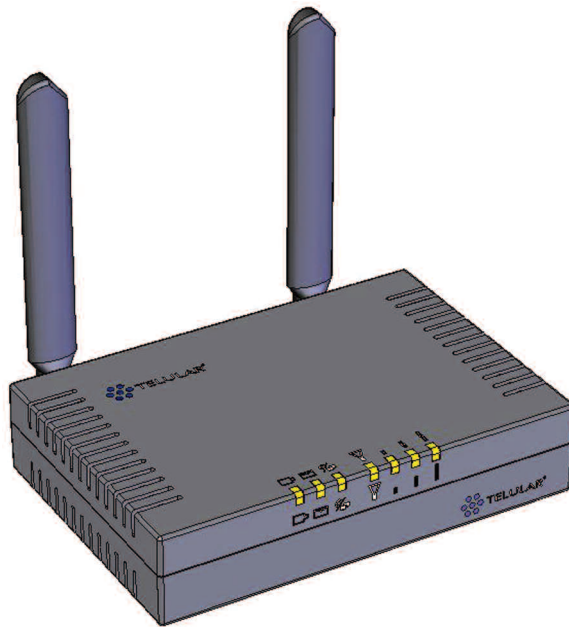




TELULAR®



## Wi PATH™ SX7T Terminal and SX7M Modem User Guide

GSM/HSDPA

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## Introduction

Thank you for choosing the Wi PATH™ SX7 as your wireless data connection solution. The SX7T Voice/Fax/Data Terminal and the SX7M Modem each provide high-speed wireless WAN connectivity, taking advantage of your current GSM wireless services to deliver the best performance available, including HSDPA, UMTS, EDGE, and GPRS service.

The SX7 adapts to changing locations and service availability and always uses the best possible data connections available through your wireless service provider.

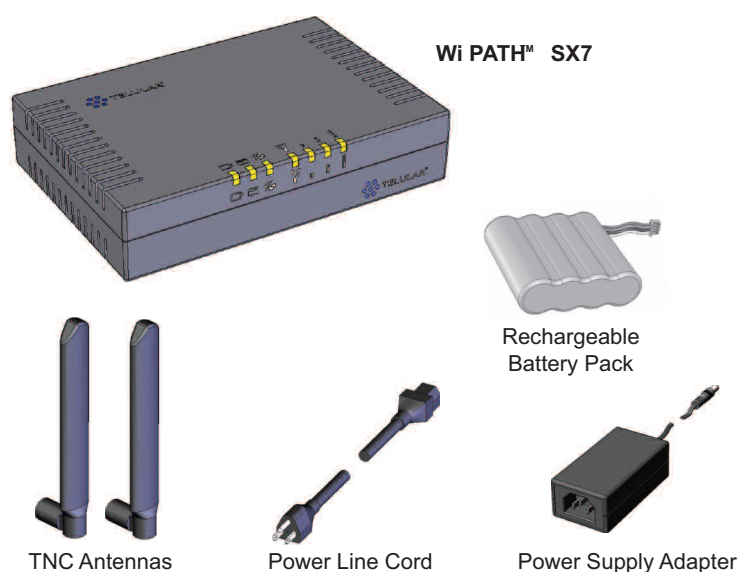
In addition to providing a reliable data connection, the SX7T HSDPA terminal version offers voice and fax options that you can use simultaneously with your wireless data services (network dependent; UMTS only).

## Getting Started With the Wi PATH™ SX7

### Your Wi PATH SX7 Components

Here's what's included with your Wi PATH™ SX7 purchase:

- **Wi PATH™ SX7**
- **2 TNC Antennas**
- **Power Supply Adapter**
- **Power Line Cord**
- **Rechargeable Battery Pack**
- **Ethernet Cable (RJ-45)**  
*(not pictured)*
- **USB Cable (A to B)**  
*(not pictured)*
- **RJ-11 Phone Cable**  
*(not pictured)*
- **Quick Start Guide**  
*(not pictured)*
- **CD (contains User Guide and support materials)**  
*(not pictured)*



Make sure you have everything listed before continuing. If any items are missing or damaged, please contact your authorized distributor for assistance.

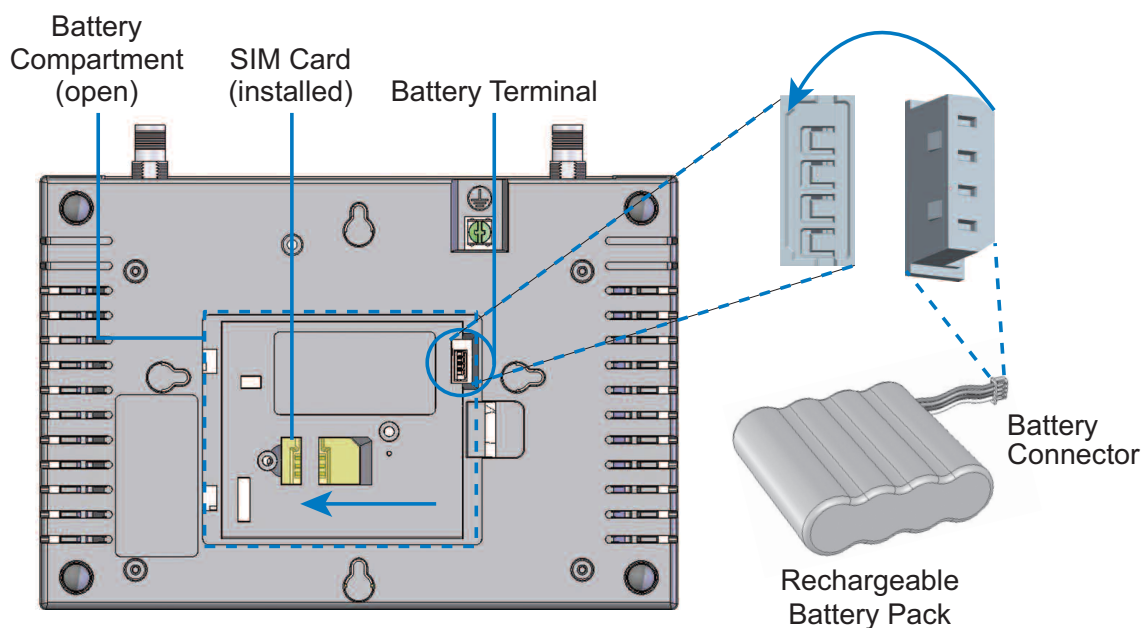
#### IMPORTANT

**SIM Card** – You will also need to purchase and install a SIM (Subscriber Identity Module) card to enable your device to connect to your wireless service provider's network. Depending on how you will be using the SX7, you will need to activate voice and data services (*SX7T only*) or data services only on the SIM card.

## Set Up Your SX7

1. Install the **SIM Card** into the SIM card holder in the battery compartment.
  - If applicable, remove the SIM Card from the larger plastic card holding it.
  - Remove the battery compartment door from your SX7 unit.
  - Carefully slide the SIM Card into the SIM card holder inside the battery compartment. It will slide lengthwise as shown below, with the gold contact surface facing into the SX7 and the corner notch matching the plastic SIM holder outline.

**Note** Do not touch the gold-colored areas of your SIM Card.



2. Install the **Rechargeable Battery Pack** into the battery compartment.
  - With the battery compartment door open, insert the battery connector into the battery terminal.

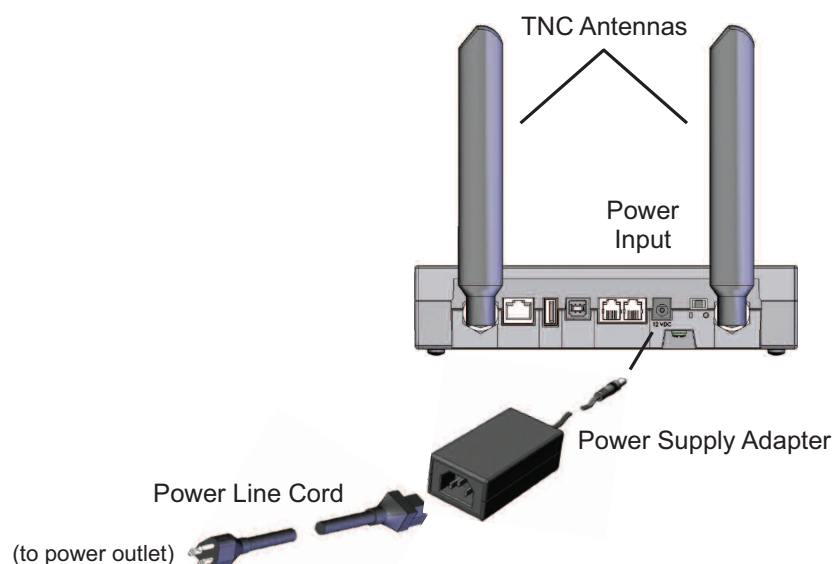
**Tip** The battery connector will have the rounded corner side on the left when inserted into the battery terminal.

- Arrange the battery pack in the battery compartment, so the battery connector wire is in the top right of the compartment.
- Replace the battery compartment door.

3. Connect and hand-tighten the **TNC Antennas**. Once they are installed, orient the antennas so they point upward (vertical orientation). This is the typical desktop application.

**Note**

As marked on the back of the unit, the Antenna 1 terminal primarily handles voice and data services. The Antenna 2 terminal provides radio diversity for optimized data speeds, as well as GPS functionality for E911 and potential future location-based applications. Either TNC Antenna may be used in either terminal.



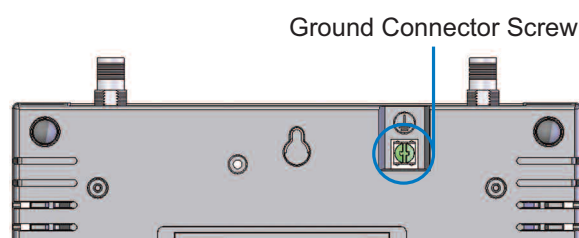
4. Connect the **Power Supply Adapter** to the unit's Power Input and connect the **Power Line Cord** to the Power Supply Adapter. Then, connect the Power Supply Adapter plug into a power outlet.

**IMPORTANT**

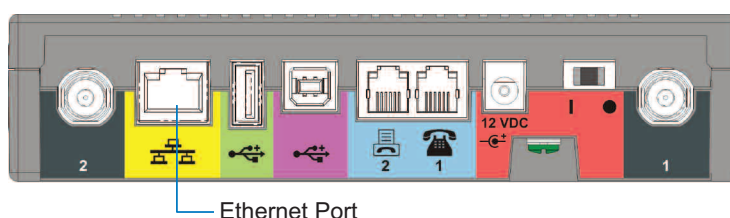
**E911 (Enhanced 911) Information** – Your unit is equipped with a GPS (Global Positioning System) antenna for utilizing E911 emergency location services where available. When you place an emergency 911 call from your device (*SX7T only*), the GPS feature will calculate and transmit your approximate location.

**Always report your location to the 911 operator when placing an emergency call.** Some designated emergency call takers, known as Public Safety Answering Points (PSAPs) may not be equipped to receive GPS location information from your SX7T.

5. (Optional) For optimal performance and protection, you may elect to connect a copper wire (not included) to the protective earth **Ground Connector Screw** to ground the device.
- In a building environment, connecting to an earth ground (such as a cold water pipe) can protect the device and peripherals from static and conducted electricity. It can also reduce static or buzzing during voice calls (SX7T only).
  - In a vehicle environment, grounding to the frame and battery or alternator can reduce static or buzzing during voice calls (SX7T only).

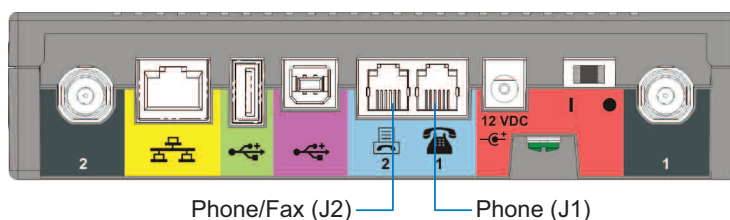


6. Connect the **Ethernet** (RJ-45) cable to the Ethernet Port on the SX7. (This cable will serve as the connection to your computer in most configurations, including the primary Wireless WAN data connection.)

**Note**

It is recommended that you use the Ethernet connection for your primary Wireless WAN data connection; however, you may also use Dial-Up Networking (DUN) using the supplied USB cable (see “**Using the USB Connection Option**” on page 12). Before connecting with a USB, install the SX7 USB drivers included on the CD that was packaged with your device (see “**Install the USB Drivers**” on page 12).

7. Depending on your usage needs, connect RJ-11 phone cables to the Phone (J1) and Phone/Fax (J2) ports (SX7T only).

**Note**

The **Phone (J1)** and **Phone/Fax (J2)** RJ-11 ports are only available on the SX7T terminal model. See “**Using the Voice and Fax Options (SX7T Only)**” on page 16 for information about setting up your RJ-11 Phone and Phone/Fax jacks.



## Connect the SX7 to Your Computer

Before you connect your computer, ensure you do not have an existing landline data connection and that you have either Internet Explorer or FireFox Web browser installed on your computer.

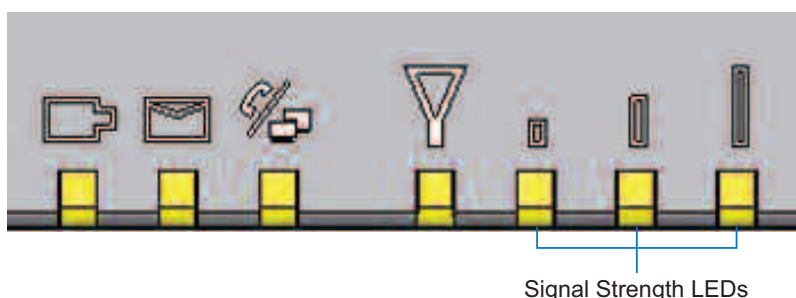
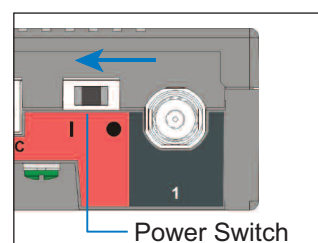
- Connect the Ethernet (RJ-45) cable from the SX7 to an available Ethernet port on your computer.

### Note

It is recommended that you use the Ethernet connection for your primary Wireless WAN data connection; however, you may also use Dial-Up Networking (DUN) using the supplied USB cable.

## Power Up the SX7

1. With the Ethernet cable connected to both your computer and the SX7, ensure that your SX7 is off, and power up your computer.
2. Slide the Power Switch from right to left to power up your SX7.
3. Wait a few minutes for the SX7 to initialize. Once the signal strength LEDs are illuminated, you are ready to proceed.



### Note

If your computer is configured with a preset IP address, you may need to adjust your network settings to automatically retrieve an IP address from the SX7. See “**Configuring TCP/IP Settings**” on page 38.

## Using the Telular Device Manager

The **Telular Device Manager** will allow you to configure all your connections, view your status, and manage all your connection options in one place.

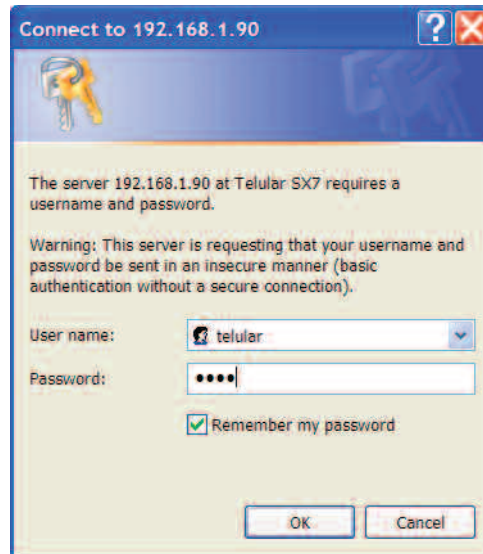
### 1. Connect to the **Telular Device Manager**.

- Launch your Web browser (Internet Explorer or FireFox).

#### Note

When you launch the browser, you may get a “**Cannot display web page**” or similar error. This is normal.

- Go to the browser’s address bar, type **http://192.168.1.90**, and press Enter or click the green **Go** arrow. A “Connect to” dialogue will be displayed.



- Enter the default **User name** (“telular”) and **Password** (“1234”) and click **OK**.

The **Telular Device Manager** will start and display the Home screen.

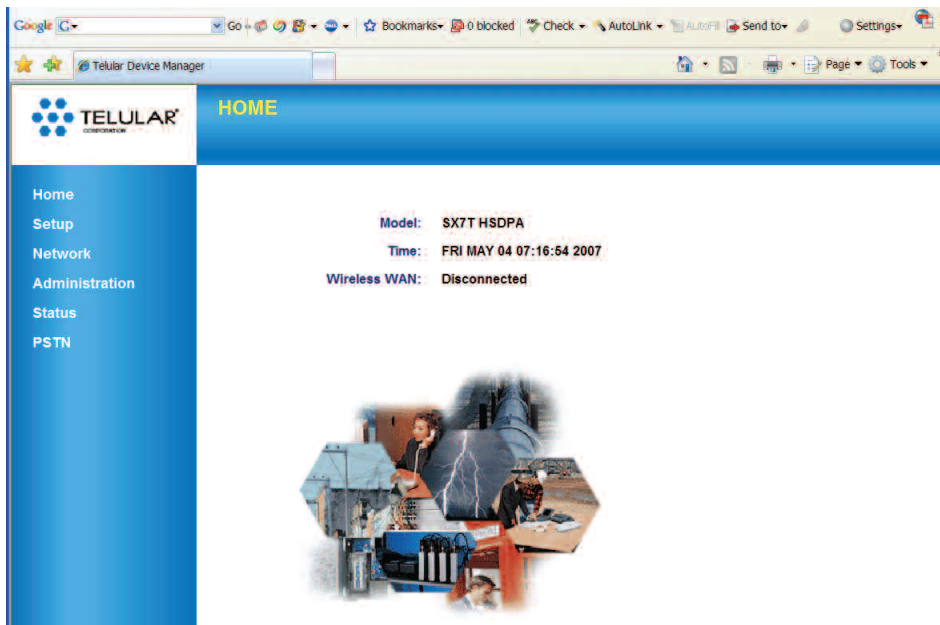
#### Tip

It is recommended that you bookmark the Telular Device Manager access page (<http://192.168.1.90>) so you can easily reconnect your data service, access your status, and customize additional features such as Firewall and Port Forwarding.

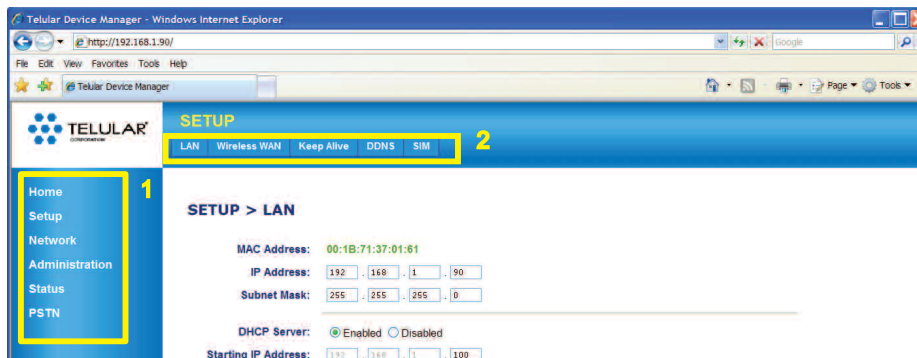
When adding or changing settings in the **Telular Device Manager**, click **Save** whenever you change a setting, and then move on to the next item you want to change. When you have finished making all your changes, click **Save** again and then click **Restart**. The SX7 will power down and restart, and all your new settings will be in effect.



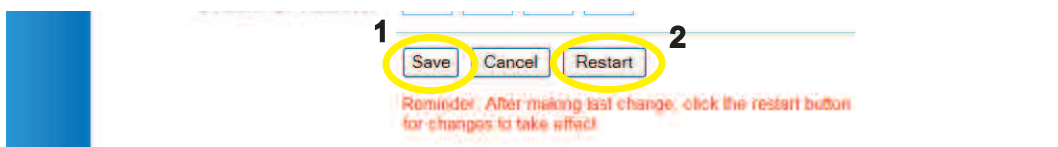
- On the **Home** screen (see below), you will see the unit's Model number, the Time, and your Wireless WAN connection status.



- Click an item in the column on the left (1) to display a **Main Menu** subject screen (such as **Setup**, below). From a main menu screen, click a **Sub Menu** item in the tabs at the top (2) to display the corresponding settings menu.



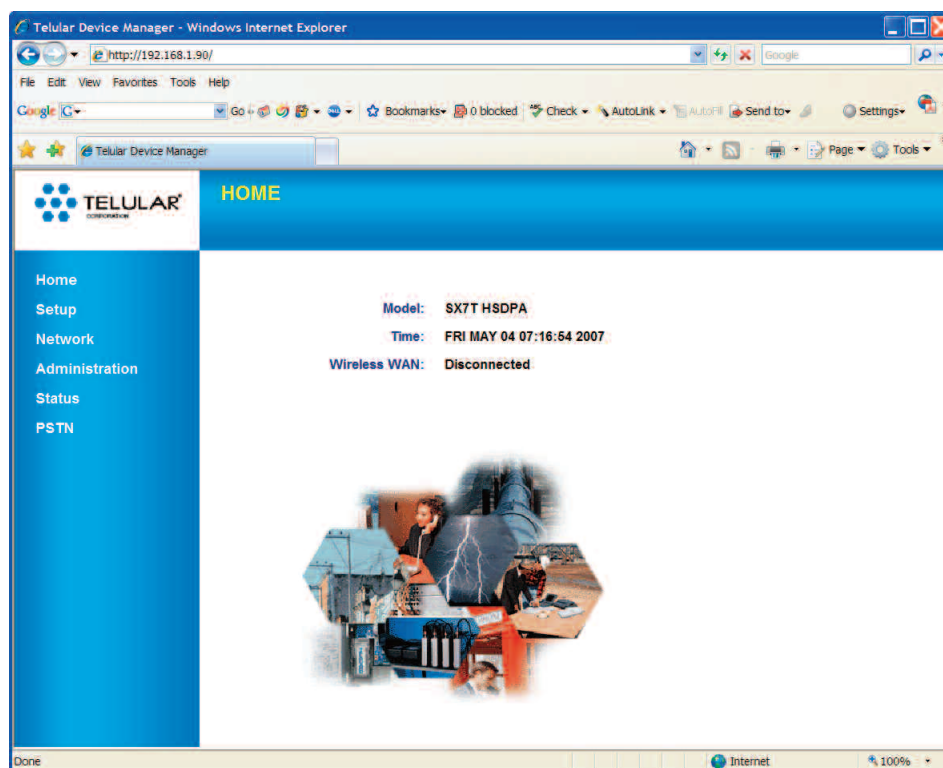
- After selecting or adjusting your desired settings and clicking **Save** (1), you will need to click **Restart** (2). The unit will power cycle and your new settings will be in effect.



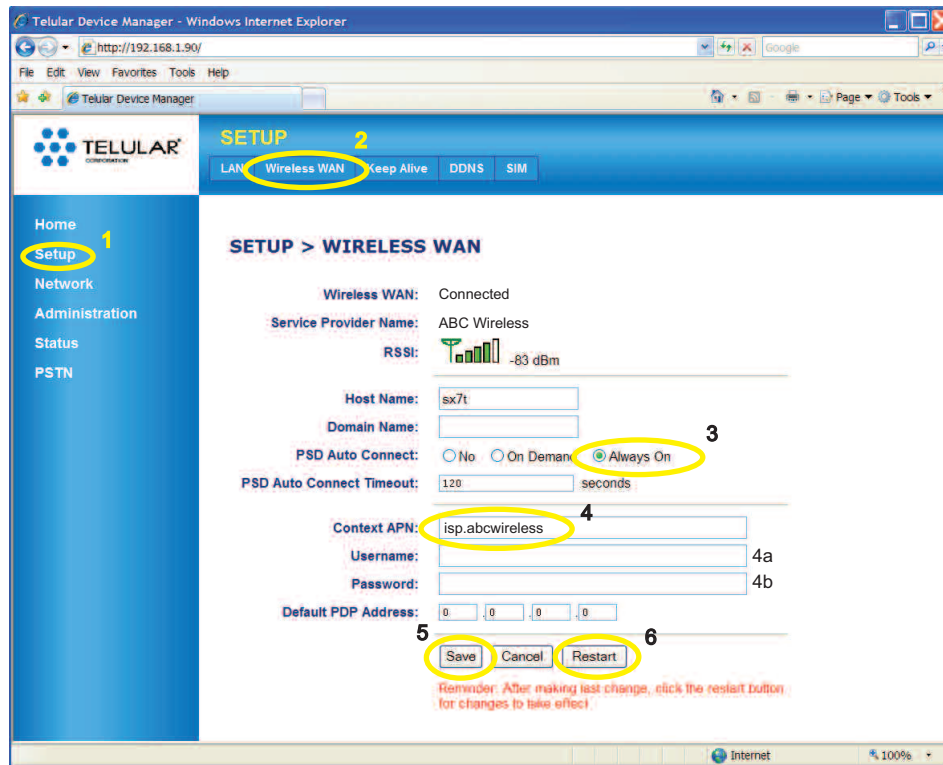
## Setting Up Your Wireless WAN Data Connection

Once the computer and the SX7 are connected and powered up, you will need to set up your Wireless WAN data connection. The Wireless WAN connection is the primary data service connection for your SX7.

1. Connect to the **Telular Device Manager**. (See “Using the Telular Device Manager” on page 6.)
2. On the **Home** screen (see below), you will see the unit’s Model number, the Time, and your Wireless WAN connection status.



3. From the Home screen, click **Setup** (1) > **Wireless WAN** (2).



4. For **PSD Auto Connect**, click **Always On** (3).

#### Tip

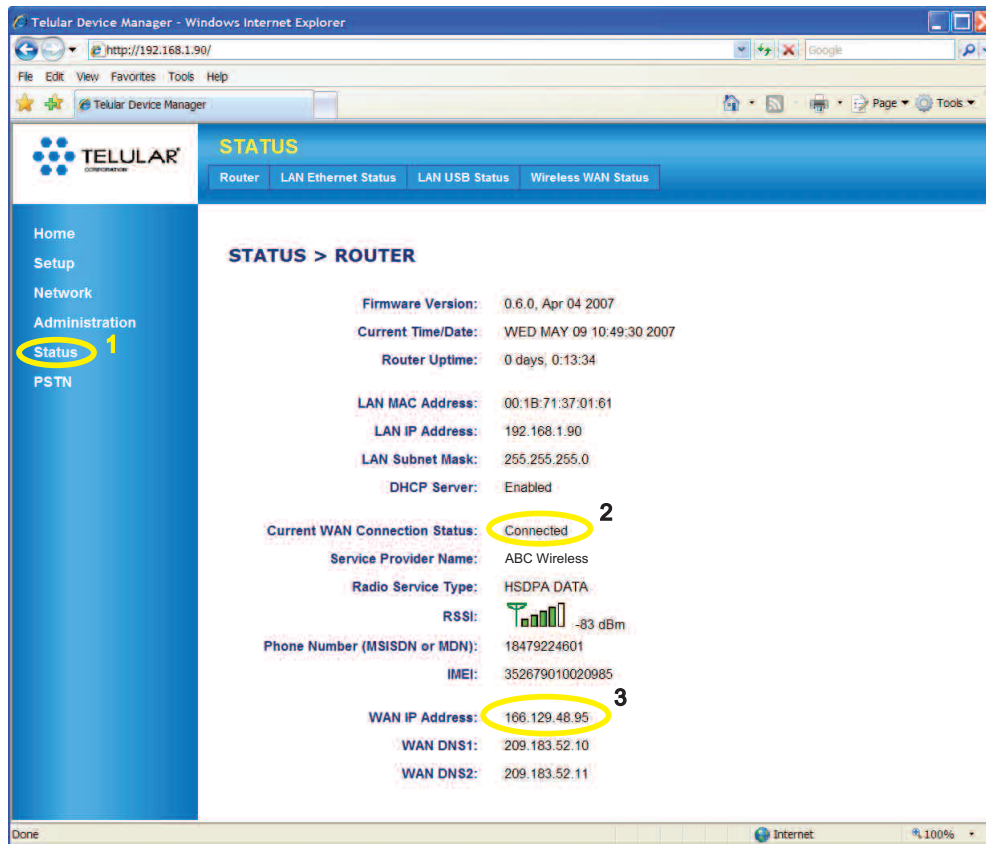
If you do not have an unlimited data plan with your wireless service provider, you may want to select **On Demand** instead of **Always On**. **On Demand** connects to the network automatically anytime you are using data services, but disconnects whenever no data is being transferred.

5. For **Context APN** (4), make sure the ISP (Internet Service Provider) name matches your wireless service provider. For example, if *ABC Wireless* is your service provider, type “**isp.abcwireless.**” (Please contact your wireless service provider for APN information.)
6. If required by your wireless service provider, enter your Username (4a) and Password (4b) in the appropriate fields.
7. Click **Save** (5).
8. You will be prompted to restart the unit. You can continue adjusting additional settings and clicking **Save** to update your configuration. When you have finished making all your changes, click **Restart** (6) from the current screen.

#### Note

If you are connecting through a USB Dial-Up Networking (DUN) connection (see “**Using the USB Connection Option**” on page 12), your dial-up connection will be terminated and the dial-up window will appear when you restart the SX7. Re-enter your information (if it is not automatically populated) and click **Connect**.

9. To confirm your data connection, click **Status** (1). The **Status > Router** page will auto-refresh every few seconds. Your WAN address from your wireless service provider will be displayed next to **WAN IP Address** (3).

**Note**

If the **Current WAN Connection Status** (2) indicates **Not Connected** or **Unknown Connection Problem**, go back through the previous steps to verify your information. If you are still experiencing connection problems, please contact Telular Tech Support or your wireless service provider's customer service center if you purchased your SX7 through your carrier.

**Tip**

Only the Status page auto-refreshes when viewing the Telular Device Manager. From any other page, right-click your mouse and select **Refresh** or **Reload** to refresh the current page.

10. Close the browser window, reopen it, and go to a website (such as [www.telular.com](http://www.telular.com)) to verify Internet connectivity.

**Tip**

Any time you want to verify your connection status, go to the Telular Device Manager (<http://192.168.1.90>) and sign on. Your status will appear on both the Home screen (next to "Wireless WAN") and the Status page.

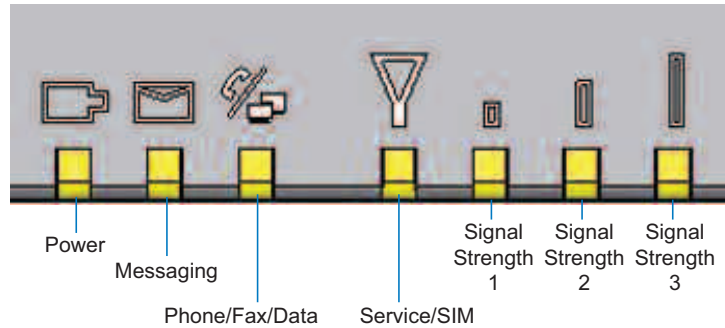
**Note**

For additional data connection options, settings, and features, see "**Advanced Data Connection Options**" on page 22.

## Status LEDs

In addition to checking your status through the Telular Device Manager on your computer, you can also use the LED indicators on the unit for a quick check of valuable connection and coverage information.

WiPATH SX7T LED Indicators



The following table explains how the LED colors and blink rates indicate your device's coverage and connection status.

## LED Reference Table

	Power	Messaging	Phone / Fax	Service / SIM	Signal Strength 1	Signal Strength 2	Signal Strength 3
<b>Off</b>		No Messages	On Hook / No WAN		No GPS		
<b>Solid</b>	AC / Batt Normal	Voicemail	On-Hook / WAN	Service / 2G	1 Bar + GPS	2 Bars	3 Bars
<b>Slow</b>	Batt Only	SMS		Service / 2.5 G	1 Bar	1 Bar	2 Bars
<b>Fast</b>		Both	On-Hook / WAN Tx	Service / 3G			
<b>Solid</b>	AC / Batt Charging		Off-Hook / WAN	Roam / 2G			
<b>Slow</b>	Low Batt		Off-Hook / No WAN	Roam / 2.5G			
<b>Fast</b>			Off-Hook / WAN Tx	Roam / 3G			
<b>Solid</b>	Batt fault		Off-Hook / WAN	No Service			
<b>Slow</b>	Batt crit		Off-Hook / No WAN	PIN Locked			
<b>Fast</b>			Off-Hook / WAN Tx	SIM Error / No SIM / Net Reject			

## Using the USB Connection Option

The preferred method for establishing a data connection with the SX7 is through the Ethernet Port (see “**Connect the SX7 to Your Computer**” on page 5). However, you may also use the supplied USB cable instead of the Ethernet connection.

The USB connection uses Dial-Up Networking (DUN) to achieve Wireless WAN connectivity to the network. Before setting up a USB connection, you must install the SX7 USB Modem drivers from the CD that was packaged with your SX7.

### Install the USB Drivers

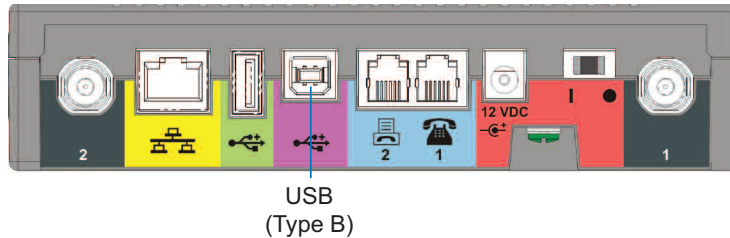
1. Insert the CD into your computer’s CD drive.
2. Click **Install USB Modem** (or explore the CD contents and double-click **SX7 Driver Installer.exe**). (The installer will launch.)
3. Click **Next**. (The drivers will be installed.)
4. Click **Finish**.





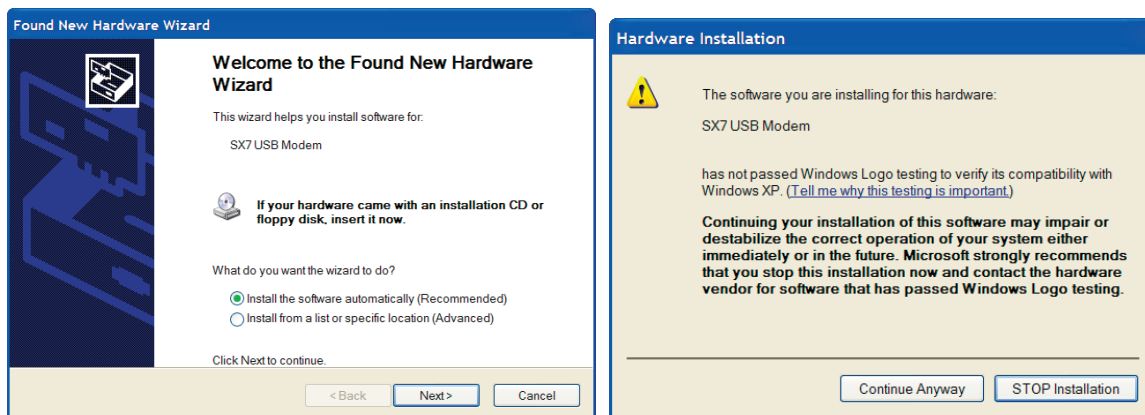
## Connect the SX7 to Your Computer With a USB Cable

1. With your computer and the SX7 powered on, connect the terminal end of the USB cable to the USB Type B Port on the SX7.



**Note** The USB host (Type A) port on the SX7 is not currently active. It is reserved for future use

2. Connect the other end of the USB cable to an available powered USB Type A port on your computer.
3. A **Found New Hardware Wizard** will open. Select “Install the software automatically (Recommended)” and click **Next**.
  - If a Windows Logo testing warning appears, click **Continue Anyway**.

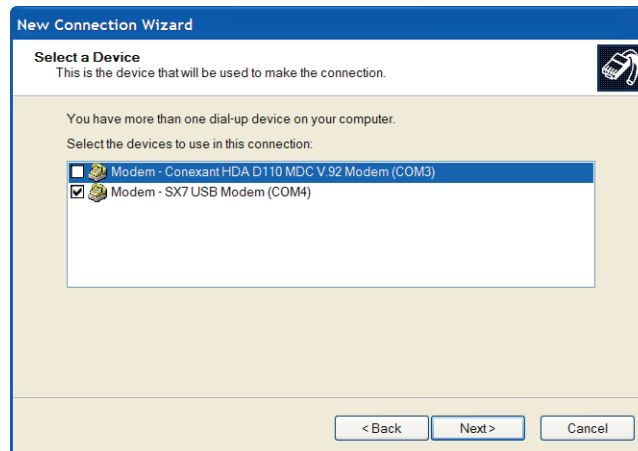


4. Click **Finish** to complete the installation.

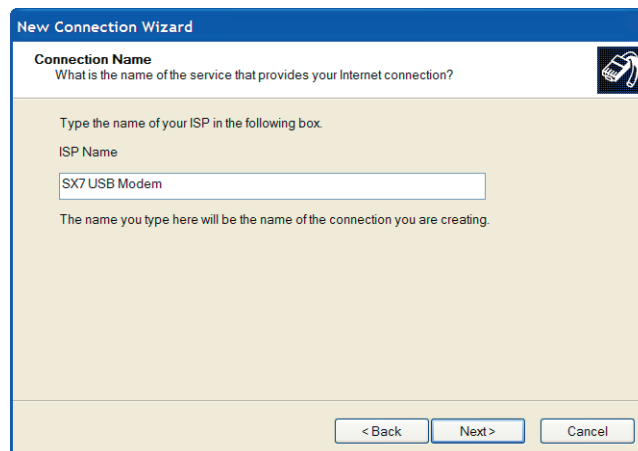
## Set Up a Dial-Up Networking (DUN) Connection

1. With the drivers and USB modem installed and connected, click **Start > Control Panel > Network Connections**.
2. Click **File > New Connections....** (The **New Connection Wizard** will start.)
3. Select the following settings and click **Next** after each selection:
  - **Connect to the Internet.**
  - **Set up my connection manually.**
  - **Connect using a dial-up modem.**
  - **Set up my connection manually.**

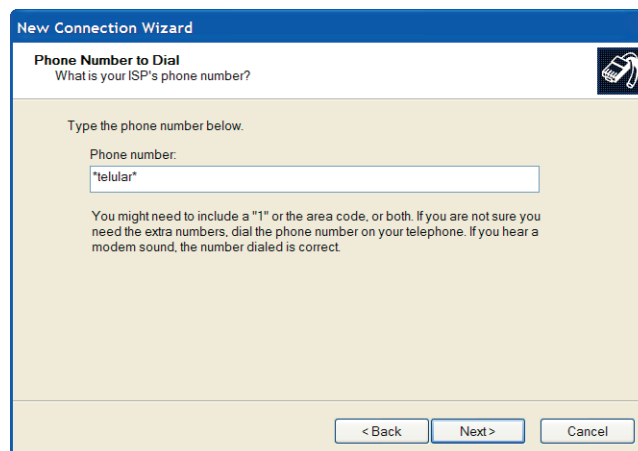
- On the **Select a Device** screen, select **Modem - SX7 USB Modem** and deselect any other hardware listed.



- On the **Connection Name** screen, enter a name for the connection (such as **SX7 USB Modem**).

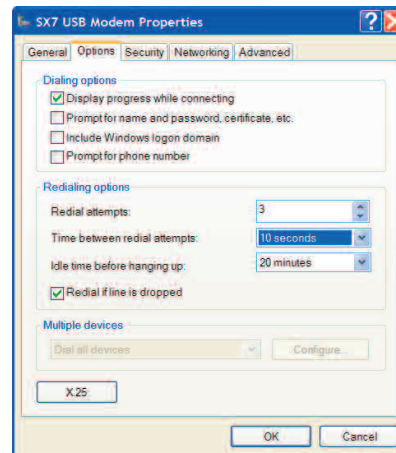


- On the **Phone Number to Dial** screen, enter **\*telular\*** (with asterisks).



- Leave the **User name** and **Password** blank, click **Next**, and then click **Finish**.

- The **Connect** dialog will open. Click **Properties > Options**. Uncheck **Prompt for phone number** and **Prompt for name and password, certificate, etc..** Set **Time between redial attempts** to **10 seconds** and click **OK**.



- Your computer will dial the new connection.
- Follow the instructions found in **“Using the Telular Device Manager”** on page 6 and **“Setting Up Your Wireless WAN Data Connection”** on page 8 to launch the Telular Device Manager and complete your USB data connection.

## Using the Voice and Fax Options (SX7T Only)

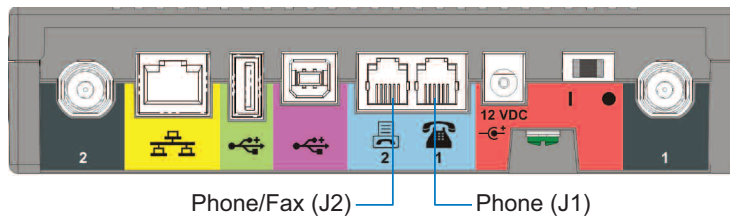
The Wi PATH SX7T Voice/Fax/Data terminal lets you use your wireless service provider for voice calling and faxing (similar to standard PSTN telephone operation) in addition to using the Wireless WAN data features.

### Note

Before proceeding, please confirm with your wireless service provider that your account has been provisioned for voice services.

## Using the Voice Calling Features on Your SX7T

1. To use the SX7T's voice calling feature, plug an RJ-11 phone cable into the **Phone** or **Phone/Fax** input on the back panel.



2. Connect the other end of the phone cable into your phone's RJ-11 input jack.
3. Lift the phone handset off the receiver (or press the **TALK** or **ON** button on a cordless phone) and listen for a dial tone.
4. If you hear a dial tone, make a call to confirm your service is active.

Your voice service and calling options should be the same as those on your wireless phone. For additional programming and setup options, please see “**Voice/Fax Programming**” on page 19.

### Note

Your SX7T should be configured to accept voice signals on both the phone and the phone/fax inputs by default. For questions about your voice service, please contact your wireless service provider.

### Tip

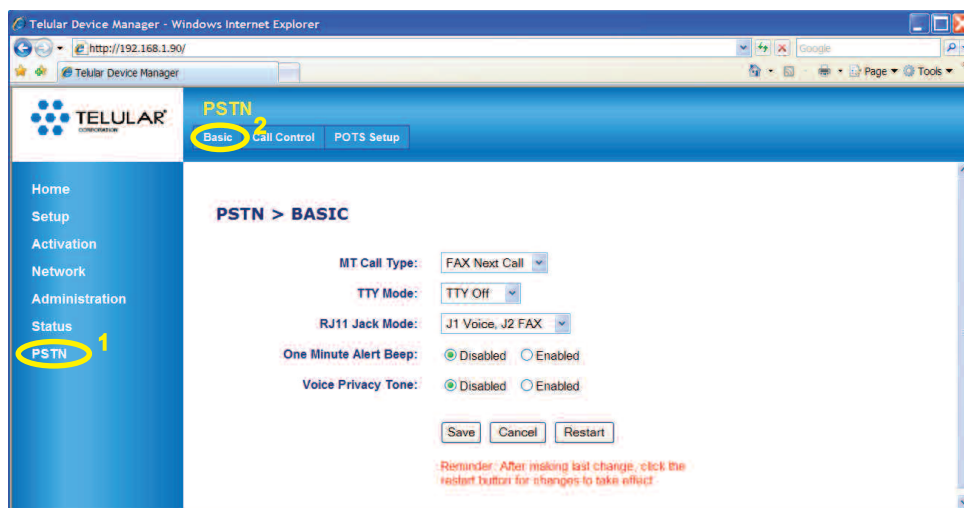
If you experience a buzzing in your phone's earpiece, try moving your phone farther away from the SX7T, and make sure the RJ-11 phone cable is routed away from the antennas.

## Using the Fax Function on Your SX7T

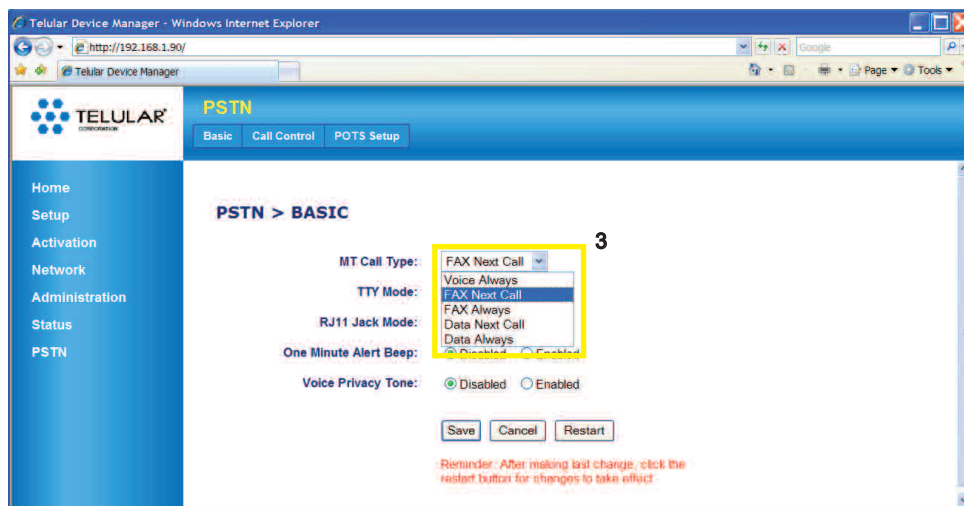
### Note

Before proceeding, please confirm with your wireless service provider that your account has been provisioned for CSD (Circuit Switched Data) and WFAV and that your service provider supports these technologies.

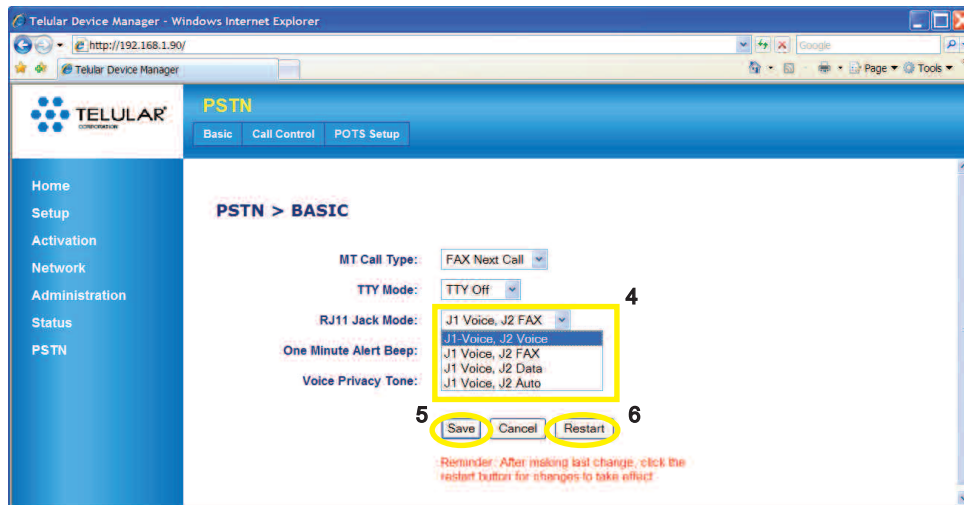
- To use your SX7T's fax feature, you will first need to set up your device to support fax data. The Telular Device Manager allows you to configure the necessary settings.
  - From your Web browser, launch the Telular Device Manager. (See "Using the Telular Device Manager" on page 6.)
  - From the home page, click **PSTN (1)**.
  - Click **Basic (2)** to display the Basic programming page.



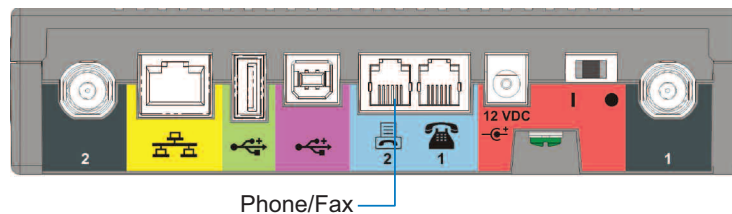
- For **MT Call Type (3)** select **FAX Next Call** or **FAX Always**.



- For **RJ-11 Jack Mode (4)** select **J1 Voice, J2 FAX** or **J1 Voice, J2 Auto**.



- Click **Save (5)**, and then click **Restart (6)** to save your settings and restart the SX7T.
2. Plug an RJ-11 cable into the **Phone/Fax** input on the back panel.



3. Connect the other end of the RJ-11 cable into your fax machine's RJ-11 input jack.
4. If the fax machine has a handset, lift it off the receiver and listen for a dial tone. (Depending on your fax machine, you may also press **TALK, ON, Hook, or Speaker.**)
5. If you hear a dial tone, send a test fax to confirm your service is active.

#### Note

The SX7T is only compatible with Group 3 (G3) fax machines transmitting at 7200 or 9600 bps/ baud.

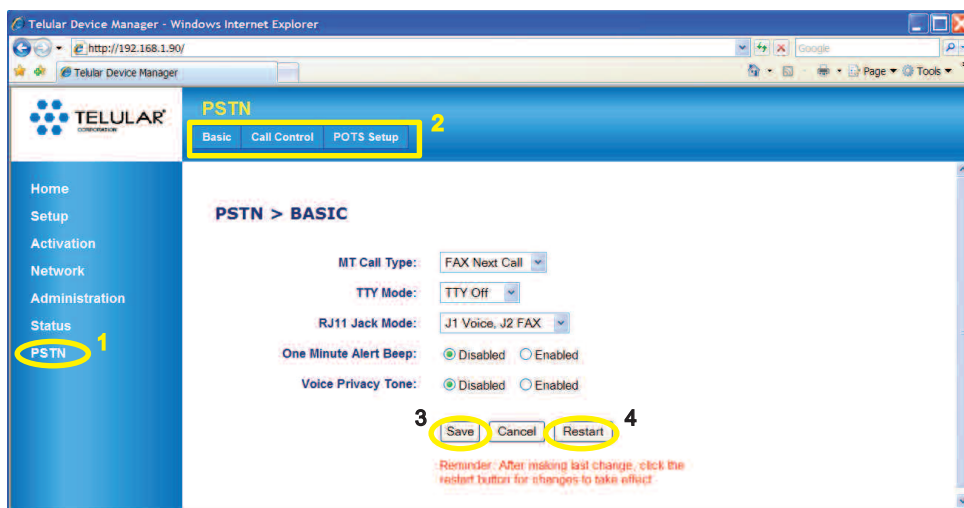
Please confirm your SX7T and fax machine settings before calling your service provider or Telular Tech Support.



## Voice/Fax Programming

The **Telular Device Manager** allows you to program all the voice and fax options for service on your SX7T.

1. From your Web browser, launch the Telular Device Manager. (See “Using the Telular Device Manager” on page 6.)
2. From the home page, click **PSTN** (1).
3. Click **Basic**, **Call Control**, and **POTS Setup** (2) to display the programming pages (see “PSTN Options” on page 36 for examples of each page).



4. Select your desired settings (see table below), click **Save** (3), and then click **Restart** (4) to save the settings to your SX7T.

### PSTN Settings

Basic	
<b>MT Call Type</b>	<p>Select a setting for the phone jack:</p> <p><b>Voice Always</b> to use the jack for voice calls only (default setting).</p> <p><b>FAX Next Call</b> to set the jack to send or receive a fax with the next call (reverts to previous setting after call).</p> <p><b>FAX Always</b> to use the jack for fax calls only.</p> <p><b>Data Next Call</b> to set the jack to send or receive Circuit Switched Data (CSD) with the next call (reverts to previous setting after call).</p> <p><b>Data Always</b> to set the jack for CSD data calls only.</p>
<b>TTY Mode</b>	<p>Allows the unit to be used with TTY (TeleTypewriter) devices for the deaf or hard of hearing. Modes include <b>TTY VCO</b> (voice carry over), <b>TTY HCO</b> (hearing carry over), and <b>TTY Only</b>.</p>

Basic (cont.)	
<b>RJ-11 Jack Mode</b>	<p>Select a configuration for the Phone jack (J1) and the Fax jack (J2):</p> <p><b>J1 Voice, J2 Voice</b> to set both jacks for voice calls only (default setting).</p> <p><b>J1 Voice, J2 FAX</b> to set the phone jack for voice calls and the fax jack to send and receive fax data.</p> <p><b>J1 Voice, J2 Data</b> to set the phone jack for voice calls and the fax jack for CSD data calls.</p> <p><b>J1 Voice, J2 Auto</b> to set the phone jack for voice calls and the fax jack to automatically switch between voice, fax, and data modes.</p>
<b>One Minute Alert Beep</b>	Select <b>Enabled</b> to hear a beep once every minute during a voice call.
<b>Voice Privacy Tone</b>	Select <b>Enabled</b> to hear an alert tone if Voice Privacy encryption is not available during a voice call.
Call Control	
<b>Dialtone after Remote Disconnect</b>	Select <b>Enabled</b> to hear a dial tone if a call is terminated from the other end.
<b>Auto Send Delay</b>	Delay between when you finish dialing and the call is sent; select from 0 to 10 seconds (3 seconds is default).
<b>Zero Delay Dialing (EOD)</b>	Select <b>Enabled</b> to have the SX7T remember numbers you have dialed at least twice and send calls to those numbers with no delay when you finish dialing.
<b>Glare Control</b>	Select <b>Enabled</b> to enable automatic handling of “call-collision” (2 calls coming in at the same time).
<b>Dialtone Duration</b>	Length of time a dialtone will remain active when the receiver is off-hook (10–90 seconds) (40 seconds is default).
<b>ROH Duration</b>	Length of time the Receiver Off Hook (ROH) tone will sound after the dialtone duration is complete (10–90 seconds) (40 seconds is default).
<b>Continuous ROH</b>	Select <b>Enabled</b> to allow for continuous ROH tone until the unit is returned to the on-hook state.
<b>Exit E911 Mode</b>	Click <b>Exit E911 Mode</b> button to return the unit to normal state after an emergency 911 call.

POTS Setup	
<b>Normal Dialtone</b>	Select a dialtone frequency based on region: <b>350Hz +440Hz</b> – North American standard (default). <b>425Hz</b> – European standard.
<b>POTS Coarse Volume</b>	Adjusts phone volume in large increments ( <b>Low</b> , <b>Normal</b> , or <b>High</b> ).
<b>Line Ring Frequency</b>	Audible ring pitch for an incoming call: <b>20Hz</b> (low), <b>25Hz</b> (medium), <b>50Hz</b> (high) (20Hz is default).
<b>Line Impedance</b>	Select setting to match phone (600 ohms is default).
<b>Disconnect Pulse Duration</b>	Carrier tone sent to inform the unit a call has been disconnected (700 ms is default).
<b>Caller ID Mode</b>	Select a Caller ID signal format based on region: <b>Bellcore</b> (North America), <b>Euro</b> (Europe), <b>UK</b> (United Kingdom), or select <b>DTMF</b> to use a tone-based signal.
<b>Caller ID Format</b>	Provides Caller ID options, depending on carrier and regional capabilities. <b>MDMF</b> (Multiple Data Message Format) allows multiple data types to be sent with Caller ID, such as name, phone number, location, etc.; <b>SDMF</b> (Single Data Message Format) allows only a single data type to be sent (phone number).
<b>Caller ID Type</b>	Sets the Caller ID type for the SX7T: <b>During Ring</b> (default) <b>DT-AS</b> (Dual Tone Alerting System) <b>RP-AS</b> (Ring Pulse Alerting System) <b>LR, RP-AS</b> (Line Reverse, Ring Pulse Alerting System)
<b>Line Ring Format</b>	Standard ring cadences by region (US, UK, Europe) (Off is default).
<b>DTMF Blanking</b>	[advanced]
<b>Metering Pulse Gain</b>	[advanced]

**Note**

Your SX7T also allows Circuit Switched Data (2G) access across the GSM network via the RJ-11 connections on the unit. CSD connections can be useful for machine-to-machine communications, for example, when using hyper terminal to send a file from one PC to another. Your CSD options are accessed via the **PSTN** programming pages, along with your voice and fax options.

**Tip**

You can also program certain voice and fax options for your device using POTS (Plain Old Telephone Set) commands on your phone. Please see the reference card that was packaged with your device for a list of available POTS commands.

## Advanced Data Connection Options

The following pages outline all the advanced programming options and settings available through the **Telular Device Manager** interface. For information about accessing and using the Telular Device Manager, please see “**Using the Telular Device Manager**” on page 6.

### Note

The default settings of the SX7 accommodate most common configurations. Many of the advanced settings should be implemented or supervised by qualified IT specialists.

## Setup Options

### Setup > LAN

The screenshot displays the 'SETUP > LAN' configuration page in a web browser. The page has a blue header with the Telular logo and navigation tabs for LAN, Wireless WAN, Keep Alive, DDNS, and SIM. A left sidebar contains menu items: Home, Setup, Network, Administration, Status, and PSTN. The main content area is titled 'SETUP > LAN' and contains the following fields and options:

- MAC Address:** 00:1B:71:37:01:81
- IP Address:** 192 . 168 . 1 . 90
- Subnet Mask:** 255 . 255 . 255 . 0
- DHCP Server:**  Enabled  Disabled
- Starting IP Address:** 192 . 168 . 1 . 100
- Number of DHCP Users:** 50 (Maximum)
- Client Lease Time:** 0 Minutes (0 means one day)
- Static DNS 1:** 0 . 0 . 0 . 0
- 2:** 0 . 0 . 0 . 0
- 3:** 0 . 0 . 0 . 0
- WINS:** 0 . 0 . 0 . 0
- Currently Assigned:** DHCP Clients Table
- Timezone:** (GMT-8:00 hours) Pacific Time (US & Canada)
- Time Server:**  Wireless Network Time (NITZ),  Default SNTP Server,  User-Defined SNTP Server

At the bottom of the form are 'Save' and 'Cancel' buttons.

As an alternative to the preferred Wireless WAN data connection, the SX7 offers LAN (Local Area Network) connectivity via the Ethernet port or via a USB connection (using Dial-Up Networking).

### LAN Features

- **MAC Address:** The unit's MAC address (also the serial number). This cannot be changed.
- **IP Address:** The address the unit uses to identify itself to the computer. (*192.168.1.90 is the default.*)
- **Subnet Mask:** Identifies the subnet class on the network; class 3 (255.255.255.0) or class 4 (255.255.255.255).

## DHCP Settings

- **DHCP Server (*Ethernet only*):** Dynamic Host Configuration Protocol. Select **Enable** to allow the unit to receive IP address, subnet mask, default gateway, and other settings dynamically through a server.
- **Number of DHCP Users:** Maximum number of connections allowed. (*Default is 50.*)
- **Client Lease Time:** Amount of time new DHCP settings remain in effect. (*Default of 0 minutes signifies 1 day [24 hours].*)
- **Static DNS 1–3:** Allows you to enter known fixed DNS (Domain Name System) addresses.
- **WINS:** Allows you to enter a known fixed WINS (Windows Internet Name Service) address.
- **Currently Assigned:** Click **DHCP Clients Table** to display currently connected DHCP client information.

DHCP Active IP Table			
DHCP Server IP Address: 192.168.1.90			
Client Hostname	IP Address	MAC Address	Expires
Rob-CI	192.168.1.100	00:18:8B:CA:50:C5	0:23:02:31

- **Timezone:** Shows currently assigned time zone (assigned by the network). Can be changed by user.
- **Time Server:** Use to select time server for the unit. (*Default is Wireless Network Time [NITZ].*)

## Setup > Wireless WAN

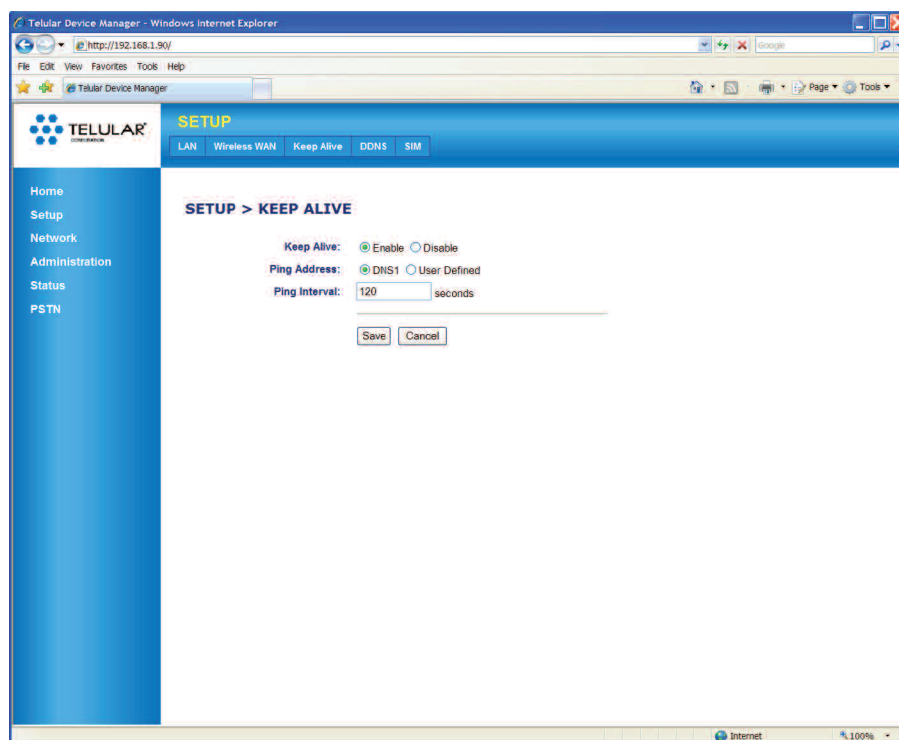
The screenshot shows the 'Setup > Wireless WAN' configuration page in a web browser. The page is titled 'SETUP > WIRELESS WAN' and includes a navigation menu on the left with options like Home, Setup, Network, Administration, Status, and PSTN. The main content area shows the following settings:

- Wireless WAN:** Connected
- Service Provider Name:** ABC Wireless
- RSSI:** -83 dBm
- Host Name:** sx7t
- Domain Name:** (empty field)
- PSD Auto Connect:**  No  On Demand  Always On
- PSD Auto Connect Timeout:** 120 seconds
- Context APN:** isp.abcwireless
- Username:** (empty field)
- Password:** (empty field)
- Default PDP Address:** 0 . 0 . 0 . 0

At the bottom of the form, there are 'Save' and 'Cancel' buttons.

The settings for Wireless WAN setup are covered in “**Setting Up Your Wireless WAN Data Connection**” on page 8.

## Setup > Keep Alive

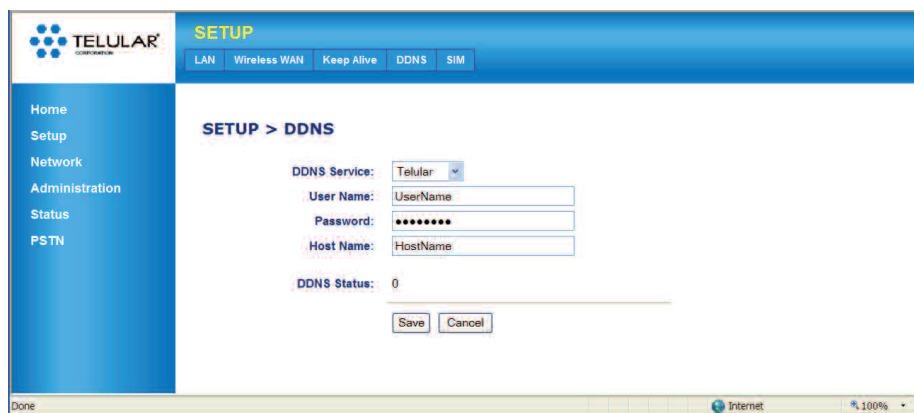
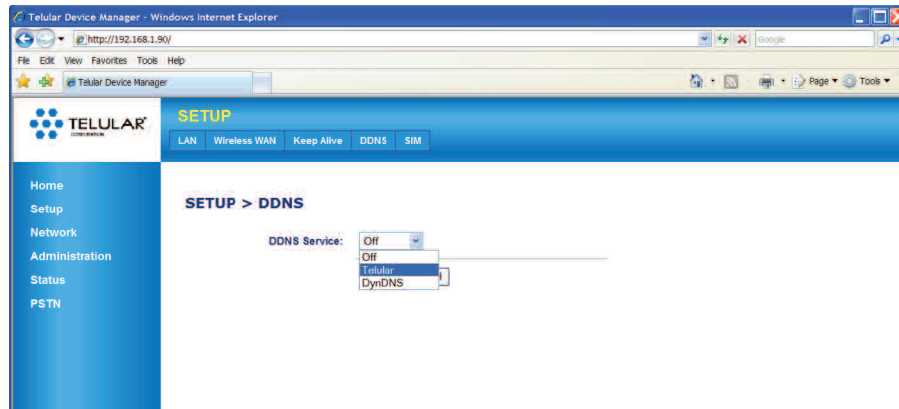


**Keep Alive** lets you prevent the wireless network from closing your data connection during extended periods of inactivity by having the unit ping a DNS address at set intervals.

- **Keep Alive:** Select **Enable** to enable this feature. Select **Disable** to allow your connection to terminate when the DHCP lease expires (usually 24 hours).
- **Ping Address:** Select **DNS1** to use the assigned address. To enter an alternate address, select **User Defined** and then enter a ping IP address in the **User Defined Ping IP Address** field that will appear.
- **Ping Interval:** Select an interval for pinging. (*Default is 120 seconds.*)



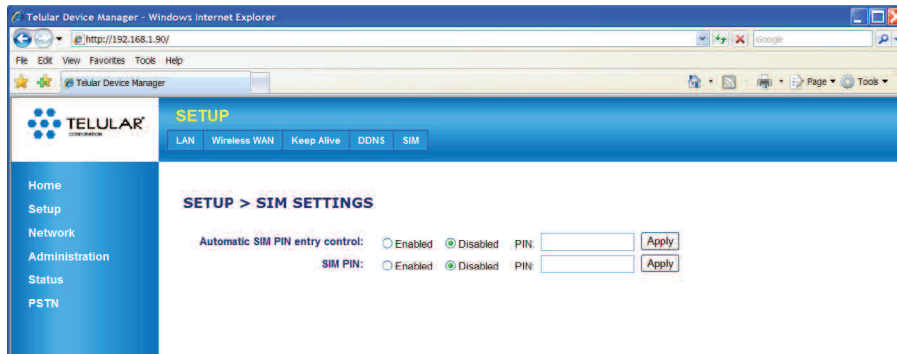
## Setup &gt; DDNS



**DDNS** (Dynamic Domain Name Server) settings allow the SX7 to be accessed via the Internet even when dynamic IP addresses are being assigned. DDNS allows a static domain name to be used in place of the unit's IP address.

- **DDNS Service:** Select a DDNS server option (such as **Telular**) or select **Off** to disable.
- **User Name:** Enter the user name.
- **Password:** Enter the password.
- **Host Name:** This is the name of the server you are connecting to.
- **DDNS Status:** This indicates the number of active DDNS connections.

## Setup &gt; SIM



These options allow you to enter a PIN number for SIM card access (if necessary). Your SIM card may be set to operate without a PIN being entered.

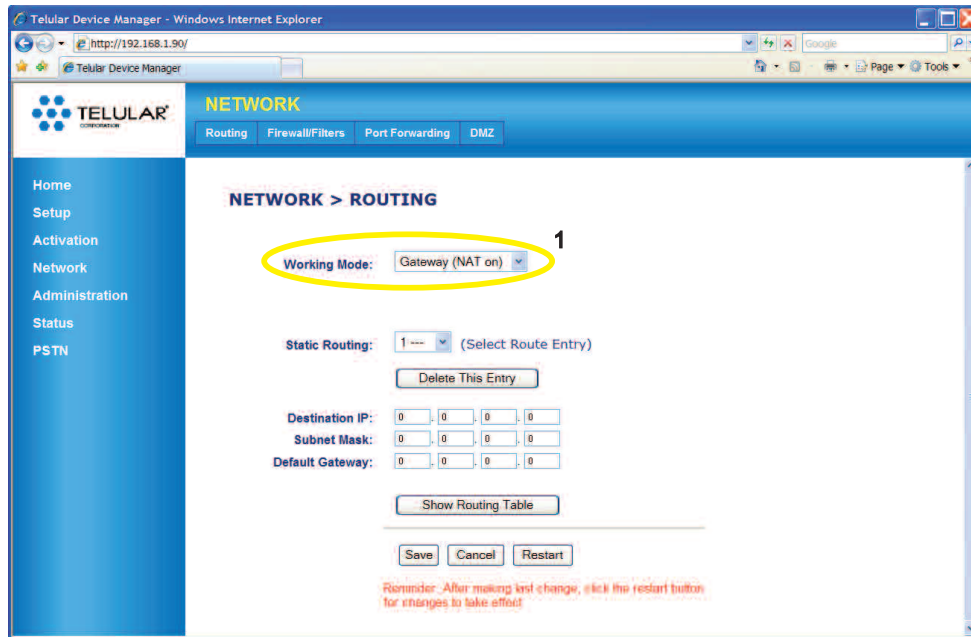
- **Automatic SIM PIN entry control:** If you wish to use this feature, select **Enabled**, enter your SIM PIN, and click **Apply**. If your SIM card does not require a PIN, select **Disabled**.
- **SIM PIN:** If you have selected **Enabled** above, select **Enabled** here also and re-enter your SIM PIN. Otherwise, select **Disabled**.

**Note**

Please contact your wireless service provider for assistance with SIM card settings, PIN requirements, and other configuration information.

## Network Options

### Network > Routing



**Routing** settings allow you to control the unit's network routing configuration. There are two primary options available, by selecting a **Working Mode** (1): **Gateway (NAT on)** and **Router (NAT off)**.

- **Gateway (NAT on):** Select this option (above) only if you need to use a Network Access Translator (NAT) to alter IP packets as they pass through a router or firewall. The following options are available under this configuration:
  - **Static Routing:** Select a Route Entry number (1–20).
  - **Destination IP:** Enter a destination IP address for the selected Route Entry number.
  - **Subnet Mask:** Enter a subnet mask for the selected Route Entry number.
  - **Default Gateway:** Enter the IP address of the default gateway or router.

Repeat for as many Static Routing numbers you wish to set up. To see your currently configured routes, click **Show Routing Table**.

Routing Table

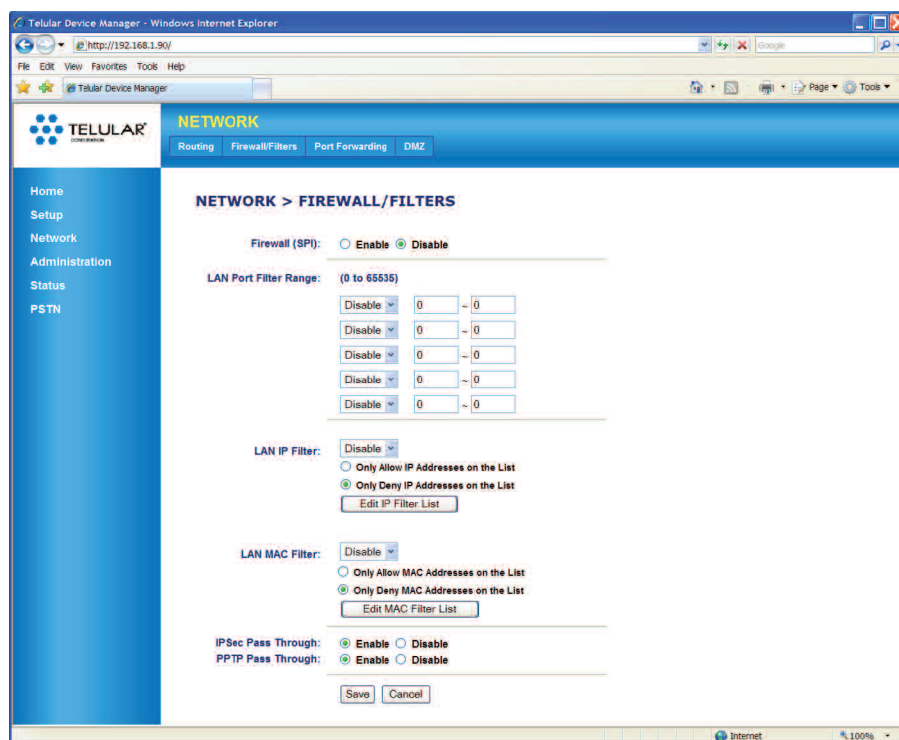
Refresh

Destination LAN IP	Subnet Mask	Gateway	Interface
0.0.0.0	0.0.0.0	70.11.228.36	WAN
68.28.49.69	0.0.0.0	70.11.228.36	WAN
70.11.228.36	0.0.0.0	127.0.0.1	LOOPBACK
127.0.0.1	0.0.0.0	127.0.0.1	LOOPBACK



- **Router (NAT off):** (Default setting) In addition to the options available under Gateway mode, Router mode offers the following options:
  - **Dynamic Routing (RIP):** Select **Enable** to use Dynamic RIP (Routing Information Protocol) to adjust to changing network environments. (Default is Disable.)
  - **RIP Transmit:** Select **Enable** to allow the SX7 to communicate its RIP. (Default is Disable.)
  - **RIP Version:** Select **v1** or **v2** (default).

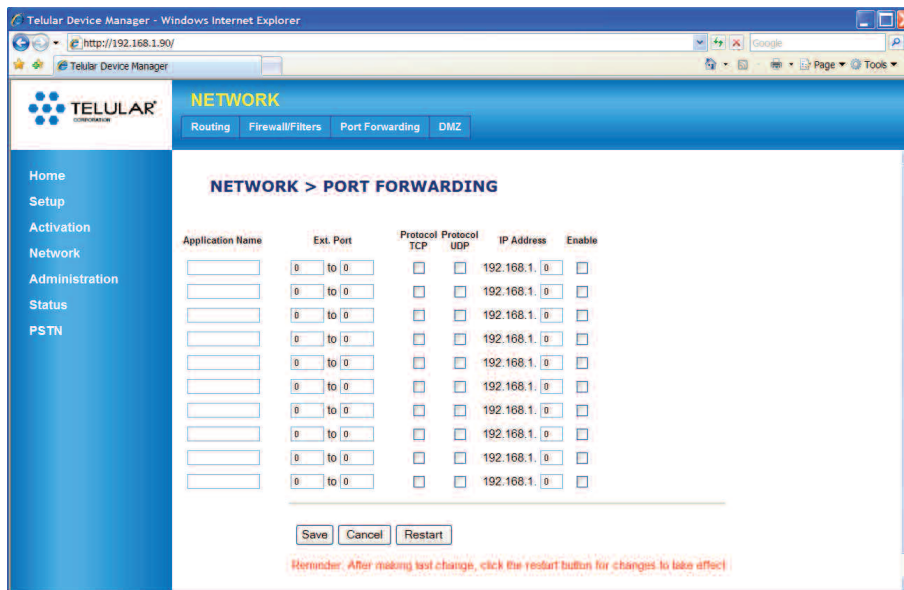
## Network &gt; Firewall/Filters



The **Firewall/Filters** settings allow you to customize the following access settings for the SX7 on your network.

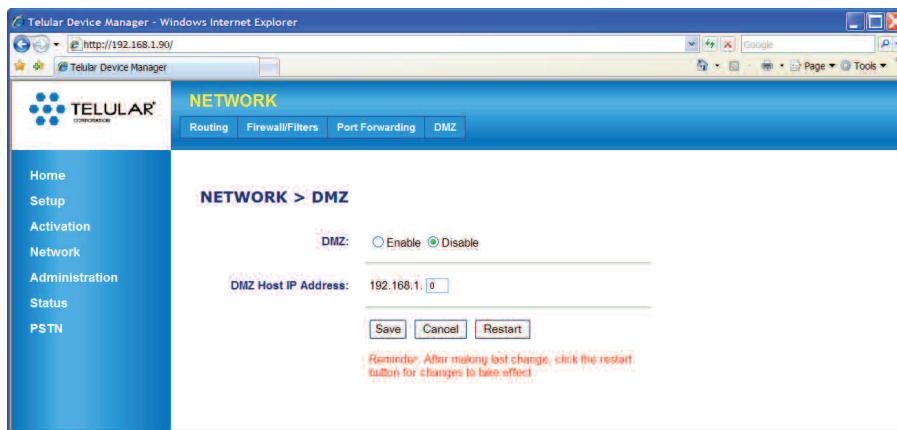
- **Firewall (SPI):** Select **Enable** to use the SPI (Stateful Packet Inspection) firewall to monitor network connections and reject any that do not match its criteria.
- **LAN Port Filter Range:** Select an filter: option (see below) and a range (from 0 to 65535) of ports through which to allow connections.
  - **Disable:** Do not apply a LAN port filter range.
  - **Both:** Use both TCP and UDP port numbers for filtering.
  - **TCP:** Use only TCP (Transmission Control Protocol) port numbers for filtering.
  - **UDP:** Use only UDP (User Datagram Protocol) port numbers for filtering.
- **LAN IP Filter:** Select **Enable** and either **Only Allow IP Addresses on the List** or **Only Deny IP Addresses on the List** to allow or deny connections with specific IP addresses. Click **Edit IP Filter List** to enter the IP addresses to allow or deny (up to 50).
- **LAN MAC Filter:** Select **Enable** and either **Only Allow MAC Addresses on the List** or **Only Deny MAC Addresses on the List** to allow or deny connections with specific MAC addresses. Click **Edit MAC Filter List** to enter the MAC addresses to allow or deny (up to 50).
- **IPSec Pass Through:** Select **Enable** to allow connections to pass through IP Security.
- **PPTP Pass Through:** Select **Enable** to allow connections to pass through Point-to-Point Tunneling Protocol.

## Network > Port Forwarding



This screen allows you to enter an **Application Name**, **Port Extension** range, select **TCP** or **UDP** protocols (or both), and complete an **IP Address** for up to 10 forwarded ports.

## Network > DMZ



This screen allows you to enable and define a DMZ (Demilitarized Zone or Perimeter Network) host to act as a buffer between an internal network and any external networks (usually the Internet). Select **Enable** and enter a **DMZ Host IP Address** to use this feature.



## Administration Options

### Admin > Management

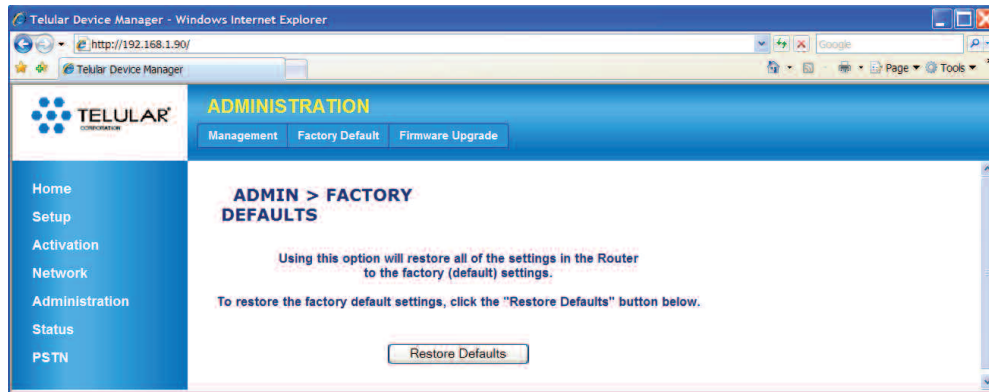
The screenshot shows the 'ADMINISTRATION' section of the Telular Device Manager web interface. The 'Management' tab is selected. The 'ADMIN > MANAGEMENT' section contains the following fields and controls:

- Device Manager User Name:** A text input field containing 'telular'.
- Device Manager Password:** A password input field with masked characters (dots).
- Confirm Password:** A password input field with masked characters (dots).
- Remote Web Management:** Radio buttons for 'Enable' and 'Disable', with 'Disable' selected.
- Port Number:** A text input field containing '0000'.
- Buttons:** 'Save', 'Cancel', and 'Restart' buttons.
- Reminder:** A red text note at the bottom: 'Reminder: After making last change, click the restart button for changes to take effect'.

The **Administration > Management** screen allows you to change the following settings.

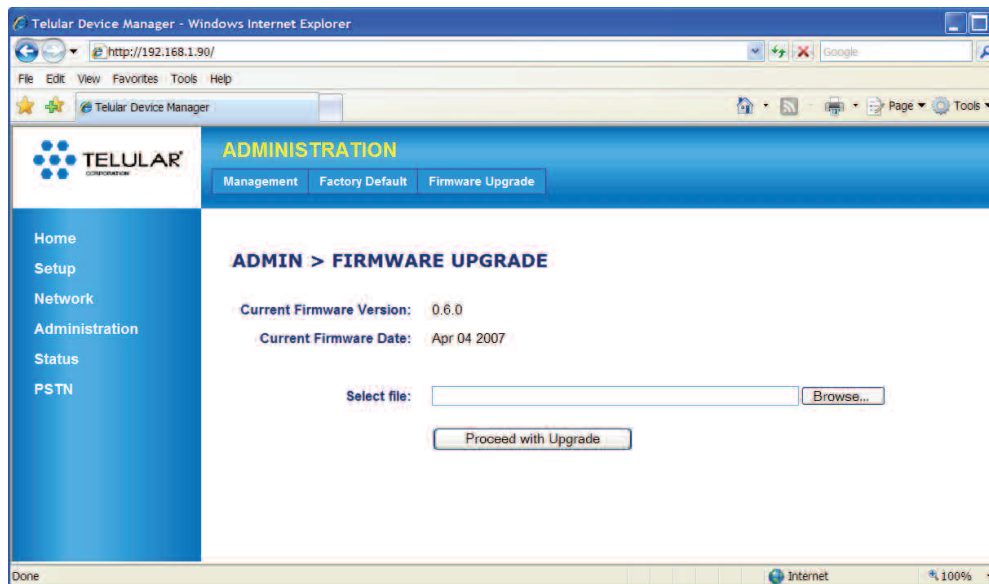
- **Device Manager User Name:** For security purposes, you may want to change your user name for the Telular Device Manager from the default (*telular*). Enter a user name in this field.
- **Device Manager Password:** For security purposes, you may want to change the SX7 password from the default (*1234*). Enter a new password and then re-enter it in the **Confirm Password** field.
- **Remote Web Management:** Select **Enable** to allow remote access to the SX7 from another computer via the Internet, using the specified **Port Number**.

## Admin > Factory Defaults



Click **Restore Defaults** to reset all the device settings to the factory default settings. Any settings you have customized through the Telular Device Manager will be reset.

## Admin > Firmware Upgrade

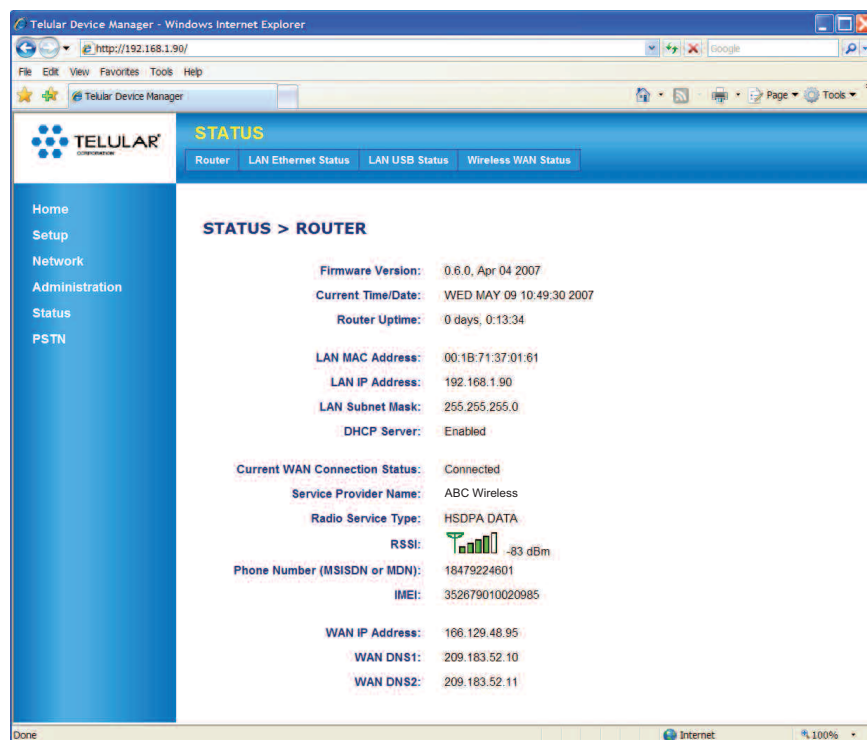


If you have received a firmware upgrade for the SX7, click **Browse** to locate the upgrade file on your computer, select the file, and then click **Proceed with Upgrade** to update your unit.

## Status Options

The screens available under the **Status** menu provide information about your unit. The fields in the Status screens cannot be edited directly, but they may be changed as a result of other settings you select using the Telular Device Manager.

### Status > Router



The **Status > Router** page displays most of the unit's important information.

- **Firmware Version:** Displays the firmware version and release date for your SX7. This information is useful if you ever need to contact your wireless service provider's customer care department or Telular Tech Support.
- **Current Time/Date:** Displays the current time and date as provided by your wireless service provider's network.
- **Router Uptime:** Displays how long the unit has been powered on and connected. Router uptime is reset any time the unit restarts, such as when you have made changes to settings in the Telular Device Manager and click **Restart**.
- **LAN MAC Address:** Displays the unit's Media Access Control (MAC) address.
- **LAN IP Address** and **LAN Subnet Mask:** Shows the LAN settings as defined on the **Setup > LAN** page. See "**Setup > LAN**" on page 22.
- **DHCP Server:** Shows whether the DHCP server option (see "**DHCP Settings**" on page 23) is enabled or disabled.
- **Current WAN Connection Status:** Displays your current connection status: **Connected**, **Disconnected**, or **Unknown Connection Problem**.

- **Service Provider Name:** The name of the wireless service provider for your unit (for example, *ABC Wireless*).
- **Radio Service Type:** This displays your current data service type. From fastest to slowest (greatest throughput to least throughput), they are HSDPA DATA, UMTS DATA, EDGE DATA, and GPRS DATA.
- **RSSI:** This is the signal strength, which is recorded in negative numbers. The farther away from zero, the better the signal strength (for example, -90 dBm represents good signal strength; -20 dBm is fairly weak).
- **Phone Number (MSISDN or MDN):** This is the phone number assigned to the unit's SIM card.
- **IMEI:** International Mobile Equipment Identity. This is a unique number identifying your SX7 as a mobile device.
- **WAN IP Address:** This is the WAN IP address assigned to the unit by your wireless service provider. It may change depending on your service provider's network.
- **WAN DNS 1 and WAN DNS 2:** These are the Domain Name Server addresses assigned by your wireless service provider.

The **LAN Ethernet Status**, **LAN USB Status**, and **Wireless WAN Status** pages provide usage statistics for each of the connection types.

## Status > LAN Ethernet Status

The screenshot shows the Telular Device Manager web interface in a Windows Internet Explorer browser window. The address bar shows the URL <http://192.168.1.90/>. The page title is "STATUS" and the navigation tabs include "Router", "LAN Ethernet Status", "LAN USB Status", and "Wireless WAN Status". The "LAN Ethernet Status" tab is selected, displaying "STATUS > LAN Ethernet STATISTICS".

The page content includes a navigation menu on the left with links for Home, Setup, Network, Administration, Status, and PSTN. The main content area states: "This page shows the IP Level Statistics for the LAN Ethernet Interface of the Router." Below this text are three tables of statistics:

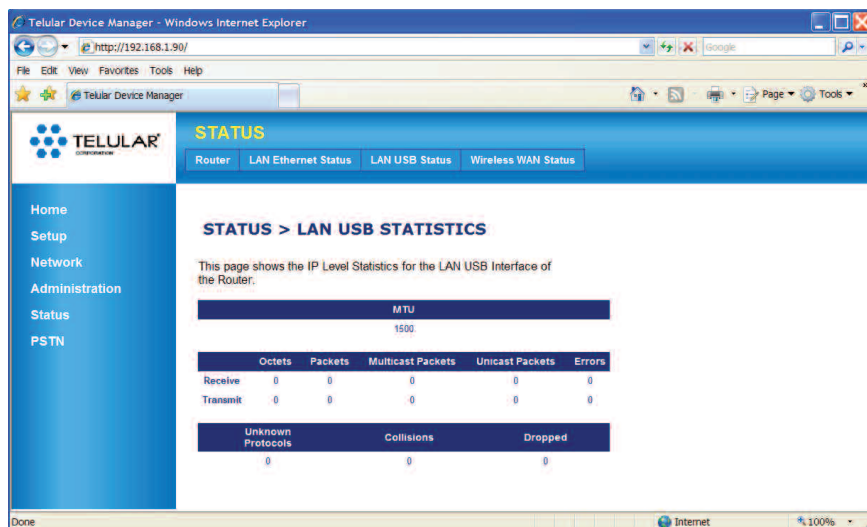
MTU	
1500	

	Octets	Packets	Multicast Packets	Unicast Packets	Errors
Receive	0	398	0	398	0
Transmit	0	345	0	345	0

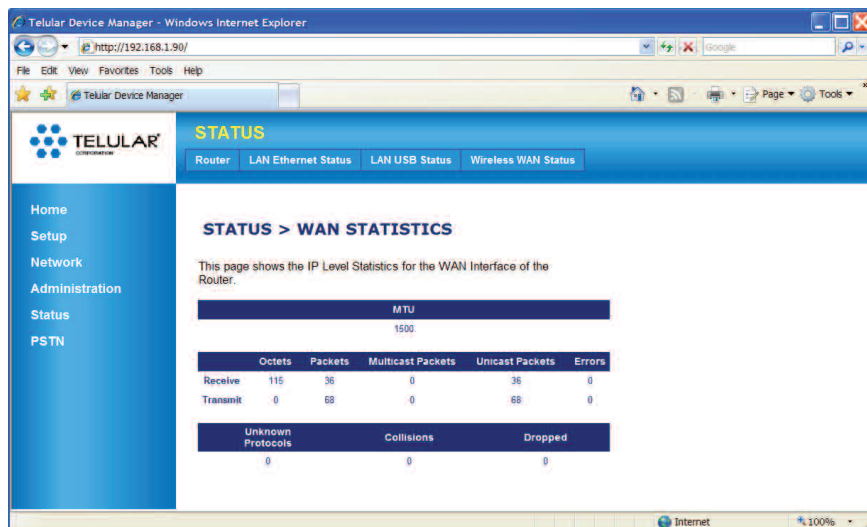
Unknown Protocols	Collisions	Dropped
0	0	0

The browser status bar at the bottom shows "Waiting for http://192.168.1.90/wired\_stats.htm?F=LANETH..." and a 100% zoom level.

## Status > LAN USB



## Status > Wireless WAN Status



## PSTN Options

See “**Voice/Fax Programming**” on page 19 for available PSTN (Public Switched Telephone Network) options. Below are examples of each of the PSTN programming pages.

### PSTN > Basic

TELULAR CORPORATION

PSTN

Basic Call Control POTS Setup

Home  
Setup  
Activation  
Network  
Administration  
Status  
PSTN

**PSTN > BASIC**

MT Call Type: FAX Next Call

TTY Mode: TTY Off

RJ11 Jack Mode: J1 Voice, J2 FAX

One Minute Alert Beep:  Disabled  Enabled

Voice Privacy Tone:  Disabled  Enabled

Save Cancel Restart

Reminder: After making last change, click the restart button for changes to take effect.

### PSTN > Call Control

TELULAR CORPORATION

PSTN

Basic Call Control POTS Setup

Home  
Setup  
Activation  
Network  
Administration  
Status  
PSTN

**PSTN > CALL CONTROL**

Dialtone after Remote Disconnect:  Disabled  Enabled

Auto Send Delay: 3 (0-10 seconds)

Zero Delay Dialing (EOD):  Disabled  Enabled

Glare Control:  Disabled  Enabled

Dialtone Duration: 40 (10-90 second)

ROH Duration: 40 (10-90 second)

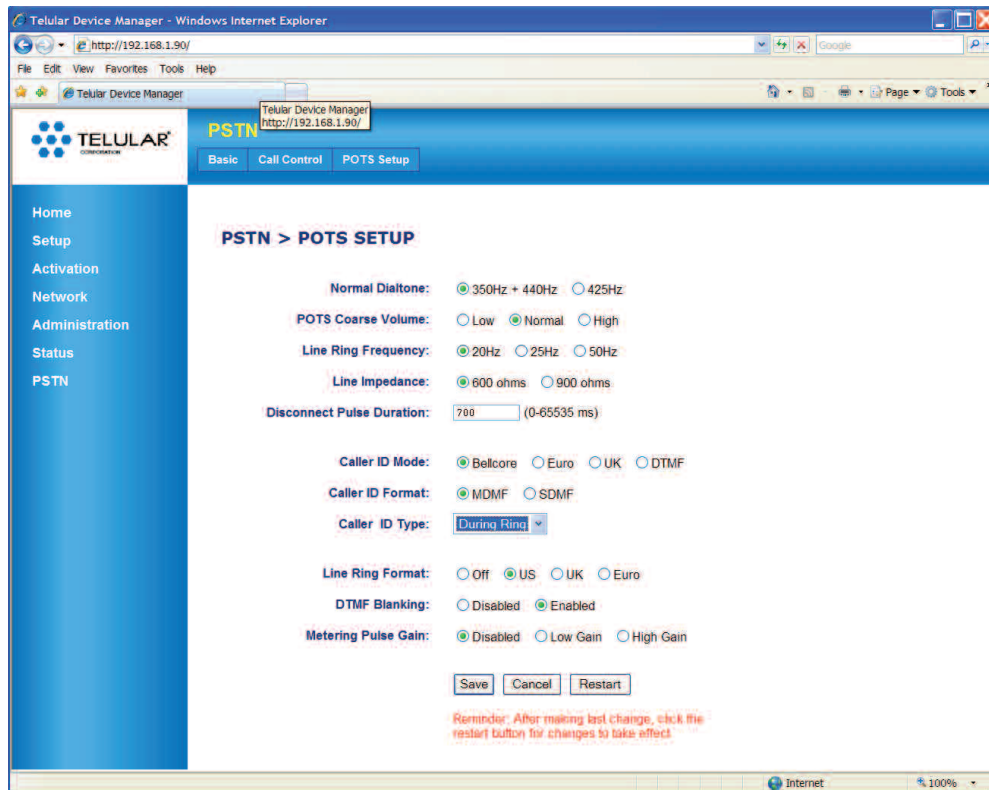
Continuous ROH:  Disabled  Enabled

Exit E911 Mode: Exit E911 Mode

Save Cancel



## PSTN &gt; POTS Setup



TELULAR CORPORATION

PSTN

Basic Call Control POTS Setup

Home  
Setup  
Activation  
Network  
Administration  
Status  
PSTN

### PSTN > POTS SETUP

Normal Dialtone:  350Hz + 440Hz  425Hz

POTS Coarse Volume:  Low  Normal  High

Line Ring Frequency:  20Hz  25Hz  50Hz

Line Impedance:  600 ohms  900 ohms

Disconnect Pulse Duration:  (0-65535 ms)

Caller ID Mode:  Bellcore  Euro  UK  DTMF

Caller ID Format:  MDMF  SDMF

Caller ID Type:

Line Ring Format:  Off  US  UK  Euro

DTMF Blanking:  Disabled  Enabled

Metering Pulse Gain:  Disabled  Low Gain  High Gain

Reminder: After making last change, click the restart button for changes to take effect.

Internet 100%

## Advanced Settings

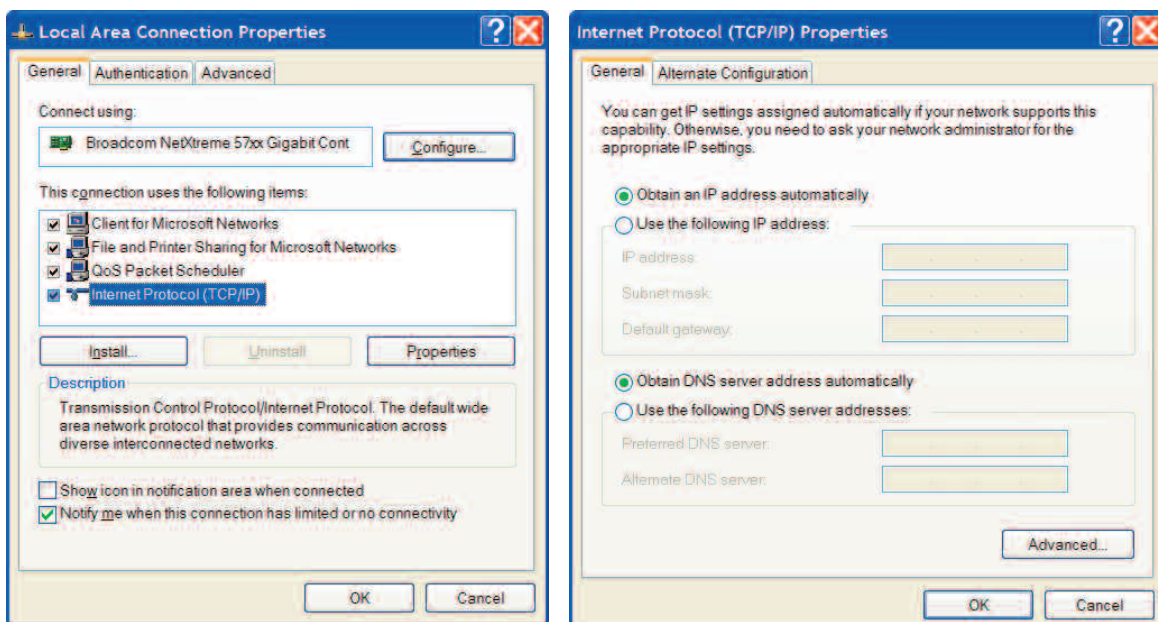
This section explains some of the advanced configuration settings that may be required in some instances to make the SX7 operational on your computer.

### Configuring TCP/IP Settings

If your computer is set up with a preset IP address (as may be the case with certain DSL and cable subscribers), you will need to configure your TCP/IP settings to automatically retrieve an IP address from the SX7 (see “**Power Up the SX7**” on page 5).

#### Windows XP

1. In the Windows taskbar, click **Start > Control Panel**.
2. **Classic View:** Double-click **Network Connections**.  
**Category View:** Click **Network and Internet Connections > Network Connections**.
3. Double-click the network interface card icon (usually labeled **Local Area Connection**) and then click **Properties**.
4. Highlight **Internet Protocol (TCP/IP)**, make sure the box next to it is selected, and then click **Properties**.
5. Select **Obtain an IP address automatically** and **Obtain DNS server address automatically**, click **OK**, and then click **OK** again to save your settings.



## Glossary

**APN** - Access Point Name

**DDNS** - Dynamic Domain Naming System

**DHCP** - Dynamic Host Configuration Protocol

**Dial Tone** - The tone heard when a phone receiver is off-hook.

**DMZ** - Demilitarized Zone. A perimeter network area (subnetwork) that acts as a buffer between an internal network and an external network such as the Internet.

**DTMF** - Dual-Tone Multi-Frequency. The standard keytones used by telephones in tone dialing.

**DUN** - Dial-Up Networking

**EDGE** - Enhanced Data rates for GSM Evolution (aka EGPRS - Enhanced GPRS); 2.75G (GSM networks only).

**GPRS** - General Packet Radio Service (GSM networks only).

**HSDPA** - High-Speed Downlink Packet Access or High-Speed Downlink Protocol Access (GSM networks only) 3G.

**LAN** - Local Area Network

**Line Ring** - .

**MDMF** - Multiple Data Message Format. A caller ID format in which several elements of information can be included in the caller ID, such as a name, a phone number, and a location.

**MO** - Mobile Originated call

**MT** - Mobile Terminated call

**NAT** - Network Access Translator

**PDP** - Packet Data Protocol

**POTS** - Plain Old Telephone Set

**PPTP** - Point to Point Transfer Protocol

**PSD** - Programmable Sharing Device.

**PSTN** - Public Switched Telephone Network

**RSSI** - Received Signal Strength Indicator. This indicates your signal strength.

**SDMF** - Single Data Message Format

**SIM Card** - Subscriber Identity Module

**Static DNS** - Static Domain Naming System

**TCP** - Transmission Control Protocol

**UDP** - User Datagram Protocol

**UMTS** - Universal Mobile Telecommunications System (aka 3GSM).

**USB A Host** - Universal Serial Bus type A host connector. (The “USB-in” connector on a computer.)

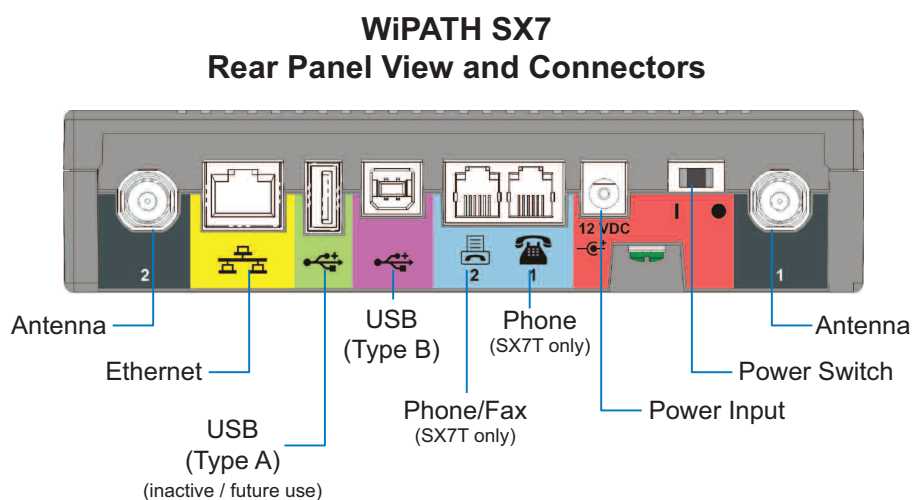
**USB B Device** - Universal Serial Bus type B device connector. (The “USB-out” connector on the SX7.)

**WINS** - Windows Internet Name Service

**Wi PATH** - Wireless Premise Access Transport Hub

**Wireless WAN** - Wireless Wide Area Network. This provides data and Internet access over a GSM cellular network.

## SX7 Connections: An Overview



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