



iDirect iNFINITI series Troubleshooting Guide

rev.2008-06-15 - download the latest version of this guide at www.iraq-sat.net

System information

Please have the following system information ready, and record it here. It will help you during troubleshooting, and will be needed if you contact tech support. This information is available from your service provider.

Site ID (ex: XXXXXX00000): _____
IDU/Modem Serial (ex: 00000): _____
Gateway IP (ex: 85.31.67.1): _____

Before you begin

Before you begin troubleshooting, please check the support section of the IraqSat web site for updated information, frequently-asked questions, and service announcements.

IraqSat: <http://www.iraq-sat.net>
Support: <http://iraq-sat.net/support>

What you will need

You will need a PC running MS Windows, a copy of the iDirect iSite software, and either a network switch and network cable, or a cross-over network cable. This guide assumes you are using MS Windows XP and MS Internet Explorer 6 or higher. Other browsers and versions of Windows will also work, but may have different commands, methods, and appearance.

The latest copy of the iDirect iSite software is available in the Downloads section of the IraqSat Support site. Please make sure you are always using the most up-to-date version of the software.

Familiarity with Windows PCs and an understanding of basic concepts of IP networking is strongly advised.

Troubleshooting your iNFINITI series VSAT

Follow the following steps in order. When you contact technical support, include the results of each question, and provide as much information as possible

1. Preparing to use iSite

iDirect develops the iSite software for monitoring the iNFINITI series IDU. From iSite, you can identify most problems with the unit.

1.1. Connect a PC directly to the VSAT LAN

iSite can only monitor your iNFINITI series IDU when it is connected on the same LAN, with no router between the PC and IDU. To do this, connect both your PC and the the iNFINITI series IDU to an Ethernet switch with normal Ethernet network cables. Make sure to use the "LAN" port on the IDU. Alternatively, you may use a crossover network cable directly between the IDU and your PC.

You should see GREEN and AMBER link lights on the LAN port, and message in Windows that "Local Area Connection is now connected".

<i>Does the link light come on? yes / no</i>
--

If no, check your network cable and your PC for hardware problems. If you cannot make a connection, go on to section 3.

1.2. Configure your PC to obtain an IP address automatically

Open the "Start" menu, then "Control Panel", and select "Network Connections". Right-click on "Local Area Connection" and choose "Properties". From the list, select "Internet Protocol (TCP/IP)" and click the "Properties" button. Select "Obtain an IP address automatically" and "Obtain DNS server address automatically".

Click "OK" to close all Network Properties and Control Panel windows.

1.3. Start iSite

Start the iSite application. You should see an information about your IDU in the left pane, entitled "iSite Tree View". This includes the model number, serial number, and IP address (Gateway IP):

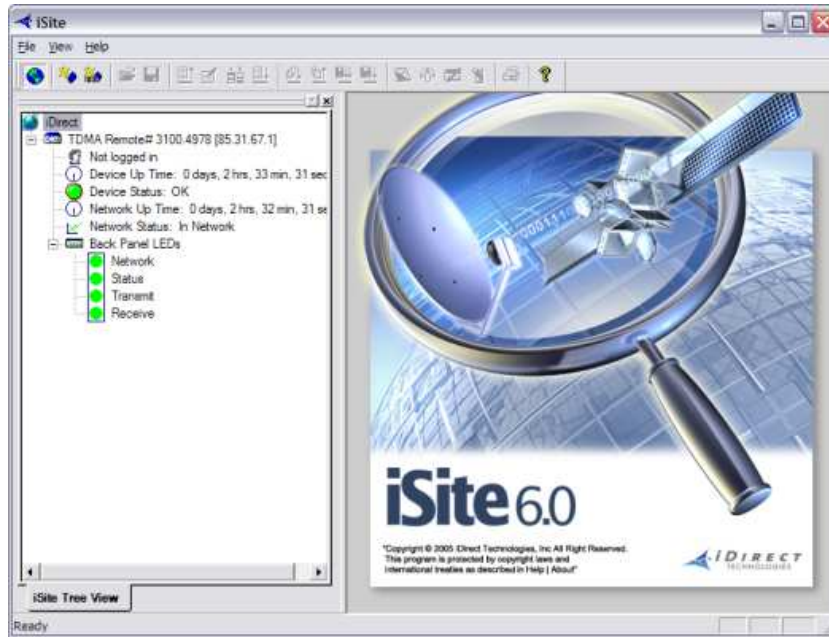


Figure 1.1: iSite detecting an iNFINITI series IDU

If iSite does not detect an iDirect IDU, there will be little or no information in the left pane:



Figure 1.2: iSite not detecting an IDU

Does iSite display an IDU complete with status lights? yes / no

If yes, you are ready to use iSite. Proceed to section 2.

If no, you may need to open Windows Firewall. Go on to the next section.

1.4. Open UDP port 9001 in Windows Firewall

The iNFINITI series IDU communicates with iSite by sending network traffic over UDP port 9001. By default, the Windows Firewall blocks this port. You must create an exception for this port.

Open Windows Firewall settings. Open the "Start" menu, then select "Control Panel". Select "Network and Internet Connections", then "Windows Firewall". The Windows Firewall settings dialog will open.



Figure 1.3: Windows Firewall settings, General tab.

Click on the "Exceptions" tab.



Figure 1.4: Windows Firewall settings, Exceptions tab.

Click on the "Add Port" button. The "Add a Port" dialog opens:

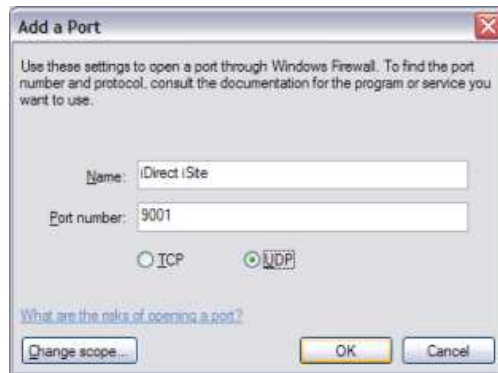


Figure 1.5: Windows Firewall settings, Add a Port dialog.

In the "Name" field, enter "iSite" or a similarly description. In the "Port number" field, enter "9001", and choose "UDP". Press "OK" until this window and the main "Windows Firewall" settings dialogs are closed.

You should now be able to use iSite. Repeat from section 1.3.

Does iSite now display an IDU complete with status lights? yes / no

If yes, you are ready to use iSite. Proceed to section 2.

If no, check your network setup in section 1.1. If you are certain your network setup is correct, go on to the next section.

1.5. Reboot the iNFINITI series IDU

Reboot the iNFINITI series and repeat from section 1.1. Some local network problems can cause the unit to lock up until next reboot.

Did the reboot resolve the problem? yes / no

If no, go to section 3.

2. Using iSite

Once you see information about your IDU in the left pane, entitled "iSite Tree View", you are ready to proceed.

2.1. Basic IDU Status

The basic IDU status indicators show the IDU details, how long it has been online, and replicate the four LEDs found on the face of the unit.

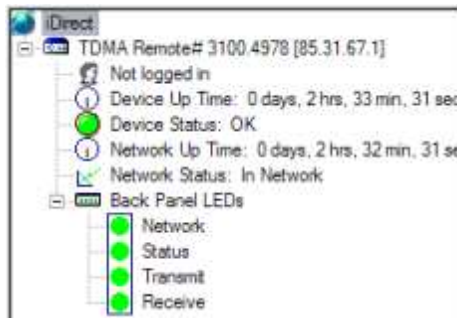


Figure 2.1: Basic IDU Status indicators.

Are all four status lights GREEN? yes / no

If no, proceed to section 3.1 to learn what these lights mean.

If yes, proceed to the next section.

2.2. Login

Additional troubleshooting information is available by logging in to the IDU. Right-click on the IDU to display the main context menu. Click "Login". The Login dialog is displayed:



Figure 2.2: Right-click context menu and Login dialog.

Verify that the IP address matches the Gateway IP. Then click "User" and enter the password, which was given to your network administrator. The default password is "iDirect".

2.3. The Information Tab

After logging in, the information tab appears in the pane on the right. This tab shows a lot of useful technical information which technical support may require.

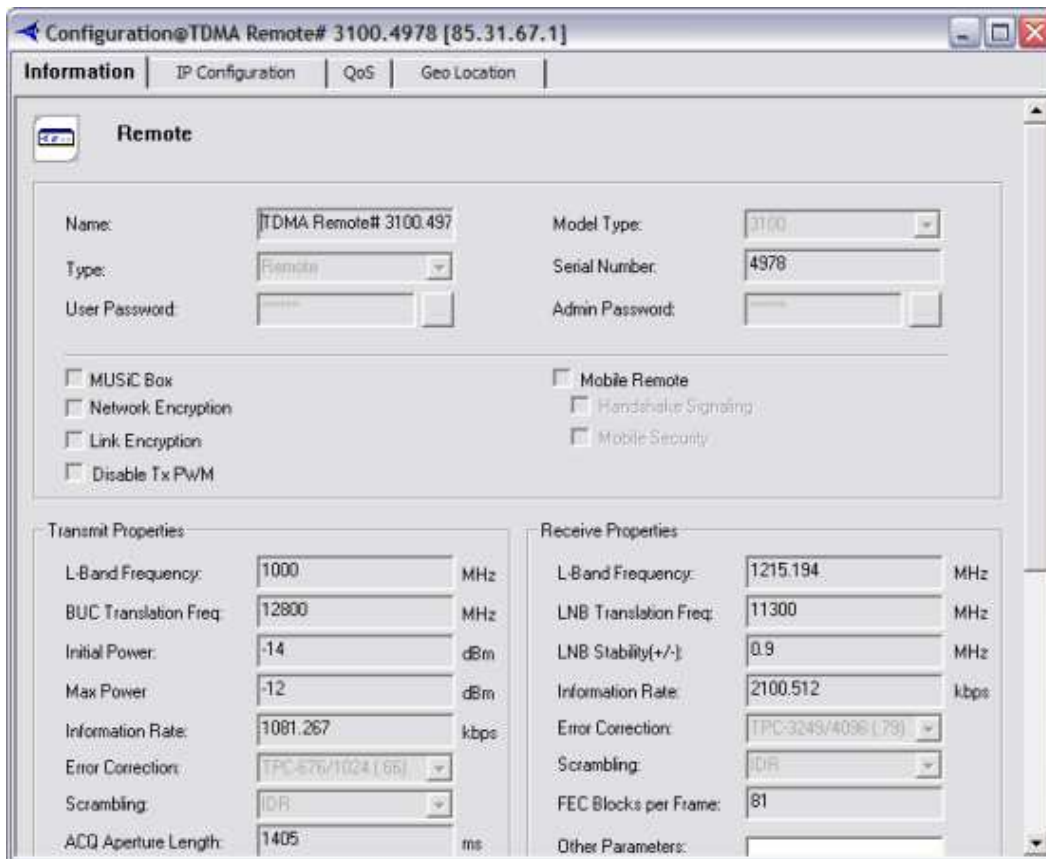


Figure 2.3: The Information tab.

If you report a problem, please include the information from this pane, especially including the Transmit and Receive frequencies, BUC and LNB translation frequencies, as well as the serial number, and Gateway IP.

Other tabs show the IP Configuration, QoS (Bandwidth / Service Plan), and Geo Location of your IDU. Check to ensure the information in these tabs is correct, and be prepared to give it to technical support if asked.

2.4. The IP Stats Window

The IP Stats window allows you to view the current download and upload rates of your IDU. This is an exact measure of the current data rate of your service, and is far more reliable than any other test. VSAT Internet service is different from other broadband services, meaning other tests such as the HTTP download test in section 4.1 or "Internet speedometer" sites are not a reliable measure of your network connection.

To view IP Stats, right-click on the IDU in the "iSite Tree View" pane on the left. This displays the main context menu. Select "IP Stats", then "View":

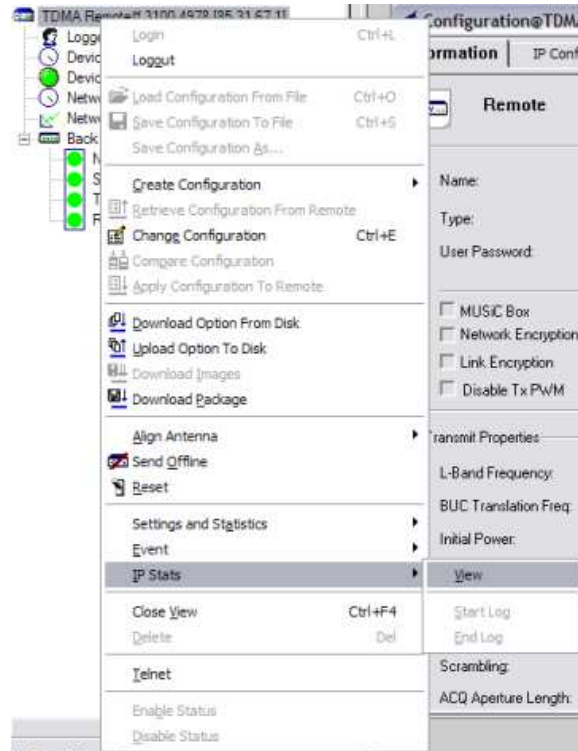


Figure 2.4: Viewing the IP Stats window.

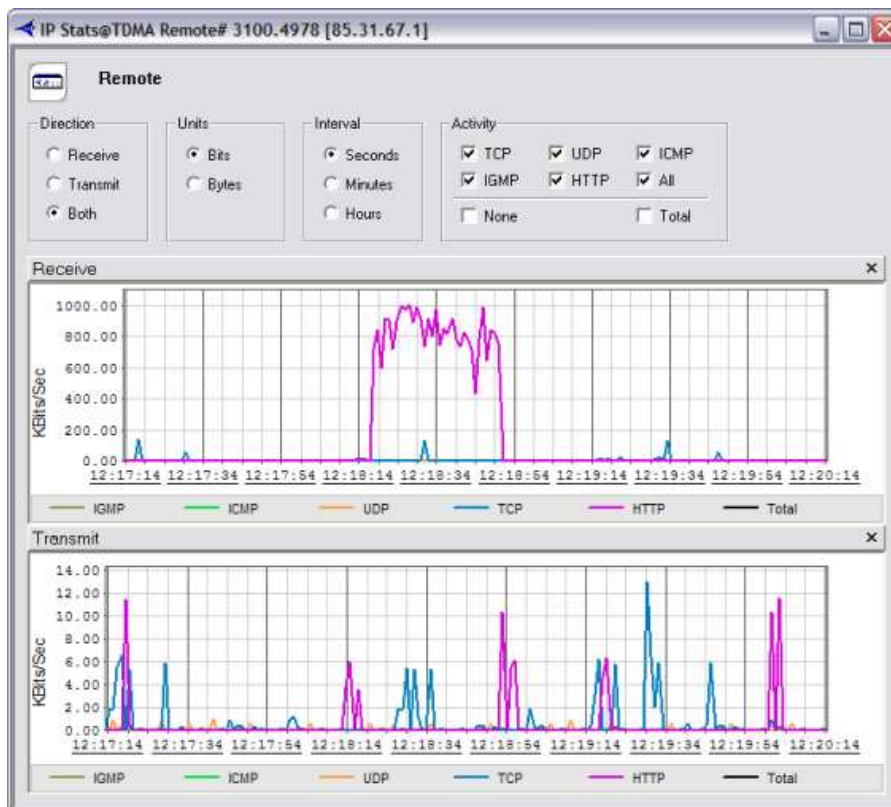


Figure 2.5: Viewing the IP Stats window.

To enable the additional options and color-coded legend, click on the "View" menu at the top of the iSite window, then select both "Legend" and "Parameters". These options allow you to view data by protocol and by type of units (Bit vs. Bytes).

Note: Service is sold in kilobits/sec (kb/sec or kbit). Internet Explorer reports speeds in kilobytes/sec (kB/sec or kbyte). 1 kbyte = 8 kbits. Therefore 2048 kbit service will show download speeds no higher than 256 kbytes/sec

IraqSat iDirect service is a shared bandwidth system. Expected download rates vary with the grade of service (GOS), the time of day, and average network load. To test your current performance, observe the IP Stats window during a file upload or download, or during a time of busy usage at your site. A good download test is to use the HTTP download test in section 4.1 while observing IP Stats.

If your site is performing poorly, you may:

- Have a problem with your PC, such as a virus infection or hidden software that is consuming bandwidth. See section 5 for more information.
- Have been throttled for a violation of the Terms of Service. See section 6 for more information.

If you suspect a problem with your service, contact technical support and include your identifying information and the observed download and upload rates as reported in the IP Stats window.

2.5. Try to browse the web

If all tests have passed so far, try to browse the web. Using Internet Explorer, open any common site such as www.google.com or www.yahoo.com.

Does the page display? yes / no If no, what error does Internet Explorer display? _____
--

Have you found any errors with any of the tests so far? yes / no
--

If no, your iNFINITI series unit is functioning correctly.

If you are still having a problem, try the performance tests in section 4 or the local network and PC tips in section 5.

3. Is the VSAT hardware functioning correctly?

The iNFINITI series IDU consists of a single component, integrating a satellite modem with a basic network router.

3.1. Check the status lights

The iNFINITI series IDU has five multi-color LEDs on its face. From left to right, these are marked "RX", "TX", "NET", "STATUS", and "PWR".



Figure 3.1: iNFINITI series IDU status lights in normal operation

In normal operation, all five lights are solid GREEN. The lights may flash during bootup and when reconnecting to the network, and change color according to the state of the IDU. The following is a table of the possible status of these lights.

LED	Color	Indicated Status
PWR	OFF	The IDU is powered off or there is a power supply problem.
PWR	GREEN	The IDU is powered on.
NET	GREEN	The IDU has acquired into the network.
NET	FLASHING GREEN	The IDU is attempting to acquire into the network.
NET	YELLOW	The downstream SCPC channel is locked.
NET	FLASHING YELLOW	The downstream SCPC channel is not locked.
STATUS	GREEN	The IDU is functioning properly. The DRAM test is successful.
STATUS	FLASHING GREEN	The unit is booting. The DRAM test is in progress.
STATUS	RED	There is a serious fault or failure in the software, hardware, or configuration. May indicate that the DRAM test has failed.
TX	GREEN	The IDU's transmitter is enabled.
TX	YELLOW	The IDU's transmitter is disabled.
RX	GREEN	The IDU's receiver is successfully locked to the downstream SCPC channel.
RX	YELLOW	The IDU's receiver is not locked to the downstream SCPC channel.

Figure 3.2: iNFINITI series LED status.

<p>Are all lights normal? <i>yes / no</i> If no, which lights are not? _____</p>

If no lights are on, there is no power to the IDU. Check the power supply to make sure it is plugged in and undamaged. If all lights are normal, go back to section 2 or section 1.

3.2. Check the cables

Several cables connect to the IDU in back.

- Power cable - connects to a DC power supply from AC mains power
- Receive co-axial cable - connects to LNB, the receive part of the ODU, at the antenna/dish
- Transmit co-axial cable - connects to BUC, the transmit part of the ODU, at the antenna/dish
- Ethernet cable - connects to PC, switch, router, or other network equipment

IMPORTANT: Always disconnect the power to the iNFINITI series IDU before connecting or disconnecting the receive or transmit co-axial cables. Failure to do so may damage the unit and void your warranty.

Are any cables or connectors damaged? yes / no Which ones? _____
--

If any cables or connectors are damaged, contact technical support to order replacements.

Are all cables securely connected? yes / no

If any cables are disconnected, turn the unit off, connect them, and turn the unit back on. Then go back to section 3.1.

3.3. Check the dish

Check the dish for any signs of damage or misalignment. Once pointed by a professional engineer, even the slightest change to the alignment will cause the VSAT unit to stop working. Damage to the dish, support arms, ODU, or other components can prevent the VSAT from functioning. Even the slightest bending of frame parts can render the dish useless, by permanently moving the ODU out of the focal point of the dish.

If the dish has been damaged, contact technical support.

3.4. Check the weather

Snow, hail, heavy rain, and dust and sand storms can all cause enough interference to prevent the VSAT unit from working. If the system functions in normal weather, but is interrupted in heavy weather, it may be necessary to repoint the dish, buy a larger diameter of dish, or to simply wait for the storm to end.

Twice each year, the regular movement of the sun can cause it to disrupt communications from the satellite in orbit. These interruptions last only a few minutes and are predictable in advance. When possible, IraqSat will announce these interruptions via email or our web page

4. Performance tests

This section is for testing the performance of your iNFINITI series system. Before performing these tests, complete all previous troubleshooting steps.

4.1. HTTP download test

This test measures the HTTP (web) download speed of your connection in kbytes/sec. This is only a simple indicator of download speed, and is not reliable as an exact measure of network performance. The most accurate measure is to use the iSite "IP Stats" Window in section 2.4 above.

Connect only one PC to the iNFINITI series as in section 1.1 above. Using Internet Explorer, run the following test.

1. Open a download test site:
<http://test.talia.net>

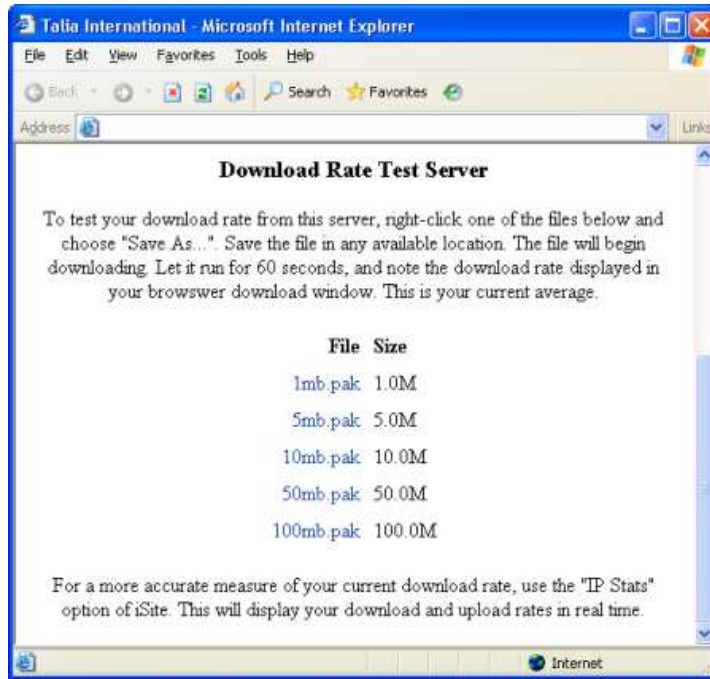


Figure 4.1: Download test site

2. Click on the file 50mb.pak and choose to save it anywhere.
3. The download window will be displayed:



Figure 4.2: Download window for 50mb.pak

4. Let the download proceed for 60 seconds or more, then note the download rate. In the above example, the file is downloading at 153 Kbytes/sec.

Record the download rate: _____

Compare this rate to the table of expected rates in section 2.4.

4.2. Ping the iNFINITI series Gateway IP

Open a command prompt. Open the "Start" menu, then select "Run". Type "cmd" in the field, and hit "OK". A black command prompt window will open.

Type "ping 85.31.67.1" and hit Enter. Replace the example IP with your Gateway IP. A successful ping response looks like this:

```
Pinging 85.31.67.1 with 32 bytes of data:  
Reply from 85.31.67.1: bytes=32 time=11ms TTL=64  
Reply from 85.31.67.1: bytes=32 time=3ms TTL=64  
Reply from 85.31.67.1: bytes=32 time=3ms TTL=64  
Reply from 85.31.67.1: bytes=32 time=3ms TTL=64
```

Ping statistics for 85.31.67.1:

Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),

Approximate round trip times in milli-seconds: Minimum = 3ms, Maximum = 11ms, Average = 5ms

While a failure looks like this:

```
Pinging 85.31.67.1 with 32 bytes of data:  
Request timed out.  
Request timed out.  
Request timed out.  
Request timed out.
```

Ping statistics for 85.31.67.1: Packets: Sent = 4, Received = 0, Lost = 4 (100% loss)

<p><i>Did the ping succeed? yes / no</i> <i>If no, what error message was displayed? _____</i></p>
--

If the error message displayed is "Request timed out", your IP address is not configured correctly, or there is a major configuration error with the iNFINITI series IDU. Please repeat section 1.2 and make sure you are being assigned an IP address.

If the error message displayed is "Hardware error", you did not follow all the steps in section 1.1. Go back and try again.

If the error message displayed is "Destination host unreachable", your IP settings may not be correct in section 1.2. Go back and try again.

4.3. NOC ping test

Problems in the Network Operations Center (NOC) or their DNS servers can cause your VSAT Internet service to be interrupted. Run these ping tests to verify basic connectivity to the NOC.

1. Open a command prompt as in section 4.2
2. Type "ping -w 5000 test.talia.net" and hit Enter.
3. You should get responses between 500 and 1500 ms.

```
Pinging 85.31.66.3 with 32 bytes of data:
```

```
Reply from 85.31.66.3: bytes=32 time=539ms TTL=62  
Reply from 85.31.66.3: bytes=32 time=531ms TTL=62  
Reply from 85.31.66.3: bytes=32 time=661ms TTL=62  
Reply from 85.31.66.3: bytes=32 time=531ms TTL=62
```

Ping statistics for 85.31.66.3:

Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),

Approximate round trip times in milli-seconds: Minimum = 531ms,
Maximum = 661ms, Average = 565ms

<p>Did the ping test succeed? <i>yes / no</i></p> <p>If yes, what was your average ping time? _____</p> <p>If no, what error is displayed? _____</p>

If the NOC ping test fails, but all of the previous tests have passed, there is a connectivity problem between your iNFINITI series unit and the NOC. Contact technical support and include the results of the ping test.

4.4. Internet ping test

The NOC is the point where your network connects to the rest of the Internet. Once you have verified you have a connection to the NOC, check for a connection to the Internet beyond. Run the ping test again, this time to a server outside of the Talia NOC:

1. Open a command prompt as in section 4.2 above.
2. Type "ping -w 5000 85.31.64.11" and hit Enter.
3. As before, you should get responses between 500 and 1500 ms.

<p>Did the ping test succeed? <i>yes / no</i></p> <p>If yes, what was your average ping time? _____</p> <p>If no, what error is displayed? _____</p>

If the Internet ping test fails, but all of the previous tests have passed, there is a connectivity problem between the NOC and the rest of the Internet. Contact technical support and include the results of all ping tests. We will inform the NOC of the problem, and assist them to resolve it as soon as possible.

4.5. DNS test

If the Internet ping test succeeds, but you still cannot browse, there may be a problem with the DNS servers. Test them using the `nslookup` command. DNS servers are 85.31.66.3 & 85.31.66.4 for AM22 services, and 85.31.80.20 & 85.31.80.21 for BADR-4 & NSS 703 services.

1. Open a command prompt as in section 4.2 above.
2. Type "nslookup -timeout=5 www.google.com 85.31.66.3" and hit Enter.

```
Server: ns1-bedford.talia.net
Address: 85.31.66.3
Non-authoritative answer:
Name: www.l.google.com
Addresses: 216.239.37.104, 216.239.37.99
Aliases: www.google.com
```

3. Repeat this test with the DNS server on board your iNFINITI series IDU, replacing 85.31.66.3 with the DNS servers for your service. Also try your Gateway IP address (example: 85.31.67.1) in the command above.

<p>Did the nslookup test succeed on both servers? <i>yes / no</i></p> <p>If no, what error is displayed? _____</p>
--

If the DNS test fails, but all of the previous tests have passed, there may be a problem with the NOC DNS servers. Contact technical support and include the results of this test.

4.6. Traceroute test

The Windows tool `tracert` shows you the path a network packet takes to reach its destination. If you cannot reach a particular site, or to identify where your traffic is stopping, use this test.

1. Open a command prompt as in section 4.2 above.
2. Type "`tracert 85.31.64.11`" and hit Enter.
3. The trace will step through each "hop" in the network, showing ping times and the name of the router or server that is passing your traffic. Here is an example trace:

```
Tracing route to talia.net [85.31.64.11]
Over a maximum of 30 hops:
```

```
  1         5 ms           1 ms           1 ms           1-67-31-85-customer.talia.net [85.31.67.1]
  2        543 ms         534 ms         546 ms         pp-bedford.talia.net [85.31.66.11]
  3        548 ms         543 ms         537 ms         gw-bedford.talia.net [85.31.66.9]
  4        544 ms         547 ms         577 ms         gw2-bedford.talia.net [85.31.66.2]
  5        552 ms         555 ms         597 ms         217.10.162.181
  6        546 ms         549 ms         545 ms         ds-0-0-0.7513.lon.khighway.net [217.10.162.65]
  7        550 ms         546 ms         548 ms         213.249.164.133
  8         *             *             *             Request timed out.
  9         *             *             *             Request timed out.
 10        *             *             *             Request timed out.
 11        558 ms         624 ms         576 ms         195.16.169.93
 12        548 ms         559 ms         549 ms         so-4-1-0.mp2.Manchesteruk1.Level3.net [4.68.113.109]
 13        553 ms         561 ms         553 ms         ae-1-0.bbr2.London1.Level3.net[212.187.128.57]
 14        557 ms         555 ms         565 ms         ge-6-0.core2.London1.Level3.net [4.68.116.36]
 15        570 ms         559 ms         559 ms         POS3-3.BR1.LND9.ALTER.NET [146.188.68.209]
 16        559 ms         571 ms         582 ms         so-0-2-0.TR2.LND9.ALTER.NET [146.188.7.245]
 17        555 ms         561 ms         554 ms         so-6-0-0.XR1.LND9.ALTER.NET [146.188.15.42]
 18        572 ms         556 ms         562 ms         POS3-0.cr1.lnd10.gbb.uk.uu.net [158.43.150.97]
 19        696 ms         564 ms         560 ms         pos0-0.hr1.lnd10.gbb.uk.uu.net[158.43.150.122]
 20        556 ms         596 ms         609 ms         ge-6-0-0.ur1.lnd10.gbb.uk.uu.net[158.43.150.106]
 21        562 ms         573 ms         559 ms         gel-1.ds1.lnd10.gbb.uk.uu.net [62.189.150.66]
 22        563 ms         566 ms         565 ms         diba.talia.net [85.31.64.11]
```

4. Note: some sites in the Internet do not respond to traceroute. This includes several routers within our terrestrial Internet provider. Therefore the sites in steps 8-10 above always timeout. This is normal.
5. Note: The sites ending in "talia.net" are sites in the Talia Bedford NOC. The network traffic moves from the NOC to the Internet in step 5 above.
6. To cancel a running traceroute, hit Ctrl+C

Did the traceroute test complete? *yes / no*
If no, where does the first timeout begin? _____

In most cases, the network problem begins where the traceroute timeouts begin. However, some networks or sites - for example, hotmail.com - ignore traceroute for security reasons. If you see a series of timeouts after the traffic leaves the NOC, you may have reached your destination but the site is ignoring traceroute.

5. Local network problems

With your local network can affect your VSAT Internet connection. LAN problems are not the responsibility of your provider, and you should always eliminate this as a possible cause of your problems before contacting technical support.

5.1. PC problems

All of the tests in sections 2 and 3 above are performed with a single PC connected directly to the IDU. This is done to eliminate the customer LAN from the possible causes of problems. However, the PC itself can still be the cause. Always make sure your PC's are kept up to date with Windows Update and are clear of any suspicious software or viruses that affect network performance.

5.2. Viruses

A virus can slow down or halt your network and VSAT Internet connection. Further, having a virus on your network is a violation of the Terms of Service, and your service can be suspended for it. See IraqSat Support for more information on keeping your network clean of viruses, and removing infections if you already have them.

5.3. Failed network hardware

Routers, switches, servers, UPS systems, and other equipment can fail. If this equipment is critical to the function of your network, such as a router, your LAN may be cut off from your VSAT Internet connection. In such a case, the VSAT is still operating, but your users cannot tell. Always check your network equipment for problems before contacting technical support.

5.4. Irregular network performance

If one PC has no network access when another is working normally, the problem is the PC or the local network. If one PC has very slow download speeds, but others are normal, the problem is the PC or the local network. Always make certain that the problems is universal within your network before contacting technical support.

6. Terms of Service

IraqSat iDirect shared service is restricted by the Terms of Service. For the latest copy of the Terms, see our website:

<http://www.iraq-sat.net>

The most important restrictions of the Terms of Service are:

- Spam & Viruses: customers are banned from sending spam or viruses. If we are contacted by another service provider with evidence that you have violated this policy, we will forward the evidence to you with a warning.
- Peer-to-Peer (P2P) filesharing software of any kind. This includes software that you may not be aware is running! P2P networks work on the assumption that users have upload rate to spare, but this is not true on satellite networks. Running P2P software can quickly cripple not just your bandwidth, but that of the entire network.

Always follow the guidelines in section 5 above, and always monitor your PCs and your customers' activity. Violation of these policies may result in a reduction in bandwidth (throttling), or deactivation of your system until the offending activity is terminated.

For exact details, download a copy of the latest Terms of Service from our website.

Contacting technical support

Before contacting support, please follow all steps in this troubleshooting guide. Support staff will require several pieces of information found in the troubleshooting process in order to help you.

<i>Have you run all of the tests in this document? yes / no</i>

If no, run the tests before contacting technical support.

If yes, please include the following information when you contact support.

Technical information:

- One or more of the following forms of identification:
 - Site ID, example: SVSS000000
 - IDU Serial number
 - Gateway IP address
- The point in the troubleshooting guide where you found a problem, and the answers to the questions there.

Personal information:

- Your full name, company, or other identifying information
- Where the VSAT is located
- Phone numbers where we can reach you
- All email addresses you'd like us to reply to

IraqSat Support

All IraqSat resellers and partners can log support requests via IraqSat Support. This includes direct online support via chat. Log in to see to reach us:

<https://www.iraq-sat.net/support>

When requesting support, please include as much information as possible, and place your Site ID in the subject line. If you do not include enough information, we will reply and ask for it. The more information you give us, the faster we can solve your problem!

Phone

If you are unable to access IraqSat Support, please contact us by phone at (+964 790 190 8337). See the IraqSat web page for current phone numbers.