

Product: Ascom FreeNET Systems

Purpose: To answer frequently asked questions on FreeNET Systems.

Date: 1/3/2008

Ascom FreeNet Technical FAQ

i75 displays “No system”

When the i75 shows “No system” it cannot find the wireless infrastructure with settings matching those configured in the i75.

1. Check SSID. SSID configured in i75 must be identical to SSID configured in the infrastructure.
2. Check security settings. Security settings i.e. authentication and encryption must match the settings in the WLAN infrastructure.
3. Check for 802.11d multi-regulatory domain settings. i75 version 1.1.0 – 1.1.15 must be able to detect in which country it is located to use the correct channel and transmit power settings. Later versions have a parameter specifying if 802.11d should be used or not. This is provided by the infrastructure according to the 802.11d standard.
4. Check which channels are used. i75 uses channels by default 1, 6 and 11. If the infrastructure is configured to use any other channel, change it to use only 1, 6 and 11 as this is the recommended setting.
5. Check that the correct system (A, B, C or D) setting is selected.

i75 Displays “No access”

When the i75 shows “No access” it has found and associated to the WLAN (i.e. a wireless network with the configured ESSID and correct security settings). But it can connect to neither the gatekeeper nor the messaging gateway (IMS).

1. Check if the phone has an IP address by entering the “System information” screen. If not check the WEP key if used or WPA/WPA2 passphrase.
2. If using WEP double check the key if the phone has no IP address. If you have a wireless sniffer, configure it to the correct key and try to decode packets both from and to the i75.
3. Check the Gateway address. Try to ping the gateway from another wireless client.
4. Check the IMS address. Try to ping the IMS from another wireless client.

i75 Displays “Voice only”

When the i75 shows “Voice only” it is configured to use both a gatekeeper and an IMS, but has lost contact with the IMS.

1. Check the IMS address. Try to ping the IMS from another wireless client.
2. Remove i75 from PDM stand alone USB cradle. When connected to the stand alone (WinPDM) PDM via USB the i75 cannot connect to the IMS and may then show “Voice only”.
3. If messaging is not used in the system, verify that the IMS address is 0.0.0.0.

i75 “Messaging only”

When the i75 shows “Messaging only” it is configured to use both a gatekeeper and an IMS, but has lost contact with the gatekeeper.

1. Check the Gateway address. Try to ping the gateway from another wireless client.
2. Try to send a message. The idle connection check interval to the IMS is much longer than to the gateway. Sometimes when all network connection is lost the i75 will show “Messaging only” for quite some time because it discovers it has lost connection to the gateway much faster than it discovers loss of connection to the IMS. In this case the i75 will eventually change to “No access”.

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3. If the phone is supposed to use Gatekeeper discovery, verify that the GK address is 0.0.0.0.
4. Check E.164 Number and E.164 Name. If both are configured the MUST match. Try clearing one of them.

Voice quality is bad

1. Check if QoS is working in both directions. Voice traffic should be prioritized on both the LAN and the WLAN.
2. Connect to other phones (wired, analogue or external) to determine if it is the other end that may cause bad quality.
3. Do a site survey and check for areas with under/over coverage and other interfering 802.11 systems.
4. Do a network performance test to ensure the wired LAN/backbone has adequate capacity.
5. Use a spectrum analyzer and look for non 802.11 interference.

Battery life is bad

1. Check "Beacon interval" and "DTIM" settings in the AP.
2. Use a sniffer and check the amount of broadcast traffic that is transmitted on the WLAN.
3. Check if correct models of the chargers are used.
4. Verify with another battery.
5. If the system is supposed to use U-APSD for voice calls check the voice power save mode parameter in the PDM.

Connected call but no sound or one way sound

1. Note the IP addresses of the phones. Turn the phones off and ping the addresses they had. If something still answers, the problem was an IP conflict.
2. Check if any of the phones are muted.
3. Use a headset to rule out bad speakers/microphone.

i75 Troubleshooting Functions

Q. How do you find the IP Address assigned to an i75?

A. *#46#

Q. How do you find the MAC address of the i75?

A. *#46#

Q. How do you find the current BSSID on an i75?

A. *#76#

Q. How do you find the current ESSID on an i75?

A. *#46# or *#76#

Q. How do you find the current RSSI on an i75?

A. *#76#

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Q. How do you find the current channel being used on an i75?

A. *#76#

Q. How do you access the site survey functions on an i75?

A. *#77#

Statistics web page

The statistics is accessed from the troubleshoot section on the i75 web page. Enter the i75's IP address in a web browser and press the troubleshoot button. Administrator user name and password is required. Two statistics pages can be selected in the left menu.

Voice Statistics

To view the voice statistics there must be an active call. The statistics are collected from the RTP module and from the jitter buffer.

```
Voice packet loss           = 0%
Rx Voice Packets           = 32455
Tx Voice Packets           = 32463
Rx Min Pkt Interarrival time = 0 (ms)
Rx Max Pkt Interarrival time = 40 (ms)
Rx RTP Avg Jitter          = 8 (samples)
```

Voice packet loss is the number of lost RTP frames relative to total number of transmitted and received frames. "Rx Min Pkt Interarrival time" and "Rx Max Pkt Interarrival time" records the shortest and the longest time frame between two RTP frames. "Rx RTP Avg Jitter" gives the mean value of the RTP jitter over time. The value given is in samples with a default sampling rate of 8 kHz.

WLAN Connectivity Statistics

WLAN statistics are cumulative from boot or from last reset. Reset of statistics is done using button on the same web page as shows the statistics.

```
WLAN Connectivity Statistics

Transmit error rate = 1%
Receive error rate  = 0%
Assoc rejects       = 0
Assoc timeouts      = 0
Auth rejects        = 0
Auth timeouts       = 0
```

Transmit error rate is the number of failed transmission relative to the total number of transmitted frames. And similar the receive error rate gives the number of failed (FCS error) received frames relative to the total number of received frames. "Assoc rejects" and "Assoc timeouts" is the number of received association responses that were not successful and the number of expected but missing association responses. The "Auth" statistics is similar to the "Assoc" statistics.