

***BreezeACCESS 2.4***

# **Administration Manual**

Revision B

Software Release 1.5

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# About this Manual

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**This manual contains the following sections:**

- 1. CONFIGURATION OF BREEZEACCESS UNITS**
- 2. TELNET**
- 3. SOFTWARE VERSION DOWNLOAD**
- 4. SNMP MANAGEMENT**
- 5. APPENDIX A.**

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***Note:** Information provided in this manual is applicable to BreezeACCESS units with software release version 1.5.*

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# 1. CONFIGURATION OF BREEZEACCESS UNITS

This chapter explains how to access the local terminal program, and how to use the terminal program to setup, configure, and manage the BreezeACCESS series units (Subscriber Units and Access Units, also referred to as SUs and AUs respectively).

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**Note:** *Reset the unit after making configuration changes for the changes to take effect.*

---

## 1.1 Accessing and Using Local Terminal Management

⇒ **To access Local Terminal Management:**

1. Use the Monitor cable (supplied with the AU) to connect the MON connector of the unit to the COM port of your ASCII ANSI terminal or PC. The COM port connector on the Monitor cable is a 9 pin D-type jack.
2. Run a terminal emulation program (such as HyperTerminal™).
3. Set the communication parameters to the following:

Baud Rate	9600
Data Bits	8
Stop Bits	1
Parity	None
Flow Control	XON/XOFF
Connector	Connected COM port.
4. Press **Enter**. The *main menu* appears (refer to Figure 1-1).

⇒ **To use Local Terminal Management:**

1. Type an option number to open/activate the option. You may need to press **Enter** in some cases.
2. Press **Esc** to exit a menu or option.
3. Reset the unit after making configuration changes.

## 1.2 Terminal Configuration Screens

Table 1-1, which starts on page 4, lists the menus, sub-menus, and parameters/options in the terminal program. The Installer and the Service Provider levels can access the following (refer to Section 1.7 on page 47 for a description of the security levels):

- All parameters in the *System Configuration* menu
- Accounting parameters in the *Advanced Settings* menu
- The *Console Speed* parameter in the *Advanced Settings* menu
- All tests in the *Site Survey* menu

Default values are listed where applicable.

The numbers next to the parameter/option indicate the numbers you need to press in order to access that parameter/option.

For example, to access the *1.2.1 IP Address* option, start at the *main menu* and type **1**, followed by **2**, followed by **1**.

**Table 1-1. Terminal Configuration Screens**

<b>Menu</b>	<b>Sub-menu</b>	<b>Parameter/Option</b>	<b>Default Value</b>
1. System Configuration	1.1 Station Status	Unit's Mode Unit's HW Address Unit's WLAN Address (SU only) Station Status (SU only) AU Address (SU only) Total Number of Associations Since Last Reset (SU only) N LAN MAC Addresses have been learned (SU only) Current Number of Associations (AU only) Maximum Number of Associations since last reset (AU only)	

Menu	Sub-menu	Parameter/Option	Default Value
	1.2 TCP/IP and SNMP Parameters	1.2.1 IP Address	000.000.000.000
		1.2.2 Subnet Mask	000.000.000.000
		1.2.3 Default Gateway Address	000.000.000.000
		1.2.4 SNMP Traps	Disabled
		1.2.5 TCP Parameters	
		1.2.5.1 Max Number Of Retransmissions	5
		1.2.5.2 Retransmission Interval	4
		1.2.5.3 Time To Wait For a confirmation To Close	5
		1.2.6 Ping	
		1.2.6.1 IP destination address	192.000.000.001
		1.2.6.2 No. of pings	1
		1.2.6.3 Ping frame length	64 Bytes
		1.2.6.4 Ping frame Timeout	200mS
		1.2.6.5 Start sending	
		1.2.6.6 Stop sending	
		1.2.6.S Display Current Ping Values	
		1.2.7 Management IP filtering Parameters	
		1.2.7.1 Access to SNMP/Telnet/TFTP Unit Management	From Both Ethernet & WLAN
		1.2.7.2 IP Management Filtering	Disabled
		1.2.7.3 Set IP Management Filtering Address	000.000.000.000 (all 3 addresses)
		1.2.7.4 Delete IP Filtering Management Entry	
		1.2.7.5 Delete all IP Filtering Management IP Addresses	
		1.2.7.S Show IP Management Filtering	
		1.2.8 Layer 2 Broadcast Filtering (Ethernet) (SU only)	Disabled

Menu	Sub-menu	Parameter/Option	Default Value
		1.2.9 User IP filtering Parameters (SU only)	
		1.2.9.1 IP Filtering	Disabled
		1.2.9.2 Set IP Filter Address	000.000.000.000 (all 8 addresses)
		1.2.9.3 Set IP Filter Mask	255.255.255.255 (all 8 addresses)
		1.2.9.4 Set IP Filter Range	0 (all 8 addresses)
		1.2.9.5 Delete IP Filtering Entry (Ip/Mask/Range)	
		1.2.9.6 Delete all IP Filtering Entries (Ip/Mask/Range)	
		1.2.9.S Show All IP Filtering Entries (Ip/Mask/Range)	
		1.2.S Display Current Values	

Menu	Sub-menu	Parameter/Option	Default Value
	1.3 Wireless LAN (WLAN) Parameters	1.3.1 Hopping Sequence (Shift) (AU only)	1
		1.3.2 Hopping Sequence Offset	0
		1.3.3 Hopping Sequence Set	1
		1.3.4 ESS ID	ESSID1
		1.3.5 Max. Data Rate	3Mbps
		1.3.6 Transmit Diversity	Use 2 Antennas if the unit is SU-I or AU-I. Otherwise Use Antenna No. 1
		1.3.7 Mobility	Stationary
		1.3.8 Load Sharing	Disabled
		1.3.9 Long Range	Disabled
		1.3.A Prioritized Channels (AU only)	12
		1.3.B MIR and CIR Parameters (SU only)	
		1.3.B.1 MIR Option	MIR/CIR Disabled
		1.3.B.2 MIR: AU to SU	128Kbps
		1.3.B.3 MIR: SU to AU	128Kbps
		1.3.B.4 CIR: AU to SU	64Kbps
		1.3.B.5 CIR: SU to AU	64Kbps
		1.3.B.S Display Parameters	
		1.3.B Hopping Sync (AU Only)	Idle
		1.3.S Display Current Values	

<b>Menu</b>	<b>Sub-menu</b>	<b>Parameter/Option</b>	<b>Default Value</b>
	1.4 Bridging	1.4.1 LAN to WLAN Bridging Mode 1.4.2 Appletalk Tunneling 1.4.3 Broadcast Relaying 1.4.4 Unicast Relaying 1.4.5 Aging Time 1.4.5.1 Change Bridging Aging Time 1.4.5.2 Change Association Aging Time (AU only) 1.4.5.S Show Current Aging Time 1.4.6 VLAN Support 1.4.6.1 VLAN ID 1.4.6.2 Ethernet Link Type 1.4.6.S Display VLAN Parameters	Forward Unknown (AU only) Forward Unknown (AU only) Enabled Enabled (AU only) Enabled (AU only) 300 seconds (AU, SU-BD, SU-BD1V), 1800 all other units 1 (No Aging) ffff Hybrid
	1.5 Telephony and Voice Parameters (Subscriber Units with Voice Support only)	1.5.1 Automatic Pulse Dialing Detection 1.5.2 Ringer On/Off 1.5.3 Voice Volume 1.5.4 G723 Frames Per Packet 1.5.5 G729 Frames Per Packet 1.5.6 G711u Frames Per Packet 1.5.7 G711a Frames Per Packet 1.5.8 QoS Delay 1.5.9 Enable Echo Cancellation 1.5.A Set Codec Priority 1.5.B Set Voice Activity Detection 1.5.S Current Settings	ON ON -3dB 2 1 4 8 0 mS YES g7231 g729 g711Ulaw64k g711Alaw64k VAD Support OFF

Menu	Sub-menu	Parameter/Option	Default Value
	1.6 Telephony Network Parameters (Subscriber Units with Voice Support only)	1.6.1 Use GateKeeper  1.6.2 Gw/Gk IP Addr 1.6.3 My Phone Number 1.6.4 My H323 Terminal ID 1.6.5 Enable IP Dialing 1.6.6 IP Dialing Prefix 1.6.7 Default Gateway Prefix 1.6.S Current Settings	NO  000.000.000.000 0000000000 empty NO * empty
	1.7 Station Control (1.5 in Subscriber Units with no voice support and in Access Units)	1.7.1 (1.5.1) Reset Unit  1.7.2 (1.5.2) Set Factory Defaults 1.7.3 (1.5.3) Change Station Name 1.7.4 Make Operational 1.7.5 Reset Unit and Run from Backup 1.7.6 Display Active and Backup Version Release	BreezeACCESS

<b>Menu</b>	<b>Sub-menu</b>	<b>Parameter/Option</b>	<b>Default Value</b>
2. Advanced Settings	2.1 Compatibility	2.1.1 Protocol	802.11 Regular
		2.1.2 Translation Mode	Enable
	2.2 Roaming (SU only)	2.2.1 Max. Number of Scanning	70
		2.2.2 Roaming Decision Window	10
		2.2.3 Roaming Decision Numerator	6
		2.2.4 Roaming Decision RSSI Threshold	55
		2.2.5 Joining Decision RSSI Threshold	60
		2.2.6 Number of Beacons for Disconnect Decision	10
		2.2.7 Number of Probe Responses	1
	2.3 Performance	2.3.1 Dwell Time (AU only)	128K ms.
		2.3.2 RTS Threshold	SU-1600, AU-200
		2.3.3 Max. Number of Re-Transmissions	1
		2.3.4 Number of Dwells to Re-Transmit	2
		2.3.5 Max. Multicast and Control Rate	1Mbps
		2.3.6 Power Saving	0
		2.3.7 DTIM Period (AU only)	5
		2.3.8 Min. Contention Window	7
		2.3.9 Max. Contention Window	255
		2.3.A No. of Re-Transmissions to Decrease Rate	0
2.4 Radio	2.4.1 Hopping Sequence	Country dependent	
	2.4.2 Special Sequences Loaded	Country dependent	
	2.4.3 Power level	High	
	2.4.4 Auto Calibration	Enabled	
	2.4.5 Carrier Sense Level	50	
	2.4.6 Carrier Sense Difference Level	14	

<b>Menu</b>	<b>Sub-Menu</b>	<b>Parameter/Option</b>	<b>Default Value</b>
	2.5 Rate	2.5.1 Multi-Rate Support 2.5.2 Multi-Rate Decision Window Size 2.5.3 Rate Counters	Disabled 3
	2.6 AU Redundancy Support	2.6.0 Disable 2.6.1 Enable	Disabled
	2.7 Maintenance	2.7.1 Wait for Association Address (SU only) 2.7.2 Japan Call Sign 2.7.3 Send Manual Beacon 2.7.5 Display Alarm Log	Wait for update via Ethernet.
	2.8 Accounting (SU only)	2.8.1 Enable Accounting 2.8.2 Radius Server IP Addr 2.8.3 Maximum Accounting Interval 2.8.4 Current Settings	NO (Disable) 000.000.000.000 60 seconds
	2.9 Console Speed		9600
3. Site Survey	3.1 Traffic Statistic	3.1.1 Display Counters 3.1.2 Reset Counters	
	3.2 Wireless Management Statistics	3.2.1 Display Counters 3.2.2 Rest Counters	
	3.3 Print Per-Hop Statistics		
	3.4 TCP/IP Statistics	3.4.1 IP Statistics 3.4.2 ICMP Statistics 3.4.3 UDP Statistics 3.4.4 ARP Statistics 3.4.5 TCP Statistics	
	3.5 VLAN Statistics	3.5.1 Display Counters 3.5.2 Reset Counters	
	3.6 Memory Usage Statistics	3.6.1 Display Counters 3.6.2 Reset Counters	

<b>Menu</b>	<b>Sub-Menu</b>	<b>Parameter/Option</b>	<b>Default Value</b>
	3.7 Average RSSI Continuous Display (SU only)	3.7.0 Disable 3.7.1 Enable	Disabled
	3.8 MAC Address database	3.8.1 Display MAC Address Database 3.8.2 Display Bridging Info 3.8.3 Display Association Info 3.8.S Display MAC Address Database Parameters	
	3.9 Frame Error Rate	3.9.1 Start Error Rate Counting 3.9.2 Stop Error Rate Counting 3.9.S Display Error Rate Values	
	3.A Call Management Statistics (SU-DV only)	3.A.1 Display Counters 3.A.2 Reset Counters	
	3.V Voice statistics (SU-DV only)	3.9.1 Display Counters 3.9.2 Reset Counters	
	3.T Tx Queue Length Statistics		
4. Access Control	4.1 Change Access Rights	4.1.0 Installer 4.1.1 Service Provider 4.1.2 Technician	"Installer"
	4.2 Change Service Provider Password		"User"
	4.S Show Current Access Right		Service Provider

## 1.3 Main Menu

```
BreezeACCESS (SU-I-8D1V)
Official Release Version - 1.5.12
Release Date: Sun Oct 31 11:41:23 1999
BreezeACCESS Monitor
=====
1 - System Configuration
2 - Advanced Settings
3 - Site Survey
4 - Access Control
BreezeACCESS >>>
```

**Figure 1-1. Main Menu**

---

**Note:** *BreezeACCESS is the default name of the unit. You can change this name to a name of your choice (as described in System Configuration-Station Control on page 31), after which the prompt at the bottom of each menu screen will be NEWNAME>>>.*

---

## 1.4 System Configuration Menu

```
BreezeACCESS (SU-I-8D1V)
Official Release Version - 1.5.12
Release Date: Sun Oct 31 11:41:23 1999
System Configuration
=====
1 - Station Status
2 - TCP\IP and SNMP Parameters
3 - Wireless LAN Parameters
4 - Bridging
5 - Telephony and Voice Parameters
6 - Telephony Network Parameters
7 - Station Control
BreezeACCESS >>>
```

**Figure 1-2. System Configuration Menu**

---

**Note:** *The System Configuration Menu shown in Figure 1-2 is for a Subscriber Unit that supports voice (SU xDIV). For Access Units and Subscriber Units without voice support, there are only 5 selections, the fifth one being Station Control (The first 4 selections are not changed).*

---

### 1.4.1 Station Status

*Station Status* is a read-only menu that displays the current values of the following parameters:

- **Unit Mode** – Identifies the unit’s function. If the unit is an Access Unit, *AU* appears in this field. If the unit is an SU, *Station* appears in this field.
- **Unit HW Address** – Displays the unit’s unique IEEE MAC address.

The following parameters appear for SUs only:

- **Unit WLAN Address**– The MAC address used in the air protocol for association with the AU (identical to the unit’s MAC address, see *Unit HW Address* above).
- **Station Status**– The current status of the SU. There are two options:
  - \* **SCANNING** – The SU is searching for an AU with which to associate.
  - \* **ASSOCIATED** – The SU is associated with an AU.
- **AU Address (SU only)** – The address of the AU with which the unit is currently associated. If the unit is not associated with any AU, the address will be that of the IEEE broadcast address: FF-FF-FF-FF-FF-FF.
- **Total Number of Associations Since Last Reset** –This indicates the total number of associations with any AU since last reset.
- **N LAN MAC Addresses have been learned** (all SUs, except BD units with bridging support) – N is the number of LAN MAC addresses recognized by the unit (Maximal number depends on the unit’s type – e.g. **1** for 1D units that support a single address and **8** for 8D units that support up to 8 addresses).

The following parameters appear for the AU only:

- **Current Number of Associations**– The total number of SUs currently associated with this AU.
- **Maximum number of Associations since last reset**– The maximum number of SUs that were associated with the AU since the last reset, including duplicate associations with the same SU.

## 1.4.2 TCP/IP and SNMP Parameters

All BreezeACCESS units include IP Host software. This software is used for Telnet and SNMP management functions and for downloading software upgrades using the TFTP protocol.

- **IP Address** – Displays the current IP address in hex and decimal formats. Allows entry of a new IP address (4 groups of three decimal digits each separated by dots). The default IP Address is 000.000.000.000.
- **Subnet Mask** – Displays the current Subnet mask of the unit in Hex and decimal format. Allows entry of a new mask (4 groups of three decimal digits each separated by dots). The default mask is 000.000.000.000.
- **Default Gateway Address** – Displays the current address of the default gateway of the unit in Hex and decimal formats. Allows entry of a new default gateway address (4 groups of three decimal digits each separated by dots). The default gateway address is 000.000.000.000.
- **SNMP Traps** – Determines whether this unit sends SNMP traps when an event occurs. If enabled, a trap is sent to the defined host address (see Section 4.1.2 for a list of traps). The default is *Disabled*.
- **TCP Parameters** – Choose this option to define the following TCP parameters:
  - \* **Max Number Of Retransmissions** – The maximum number of retransmissions of TCP segments that were not acknowledged. The permitted range is 1 to 99. Default value is 5.
  - \* **Retransmission Interval** – The waiting time in seconds before the next retransmission. Permitted range is 1 to 99. Default value is 4 seconds.
  - \* **Time To Wait For a Confirmation To Close** – How many seconds to wait before closing a socket if the confirmation process was not properly completed. Permitted range is 1 to 99. Default value is 5 seconds.

- **Ping** – Ping the unit for test purposes, such as evaluating the quality of the link.
  - \* **IP Destination Address** - Displays the hardware-coded IP address of the unit for pinging. Allows entering an IP address (4 x 3 digit octets, separated by dots). The default IP address is 192.000.000.001.

---

*Note:* After each reset, the IP Destination Address will revert to the default value.

---

- \* **No. of Pings** –Enter the number of ping attempts per session. The default value is 1. The allowed range is from 0 to 9999. Select 0 for continuous pinging.

---

*Note:* After each reset, the No. of Pings will revert to the default value.

---

- \* **Ping frame length** - Enter the ping packet size. The default value is 64 bytes. The allowed range is from 60 to 1500 bytes.

---

*Note:* After each reset, the Ping frame length will revert to the default value.

---

- \* **Ping frame timeout** - Enter the ping frame timeout, which is the amount of time (in ms) to wait between ping attempts. The default value is 200 ms. The allowed range is from 200 to 2000 ms, in increments of 200 milliseconds (200, 400, 600,....).

---

*Note:* After each reset, the Ping frame timeout will revert to the default value.

---

- \* **Start sending** – to start pinging.
- \* **Stop sending** – to stop pinging.

- \* **Display Current Ping Values** – to display the current values of the following parameters: Destination IP Address, No. of pings, frame length and timeout, current status, number of ping sent and number of pings received.
- **Management IP filtering parameters** – This feature allows protect the unit from trials of unauthorized access through defining a set of IP addresses from which management of the unit (Telnet, TFTP, SNMP) is allowed. The feature supports also the possibility to define the direction (from the wireless media or from the wired Ethernet or from both) from which such access is allowed.
  - \* **Access to SNMP/Telnet/TFTP Unit Management** –To define the unit’s management option, which are the following:
    - ⇒ From WLAN (Wireless LAN) only
    - ⇒ From Ethernet only
    - ⇒ From both Ethernet and WLAN (this is the default value)
  - \* **IP Management Filtering** –To enable/disable management filtering. Available options are:
    - ⇒ Disabled (this is the default value)
    - ⇒ Activate IP filtering on Ethernet port
    - ⇒ Activate IP filtering on WLAN port
    - ⇒ Activate IP filtering on Both Ethernet and WLAN ports
  - \* **Set IP Management Filtering Address** – Displays the current addresses (up to 3) and allows you to enter new addresses. The default value is 000.000.000.000 for all 3 addresses.
  - \* **Delete IP Filtering Management Entry** –To delete one entry.
  - \* **Delete all IP Filtering Management IP Addresses** –To delete all entries.

- **Layer 2 Broadcast Filtering** –To define the layer 2 (Ethernet) broadcast filtering capability. This option is only available in SUs and is not available for AUs. The Ethernet Broadcast Filtering enables to save bandwidth on the wireless media through blocking protocols that are typically used in the customer’s LAN but are not relevant for other customers (e.g. NetBios that is used by Microsoft Network Neighborhood). Enabling this feature blocks Ethernet broadcasts (destination address FFFFFFFF). This feature will not affect the ARP protocol, which also uses Ethernet broadcasts. This feature should not be enabled when there is a router behind the SU. Available options are:
  - Disabled (no broadcast filtering) (this is the default value)
  - From Ethernet only
  - From WLAN only
  - From both Ethernet and WLAN
- **User IP Filtering Parameters**– This menu item is only available in SUs. This feature allows you to defined IP addresses of devices that are authorized to access the wireless media, serving for security and or control purposes. Choose this option to define the following IP parameters:
  - \* **IP Filtering** – To disable or enable the IP filtering feature. The available options are:
    - \* Disable (No filtering) (this is the default value)
    - \* IP only (only IP Protocol Frame Passes)
    - \* Enable (only IP Filter Defined Address Passes)
  - \* **Set IP Filter Address** – Displays the current IP addresses. Allows you to enter up to 8 IP addresses (0 to 7, each address is 4 x 3 digit octets, separated by dots). The default for all addresses is 000.000.000.000.
  - \* **Set IP Filter Mask** – Displays the current masks. Allows you to enter up to 8 subnet masks (0 to 7, each subnet mask is 4 x 3 digit octets, separated by dots). The default for all subnet masks is 255.255.255.255.

- \* **Set IP Filter Range** –To define a range of addresses (the range includes the base address). The default value is 0 (not used)
  - \* **Delete an IP Filtering Entry (Ip/Mask/Range) Address** – Displays the current list of IP addresses, subnet masks and ranges. Enter the list number (from 0 to 7) to delete the entry from the list (will be replaced by the default values).
  - \* **Delete all IP Filtering Entries (IP/Mask/Range)** – To delete all IP entries (and replace with the default values).
  - \* **Show All IP Filtering Entries (IP/Mask/Range)** – Displays the current list of IP addresses, subnet masks and ranges.
- **Display Current Values** – Displays information concerning the current status of all IP-related items.

### 1.4.3 Wireless LAN (WLAN) Parameters

The *WLAN Parameters* menu includes the following parameters:

- **Hopping Sequence (Shift) (AU only)** – The Hopping Sequence of the unit. A hopping sequence is a pre-defined series of channels (frequencies) that are used in a specific, pseudo-random order as defined in the sequence. The unit “hops” from frequency to frequency according to the selected sequence. When more than one AU is co-located in the same area, it is recommended to assign a different hopping sequence shift to each AU.

Hopping Sequences are grouped in three hopping sets (see *Hopping Sequence Set* parameter below). When setting up multiple AUs in the same site, always choose hopping sequences from the same *Hopping Sequence Set* to reduce the possibility of collisions on the wireless media. This parameter is only set in the AU. It can also be changed in the SU, but the change will not have any actual effect. All the SUs learn it from the AU during the association process.

The permitted range depends on the applicable hopping standard (see Table 1-2 on page 21). The default value is 1.

- **Hopping Sequence Offset** – Applicable only to special sequences in the AU. **Do not change this parameter.**

- **Hopping Sequence Set** – Applicable only to AUs. Each hopping standard has 3 hopping sequence sets. The hopping sequence set selected in this screen determines which hopping sequences are available in the Hopping Sequence (Shift) screen. Always use the same hopping sequence set per site (with different hopping sequence shifts) to minimize the possibility of collisions on the wireless media. The default value is 1.

This parameter is set only in the AU. It can also be changed in the SUs, but the change will not have any actual effect. All the associated SUs learn its value from the AU during the association process.

**Table 1-2. Hopping Sequences**

Hopping Standard	Number of Hopping Sequences per Hopping Set
Australia	20
Canada	10
Europe ETSI	26
France	11
Israel	11
Japan	4
Korea	4
Netherlands	5
Spain	9
US FCC	26

- **ESS ID** – The ESSID of the unit (up to 32 printable ASCII characters). The ESSID (Extended Service Set ID) is a string used to identify a wireless network. It prevents the unintentional merging of two co-located wireless networks. An SU can only associate with an AU that has an identical ESSID. Use different ESSIDs to segment the wireless access network and add security to your network. The default value is *ESSID1*.

---

*Note: The ESSID string is case-sensitive.*

---

- **Maximum Data Rate** – Displays the maximum data rate and the current data rate of the unit. If the unit is an AU, only the maximum data rate is displayed. BreezeACCESS units operate at 1 Mbps, 2 Mbps or 3 Mbps. Under certain conditions (compatibility reason or range/speed trade-off) you may decide to limit the use of higher rates. Permitted values are 1, 2 or 3 (in Mbps). Default value is 3.
- **Transmit Diversity** – Which antennas are used for transmission. Some BreezeACCESS units support transmit antenna diversity (2 antennas). During reception, a BreezeACCESS unit that is connected to two antennas dynamically selects the antenna where reception is optimal. In contrast, if the transmit antenna diversity is enabled, the unit selects the antenna from which it will transmit **before** the actual transmission. It usually uses the antenna last used for successful transmission. In models that support a single antenna (SU-O and SU-A), and in installations where a model that can support antenna diversity is connected to a single antenna, Transmit Diversity should be configured to transmit only from that single antenna. Available selections are:
  - \* Use Two Antennas
  - \* Use Antenna No. 1
  - \* Use Antenna No. 2

The default selection is *Use Two Antennas* if the unit is an Indoor Unit (AU-I or SU-I series). Otherwise, it is *Use Antenna No. 1*.

---

**Note:** For SU-A units (equipped with integral antenna), only the default setting (*Use Antenna No. 1*) should be used.

---

- **Mobility** – Not applicable. Default selection is *Stationary* – **do not change this parameter.**
- **Load Sharing** – Not applicable. The default selection is *Disabled* – **do not change this parameter.**

- **Long Range** – Determines whether long range communications are enabled for the unit. Enable the long range communications option only when units are more than 20 km apart. When long range communications are enabled, a unit that transmits allows more time to receive an ACK from other units. It is not recommended to enable long range communications for links under 20 km. Achieving long range communications depends on RF conditions and configuration. Enabling the *Long Range* parameter has no effect on the achievable range. The default selection is *Disabled*.
- **Prioritized Channels** – Applicable only if the unit is an AU that supports SUs with voice capability. Specifies the maximum number of simultaneous priority (voice) sessions allowed. The selection range is 0 to 50. The default value is 12.

The number of simultaneous voice sessions that may be conducted by SUs associated with a certain AU cannot exceed the number of prioritized channels specified for this AU. Other subscribers who try to initiate a call when the number of active sessions equals the number of prioritized channels will not get a dial tone.

- **MIR And CIR Parameters**– This parameter is only applicable for SUs. The CIR (Committed Information Rate) value specifies the minimum data rate guaranteed to the applicable subscriber. The MIR (Maximum Information Rate) value specifies the maximum data rate available for burst transmissions, provided such bandwidth is available. Select this option to define the following parameters:

- \* **MIR Option** – enables or disables the CIR\MIR support feature. Available selections are:
  - \* Disabled (this is the default value)
  - \* Enabled Without Protocol (this option is reserved for future use and should not be selected).
  - \* Enabled With Protocol.

The *Enabled Without Protocol* option is reserved for a future option and should not be selected. If the option should be enabled choose the *Enabled With Protocol* option. The default selection is *MIR/CIR Disabled*.
- \* **MIR: AU to SU** – Sets the Maximum Information Rate of the downlink from the AU to the SU. Available range is 32 to 2048Kbps. The MIR value cannot be lower than the corresponding CIR value. The default value is 128Kbps.
- \* **MIR: SU to AU** – Sets the Maximum Information Rate of the uplink from the SU to the AU. Available range is 32 to 2048Kbps. The MIR value cannot be lower than the corresponding CIR value. The default value is 128Kbps.
- \* **CIR: AU to SU** – Sets the Committed Information Rate of the downlink from the AU to the SU. Available range is 0 to 1024Kbps. The CIR value cannot be higher than the corresponding MIR value. The default value is 64Kbps.
- \* **CIR: SU to AU** – Sets the Committed Information Rate of the uplink from the SU to the AU. Available range is 0 to 1024Kbps. The CIR value cannot be higher than the corresponding MIR value. The default value is 64Kbps.
- \* **Display Parameters** – Displays the current values of the MIR and CIR parameters.
- \* **Hopping Sync** –This parameter is only available in AU-O-S Access Units. It allows synchronizing the hopping sequences used by several collocated AUs (when using a BC6 Base Station Controller) for better utilization of the spectrum.

---

**Note:** Synchronization is not permitted by FCC regulations. This parameter is not available in AUs using the US, Canadian or Australian Hopping Standard.

---

Available options are:

- ⇒ **Idle** – no synchronization (this is the default value)
- ⇒ **Master** – the AU is the Master unit for synchronization.
- ⇒ **Slave** – the AU is a Slave unit for synchronization.
- ⇒ **Hybrid** – do not use this option, which is reserved for the use of BreezeCOM personnel only.

- **Display Current Values** – This read-only status screen displays current WLAN parameters (including the setting of the Hopping Sequence and the Power Level parameters that are set in the *Advanced Settings* menu which is only accessible to authorized BreezeCOM technicians). Press any key to return to the *WLAN Parameters* menu.

#### 1.4.4 Bridging

The *Bridging* menu includes the following options:

- **LAN to WLAN Bridging Mode** – This parameter is only applicable to AUs. It allows controlling the flow of information from the Ethernet backbone to the wireless media. The options are:
  - \* **Reject Unknown** – Type **0** to allow transmission of packets only to SUs that the AU knows to exist in the Wireless LAN (behind the Wireless Bridge).
  - \* **Forward Unknown** – Type **1** to allow transmission of all packets, except those sent to SUs that the AU recognizes as being on its wired Ethernet side (this is the default value).

When connecting very large networks, it is recommended to set this parameter to *Forward Unknown*.

- **Appletalk Tunneling** – Whether the unit performs tunneling. Enable Appletalk tunneling if the network contains a mix of Ethertalk1 (ET1) and Ethertalk2 (ET2) stations to ensure smooth communications. Enable IPX tunneling if IPX protocol is running over your network. Be sure to set all units to the same tunneling setting. The default selection is *Enabled*.
- **Broadcast Relaying** – Applicable only to AU (although the parameter also appears in SUs). Determines whether the unit performs broadcast relaying. When Broadcast Relaying is enabled, Broadcast packets originating in WLAN devices are transmitted by the AU back to the WLAN devices, as well as to the wired LAN. If it is disabled, these packets are sent only to the local wired LAN and are not sent back to the WLAN. Disable Broadcast Relaying if you are sure that all Broadcast messages from the WLAN will be destined to the wired LAN. The default selection is *Enable*.
- **Unicast Relaying** – Applicable only to AU (although it also appears in SUs). Whether the unit performs Unicast relaying. When Unicast Relaying is enabled, Unicast packets originating in WLAN devices can be transmitted back to the WLAN devices. If this parameter is disabled, these packets are not sent to the WLAN even if they are intended for devices on the WLAN. Disable Unicast Relaying only if you know that all Unicast messages from the WLAN will be destined to the local wired LAN. The default selection is *Enable*.
- **Aging Time** – Choose this option to define the following bridging and association aging times:
  - \* **Change Bridging Aging Time** – Displays the current value and allows entry of a new value. The available range is 100 to 2000 seconds. The default value for AU and for BD SUs with bridge functionality is 300 seconds. For all other SUs, the default value is 1800 seconds.
  - \* **Change Association Aging Time** – Can only be changed if the unit is an AU. The available range is 1 (no aging) or 2 to 50,000 seconds. The default value is 1 (no aging). Do not change this parameter.
  - \* **Show Current Aging Time** – Displays the current settings of aging time(s).
- **VLAN Support** – Choose this option to define the following VLAN parameters (for more information see IEEE 802.1q):

- \* **VLAN ID** – Sets the VLAN ID that identifies the VLAN to which the unit is related. Valid values are hexadecimal numbers in the range 2 to FFE and FFFF (No VLAN). All other values (0, 1, FFF, 1000 to FFFE) are reserved for special use or forbidden. The default value is FFFF (no VLAN).
- \* **Ethernet Link Type** – Sets the link type. Available options are:
  - \* Access Link (capable of filtering a specified VLAN)
  - \* Trunk Link (capable of transferring only frames with VLAN)
  - \* Hybrid Link (capable of transferring frames with or without VLAN)

For an AU, this parameter is set to *Hybrid Link* and cannot be changed.

For SUs, the default selection is *Hybrid Link*.

### 1.4.5 Telephony and Voice Parameters (SU with voice support only)

The parameters in the *Telephony and Voice Parameters* menu include the following options:

- **Automatic Pulse Dialing Detection** – Allows enabling or disabling the automatic pulse dialing detection feature to support telephones with pulse dialing. The default selection is *ON* (enable).
- **Ringer On/Off** – Allows enabling or disabling the ringer. The available selections are:
  - \* Ringer OFF
  - \* Ringer ON
  - \* Ringer Start
  - \* Ringer Stop

The default selection is *ON*.
- **Voice Volume** – Allows setting of the gain of the voice signal to the earphone. Available range is -0dB to -20dB in 1dB steps. The default value is 3dB.

- **G723 Frames Per Packet** – Allows specifying the number of voice frames to be packed into one RTP frame when using a G.723 codec. The higher you set this number, the higher the delay and the number of simultaneous calls supported by the AU. Available range is 1 to 8. The default value is 2.
- **G729 Frames Per Packet** – Allows specifying the number of voice frames to be packed into one RTP frame when using a G.729 codec. The higher you set this number, the higher the delay and the number of simultaneous calls supported by the AU. Available range is 1 to 8. The default value is 1.
- **G711u Frames Per Packet** – Allows specifying the number of voice frames to be packed into one RTP frame when using a G.711 u law codec. The higher you set this number, the higher the delay and the number of simultaneous calls supported by the AU. Available range is 1 to 8. The default value is 8.
- **G711a Frames Per Packet** – Allows specifying the number of voice frames to be packed into one RTP frame when using a G.711 a law codec. The higher you set this number, the higher the delay and the number of simultaneous calls supported by the AU. Available range is 1 to 8. The default value is 4.
- **QoS Delay** – Allows specifying the delay in milliseconds that may be introduced by additional Quality of Service processing. The available range is 0 to 300 (in mS). The default value is 0.

---

*Note:* When using a Fax/Modem (supported only with G.711 codecs), it is recommended to set the delay value within the range of 100 – 150.

---

- **Enable Echo Cancellation** – Allows enabling or disabling the built-in echo cancellation feature. The default value is YES (enable).

---

*Note:* When using a Fax/Modem this parameter should be set to NO (Disable).

---

- **Set Codec Priority** – Allows specifying the relative priority of the codecs. The units support the following codecs:

G7231 (6.4Kbps rate, 1:10 compression ratio)

G729 (8Kbps rate, 1:8 compression ratio)

G711 Ulaw (64Kbps, no compression, US standard)

G711 Alaw (64Kbps, no compression, European Standard)

You can enter a list of one to four codecs, specifying the relative priorities to be offered during capabilities' exchange according to the H.323 standard. For example, enter 2 to always use the G.729 codec. Enter 2, 1, 3, 4 to set the highest priority for G.729 and the lowest priority for G.711 Alaw. The default setting is all four codecs, in the priority listed above.

- **Set Voice Activity Detection** – Choose this option to enable the Voice Activity Detection, and suppression of silence periods to decrease the transmitted traffic volume. This will improve overall system performance by allowing the AU to support more voice channels. Available options are:

0. Voice Activity Detection OFF.

1. Voice Activity Detection G7231 (enable when using G7231 compression).

2. Voice Activity Detection G729 (enable when using G729 compression).

3. Voice Activity Detection Both (enable when using either G7231 or G729 compression).

Voice Activity Detection is not applicable when using G711 codecs. The default selection is 0 (VAD SUPPORT OFF).

- **Current Settings** – Choose this option to display the current settings of the *Telephony and Voice Parameters*.

## 1.4.6 Telephony Network Parameters (SU with voice support only)

The parameters in the *Telephony Network Parameters* menu include the following options:

- **Use Gatekeeper** – If set to *YES*, the unit will communicate with the Gatekeeper to resolve the destination telephone number into the IP address and to register its own phone number and IP address with the Gatekeeper. Available selections are *YES* and *NO*. The default selection is *NO*.
- **Gw/Gk IP Address** – Allows specifying the IP address of the Gateway/Gatekeeper. If the *Use Gatekeeper* parameter (see above) is set to *YES*, an IP address must be specified. The default value is 000.000.000.000.
- **My Phone Number** – The telephone number as specified in the Gateway (if it is required by the specific type of Gateway used). The default number is 0000....0 (10 zeros).

---

*Note:* When using a Gateway without a Gatekeeper, this number must be predefined in the Gateway. See Appendix A.

---

- **My H323 Terminal ID** – The H323 Terminal ID (Name) to be used for calling the terminal when the caller uses this feature (e.g. NetMeeting). Applicable only when a Gatekeeper is used and the *Use Gateway* parameter is set to *YES*. The default selection is none (empty).
- **Enable IP Dialing** – Allows enabling or disabling dialing using IP addresses. The default selection is *NO*.
- **IP Dialing Prefix** – Allows specifying the prefix used to identify an IP Dialing string. Applicable only if the *Enable IP Dialing* parameter (see above) is set to *YES*. The default value is \*.
- **Default Gateway Prefix** – Allows specifying a default prefix (number of the Gateway trunk port) to be automatically inserted and transmitted to the Gateway before the dialed number. The default is none (empty).
- **Current Settings** - Choose this option to display the current settings of the Telephony Network Parameters.

## 1.4.7 Station Control

The *Station Control* menu includes the following options:

- **Reset Unit** – Resets the BreezeACCESS unit and applies any changes made to the system parameters.
- **Set Factory Defaults** –When this option is implemented, system parameters settings revert to the original factory default settings. If the *Load default values complete* option is selected (option 1), all parameters will revert to the selected set of factory default values. If the *Load default values partially* (option 2) is selected, all parameters will revert to default values of the current set, except for (if applicable) the following parameters that are necessary to ensure connectivity and availability of services; *IP Address, Subnet Mask, Default Gateway, IP Filtering, Hopping Sequence (Hopping Standard), Hopping Sequence (Shift), Hopping Offset, ESSID, Transmit Diversity, Power Level, Auto Calibration, Japan Call Sign, Compatibility, RTS Threshold, Carrier Sense Level* and *MIR/CIR* parameters.

These parameters are not changed, also after downloading and activating a new software version.

- **Change Station Name** – To change the name of the unit, which is also the system's name in MIB2. The unit's name is printed at the bottom of each menu screen (default name is BreezeACCESS).
- **Make Operational** –To activate a newly loaded software version as the new default version.
- **Reset Unit and Run from Backup** –To activate the backup software version as the new default version.

## 1.5 Accounting Menu

The *Accounting* menu (option 8 in the *Advanced Settings* menu for SUs) allows you to enable the Radius client in an SU and to configure the parameters that affect the transmission of accounting records. The *Accounting* menu includes the following parameters:

- **Enable Accounting-** To enable or disable the accounting records transmission feature. The default is NO (Disabled).
- **Radius Server IP Addr** – To specify the IP address of the Radius server to be used. This serves as the destination address for transmission of accounting records. The default address is 000.000.000.000.
- **Maximum Accounting Interval** – To specify the interval in seconds between two consecutive transmissions of accounting records. The allowed range is from 60 to 1800 seconds (1 to 30 minutes). The default value is 60 seconds.
- **Current Settings** – To display the current values of the accounting parameters.

## 1.6 Site Survey Menu

```
BreezeACCESS (SU-I-8D1V)
Official Release Version - 1.5.12
Release Date: Sun Oct 31 11:41:23 1999
Site Survey
=====
1 - Traffic Statistics
2 - Wireless Management Statistics
3 - Print Per-Hop Statistics
4 - TCP/IP Statistics
5 - VLAN Statistics
6 - Memory Usage Statistics
7 - Average RSSI Continues Display (SU only !)
8 - MAC Address database
9 - Frame Error Rate
A - Call Management Statistics
V - Voice Statistics
T - Tx Queue Length statistics
```

**Figure 1-3. Site Survey Menu**

The *Site Survey* menu allows you to perform a site survey, which helps you position your units and align their antennas; the *Site Survey* menu can also assist in troubleshooting.

---

**Note:** *Parameters displayed in italic typeface are intended for authorized BreezeCOM technicians only.*

---

## 1.6.1 Traffic Counters

The traffic counters are a simple, yet very efficient tools that can be used to monitor, interpret and analyze the Wireless LAN performance. The counters display statistics concerning Wireless and Ethernet frames. The menu includes the following options:

- **Display Counters** – Choose this option to display the current value of the Ethernet and Wireless counters.
- **Reset Counters** – Choose this option to reset all the counters. After choosing this option you are requested to type **1** for confirmation or **0** to cancel the reset.

### 1.6.1.1 Ethernet Counters

The Ethernet counters display statistics about the unit's Ethernet port activity. An example is shown below.

```
Ethernet Counters
=====
Total received frames :      0
Received good frames  :      0
Received bad frames   :      0
    (LG: 0, NO: 0, SH: 0, CR: 0, OV: 0, CL: 0)
Forwarded to Rx Queue :      0
Received in Rx Queue  :      0
Forwarded to bridge   :      0
Missed frames (rx busy):    0
Transmitted to Ethernet:    0
Attempted tx          :      0
Total tx errors        :      0
    (DEF: 0, HB: 0, LC: 0, RL: 0, UN: 0, CSL: 0)
```

The unit receives Ethernet frames from its Ethernet port and forwards them to its internal bridge, which decides whether or not to transmit the frames to the wireless media. The units have a smart hardware filter mechanism that filters most of the frames on the LAN. Hardware filtered frames are not counted.

On the Ethernet side, frames which were received from the wireless media and some frames generated by the unit (answers to SNMP queries and pings which have reached the unit via the Ethernet port), will be transmitted to the Ethernet port.

The following is a list of the available counters:

- **Total Received frames** – The total number of frames received from the Ethernet port. This counter includes both bad (i.e., with errors) and good frames (i.e., frames with no errors).
- **Received good frames** – The number of good frames received from the Ethernet port.
- ***Received Bad Frames*** \* – The number of bad frames received from the Ethernet port. High values (more than a few) indicate a problem in the Ethernet connection, such as a bad Ethernet cable or hub port.
- ***Forwarded to Rx Queue***\*
- ***Received in Rx Queue***\*
- **Forwarded to bridge** – The number of frames received from the Ethernet port and forwarded to the bridge for further processing.
- **Missed frames (rx busy)**– The number of frames, which have been rejected by the Ethernet Controller due to hardware buffer overflow. Indicates excessive overload conditions.
- **Transmitted to Ethernet** – The number of frames transmitted by the unit to the Ethernet port, these are usually frames that have been received from the Wireless side, but also frames generated by the unit itself.

---

\* Parameters displayed in italic typeface are intended for authorized BreezeCOM's technicians only.

- **Attempted Tx\***– The number of frames that the unit attempted to transmit to the Ethernet port. Under normal conditions the value of this parameter equals to the value of the **Transmitted to Ethernet** parameter
- **Total Tx Error** – The number of errors that occurred while transmitting to the Ethernet Port. Not every error is necessarily a problem.
  - \* **DEF (Defer)** – The number of frames, which their transmission was deferred due to busy condition on the Ethernet Port. This counter should equal zero unless the traffic intensity is high on the Ethernet side.
  - \* **HB\*** – Indicates problems in the controller.
  - \* **LC\*** – Indicates problems in the controller.
  - \* **RL (Retransmission Limit)** – The number of frames, which transmission was terminated (and the frames dropped) due to a busy condition on the Ethernet port. This counter should equal zero unless the traffic intensity is extremely high on the Ethernet side.
  - \* **UN\*** – Number of bits in a frame is lower than expected. May indicate software problems.
  - \* **CSL (Carrier Sense Lost)** – The number of frames, which were not transmitted due to lack of the Ethernet Carrier Sense. High values of this counter indicate problems with Ethernet cable and in the controller.

---

\* Parameters displayed in italic typeface are intended for authorized BreezeCOM's technicians only.

### 1.6.1.2 Wireless LAN Counters

Wireless LAN counters display statistics about the unit's Wireless LAN activity.\*

```

WLAN Counters
=====
Total transmitted frames          : 76112
Total transmitted frames (bridge) : 0 (High: 0, Low: 0)
Frames dropped (too many retries) : 0
Total transmitted fragments    : 76112
Total retransmitted fragments     : 0
Total tx errors                : 0
Internally discarded MIR/CIR      : 0
Internally discarded on tx        : 0 (Mng: 0, High: 0,
Low: 0)
Total received frames            : 112
Total received data frames       : 0
Total received fragments       : 0
Bad fragments received           : 0
Duplicate frames discarded        : 0
Internally discarded on rx       : 0 (High: 0, Low: 0)
Frame Error Rate                 : 0
    
```

Transmission to the wireless media includes data frames received from the Ethernet port, as well as self generated control and management frames. When a data frame is transmitted, the unit will wait for an **acknowledge** from the receiving side. If an **acknowledge** is not received, the unit will retransmit the frame until it receives an acknowledge (there is no retransmission of control frames). If the unit has retransmitted a frame to the extent of the maximum allowed number, it stops retransmitting and drops the frame.

\* Parameters displayed in italic type are intended for authorized BreezeCOM's technicians only.

The following is a list of the available counters:

- **Total Transmitted Frames** – The number of frames transmitted to the wireless media. The count includes the first transmission of data frames (without retransmissions), and also the number of control and management frames.
- **Total Transmitted Frames (Bridge)** – The total number of data frames transmitted to the wireless media (i.e. frames that were received from the Ethernet port and forwarded to the internal bridge which decided to transmit them to the wireless media). In the brackets, there are separate counters for high (telephony) and low (data) priority data frames.
- **Frames Dropped (too many retries)** – The number of dropped frames. The frames were retransmitted to the extent of the maximum allowed number of retransmissions.
- **Total Transmitted Fragments** \* – The total number of transmitted WLAN fragments. The count includes data, control and management frames and also the number of retransmissions of data frames.
- **Total Retransmitted Fragments** – The total number of retransmissions of data frames.
- **Total Tx Errors** \* – The number of transmit errors, which occurred.
- **Internally Discarded MIR/CIR** – The total number of frames discarded by the MIR/CIR application.
- **Internally Discarded on Tx** – The number of frames that were discarded due to a buffer overflow. Frame discard will occur mainly when the wireless conditions are bad and the unit is busy re-transmitting frames and does not have time for handling new frames. The Management, Low (data) and High (voice) priority discarded frames are counted separately in brackets.
- **Total Received Frames** – The total number of frames received from the wireless media. The count includes data and management frames.

---

\* Parameters displayed in italic type are intended for authorized BreezeCOM's technicians only.

- **Total Received Data Frames** – The total number of data frames received from the wireless media.
- ***Total Received Fragments*** \* – The total number of frames received, including data, control and duplicate data frames (see **Duplicate Frames** below).
- **Bad Fragments Received** – The number of frames received from the WLAN with CRC errors.
- **Duplicates Frames Discarded** – When a unit receives a frame it sends an acknowledge. When the acknowledge is lost, the unit receives a second copy of the same frame, since the sending side thinks that the frame was not received. Although duplicate frames are counted, only the first copy of the frame is forwarded to the Ethernet port.
- **Internally Discarded on Rx** – The number of frames that were received from the wireless media but were discarded due to lack of internal buffers space. The Low and High priority discarded frames are counted separately in brackets.
- **Frame Error Rate** – the frame error rate is calculated as:  
(Retransmitted frames) / (Transmitted frames + Retransmitted frames).

---

\* Parameters displayed in italic type are intended for authorized BreezeCOM's technicians only.

## 1.6.2 Wireless Management Statistics

Wireless Management counters display statistics about the wireless management frames sent and received by the unit. The sub-menu includes the following options:

- **Display Counters** – Choose this option to display the current value of the Wireless Management counters.
- **Reset Counters** – Choose this option to reset all the Wireless Management counters. After choosing this option you are requested to type **1** for confirmation or **0** to cancel the reset.

WL Management Statistics	
=====	
Num Of Generated Beacons	: 0
WLAN Mng Frames Sent	: 982771
WLAN Mng Frames Received	: 1405
Num Of Rx ProbReq	: 0
Num Of Rx ProbRes	: 0
Num Of Rx Beacon	: 1405
PS Aged	: 0
ProbReq Sent	: 982771
ProbReq Lost	: 1936
ProbResp Sent	: 0
ProbResp Lost	: 0
ProbResp Missed	: 0
Beacon Lost	: 0
HandOffs	: 0
Assoc Resp Generated	: 0
Assoc Resp Lost	: 0

```

SYNC Statistics
=====
Hop Sync Pulses*           : 0
Seq Sync Pulses           : 0
Hop Sync Large Update     : 0
Unexp Seq Sync Pulses     : 0
DC Offset Corrections     : 1095
Prob Request per handoff  : 0
    
```

The following is a list of the available counters:

- **Number Of Generated Beacons** – The number of the Beacon frames generated since last reset.
- **WLAN Management Frames Sent** – The number of all Wireless Management frames sent since last reset (should be equal to the number of generated beacons).
- **WLAN Management Frames Received** – The number of all Wireless Management frames received since last reset.
- **Number of Rx Probe Requests** – The number of Probe Association Request frames received since last reset.
- **Number of Rx Probe Responses** – The number of Probe Association Response frames sent since last reset.
- **Number of Rx Beacons** – The number of Beacon frames received since last reset.
- *PS Aged\**
- **Probe Requests Sent** – The number of Probe Request frames sent since last reset.

---

\* Parameters displayed in italic type are intended for authorized BreezeCOM's technicians only.

- **Probe Requests Lost** – The number of Probe Request frames generated and submitted to transmission but were discarded due to lack of internal buffers.
- **Probe Response Sent** – The number of Probe Response frames sent since last reset.
- **Probe Response Lost** – The number of Probe Response frames generated and submitted to transmission but were discarded due to lack of internal buffers.
- **Probe Response Missed** – The number of unacknowledged Probe Response frames.
- **Beacon Lost** – The number of Beacon frames generated and submitted for transmission but were discarded due to lack of internal buffers.
- **HandOffs** – The number of times the unit has synchronized since the last reset.
- **Association Response Generated** – The number of Association Response frames sent since last reset.
- **Association Response Lost** – The number of Association Response frames generated and submitted for transmission but were discarded due to lack of internal buffers.

### 1.6.3 Print Per Hop Statistics

This option prints various per hop statistics as shown in Figure 1-4:

<b>Num</b>	is a sequential number of the information row.
<b>Freq</b>	is an operational frequency number according to the hopping sequence.
<b>Rx</b>	is the number of frames received at the specified frequency.
<b>Tx</b>	is the number of frames transmitted at the specified frequency.
<b>RTx</b>	is the number of frames re-transmitted at the specified frequency.
<b>avrRssi</b>	is the average RSSI of all the frames received at the specified frequency. If no frames have been received, the avrRSSI is 0.

All other parameters (SlvT, MstT, RecShft, SeqOn) are meaningful only to authorized BreezeCOM technicians.

Num	Freq	Rx	Tx	RTx	avrRssi	SlvT	MstT	RecShft	SeqOn
1	2	10	13	1	100	0	0	0	0
2	25	11	12	2	98	0	0	0	0

**Figure 1-4. Per Hop Statistics**

A short summary is produced, after the table is printed:

```

Received Frames per second      : 10.48000
Transmitted Frames per second   : 12.51000
Retransmitted Frames per second: 1.456000
The current frequency index     : 28
    
```

### 1.6.4 TCP/IP Statistics

This option displays various TCP/IP statistics, which are identical to the TCP/IP MIB2 structure.

### 1.6.5 VLAN Statistics

This menu displays VLAN counters which show statistics regarding VLAN port activity of the unit. The menu includes the following options:

- **Display Counters** – Choose this option to display the current value of the VLAN counters.
- **Reset Counters** – Choose this option to reset all the VLAN counters. After choosing this option you are requested to type **1** for confirmation or **0** to cancel the reset.

```

Handled fragments      : 0;
Forwarded to WL       : 0;
Forwarded to ETH      : 0;
Discarded from WL     : 0;
Discarded from ETH    : 0;
    
```

The following is a list of the available counters:

- **Handled Fragments** – The total number of frames submitted to the VLAN filter.
- **Forwarded to WL** – The number of frames that passed the VLAN filter from the Ethernet to the WLAN.
- **Forwarded to ETH** – The number of frames that passed the VLAN filter from the WLAN to the Ethernet.
- **Discarded From WL** – The number of frames from the WLAN discarded by the VLAN filter.
- **Discarded From ETH** – The number of frames from the Ethernet discarded by the VLAN filter.

## **1.6.6 Memory Usage Statistics**

Should be used only by authorized BreezeCOM technicians

## **1.6.7 Average RSSI Continuous Display (SU only !)**

This option displays a continuously updated table that includes information on the quality of the received signal.

Each line includes the number of frames that were received since last measurement (total Rx) and the average RSSI for these frames (avrRSSI:).

To start the continuous display, type **1** (Enable). To stop, type **7** (to return to the selection menu) followed by **0** (Disable).

## 1.6.8 MAC Address Database

The MAC Address Database displays the Bridging (Forwarding) database and the Association database. The following options are available:

- 1 – *Display MAC Address Database* (applicable only to authorized BreezeCOM technicians)
- 2 – Display Bridging Info
- 3 – Display Association Info
- S – Display MAC Address Database Parameters

### 1.6.8.1 Display Bridging Info

This option displays MAC addresses that the Bridge memorizes in the Filtering Database.

```

0 : Mac: 00:00:3B:80:3D:56   Age:   3 sec, Vp (WB address 00:20:D6:84:85:79)
1 : Mac: 00:60:08:AA:AF:9D   Age:   2 sec, Vp (WB address 00:20:D6:84:85:79)
2 : Mac: 00:60:B0:72:D3:16   Age:   2 sec, Vp (WB address 00:20:D6:84:85:79)
3 : Mac: 00:20:D6:81:1C:04   Age:   2 sec, Vp (WB address 00:20:D6:84:85:79)
4 : Mac: 00:20:D6:1C:5F:6D   Age:   2 sec, Vp (WB address 00:20:D6:84:85:79)
5 : Mac: 00:60:97:55:8D:76   Age:   0 sec, Vp (WB address 00:20:D6:84:85:79)
6 : Mac: 00:A0:C9:55:1C:2C   Age:   0 sec, Vp (WB address 00:20:D6:84:85:79)

```

The *Display BridInfo* option displays for each entry, its MAC address, age, and type.

**Et** type is displayed for the addresses that has been learned from the Ethernet side, **Wl** for the addresses that has been learned from the WLAN side, **Vp** (for the AU only) for the addresses of the nodes connected to the Ethernet ports of the SUs that are associated with the AU. For each associated SU, the SU address (designated **WB** address) is also displayed.

After the table is displayed, a short summary is generated:

```

Entries           7
Aging             2000
Max Entries      1019

```

### 1.6.8.2 Display Association Info

This option is supported by AUs only. For each associated SU, this option displays its MAC address, age, whether or not it is configured for MIR/CIR operations, the rate of transmission, the number of frames transmitted to the SU, the number of retransmitted frames, the number of dropped frames, and whether or not the MAC address of this SU is prioritized.

**Example:**

```
0;          Mac           :    00:20:D6:84:85:79
           Age            :    35 sec
           NO MIR         :
           Rate           :    3Mb/s
           Transmitted    :    1576547
           TxRetry        :    2409
           xDrop          :    0
           Prioritized    :
Association Entries      :    1
info           Aging      :    NO AGING
           Max Entries    :    512
```

### 1.6.9 Frame Error Rate

Activates a test between two units (AU and SU) in which each unit also transmits information regarding its calculated error rate. The display includes:

- SU Frame Error Rate:
- AU Frame Error Rate

The Frame Error Rate is calculated as:  
(Retransmitted Frames)/(Transmitted Frames+Retransmitted Frames).

### 1.6.10 Call Management Statistics (SU-DV only)

Should be used by authorized BreezeCOM technicians only.

### 1.6.11 Voice Statistics (SU-DV only)

Should be used by authorized BreezeCOM technicians only.

### 1.6.12 Tx Queue Length Statistics

Should be used by authorized BreezeCOM technicians only.

## 1.7 Access Control Menu

*Access Control* menu options enable the System Administrator to limit the access to the Local Terminal Maintenance setup and configuration menus.

```
BreezeACCESS (SU-I-8D)
Official Release Version - 1.5.12
Release Date: Sun Oct 31 11:41:23 1999
Access Control menu
=====
1 - Change Access Rights
2 - Change Service Provider Password
S - Show Current Access Right
```

**Figure 1-5. Access Control Menu**

The *Access Control* menu includes the following options:

- **Change Access Rights** – In this screen you can determine the level of access rights to the BreezeACCESS unit's setup and configuration menus. The default setting is option 1, *Service Provider* and the default password is *user*:
  - \* **Installer** – This level provides access to all the parameters in the *System Configuration* and *Accounting* menus. It also provides access to the counters and tests in the *Site Survey* menu.
  - \* **Service Provider** –Future option. In the current version it provides the same access rights as for the Installer.
  - \* **Technician** – This level is accessible only to a BreezeCOM personnel that have the correct password.
- **Change Service Provider Password** – Type in the new password according to the on-screen instructions. The password is limited to eight printable ASCII characters.
- **Show Current Access Right** – This read-only screen displays the current access right setting (USER is displayed for the Installer level and SERVICE PROVIDER is displayed for the service provider level).

---

**Note:** *If you change the Service Provider password, **do not forget it**, or you will be unable to change the unit's access rights.*

---

## 2. TELNET

1. Connect the PC to the Ethernet port of the unit (or the hub to which the unit is connected) using a straight Ethernet cable. If you connect the PC directly to a unit that is normally connected to a hub, use a crossed Ethernet cable. You may also connect the PC to any Ethernet port on the network.
2. Make sure that the IP parameters of the PC are configured to enable connectivity with the unit.
3. Run a Telnet application and use the IP address of the unit to be managed as the Host Name.
4. Set Port to *Telnet* (this is the default).
5. Set Terminal Type to *VT100* (this is the default).
6. Enter the Service Provider password.
7. When the password is recognized, the following message is displayed:

You have entered.
8. Press **Enter**, the Breeze ACCESS Monitor is displayed on the screen.
9. To exit the Telnet session, choose *Disconnect* from the *Connect* menu.

## 3. SOFTWARE VERSION DOWNLOAD

### 3.1 Download Procedure

Firmware upgrades to the unit's flash memory are performed by a simple download procedure using a TFTP application. Before performing an upgrade procedure, **be sure you have the correct files and latest instructions**. Upgrade packages can be obtained at the BreezeCOM web site: [www.breezecom.com](http://www.breezecom.com).

---

*Note:* Shutting down power to the unit, or terminating the download procedure before completion, may cause the unit to be inoperable.

---

⇒ **To download an Upgrade package:**

1. Set up an IP connection to the device. You can verify the connection by using the Ping command.
2. Run the TFTP software and connect to the device.
3. Use TFTP to download the erase file to the device. Use block size of 512 bytes. Downloading the erase file clears the Flash memory of the device. **Do not reset the device now.**
4. Wait at least 1 minute to ensure completion of the erase operation (while waiting, you may run Telnet to see when the erase operation ends).
5. Use TFTP to download the software file to the device. Use the tables below to determine the specific file to use, according to the unit's current version.
6. The new version is loaded into the backup Flash memory. Refer to the *Station Control* menu on page 31 for further details on activating the new software version.

Unit	File Name
AU	eanafb
SU-D (Data only)	eansfb
SU-DV (Data & Voice)	eantfb

## 4. SNMP MANAGEMENT

### 4.1 Supported MIBs and Traps

This chapter lists MIBs and traps supported by BreezeACCESS products.

#### 4.1.1 Supported MIBs

All products in the BreezeACCESS family include an embedded SNMP (Simple Network Management Protocol) agent. All functions can be accessed from the Management Information Base (MIB) using an SNMP application.

BreezeACCESS agents support the following MIBs:

- MIB-II (RFC1213)
- BRIDGE-MIB (RFC1286)
- BreezeCOM Private MIB
- BreezeACCESS Private MIB
- BreezePHONE Private MIB

The BreezeCOM, BreezeACCESS, and BreezePHONE Private MIBs can be viewed by opening the MIB file on the provided diskette.

#### 4.1.2 Supported Traps

The following traps are implemented in BreezeACCESS units. All BreezeACCESS units with enabled Trap Sending will send traps to the network's designated managers. The traps can be viewed and filtered using SNMPC.

To enable/disable Trap Sending for a device, use the *TCP/IP and SNMP Parameters* menu (refer to Section 1.4.2).

The following table lists the traps implemented in BreezeACCESS units:

**Table 4-1. Traps Implemented by BreezeACCESS Units**

<b>Trap</b>	<b>Variables</b>	<b>Description</b>
brzAPassociated	brzTrapSTAMacAddr	A new Subscriber Unit (station) is associated with this AU. The trap contains the MAC address of the associated Subscriber Unit.
brzAPdisassociated	brzTrapSTAMacAddr	A Subscriber Unit (station) has disassociated itself from this AU. The trap contains the MAC address of the associated Subscriber Unit.
brzSTAassociated	brzLastAPMacAddr brzTrapAPMac brzTrapLastRssiQuality brzTrapRssiQuality	A Subscriber Unit (station) has become associated with a new AU. The trap contains the MAC address and average RSSI level of the new AU ( <b>TrapAPMac</b> and <b>TrapRssiQuality</b> variables). If the Subscriber Unit has been roaming, the MAC address of the old AU and the RSSI level prior to roaming are also provided ( <b>LastAPMacAddr</b> and <b>LastRssiQuality</b> variables). For an association, the second address appears as all zeros.

## 5. APPENDIX A.

### Configuring the VoIP Table in Cisco Routers

Prompt	Command	Explanation
Router>	enable	Entry to enable mode
Password>	cisco	Enter the password for enable mode
Router#	config terminal	Entry to configuration mode
Router (config) #	dial-peer voice 403 voip	Entry to Dial Peer Tag #403 config (sequential number set by the user for the logic port number of the voice channel associated with the specific H323 terminal)
Router (config-dial-peer) #	destination-pat +202	Enter phone number (destination pattern) of H323 terminal #202  (The phone number of the H323 terminal set by the user)
Router (config-dial-peer) #	session target ipv4:<IP>	Enter H323 terminal IP address.

Prompt	Command	Explanation
Router (config-dial-peer) #	codec g729	Enter codec mode Options are: -g729 (8Kbps compression) -g711alaw (64 Kbps, no compression, European standard) -g711ulaw (64Kbps, no compression, US standard)
Router (config-dial-peer) #	exit	Exit from Dial Peer Tag #403 config
Router (config) #	dial-peer voice 404 pots	Entry to Dial Peer Tag #404 config
Router (config-dial-peer) #	destination-pat +203	Enter phone number of H323 terminal #203
Router (config-dial-peer) #	session target ipv4:<IP>	Enter H323 terminal IP address.
Router (config-dial-peer) #	codec g729	Enter codec mode
Router (config-dial-peer) #	exit	Exit from Dial Peer Tag #404 config

\*Repeat the dial-peer configuration steps for all telephone units connected to the LAN

---

## NOTES

1. At this stage, you should be able to place calls between global telephones and H323 terminals (assuming all other relevant parameters of the router, e.g. the FXO voice interface, are already properly configured). In order to call from global phone to H323 terminals, dial extension number (the wall number, which is connected to the router). Wait for the tone and dial the terminal's phone number.

For calling from H323 terminals to a global phone, dial the prefix for the outgoing trunk number configured in the router (e.g. 9) followed by the full telephone number.

2. Save the configuration

Prompt	Command	Explanation
Router #	<code>copy running-config startup-config</code>	Save configuration to flash

---

**Note:** You may use the `show summ` command to view the parameters stored in the cisco unit's memory.

---