



***iDIRECT***

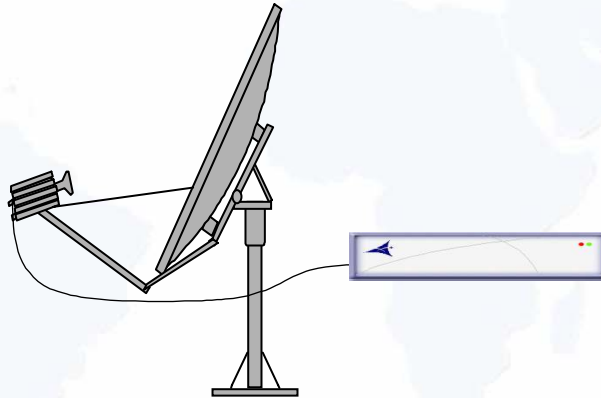
***iSite Basics & VSAT\*  
Commissioning  
iDS v6.0***

***\* Very Small Aperture Terminal***

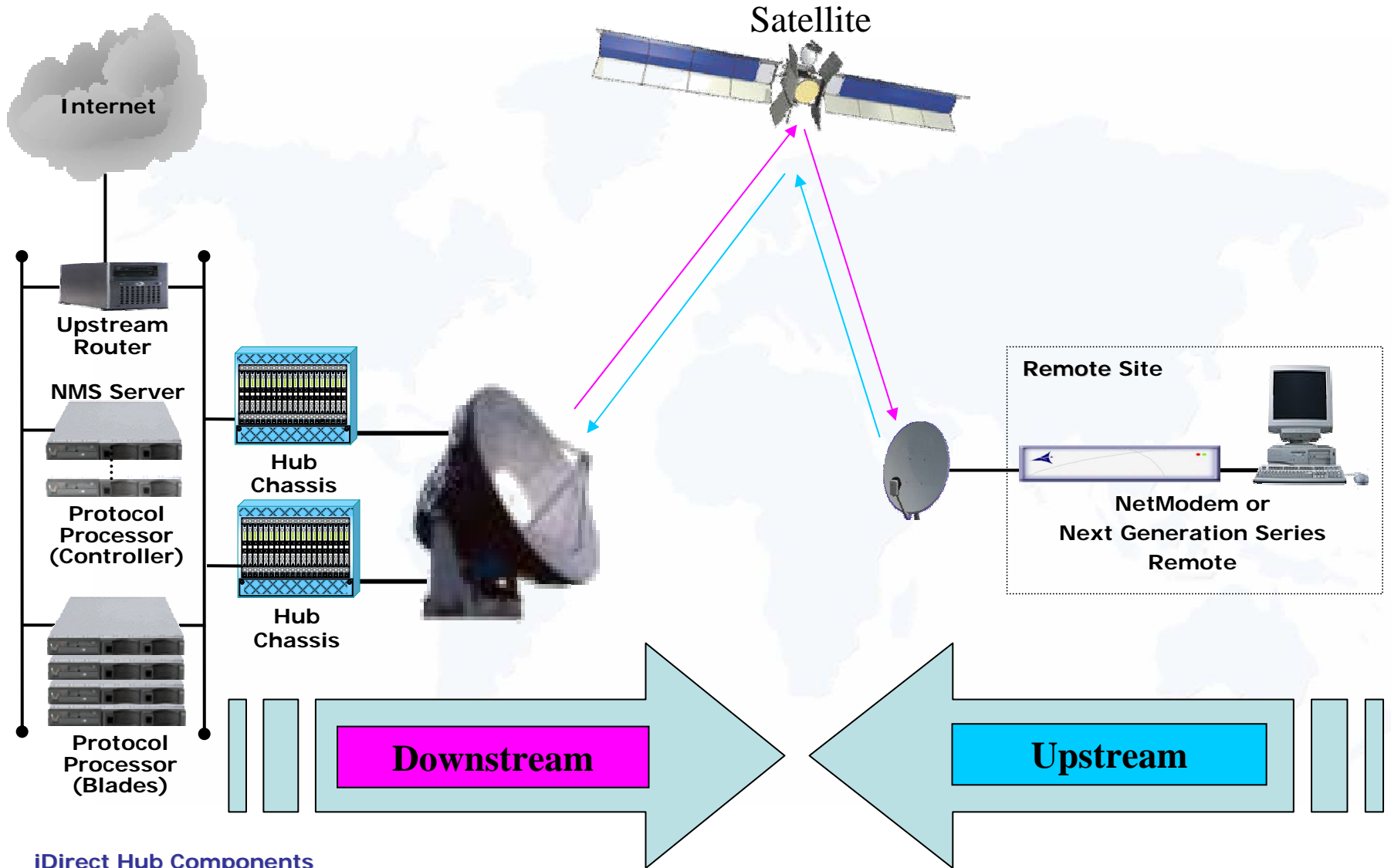


# **iDIRECT**

## TECHNOLOGIES



***Installation, Operations & Maintenance (IOM) Class  
iSite Basics – VSAT Commissioning Module***



iDirect Hub Components

## Boot Loader

- Hardware Boot Instructions

## Control Process Application

- CpApp\_V6.0.2.s19

## Field Programmable Gated Array (FPGA) Images

- FpgaDqt\_2plus-V106.bin
- FpgaRx1Scpc\_2plus-V408.bin
- FpgaRx2Scpc\_2plus-V413.bin
- FpgaTxTdma\_2plus-V501.bin
- LutRxScpc\_2plus-V003.bin

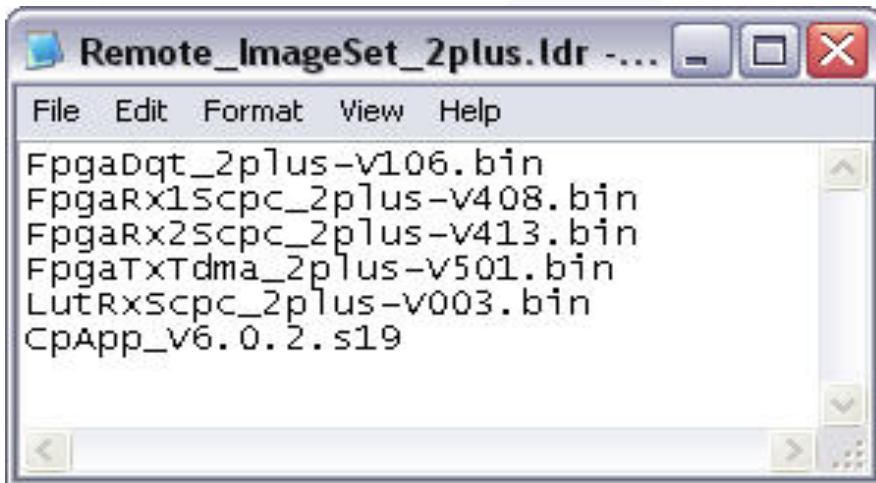
**Always – ENSURE IMAGE & Option COMPATABILITY!!!**

## Loader File (Image Set)

- Remote\_ImageSet\_2plus.ldr

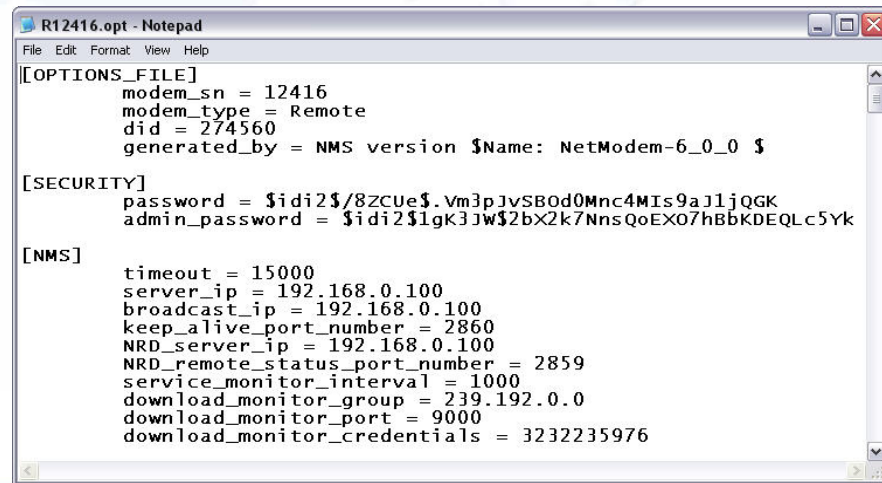
## Option File (\*.opt)

- R12416.opt



```

Remote_ImageSet_2plus.ldr - ...
File Edit Format View Help
FpgaDqt_2plus-v106.bin
FpgaRx1scpc_2plus-v408.bin
FpgaRx2scpc_2plus-v413.bin
FpgaTxTdma_2plus-v501.bin
LutRxScpc_2plus-v003.bin
CpApp_v6.0.2.s19
    
```



```

R12416.opt - Notepad
File Edit Format View Help
[[OPTIONS_FILE]
modem_sn = 12416
modem_type = Remote
did = 274560
generated_by = NMS version $Name: NetModem-6_0_0 $

[SECURITY]
password = $idi2$/8ZCue$.vm3pjvSB0d0Mnc4MIs9aJ1jqGK
admin_password = $idi2$1gK3Jw$2bx2k7NnsQoEX07hBbKDEQLc5Yk

[NMS]
timeout = 15000
server_ip = 192.168.0.100
broadcast_ip = 192.168.0.100
keep_alive_port_number = 2860
NRD_server_ip = 192.168.0.100
NRD_remote_status_port_number = 2859
service_monitor_interval = 1000
download_monitor_group = 239.192.0.0
download_monitor_port = 9000
download_monitor_credentials = 3232235976
    
```

- Front-End Interface for All iDirect Products
  - ◆ GUI Support for iDirect TDMA NetModem II & II+, NextGen Remotes
  - ◆ GUI Support for iSCPC Product
  - ◆ GUI Support for Series 1000, Network Accelerator
  
- Provides Local or Remote GUI Access for
  - ◆ Image & Option File Download, all Products
  - ◆ Monitoring of Remote Site Network Performance, all Products
  - ◆ Full Configuration Build, iSCPC Modem parameters, QoS, IP, etc.
  - ◆ Full Configuration Build, Series 1000 Network Accelerator
  
- Introduced with iDS v5.0
  - ◆ Replaced Stand-alone NetManager GUI
  - ◆ Replaced Stand-alone Service Monitor GUI
  
- API for External Interfaces
  - ◆ Allows customers to develop their own interfaces
  - ◆ Pointing functions
  - ◆ Configuration upload/download
  
- Supplemental NMS Client for Remote Site Implementation

The screenshot displays the iSite software interface for a TDMA Remote# 2999 [10.0.19.221]. The interface is divided into several main sections:

- Tree Layout (Left):** A hierarchical tree view showing the device structure, including sections for 'iDirect', 'Unknown# 3506 [10.0.19.7]', 'TDMA Remote# 2999 [10.0.19.221]', and 'Line Card# 3040 [10.0.19.179]'. It lists various status items like 'Device Up Time', 'Device Status', 'Network Up Time', and 'Back Panel LEDs'.
- IP Stats (Top Middle):** Two line graphs showing 'Receive' and 'Transmit' data rates in KBits/Sec over time. The x-axis shows timestamps from 09:37:48 to 09:40:28. The y-axis ranges from 0.00 to 1.00 KBits/Sec.
- Events (Top Right):** A table titled 'Remote Events' with columns for Time, Date, Name, SN, Type, and Event Level. The table is currently empty.
- Configuration (Bottom):** A detailed configuration panel for 'IP Configuration'. It includes sections for:
  - VLAN:** A table with columns 'Id' and 'Name', showing a 'default' entry.
  - LAN Interface:** Fields for IP Address (10.0.19.221), Subnet Mask (255.255.255.0), and Gateway (0.0.0.0). Includes checkboxes for 'Tag Packets' and 'Enable RIPv2'.
  - VLAN Upstream Interface:** Fields for IP Address, Subnet Mask, and Gateway, with an 'Enable RIPv2' checkbox.
  - Management Interface:** Similar fields to the LAN interface, with 'Same as LAN' and 'Enable RIPv2' options.
  - DNS:** Fields for Primary and Secondary DNS Name and IP Address, with an 'Enable Cache' checkbox.
  - DHCP:** Radio buttons for 'Disabled' and 'Server'. Includes fields for Lease Duration, Primary/Secondary DNS, and Default Gateway.
  - Static Routes:** A table with columns for IP Address, Subnet Mask, and Gateway.
  - Port Forwarding:** A checkbox for 'Enable NAT' and a table for defining port forwarding rules.

Tree Layout Similar to iMonitor/iBuilder

IP Stats Events

Configuration

- ▶ Manage Multiple Units from a Single Interface
  - ◆ Control TDMA remotes, iSCPC units, VPNA simultaneously
  - ◆ Older NetManager Limited to Accessing 1 remote at a time
  
- ▶ Auto-discovery of LAN units
  - ◆ Units on same LAN are automatically discovered
  - ◆ Monitoring of board available without logging in
  
- ▶ All Features Available across Remote Routers
  - ◆ Events
  - ◆ IP statistics
  - ◆ Pointing functions
  
- ▶ Audio Feedback during Pointing
  - ◆ Point without looking at display or DVM if desired
  
- ▶ Device-Specific Configuration and Display
  - ◆ Level of configuration determined by device type
  - ◆ Full configuration for iSCPC/NA, restricted for TDMA remote (GEO Location update for TDMA 'Mobile' remotes only)

- New Login Process for ALL iDirect Boards
  - ◆ More Secure Access to All NetModem Functions/Features
  - ◆ 'user' Login for More Restricted Access
    - Default Password is "iDirect" or NMS Configured Password
    - Limited Capabilities/Commands Available
  - ◆ 'admin' Login for Super User Access
    - Default Password is "P@55w0rd!" or NMS Configured Password
    - Provides Access to All NetModem Capabilities/Commands
  
- Login Required in All Cases to Access Remotes
  - ◆ Same Login Process Used for Console Access, Telnet, and/or iSite
  - ◆ No Longer have Access Without Login

NOTE: Same Login Required for Hub Line Card (HLC) Access



**DB-9 to RJ-45 adapter  
And straight through cable**



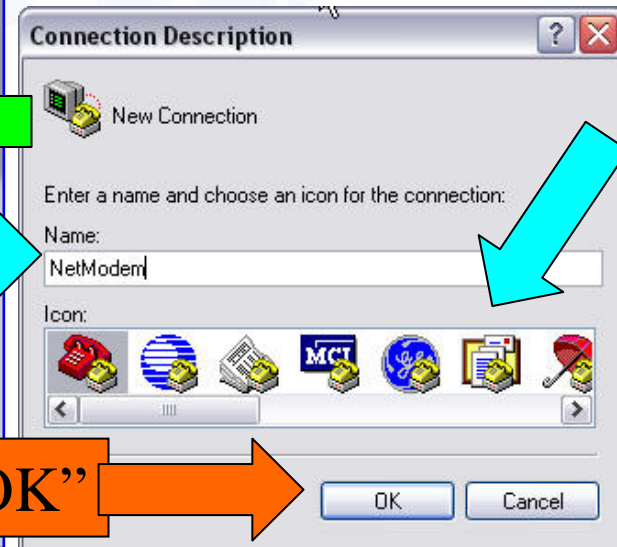
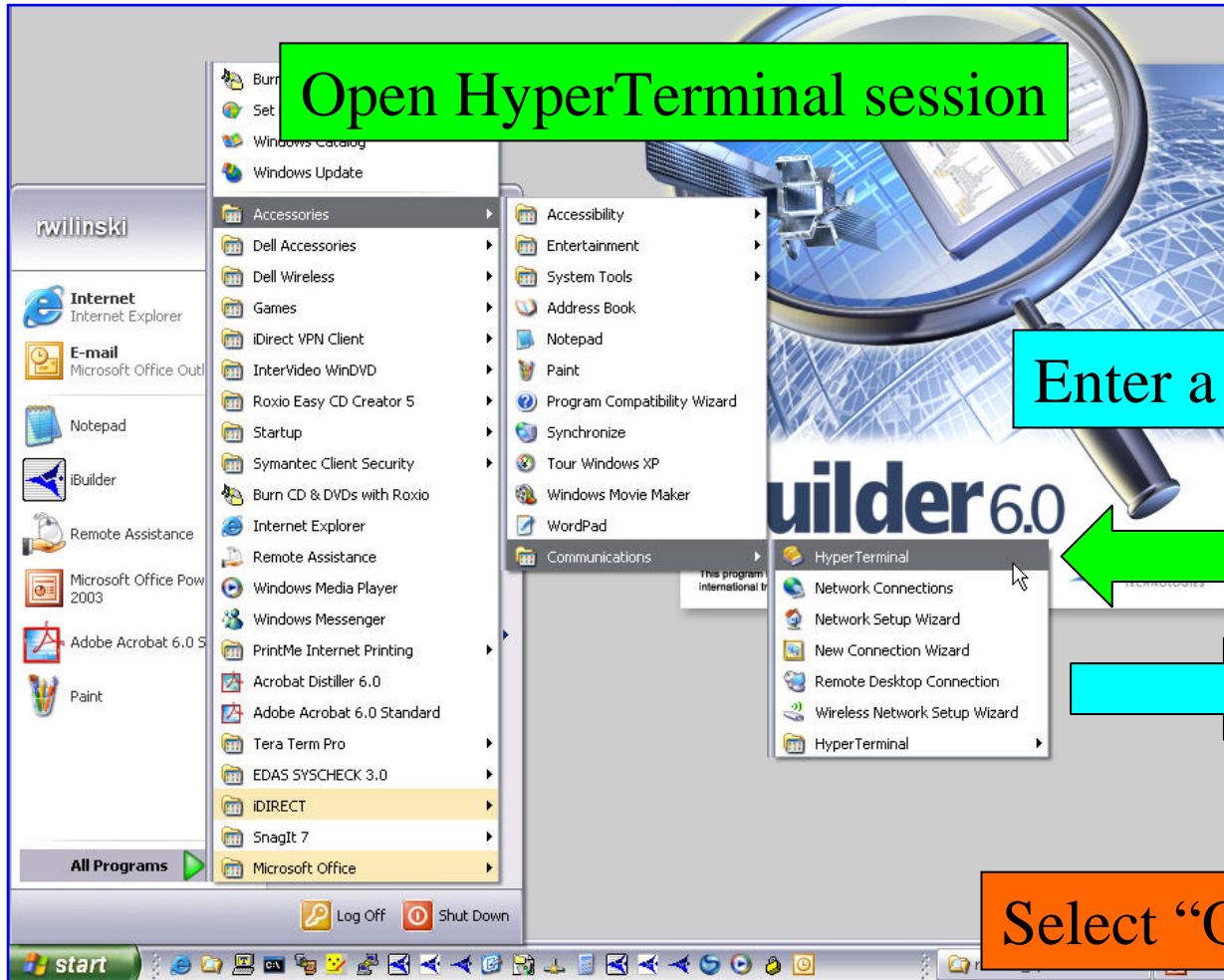
**DB-9 to RJ-45 adapter Pin-Out**

DB-9 to RJ-45 Adapter Pin-Out		
RJ-45	Color Code	DB-9
1	Blue	8
2	Orange	6
3	Black	2
4	Green	N.C.
5	Red	5
6	Yellow	3
7	Brown	4
8	White/Gray	7

**Open HyperTerminal session**

**Enter a "Name" and select icon**

**Select "OK"**



**NOTE:** NetModemII+s from inventory are typically preloaded during production with an IP address of 192.168.2.1 and a Subnet Mask of 255.255.255.0

Connect using: COM1



**Connect To**

NetModem

Enter details for the phone number that you want to dial:

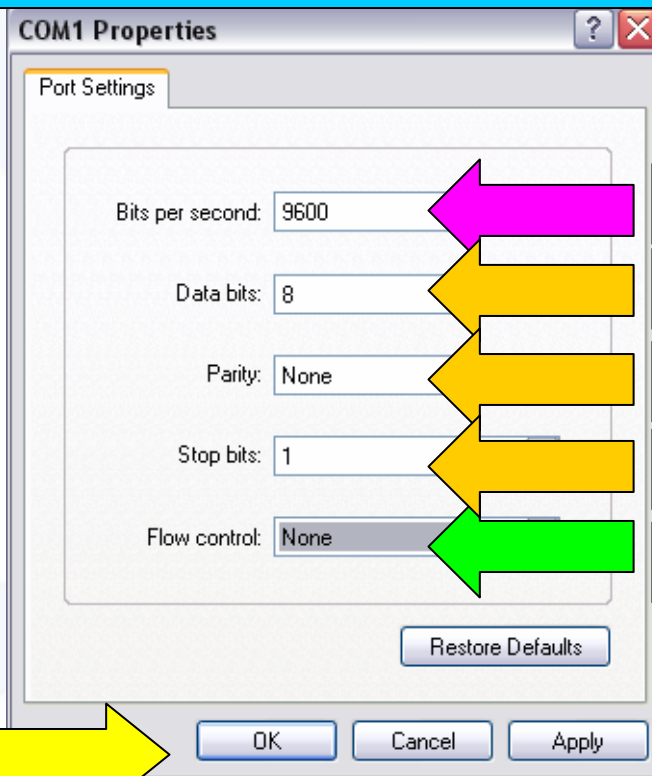
Country/region: United States (1)

Area code: 666

Phone number:

Connect using: COM1

OK Cancel



**COM1 Properties**

Port Settings

Bits per second: 9600

Data bits: 8

Parity: None

Stop bits: 1

Flow control: None

Restore Defaults

OK Cancel Apply

Bits per second: 9600

Data bits: 8

Parity: None

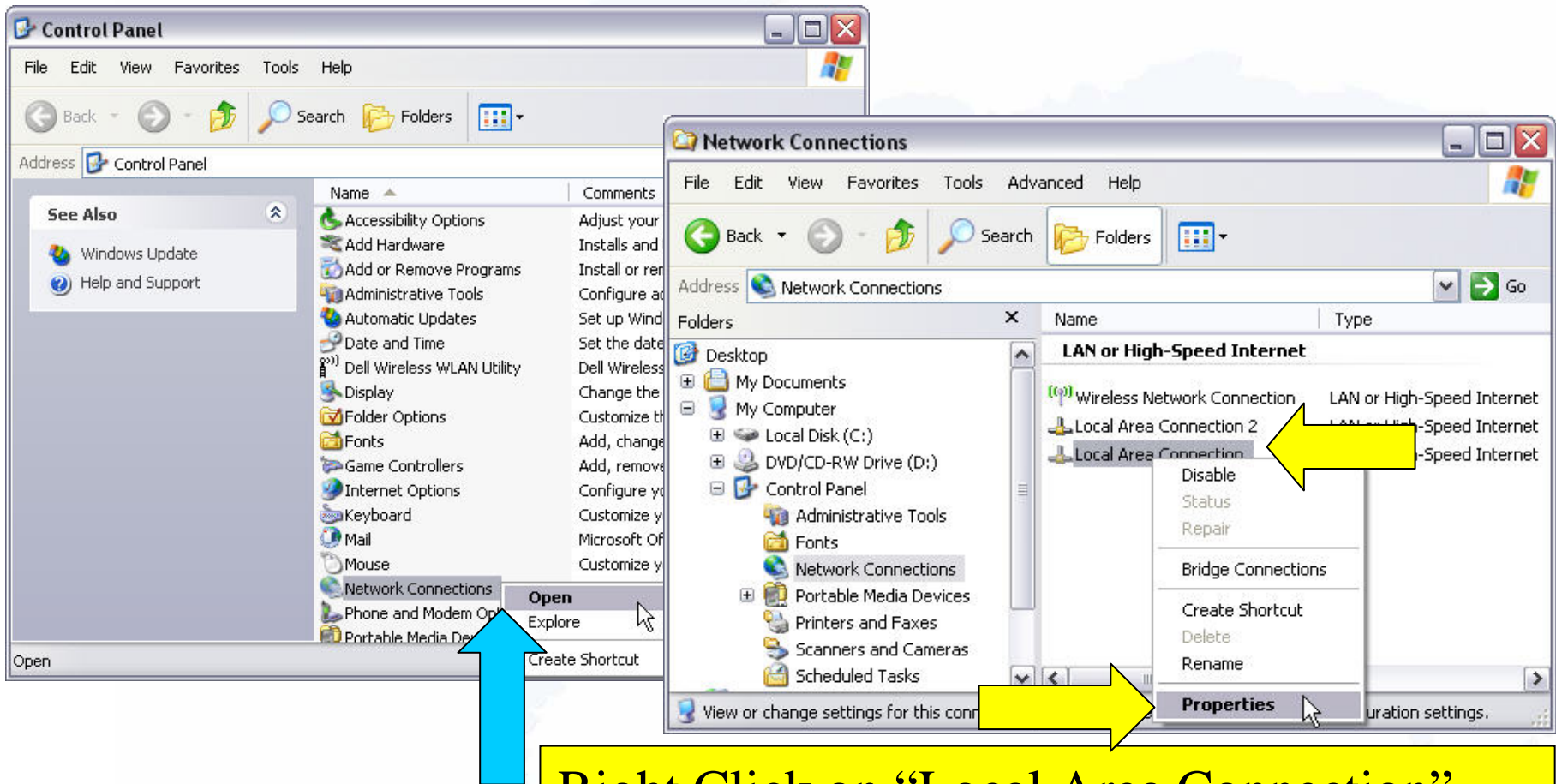
Stop bits: 1

Flow control: None

Select "OK": A HyperTerminal Session Will Open NetModem Console Port:

- Logon to NetModem Using 'user' or 'admin' Login and Password
- Type "laninfo" and Select "Enter".
- The NetModem Will Reply With Its' Current IP Address and Subnet Mask

Go to “Network and Dial-up Connections”



The screenshot shows two overlapping windows from a Windows XP environment. The background window is the Control Panel, with the 'Network Connections' link highlighted in the left-hand navigation pane. A blue arrow points from this link towards the foreground window. The foreground window is titled 'Network Connections' and displays a list of network adapters under the heading 'LAN or High-Speed Internet'. The list includes 'Wireless Network Connection', 'Local Area Connection 2', and 'Local Area Connection'. A yellow arrow points to 'Local Area Connection', which has a context menu open over it. The 'Properties' option at the bottom of this menu is highlighted by another yellow arrow.

Right Click on “Local Area Connection”  
Select “Properties” from Menu Option

Highlight “Internet Protocol (TCP/IP)”

**Local Area Connection Properties**

Connect using: **Broadcom 570x Gigabit Integrated Co** [Configure...]

This connection uses the following items:

- QoS Packet Scheduler
- AEGIS Protocol (IEEE 802.1x) v.3.1.7
- Internet Protocol (TCP/IP)**

[Install...] [Uninstall] **[Properties]**

**Description**  
Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.

Show icon in notification area when connected  
 Notify me when this connection has limited or no connectivity

[OK] [Cancel]

Select “Properties”

**Internet Protocol (TCP/IP) Properties**

General

You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

Obtain an IP address automatically

Use the following IP address:

IP address: 10 . 0 . 5 . 2

Subnet mask: 255 . 255 . 255 . 0

Default gateway: 10 . 0 . 5 . 1

Obtain DNS server address automatically

Use the following DNS server addresses:

Preferred DNS server: . . .

Alternate DNS server: . . .

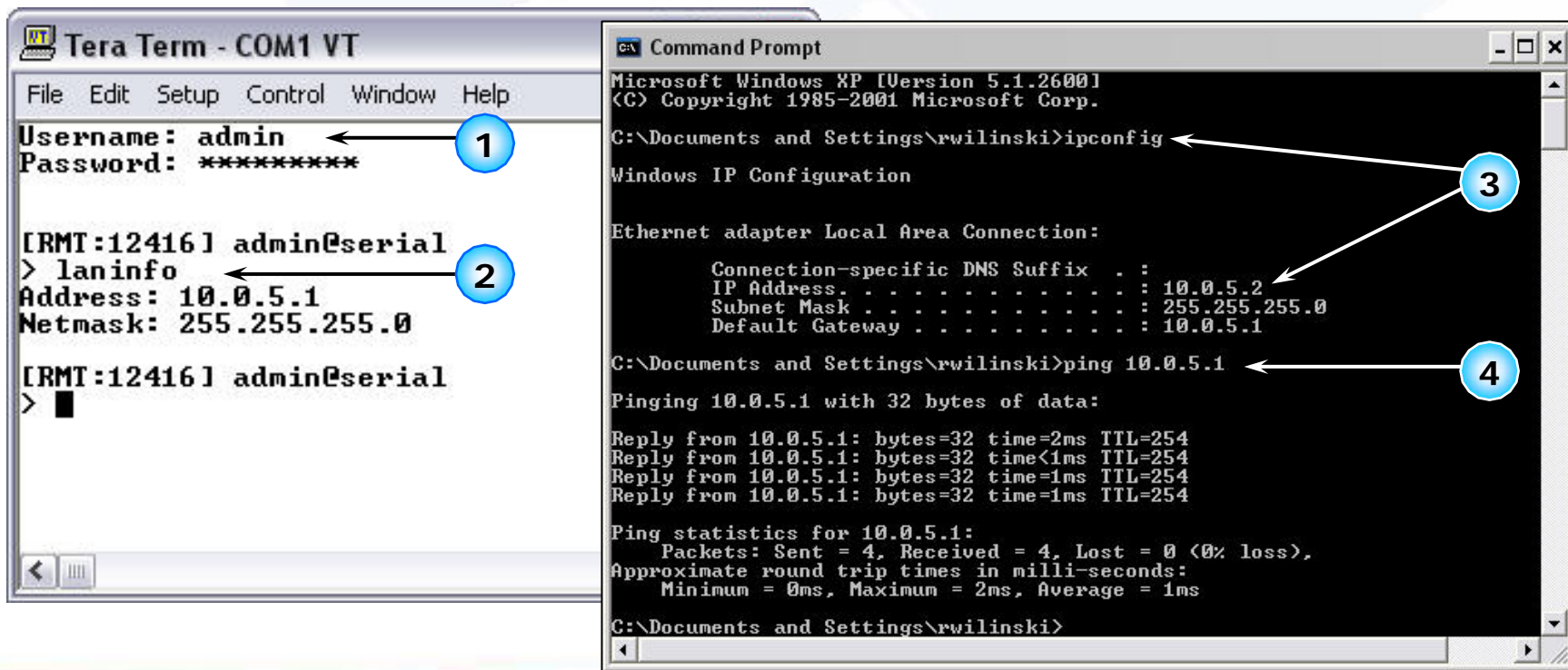
[Advanced...]

[OK] [Cancel]

Enter IP Address of NetModem as ‘Default Gateway’  
Enter Subnet Mask of NetModem  
IP Address of NIC is 1 greater than the NetModem

## Verify NetModem LAN/PC NIC Configuration

1. Logon to NetModem Using User/Admin Login (Described Later)
2. Type "laninfo" via Console Port Interface (if NetModem IP Address Not Determined Previously) to Obtain LAN IP
3. Open DOS Command Window; Verify NIC Address with "ipconfig"
4. Ping Remote from DOS Window to Verify Connectivity



**Tera Term - COM1 VT**

```
File Edit Setup Control Window Help
Username: admin ← 1
Password: *****

[RMT:12416] admin@serial
> laninfo ← 2
Address: 10.0.5.1
Netmask: 255.255.255.0

[RMT:12416] admin@serial
> █
```

**Command Prompt**

```
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\rwilinski>ipconfig ← 3

Windows IP Configuration

Ethernet adapter Local Area Connection:

    Connection-specific DNS Suffix  . : 
    IP Address. . . . .               : 10.0.5.2
    Subnet Mask . . . . .            : 255.255.255.0
    Default Gateway . . . . .        : 10.0.5.1

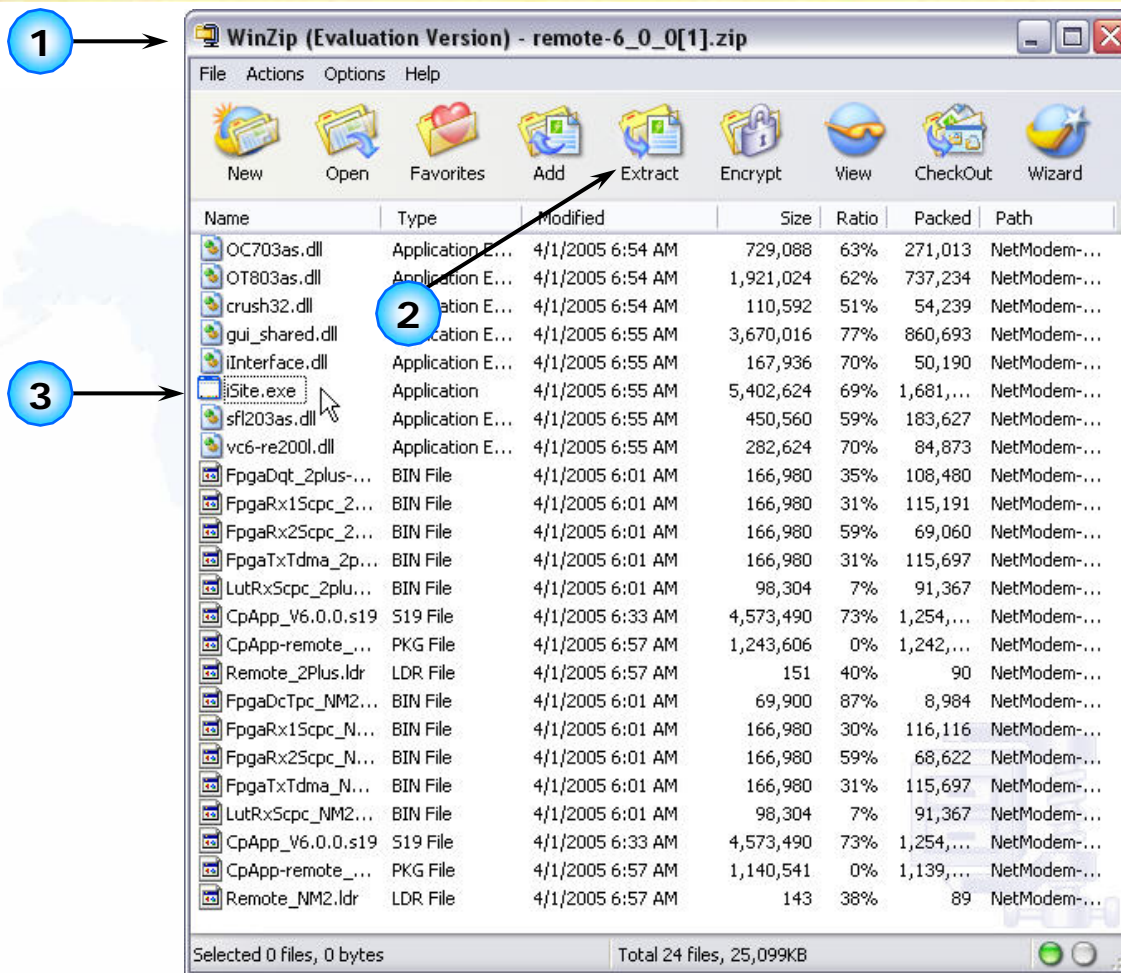
C:\Documents and Settings\rwilinski>ping 10.0.5.1 ← 4

Pinging 10.0.5.1 with 32 bytes of data:

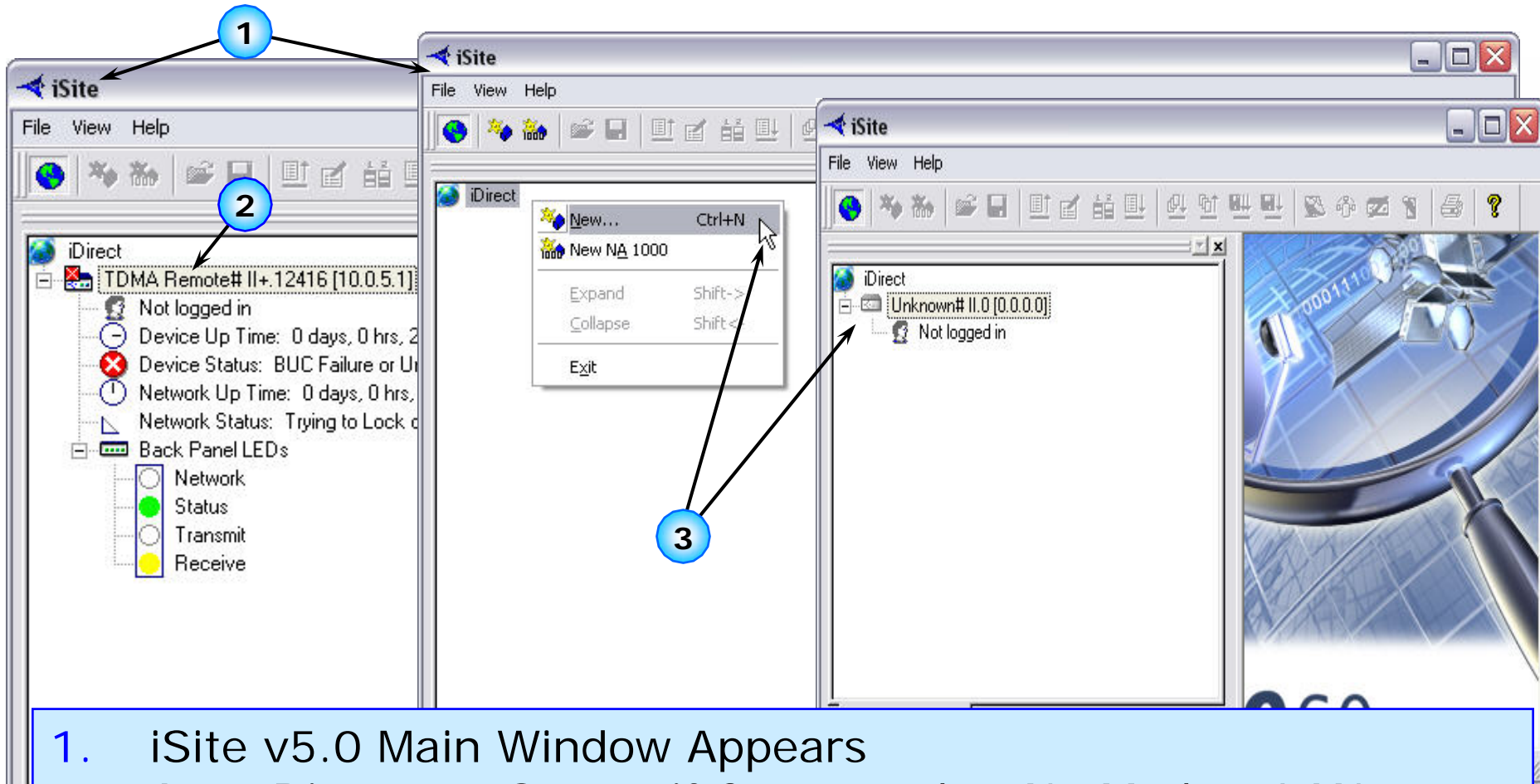
Reply from 10.0.5.1: bytes=32 time=2ms TTL=254
Reply from 10.0.5.1: bytes=32 time<1ms TTL=254
Reply from 10.0.5.1: bytes=32 time=1ms TTL=254
Reply from 10.0.5.1: bytes=32 time=1ms TTL=254

Ping statistics for 10.0.5.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 2ms, Average = 1ms

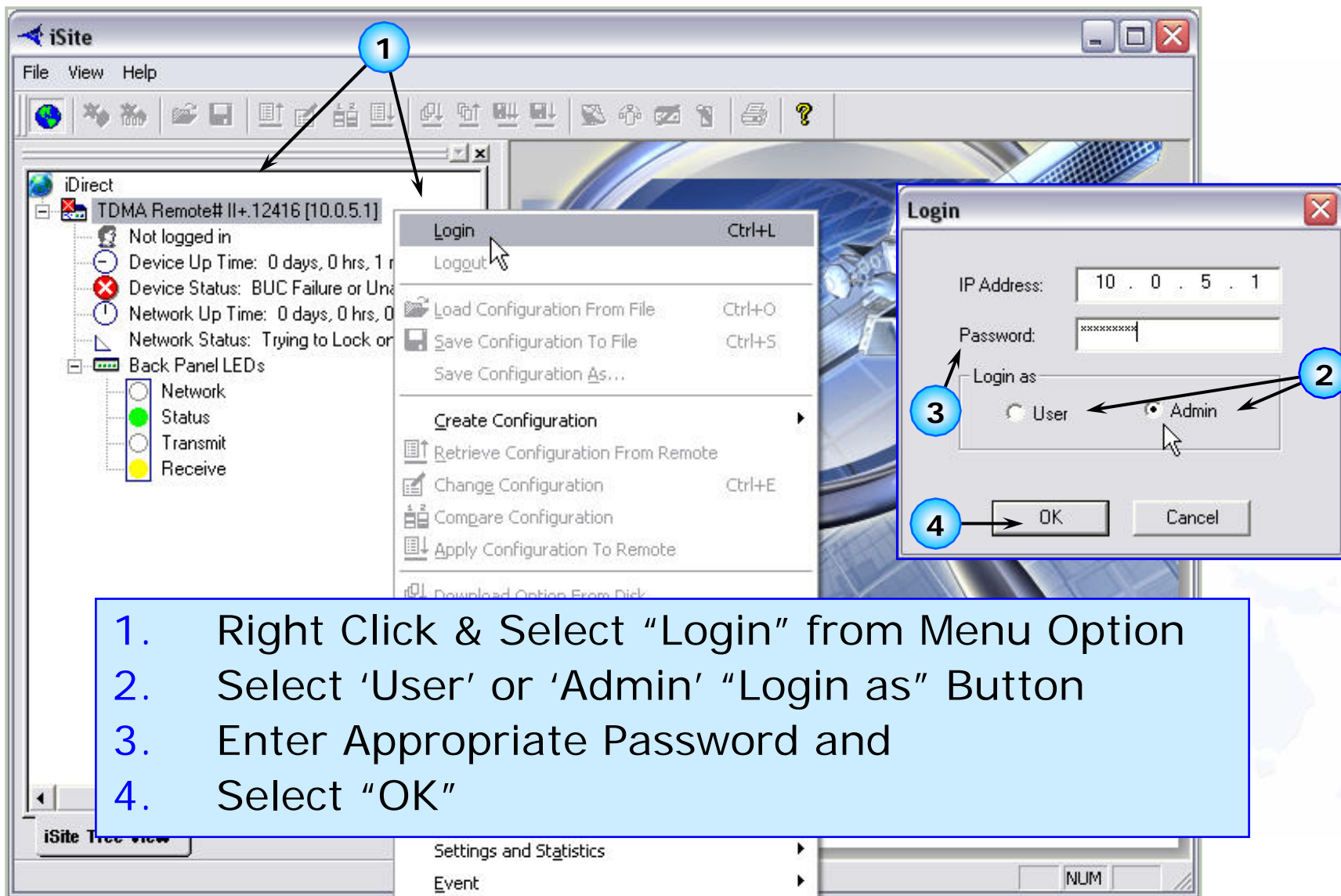
C:\Documents and Settings\rwilinski>
```



1. Download "remote-<version>.zip" File from TAC Web Page
2. Unzip/Extract File (example: remote-5\_0\_2.zip) to Laptop/PC
3. Create iSite Shortcut or Double Click on iSite.exe to Launch



1. iSite v5.0 Main Window Appears
2. Auto-Discovery Occurs if Connected to NetModem LAN, or Remote Site 'Subnet'
3. Otherwise, Right Click on World and Select "New" from Menu



The screenshot shows the iSite software interface. A context menu is open over the 'TDMA Remote# II+.12416 [10.0.5.1]' device, with the 'Login' option selected. A 'Login' dialog box is open, showing the IP Address as '10.0.5.1', the Password field filled with asterisks, and the 'Login as' section with 'Admin' selected. The 'OK' button is highlighted.

1. Right Click & Select "Login" from Menu Option
2. Select 'User' or 'Admin' "Login as" Button
3. Enter Appropriate Password and
4. Select "OK"



The screenshot shows the iSite configuration window for a TDMA Remote component. The interface is divided into several sections:

- Tree View (Left):** Shows the component hierarchy. Callout 1 points to the component name and status. Callout 2 points to the status indicators (Network, Status, Transmit, Receive) and the Back Panel LEDs section.
- Menu and Toolbar (Top):** Callout 3 points to the menu and toolbar area.
- Information Tab (Main):** Callout 4 points to the tabs (Information, IP Configuration, QoS, Geo Location). Callout 5 points to the configuration fields, which are mostly read-only.

1. Tree Reports Component Type, Status and Login Detail
2. Status Detail Provided is Dynamic; Back Panel LEDs Displayed
3. Menu and Tool Bar Provide Similar Access to iSite Features
4. Tabs Appear for "Information", "IP Configuration", "QoS" and "GEO Location" Providing Detail for This Component
5. Most Detail is NOT Editable for TDMA Remotes (Read Only)

The screenshot shows the iSite configuration interface for a TDMA Remote. The 'IP Configuration' tab is active, displaying several configuration panels. Two blue circles with arrows point to the 'IP Configuration' tab label (1) and the 'LAN Interface' section (2).

**1. "IP Configuration" Tab Displays IP/VLAN Configuration Detail**

**2. Parameters are 'Fixed' Here, Not Editable for TDMA Remotes**

1

Service Levels

Service Level	Ty...	Cost	Dep...	Drop	TD...	Rea...	Trig...
NMS_TCP	U	0.001	500	OL...	N/A	Nor...	Y
NMS_UDP	U	0.001	250	OL...	N/A	Nor...	Y
UDP	U	0.1	250	OL...	N/A	Nor...	Y
TCP	U	0.5	250	OL...	N/A	Nor...	Y
DEFAULT	U	0.5	250	OL...	N/A	Nor...	Y

Relative Packet Priority

(49.6524%)  
(0.0993%)  
(49.6524%)

The lower the cost, the higher the priority of the packets that match the rules of the service level.

Rules

```

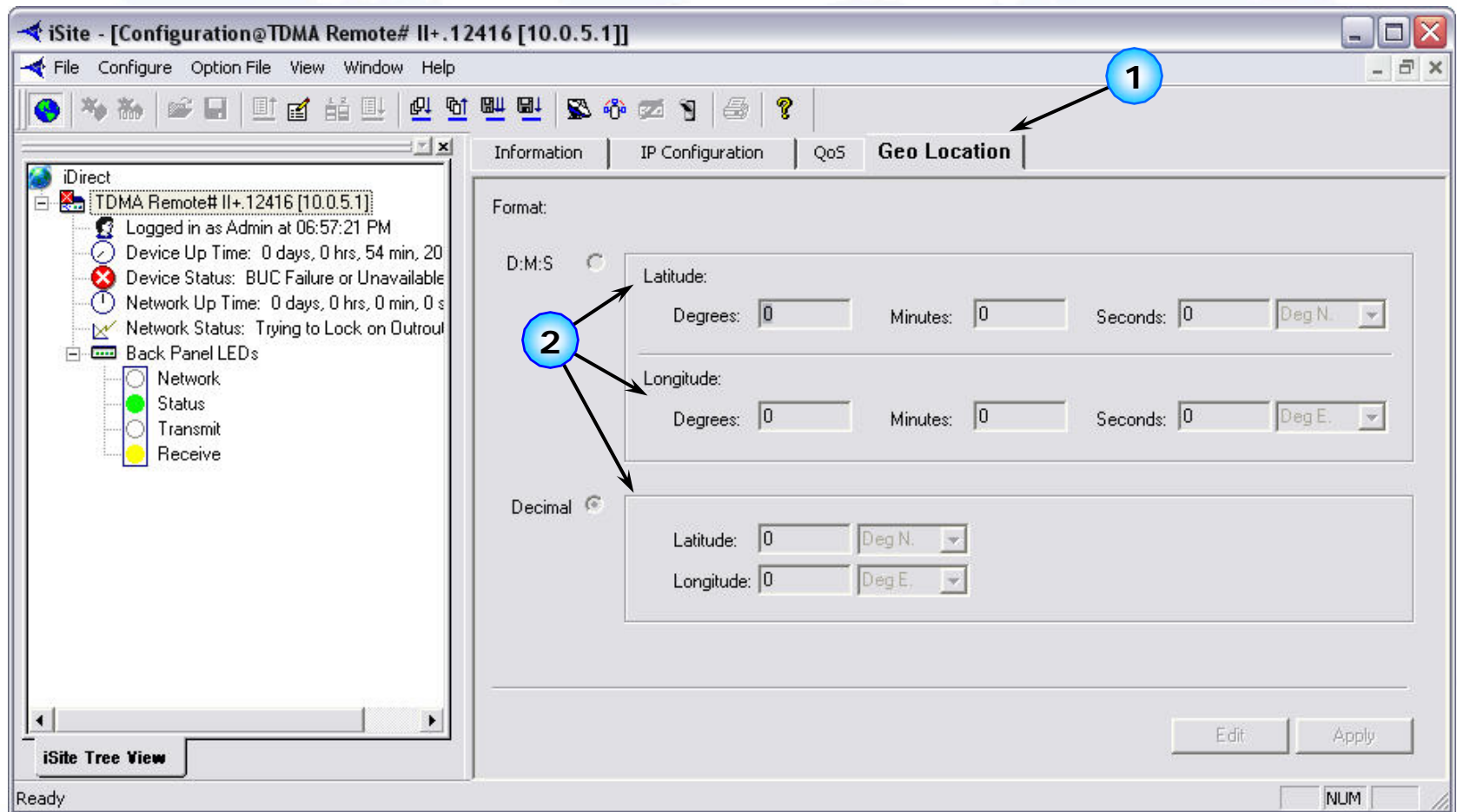
Rules
SERVICE_LEVEL :: NMS_TCP
PROTOCOL = 6 AND DEST_IP_ADDR = 192.168.0.100
    
```

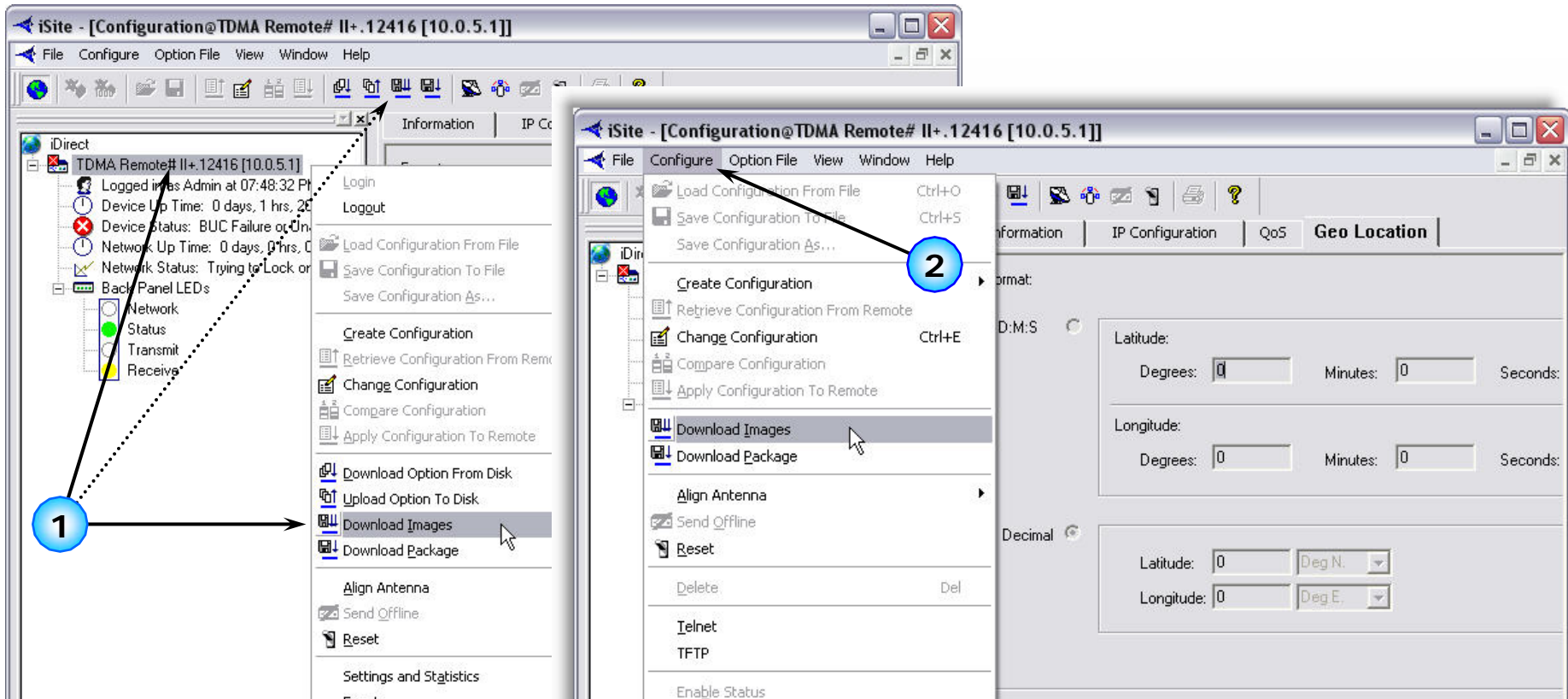
2

Traffic Filter Data Rate

1. "QoS" Tab Displays Configured Service Levels & Rules
2. Additional Tabs, "Traffic", "Filter" and "Data Rate" Provide QoS Supporting Detail, per Existing Configuration

1. GEO Location Tab Displays Remote Site Latitude/Longitude in DMS or Decimal Format (Mobile Remotes Will be Blank)
2. Mobile Remotes (TDMA) Allow GEO Location Entry (> v5.0.2)

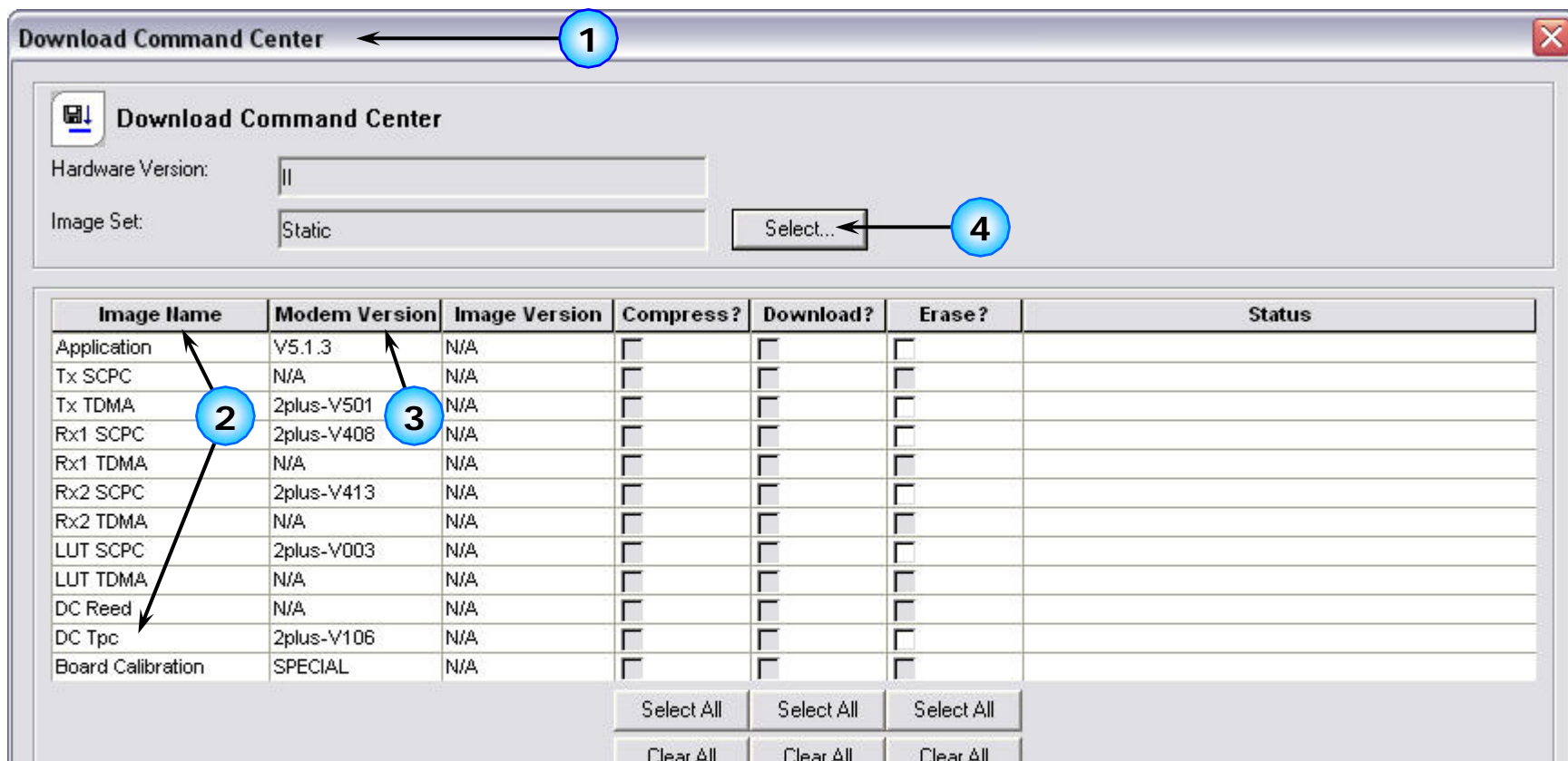




## To Download Modem Images (Unicast Mode)

- Right Click on Component Tree Menu to "Download Images" or . . .
- Select "Configure", "Download Images" from iSite Menu





1. "Download Command Center" Window Opens
2. "Image Name" Column Lists All Possible Image Variations
3. Currently Loaded Images Displayed in "Modem Version" Column
4. Use "Select" to Access Correct Image Set, or 'Loader' File

**Download Command Center**

Hardware Version:  Image Set:

Image Name	Modem Version	Image Version	Compress?	Download?	Erase?
Application	V5.1.3	V6.0.2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Tx SCPC	N/A	N/A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tx TDMA	2plus-V501	2plus-V501	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rx1 SCPC	2plus-V408	2plus-V408	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rx1 TDMA	N/A	N/A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rx2 SCPC	2plus-V413	2plus-V413	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rx2 TDMA	N/A	N/A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LUT SCPC	2plus-V003	2plus-V003	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LUT TDMA	N/A	N/A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DQT	2plus-V106	2plus-V106	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Board Calibration	SPECIAL	N/A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Options File	N/A	N/A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

DEFRAGMENT

**Open**

Look in: remote\_2plus

Remote\_ImageSet\_2plus.ldr

Remote\_ImageSet\_2plus.ldr

File Edit Format View Help

```
FpgaDqt_2plus-v106.bin
FpgaRx1Scpc_2plus-v408.bin
FpgaRx2Scpc_2plus-v413.bin
FpgaTxTdma_2plus-v501.bin
LutRxScpc_2plus-V003.bin
CpApp_V6.0.2.s19
```

File name: Remote\_ImageSet\_2plus.ldr

Files of type: Loader Files (\*.ldr)

1. "Select" Opens Selection Window for Image Set Loader File
2. "Remote\_ImageSet\_2plus.ldr" File 'Identifies' Images to be Loaded
3. Image Files from Loader File Appear in Image Version Column
4. Auto Selects "Compress" and "Download" for Each Image to Update
5. Choose "Select All" or "Clear All" if Desired and Appropriate
6. Select "Erase" and/or "Defragment" if Required
7. Select "Download" to Initiate the Download Process

1. "Erase" is Completed First, if Selected for Each (Not REQUIRED to Erase Normally)
2. "Defragment" Occurs Next, if Selected; Status of Defrag Reported 'til "Done"
3. "Download" Begins; x of y Bytes Counts Up 'til Matching, Then "Saving . . ."
4. "Completed" MUST be Displayed for ALL Images Downloaded Before Closing DCC
5. "Reset" ONLY if Images are Compatible With Current Option File, Otherwise "Close"

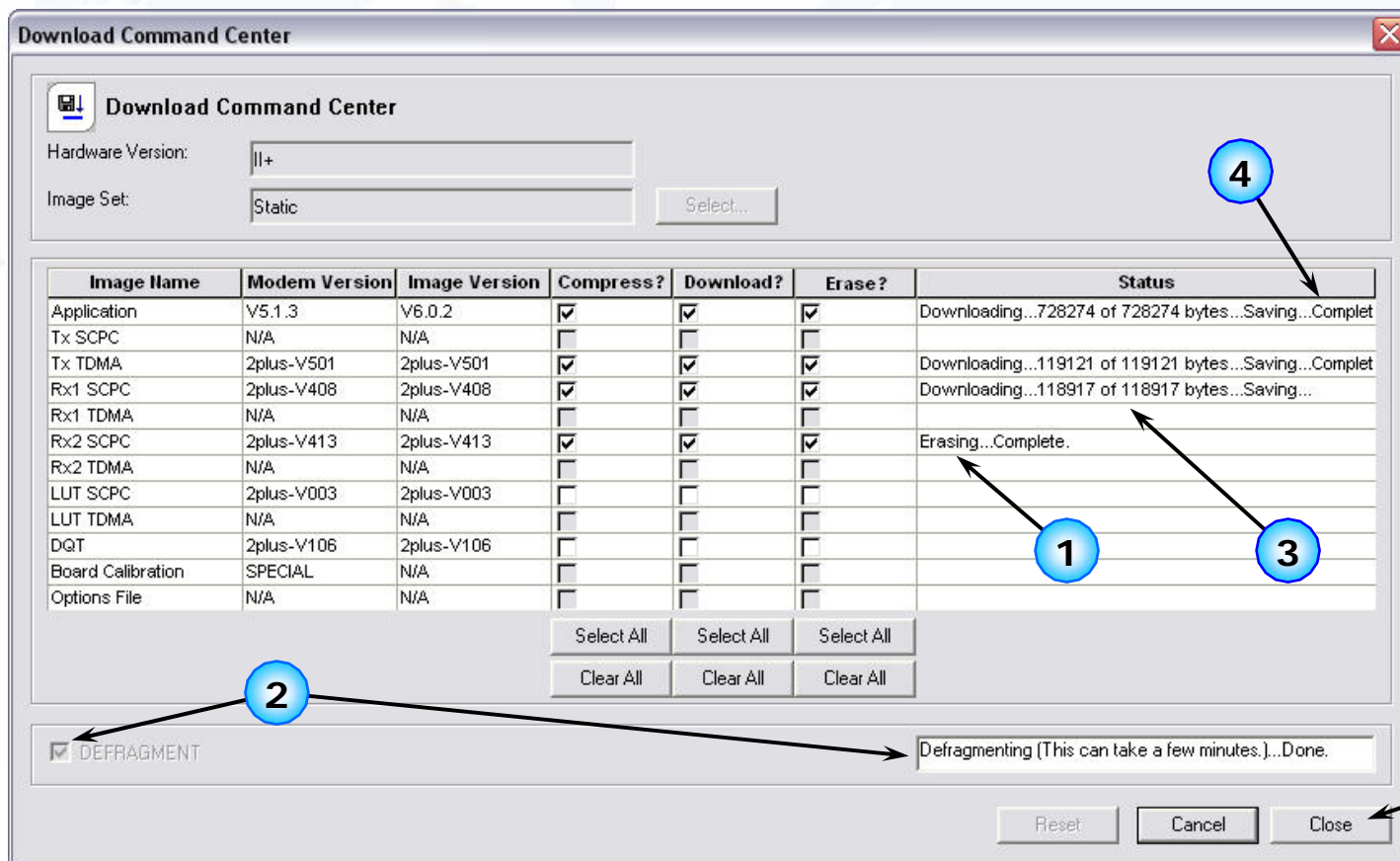
**Download Command Center**

Hardware Version:

Image Set:

Image Name	Modem Version	Image Version	Compress?	Download?	Erase?	Status
Application	V5.1.3	V6.0.2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Downloading...728274 of 728274 bytes...Saving...Comple
Tx SCPC	N/A	N/A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Tx TDMA	2plus-V501	2plus-V501	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Downloading...119121 of 119121 bytes...Saving...Comple
Rx1 SCPC	2plus-V408	2plus-V408	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Downloading...118917 of 118917 bytes...Saving...
Rx1 TDMA	N/A	N/A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Rx2 SCPC	2plus-V413	2plus-V413	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Erasing...Complete.
Rx2 TDMA	N/A	N/A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
LUT SCPC	2plus-V003	2plus-V003	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
LUT TDMA	N/A	N/A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DQT	2plus-V106	2plus-V106	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Board Calibration	SPECIAL	N/A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Options File	N/A	N/A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

DEFRAGMENT





**1**

**2**

**To Download Modem Image 'Package' (Unicast Mode)**

- Right Click on Component Tree Menu to "Download Package" or . . .
- Select "Configure", "Download Package" from iSite Menu

Download package to the selected item

Information Rate: 474.487 kbps  
 Error Correction: TPC-676/1024 (.66)  
 Scrambling: IDR

iSite Tree View

Download package to the selected item

**Download Package** ← 1

Package: CpApp-remote\_2plus-Beta60 Folder...

Contents:

File Name	Checksum	Decoded Len	Encoded Len	Load Addr	Jump
LutRxScpc_2plus-V003.bin	10401	98304	88779	0x0	0x0
FpgaTxTdma_2plus-V501.bin	40425	166980	119121	0x0	0x0
FpgaRx2Scpc_2plus-V413.bin	45508	166980	74442	0x0	0x0
FpgaRx1Scpc_2plus-V408.bin	34662	166980	118917	0x0	0x0
FpgaDqt_2plus-V106.bin	12926	166980	113171	0x0	0x0
CpApp_V20050314.s19	50573	1631960	728274	0x1000000	0x1C

Image Version Check:

- Don't check versions
- Download images only if versions differ
- Check versions only

Configurations:

- Download images and configurations
- Download images only
- Download configurations only

Reset:

- Don't reset
- Reset on success
- Reset only

Information:

```
Start to download package .....
Package is sent 159082 bytes.
Package is downloaded successfully.
Please wait about one minute for remote to
flash images contained in package .....
.....Done.
```

4

5 Start Stop Close

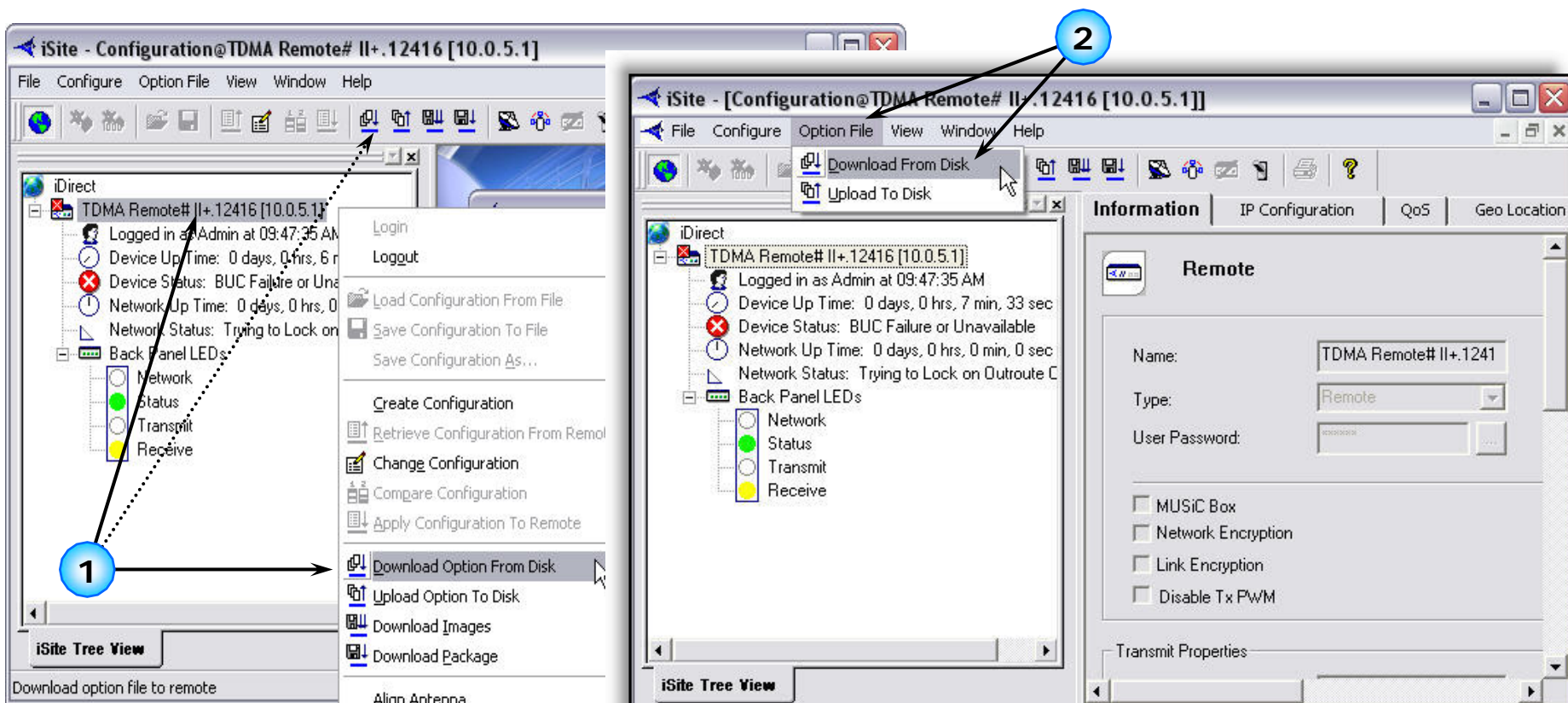
1. "Download Package" Window Opens
2. Select "Folder" Button to Locate Correct Package
3. Identify Folder in Browse Window; Select "OK"
4. Select Appropriate Option for Download Process –
5. Select "Start" to Begin Package Download

**Browse for Folder**

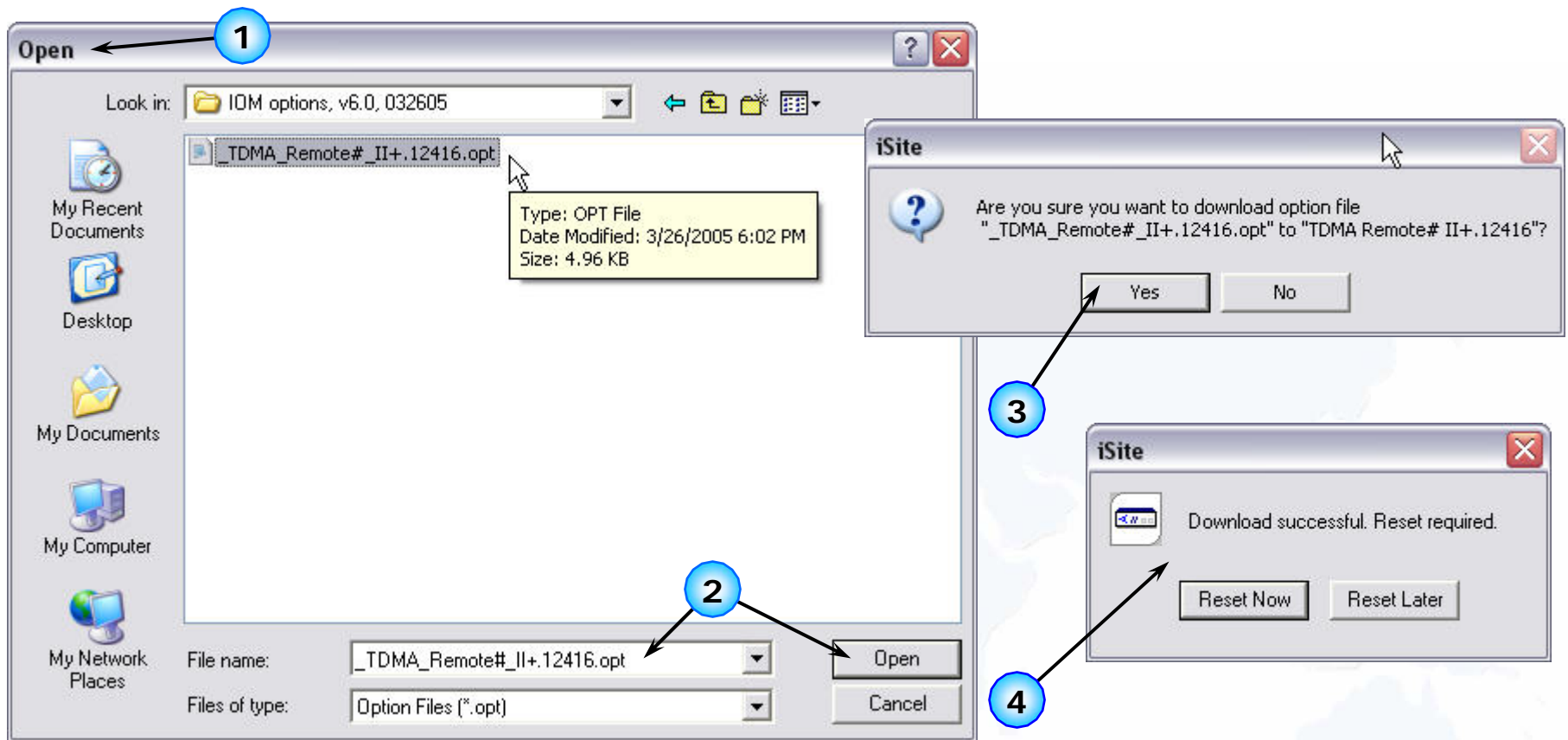
Please choose the folder which contains the packages:

- boot
- embedded
- fpga\_images
- hpb
- images
- install
- nms
- shared
- tools
  - mcast
  - package ← 3

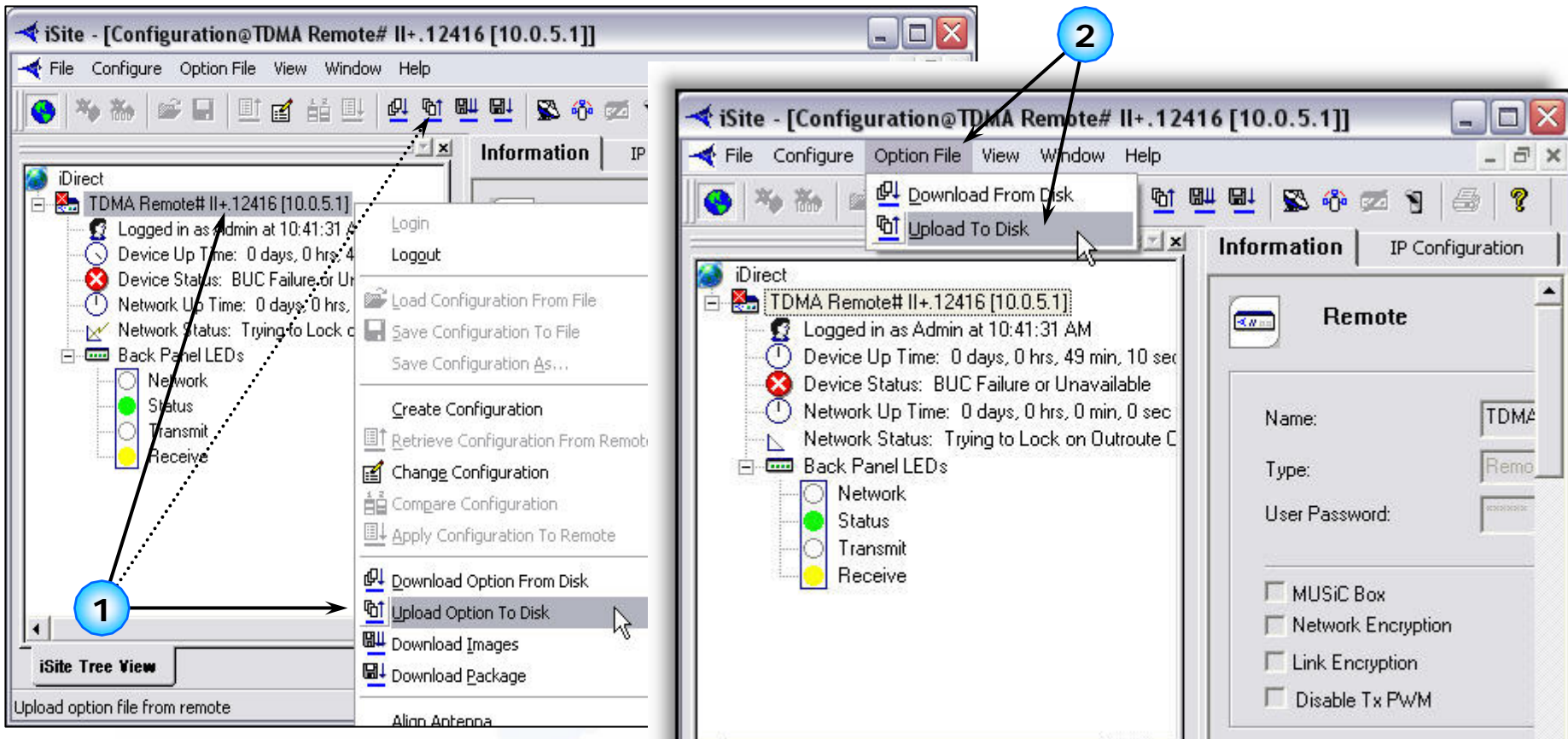
OK Cancel



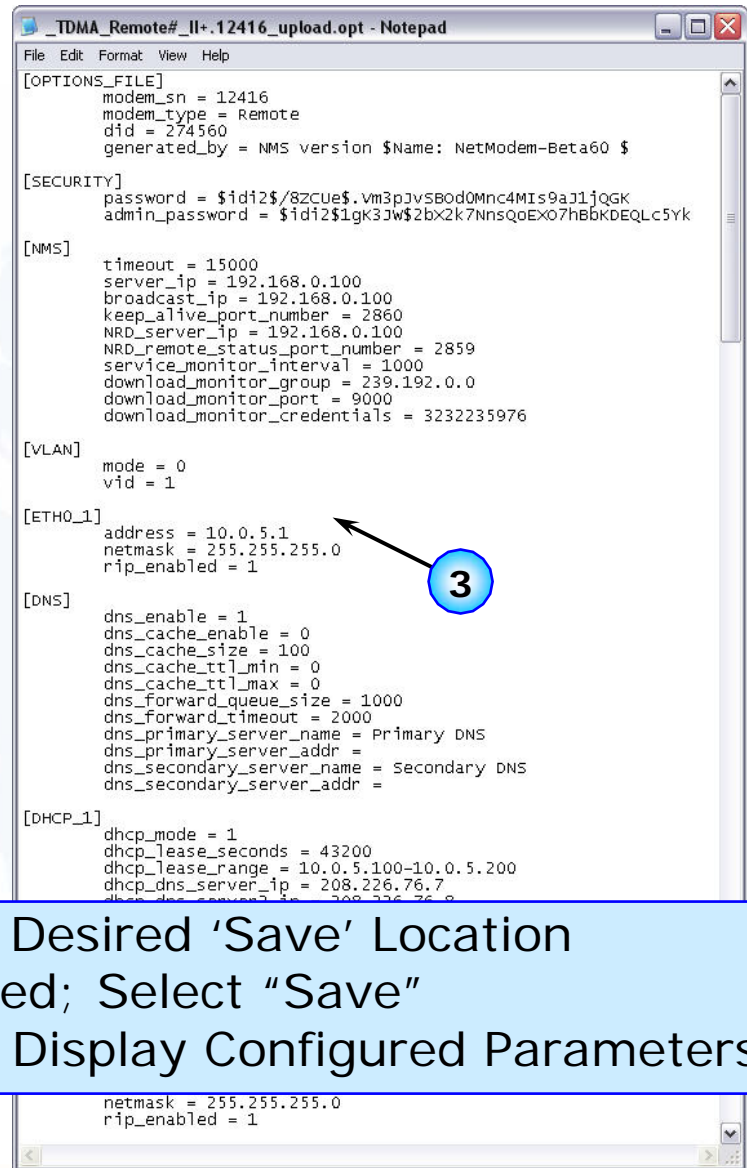
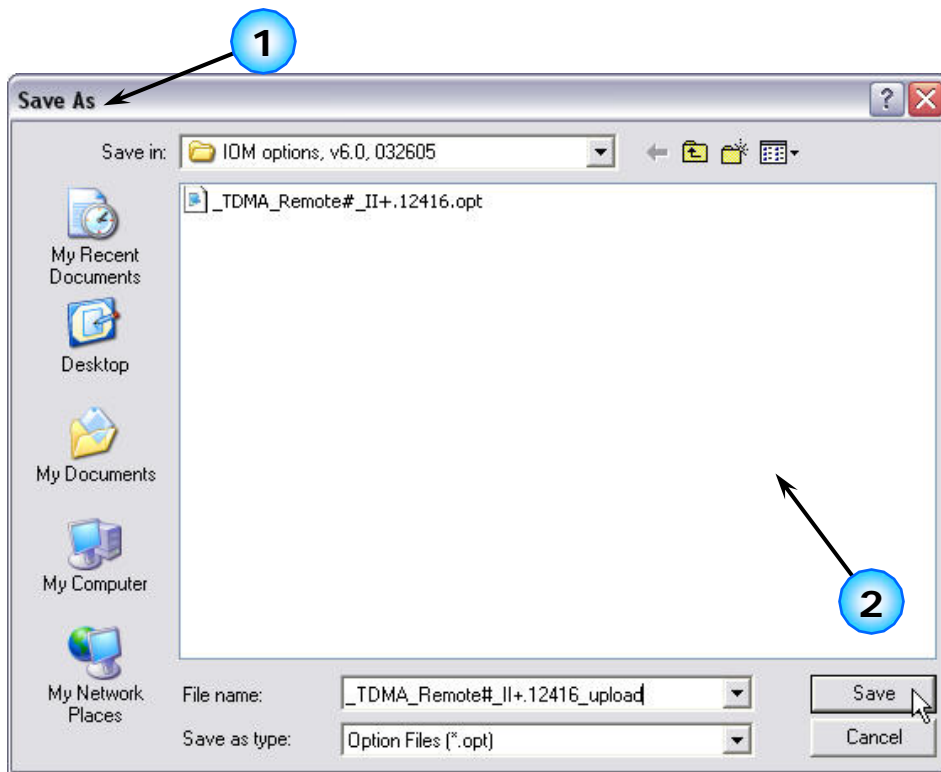
1. Right Click on Remote; Select "Download Option From Disk" from Component Tree Menu
2. Alternatively Select "Option File" from iSite Menu; Select Download From Disk



1. Dialog Opens to 'Locate' Desired/Current Option File
2. Select File from List (Double Click, or Highlight and Select "Open")
3. iSite Requests Confirmation of Download Request; Click "Yes"
4. Download Reports Success; NetModem can be Reset Now/Later



1. Select "Option File", "Upload To Disk" Menu Option
2. Dialog Opens to 'Locate' Desired 'Save' Location
3. Option File 'Opens' to Display Configured Parameters



1. "Save As" Dialog Opens to 'Locate' Desired 'Save' Location
2. Name/Rename Option File as Desired; Select "Save"
3. Option File 'Opens' (in Notepad) to Display Configured Parameters

The screenshot shows the iSite Configuration interface. A right-click context menu is open over the 'TDMA Remote# II+.12416 [10.0.5.1]' device in the tree view. The 'Align Antenna' option is selected, which has opened a sub-menu where 'Antenna Pointing' is highlighted. The 'Antenna Pointing' dialog box is displayed, showing the 'Look Angle Calculator' tab. The dialog contains several sections: 'Remote Location' with Latitude (38 Deg N) and Longitude (77 Deg W) fields; 'Spacecraft Position' with Longitude (15 Deg W) field; 'Elevation Information' with True (13.245209 deg) and Offset (22.6 deg) fields; and 'Gross Antenna Pointing Information' with Elevation Actual (-9.354791 deg), Azimuth True (108.126006 deg), and Polarization Offset (-48.495662 deg) fields. A 'Notes' section at the bottom provides reference information for the calculations. A 'Close' button is at the bottom right.

1. Right Click, Select "Align Antenna", "Antenna Pointing" from Menu
2. "Antenna Pointing" Opens, Displays "Look Angle Calculator" Tab First
3. GEO Detail Must Be Entered if "Mobile" Remote; Calculates Look Angle
4. Observe "Notes" for Reference Information Used in Calculations

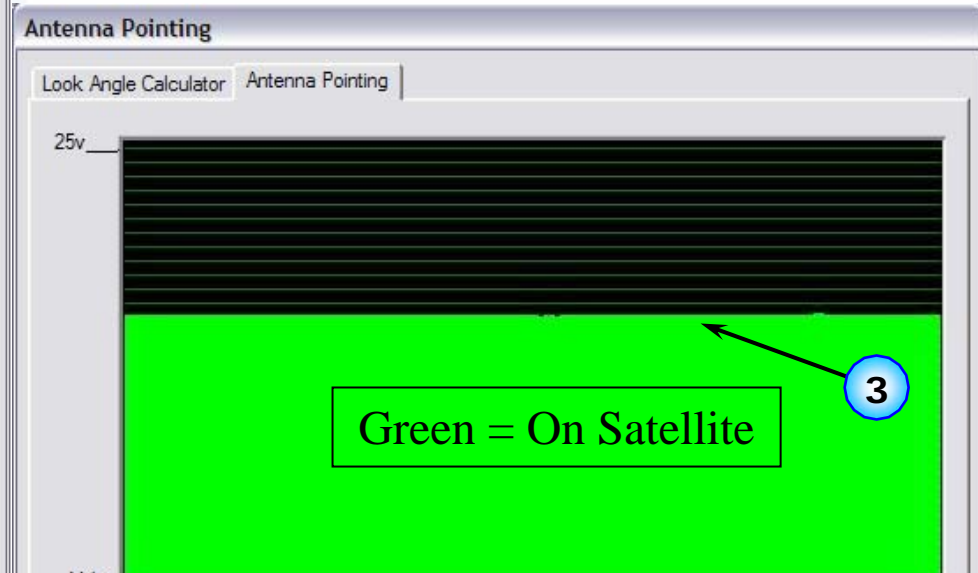
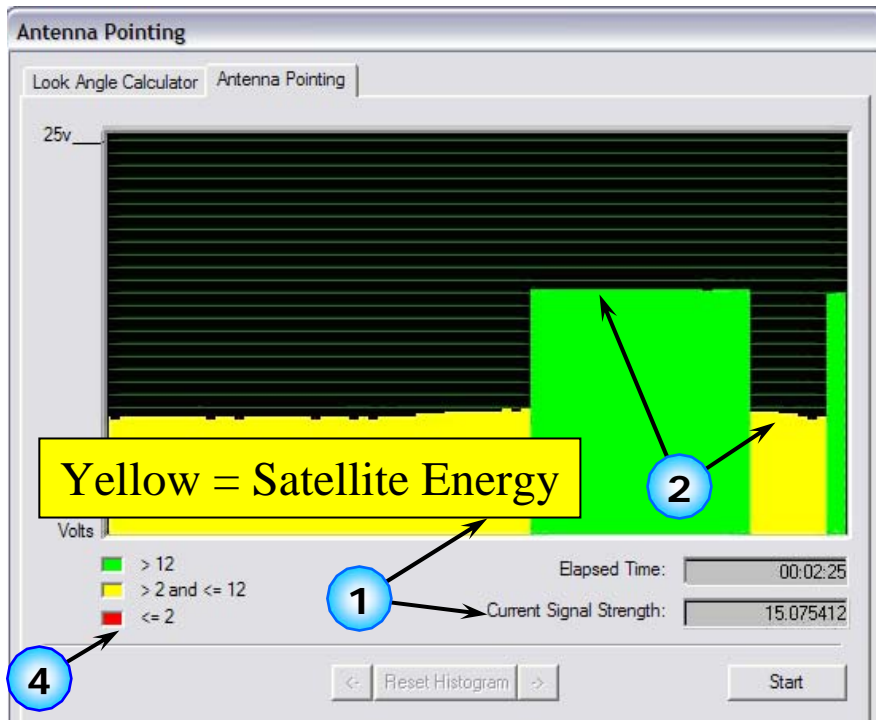
**Note: Remember to ALWAYS Power down NetModem II+ when Connecting and/or Disconnecting IFL Cables**

The screenshot shows the 'Antenna Pointing' software interface. A warning dialog box is displayed in the center, with a yellow warning icon and the text: 'Please make sure the Tx cable is removed from the BUC and that the antenna azimuth is at least 20 degrees from the proposed angle'. The dialog has 'OK' and 'Cancel' buttons. A blue circle with the number '3' has an arrow pointing to the 'OK' button. Below the dialog, the 'Start' button is highlighted with a blue circle and the number '2' and an arrow. To the right, a second screenshot shows the 'Antenna Pointing' interface after the process has started. The 'Current Signal Strength' is now 0.300000. A blue circle with the number '4' has arrows pointing to the 'Current Signal Strength' and 'Elapsed Time' fields. A red horizontal bar is visible at the top of the histogram area, indicating a signal level of 2 or less. A 'Stop' button is visible at the bottom right of the interface.

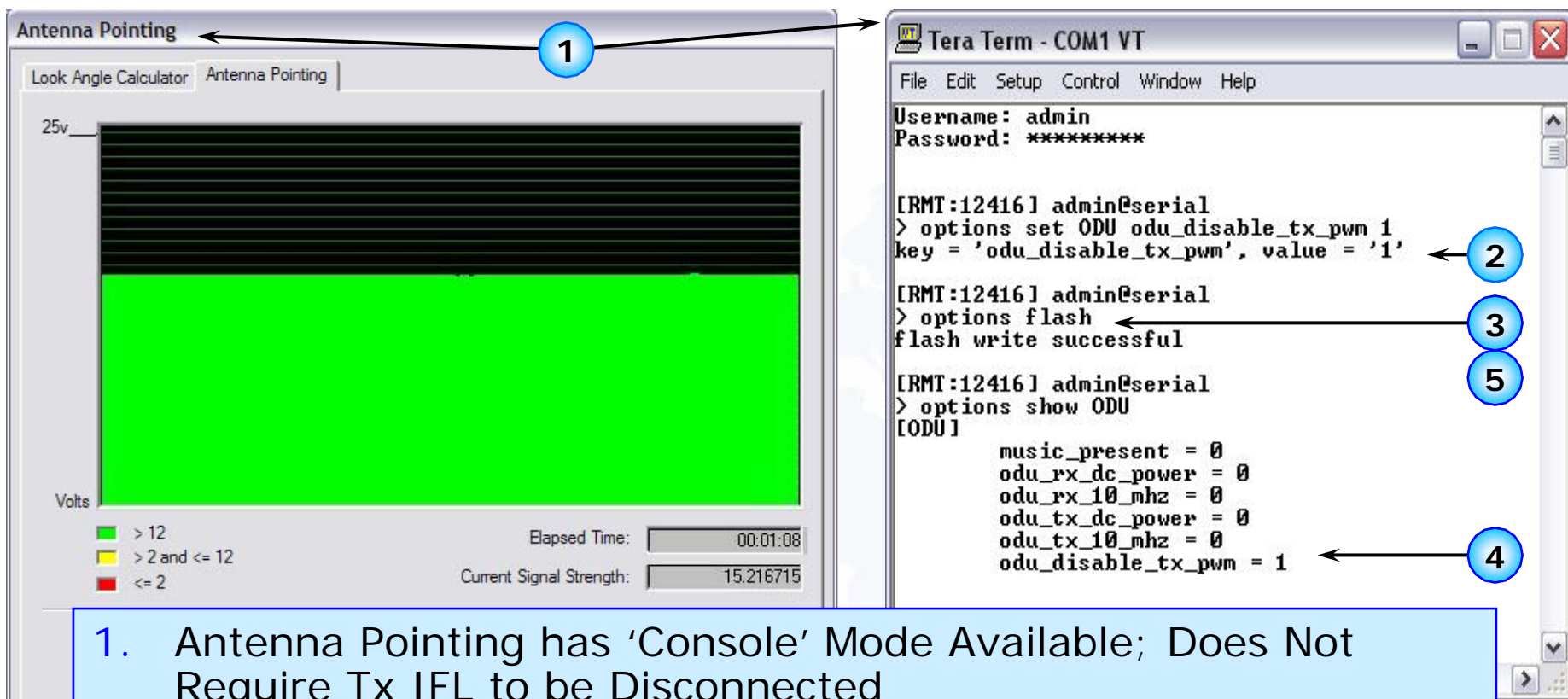
1. Select "Antenna Pointing" Tab
2. Select "Start" to Initiate Process
3. Observe Warning; Remove Cable from BUC
4. Observe Antenna Pointing DC Voltage

**Red = Off/No Satellite**





1. Observe Graph, "Current Signal Strength" or Voltmeter
2. Adjust Antenna in Azimuth/Elevation to Maximize Signal
3. Graphically, Peak Signal Until 'Green' is Displayed ( $= > 12$  vdc), or  $> 12$  vdc Present on Voltmeter.
4. Anything  $< 12$  vdc Indicates Satellite Energy Sensed, However iDirect Network Outbound SCPC Carrier Not Detected



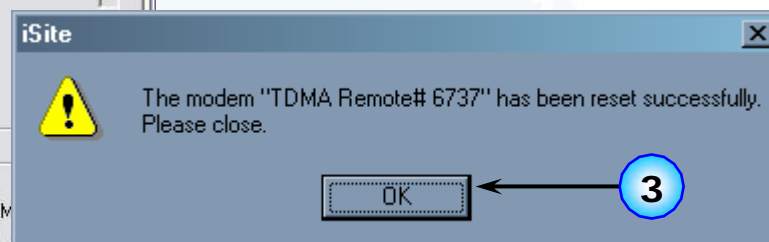
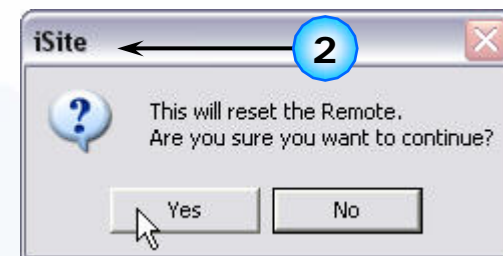
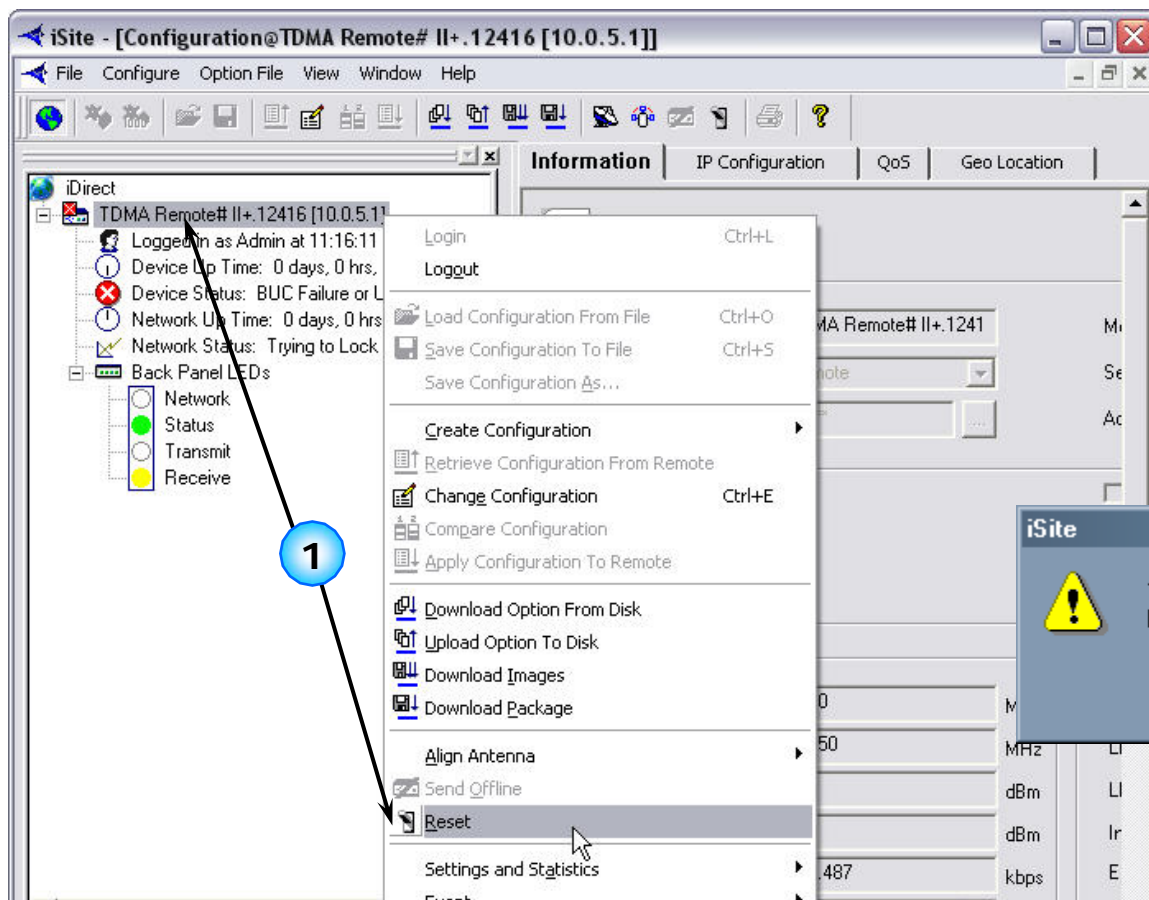
The image shows two windows side-by-side. The left window is titled 'Antenna Pointing' and has a 'Look Angle Calculator' tab selected. It displays a large green rectangular area representing a signal strength map. Below the map is a legend with three color-coded boxes: green for '> 12', yellow for '> 2 and <= 12', and red for '<= 2'. To the right of the legend are two input fields: 'Elapsed Time:' with the value '00:01:08' and 'Current Signal Strength:' with the value '15.216715'. The right window is titled 'Tera Term - COM1 VT' and shows a terminal session. The session starts with a login prompt for 'admin' with a masked password. The user enters several commands: 'options set ODU odu\_disable\_tx\_pwm 1' (with a blue circle '2' next to it), 'options flash' (with a blue circle '3' next to it), and 'options show ODU' (with a blue circle '5' next to it). The output of the last command shows several ODU options, with 'odu\_disable\_tx\_pwm = 1' (with a blue circle '4' next to it). A blue circle '1' is positioned above the 'Antenna Pointing' window, with arrows pointing to both windows.

1. Antenna Pointing has 'Console' Mode Available; Does Not Require Tx IFL to be Disconnected
  2. Entry Made at Console Session 'Disables' Tx Voltage
  3. Save to 'Flash'; Verify Entry – Reset to Take Effect
  4. After Pointing Completed, Modify Option File to Remove Entry
  5. Save to 'Flash' and Reset to return to Normal Operation
- NOTE: Console pointing Option Required 'Modified' Console Cable

**Note: Rx cable must be disconnected before performing this procedure; Remember to ALWAYS Power down NetModem II+ when Connecting/Disconnecting IFL Cables**

1. Right Click, Select "Align Antenna", Then "Cross Polarization"
  2. "Cross Polarization" Window Opens; Enter Test "RF Uplink Frequency"
  3. "BUC LO Frequency" Displayed/Entered, "L-Band TX Frequency" Calculated
  4. Upon Direction from Satellite Controller, Select "Start" (Generates CW, or Continuous Wave Carrier for Level and Cross-Pol Check)
  5. Adjust "Transmit Power" to Level Required for Cross-Polarization Check
- NOTE: Perform 1 dB Compression Test for BUC Before Continuing/Note Result

1. After 'Cross Polarization' Check, Do 1 dB Compression Test
2. Adjust Carrier (Tx Power) Properly to Minimize Distortion (Linear Increase in Tx Power – Linear Increase in Tx Output)
3. Each BUC has Unique Spec., Care Must Be Taken to Prevent Overdriving BUC and Creating Distortion/Spurious Emmissions
4. Critical -Replacement BUCs Must be Tested at Time of Installation



1. Right Click, Select "Reset" Menu Option
2. Confirmation Dialog Box Opens; Reply as Required
3. If "Reset", Confirmation Should be Received from NetModem

Tx Synthesizer:	OK	
Rx Synthesizer:	OK	
Rx AGC:	-44.797	Volts
BUC Status:	Fail	
Temperature:	56.313	deg C
TDM Lost:	1	
Run Number:	1	
Downstream SNR:	19.123	dB
Software Version:	6.0.0.0	
Type - Serial Number:	II+.12416	
Tx Power:	-14	dBm
Ethernet IP Address:	10.0.5.1	

1. Right Click, Select "Settings and Statistics"
2. Tabs Provide "Equipment Details", "Modem Parameters", "Ethernet" and "Satcom" Statistics
3. Observe Equipment Details Information

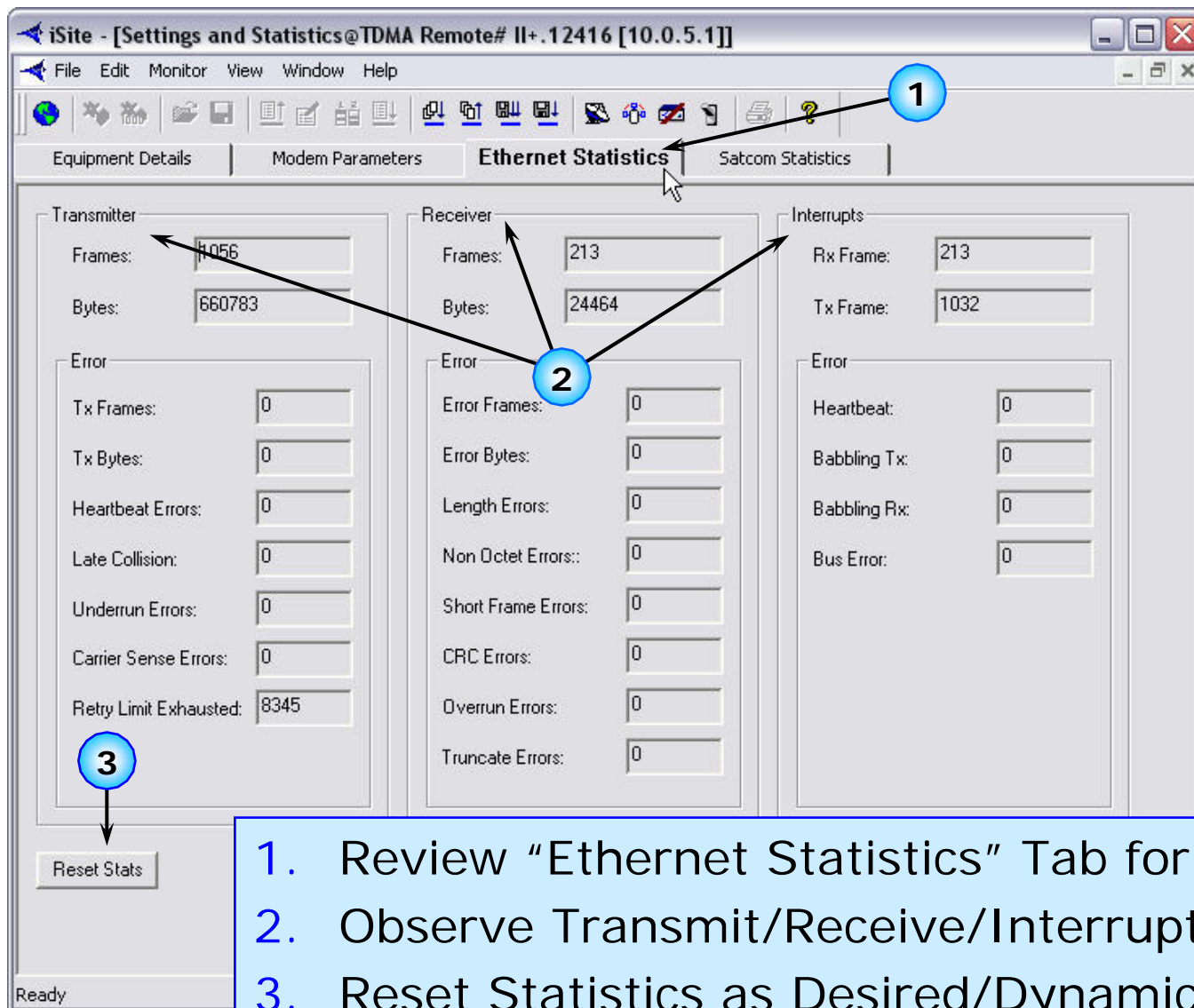
**1** Right Click, Select "Settings and Statistics"

**2** Change Tab to "Modem Parameters" to

**3** Observe Displayed (Read Only for TDMA Remote) Modulator/Demodulator Settings/Configuration

Modulator	Demodulator
Mode: TDMA	Mode: SCPC
L-Band Frequency: 1000 MHz	L-Band Frequency: 1410 MHz
IF Power: -12 dBm	Acquisition Range: 1000000 Hz
Bit Rate: 174.487 kbps	Bit Rate: 4560.974 kbps
Error Correction: TPC-676/1024 (.66)	Error Correction: TPC-3249/4096 (.79)
Modulation: QPSK	Modulation: QPSK
Scrambling: IDR	Scrambling: IDR
Differential Coding: OFF	Differential Coding: OFF
Spectral Inversion: Normal	Spectral Inversion: Normal

Connection:  
Data Source: LAN Interface Type: OFF



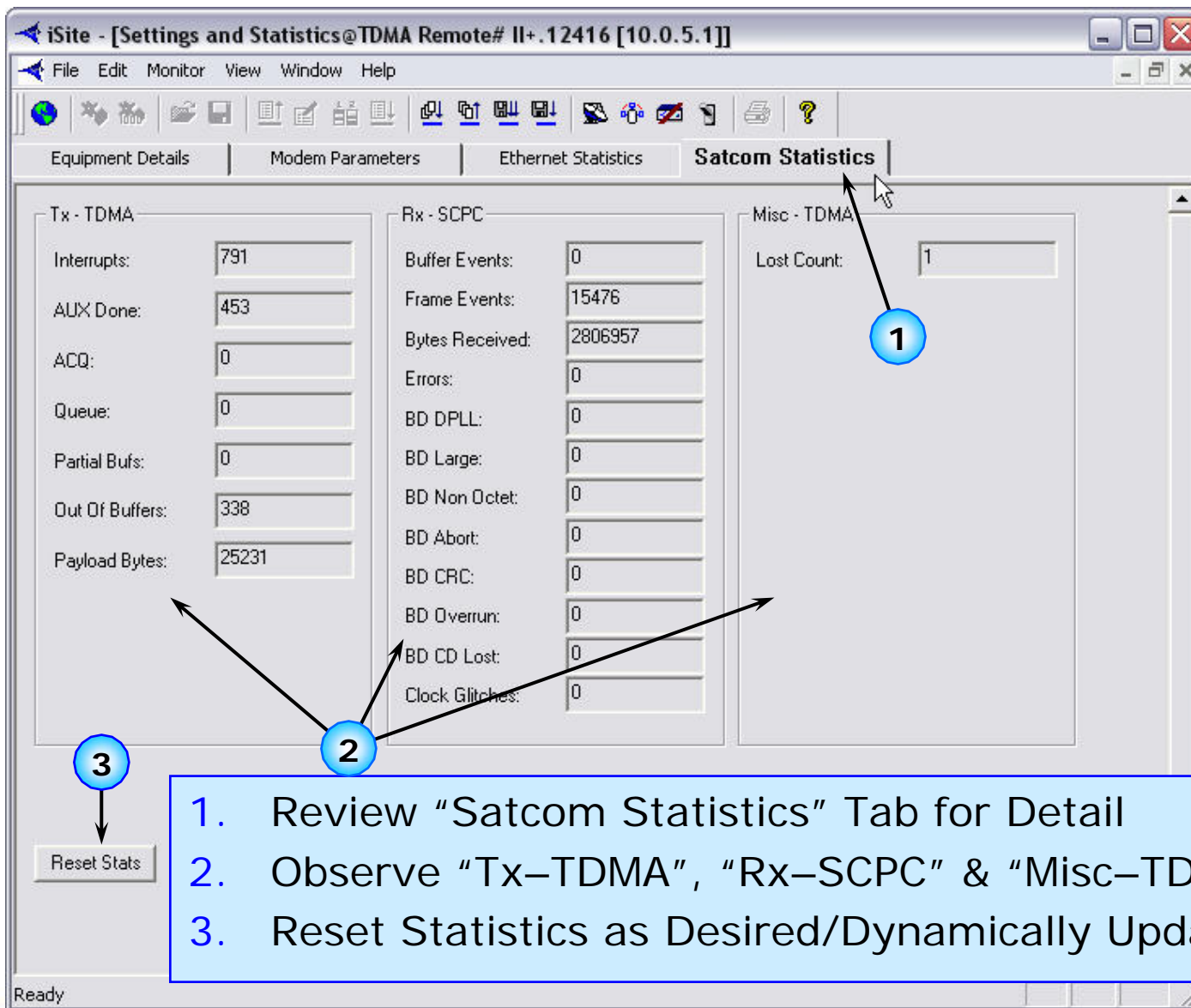
**1** Review "Ethernet Statistics" Tab for Detail

**2** Observe Transmit/Receive/Interrupt Statistics

**3** Reset Statistics as Desired/Dynamically Updates

Category	Item	Value
Transmitter	Frames	1056
	Bytes	660783
Error	Tx Frames	0
	Tx Bytes	0
	Heartbeat Errors	0
	Late Collision	0
	Underrun Errors	0
	Carrier Sense Errors	0
	Retry Limit Exhausted	8345
Receiver	Frames	213
	Bytes	24464
Error	Error Frames	0
	Error Bytes	0
	Length Errors	0
	Non Octet Errors	0
	Short Frame Errors	0
	CRC Errors	0
	Overrun Errors	0
	Truncate Errors	0
Interrupts	Rx Frame	213
	Tx Frame	1032
Error	Heartbeat	0
	Babbling Tx	0
	Babbling Rx	0
	Bus Error	0





iSite - [Settings and Statistics@TDMA Remote# II+.12416 [10.0.5.1]]

File Edit Monitor View Window Help

Equipment Details | Modem Parameters | Ethernet Statistics | **Satcom Statistics**

Tx - TDMA	Rx - SCPC	Misc - TDMA
Interrupts: 791	Buffer Events: 0	Lost Count: 1
AUX Done: 453	Frame Events: 15476	
ACQ: 0	Bytes Received: 2806957	
Queue: 0	Errors: 0	
Partial Bufs: 0	BD DPLL: 0	
Out Of Buffers: 338	BD Large: 0	
Payload Bytes: 25231	BD Non Octet: 0	
	BD Abort: 0	
	BD CRC: 0	
	BD Overrun: 0	
	BD CD Lost: 0	
	Clock Glitches: 0	

Reset Stats

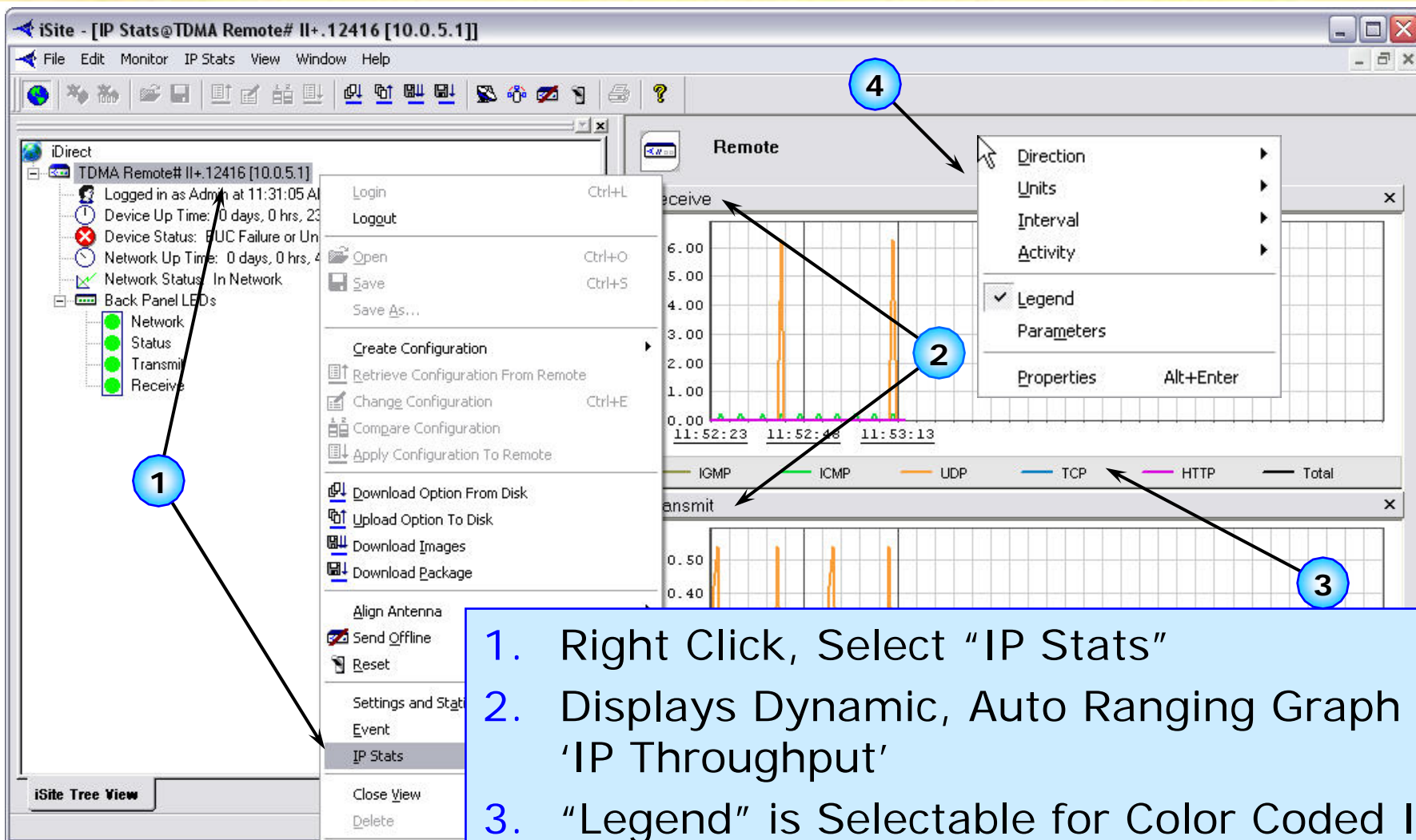
Ready

1. Review "Satcom Statistics" Tab for Detail
2. Observe "Tx-TDMA", "Rx-SCPC" & "Misc-TDMA" Statistics
3. Reset Statistics as Desired/Dynamically Updates

**1. Right Click, Select "Events"**

**2. View Events, Dynamically for This Remote**

Time	Date	Name	Type-SN	Type	Event Level	Event Description
18:05	04/08/05	TDMA ...	II.12416	Rem...	Info	Acquired RXer TDM frame lock
18:05	04/08/05	TDMA ...	II.12416	Rem...	Info	Acquired RXer TDM frame lock
17:49	04/08/05	TDMA ...	II.12416	Rem...	Info	WARNING: Lost RXer lock
17:49	04/08/05	TDMA ...	II.12416	Rem...	Info	WARNING: Lost RXer lock
17:48	04/08/05	TDMA ...	II.12416	Rem...	Info	Acquired RXer TDM frame lock
17:48	04/08/05	TDMA ...	II.12416	Rem...	Info	Acquired RXer TDM frame lock
17:35	04/08/05	TDMA ...	II.12416	Rem...	Info	WARNING: Lost RXer lock
17:35	04/08/05	TDMA ...	II.12416	Rem...	Info	WARNING: Lost RXer lock



1. Right Click, Select "IP Stats"
2. Displays Dynamic, Auto Ranging Graph of 'IP Throughput'
3. "Legend" is Selectable for Color Coded ID
4. Other Criteria Selected as Desired

The screenshot shows the iSite software interface. On the left, a tree view shows a device node 'TDMA Remote# II+.12416 [10.0.5.1]'. A right-click context menu is open over this node, with the 'Telnet' option highlighted. A blue callout box with the number '1' points to this menu. In the background, a 'Remote' window shows a bar chart. In the foreground, a 'Telnet 10.0.5.1' terminal window is open, displaying a login prompt and the following output:

```

Telnet 10.0.5.1
Username: admin
Password: *****

[RMT:12416] admin@telnet:10.0.5.100
>
[RMT:12416] admin@telnet:10.0.5.100
> laninfo
Address: 10.0.5.1
Netmask: 255.255.255.0

[RMT:12416] admin@telnet:10.0.5.100
>
  
```

1. Right Click, Select Telnet
2. DOS/Telnet Window Opens Requesting Login
3. Once Logged In, Full Console Capability Attained

The screenshot shows the iSite Configuration window for an iSCPC remote. The left sidebar displays a tree view of devices, with a context menu open for 'iSCPC# 3603'. The main area shows the 'Information' tab with fields for Name, Type, User Password, and Admin Password. Below this are checkboxes for MUSIC Box, Network Encryption, Link Encryption, Mobile Remote, Handshake Signaling, and Mobile Security. The bottom section contains Transmit and Receive Properties with various frequency, power, and error correction parameters.

1. Right Click, Select "Change Configuration" (iSCPC Only)
2. Displays the Same Tabs as for TDMA Remotes
3. Allows Parameter Fields to be Edited for iSCPC Option