
BreezeACCESS SU-M

Software Version 4.1.13.1
Release Note

Official

August 2002



Introduction

BreezeACCESS SU-M and software version 4.1.13.1 are officially released.

BreezeACCESS SU-M

With concerns about homeland security emerging as a primary focus of U.S. public policy, Alvarion is using its wireless networking expertise to help our national efforts in ensuring greater public safety. With the release of our SU-M mobile data subscriber unit, Alvarion is making real-time file sharing applications a reality in homeland security applications.

High-speed, real-time file sharing is already a reality with Alvarion's high-speed mobile device—the Subscriber Unit-Mobile (SU-M). The SU-M, which works in conjunction with already deployed MDTs, is the first wireless LAN (WLAN) product to be specifically designed for use in the public safety arena. It allows public safety agents to quickly access remote servers while they are on the streets, giving them a true mobile broadband connection to critical data. For example, users can seamlessly extract information, email headquarters or other field officers, as well as send large data files with pictures and other pertinent information with the same speed and data integrity as a traditional, wired LAN.

Product Highlights:

- Rugged Trunk Mountable Unit
- Operates on Automobile Power (9-18 VDC)
- Compliant with TBD transportation specification (Shock, Vibration, Environmental)
- Diversity Antenna Support
- Robust Frequency Hopping Radio Architecture
- Wireless Connection Status Utility for PC
- SNMP or Telnet Manageable

BreezeACCESS software version 4.1.13.1 provides enhancements to the existing product line, including:

- Roaming Support
- Automatic Transmit Power Control (ATPC)
- Support of Radius billing and authentication
- Auto-configuration mechanism
- Asymmetrical Multi-rate support
- Higher mark resolution for Best AU selection
- Bug Fixes

Software version 4.1.13.1 supports the following products:

- BreezeACCESS II
 - SU-M, (SU-1D and SU-8D only) No SU-BD support

New Software Features

Software version 4.1.13.1 incorporates new features and improvements. The two main enhancements are Roaming Support and Automatic Transmit Power Control (ATPC)

- Roaming Support – Roaming allows all the clients' sessions behind the roaming unit to continue (not seamless due to re-association) and get services from the network with no actual disconnection. The mechanism of the feature is updating the MAC table of all the bridge components that connected to the same Layer 2 segment, with the MAC table of the roaming SU, so every device knows where to tunnel the traffic to their new location, It is done by sending snaps as multicast within the network (Layer 2 only).

- Automatic Transmit Power Control (ATPC) – the ATPC is an algorithm that automatically adjusts the power level transmitted by each SU according to the actual level at which it is received by the AU. The algorithm is controlled by the AU that calculates for each SU the average RSSI at which it is received. If the average RSSI is not in the optimal range, the AU transmits to the SU a power-up or a power-down message. The target is that each SU will be received at an optimal level, or as close as possible to the predefined range limits.
The use of ATPC may reduce the interferences of close SUs to adjacent sectors while still maintaining the link to the SUs. In some cases, reducing the interferences may result in the ability to increase the rate of other SUs that suffered from these interferences. The ATPC also improves the system performance in fluctuated links. In this case the ATPC tracks the received signal level and increases/decreases it in order to receive the signal in a known and constant range.
The use of ATPC is not recommended in unlicensed 2.4 ISM band as it may reduce the signals of SUs to a lower level than other systems signals.
This feature must be used in AlvariBASE installations.

Other Features

- Support of Radius billing and authentication - managing a large number of users creates the need for significant administrative support together with careful attention to security, authorization and accounting. The use of RADIUS (Remote Authentication Dial In User Service) enables operators to manage a single "database" of users, supporting authentication (verifying user name and password) as well as configuration information detailing the type of service to deliver to the user and the traffic that the user transmitted and received, for billing proposes.
In the BreezeACCESS system there is a RADIUS client implemented in each Subscriber Unit. The RADIUS can be used for authentication purposes only, for accounting purposes only, or for both authentication and accounting purposes.
- The implementation of Radius client in the BreezeACCESS system complies with RFC 2865 (authentication) and RFC 2866 (accounting). Interoperability was tested with (Navis) Lucent Radius server.
- Interference rejection mechanism – it is possible to adjust the interference rejection ratio by configuring the Noise Floor to a level that rejects the undesired signals. By adjusting the NF to a level which is higher than the received interferences, the system will ignore these signals. As a result, retransmissions may be decreased and the total capacity will increase. The use of this feature is mainly needed when deploying the High Capacity base station.
- Asymmetrical Multi-rate support
The rate in the downlink is handled independently and is not related to the maximum data rate parameter configured in the SU. The AU transmits the downlink traffic in the maximum possible rate no matter what is the maximum data rate of the uplink. The asymmetry does not apply to the uplink, i.e. the SU will not transmit the uplink traffic in a rate, which is higher than the maximum data rate configured in the SU.
- Auto-configuration mechanism
Upon startup the SU initiates a DHCP request. In the DHCP response the SU gets the following parameters:
 - Dynamically allocated IP address.
 - IP address of a configuration server.
 - Configuration file name.The SU downloads the CFG file from the specified server using TFTP (client) and applies the CFG settings specified in the CFG file.

- Higher resolution in Best AU selection
In order to allow SU to better select the best received AU (mainly needed in deployments of high capacity base station) the selection is according to the receive signal in dBm and not according to a relative mark that each AU gets. The granularity is of 1 dBm.
- Passive scanning
It is possible to select Passive scanning rather than Active scanning. It is mandatory in deployments of AlvariBase in order to avoid the BS radio to get into saturation whenever SU transmits probe request.
- ESSID in Read Only community
Operators can choose to hide/unhide the ESSID under Read Only community. If chosen to be hidden, the user will get a string of asterisks instead of the ESSID string. A new parameter `brzaccSNMPReadESSID` was added.
- Default Key ID parameter is no longer available in AU (AU can associate with any SU using Shared Key (WEP) as long as one of the keys in the AU (both # and content) is identical to the key configured as the Default Key in the SU).

Default Value Changes

- Carrier Sense Level range was changed to -100 to -40 (instead of -255 to 255). The value is presented in dBm.

Fixed Bugs

- When shared key option is used, it is possible to use any key as the default key. Please refer to the backward compatible table below.
- Management frames are not forwarded to the Ethernet port due to the use of User defined IP filtering.

Known limitations

- In networks with large number of frequencies, if passive scanning is used with Best AU and/or Preferred AU enabled, it may happen that the SU will receive only few AUs or will not receive the preferred AU. It is recommended to increase the number of Maximum scanning attempts in order to increase the chances of the SU to receive more AUs.
- Radius support in version 4.x is not compatible with radius support in version 3.x.

Previous limitations

- In case VLAN forwarding is used, it is needed to enter the VLAN management ID to the forwarding list of the AU before the upgrade. Otherwise, it will be impossible to manage the SUs until configured.
- In case SU voice unit was upgraded from version prior to 3.0 and now is upgraded to version 4.1, the G.729 Frames per packet value needs to be manually configured to "6". Failing to do so may cause decreased performance in ACSE mode.
- Downgrade from 4.1.x to version 3.x (except of special version 3.052.3) will have the following restrictions: If VLAN ID - Management (or VLAN ID Voice & Management) is equal to 65535, after the downgrade it will be automatically reverted to value of "1" and Management capabilities to the unit might be lost.
- Using version 4.1.x MIB file, ring frequency should be set to the frequency value (17, 20, 25, 50) and not to the menu index.



- GU-BS parameters return to default setting in case of software version downgrade.
- Voice configured with G.723 codec + VAD on + Fast start mode cannot operate with Cisco gateway, as this feature is not supported by the gateway.
- The ACSE protocol does not support the use of VAD.
- When the CIR/MIR algorithm is used, it effects the prioritization of packets more than other priority mechanisms such as ToS and/or VLAN priority.
- Fatal error messages are not displayed on the monitor through Telnet.
- In cases where "DHCP only" is defined the SU doesn't send the correct IP address to the gatekeeper.

Compatibility and Interoperability

Version 4.1.x is compatible with BreezeACCESS II SU-M hardware platform.

When ACSE mode is disabled, the version is compatible with all previous BreezeACCESS software versions, allowing interoperability between Access Units and Subscriber Units with mixed software versions.

- When using the ACSE, this software is compatible with version 4.0 only. However, units in ACSE mode enabled are not interoperable with units that do not operate in ACSE mode.
- When using the enhanced flexible mechanism, it is not interoperable with previous flexible hopping mechanism. Therefore, all units should use the same hopping mechanism.
- The current implementation of Flexible Hopping is not compatible with Fixed Sub Bands mechanism or Site Proprietary mechanism. All units should be configured to the same hopping mechanism.
- Shared key option - When using shared key option in cells with mixed versions, it can operate according to the following table:

Versions		Default key
4.1.x	→ 4.0.58 / 4.0.57	Key #1 only
4.1.x	→ 3.1.1 or lower	Any key
4.1.x	→ 4.1.x	Any key

Monitor Changes

- The monitor has been adopted to support the new features detailed above.
- Software version 4.1.13.1 is indicated on the main menu.

Documentation update

- Manuals were updated to reflect the new features.
- The following documents are included in this release:

Upgrading Notes

It is possible to upgrade all BreezeACCESS units, running software version 2.x or higher, to version 4.1.13.1. An upgrade package to version 4.1.13.1 including additional upgrade instructions and the updated documentation is obtainable from the Alvarion WEB-site, in the Technical-Support area.

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