12- 9

Aironet Bridge V7.05		Logs Menu	BRXXXX_1419d8
Option	Value	Description	
1 - History		- Log and alarm history	
2 - Clear		- Clear the history buffer	
3 - Printlevel	[ all ]	- Type of logs to print	
4 - Loglevel	[ all ]	- Type of logs to save	
5 - Ledlevel	[ error/severe ]	- Type of logs to light status led	
6 - Statistics		- Set alarms on statistics	
7 - Network	[ off ]	- Log network roaming	
8 - Bnodelog	[ off ]	- Log backbone node changes	
9 - Syslog	[ 000.000.000.000 ]	- Unix syslogd address	
01 - Snmp	[ menu ]	- Set-up SNMP traps	

Enter an option number or name, "=" main menu, <ESC> previous menu

### **Network**

This parameter will allow logging of clients that have roamed across to different Access Points and define where they roamed to.

### **SNMP Traps**

Aironet Bridge V7.05		Logs Snmp Menu	BRXXXX_1419d8
Option	Value	Description	
1 - Trapdest	[ none ]	- IP destination for SNMP traps	
2 - Trapcomm	[ "public" ]	- Community for SNMP traps	
3 - Loglevel	[ off ]	- Type of logs to cause a trap	
4 - Authtrap	[ off ]	- Enable authentication failure trap	

Enter an option number or name, "=" main menu, <ESC> previous menu

### **Trapdest**

See Page 7-6

### **Trapcom**

See Page 7-7

### **Loglevel**

See Page 7-7

### **Authtrap**

See Page 7-7