COMMSCOPE®

Instruction Sheet

639544 Revision M, July 2016

ATC200-1000 & ATC300-1000/2000 Remote Control Variable Electrical Downtilt System

Installation and User Guide

CE

Revision History

Revision No.	Date	Description of Changes
A	December 2007	Released
B	October 2008	Added instructions on how to configure the controller to operate using an SNMP agent (Section 8). Moved instructions on Uploading Firmware Manually to Appendix C. Rewrote instructions on Uploading Device Firmware, which includes how to change AISG mode in device (Section 10). Added instructions on AISG Reset Capabilities and Using AISG Control Tools to Section 11. Added instructions on manually setting an IP address for Windows Vista operating systems to Appendix B.
C	November 2008	Added 3 sections about Multiple Integrated Actuators. Added SmartBeam Antenna Sections to explain configuration and adjustments. Added Section 23 to explain Tower Mounted Amplifiers.
D	May 2009	Section 7 introduces bus is externally powered feature. Section 9 changes from download the antenna definition file to antenna definition file releases are bundled with controller firmware. Section 10 explains the Firmware Bundle Version Numbering. Added Section 10.4, Using the Controller Help Menu: About and Software Versions. Section 11 added 64 device database expansion. Section 12 introduces generic antenna model naming. Section 15 shows addition of 1-way SmartBeam® antennas.
E	December 2009	DHCP added to Sections 6, 7, and Appendix B.
F	May 2010	Update ATC300-1000 Operations Manual to also cover ATC200-1000 Operations Manual.
G	November 2010	Correct drawing.
H	August 2012	Change ATC300/ATC200 Operations Manual to support ATC300 release 2.34_A.

Revision No.	Date	Description of Changes
J	December 2012	Change ATC300/ATC200 Operations Manual to support ATC300-2000 and Software release 2.36.
K	September 2013	Updated section 23 to better describe changing TMA Gain.
L	August 2014	Updated section 23 for new features added for TMA control with the software release 2.37_A
M	July 2016	Updated with CommScope branding template; remove teletilt.

Notices and Precautions

IMPORTANT

Before installing/operating the ATC300-1000/2000 controller, please **DOWNLOAD the latest controller software** from the CommScope web site at www.commscope.com. Please register online to receive E-mail notifications for software updates.

CAUTION

If using the 48V power connection on the ATC200-1000, ensure wires are properly connected. Reversing the wires can cause permanent damage to the controller.

WARRANTY NOTICE

Proper installation procedures must be followed when installing and operating RET equipment. Failure to assure installations are done properly by trained installation personnel and to follow procedures discussed in this bulletin may cause warranty for such products to be void.

CommScope requires pretesting actuators on the ground prior to installation, using the CommScope portable controller and the latest version of the controller software (available online at www.commscope.com/**Resources/Software**). This will verify proper actuator functionality and also ensure that the latest available actuator firmware release is installed on the actuator. Failure to conduct pre-test and pre-installation procedures defined by CommScope will void warranty.

Unauthorized removal of a protective shroud to replace actuators voids the CommScope warranty.

SAFETY NOTICE

The installation, maintenance, or removal of an antenna requires qualified, experienced personnel. CommScope installation instructions are written for such installation personnel. Antenna systems should be inspected once a year by qualified personnel to verify proper installation, maintenance, and condition of equipment.

CommScope disclaims any liability or responsibility for the results of improper or unsafe installation practices.

It is recommended that transmit power be turned off when the field installation is performed. Follow all applicable safety precautions as shown on this page.

Do not install near power lines. Power lines, telephone lines, and guy wires look the same. Assume any wire or line can electrocute you.

Do not install on a wet or windy day or when lightning or thunder is in the area. Do not use metal ladder.

Wear shoes with rubber soles and heels. Wear protective clothing including a long-sleeved shirt and rubber gloves.

CE

WARNING

It is very important to disconnect the ATC200-1000 controller from the system after each use to prevent permanent damage to the system.

Electric Static Discharge (ESD) can damage or destroy the hardware equipment used for the ATC300-1000/2000 System. ESD can occur during handling of equipment without the user feeling a shock. The following precautions should be taken to prevent ESD.

1. Wear an ESD wrist strap (Figure 1) and/or use a test lead (ground), such as a single-wire conductor with a series resistance of 1 megohm equipped with alligator clips on each end. In using a ground, one end of the alligator clip is connected to a grounded equipment frame and the other end of the alligator clip is touched with a bare hand.
2. Other precautions the user may take to reduce the risk of ESD are:
   - avoid wearing clothing that conducts static electricity, such as wool
   - remove all jewelry
   - avoid handling equipment during an electrical storm
3. Before opening a package containing an electrostatic unit or an electrostatic sensitive device/assembly, clip the free end of a test lead to the package. Leave the other end connected to the equipment frame or other ESD ground. This will cause any static electricity which may have built up on the package to discharge. Keep the unit package grounded during removal or placement of equipment in the package.
4. Minimize handling of ESDS (Electric Static Discharge Sensitive) equipment. Keep replacement equipment in the electrostatic-free packaging (with ground established between packaging and equipment frame) until needed. Repairable ESD equipment should be placed in the electrostatic-free packaging (with ground connecting package to equipment frame) upon removal from ATC300-1000/2000 system. ESD equipment should only be transported and stored in ESD protective packaging.
5. Always avoid unnecessary movement of body, such as scuffing feet across flooring, when handling ESDS equipment. Such movement will generate additional charges of static electricity.

Figure 1. ESD Wrist Strap.

6. When removing or replacing ESDS equipment, hold the device or assembly through the electrostatic-free wrap, where possible. If this is not possible, lift the device or assembly by its body only. Do not touch component leads, connector pins, or any other electrical connections or paths, even though they are covered by conformal coating.
7. Do not allow ESDS equipment to come in contact with clothing or other ungrounded materials that may have an electrostatic charge. Charges on non-conductive material are not equal. For instance, a plastic storage bag may have a –10,000 volt potential 1/2 inch from a +15,000 volt potential with many such charges all over the bag. Do not hand ESD equipment to another person until it is safely packaged for protection for ESD.
8. When moving ESDS equipment, always touch the surface on which it rests with bare skin for at least one second before lifting. Before setting it on any surface, touch the surface with your free hand for at least one second. Contact with bare skin provides a safe discharge path for charges accumulated while you are moving around.
9. While servicing equipment containing ESD devices, do not handle or touch materials such as plastic, vinyl, synthetic textiles, polished wood, fiberglass, or similar items that can generate static charges; unless you repeat the grounding process with bare hands after contacting these materials.
10. Where possible, avoid repairs that require soldering at the equipment level. Soldering irons must have heater/tips assemblies that are grounded to an electrical ground. Do not use standard plastic solder suckers (special antistatic solder suckers are commercially available).
11. Ground the leads of test equipment momentarily before you energize the test equipment and before you probe ESD devices or assemblies.
12. Work benches used for setting ESDS equipment should have ESD protective work surfaces. These work benches should also have personnel ground straps. These straps prevent discharge of static electricity from personnel handling ESDS items on the work bench surface. The work bench surface should be connected to a ground through a ground cable. The resistance in the bench top ground cable should be located at or near the point of contact with the top of the work bench. The resistance should be high enough to limit any leakage current to 5 milliamperes or less. This takes into consideration the highest voltage source within reach of grounded people and all the parallel resistances to ground, such as wrist ground straps, table tops, and conductive flooring.

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Table of Contents

Part 6 – Operating Instructions for Antennas with Multiple Integrated Actuators

Part 7 – Operating Instructions for SmartBeam® Antennas

Part 8 – Operating Instructions for Tower Mounted Amplifiers

Part 9 – Helpful Information

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Part 1

Initial Setup

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Section 1
System Description

1.0 Section Overview

This section discusses the use of components used in the ATC300-1000/2000 or ATC 200-1000 system.

1.1 ATC200-1000 Antenna System Controller

The ATC200-1000 controller, shown in Figure 1-1, serves as an interface between a local PC/laptop or a company network and the remote electrical downtilt devices (actuators/TMAs). This unit uses software designed for communication between the controller and its attached AISG devices. To download the latest software, go to the CommScope Products tab on (www.commscope.com/Resources / Software)

Figure 1-1. ATC200-1000 Antenna System Controller

Communication Ports and Power Connections (Figure 1-1):

- 9–pin 'D' style RS–232 connector port used to connect to a local PC's COM port
- Ethernet port used to connect to a local PC's Ethernet port or a network/Internet
- Both dc and ac connections for the power supply module
- 8–pin connector port (RET) for the AISG (Antenna Interface Standards Group) control cable assembly, which is used to manage up to 32 AISG devices, e.g. actuators or TMAs

Includes:

- 4 Power cords (Australia/Asia, Europe, UK, and North America)
- Ethernet crossover cable
- Phoenix 48 Volt power connector **(Caution! Ensure wires are properly connected. Reversing wires can cause permanent damage to the controller.)**
- Site Configuration Sheet (Contact your CommScope Sales Representative for ordering this item in a higher quantity. Also, available online at www.commscope.com)

Benefits:

- Independently manages up to 32 AISG devices with the use of a junction box(es)
- Controls actuators through the AISG protocol, where a digital address serves to identify and communicate with a specific actuator
- 19” rack mountable (1RU)
- Controller interface opens through an Internet browser after connection has been set up

Since the ATC200-1000 controller is hard-wired into the equipment cabin, a lightning protection unit (ATLP200-001) and appropriate grounding are recommended. If the controller will be used in an outdoor environment, it must be placed in a weatherproof enclosure.

1.2 ATC300-1000/2000 Antenna System Controller

The ATC300-1000/2000 controller, shown in Figure 1-1, serves as an interface between a local PC/laptop or a company network and the remote electrical downtilt devices (actuators/TMAs). This unit uses software designed for communication between the controller and its attached AISG devices. To download the latest controller firmware from the CommScope website (www.commscope.com/Resources/Software) Refer to the Table of Contents of this User Guide to locate detailed installation and operation instructions for the ATC300-1000/2000 controller.

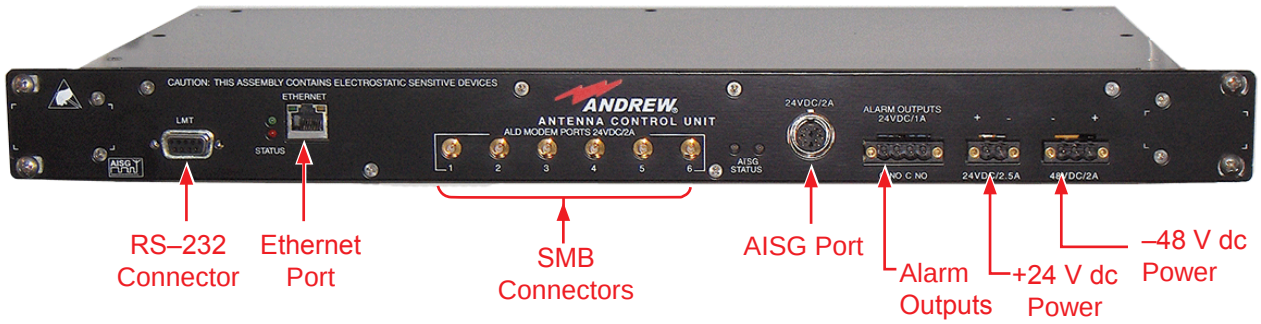

Figure 1-1. ATC300-1000/2000 Antenna System Controller.

Communication Ports and Power Connections (Figure 1-1):

- 9–pin ‘D’ style RS–232 connector port used to connect to a local PC’s COM port
- Ethernet port used to connect to a local PC’s Ethernet port or a network/Internet
- Both +24 and –48 V dc connections for the power supply module
- 8–pin connector port for the AISG (Antenna Interface Standards Group) control cable assembly, which is used to manage up to 32 AISG devices, e.g. actuators or TMAs
- Six SMB connectors to allow the AISG signal to travel up through the coaxial cable

Includes:

- Crossover Ethernet cable
  Note: Because the ATC300-1000/2000 controller is auto-sensing, a straight-through Ethernet cable may be used instead
- Phoenix +24 Volt or -48 Volt power connector
  (For proper operation, ensure wires are connected with correct polarity.)

- Site Configuration Sheet (Contact your CommScope Sales Representative for ordering this item in a higher quantity. Also, available online at www.commscope.com)

Benefits:

- Independently manages up to 32 AISG devices with the use of a junction box(es)
- Controls actuators through the AISG protocol, where a digital address serves to identify and communicate with a specific actuator
- Six integrated smart bias tees with SMB connectors operate over internal modems to allow an AISG signal to transmit to TMAs/top smart bias tees. Note that a dc 2.1 bias tee and SMB terminated coaxial cable are also required
- 19" rack mountable (1RU)
- Controller interface opens through an Internet browser after connection has been set up
- Includes battery backup on internal clock

Since the ATC300-1000/2000 controller is hard-wired into the equipment cabin, a lightning protection unit (ATLP200-001) and appropriate grounding are recommended. If the controller will be used in an outdoor environment, it must be placed in a weatherproof enclosure. See Section 2 for mounting instructions and safety precautions.

LED Features:

- Status LEDs located to the left of the Ethernet connection represent power and major alarms (Figure 1-2). The top green light indicates that the unit is powered. The bottom red status light indicates that a major alarm has occurred which can be checked by looking at the alarm status.
- The AISG status LEDs are located next to the AISG port. When the left LED is illuminated green, 24 Vdc is **available** to the RS–485 bus (i.e., in the RET cable). When the right LED is illuminated green, the RS–485 bus is powered with 24 Vdc and the controller is in the Wake mode. When the right LED is red, there is a short. In this case, devices and cables must be checked.

Figure 1-2. ATC300-1000/2000 Status Indicators.

Port Details:

Figures 1-3 through 1-7 show examples of the ATC300-1000/2000 port connections.

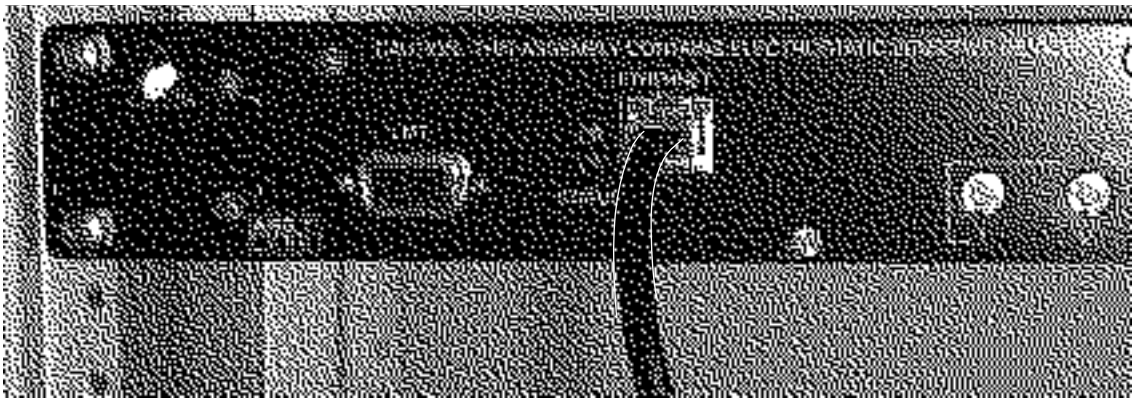

Figure 1-3. ATC300-1000/2000 Ethernet Port.

The ATC300-1000/2000 controller provides one 10/100 Ethernet port with auto negotiation capabilities. The Ethernet port (Figure 1-3) is used for connecting to a gateway or a PC.

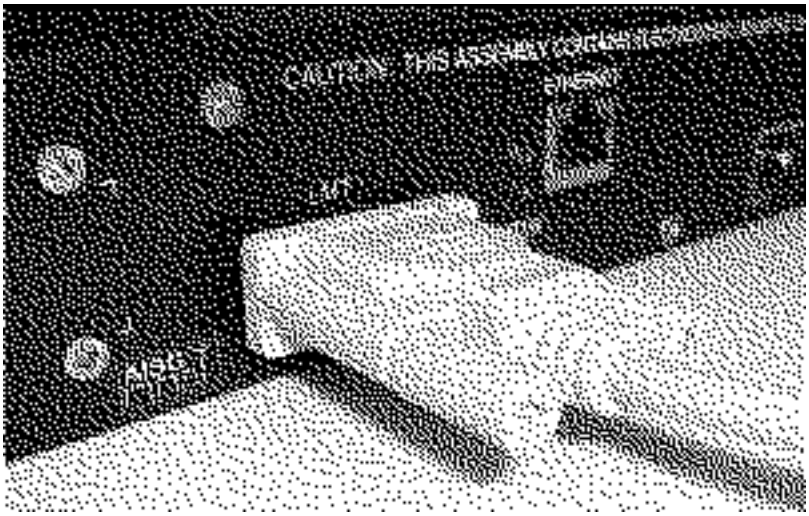

Figure 1-4. ATC300-1000/2000 Serial Port.

The ATC300-1000/2000 controller is also equipped with an RS–232 serial port (LMT) with the following default settings: 115200 Baud, 8 data bits, 1 stop bit, no parity, and no flow control. The RS–232 port (Figure 1-4) is configured as a DCE interface. This port is used to connect to a serial port on a PC.

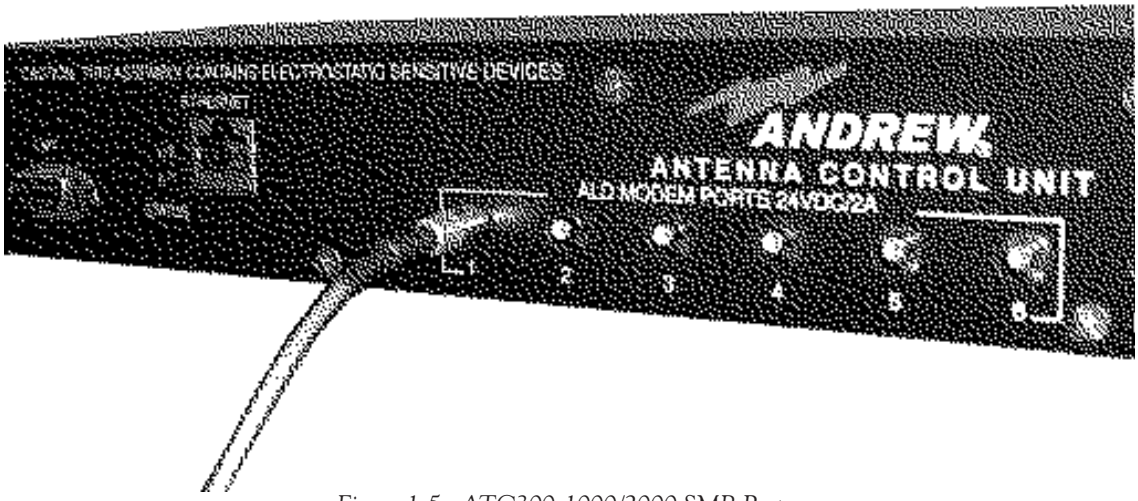

Figure 1-5. ATC300-1000/2000 SMB Ports.

The ATC300-1000/2000 controller has six 50 ohm SMB connectors (Figure 1-5). These ports are used to connect SMB coaxial cable from the controller to a dc 2.1 bias tee for transmitting the AISG signal with the RF signal up the tower through a coaxial cable.

Figure 1-6. ATC300-1000/2000 AISG Port.

The ATC300-1000/2000 controller provides an 8-pin circular female RET AISG connector port (Figure 1-6). This port is used to connect the controller to a RET system using AISG RET cabling.

Power Connections:

The ATC300-1000/2000 is equipped with two powering options:
+24 V power supply (Figure 1-7), or –48 V battery (Figure 1-8).

See Section 2 for installation instructions and safety precautions/warnings. Note that the positive (+) symbol indicates higher potential.

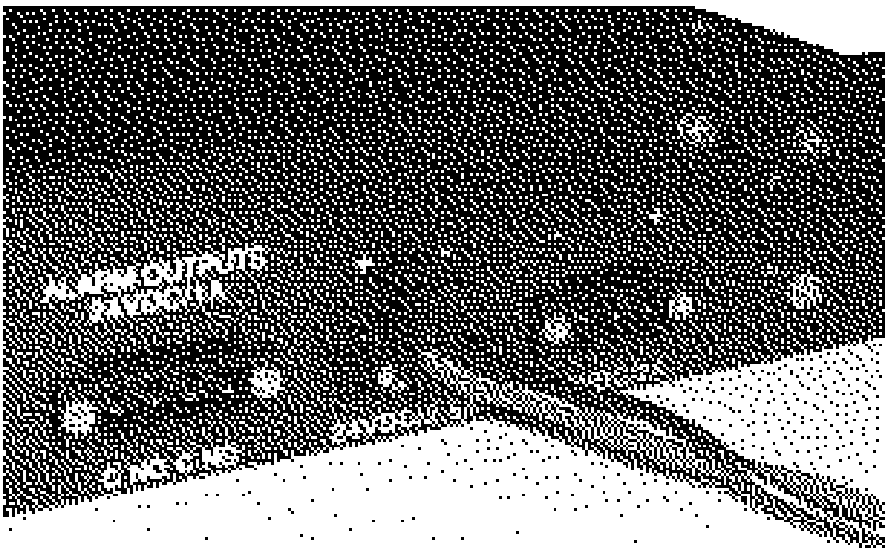

Figure 1-7. ATC300-1000/2000 +24 V Power Connection.

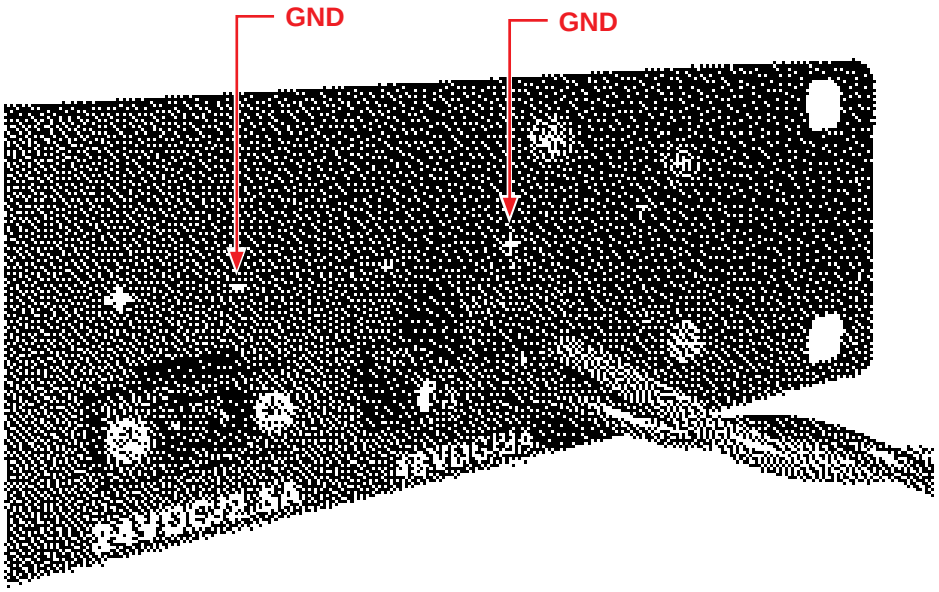

Figure 1-8. ATC300-1000/2000 –48 V Power Connection.

Bus Power: Suspend/Wake Modes

The controller supplies voltage to the RS–485 bus (i.e. the RET cable).

> Note: If the controller is not supplying voltage to TMAs, it will enter into Suspend mode after being idle for a few minutes. The controller no longer supplies any voltage when in Suspend mode. If the controller is supplying voltage to TMAs, it will not enter into Suspend mode.

- Voltage is restored if any controller function is chosen (e.g. searching for a device, editing a device, changing a tilt)
- Voltage can also be restored by clicking on the **Wake** button on the controller's main screen (Figure 1-9)
- Whenever voltage is not desired, you can click on the **Suspend** button to turn off the voltage to the bus

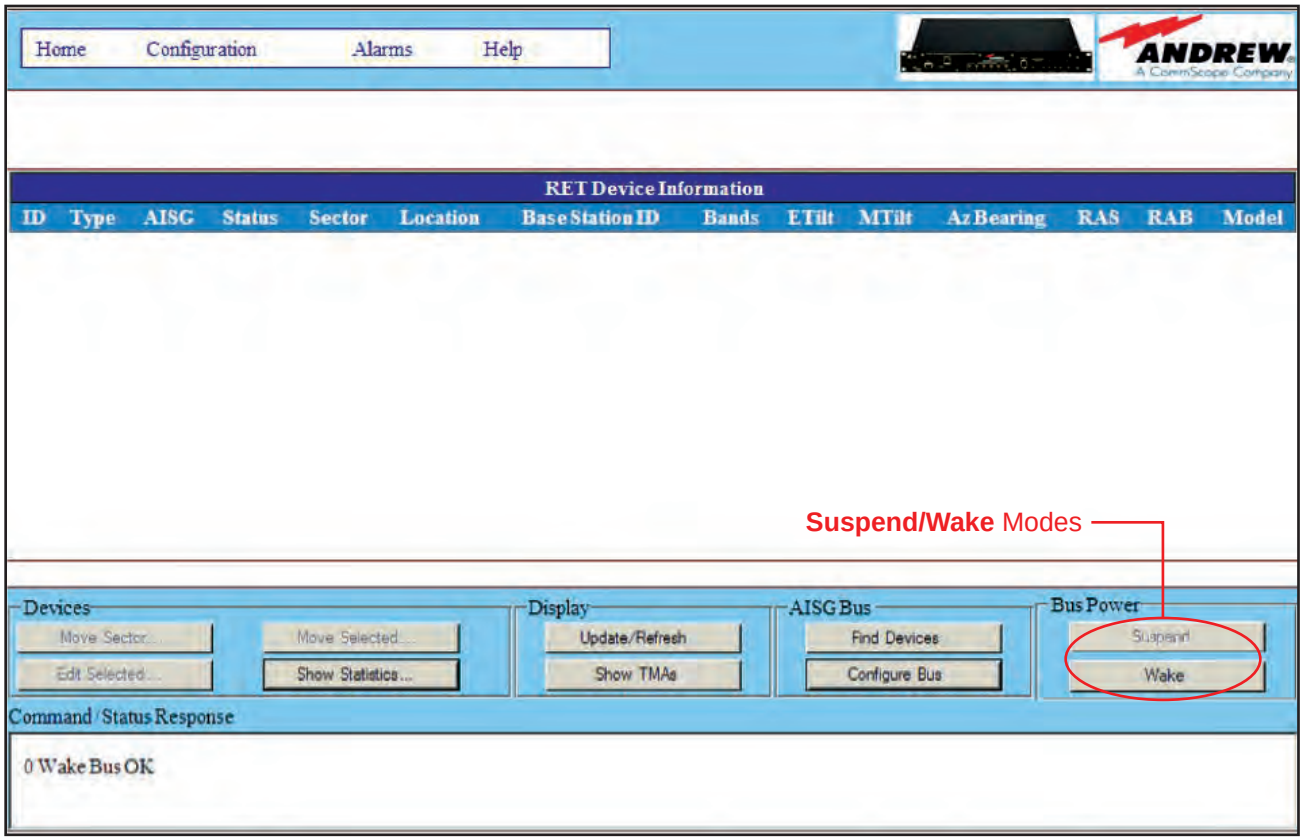

Figure 1-9. ATC300-1000/2000 Main Screen.

Alarm Outputs:

The ATC300-1000/2000 controller has two relay outputs for conveying alarm conditions. These contacts are specified for +24 Vdc maximum voltage with a maximum load of 1 Amp. The connector is equipped with a 4-pin terminal block (Figure 1-10). Pin assignments are shown in Table 1-1.

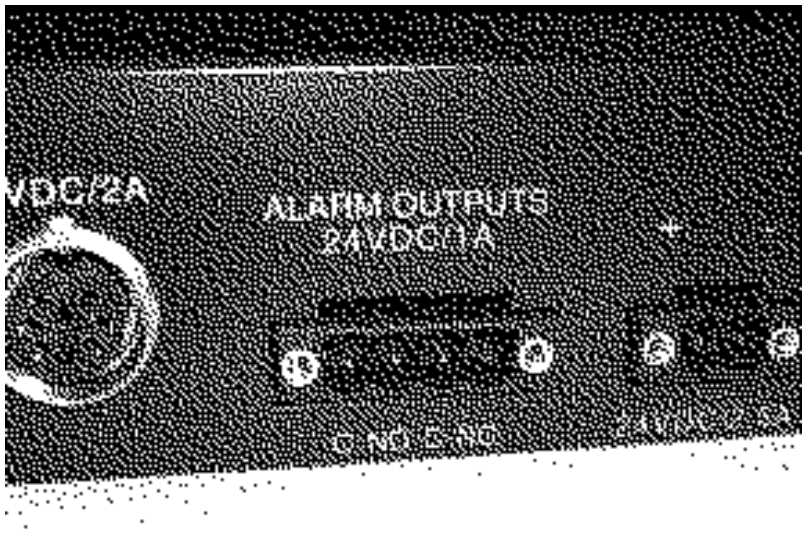

Figure 1-10. ATC300-1000/2000 Alarm Outputs.

Remove the 4-pin connector from the controller chassis and connect the alarm outputs as required by the alarming setting at the installation site.

Pin Number	Pin Name	Description
1	C-1	Relay-1 Center contact
2	NO-1	Relay-1 Normally-open contact
3	C-2	Relay-2 Center contact
4	NO-2	Relay-2 Normally-open contact

Table 1-1. ATC300-1000/2000 Alarm Output Pin Assignments.

Pins 1 and 2, shown to the left in Figure 1-10, are used for major alarms. These will close in the event there is a major alarm and will cause the Alarm LED to light up. Pins 3 and 4, shown to the right in Figure 1-10, are used for minor alarms. See Appendix D for definition of alarm conditions.

1.2.1 Modem Port Isolation (ATC300-2000 only)

The ATC300-2000 hardware provides port isolation from overcurrent conditions. The unit has three modem ports, each providing RS485 capability to a pair of external SMB ports. The AISG port is also isolated from the modem ports. If a short is detected on the AISG bus, the ATC300-2000 will remove power to only the affected modem or AISG port, leaving the other ports operational.

When a short has been detected and power turned off to a port, the software will attempt to reactivate that port 3 times. If the condition persists, the port will be blocked from being powered without operator interaction. This error condition is reflected with an alarm logged in the controller's Alarm History. The blocked condition can be cleared in one of two ways – by cycling power on the unit, or by selecting the button "Clear Locked Data Ports" on the Controller Config web page (see Figure 1-10a Clear Locked Data Ports). The operator should ensure that the condition causing the short has been remedied before clearing the block.

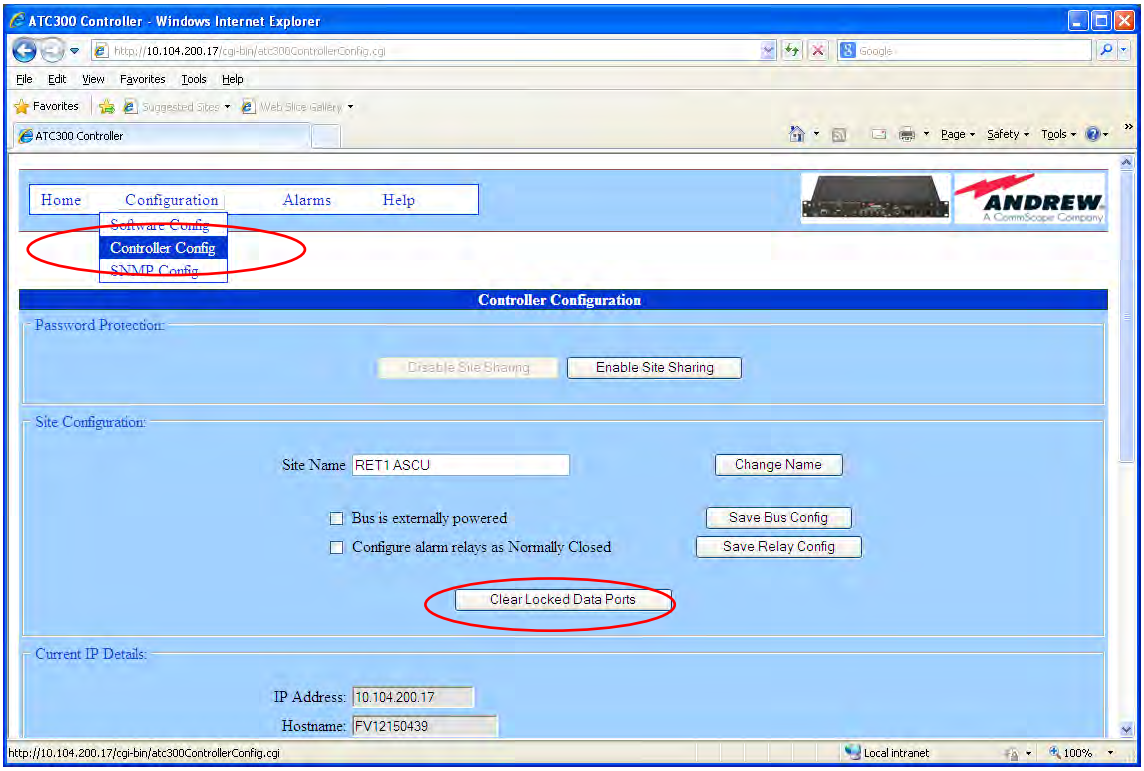

Figure 1-10a Clear Locked Data Ports (ATC300-2000 only)

The ATC300-2000 will tolerate a total current level in the 2.0 Amp to 2.5 Amp range for 4 minutes. If that current level is maintained longer than 4 minutes, the software will remove power to the modem or AISG port reporting the greatest current level. Unlike the short condition, no attempts will be made to re-power the port after this condition has occurred, the port will immediately be put in a blocked state. The blocked condition can be cleared as described above.

The current levels of each modem port and the AISG port may be viewed on the controller's Help | About web page. The page must be refreshed to update the readings.

All operation is considered normal when the total current load is less than 2.0 Amps. Note: After an overcurrent condition has been recognized, the total current level must be in the normal range for 10 seconds before the overcurrent alarm is cleared.

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Section 2
Installation Instructions and Safety Precautions

2.0 Section Overview

This section covers installation procedures for mounting and grounding the ATC300-1000/2000 controller chassis, as well as safety precautions.

2.1 Abbreviations

AWG American Wire Gauge

2.2 Installation Preparations

Warnings:

- This equipment should only be installed by trained personnel.
- Do not connect or disconnect cables during lightning activity.

Preparation:

- Remove the ATC300-1000/2000 controller from the packaging container (also see ESD precautions in the introduction of this document).
- Verify availability of power, either –48 V battery or +24 V power supply.

Tools and Parts:

- 14–AWG multi-strand copper wire for power connection, using color coding as specified at the installation site.
- 10–AWG multi-strand copper wire, using appropriate color coding as specified at the installation site.
- Ring-torque terminal for a 1/4” stud.
- Crimping tool for ring-torque terminal.
- Four mounting screws to mount the controller chassis onto the rack.
- 6” adjustable wrench.
- 1/8” flat-blade screwdriver.
- Wire stripper.

2.3 Controller Chassis Mounting

The ATC300-1000/2000 controller chassis is designed to be mounted in a standard 19” rack. Use four mounting screws or bolts to secure the system to the rack as shown in Figure 2-1.

For proper heat management, provide at least a 2” vertical clearance between the controller and any adjacent system in the rack.

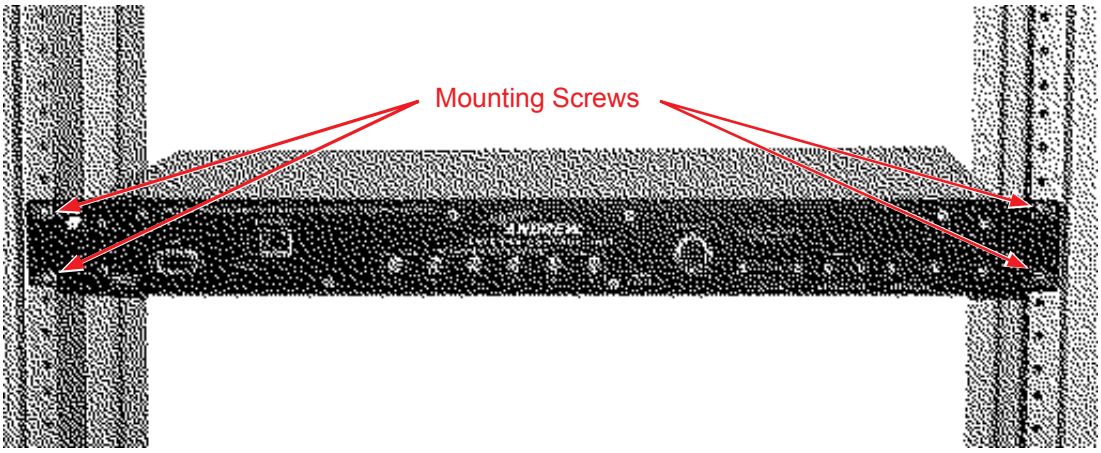

Figure 2-1. Rack Mounted ATC300-1000/2000 Controller.

2.4 Controller Chassis Grounding

The ATC300-1000/2000 controller chassis is intended to be grounded via a dedicated grounding stud in the back of the chassis.

1. Using the crimping tool, attach the ring-torque terminal to the 10–AWG grounding copper wire.
2. Remove one bolt and washer from the chassis’ grounding stud.
3. Attach the ring-torque terminal to the grounding stud as shown in Figure 2-2.
4. Using the bolt and washer that was removed, fasten the ground cable to the grounding stud.
5. Connect the other end of the grounding wire to an appropriate grounding point at the installation site.

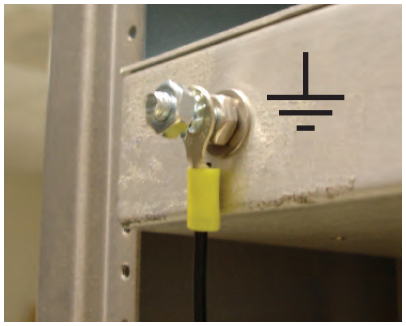

Figure 2-2. ATC300-1000/2000 Controller Chassis Grounding Connection.

2.5 Controller Chassis Power

The ATC300-1000/2000 controller chassis provides two powering options, –48 V battery or +24 V power supply. The controller needs only one of these power options to operate.

Input voltage operating ranges:

+24 Vdc Supply: +19 Vdc to +30 Vdc

–48 Vdc Supply: –36 Vdc to –72 Vdc

Ensure that the operating voltage meets the range specified above.

Warning!

To avoid shocking hazard, open the circuit breaker protecting the power distribution for the mounting rack.

Connecting to the +24 V Power Supply:

1. Open +24 V circuit breaker at the mounting rack.
2. Using a flat-blade screwdriver, remove the 2-pin power connector from the controller's chassis.
3. Attach the power and return the wires to the connector as shown in Figure 2-3.
4. Attach the power and return the wires to the +24 V power distribution point at the mounting rack.
5. Close the +24 V circuit breaker at the mounting rack.
6. Replace and secure the 2-pin power connector to the controller's chassis.

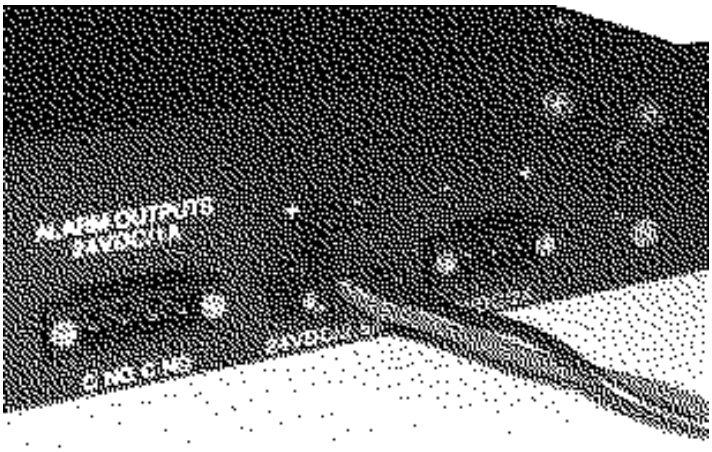

Figure 2-3. +24 V Power Installation.

Connecting to –48 V Battery Power:

1. Open –48 V circuit breaker at the mounting rack.
2. Using a flat-blade screwdriver, remove the 3-pin power connector from the controller's chassis.
3. Attach the power and return the wires to the connector as shown in Figure 2-4.
   Note that the positive (+) symbol indicates higher potential.
4. Attach the power and return the wires to the –48 V battery distribution point at the mounting rack.
5. Close the –48 V circuit breaker at the mounting rack.
6. Replace and secure the 3-pin power connector to the chassis.

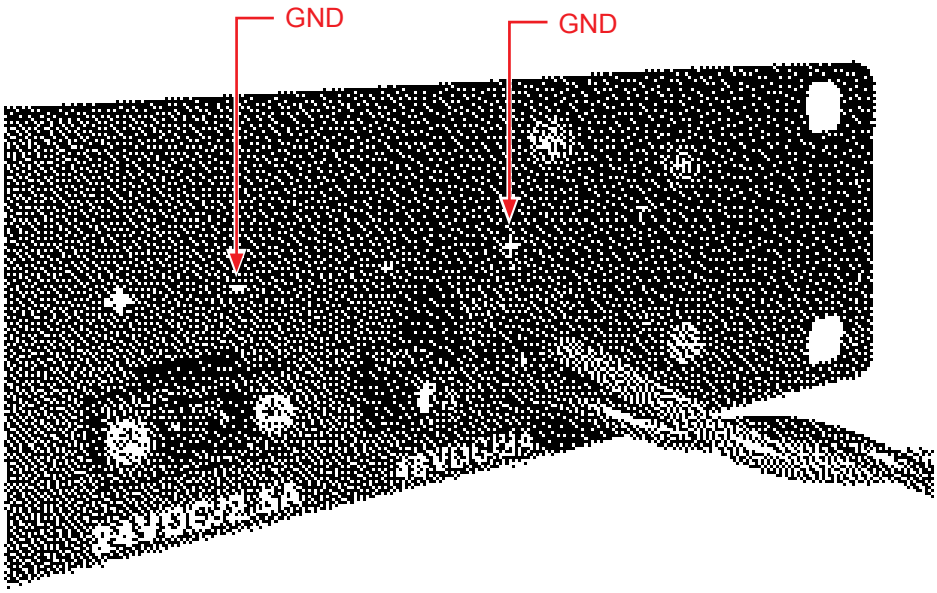

Figure 2-4. –48 V Power Installation.

Section 3
Changing IP Settings on the Local Computer Using the IP Config Tool

3.0 Section Overview

- In order for a local computer to gain access to the ATC300-1000/2000 or ATC200-1000 controller, settings will need to be configured on the computer. The IP Config Tool provides a user friendly environment for changing the local computer's IP settings.

  See Appendix B for understanding IP addressing.
- The IP Config Tool is compatible for use on computers operating in the English language using Windows® 2000 or Windows® XP. At the time of this publication, it has not been determined if earlier versions of Windows® are compatible with the IP Config Tool. See Appendix B when setting an IP address for Windows Vista operating systems.
- After connection to the controller is no longer needed, the original IP settings for the local computer will need to be restored in order for it to regain communication with a company LAN or other Ethernet connection. The IP Config Tool automatically restores the original IP settings to the local computer when the application tool is closed.
- IP configurations made to the local computer for access to the controller may be backed up and later restored/used for future access.

3.1 Downloading/Extracting the IP Config Tool Zip File

1. The IP Config Tool zip file can be downloaded from the CommScope web site. Go to www.commscope.com/ Resources / Software. Scroll down to the ATC300-1000/2000 Rack Mount Controller image, and save the **IP Config Tool** to the computer desktop that will be accessing the controller.
2. After the download is complete, double-click on the zipped ipconfig tool file to extract the **ipconfigtool.exe** file to the local computer's desktop. The **ipconfigtool.exe** file will be used to install the IP Config Tool to the computer.

Microsoft, Encarta, MSN, and Windows are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

3.2 Installing the CommScope IP Config Tool

Double-click on the **ipconfigtool.exe** file and follow the installation prompts shown on the screen (Figure 3-1).

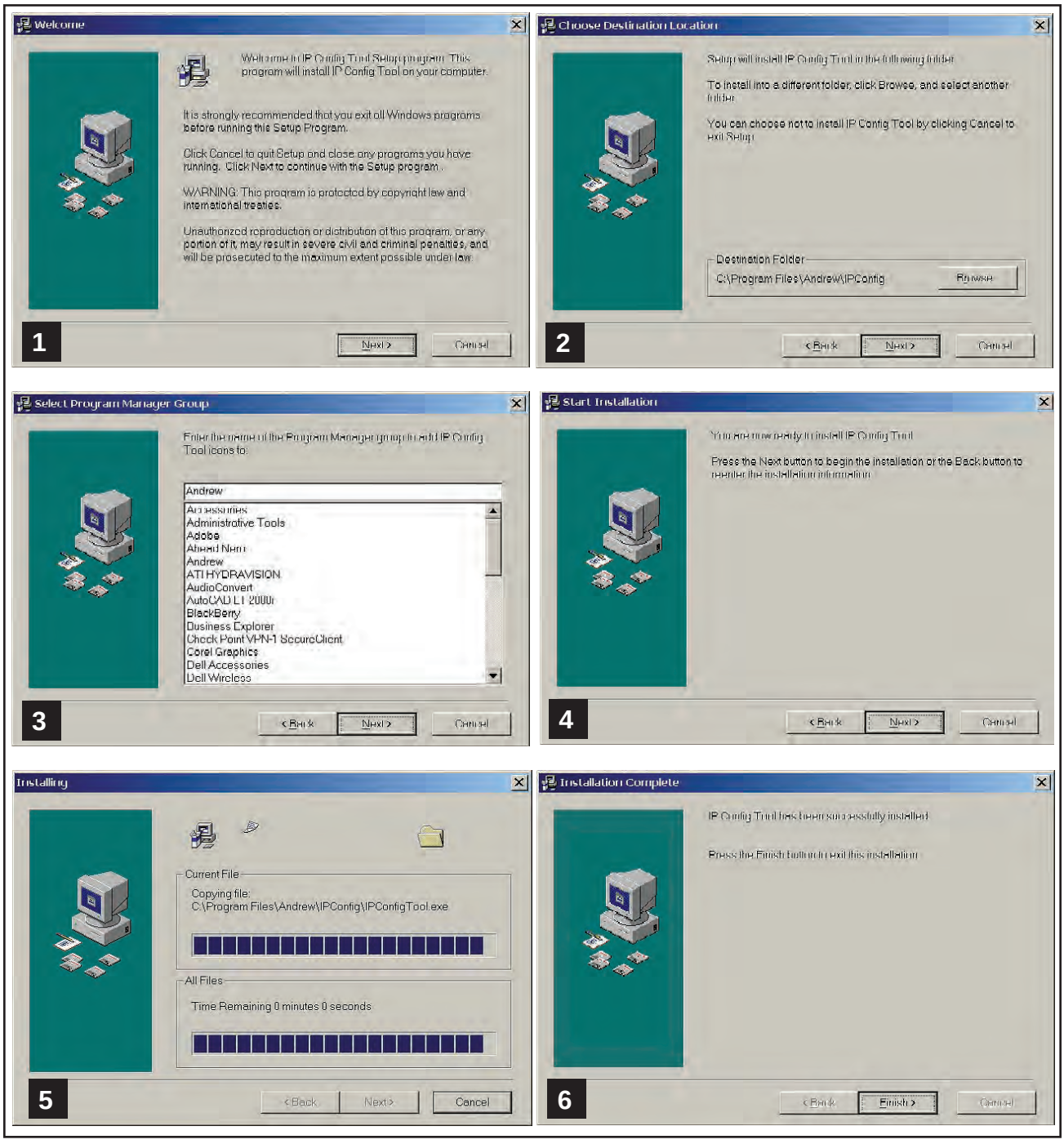

Figure 3-1. IP Config Tool Installation Screens (Sequentially Numbered).

3.3 Launching the IP Config Tool

From the computer's desktop, double-click on the **IP Config Tool** icon (Figure 3-2). The initial screen for the IP Config Tool program is shown in Figure 3-3.

Figure 3-2.
CommScope IP Configuration Tool Icon.

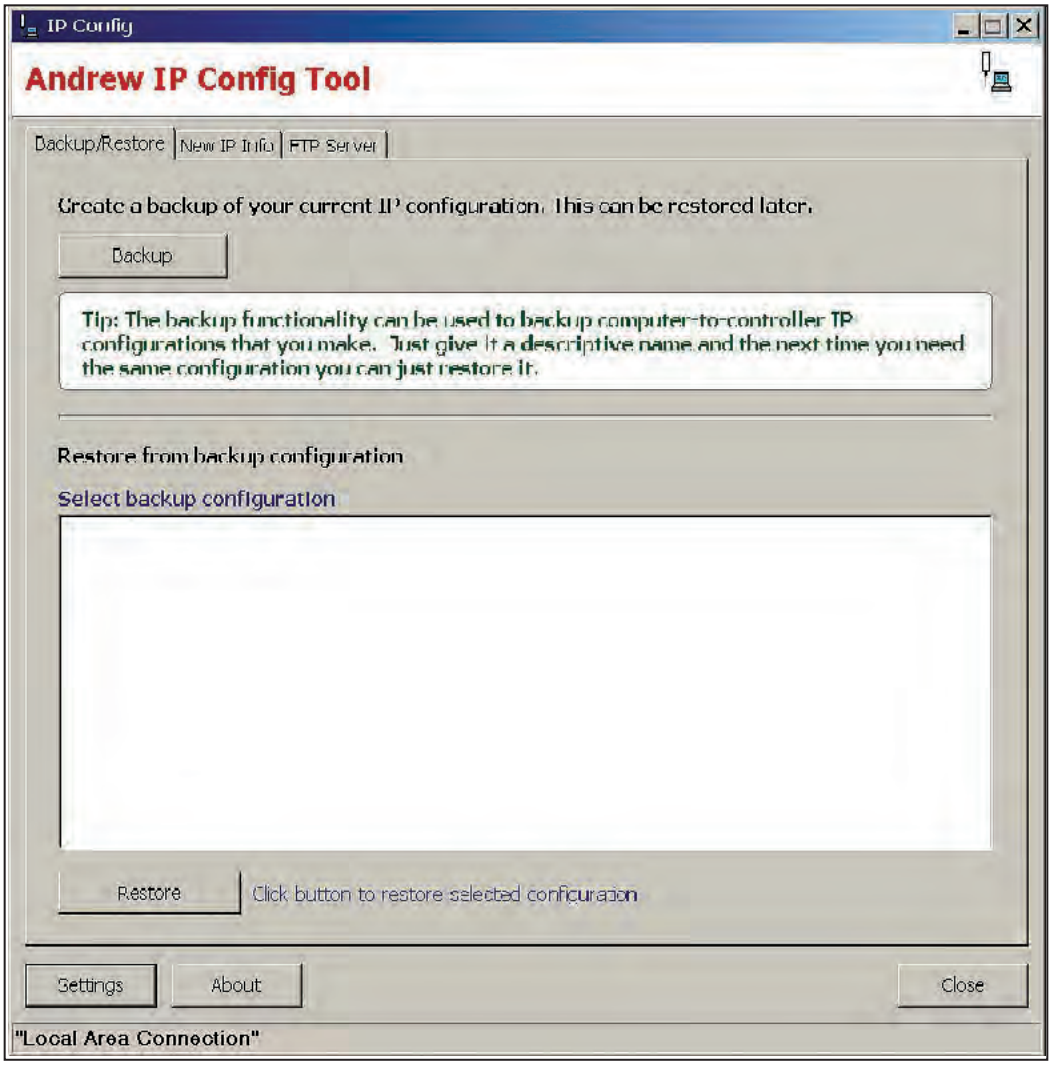

Figure 3-3. Initial IP Configuration Tool Screen.

3.4 Changing the IP Address on the Local Computer

Note that if the local computer is connected to a network, the connection will be temporarily lost when the IP address is changed. Connection to the network will be restored after the original IP address for the local computer is restored.

1. After the IP Config Tool is launched (Figure 3-3), click on the **New IP Info** tab, located at the top of the screen (Figure 3-4).
2. Click on **Local Area Connection** shown in the window (Figure 3-4). While this connection is highlighted (selected), the current IP and Subnet Mask for the local computer are shown.

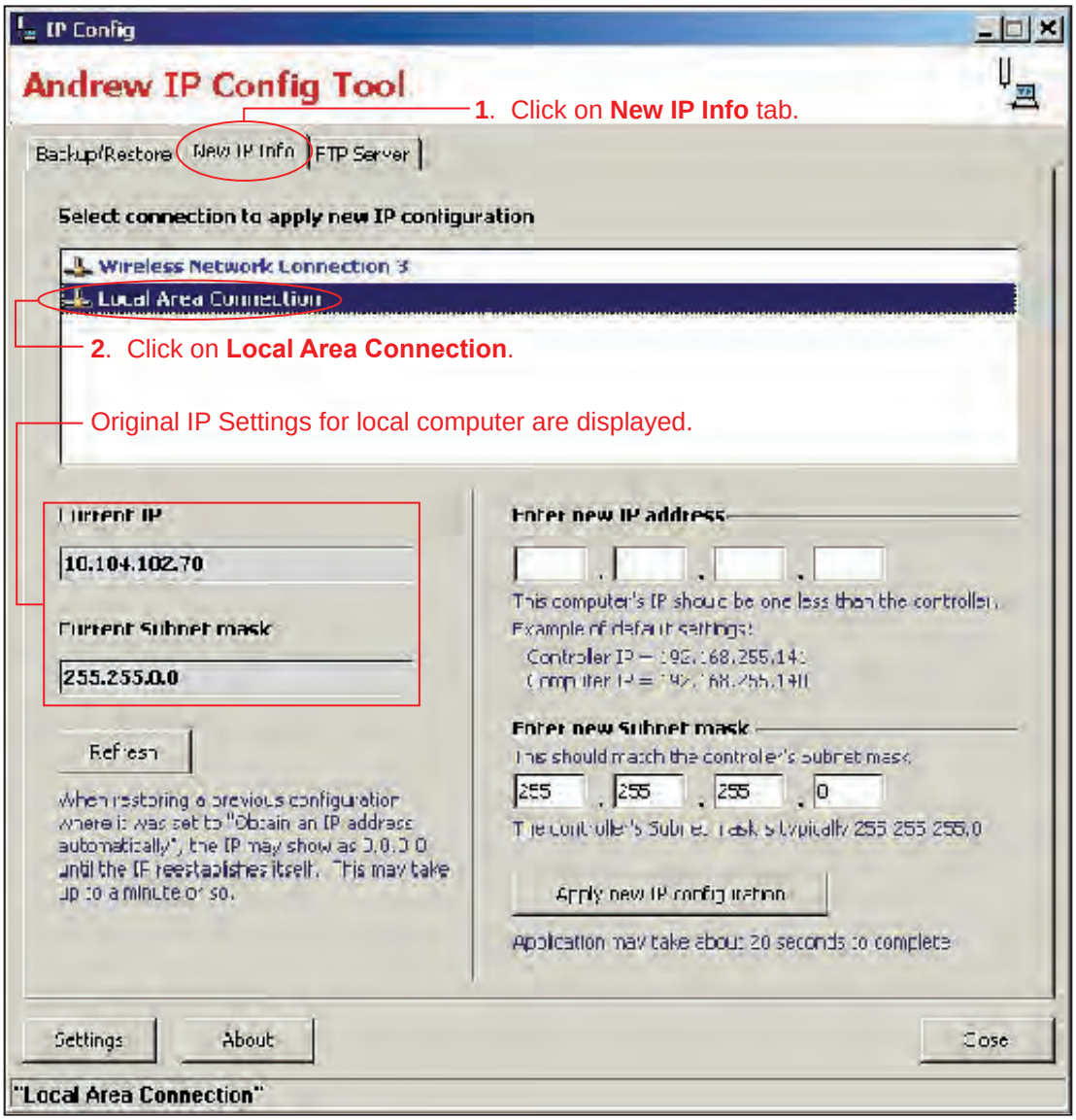

Figure 3-4. Entering A New IP Address For Local Computer.

3. In the fields provided, enter a new IP address that matches the controller's IP address with the final digit one digit lower (Example: Controller Factory Set IP is 192.168.255.141; New Computer IP is 192.168.255.140). See Figure 3-5.

   Note that the controller's factory set IP is shown in the text below the entry fields provided for the new IP address and is the same for all ATC300-1000/2000 controllers.

4. Click on the **Apply new IP configuration** button (Figure 3-5).

5. When the IP configuration is complete, the new IP address will appear as the **Current IP** (Figure 3-5).

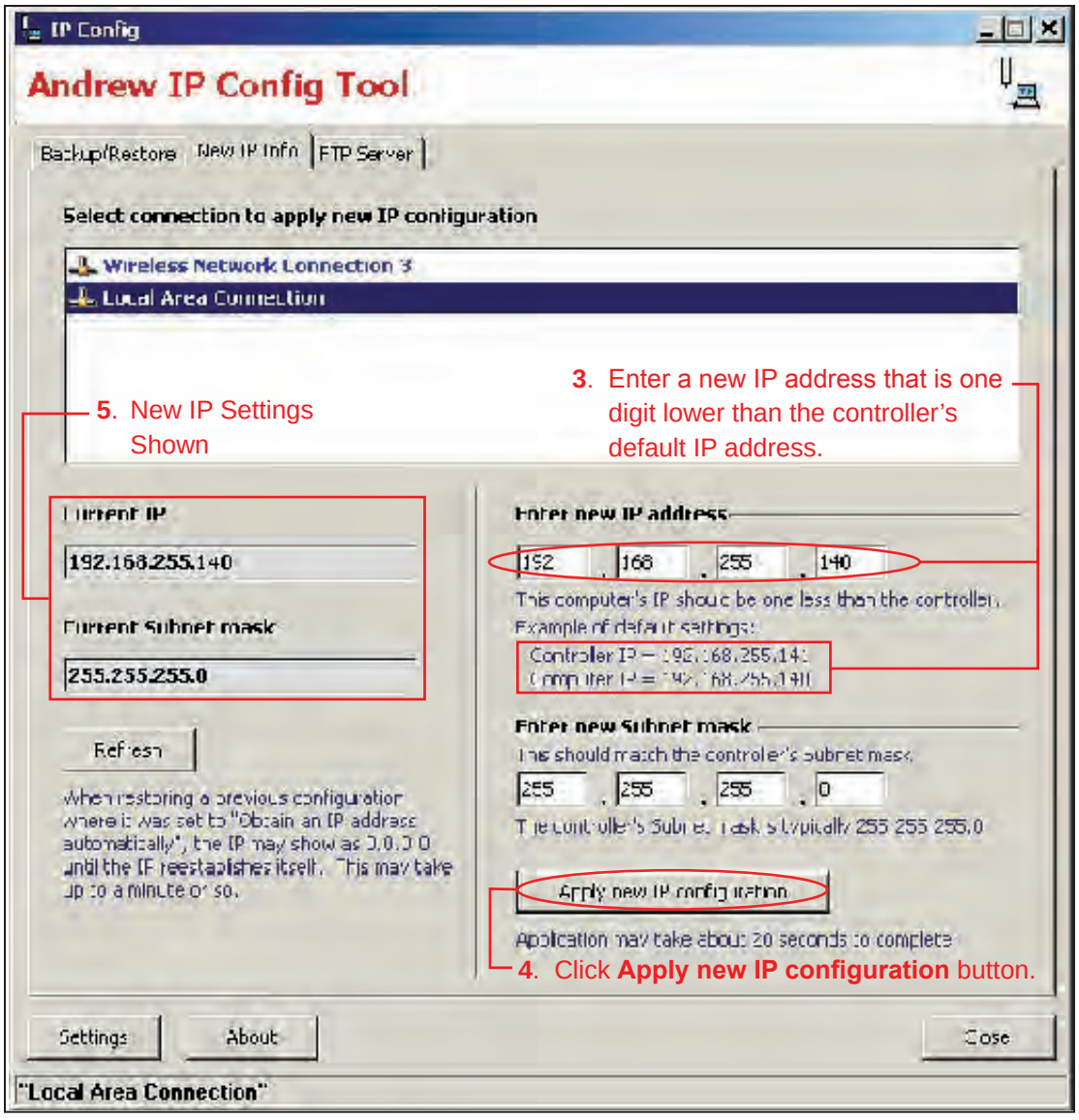

Figure 3-5. New IP Address For Local Computer Shown As **Current IP**.

3.5 Backing Up New IP Settings for the Local Computer

1. The new IP address can be saved for future access to the controller from the same computer. Click on the **Backup/Restore** tab, located at the top of the screen (Figure 3-6).
2. Click on the **Backup** button (Figure 3-6).
3. Type in a name of your choice for the new IP configuration backup file, and click on **OK** (Figure 3-6).

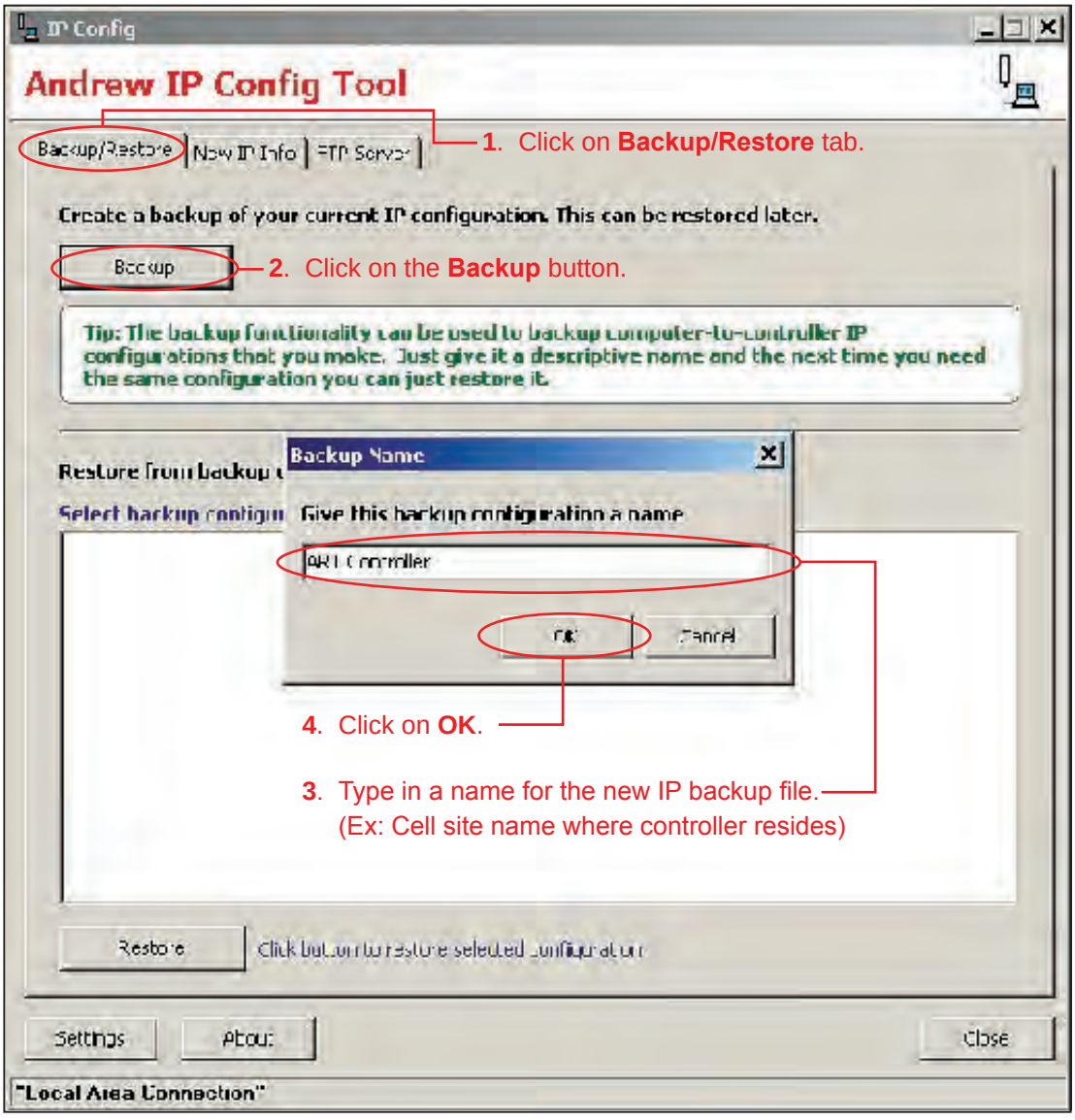

Figure 3-6. Saving New IP Backup File For Future Access To The Controller.

The backup file for the new IP configuration will appear in the window (Figure 3-7).

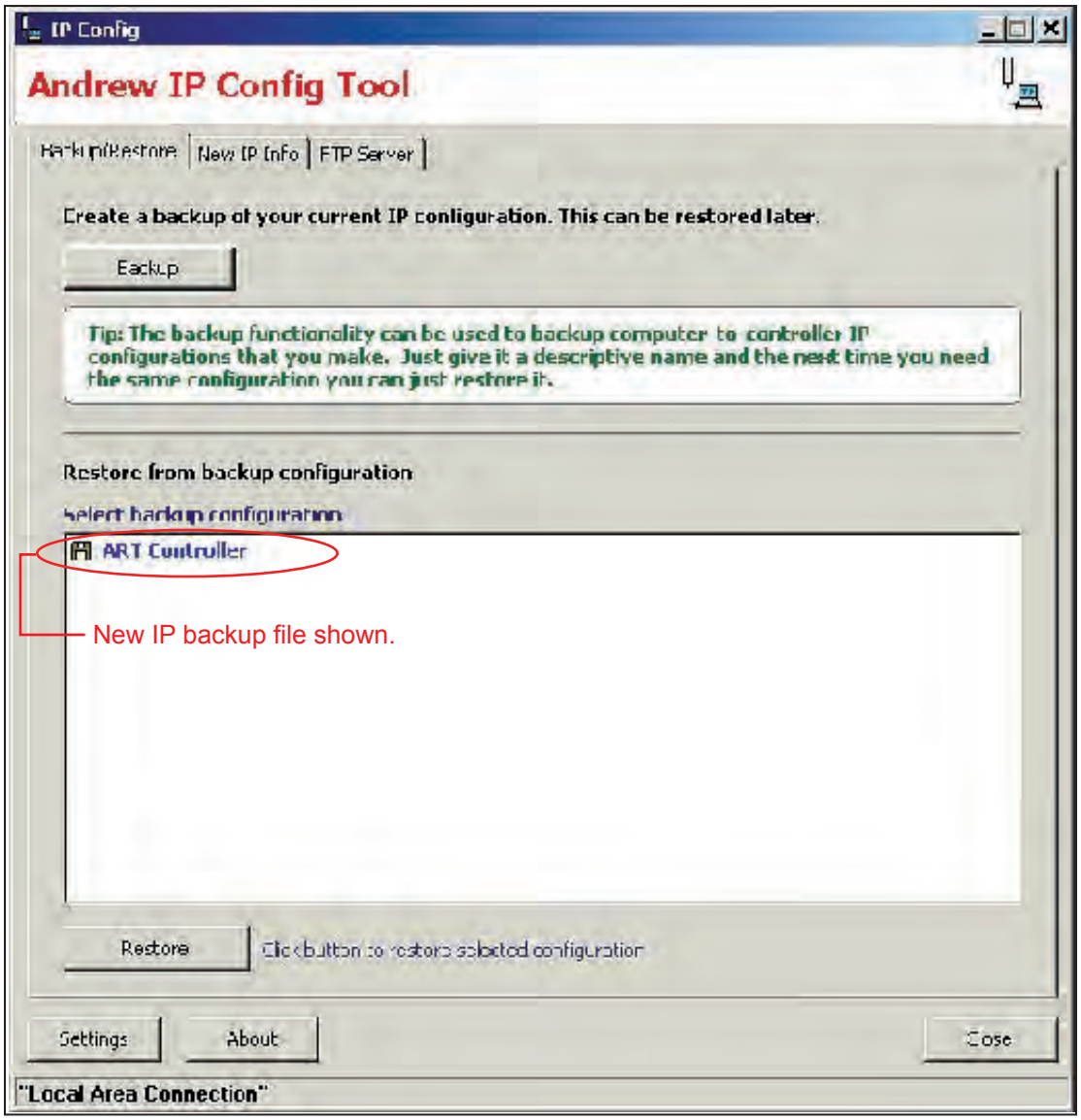

Figure 3-7. New IP Backup File Shown.

Leave the CommScope IP Configuration Tool running to maintain the new IP settings on the local computer until access to the controller is no longer needed. The local computer will also need to be connected to the controller's Ethernet port to gain access.

See Section 6 for accessing the controller through a direct Ethernet connection using an Ethernet cable.

3.6 Restoring Original IP Settings on the Local Computer

When access to the controller is no longer needed, the IP Config Tool can be closed to restore the local computer to its original IP settings (Figure 3-8).

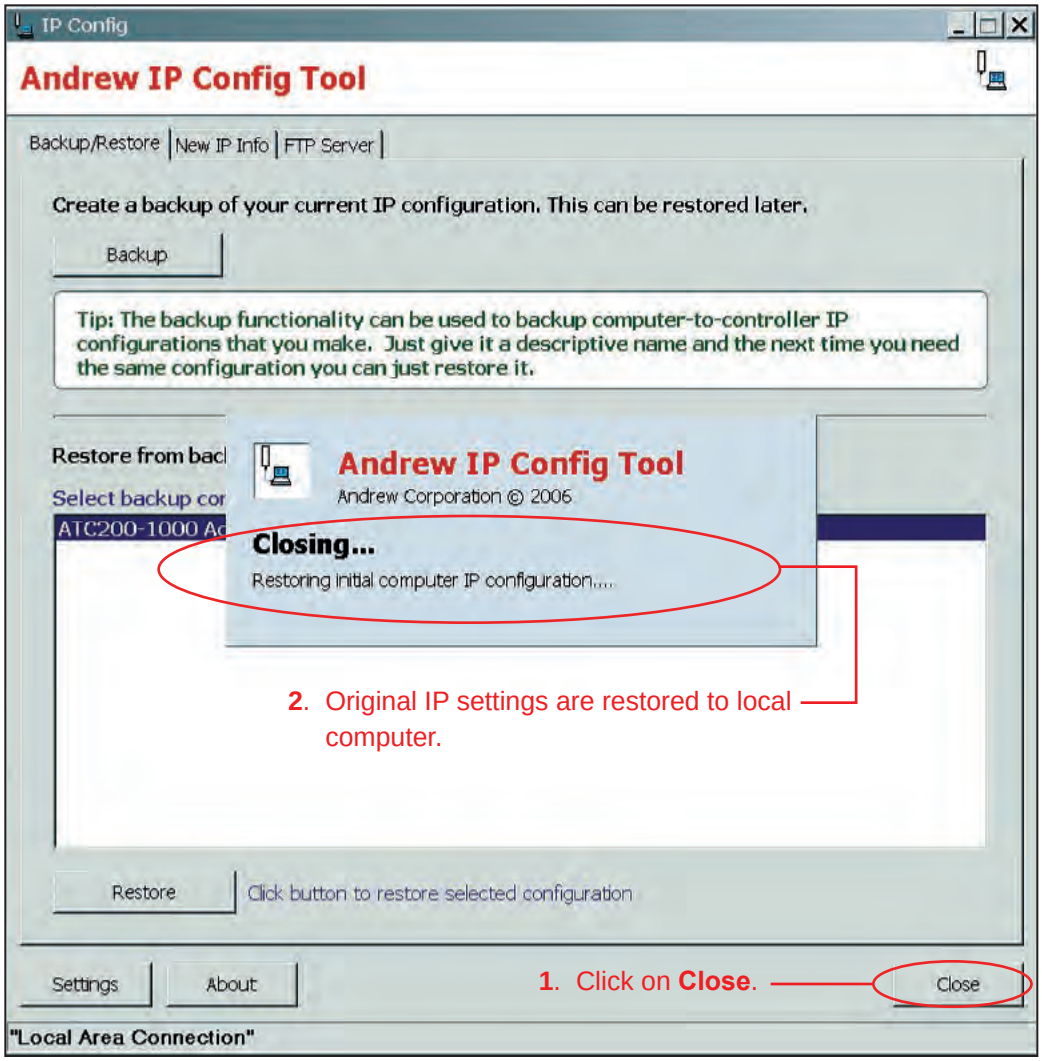

Figure 3-8. Closing/Restoring Original IP Settings For The Local Computer.

3.7 Restoring Backup Files for New IP Settings on the Local Computer for Regaining Access to the Controller

After a local computer has been set up with a new IP address using the CommScope IP Config Tool, the backup file that was saved during the initial set up can be used to restore the settings and regain access to the controller (See paragraph 3.5).

1. If the IP Config Tool is not already launched, double-click the **CommScope IP Config Tool** icon from the local computer's desktop to launch (Figure 3-2).
2. Click on the backup file shown in the window (Figure 3-9).
3. Click on the **Restore** button (Figure 3-9).

Leave the CommScope IP Configuration Tool running until access to the controller is no longer needed. See Section 6 for accessing the controller using a direct Ethernet connection.

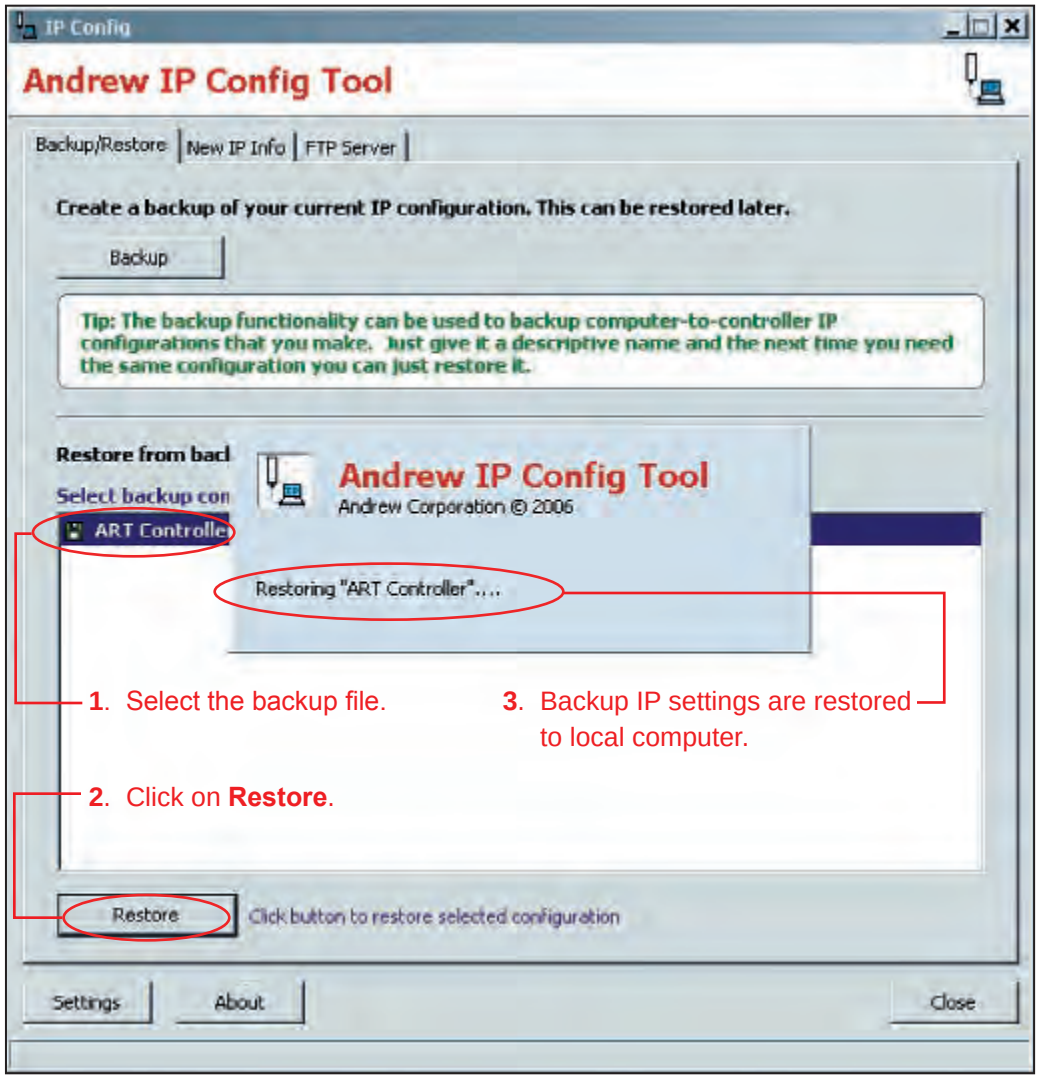

Figure 3-9. Restoring Backup File Settings To Regain Access To Controller.

3.8 Removing a Backup File

If a specific backup file is no longer needed, it may be removed.

1. Right click on the backup file shown in the window (Figure 3-10).
2. Select the remove options from the pop-up menu (Figure 3-10).

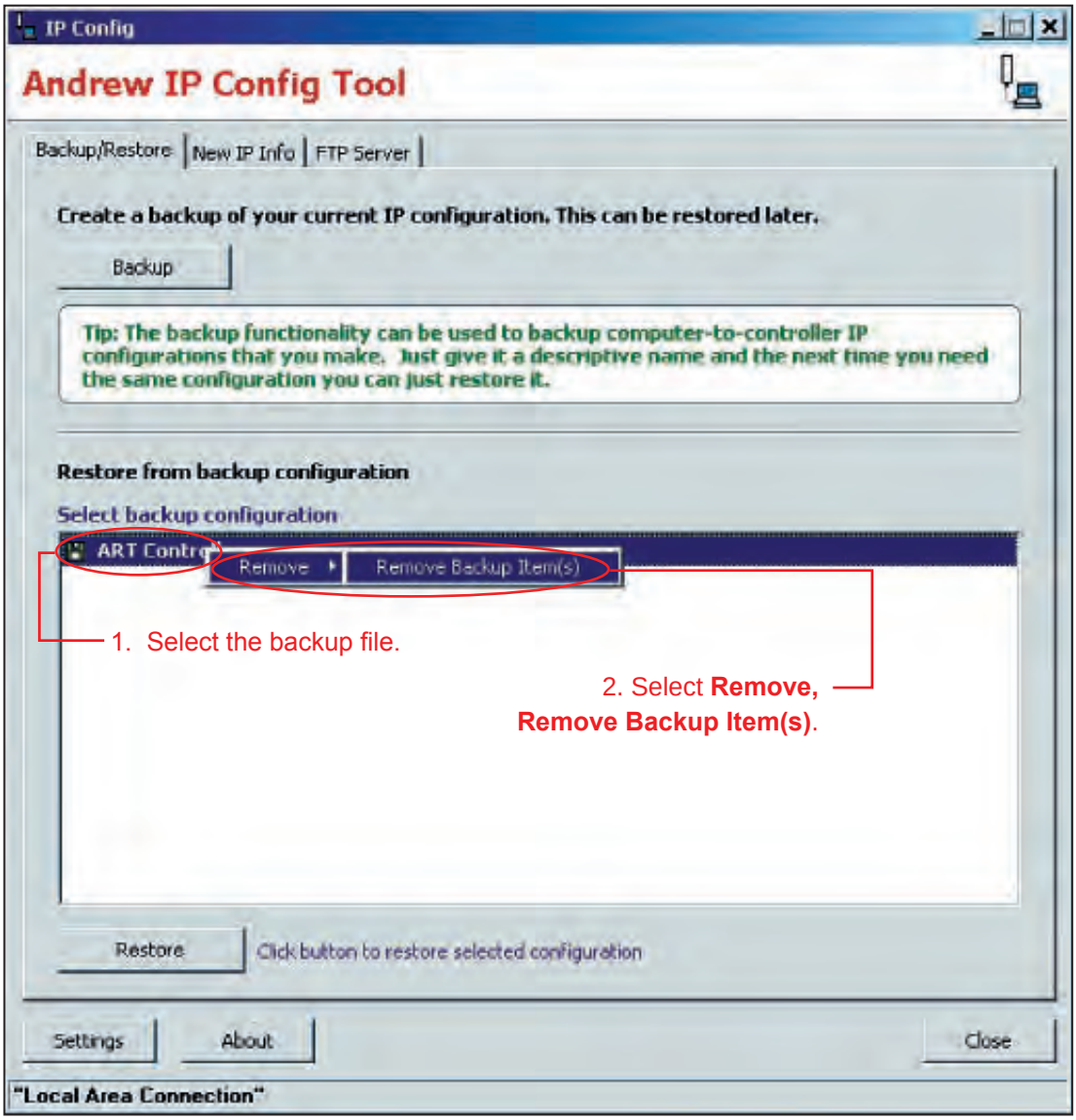

Figure 3-10. Removing Backup File From IP Config Tool.

Section 4
Changing IP Settings on the Local Computer Manually

4.0 Section Overview

- In order for a local computer to gain access to the ATC300-1000/2000 or ATC200-1000 controller, IP settings will need to be configured on the computer.
- An Ethernet cable (supplied) is required for communication between the local computer and the controller to occur as shown in Figure 4-1 (see Section 6).
- After connection to the controller is no longer needed, the original IP settings for the local computer must be restored in order for it to regain communication with a company LAN or other Ethernet connection.
- The screens shown are examples from a Windows® XP PC that has been configured to display the 'Classic' interface. Screens may differ with other versions of Windows®.
- See Appendix B for understanding IP addressing.

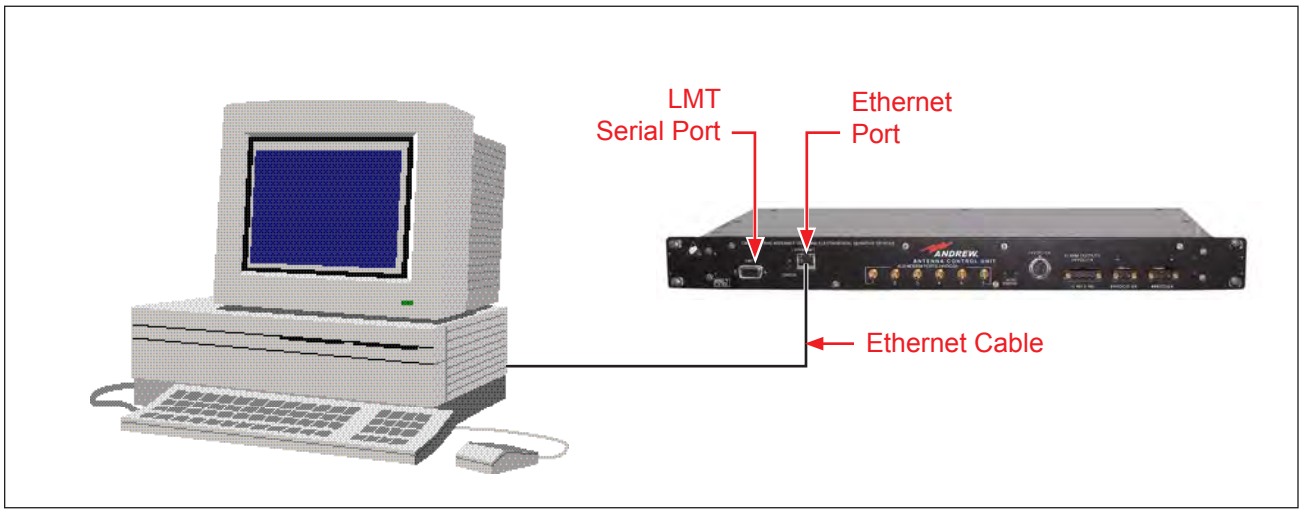

Figure 4-1. Local PC Connected To Controller's Ethernet Port Using The Ethernet Cable.

4.1 Changing the IP Address on the Local Computer

1. If the local computer has not been connected to the controller, see Section 6 to make this connection using the Ethernet cable (supplied).

   Note that the local computer will lose its connection to any company LAN (network system) when it is disconnected.

2. Go to **Control Panel→Network Connections→Local Area Connection**.
3. Click on **Properties** on the **Local Area Connection Status** screen (Figure 4-2).

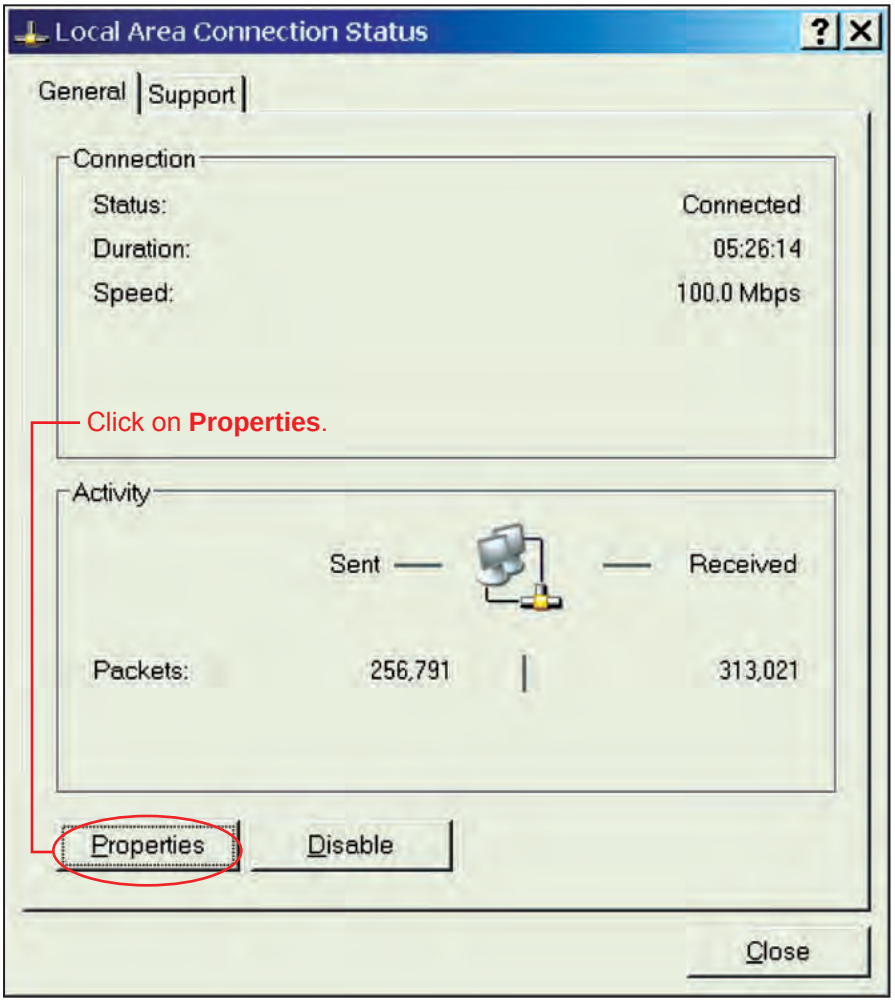

Figure 4-2. Properties For Local Area Connection.

4. Click on **Internet Protocol (TCP/IP)** and make sure the box next to it is checked (Figure 4-3).
5. Click on **Properties** (Figure 4-3).

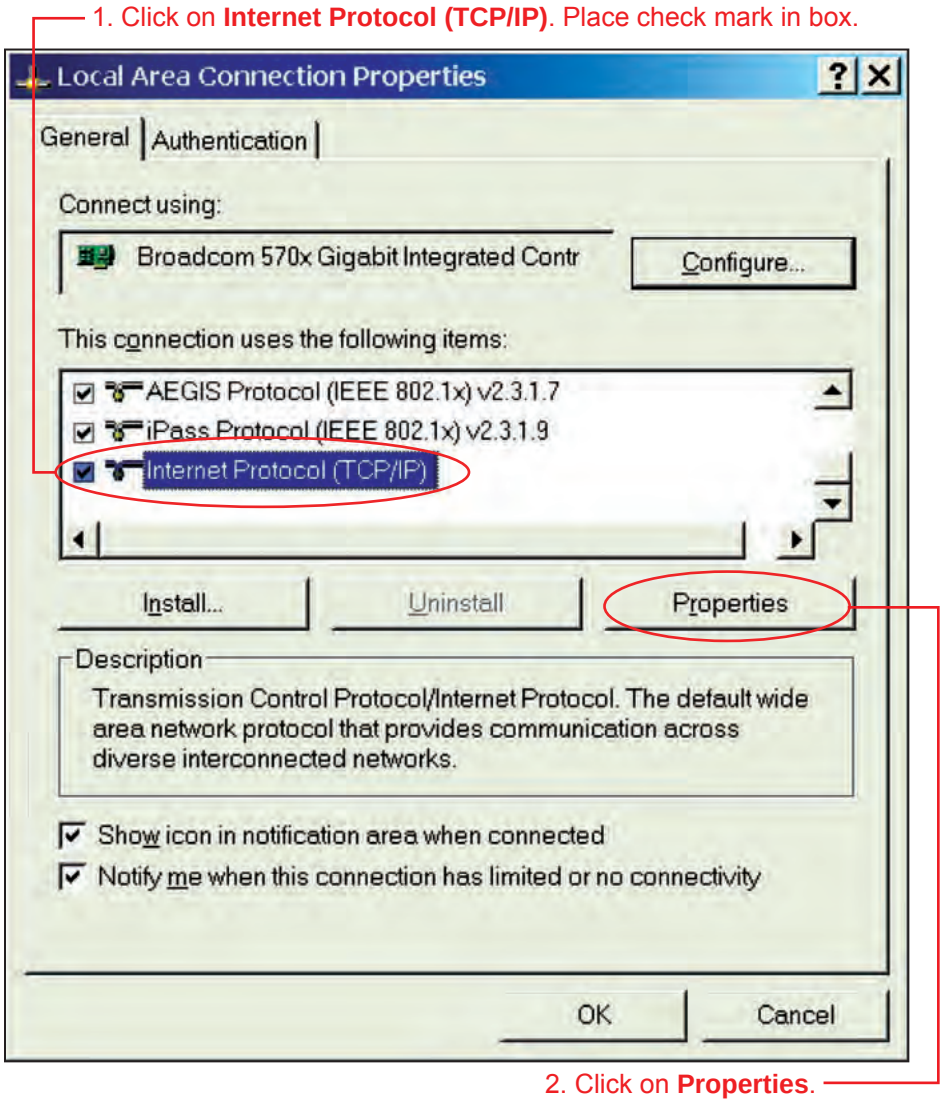

Figure 4-3. Selecting Internet Protocol Properties.

6. **Obtain IP address automatically** is usually the default selection for most users (Figure 4-4).

IMPORTANT

If 'Use the following IP address' is selected and IP settings are displayed, note these settings exactly as they are displayed. These settings are needed in order to restore the computer to its original IP identity.

7. If not already selected, click on **Use the following IP address** (Figure 4-4).

   If this button is grayed out or cannot be selected, a user's permission problem has occurred, preventing completion of this procedure. Stop now and consult the IT department to correct this problem.

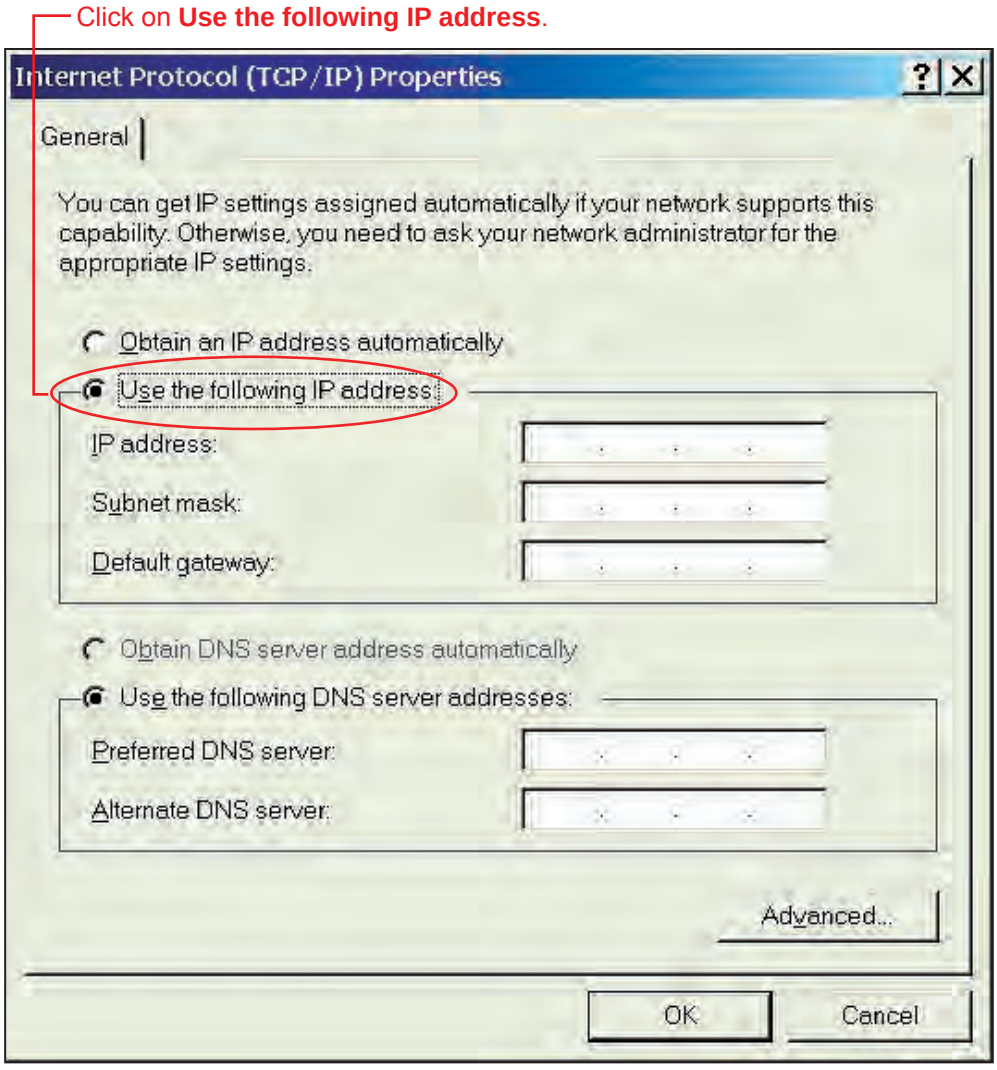

Figure 4-4. Selecting ***Use the Following IP Address****.*

8. Enter an IP address that matches the controller's IP address with the final digit one digit lower (Example: Controller Factory Set IP is 192.168.255.141; New IP is 192.168.255.140). See Figure 4–5.
9. Enter a subnet mask that matches the controller's Netmask exactly. The controller's default Netmask setting is 255.255.255.0 (Figure 4-5).
10. Erase all other fields on the screen (Figure 4-5).
11. Click **OK** (Figure 4-5).
12. Close out of remaining dialog boxes. The local computer is now set up to access the controller.

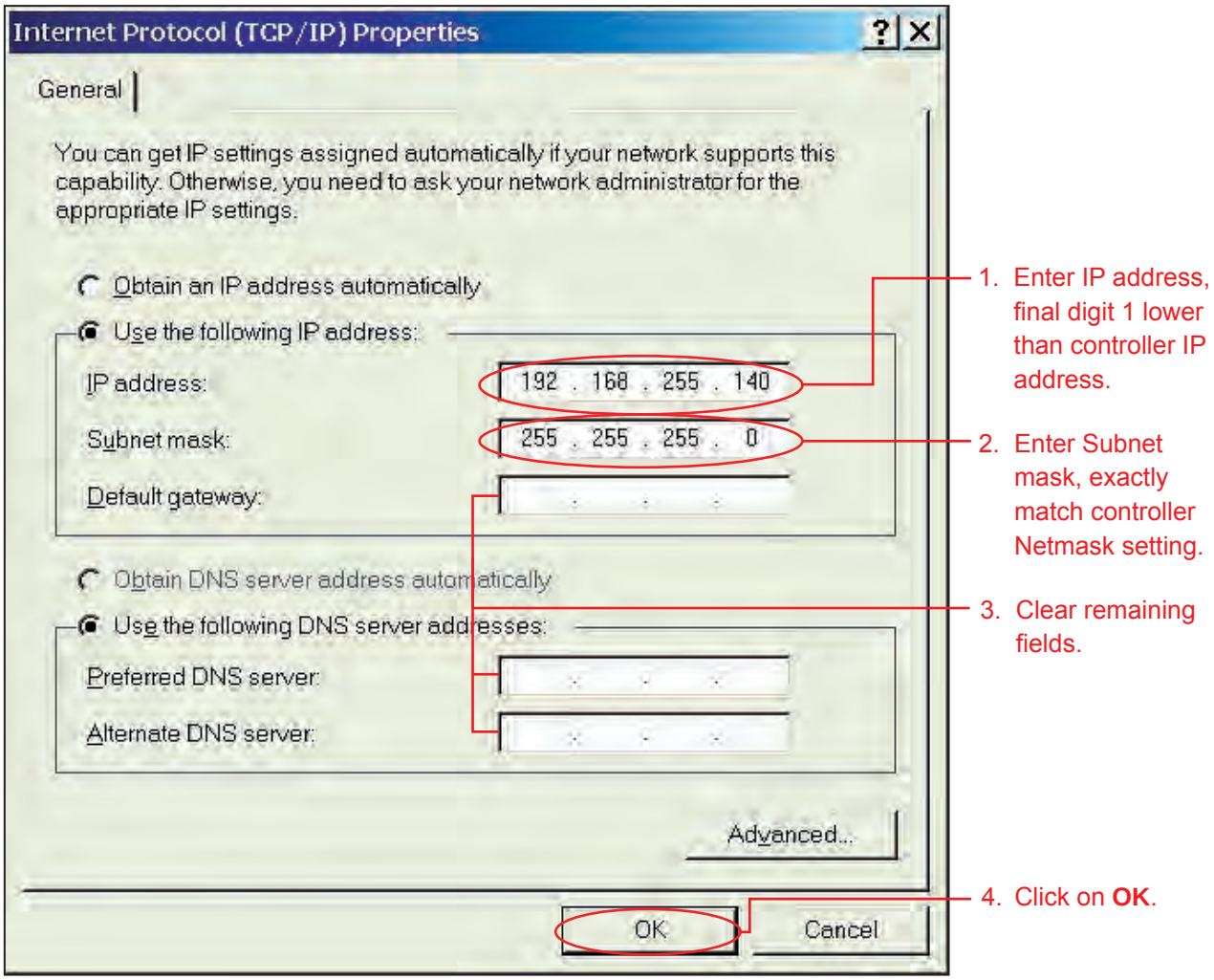

Figure 4-5. Changing The IP Address On The Local Computer.

4.2 Restoring Original IP Settings on the Local Computer

When access to the controller is no longer needed, the IP address and subnet mask on the local computer must be restored to the original settings for it to reconnect to a company LAN (network system). Follow the same procedures discussed in paragraph 4.1, except enter the original IP settings that were noted before the computer was configured.

If the computer was originally set to obtain an IP address automatically, click on this option and click on **OK** to restore a company network connection.

Section 5
Obtaining IP Settings for the Controller (When IP is Unknown)

5.0 Section Overview

- If IP addressing has been changed on the controller and is unknown, the IP address can be obtained through a serial connection to the LMT port on the controller.
- If the local computer is not equipped with a serial port, a USB-to-serial adapter can be used. Airlink 101 adapter has been found to be highly reliable.
- The screens shown are examples from a Windows® XP PC that has been configured to display the 'Classic' interface. Screens may differ with other versions of Windows®.

5.1 Establishing the IP Settings on an ATC300-1000/2000

5.1.1 Establishing a Serial Connection to the Controller

1. Ensure that the controller is powered up. On power up, the status LED will be solid green. After the LED has been illuminated for 10 seconds, it is ready to be connected to a COM1 serial port of a computer.
2. Using an RS–232 serial cable, connect the COM1 serial port on a local computer and the LMT serial port on the front of the controller (Figure 5-1).

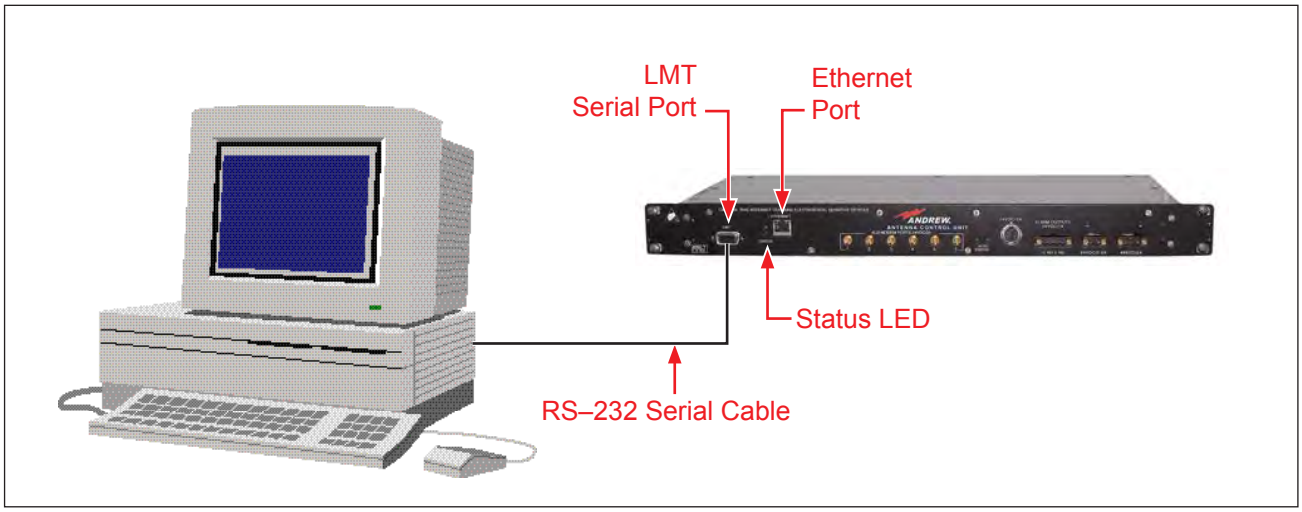

Figure 5-1. Local PC Connected To Controller's LMT Serial Port Using An RS–232 Cable.

3. Go to **Start → All Programs → Accessories → Communications → HyperTerminal** (Figure 5-2).

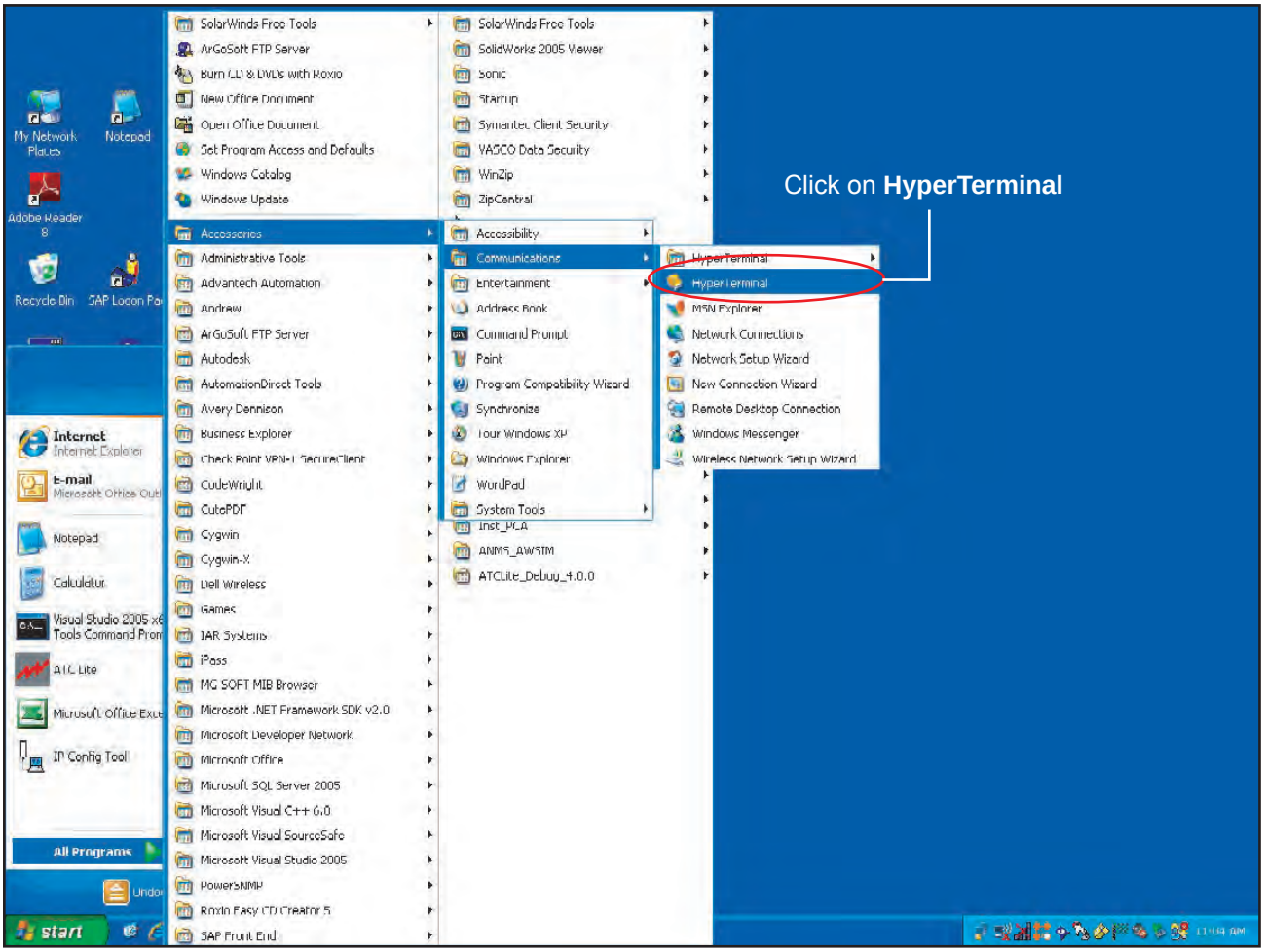

Figure 5-2. Network Connection Window.

4. A **New Connection** window will open. Enter a name for the connection and choose an icon in the **Connection Description** window (Figure 5-3).
5. Click **OK** (Figure 5-3).

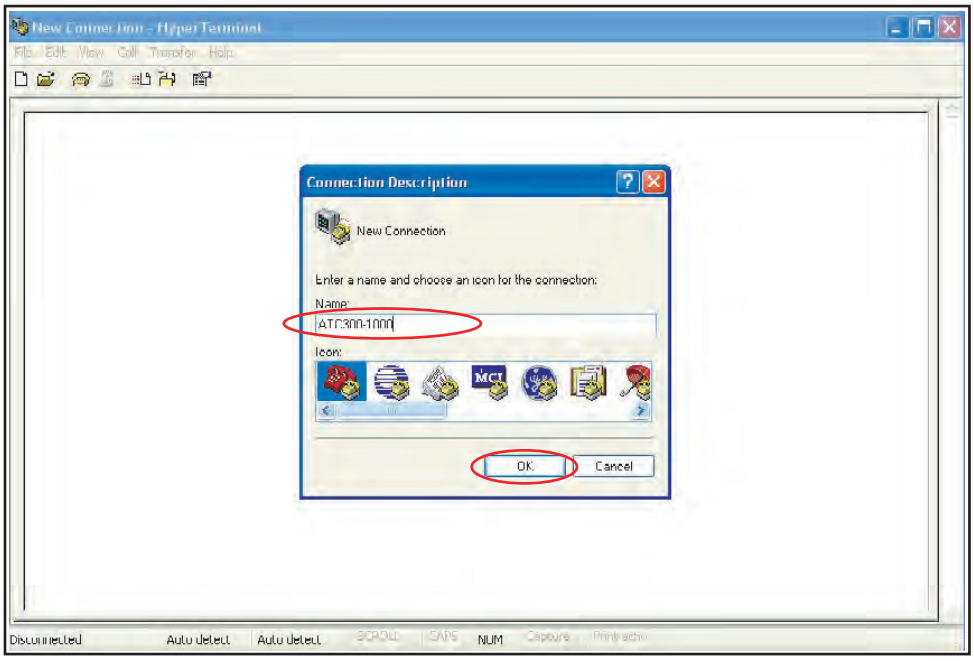

Figure 5-3. Using The ***New Connection Window****.*

6. Select **COM1** from the **Connect To** drop down menu (Figure 5-4).
7. Click **OK** (Figure 5 -4).

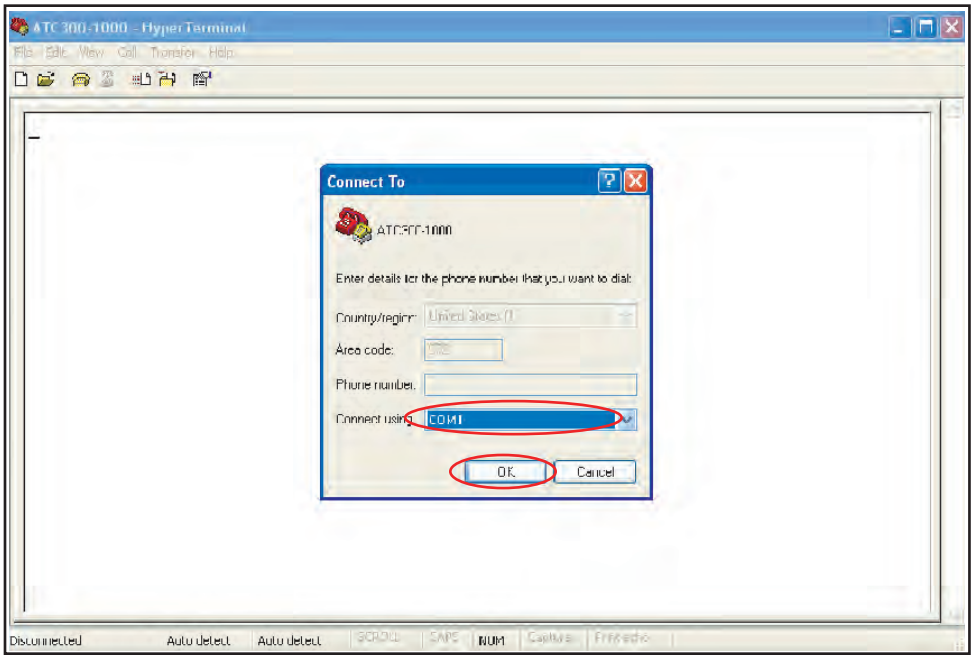

Figure 5-4. Connect To COM1 Serial Port.

8. On the **COM1 Properties** window select **115200** from the **Bits per second** drop down menu. Select **None** from the **Flow control** drop down menu (Figure 5-5).
9. Click **OK** (Figure 5-5).

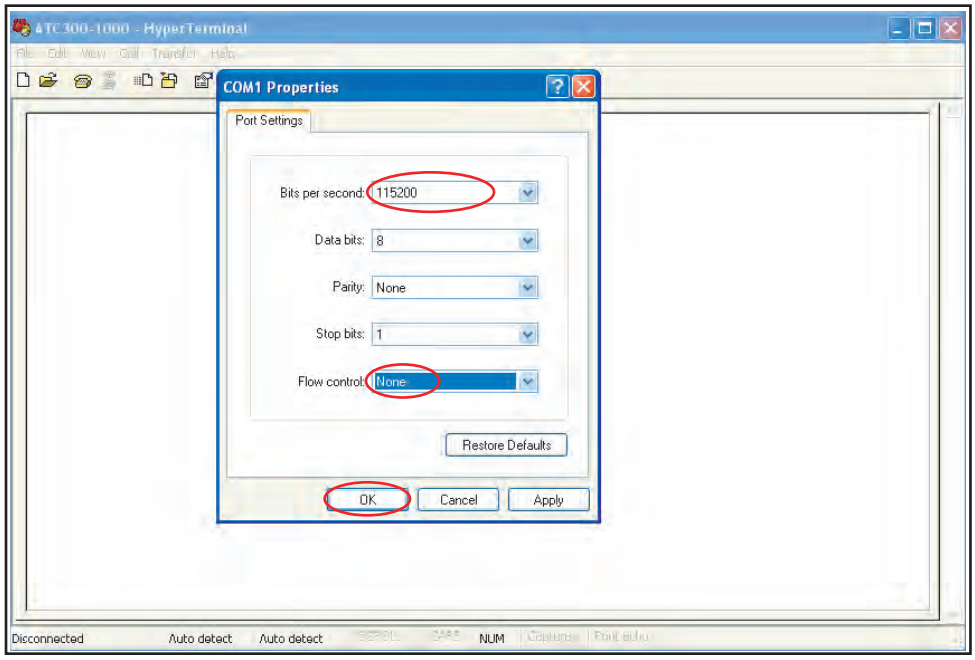

Figure 5-5. Setting The COM1 Properties.

10. Press **Enter** key. If dollar sign appears, you have established a connection (Figure 5-3). Note: ATC300 version 2.32 and later require a root password for controller access. Contact customer support to obtain this password.

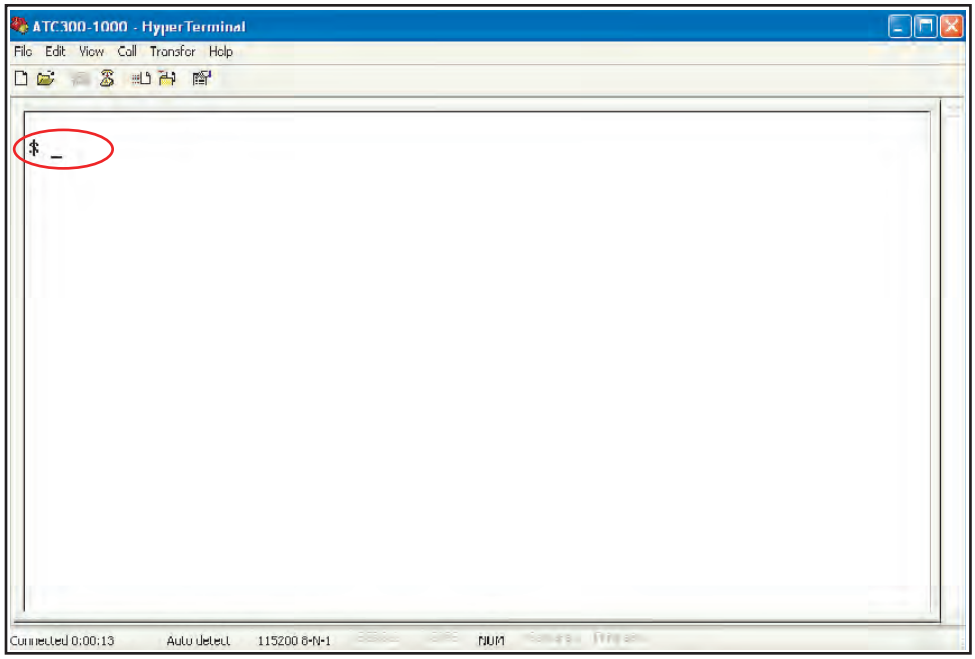

Figure 5-6. Establish The ATC300-1000/2000 Connection.

11. Type **ifconfig** as shown in Figure 5-7 and press **Enter** key.

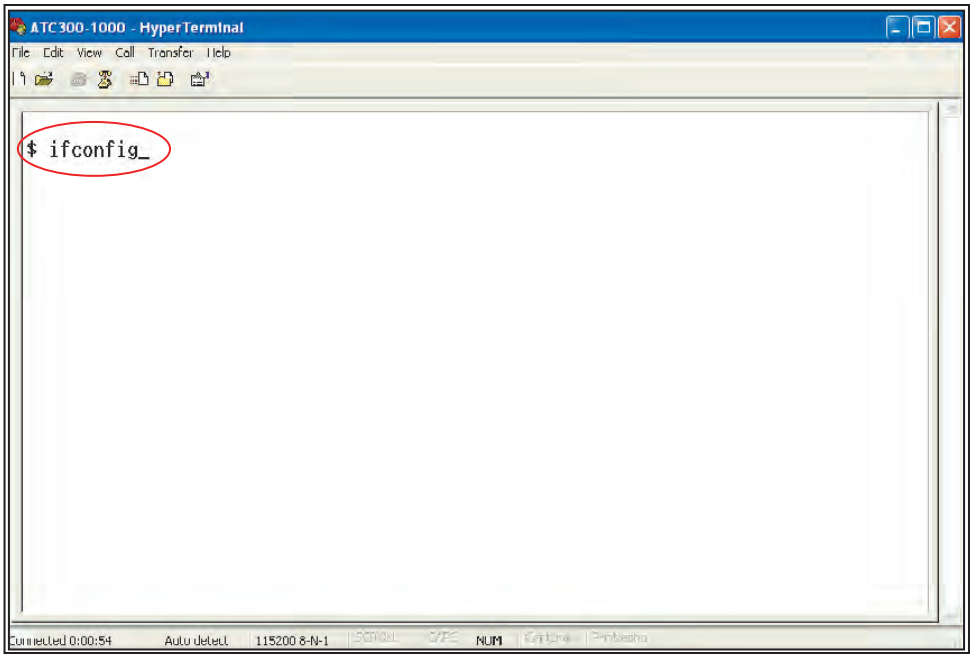

Figure 5-7. Configure IP Address.

12. Observe the **eth0** paragraph shown in Figure 5-8. The second line in this paragraph contains the IP address for your Ethernet connection. Example **inet addr:192.168.0.50 Mask:255.255.255.0**.

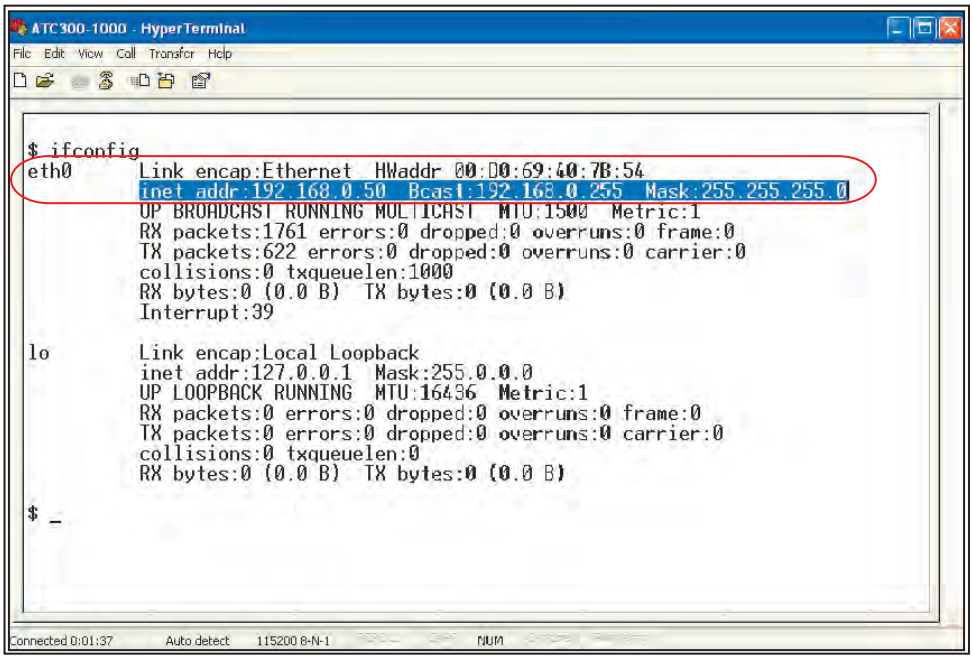

Figure 5-8. Getting The IP Address For Ethernet Connection.

13. Once you have noted your Ethernet address, close the window to end the HyperTerminal connection. A **HyperTerminal** window will open. Select **Yes** to disconnect from your ATC300-1000/2000 (Figure 5-9).

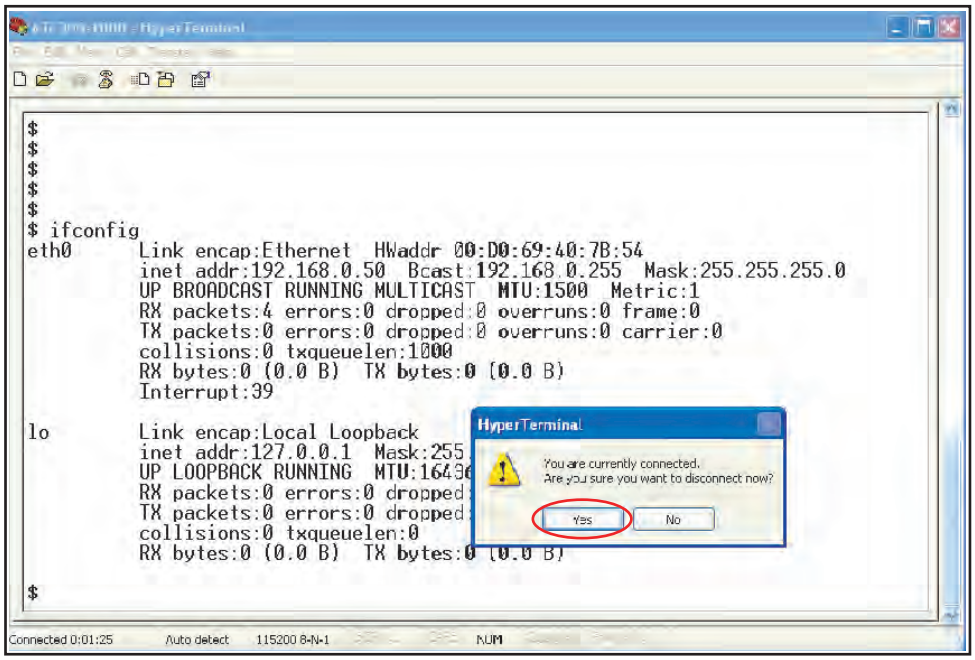

Figure 5-9. Ending The Connection.

14. Select **Yes** to save your session for use in the future (Figure 5-10).

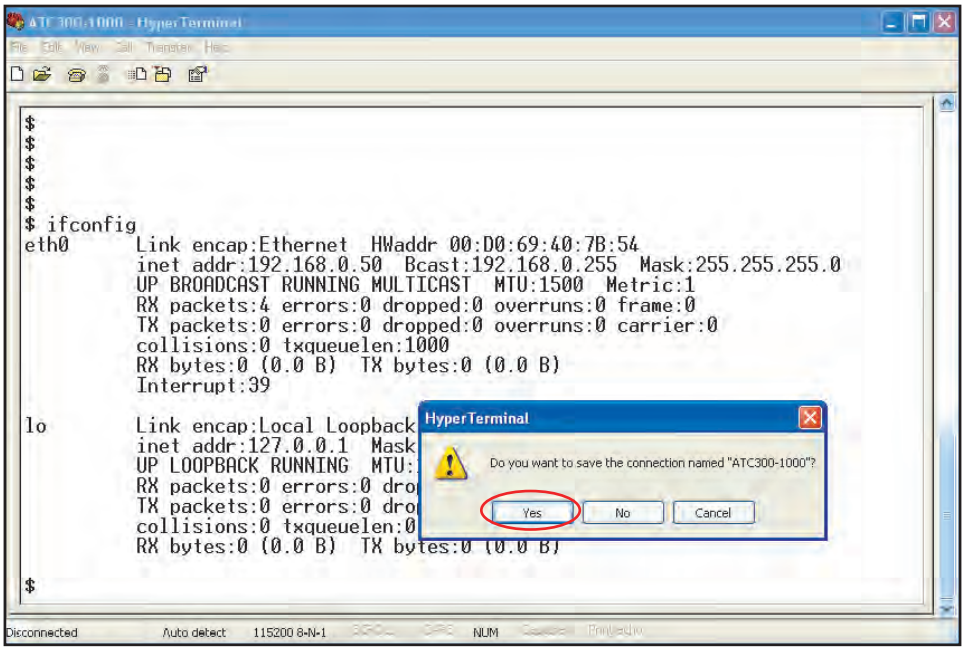

Figure 5-10. Save The ATC300-1000/2000 Controller Connection.

15. The program will now terminate.

5.2 Determining the IP settings on an ATC200-1000

5.2.1 Establishing a Serial Connection to the Controller

1. Ensure that the controller is powered up. On power up, the status LED will first be steady red and then blink red until it becomes a solid red or green. After the LED is a solid color for 20 seconds, it is ready to be connected to a COM1 serial port of a computer.
2. Using an RS–232 serial cable, connect the COM1 serial port on a local computer and the LMT serial port on the front of the controller (Figure 5-11).

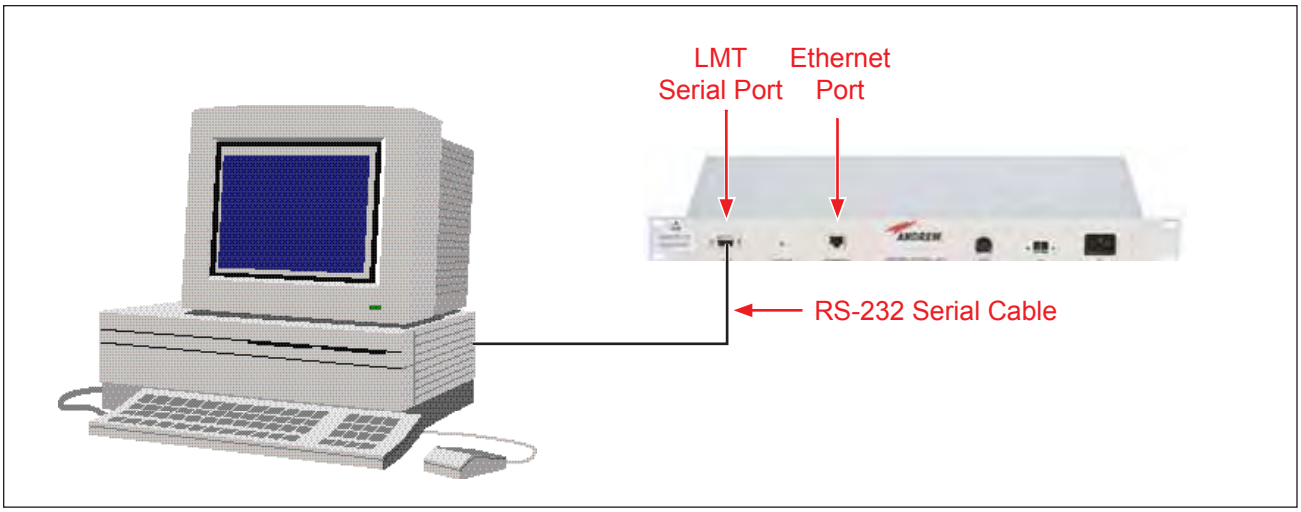

Figure 5-11. Local PC Connected To Controller's LMT Serial Port Using An RS–232 Cable.

Microsoft, Encarta, MSN, and Windows are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

3. Go to **Control Panel, Network Connection, New Connection Wizard** (Figures 5-12 and 5-13). Windows® 2000 users, see paragraph 5.2.3 (screens not shown).

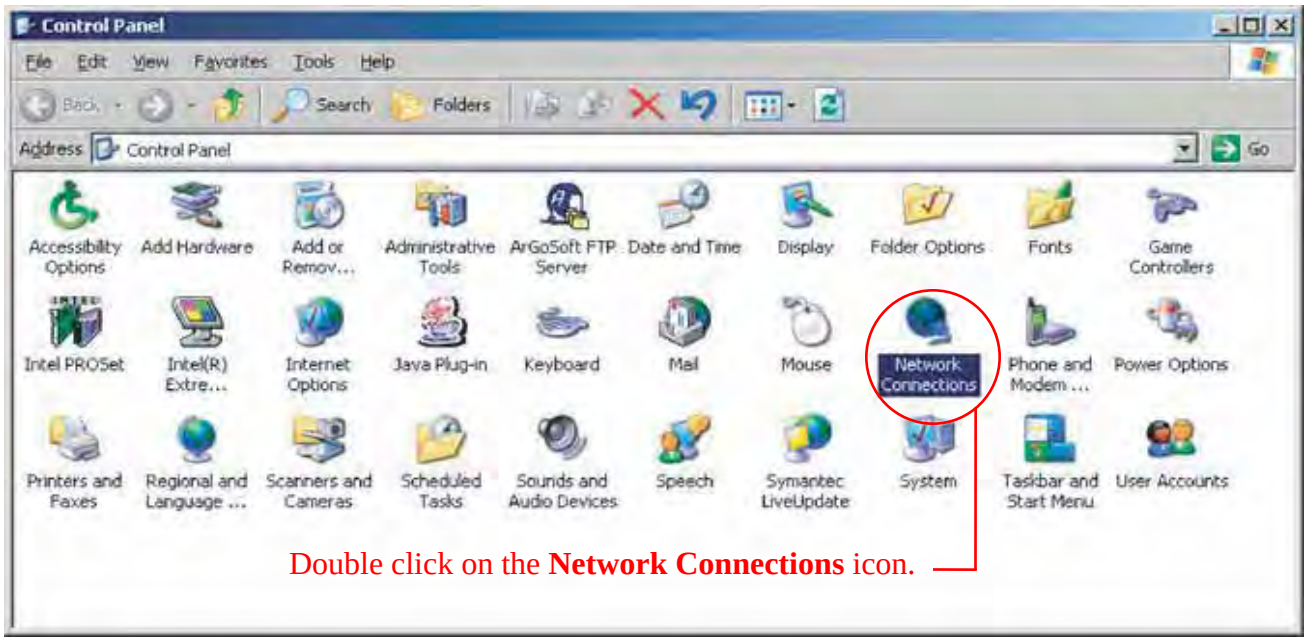

Figure 5-12. Nework Connection Icon

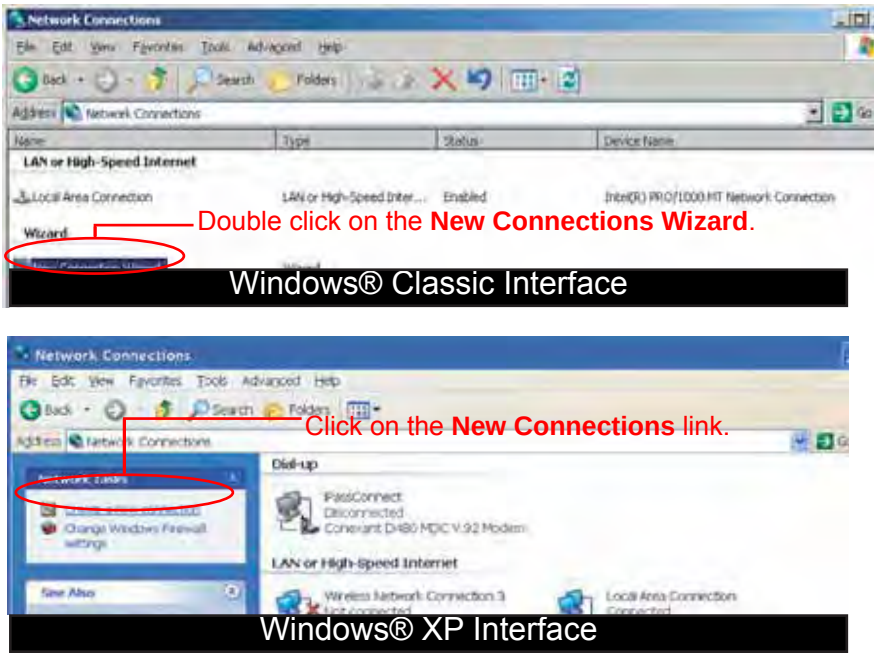

Figure 5-13. Using the **New Connection Wizard**

4. Click on **Next** (Screen 1, Figure 5-14).
5. Select **Set up an advanced connection**, and click on **Next** (Screen 2, Figure 5-14).
6. Select **Connect directly to another computer**, and click on **Next** (Screen 3, Figure 5-14).
7. Select **Guest**, and click on **Next** (Screen 4, Figure 5-14) .

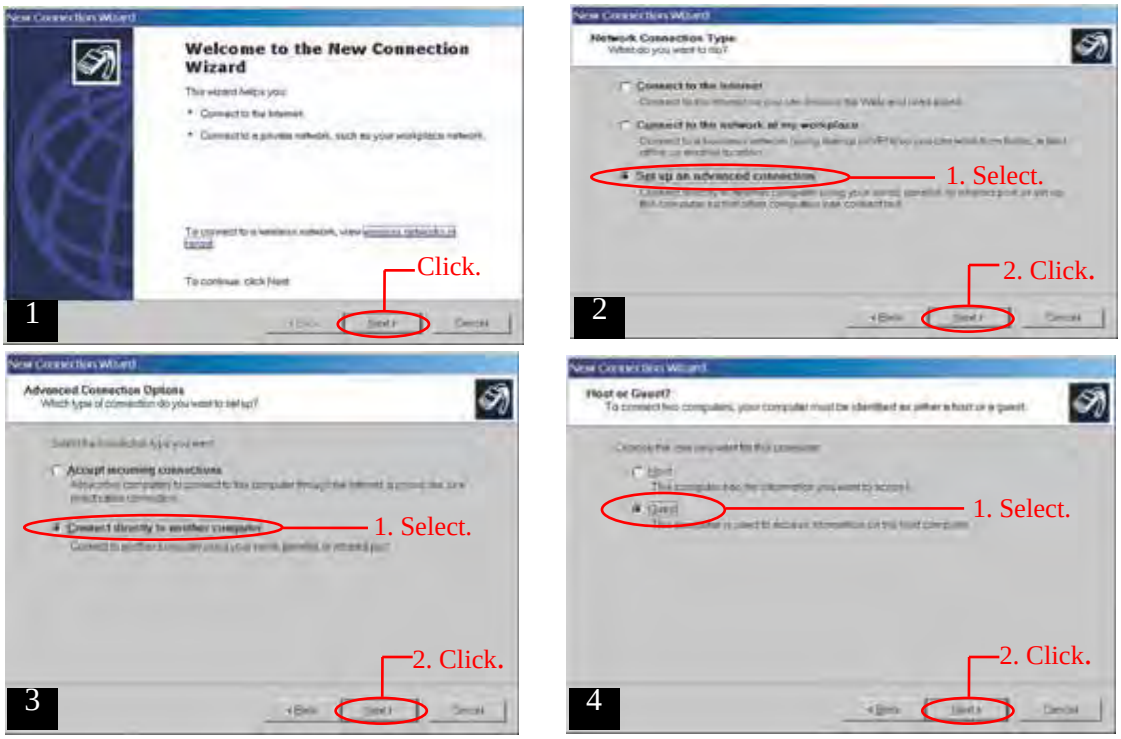

Figure 5-14. Setting Up a Direct Serial Connection (Screens 1 through 4).

8. Enter in a name for the connection, and click on **Next** (Screen 5, Figure 5-15) .
9. Select **Communications cable between two computer (COM1)** from the drop down menu if it is not the default that appears, and click on **Next** (Screen 6, Figure 5-15).
10. Select **Anyone's use**, and click on **Next** (Screen 7, Figure 5-15) .
11. Place a check mark in the box next to **Add a shortcut . . .**, and click on **Finish** (Screen 8, Figure 5-15).

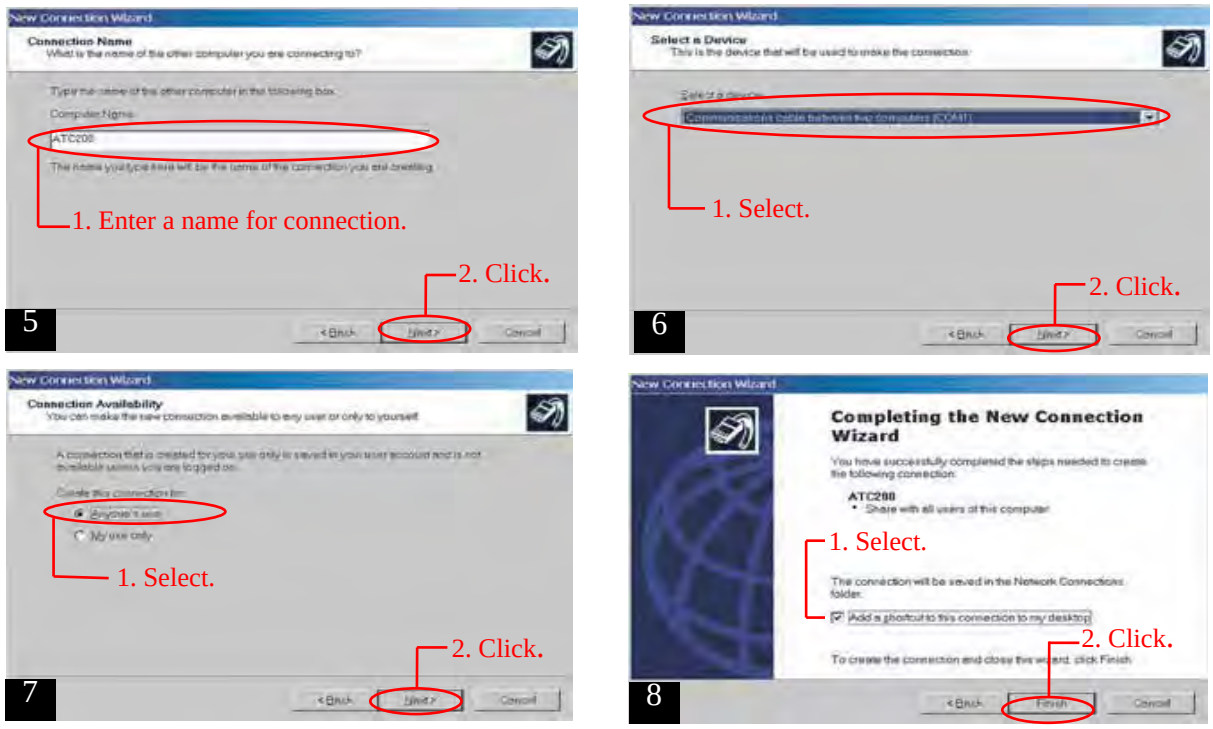

Figure 5-15. Setting Up a Direct Serial Connection (Screens 5 through 8).

5.2.2 Configuring the Serial Connection

A **Login** screen will appear upon exiting the **New Connection Wizard.**

1. Leave all fields blank in the **Login** screen, and click on **Properties** (Screen 1, Figure 5-16).
2. Select **Communications cable between two computer (COM1)** from the drop down menu if it is not the default that appears.
3. Place a check mark in the box next to **Show icon** . . ., and click on **Configure** (Screen 2, Figure 5-16).

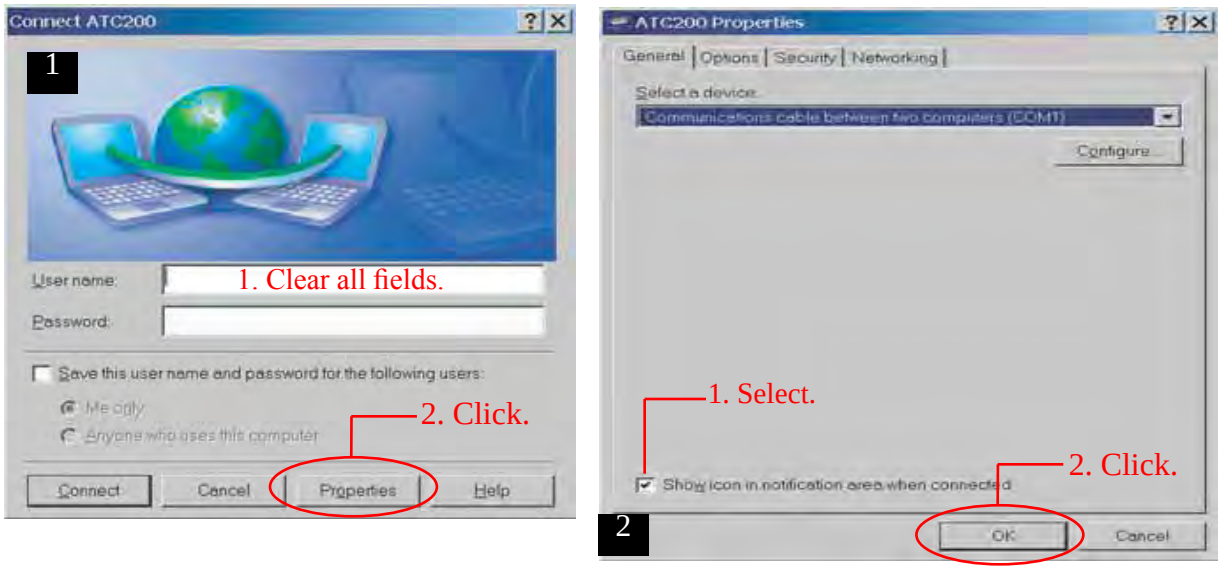

Figure 5-16. Configuring Serial Connection (Screens 1 through 2).

4. Change the maximum speed to **115200,** clear all check boxes, and click on **OK** (Screen 3, Figure 5-17).
5. Click on the **Networking** tab (Screen 4, Figure 5-17).
6. Select **PPP Windows 95/98/NT4/2000 Internet** from drop down menu (Screen 4, Figure 5-17).
7. Place a check mark in the box next to **Internet Protocol (TCP/IP)**, and select (Screen 4, Figure 5-17).
8. Click on **OK** (Screen 4, Figure 5-17).

See paragraph 5.2. 4 to active the new serial connection.

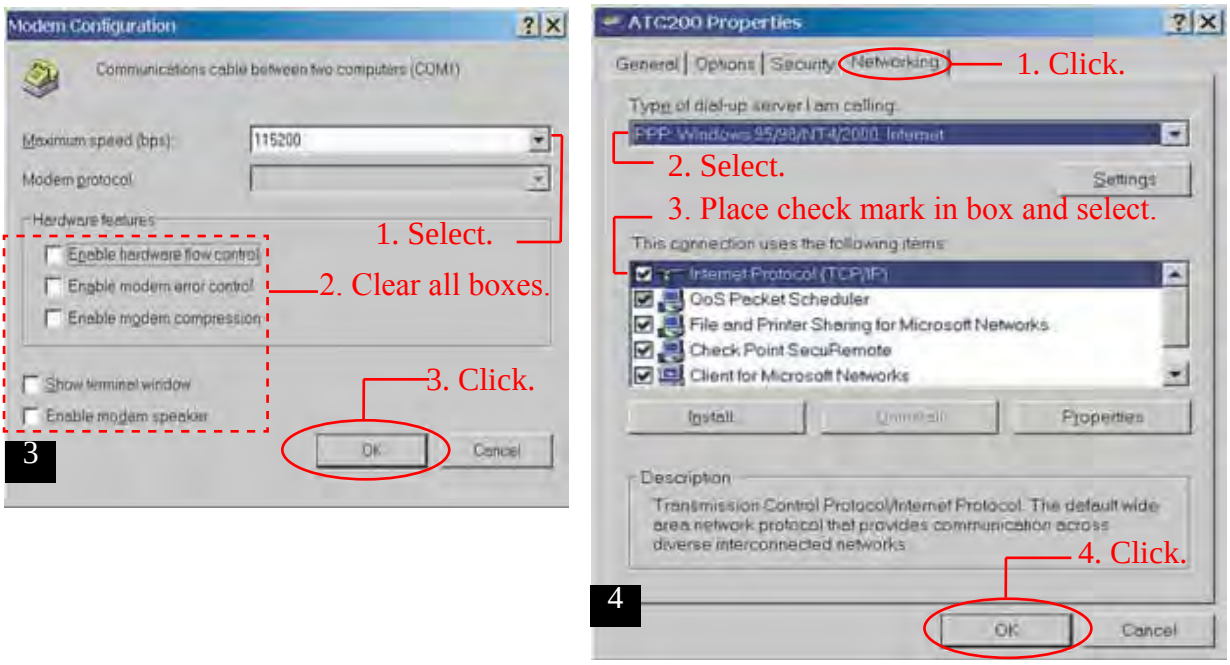

Figure 5-17. Configuring Serial Connection (Screens 3 through 4).

5.2.3 Establishing a Serial Connection for Windows® 2000 Users

1. Go to **Control Panel→Network and Dial-up Connections→Make a New Connection→Network Connection Wizard** (screens not shown).
2. Select **Connect directly to another computer,** and click on **Next.**
3. Select **Guest**, and click on **Next** (Screen 4, Figure 5-14).
4. Select either **COM1** or **COM2** from the drop down menu.
5. Select **For all users**, and click on **Next.**
6. Enter in a name for the connection, and click on **Next.**
7. Clear all the fields, and click on **Properties**.
8. Select either **COM1** or **COM2** from the drop down menu (use the same selection as chosen in step 5).
9. Select the **Show icon in taskbar when connected** option, and click on **Configure**.
10. Change the maximum speed to **115200**, clear all check boxes, and click on **OK.**
11. Click on the **Options** tab.
12. Select the **Display progress while connecting** and **Prompt for name password, certificate, etc** options.
13. Click on the **Networking** tab.
14. Select **PPP Windows 95/98/NT4/2000 Internet** from drop down menu.
15. Place a check mark in the box next to **Internet Protocol.**
16. Click on **OK**.

See paragraph 5.2.4 to activate the new serial connection.

5.2.4 Activating the Serial Connection

An icon was created and placed on the computer's desktop during the final stage of using the **New Connection Wizard** (Figure 5-18). If the **Login** screen is not already open for the serial connection, double click on the icon for the new serial connection to open.

1. Clear the **User Name** and **Password** fields. Clear the check box next to **Save this user name** . . . (Figure 5-19).
2. Click on **Connect** (Figure 5-19).
3. The local computer will dial-up a connection to the controller though a modem using the new serial connection (Figure 5-20).

Figure 5-18. ATC200 Serial Connection Icon.

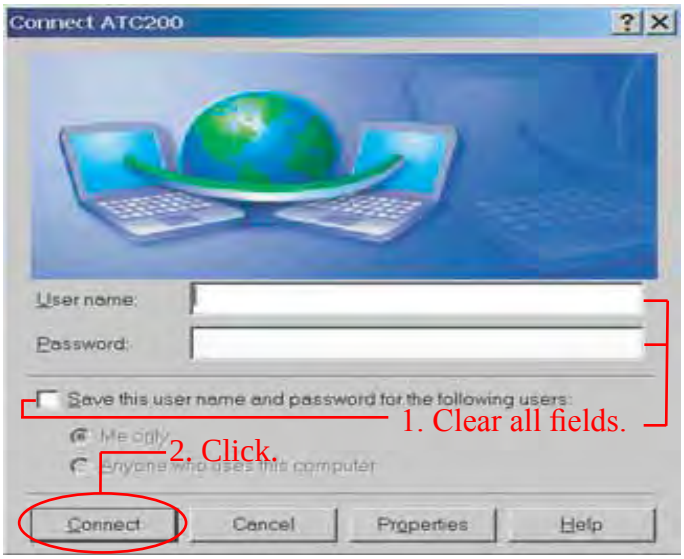

Figure 5-19. Selecting Connect from Login Screen.

Figure 5-20. Dialing the Serial Connection to Connect to the Controller.

5.2.5 Accessing the Controller Interface Over the Serial Connection to Obtain the Controller's IP Settings

1. Ensure that the controller is powered up.
2. Ensure the serial connection is active (dialed up successfully) from the local computer to the controller (see paragraph 5.2.4).
   Note that if serial connection is not operating, the Windows® default setting for the 16550 interrupt threshold may be too high. This causes missed characters if the computer is busy. This setting can be adjusted to a lower rate to correct this condition. Contact the company network administrator for assistance, if needed.
3. Open an Internet browser (Netscape and Mozilla browsers not supported).
4. Type in the controller's serial IP address (10.254.254.253) into the URL address window (Figure 5-21). This serial IP address is the default for all ATC200-1000 controllers.
   Note that the computer will not be able to access the Internet during the time it is connected to the controller over the serial connection. If the web browser is stalled from trying to access the Internet, click on the **Stop** button to discontinue this attempt.

IMPORTANT! In the event the controller needs to be rebooted/restarted during the time it is connected to the computer over a serial connection, IMMEDIATELY disconnect the serial cable from the controller after rebooting. Wait until the lights stop flashing on the controller before restoring the serial connection to the computer.

Figure 5-21. Entering the Controller's Serial IP Address.

5. After the controller's main interface screen displays in the Internet browser, go to **Configuration→Controller Config** (Figure 5-22).

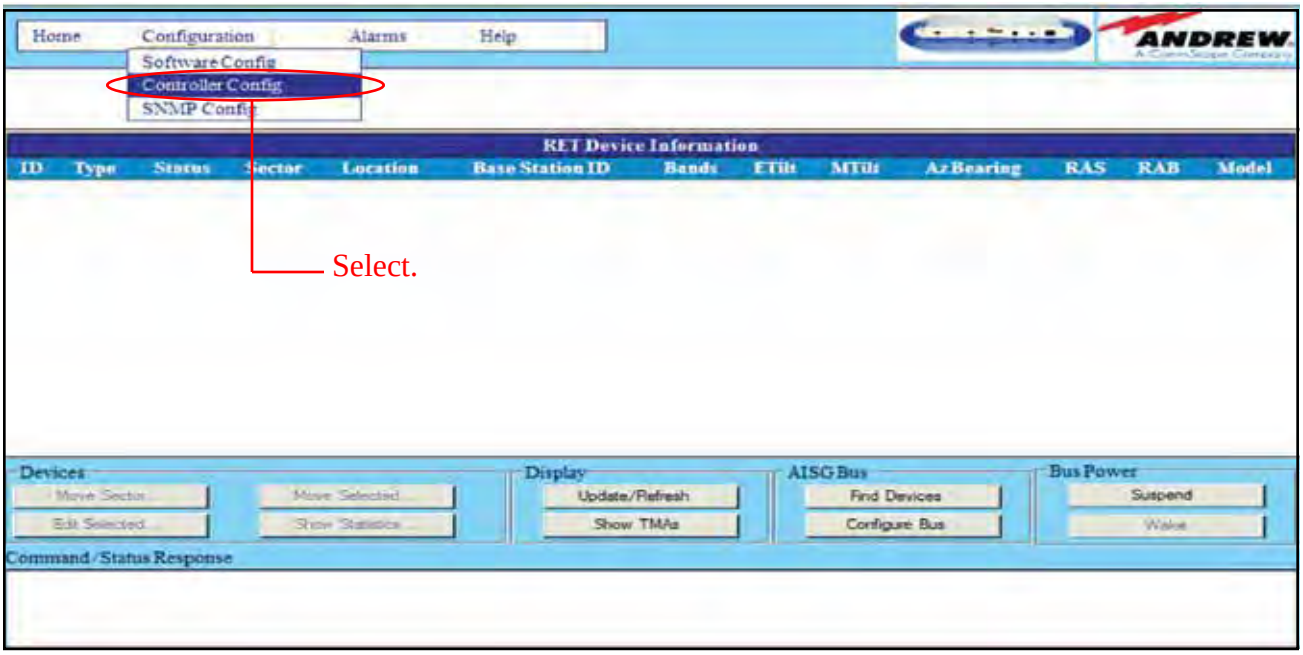

Figure 5-22. Selecting **Configuration → Controller Config** *from Controller's Main Menu.*

6. Write down and retain the **IP Address, Network Mask,** and **Default Router** settings shown on the screen (Figure 5-23).

   Configurations should not be made to the controller's IP settings while connected to the serial port. If you desire to change these settings on the controller, it is recommended that this is done over a direct Ethernet connection (see Section 7).

   The retained settings can be used to configure the local computer for access over a direct Ethernet connection to the controller (see Section 3).

7. After the controller's IP settings have been written down, click on **Close** (Figure 5-23).

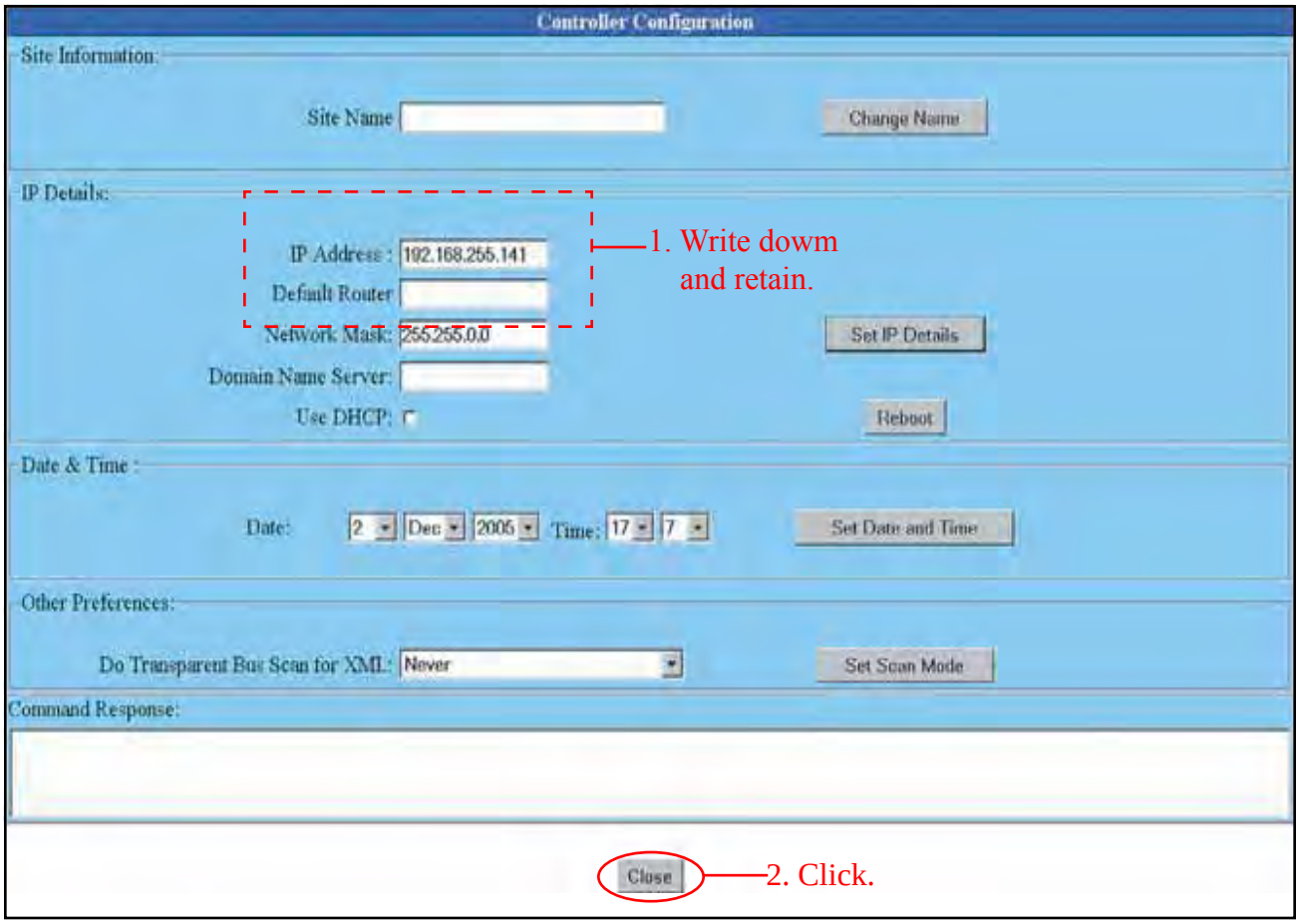

Figure 5-23. Entering the Controller's Serial IP Address.

8. Double click on the network icon from the system tray to open the serial connection dialogue box (Figure 5-24).
9. Click on **Disconnect** to end the serial connection (Figure 5-25).

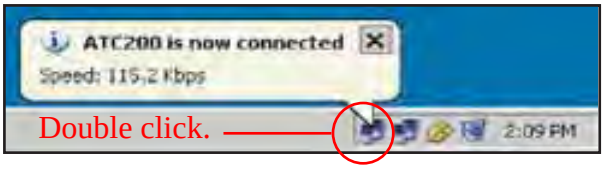

Figure 5-24. Opening the Serial Connection from the System Tray.

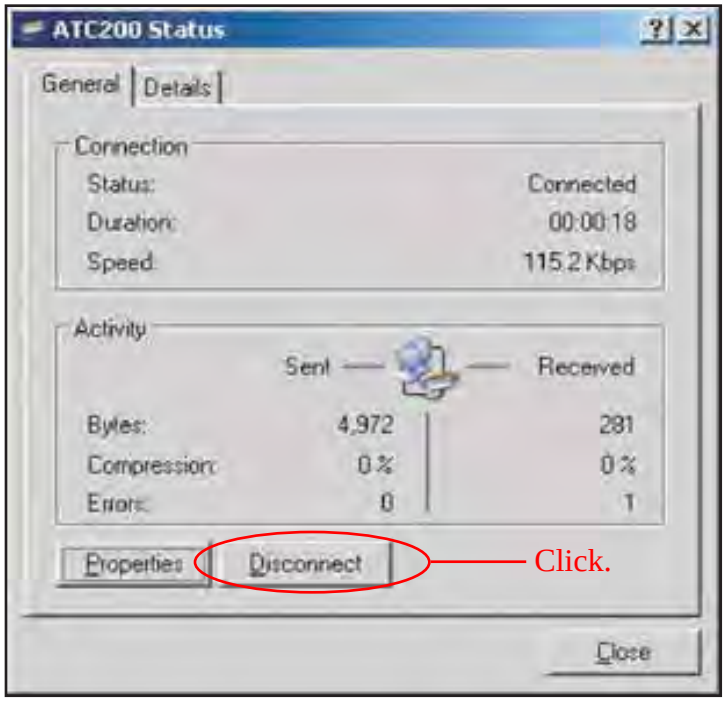

Figure 5-25. Disconnecting the Serial Connection to the Controller.

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Part 2

Accessing the Controller

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Section 6
Accessing the Controller Using a Direct Ethernet Connection

6.0 Section Overview

The ATC300-1000/2000 and ATC300-1000/2000 controller is equipped with an Ethernet port that can be accessed directly from a local computer using an Ethernet cable (supplied).

6.1 Using an Ethernet Cable for Establishing a Direct Connection from a Local Computer to the Controller

1. Connect the controller to the local computer using the crossover Ethernet cable provided and ensure controller is powered up (Figure 6-1). Power cycle controller if it was previously on a network.

   Note: Because the ATC300-1000/2000 controller is auto-sensing, a straight-through Ethernet cable may be used instead.

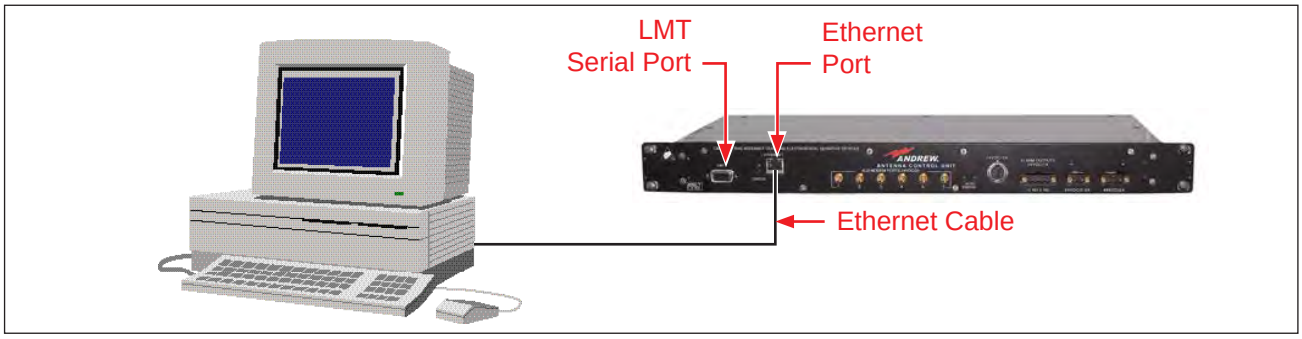

Figure 6-1. Local PC Connected To Controller's Ethernet Port Using An Ethernet Cable.

2. If the IP setting on the local computer is not already configured to communicate with the controller, refer to Sections 3 and 4.
3. Open an Internet browser (Netscape and Mozilla browsers are not supported). If the controller's interface does not automatically appear, type the controller's Ethernet IP address into the URL address window, and click on **Go** (Figure 6-2).

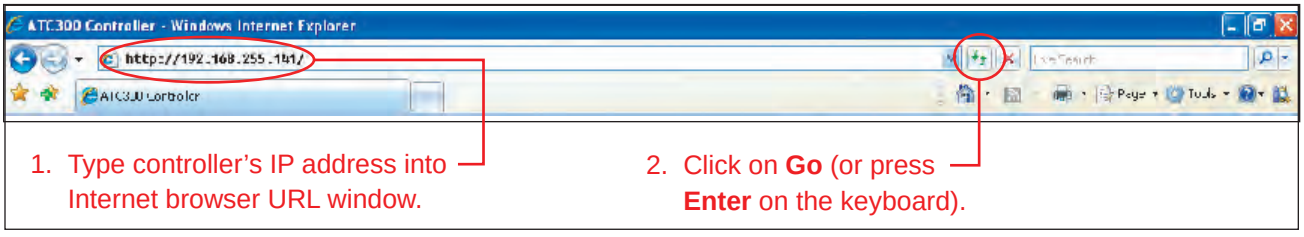

Figure 6-2. Entering Controller's IP Address Into Internet Browser.

Note that the factory default configuration for the ATC300-1000/2000 controller is DHCP*, with the hostname set to the controller serial number. However, when a DHCP server is not available at bootup, the controller will use the IP address 192.168.255.141.

The factory default IP address for the ATC200-1000 is 192.168.255.141.

Figure 6-3 shows an example of the controller's main screen. See Section 5 for cases where the controller's IP address has been changed and is unknown.

See Part 3 of this User Guide for instructions on uploading the latest controller firmware and antenna definition files needed for RET device setup and operations through the controller.

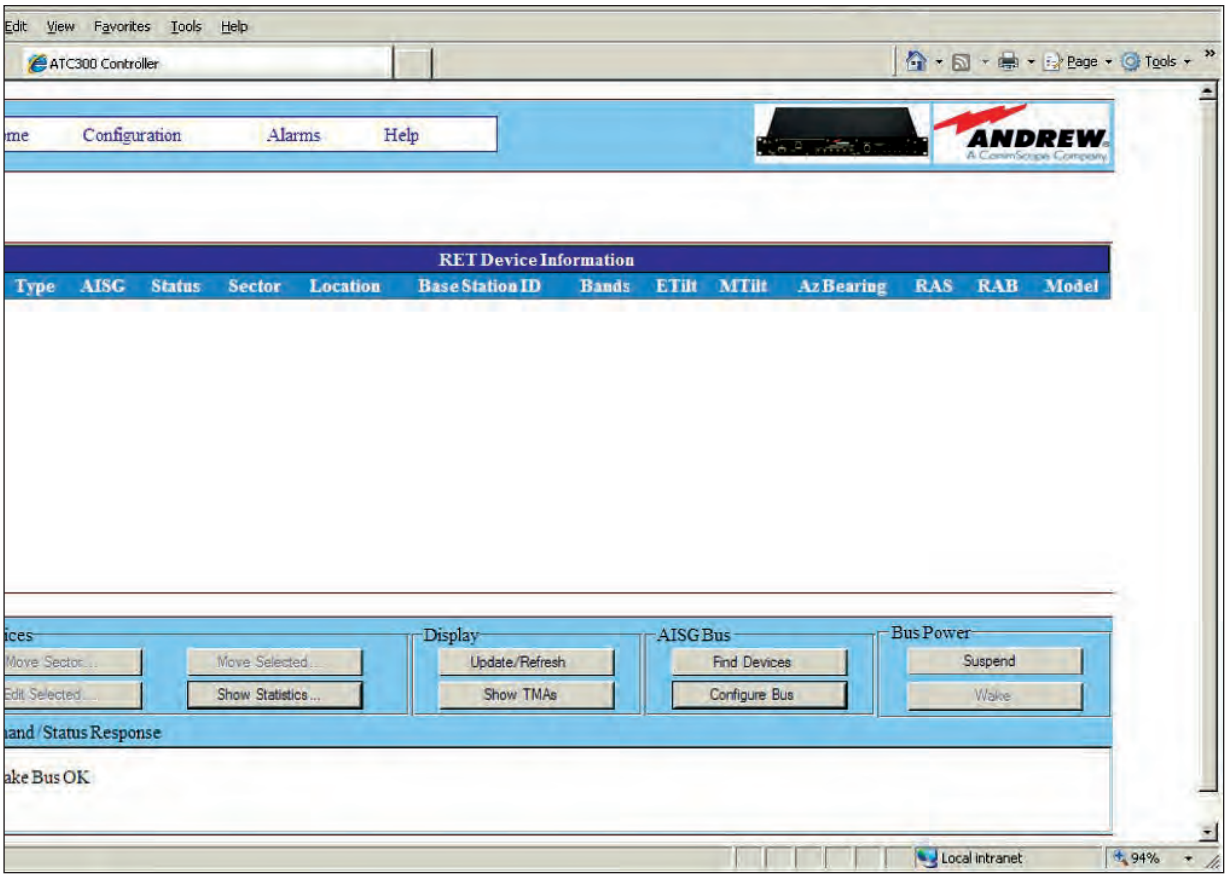

Figure 6-3. ATC300-1000/2000 Controller Main Interface Screen.

* Dynamic Host Configuration Protocol

Section 7
Changing the Controller's IP Settings for Access Over a Network

7.0 Section Overview

- The ATC300-1000/2000 controller may be configured to use DHCP or a static IP address.
- If planning to use DHCP on your ATC300-1000/2000 controller, it ships configured in this mode, so it is ready for your network without additional configuration. Network access is by its hostname, which is initially its serial number. Figure 7-5 (page 7-5) shows setting up a controller for DHCP.
- If configured for DHCP, and no DHCP server is available, the ATC300-1000/2000 controller will set its IP to 192.168.255.141.
- Unless changed, the controller's **hostname** is its serial number.
- The ATC200-1000 controller supports static IP addressing only, Its default IP is 192.168.255.141. Reference by host name is not supported.
- When configuring your controller for static IP use, contact the company Network Administrator that is over the site location to obtain an available IP address and any assistance needed.
- **Caution should be used to note the new IP settings for the controller before configurations are made. This information should be retained for future reference.**
- If planning to use a static IP on your controller, initial access to the controller's configuration screen will require a direct Ethernet connection to a local computer. See Sections 3 and 4 for changing the IP setting on a local computer. Figure 7-3 (page 7-3) shows setting up controller configuration for static IP.
- New IP settings are applied to the controller when the controller is rebooted (Figure 7-6). Upon reboot, the connection between the controller and the local computer will be lost. To regain access to the controller from the local computer, the IP settings on the computer will need to be restored to the settings that were compatible to the company LAN (network system).
- Upon completion of setup, the controller will need to be connected to the company's LAN (Ethernet cable not supplied). Access to the controller over the network may be gained using the controller's new static IP address, or by using the controller's hostname if configured for DHCP.

  See Section 5 for cases where the controller's IP has been changed from its factory default and is unknown.

7.1 Configuring the Controller Using A Local Computer

Carefully read Section 7.0 Section Overview (page 1) before proceeding with any configuration changes to the controller's IP settings.

1. If the controller is on a network, disconnect it from the network and then power cycle the controller.
2. Connect the controller to the local computer using the Ethernet cable provided.
3. Change the local computer's IP address to be compatible to the controller's IP settings (see Sections 3 and 4).
4. Open an Internet browser (Netscape and Mozilla browsers are not supported). Type the controller's Ethernet IP address into the URL address window, and click on **Go** (Figure 7-1).

   Note that the factory default IP address for the controller is 192.168.255.141. See Section 5 for cases where the controller's IP address has been changed and is unknown.

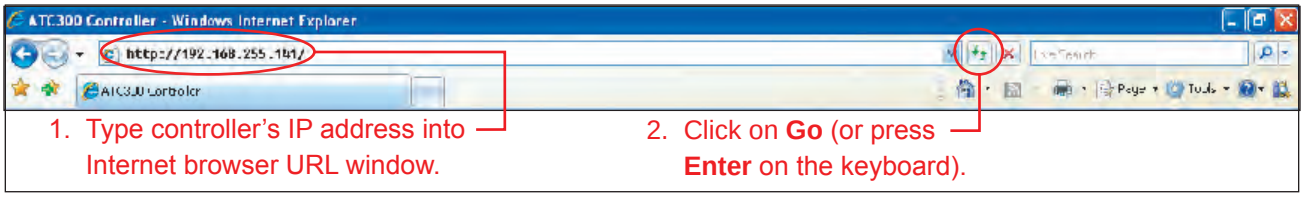

Figure 7-1. Entering Controller's IP Address Into Internet Browser.

5. Select **Configuration → Controller Config** from the controller's main menu (Figure 7-2).

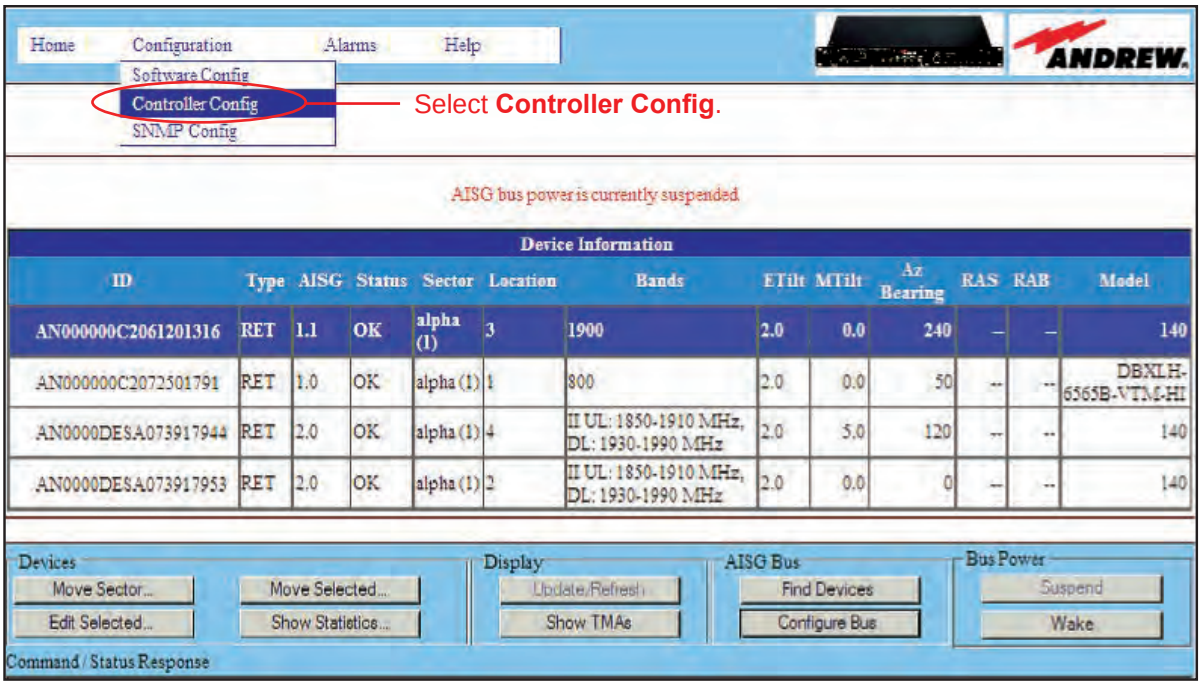

Figure 7-2. Accessing The ATC300-1000/2000 Controller's Configuration Screen.

7.1.1 Configuring the Controller to Use A Static IP Address

The new IP settings should be noted and retained before the settings are applied to the controller.

Settings in the controller Config window (Figure 7-3) determine if a site's network is accessed using a static IP address or DHCP.

Note: DHCP is not an option on the ATC200-1000.

1. Enter the static IP address provided by the Network Administrator for the controller to operate over the network system (Figure 7-3).
2. Ensure the **Use DHCP** box is not checked (ACT300-1000/2000 only).
3. Enter a **Network Mask**.
4. Click on **Set IP Details**. Answer **OK** when the **Proceed** dialog appears (Figure 7-5).
5. Click on **Reboot**. The connection between the local computer and the controller will be lost upon reboot.
6. Restore the local computer's IP address to its network compatible settings (see Sections 3 and 4). If the CommScope IP Config Tool was used to configure the local computer's IP settings, the original IP settings will be restored to the computer when the application tool is closed (see Section 3 for details).
   - Type the controller's new network configured IP address into the URL address window, and click on **Go**.

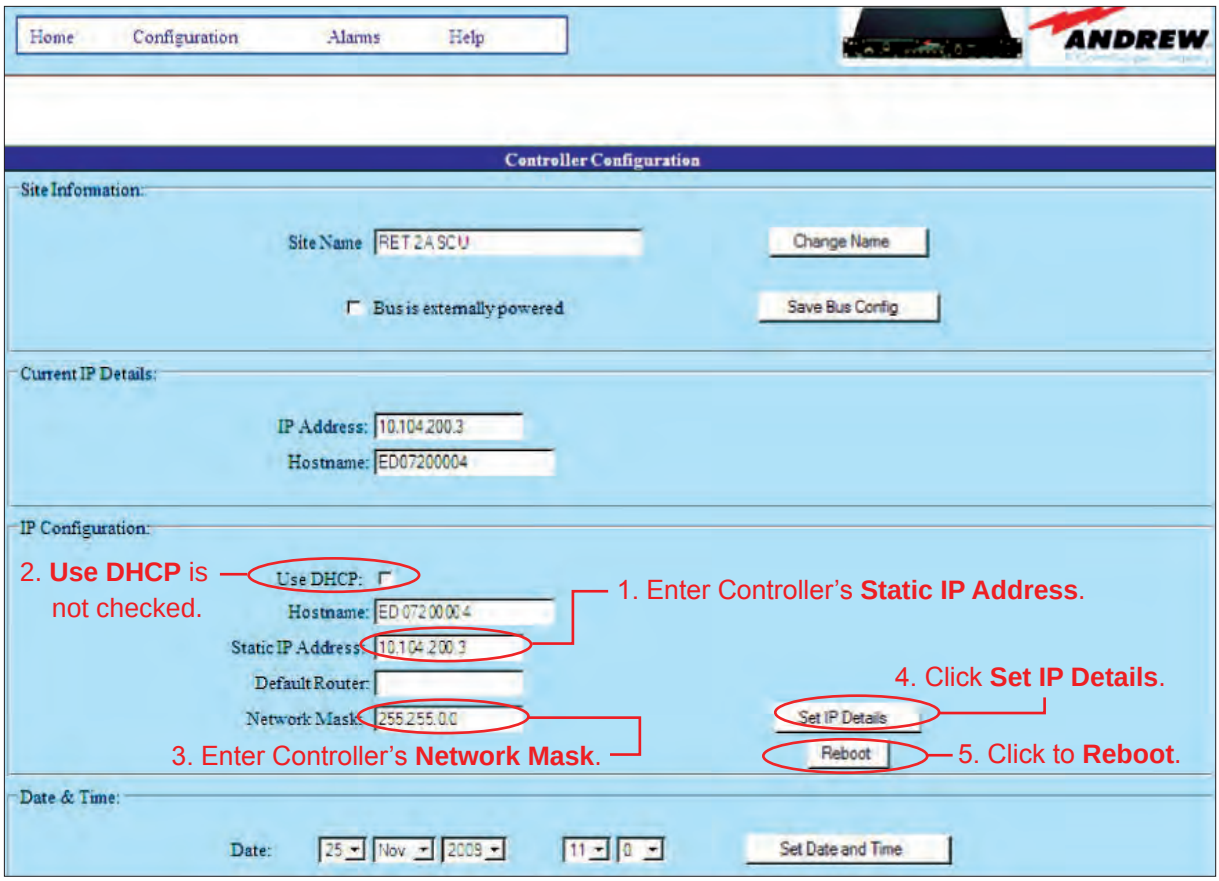

Figure 7-3. Configuring Controller's Static IP Address For Access Over a Network.

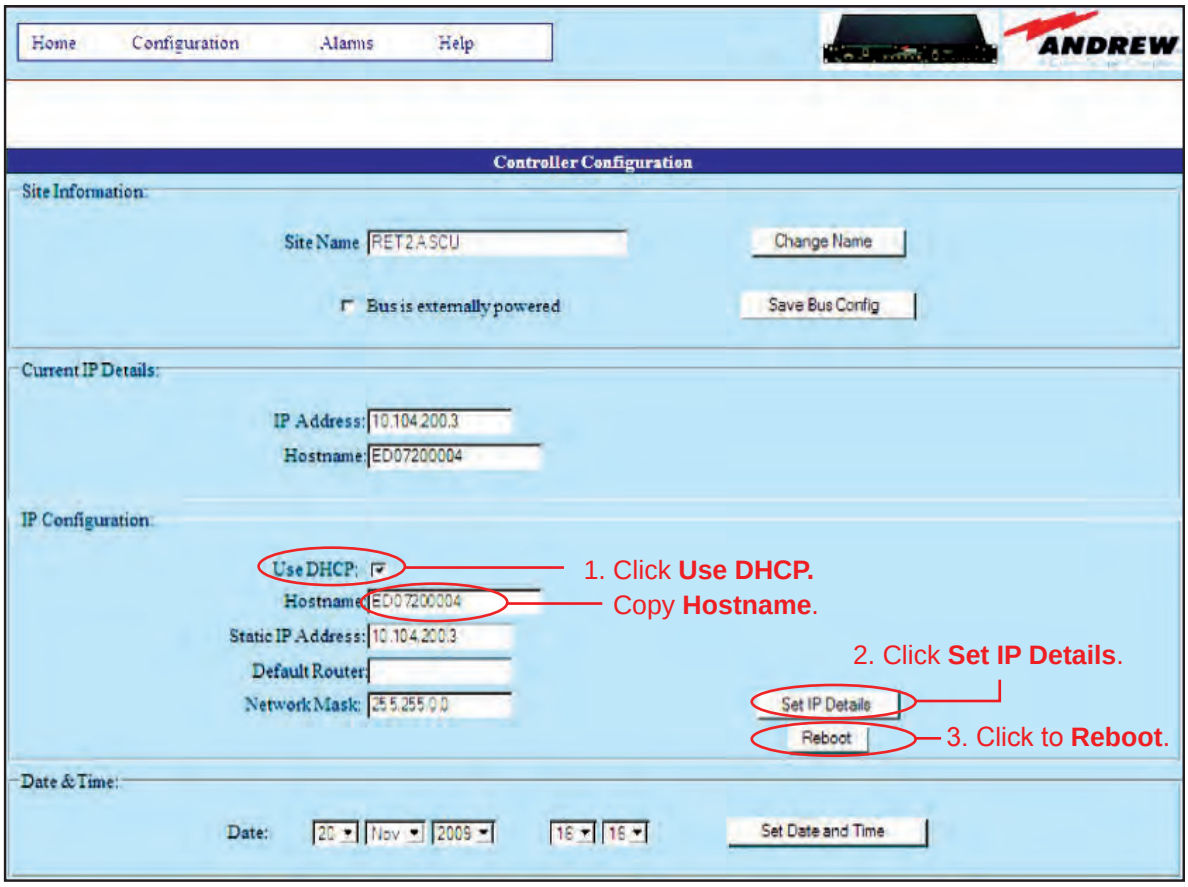

Figure 7-4. Configuring Controller's DHCP For Access Over a Network.

7.1.2 Configuring the Controller to Use DHCP

The new IP settings should be noted and retained before the settings are applied to the controller.

Figure 7-4 shows a controller Config window set to DHCP.

1. Click the **Use DHCP** box. Enter a new **Hostname** if desired, or copy the default serial number **Hostname** to use later in the browser's address line (See paragraph 7.2).
2. Click on **Set IP Details.** Answer **OK** when the **Proceed** dialog appears (Figure 7-5).
3. Click on **Reboot** (Figure 7-4). The connection between the local computer and the controller will be lost upon reboot.
4. Restore the local computer's IP address to its network compatible settings (see Sections 3 and 4). If the CommScope IP Config Tool was used to configure the local computer's IP settings, the original IP settings will be restored to the computer when the application tool is closed (see Section 3 for details).
5. Connect the controller to the company's LAN at the base station using an Ethernet cable, not supplied.
   - Enter the controller's hostname, copied above, into the URL address window, and click on **Go**. See Figure 7-6.

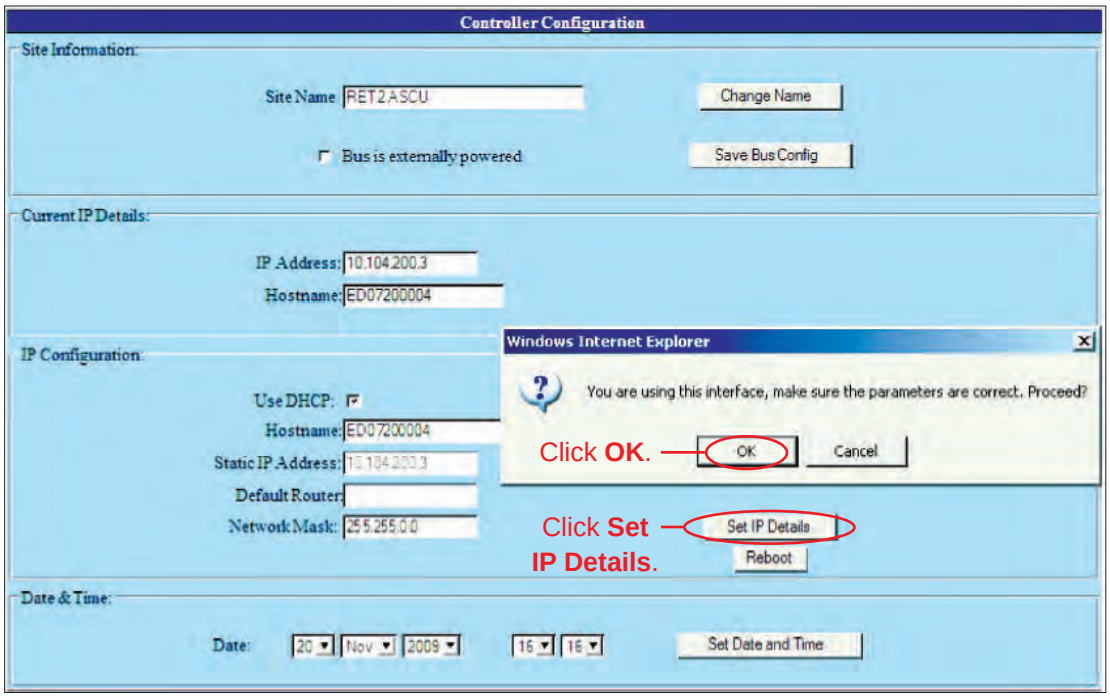

Figure 7-5. Choose Set IP Details to Establish DHCP Settings.

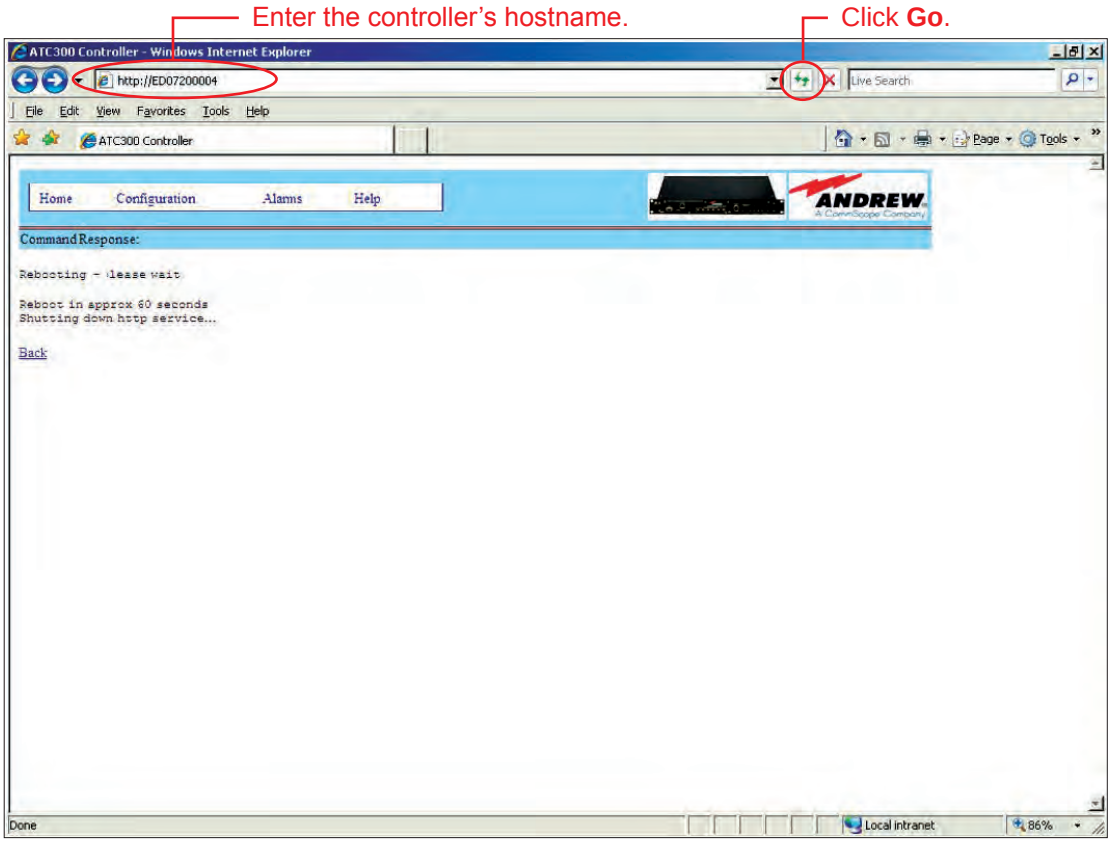

Figure 7-6. Setting Up DHCP For Access Over a Network.

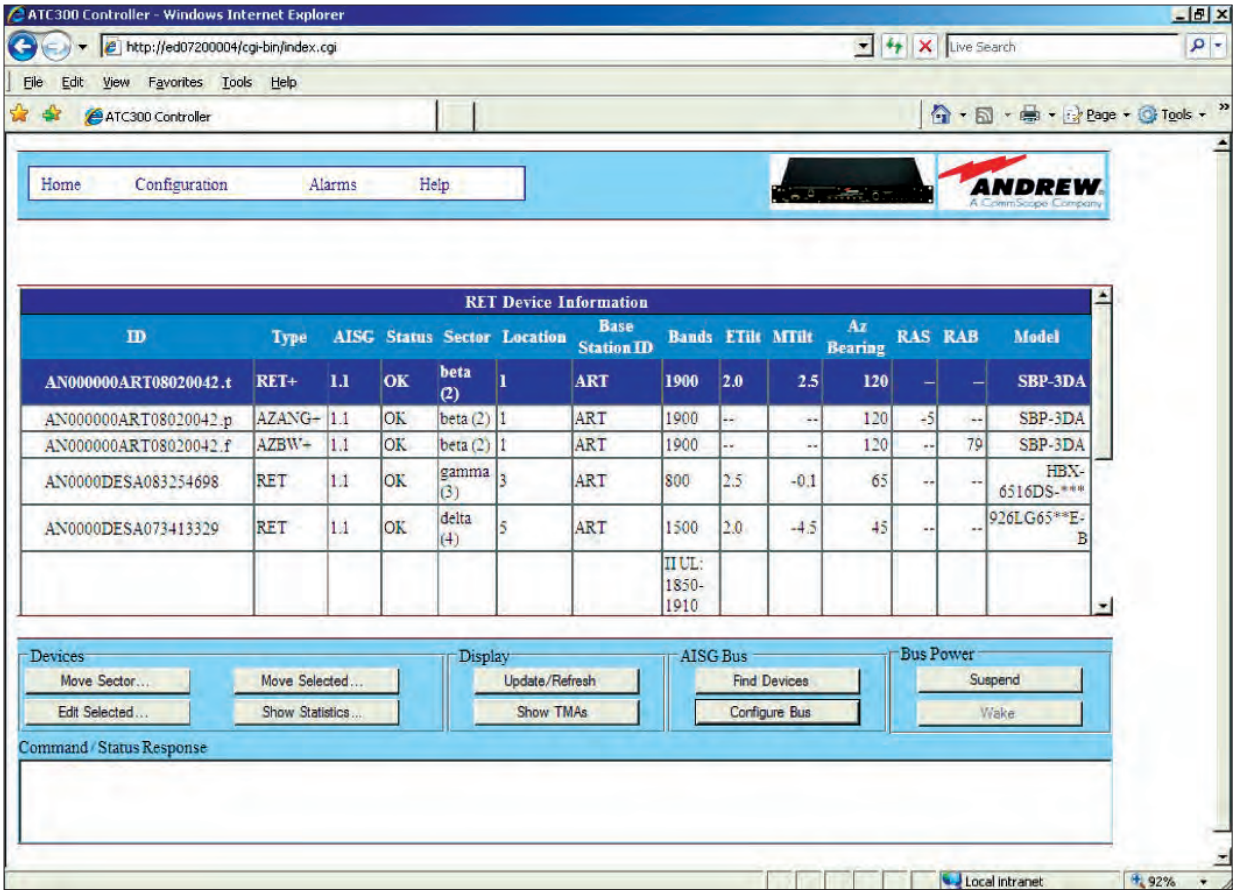

Figure 7-7. Controller Access Using DHCP Over a Network.

6. The controller's web interface returns to the main interface window (Figure 7-7).

7.2 Accessing the Controller Over the Network Connection

1. Connect the controller to the company's LAN at the base station using an Ethernet cable, not supplied.
2. From a computer connected to the same network, open an Internet browser (Netscape and Mozilla browsers are not supported).
   - If configured for Static IP, type the controller's new network configured IP address into the URL address window, and click on **Go**.
   - If configured for DHCP (ACT300-1000/2000 only), type the controller's hostname into the URL address window, and click on **Go**.

Section 8
Controller Configuration Options

8.0 Section Overview

- The ATC300/200 controller is equipped with an SNMP (Simple Network Management Protocol) agent that allows remote access using an SNMP manager.
- CommScope provides the MIB (Management Information Base), which is supported by the ATC300/200 controller SNMP agent, upon request.
- SNMP is a well-defined protocol used in the industry to manage devices remotely.
- The ATC300/200 controller allows configuration of the unit site name.
- The ATC300 allows password protection on the web page interface.
- The ATC300 provides some special case controller configuration options.

8.1 Configuring the Controller for an SNMP Manager

The controller's SNMP agent can be accessed through the menu option **Configuration → SNMP Config** (Figure 8-1).

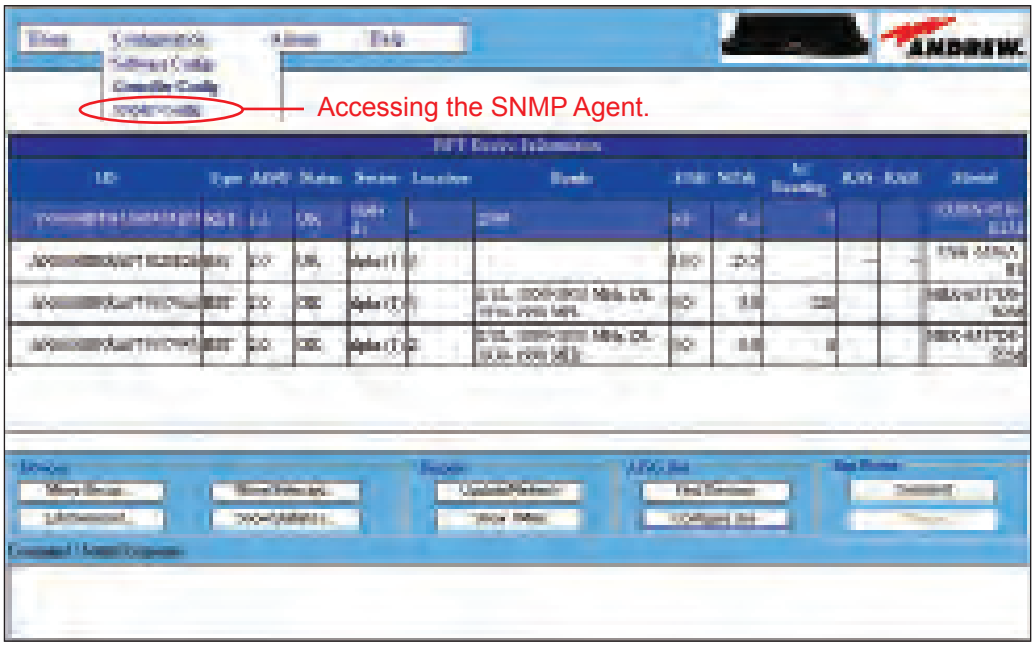

Figure 8-1. Selecting Menu Option To Access SNMP Configuration Page.

The SNMP Configuration page is divided into three sections: the SNMP Agent General Configuration, the SNMP Trap Configuration, and the Command Response field (Figure 8-2).

General Configuration

1. To configure the ATC300-1000/2000 controller SNMP agent, first select **Enabled** in order to enable the agent.
2. The SNMP Port Number is the SNMP manager port that allows SNMP message traffic, and is usually set to **161**. Note that this field is not configurable while the agent is enabled.

   The three Community fields are agreed-upon strings that must be likewise configured on the SNMP manager. In other words, SNMP traffic will be prohibited if the community strings do not match between the agent and manager.

   BSA trap mode will configure the controller to send traps that contain only the index of the alarm causing the trap. BSA trap mode is the default configuration, since this is usually sufficient. The **WIG** trap mode will send a trap that contains much more information about the trap.

   The **System Location**, **Contact**, and **Name** fields are purely informational fields stored on the controller and retrievable using standard SNMP queries.
3. Select **Set SNMP Agent Config** to send the modified configuration to the controller. (To set the SNMP configuration back to default values, select **Factory Defaults**.)

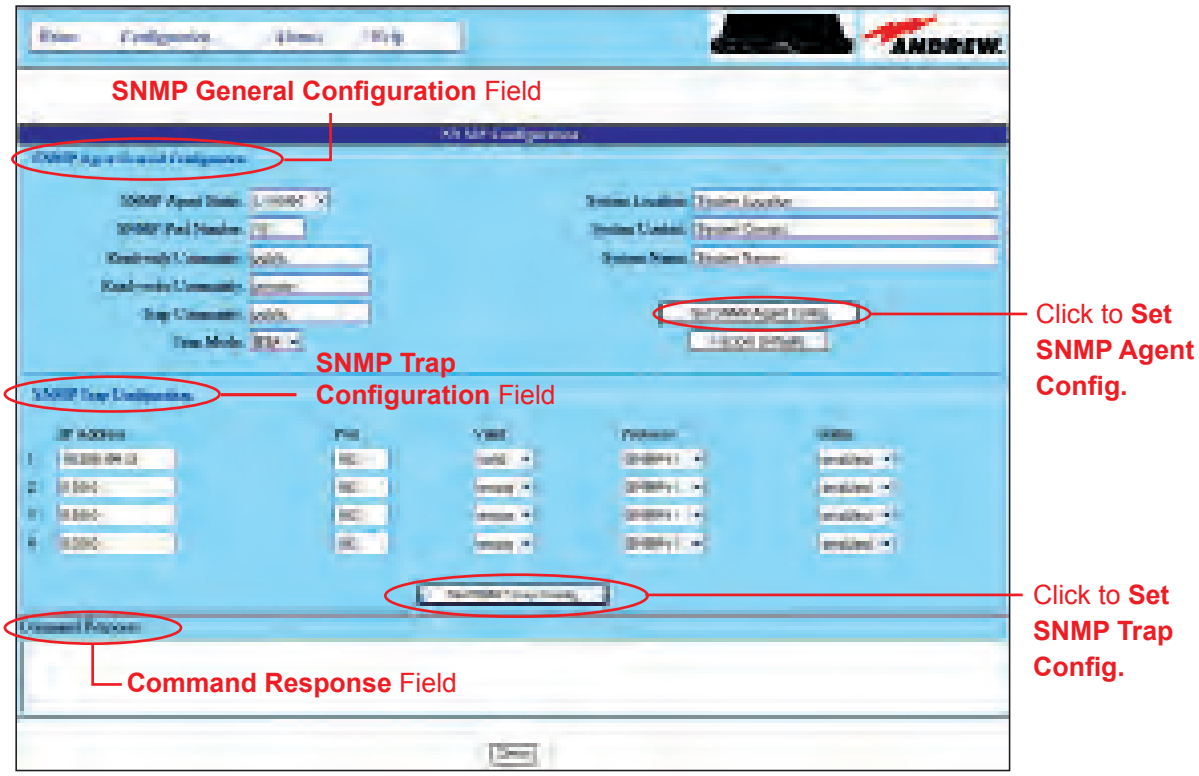

Figure 8-2. Configuring ATC300-1000/2000 Controller's SNMP Agent.

Trap Configuration

1. The **SNMP Trap Configuration** table (Figure 8-2) configures the controller to report traps for up to four SNMP managers. Typical examples for using a trap is to alert an SNMP manager that a controller has been installed at a new site or to show a new alarm condition has occurred.

   To configure a trap manager, enter the SNMP manager **IP address**, the **Port** number desired for the trap to enter the manager system, select **Valid** to validate this entry, select the **Protocol** level of the trap (usually SNMPv1 is sufficient), and then **Enable** the trap entry.

2. Select **Set SNMP Trap Config** to send the modified trap table to the controller. Note that the SNMP agent can still be operational even if no trap managers are configured.

Command Response Field

The third section of the web page is the Command Response field. This field provides feedback if an error occurs when sending SNMP configurations to the controller.

8.2 Security and Site Sharing (ATC300-1000/2000 only)

ATC300 software releases 2.32 through 2.35 offer simple web interface security. As of release 2.36, this feature is enhanced to offer a second level of security to support site sharing.

The controller's web interface password protection can be accessed through the menu option **Configuration → Controller Config** (as shown in Figure 7-2).

- Once enabled, the password will be required to access the controller's web interface.
- The password is case-sensitive and must consist of alphanumeric characters only.
- After 3 minutes of inactivity, the operator will be logged out. Any control action will require re-entry of the password.
- A logged in administrator may disable site sharing from the "Controller Config" web page.
- When an operator is logged in, the option to Logout is available from the controller web page main menu.
- If the password is forgotten, contact technical support with the controller serial number for a recovery password.
- The web interface password is separate from and does not affect the system-level root password of the controller required for a serial or telnet connection.
- The web interface password does not affect access to the controller through the SNMP interface.
- The web interface password does not interfere with downloads to the controller using CommScope's IP Config Tool.
- For security purposes, the browser back button has been disabled.

To enable site sharing, select "Enable Site Sharing" as shown in Figure 8-3.

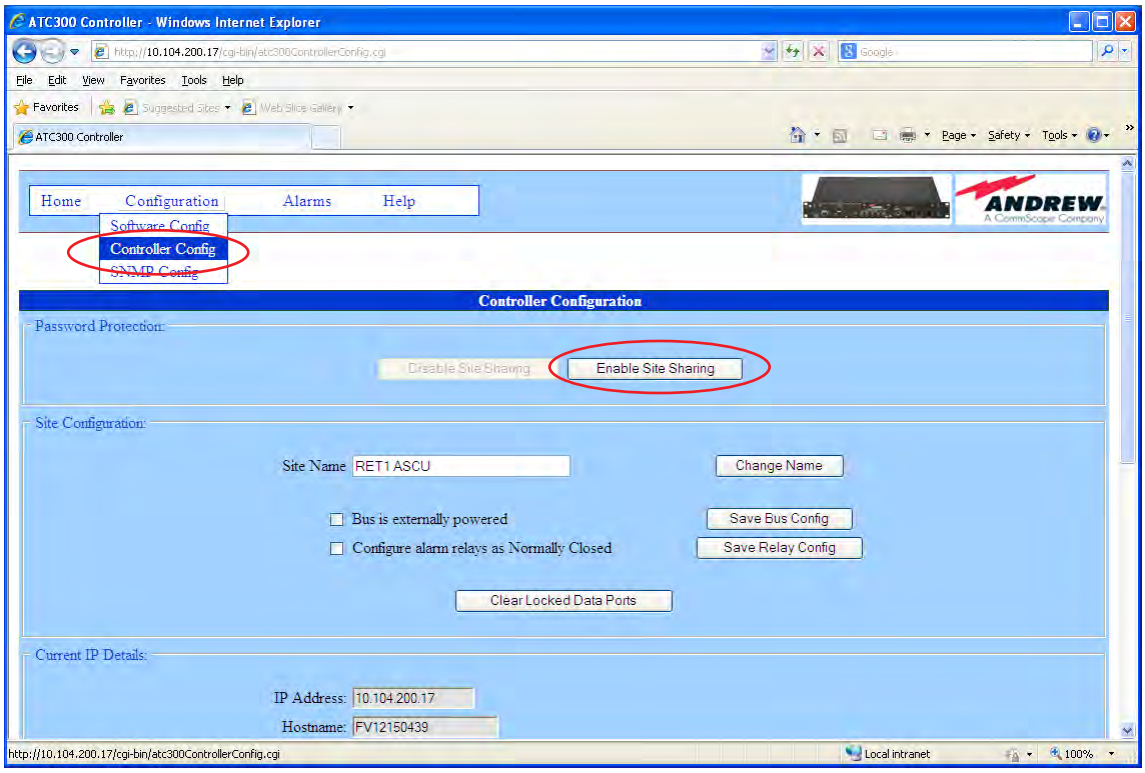

Figure 8-3 Enable Site Sharing

The administrator will then be required to enter a new password (Figure 8-4).

Figure 8-4 Entering a new web interface password

After enabling the site sharing password, the administrator will immediately be logged in.

8.2.1 Site Sharing Configuration

ATC300 software release 2.36 provides the capability for site sharing. A logged in administrator must enable and configure the operator usernames and passwords, scan the AISG bus for devices, and assign operators to each device. Operators are limited in their privileges, and are permitted to only view and manage the AISG devices to which they have been assigned.

When the administrator is logged in, two new buttons are available, **Manage Operators** and **Assign Operators to Devices** (see Figure 8-5 Controller Configuration Options for Site Sharing Administrator). These two features are covered in the next sections. In addition, the menu displays an option to Logout. This menu item is available to all logged-in operators as well.

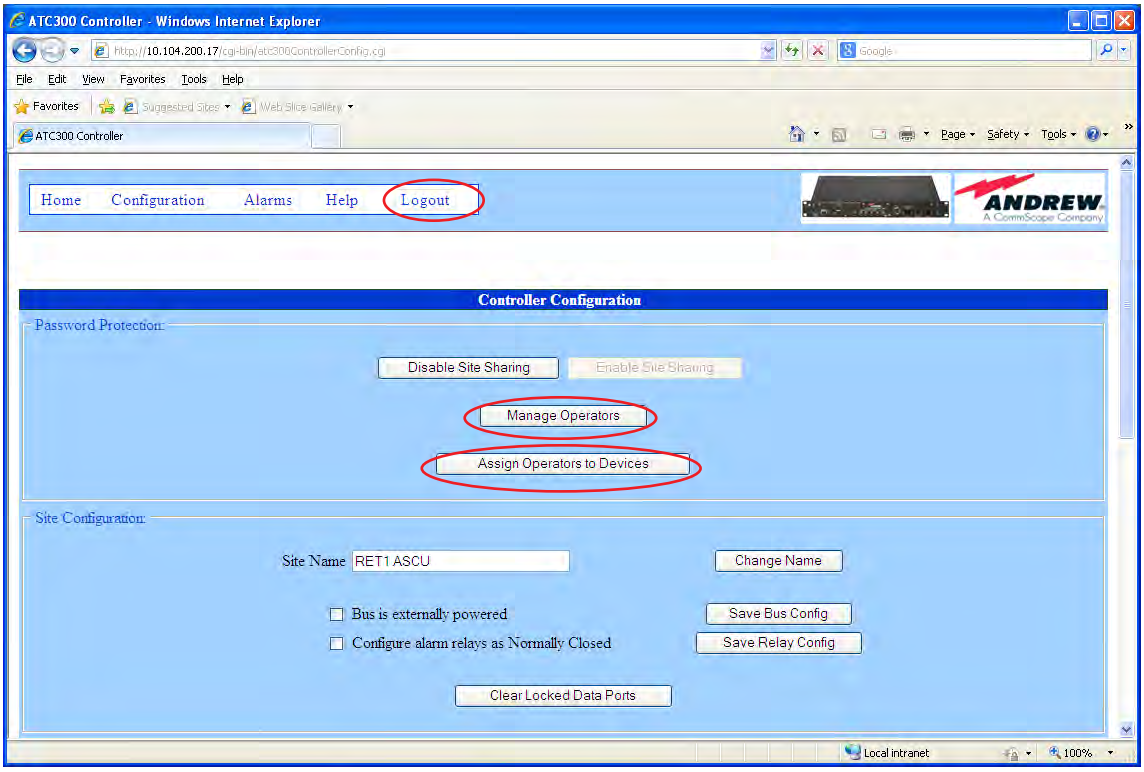

Figure 8-5 Controller Configuration Options for Site Sharing Administrator

8.2.1.1 Operator Name and Password Management

The administrator may create up to four operator names and passwords (see Figure 8-6 Operator Management Web Page). These can later be assigned to AISG devices that have been found on the bus.

Note that when an operator name is modified, any AISG devices assigned with that operator name will be unassigned. That is, the administrator must revisit the Assign Operators to Devices web page and reassign those devices with operator names.

The controller maintains alarm history logs specifically for each operator, containing alarm logs for

only the devices assigned with that operator. These logs are deleted when the administrator selects Set Operator Info. A warning box notifies the administrator of this action.

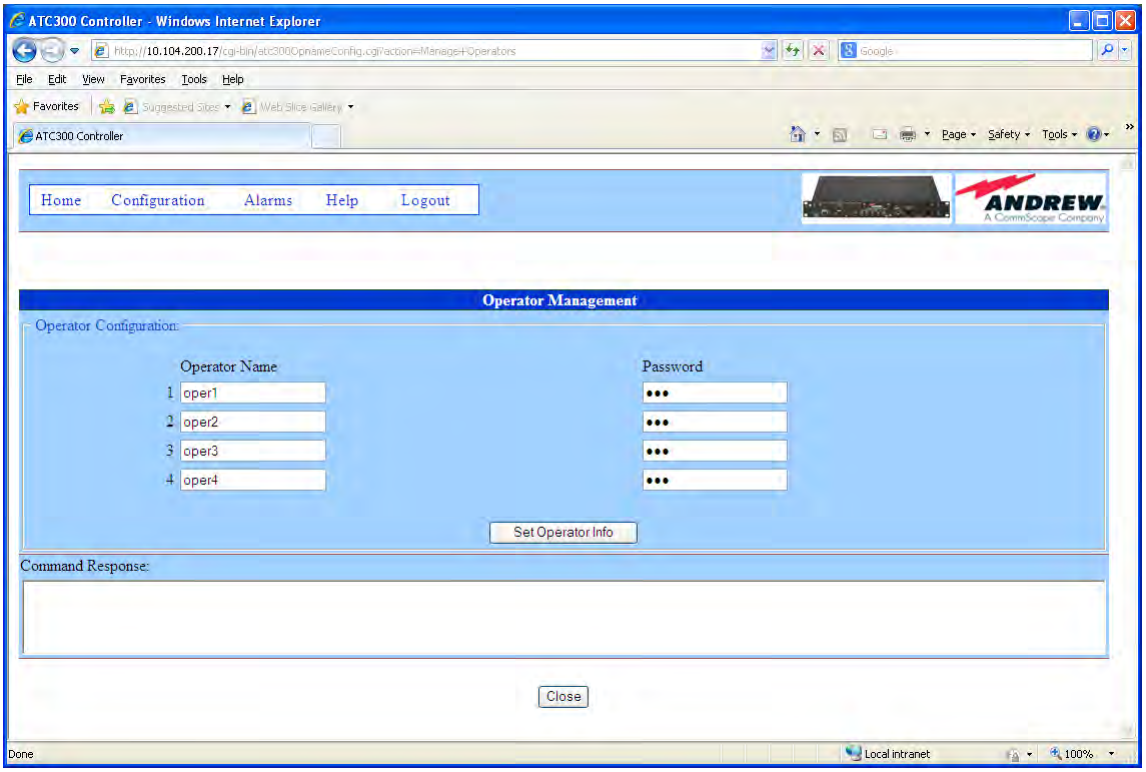

Figure 8-6 Operator Management Web Page

8.2.1.2 Assigning Operators to Devices

Before entering this web page, the administrator should perform an AISG bus device scan (**Home | Find Devices**).

This web page provides an administrator the capability to assign operators to AISG devices that were previously found in device scan. The page displays a list of the AISG devices, along with a drop-down option list of the defined operators for each device. The administrator may select one operator for each device. The same operator may be assigned to multiple devices. Devices do not have to be assigned an operator. To unassign an operator, the blank operator name option can be selected. (See Figure 8-7 Assigning Operators to AISG Devices).

Logged-in operators will be able to view and manage only those devices to which they have been assigned.

If an operator name is deleted or modified from the **Manage Operators** web page, any devices assigned with that operator name will become unassigned.

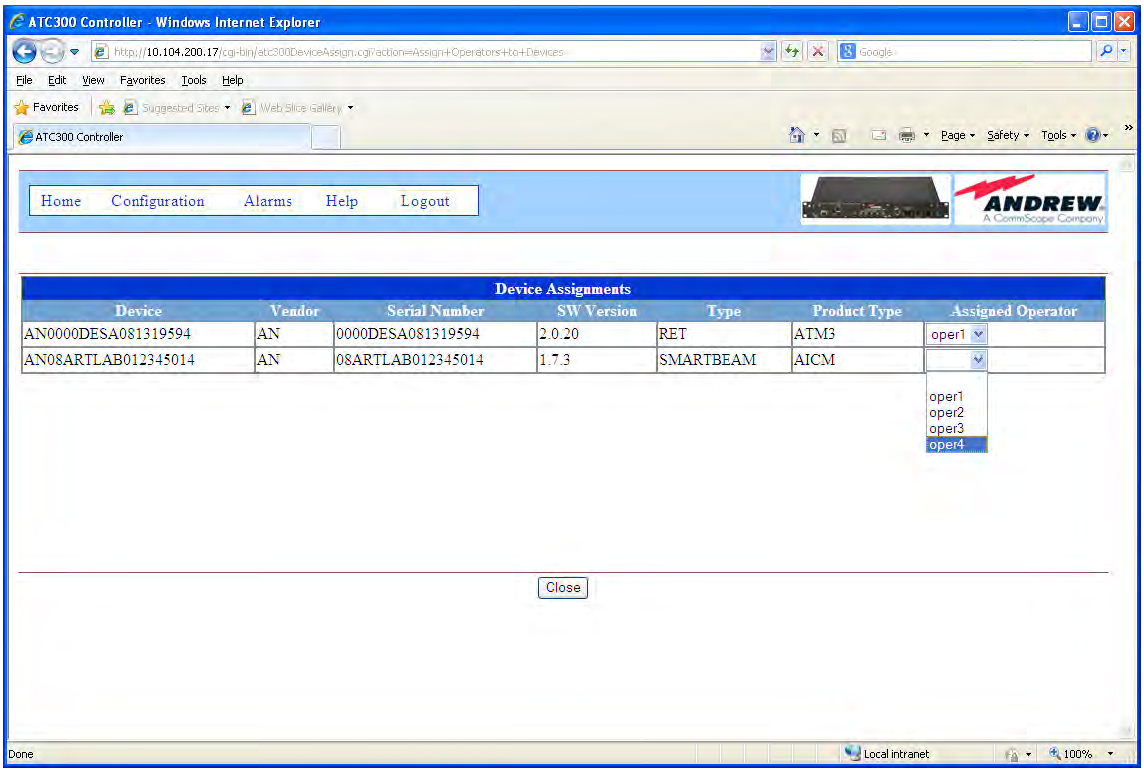

Figure 8-7 Assigning Operators to AISG Devices

8.2.1.3 Operator Login/Logout

Operators do not need to know their usernames. An operator simply needs to enter his password to be able to manage those devices assigned to him.

Operator capability is very limited. A logged in operator may view, configure, move, and upgrade only his devices. He cannot perform a device scan. The **Current Alarms** and **Alarm History** web pages are limited to only his devices as well. An operator may view the controller's **About** and **Software Versions** web pages.

An operator may log out by selecting the **Logout** menu option.

8.3 Site Configuration

The controller allows configuration of other options that can be accessed through the menu **option Configuration → Controller Config** (as shown in Figure 7-2).

8.3.1 Site Name

The controller site name defaults to “RET1 ASCU” but can be modified at any time. This identifier is not usually important unless the controller is one of many nodes managed by network management software such as CommScope’s Site Manager.

8.3.2 External Bus Power (ATC300-1000/2000 only)

By default, the ATC300-1000/2000 limits the number of ALD devices in its database to 32 due to power requirements. However, if the devices are externally powered, this option may be selected to expand that limit to 64 ALD devices.

8.3.3 Alarm Relay Configuration (ATC300-1000/2000 only)

The alarm relays on the ATC300-1000/2000 are “normally open” by default. This option changes that logic and treats the relays as “normally closed”.

Note that after changing this configuration, the controller may need to be rebooted for the relays to reflect the current alarm states correctly.

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Part 3

Uploading Firmware

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Section 9
Uploading Controller Firmware and Antenna Definition Files Using the IP Config Tool

9.0 Section Overview

- The CommScope IP Config Tool can be used for uploading firmware to the controller over its FTP server. For uploading firmware to the controller over a direct connection, see paragraphs 9.2 through 9.5. For uploading firmware to the controller over a LAN, see paragraphs 9.3 through 9.5. For ATC200 and ATC300 2.32 and earlier, firmware can also be uploaded to the controller using a third party FTP server (see Appendix C).
- For ATC300 2.34 and later, firmware can be installed using the web interface without IP Config Tool or a third-party FTP server.
- The IP Config Tool is compatible for use on computers operating in the English language using Windows® 2000, Windows® XP or Windows 7. This tool includes an FTP server for file upload. If another FTP server is active on the local computer, a conflict may occur (see paragraph 9.6). See Appendix A to disable Windows® XP SP2 Firewall.
  The IP Config Tool does not work with Windows Vista (see Appendix B).
- Periodically, updates are made to the antenna definition file to add data for new antenna models and to maintain the latest data available for existing antennas compatible for the controller system. These updates are made automatically when the operator installs new controller firmware, because antenna definition file releases are bundled with controller firmware.

9.1 Required Resources

Hardware

- ATC300-1000/2000 or ATC200-1000 controller w/power cord
- To connect to PC or laptop, use the Ethernet cable (or LAN connectivity with the ATC300-1000/2000 controller)
- Computer operating in the English language using Windows® 2000, Windows® XP or Windows 7

Software

- IP Config Tool (see Section 3, if this has not been installed on the local computer)
- ATC300-1000/2000 controller firmware (atc300_*.tar) or ATC200-1000 controller firmware (RET-AN-RT_*.ascu)
- Non-CommScope antenna definition file (RET-xx-AT_*.ascu)

Asterisk (*) represents the version number. Use the file with the highest number preceding the file extension for each type file to ensure the latest version data is uploaded.

xx is the 2-letter vendor code. CommScope antenna definition files are automatically updated when controler software is installed (see above).

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Warning: The ATC300-2000 controller unit requires software release 2.36 or later. Conversely, however, software release 2.36 and later can be installed on ATC300-1000 controller units. All new features and/or bug fixes provided with the controller software will be available on the ATC300-1000 with the exception of modem port isolation, which is not supported on the ATC300-1000 hardware.

9.2 Connecting to the Controller

1. Ensure that the controller is connected to the local computer using the Ethernet cable and that the controller is powered up. (Also see Section 6.)
2. Double-click on the CommScope **IP Config Tool** icon from the computer's desktop.
3. Click on the **New IP Info** tab, and click on **Local Area Connection** (Figure 9-1).

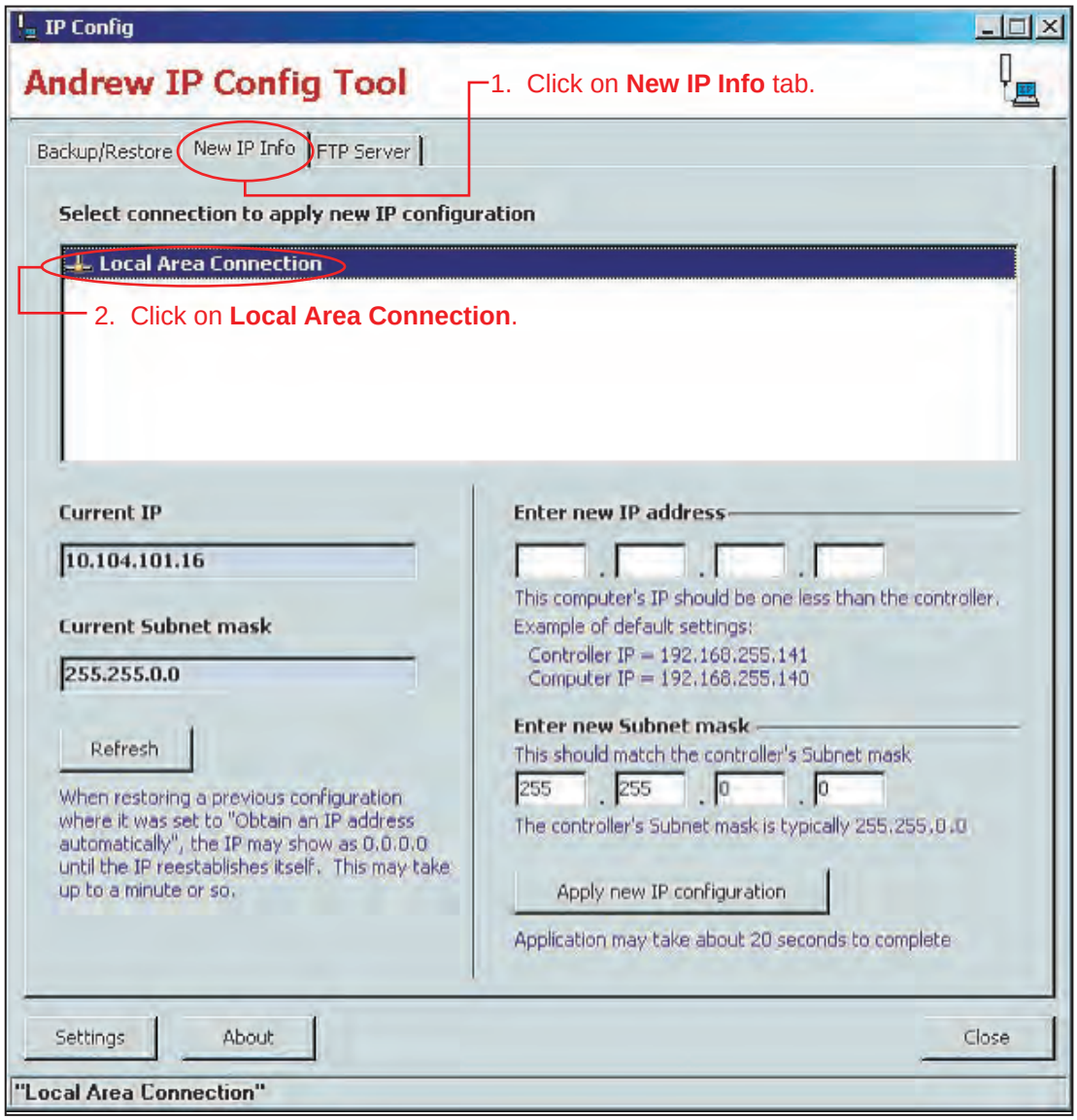

Figure 9-1. Selecting ***Local Area Connection****.*

4. Click on the **Backup/Restore** tab (Figure 9-2).
5. Click on the backup IP configuration file that was set up for access to the controller (Figure 9-2). See Section 3.5 for creating a backup IP configuration file.
6. Click on **Restore** (Figure 9-2).

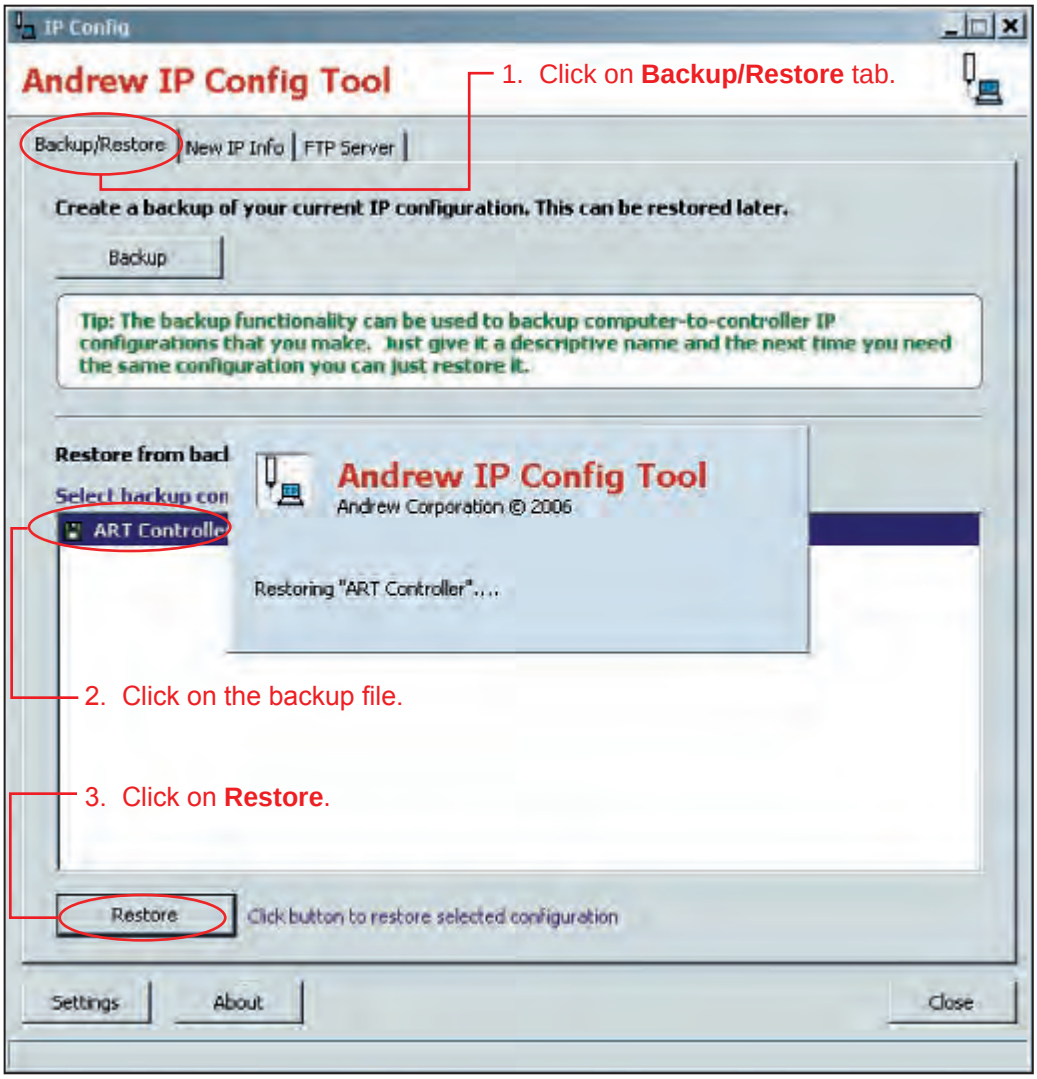

Figure 9-2. Restoring Backup IP Configuration File To Regain Access To Controller.

7. Double-click on an Internet browser to verify that the computer is connected to the controller. If you are using the default IP address for the controller (192.168.255.141), the Internet browser (Netscape and Mozilla not supported) will automatically open to the controller's main interface screen (Figure 9-3). If you are using a different IP address (see Chapter 5), enter that alternate IP address for the controller in the browser window's URL.

   Note: This screen can be closed or minimized after connection has been verified.

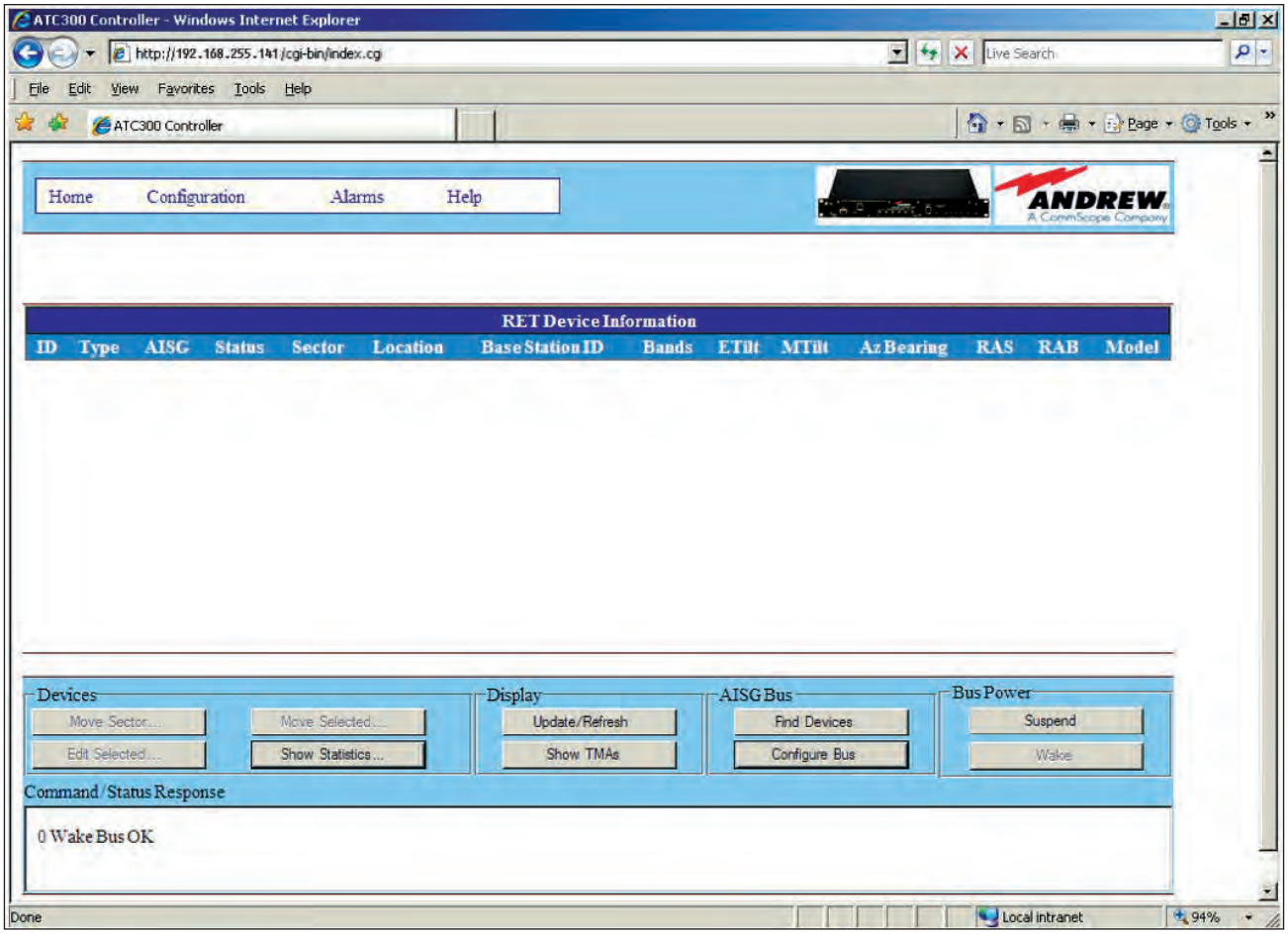

Figure 9-3. Controller's Main Interface Screen.

9.3 Locating/Adding Firmware Files to FTP Server

Note that with ATC300-1000/2000 Version 2.21_A to 2.32_A, and ATC200-1000 RET-AN-RT-464A8_A. ascu and later, CommScope antenna definition files can not be updated manually. They are bundled with the controller firmware. However, other vendors' ADFs may still be loaded on the controller using the method described in this section. ATC300-1000/2000 version 2.34_A and later allows manual update of CommScope antenna definition files.

1. Ensure the controller is connected/powered and that the IP Config Tool is launched.
2. From the IP Config Tool interface, click on the **FTP Server** tab (Figure 9-4).
3. Click on the **Find File(s)** button (Figure 9-4).

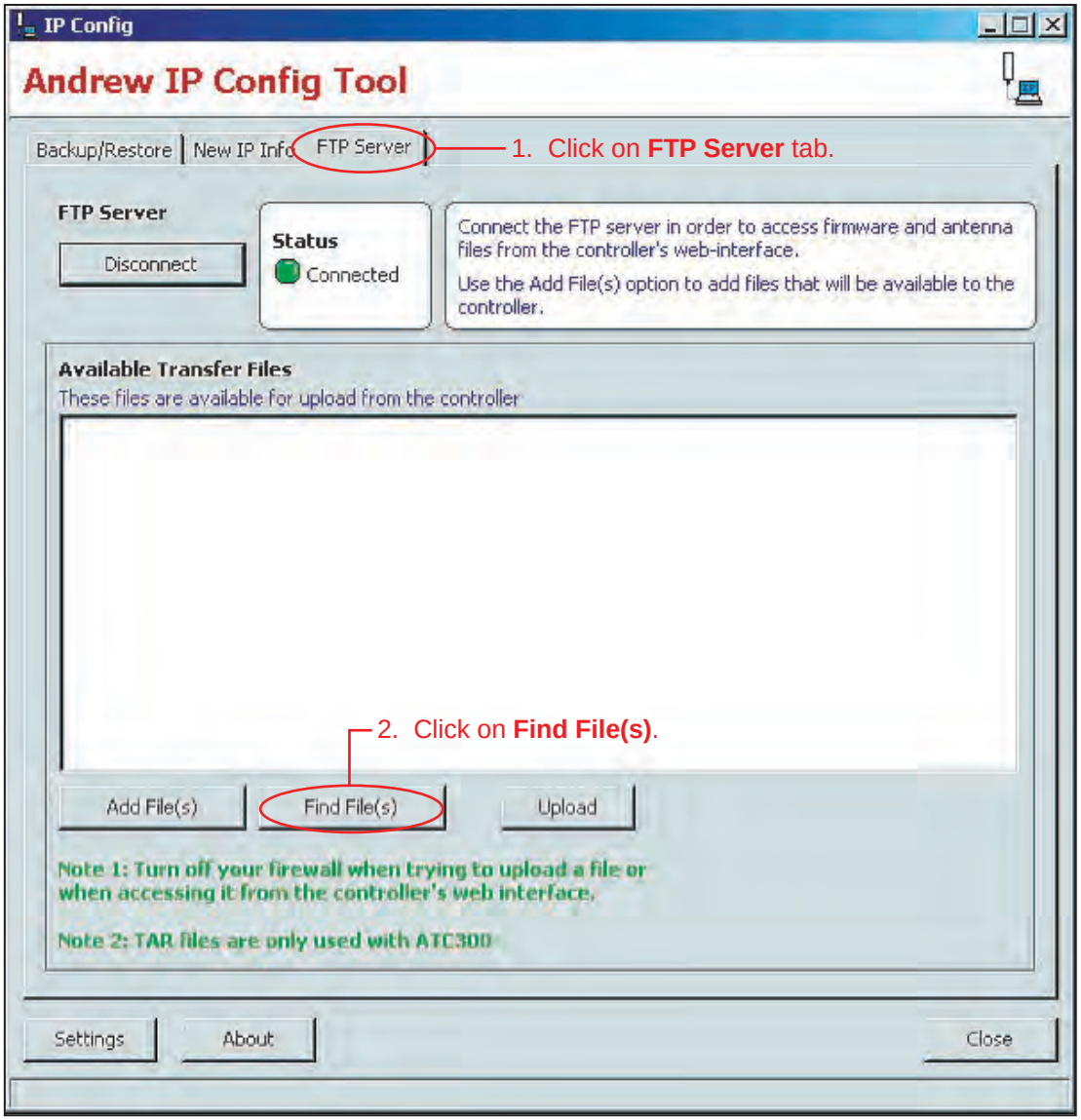

Figure 9-4. IP Config Tool's FTP Server Tab Screen.

4. Click on the **Find Files** button again (Figure 9-5).
   The controller files found during search will appear in the **Found Files** window.
5. Select the latest version file(s), if your search results found earlier versions. Refer to Paragraphs 9.0 and 9.1 to determine the version level from the filename. To select more than one file, hold down the **Shift** key on the keyboard while selecting the files.
6. Click on the **Add Selected Files** button (Figure 9-5).

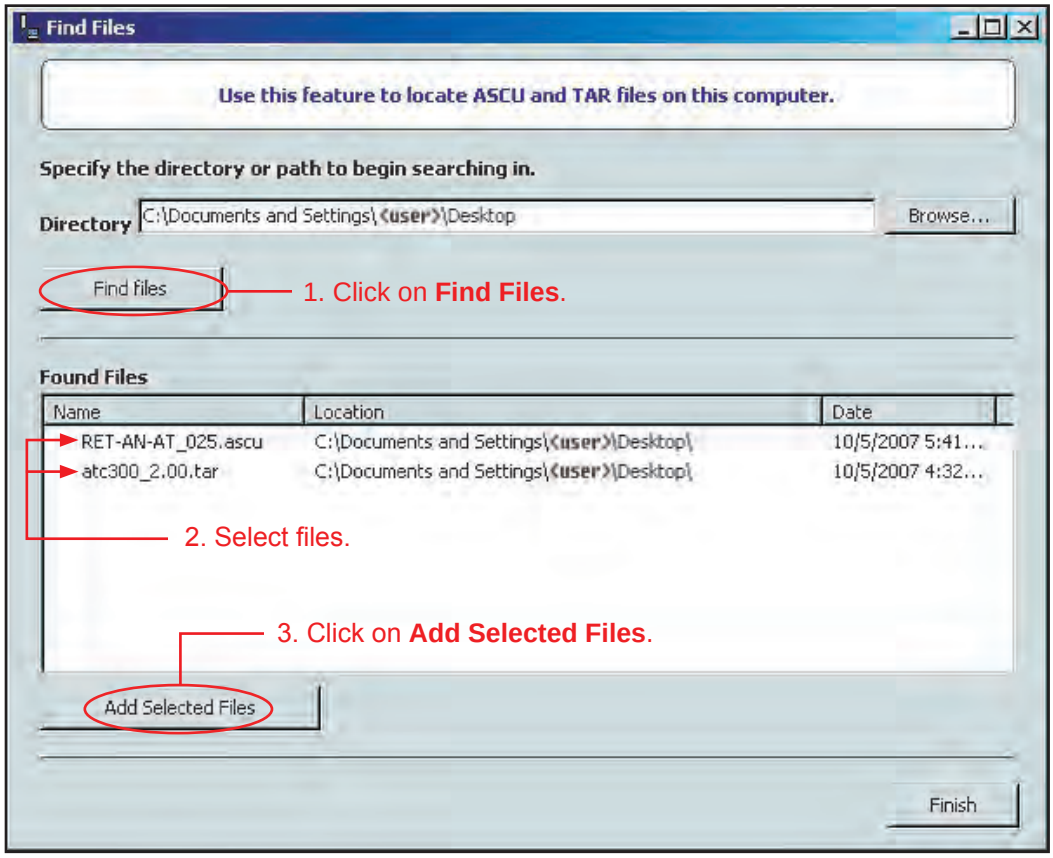

Figure 9-5. Search And Selection Of Controller Files To Be Uploaded.

7. After the files have been added to the FTP server, a check mark with a plus sign is shown next to the file to indicate it is ready for upload to the controller (Figure 9-6).

   Click on **Finish** (Figure 9-6).

   Note that uploaded files will have a rectangular symbol shown to the left, replacing the check mark. as shown in Figure 9-7 on the next page.

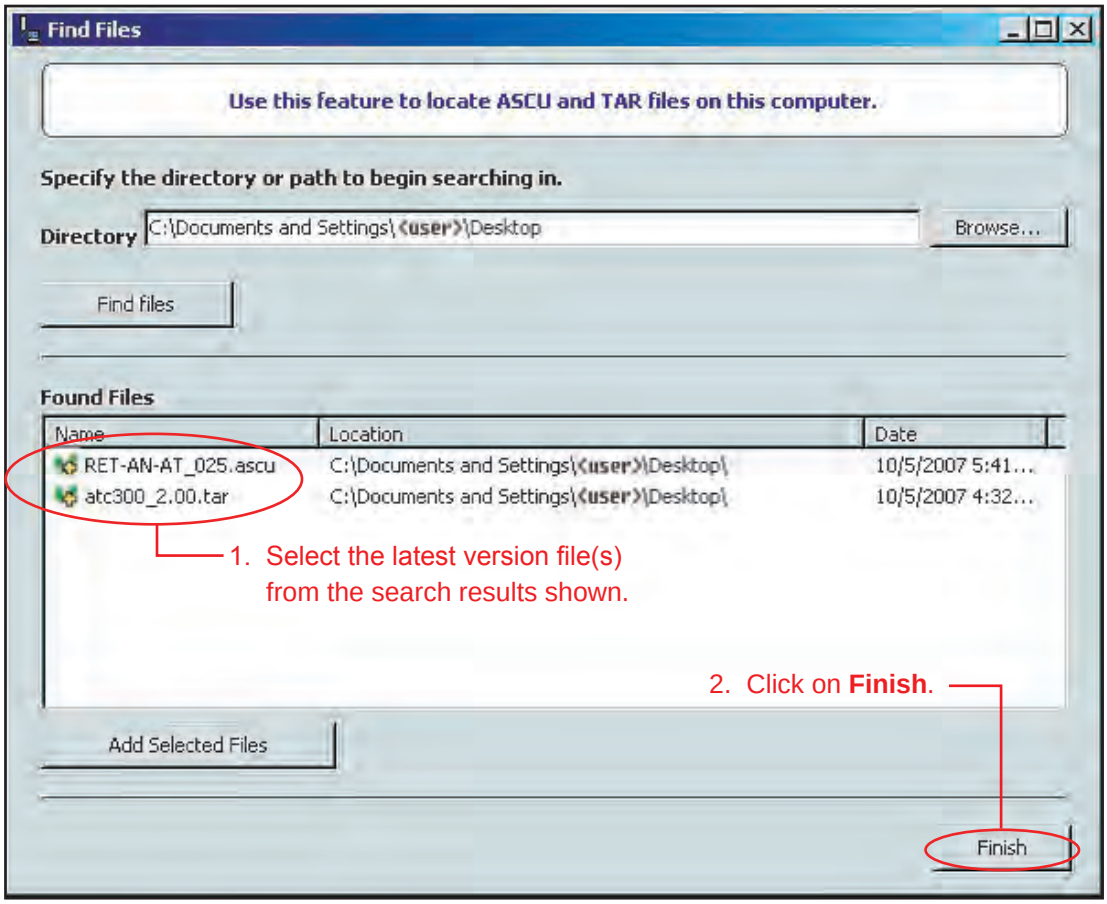

Figure 9-6. Files Ready To Be Uploaded To Controller Identified.

9.4 Uploading Firmware Files to the Controller

1. Click on the firmware file that is to be uploaded (Figure 9-7). Only one file can be uploaded at a time.

   Note: Updates to the antenna definition file (*AT*.ascu) are recognized by the controller as soon as the upload is complete. Updates to the controller's software require that the controller be rebooted (Figure 9-10) for the updates to be recognized.

2. Click on the **Upload** button (Figure 9-7).

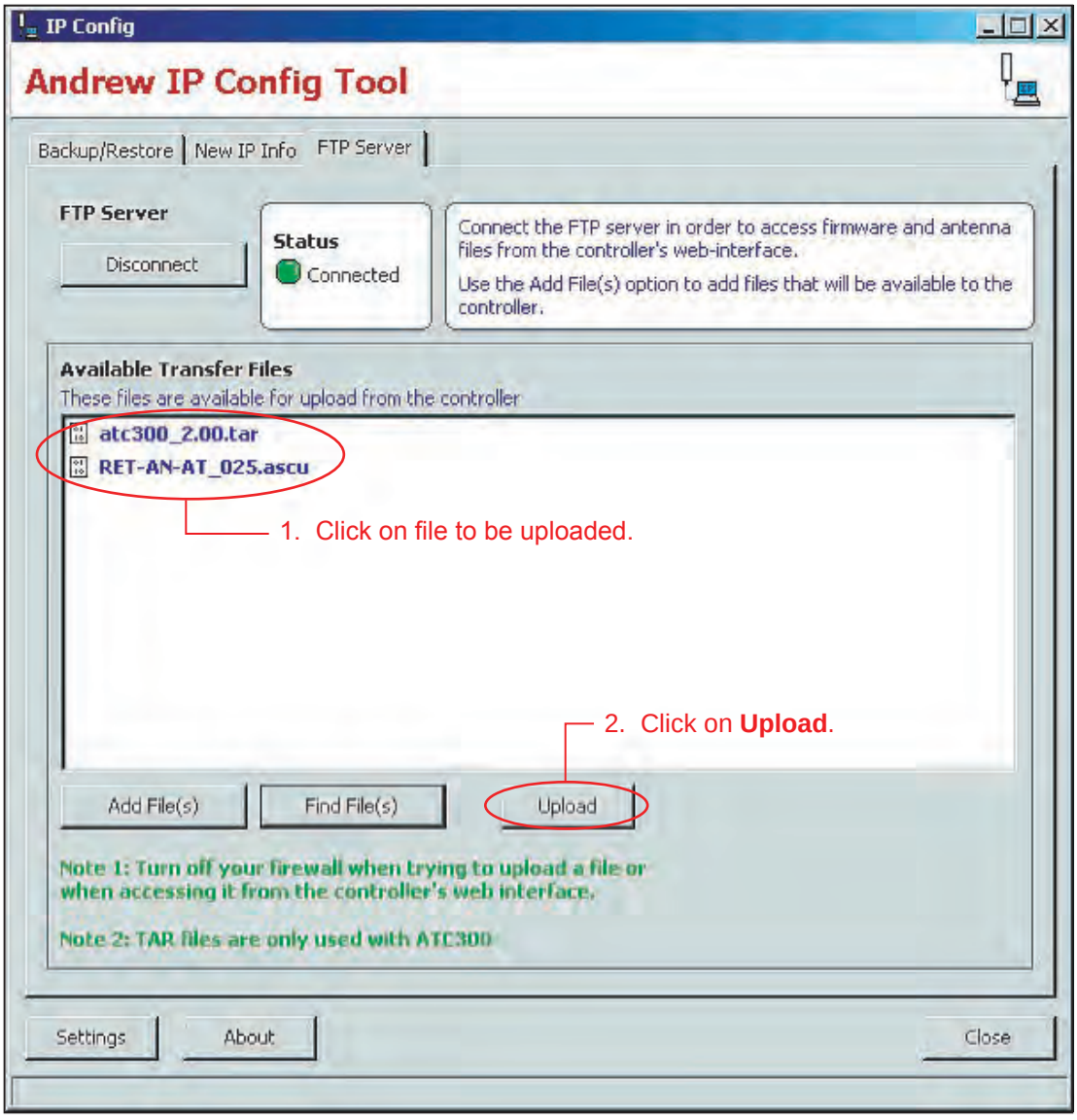

Figure 9-7. Files Ready For Upload To The Controller Shown.

3. Enter the IP address for the controller that is to receive the file upload (Figure 9-8).

   Note that '*.tar' type files are only used with the ATC300-1000/2000 Controller, so the screen shown in Figure 9-8 will only allow this option to be selected.

4. Click on **OK** (Figure 9-8).

   The Internet browser will open to the controller's operating interface and upload the file. A script will display indicating that the file was successfully installed (Figure 9-9).

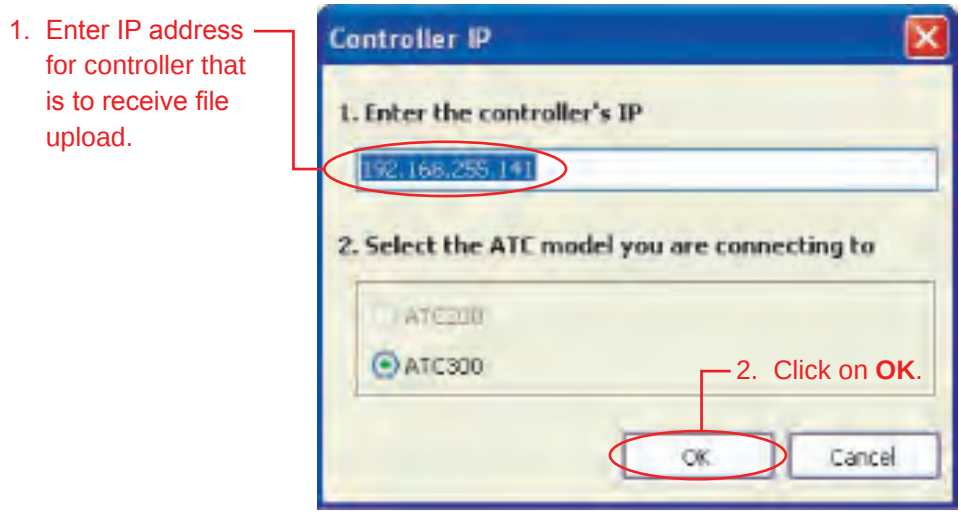

Figure 9-8. Specifying The Controller To Receive The File Upload.

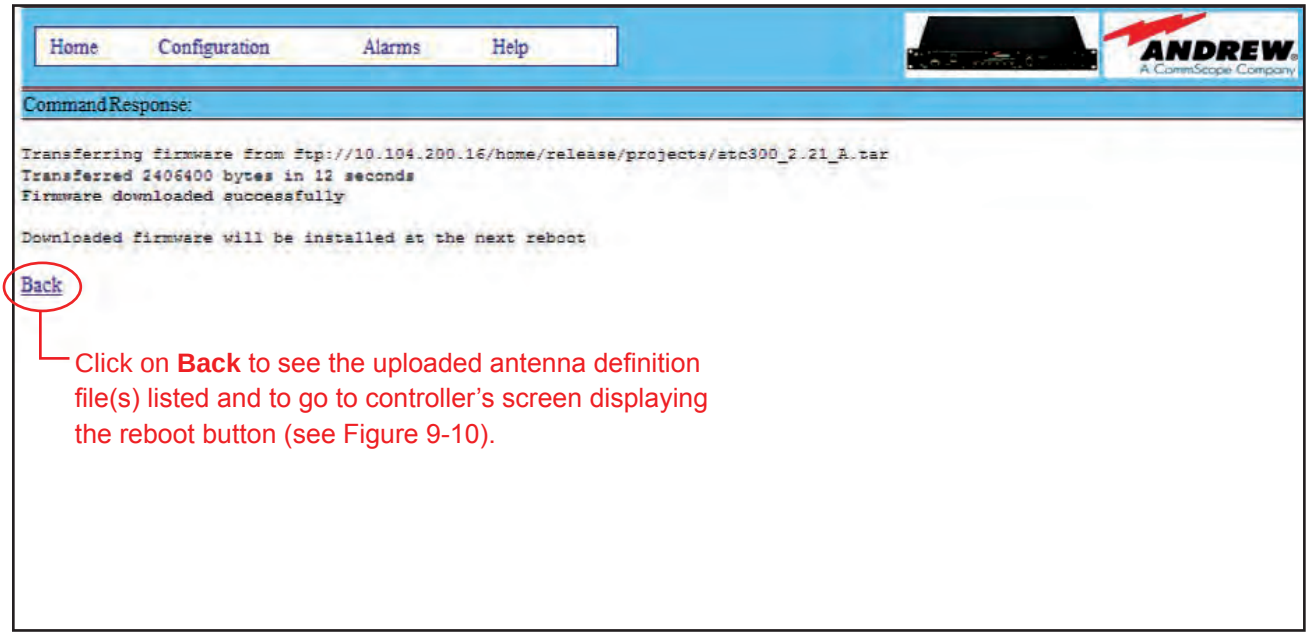

Figure 9-9. File Uploaded To Controller Successfully.

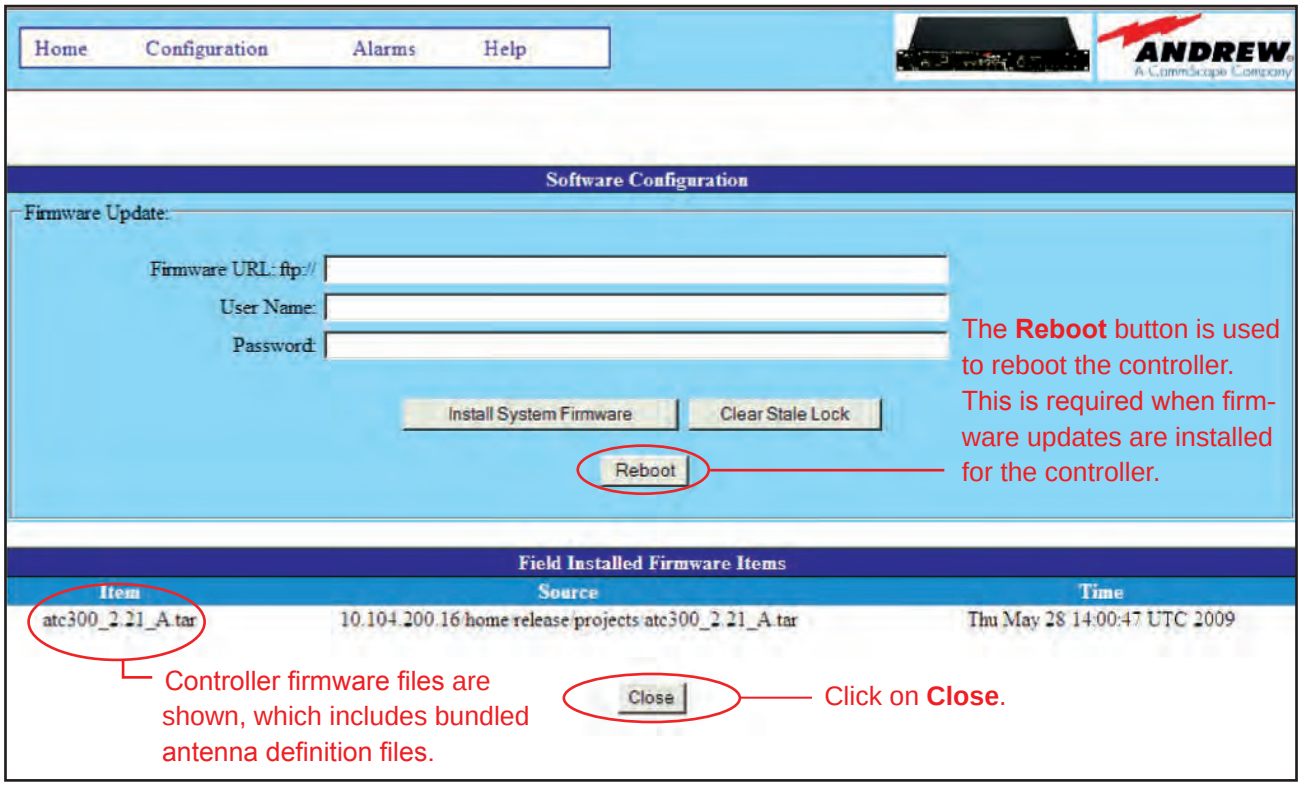

Figure 9-10. Uploaded Controller Firmware Files Shown.

9.5 Uploading Other Antenna Supplier Definition Files

Other antenna supplier definition files can be uploaded into the ATC300-1000/2000 or ATC200-1000 controller manually using the process described above. These files will need to be obtained from the antenna supplier. Refer to www.aisg.org.uk for information on the standards and the abbreviations for each antenna supplier.

9.6 FTP Server Conflict

If another FTP server is registered and running on the local computer, a conflict will normally occur with the FTP Server used by the IP Config Tool.

To check to see if another FTP server is running, first close the IP Config Tool and then open Internet Explorer.

Go to **ftp://localhost/**. If this opens, there is another FTP server running.

To correct any conflicts that occur, the FTP server will need to be closed. To prevent reoccurrence of the conflict, the FTP server will need to be unregistered. See example shown in Figure 9-11 when FTP server conflict has occurred.

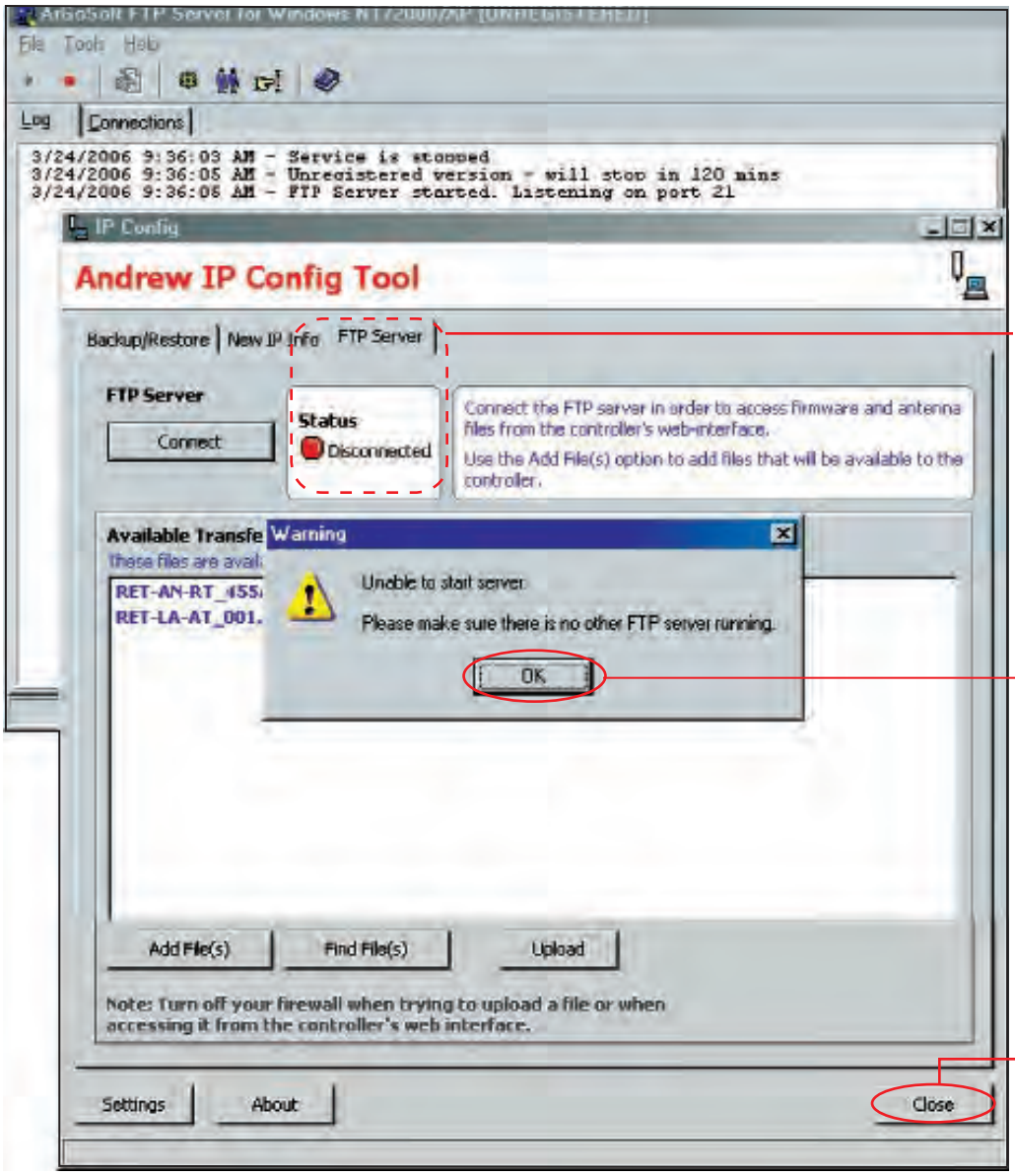

Figure 9-11. FTP Server Not Connected.

9.7 Uploading Controller Firmware from the ATC300 Web Interface

As of ATC300 version 2.34_A, the controller no longer requires IP Config Tool or a third-party FTP server to upload controller firmware or antenna definition files. To upload a system file, navigate to **Configuration → Software Config**, select “Install System File”, find and select the controller firmware file or antenna definition file (CommScope or non-CommScope), and then click on “Open”.

After a controller firmware file has been uploaded, the ATC300 must be rebooted to complete the installation.

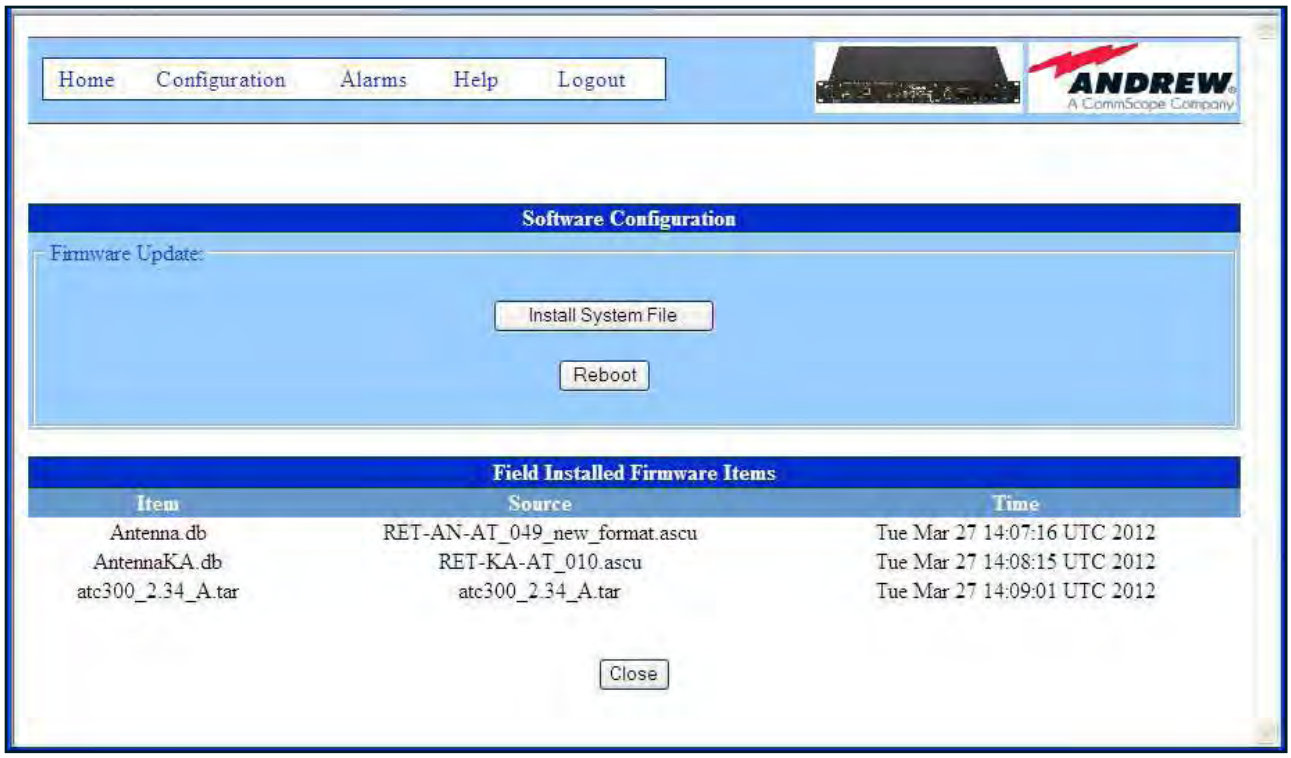

Figure 9-12. Uploading controller firmware using the ATC300 web interface

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CE

Section 10
Uploading Device Firmware

10.0 Section Overview

- CommScope AISG device firmware is bundled with the controller firmware, so that it is saved to the controller during controller firmware upgrades.

  Firmware Bundle Version Numbering:
  When new CommScope device firmware or a new CommScope Antenna Definition File is released, a new controller firmware bundle is also released. The bundle version is indicated in the controller firmware version. For example, in the ATC300 controller firmware bundle version "2.21_A", the controller firmware is version "2.21", while the bundle version is "A". Release of a new Antenna Definition File would generate the release of controller firmware bundle version "2.21_B". A change in controller features, however, would generate the release of "2.22", while the bundle version would drop back to "A".
- See Appendix C, Uploading Firmware to Controller Manually, to upload non-bundled firmware to a device.
- When a AISG tower mounted amplifier (TMA) is upgraded, it will lose RF gain functionality for about three seconds during firmware activation. The same is true if the TMA is reset.
- A new device scan is required after a device firmware has been applied to a TMA and upgraded it from AISG 1.1 to AISG 2.0, in order for it to reappear in the device listing.

10.1 Scan for Devices

1. In order to find all devices on a RET system, a device scan must be performed. From the main interface screen, click on the **Find Devices** button (Figure 10-1).

Figure 10-1. Selecting ***Find Devices*** *On The Controller Main Interface Screen.*

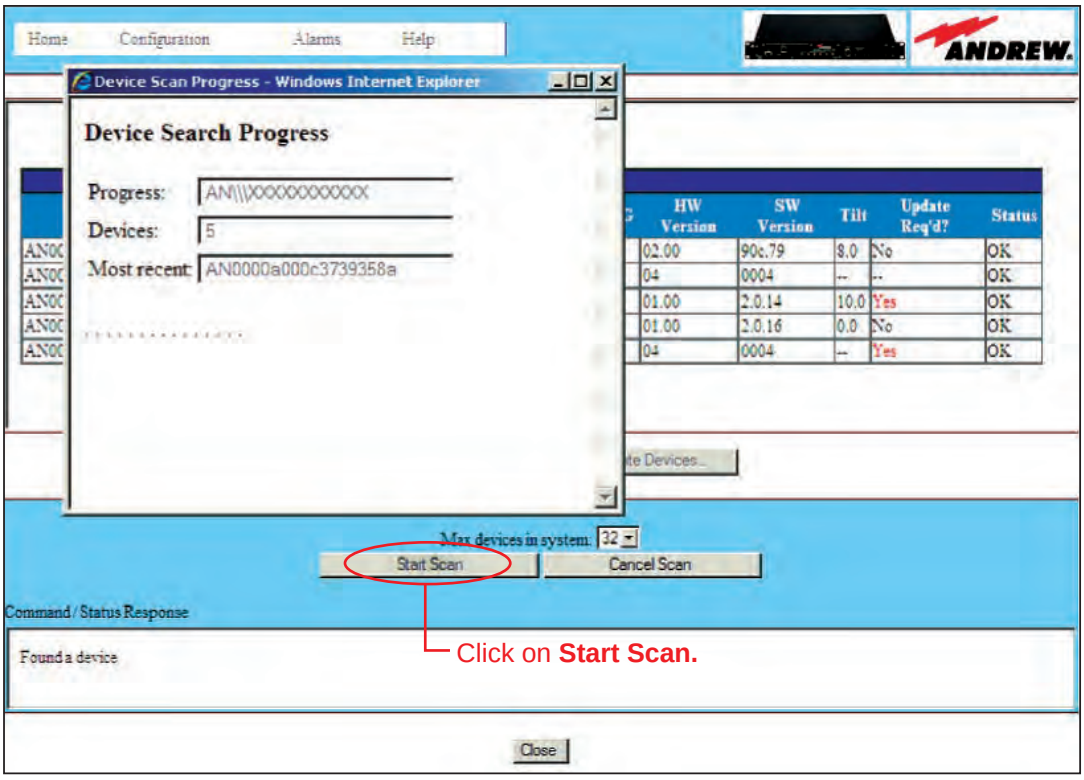

Figure 10-2. ATC300-1000/2000 Controller **Device Search** *Screen.*

2. Click on the **Start Scan** button (Figure 10-2). The **Device Search Progress** window shows when the device search locates each device connected to the RET system.

10.2 Updating AISG Device Firmware

Operators can easily see the **Update Required** state of each device scanned on a RET system (Figure 10-3). The ATC300-1000/2000 controller shows each device in one of the following states:

- A **dashed line** indicates a device that cannot be upgraded or that must be upgraded manually. See Appendix C.
- **Unknown** indicates that no firmware for that device has been installed on the controller.
- **Yes** or **No** means the device does or does not require an upgrade to the latest device firmware.

1. When the device scan is complete, the **Update Req'd** field will display the current firmware status for each device. Figure 10-3 shows one TMA and three actuators that require updates.
2. Click on **Update Devices** (Figure 10-3).
3. Only the devices in need of updates will appear on the **Device Upgrades Recommended** screen (Figure 10-4). Some devices may take longer to update as noted in the **Approx. Upgrade Time** field.
4. Click on the **Install Firmware** button (Figure 10-4).

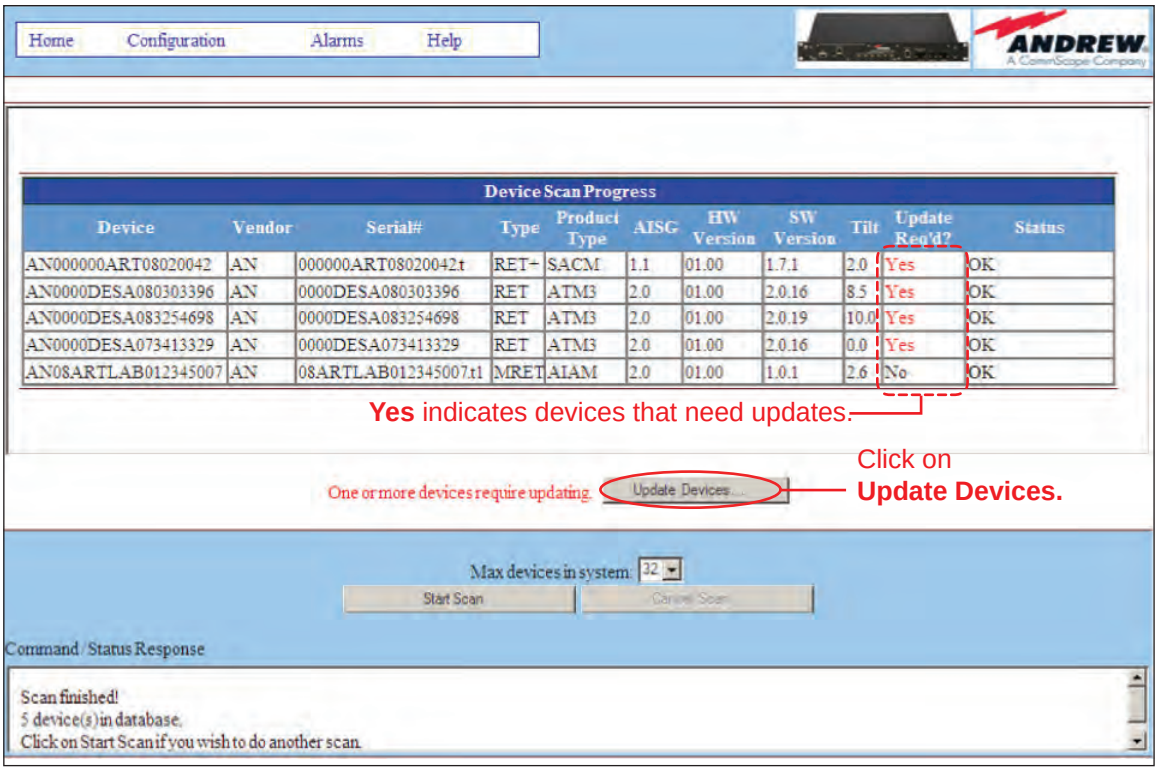

Figure 10-3. Device Scan Results Show Updates Required.

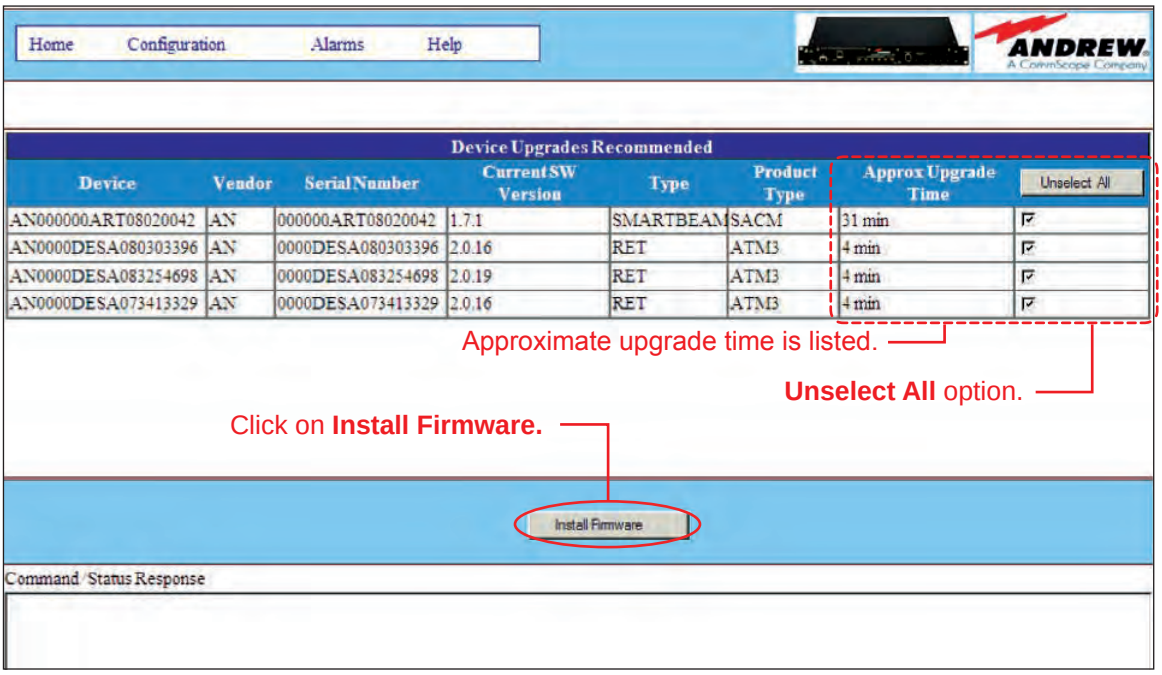

*Figure 10-4. **Device Upgrades Recommended** Screen.*

5. Firmware updates are applied to the selected devices individually. The **Upgrade Progress** window tracks the progress as each update is applied (Figure 10-5). After a device updates, it is no longer listed on the screen. Click on **Close** after updates have been installed.

If a TMA has been upgraded from 1.1 to 2.0 after a firmware upgrade, it will be removed from the database. In this case, a rescan is necessary to show all of the TMA devices.

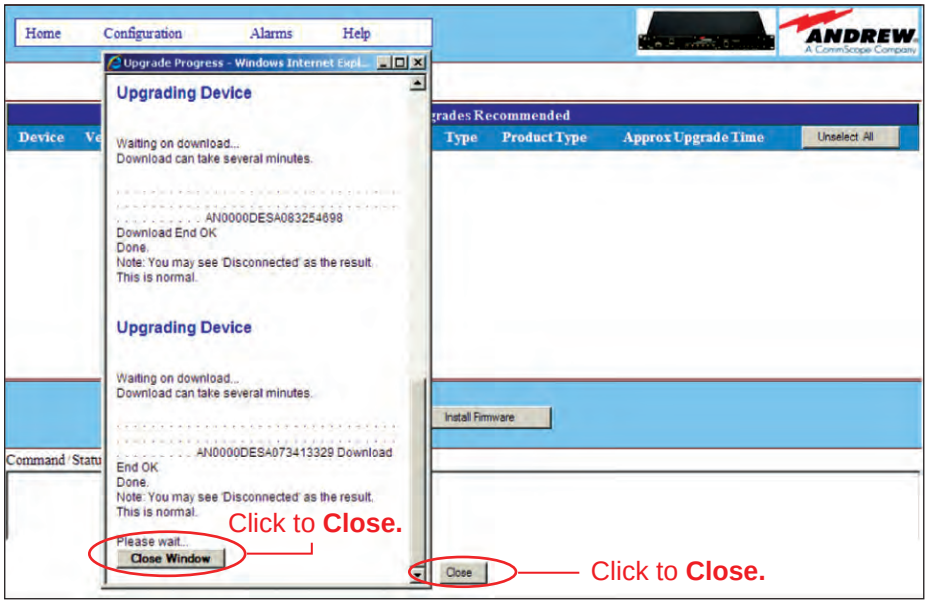

*Figure 10-5. **Upgrade Progress** Screen.*

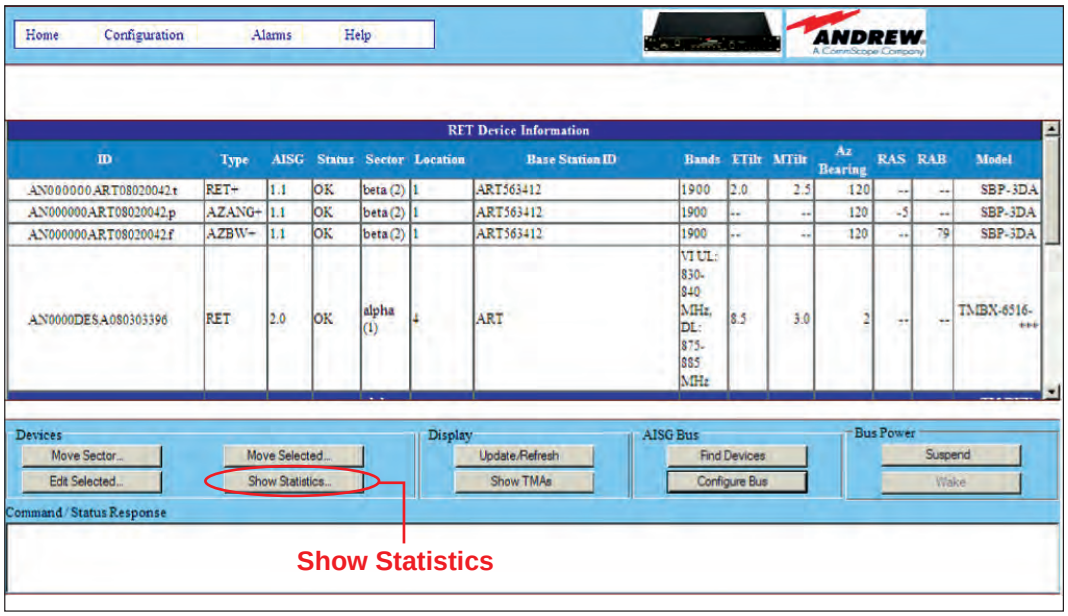

*Figure 10-6. Picking **Show Statistics** On The Main Interface Screen.*

10.3 Choice of Upgrade Method

Select **Show Statistics** on the **Main Interface** screen (Figure 10-6) to open the **Device Statistics** window. Using the **Device Statistics** screen (Figure 10-7), ATC300-1000/2000 operators can choose to update device firmware in one of two ways, **Auto Upgrade** or **Manual Upgrade**.

- Section 10-2 explains the **Auto Upgrade** option for uploading device firmware to update actuators.
- **Manual Upgrade** is another option seen on the Device Statistics screen. See Appendix C for a description of the manual upgrade method for uploading device firmware and updating the device. Figures 10-8 and 10-9 show the **Manual Upgrade** screen (differs based on controller version).

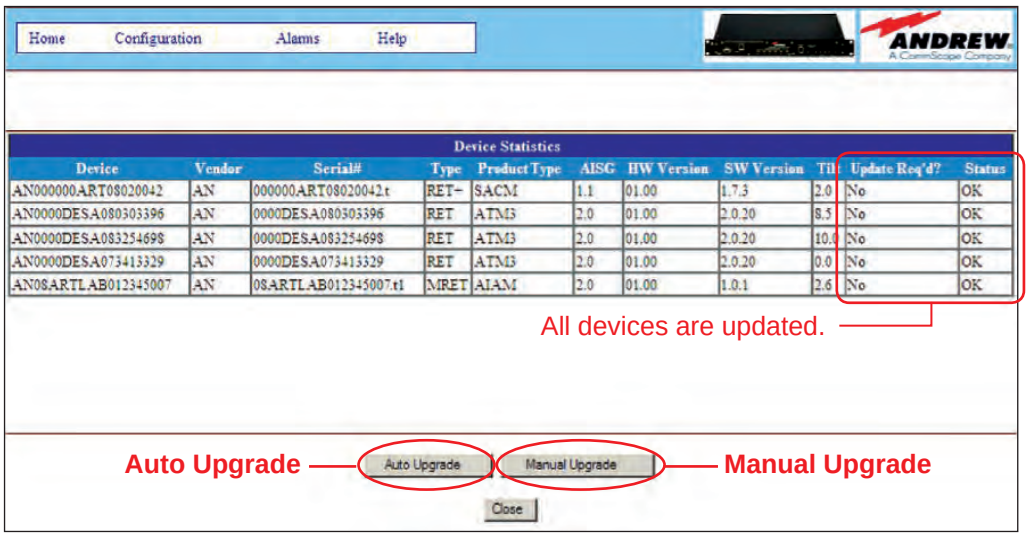

Figure 10-7. ***Device Statistics*** *Shows All Updated Devices And Choice Of Upgrade Method.*

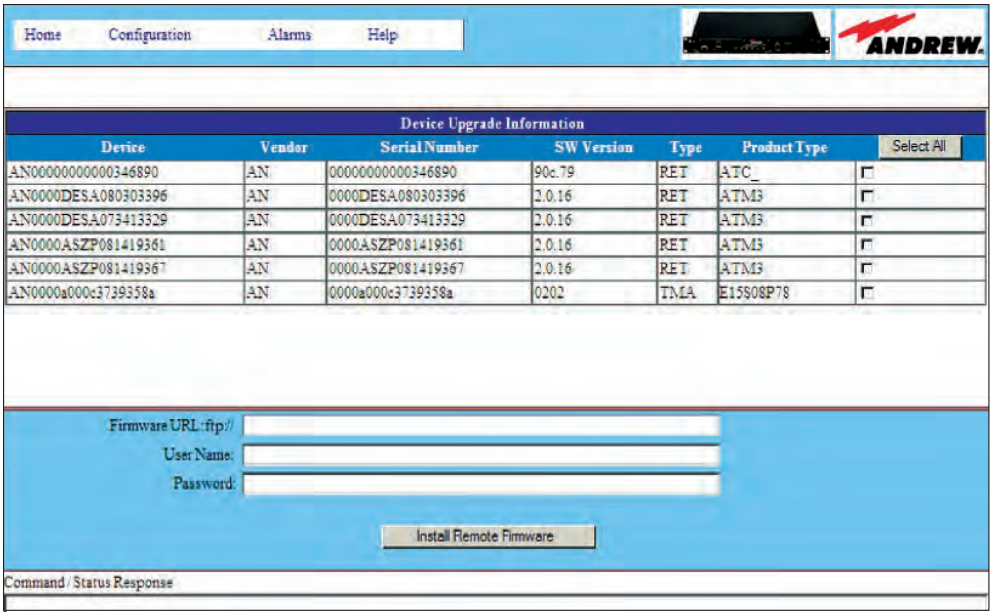

Figure 10-8. ***Manual Upgrade*** *Option (ATC200 and ATC300 2.32 and earlier)*

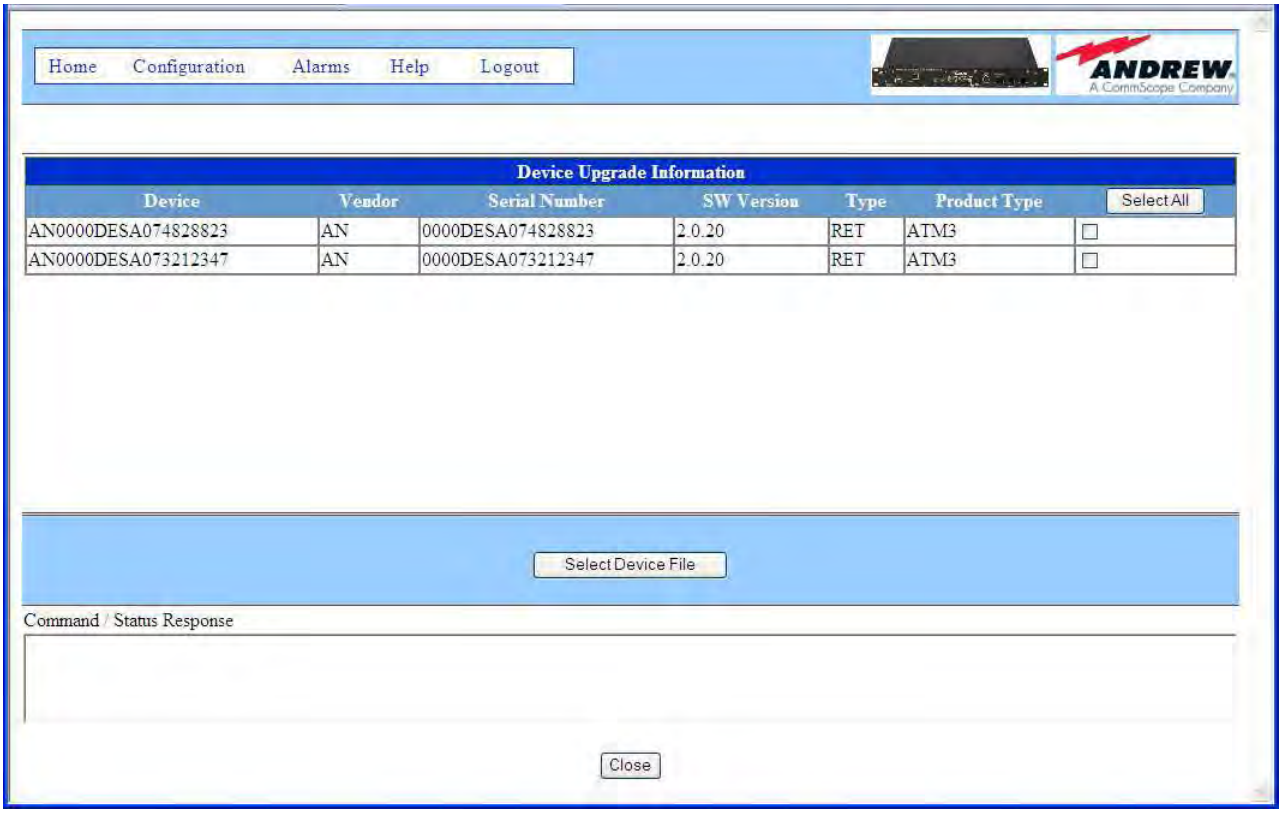

Figure 10-9 Manual Upgrade Option (ATC300 2.34 and later)

10.4 Using the Controller Help Menu

The **Help** menu on the menu bar on the main interface screen has two selections, **About** and **Software Versions** (Figure 10-10). Selecting either opens the relevant web page.

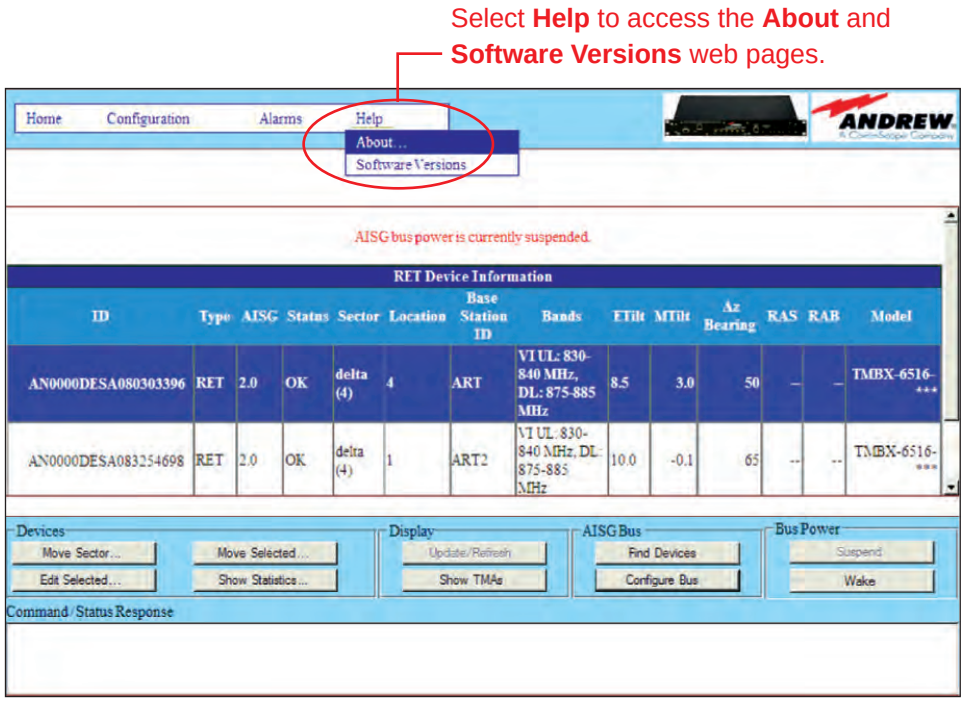

*Figure 10-10. Selecting **Help** to Access the **About** Web Page.*

1. **Help→About…**

   The operator will find important information about the ATC300 controller, including its serial number, revision, and current status (Figure 10-11).

   Note: The **Modem Ports** field is supported only by the ATC300-2000. The ATC300-1000 will indicate this information is “N/A”. This is an easy way to differentiate between ATC300 hardware models.

2. **Help→Software Versions**

   The operator will find the versions of the CommScope device firmware and the CommScope Antenna Definition File resident on the ATC300 controller (Figure 10-12).

   - **Usage of Resident Device Firmware**

     When an CommScope device is found in a scan, the controller determines whether that device type has resident device firmware available, and if that resident device firmware is newer than the version on the device. If so, the controller advises the operator that the device may be auto-upgraded. See Section 10.2 for more information on auto-upgrading CommScope devices.

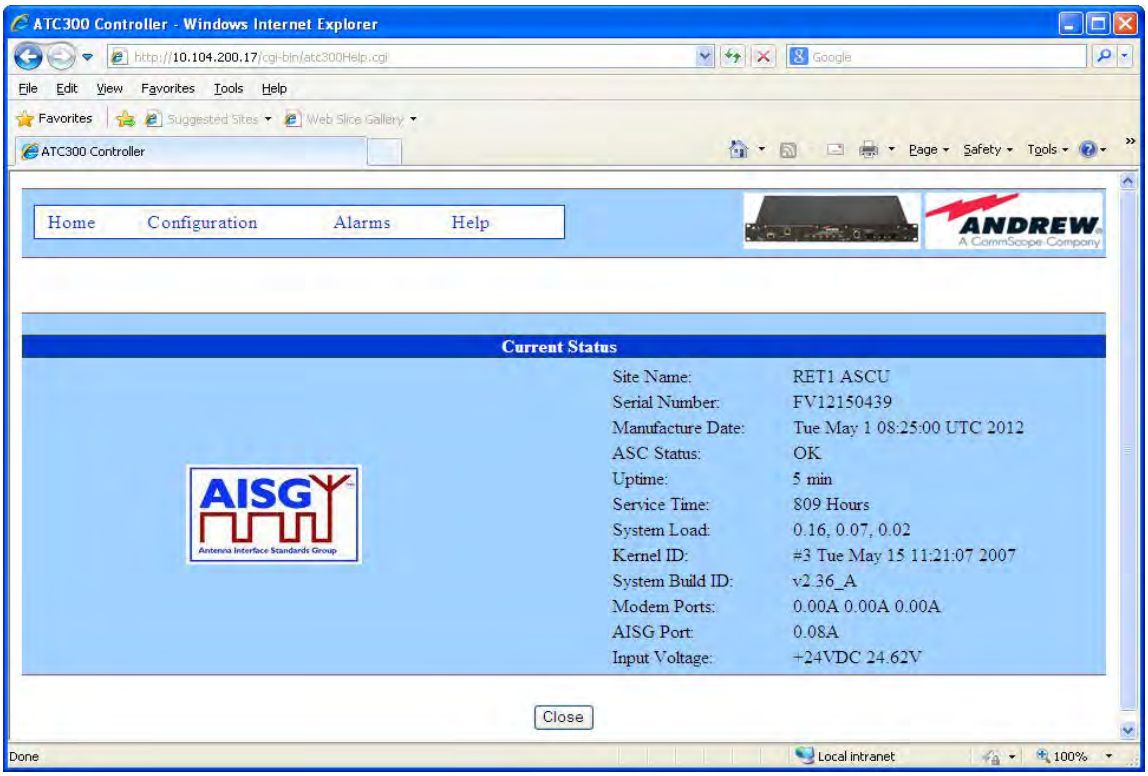

Figure 10-11. ***About*** *Web Page.*

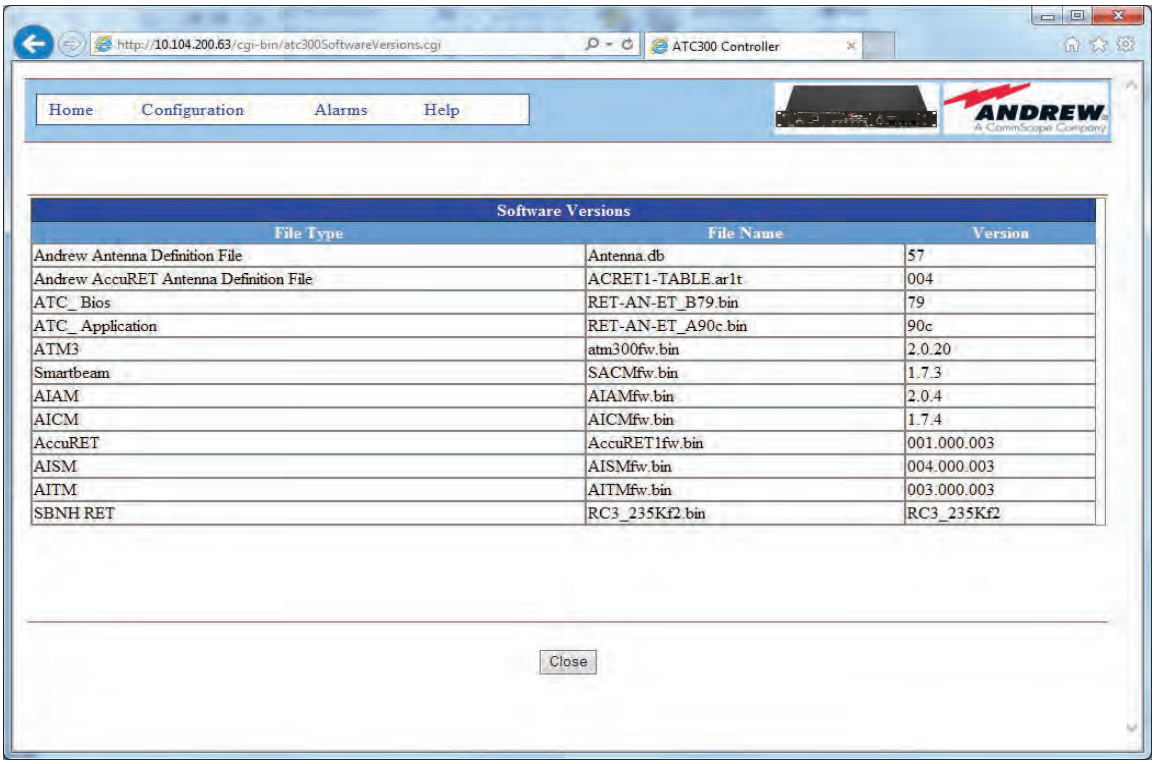

Figure 10-12. ***Software Versions*** *Web Page.*

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Part 4

Device Discovery for All Types of Antennas

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Section 11
Device Discovery and Bus Management

11.0 Section Overview

- In order for the controller to permit configurations or tilt adjustments to be made to attached devices, it must first recognize their presence.
- Device recognition is most commonly achieved by running a device search (section 11.1).
- Less commonly used, devices may be individually addressed using the **Configure Bus** feature (section 11.2).
- Some of CommScope's RETs are capable of functioning in AISG 1.1 or AISG 2.0 protocol mode. These may be changed using the **AISG Control** tools on the **Configure Bus** screen (section 11.5).
- ATC300 2.34_A and later provides the capability to change the operating mode of CommScope AITM RETs between multiple-single RET mode and multiRET mode (section 11.6).
- (ATC300-2000 only) The ATC300-2000 powers each modem port pair and the AISG bus in sequence, with about 3 seconds in between. This causes a noticeably longer wait time when the bus is woken, either from the "Wake" button on the main web page, or as a result of an operator action requiring bus activity, such as device discovery or device movement.

Warning: Close any pop up blockers running on the PC because they will inhibit some functionality of **Configure Bus** operations.

11.1 Running a Device Search

1. To begin running a device search, click on **Find Devices** from the controller's main interface screen

Figure 11-1. Selecting ***Find Devices*** *On The Main Interface Screen.*

(Figure 11-1).

2. Click on **Start Scan** to activate the device search (Figure 11-2). Note that the controller can identify up to 32 AISG devices.

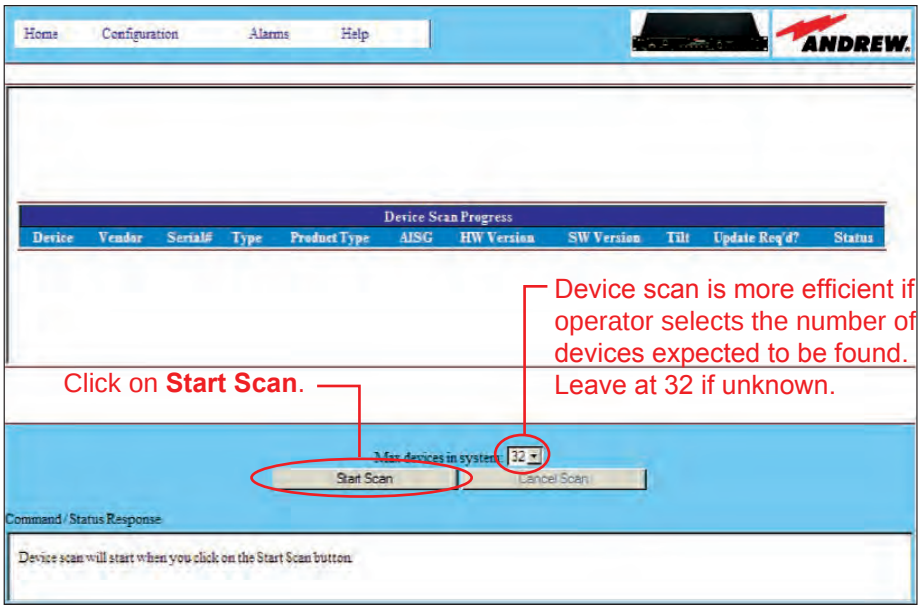

Figure 11-2. Starting Scan For New Devices.

- (ATC300 only) Device scan will allow up to 64 AISG devices in the database when the controller is configured as Bus is externally powered (See figure 7-3). Otherwise, the limit stays at 32.

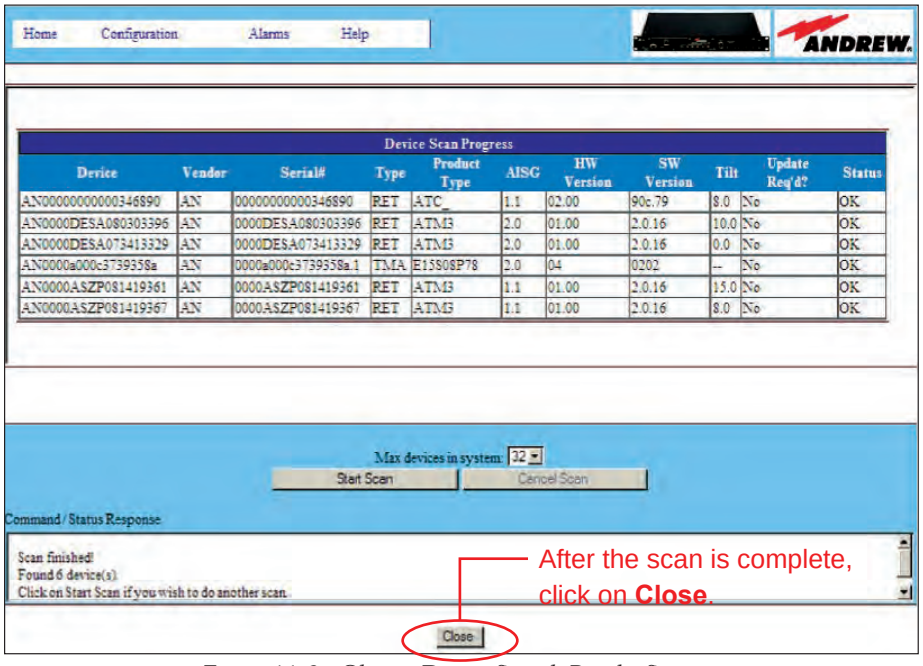

Figure 11-3. Closing Device Search Results Screen.

3. After the device search is complete, click on **Close** to return to the controller's main interface screen (Figure 11-3).

11.2 Manually Adding a Device to the Controller's System

To begin adding a device manually to the controller's system, click on **Configure Bus** from the controller's main interface screen (this button is located under the **Find Devices** button as shown in Figure 11-1).

1. Select an available address from the drop down list (Figure 11-4). If an address has already been assigned to a device, it can not be reassigned to another device unless the present device holding that address is first removed from the system (see paragraph 11.4).
2. Enter the device vendor code. This is 2 upper case letters.
3. Type in the serial number for the device to be added (Figure 11-4).
4. Select the correct **AISG Version** of this device (Figure 11-4).
5. Click on **Add Device** (Figure 11-4).

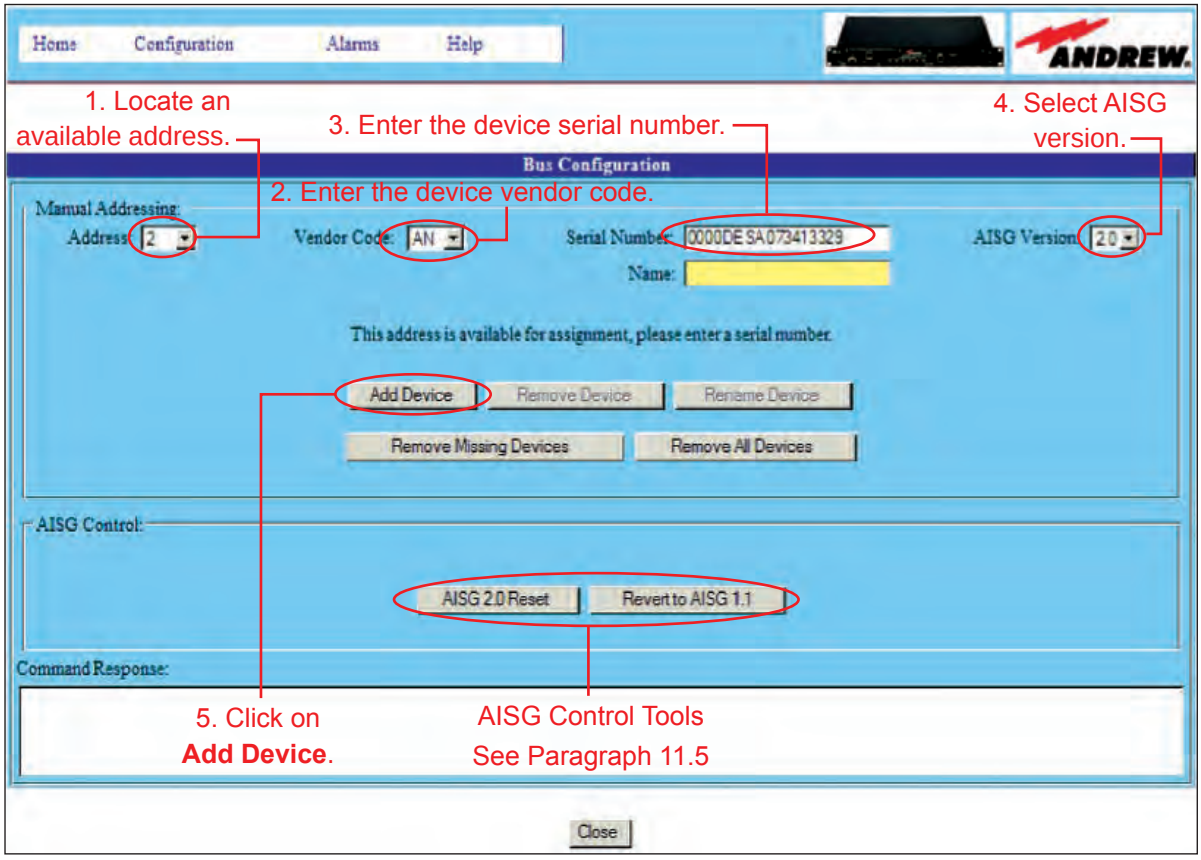

Figure 11-4. Manually Adding A Device Using ***Configure Bus*** *Feature.*

6. A progress screen will pop-up to show the device being added to the controller's system. After the device has been successfully added, click on **Close Window** from the progress window.
7. Scroll down in the **Manual Addressing** screen and click on **Close**.

11.3 Addressing

New devices are automatically assigned an address the first time they are found while running a device search. Addresses for devices that have previously been recognized through a device search are usually preserved during a new device scan, when possible.

An address can be specified for a device using the **Configure Bus** feature that also allows a device to be manually added to the controller's system (see paragraph 11.2). If a desired address is already taken, the serial number edit box will be grayed out–preventing any changes to be made. A device can be renamed, but this does not change the actual serial number already assigned to an address. Communication between the controller and the device is based upon the serial number that is embedded in the device and recognized in the controller. A device can be removed to make a specific address available for a different device and manually reloaded with a new address, if desired (see paragraph 11.4).

11.4 Removing a Device from the Controller's System

After a device has been recognized by the controller, either through a device search or manual setup, the controller's system will continue to display its status and condition until it is explicitly told to remove the device. The controller's database is not affected by power down and power up of the unit. When a device has been physically and permanently detached from the controller, it must be manually removed from the controller's system to stop the controller from monitoring the device for status and alarms.

1. To begin removing a device from the controller's system, click on the device from the controller's main screen to select it and then click on **Configure Bus**. The **Configure Bus** button is located under the **Find Devices** button in the lower portion of the screen as shown in Figure 11-1.
2. Verify that the correct serial number for the device that is to be removed shows in the **Serial Number** field (Figure 11-5).
3. Click on **Remove Device** (Figure 11-5).
4. After the device is successfully removed, click on **Close Window** in the progress screen (Figure 11-6).
5. Scroll down in the **Manual Addressing** screen and click on **Close** (Figure 11-6).

Note that there are also options to remove all devices or to remove all missing devices (Figure 11-5). **Remove Missing Devices** removes all devices from the controller database that are not currently communicating with the controller (or are in an "AISG_NO_REPLY" state).

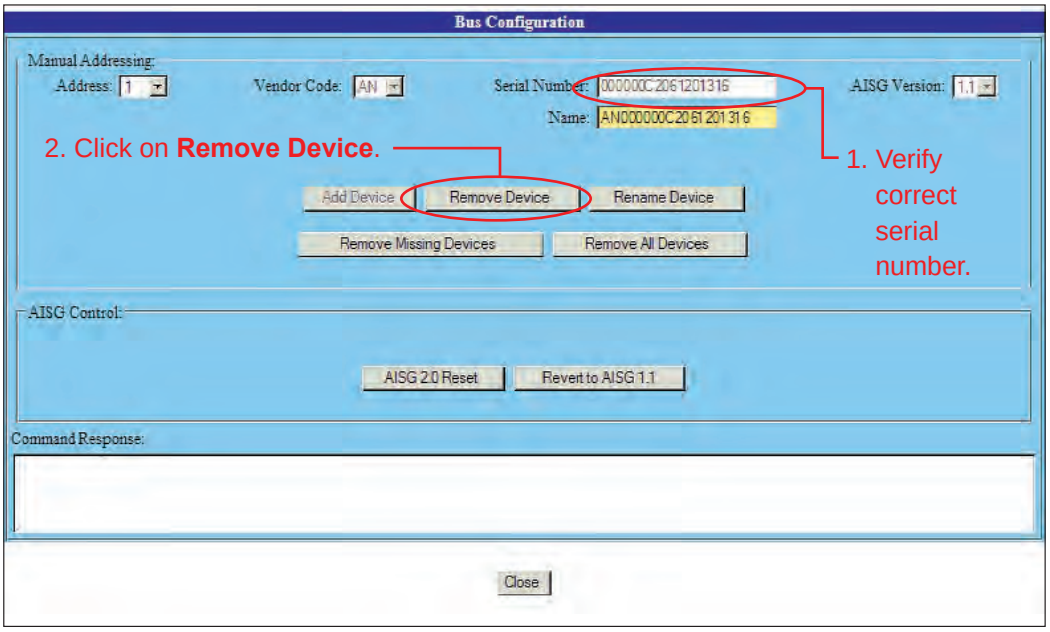

Figure 11-5. Removing A Device Using ***Configure Bus*** *Feature.*

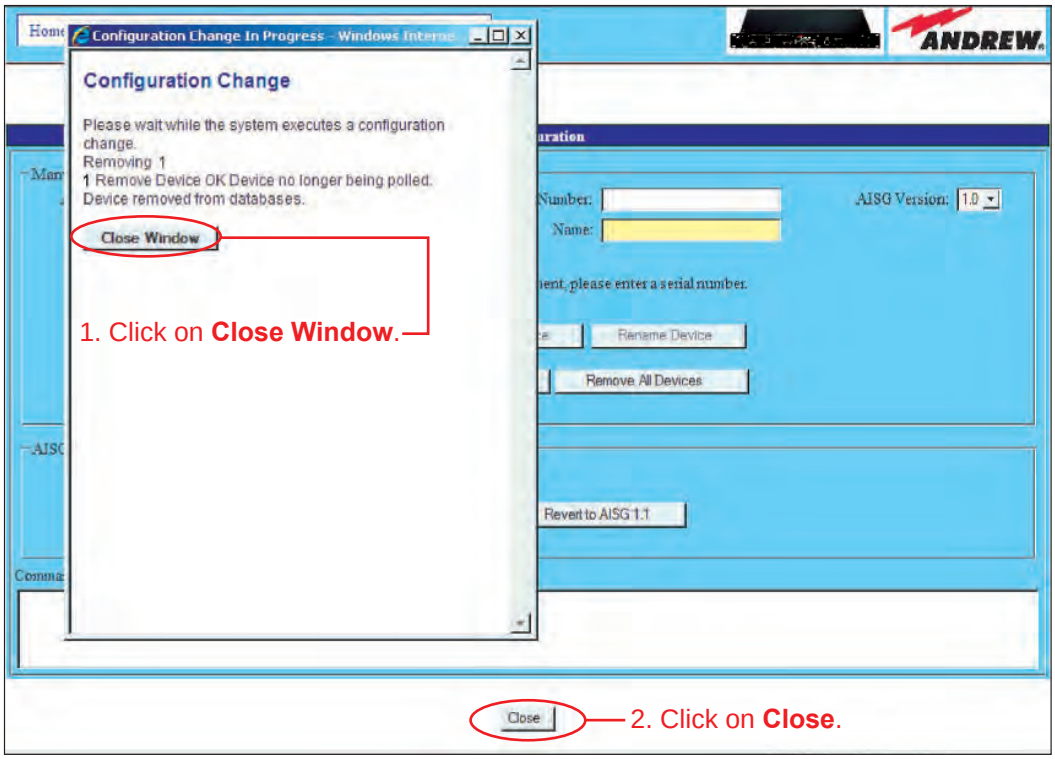

Figure 11-6. Closing ***Configure Bus*** *Windows.*

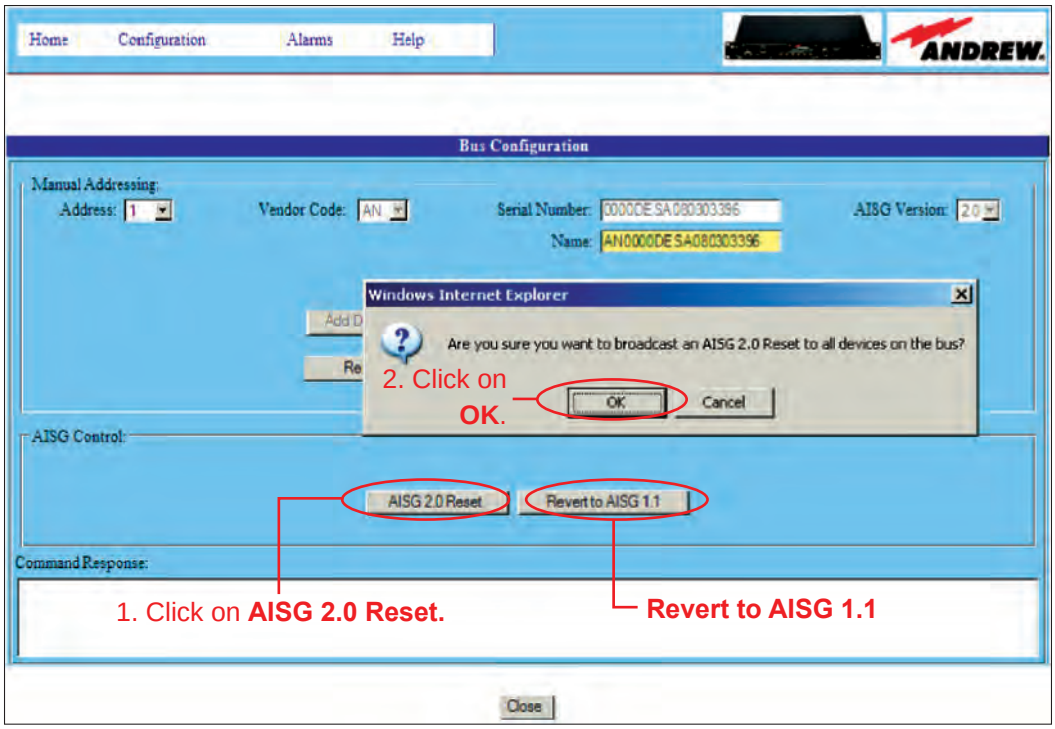

*Figure 11-7. **AISG Control** Tools.*

11.5 AISG Control Tools

The controller supports devices that utilize AISG 1.0, AISG 1.1, or AISG 2.0 protocols, or a mixed bus of these devices.

AISG 2.0 Reset and **Revert to AISG 1.1** control options are provided on the Bus Configuration screen. These tools provide specific control capabilities for AISG 2.0 capable devices (Figure 11-7).

11.5.1 AISG 2.0 Reset

1. The **AISG 2.0 Reset** control broadcasts an AISG 2.0 Reset message to all devices on the bus. This message will cause all AISG 2.0 devices to perform a reset.
2. CommScope AISG 1.0 and 1.1 devices are not affected by this message, with the exception of CommScope dual-mode devices, as explained below.
3. CommScope is unable to guarantee behavior for other manufacturer's AISG 1.0 and 1.1 devices.
4. The AISG 2.0 Reset message triggers CommScope dual-mode capable devices that are currently operating in AISG 1.1 mode to reset and then begin operation in AISG 2.0 mode.
5. ATM200-002 and ATM200-A20 devices are dual-mode actuators. Earlier models of the ATM200-002, with serial numbers that start with "C", are not dual-mode capable.
6. ATC300 2.34_A and later will also trigger an CommScope AccuRET actuator currently operating in AISG 1.1 to reset and begin operation in AISG 2.0 mode.

11.5.2 Revert to AISG 1.1

- The **Revert to AISG 1.1** control targets a specific set of actuators. It examines the database of devices and sends an addressed “revert to AISG 1.1” message to each CommScope dual mode RET operating in AISG 2.0 mode. A few CommScope dual-mode TMAs are also affected.
- On receipt of this message, each targeted RET performs a reset and then begins operation in an AISG 1.1 mode.
- No message is sent to any other devices.
- ATC300 2.34_A and later will also cause an CommScope AccuRET actuator currently operating in AISG 2.0 to reset and begin operation in AISG 1.1 mode.

11.5.3 Using the AISG Control Tools

1. Run a **Device Scan** to enter all devices on the RET system into the controller’s data base.
2. Select **AISG 2.0 Reset** to reset all AISG 2.0 devices. This will also cause any CommScope dual-mode devices operating in AISG 1.1 mode to reset in AISG 2.0 mode.
3. Select **Revert to AISG 1.1** to revert each CommScope dual-mode RET operating in AISG 2.0 mode back to AISG 1.1 mode (Figure 11-7).
4. Refer to the **AISG** column in the main interface screen to view the AISG protocol in use for each device (Figure 11-8).
5. Communication is temporarily interrupted to the AISG devices on the RET system when an **AISG 2.0 Reset** command is sent. This interruption is identified by a **AISG_NO_REPLY** message in the **Status** column in the main interface screen (Figure 11-8).

- Operating screens will vary somewhat for devices operating in AISG 1.1 to those operating in AISG 2.0, due to the differences in the two AISG protocols. Where possible, all AISG devices should operate in the same AISG mode to provide the best operating conditions.

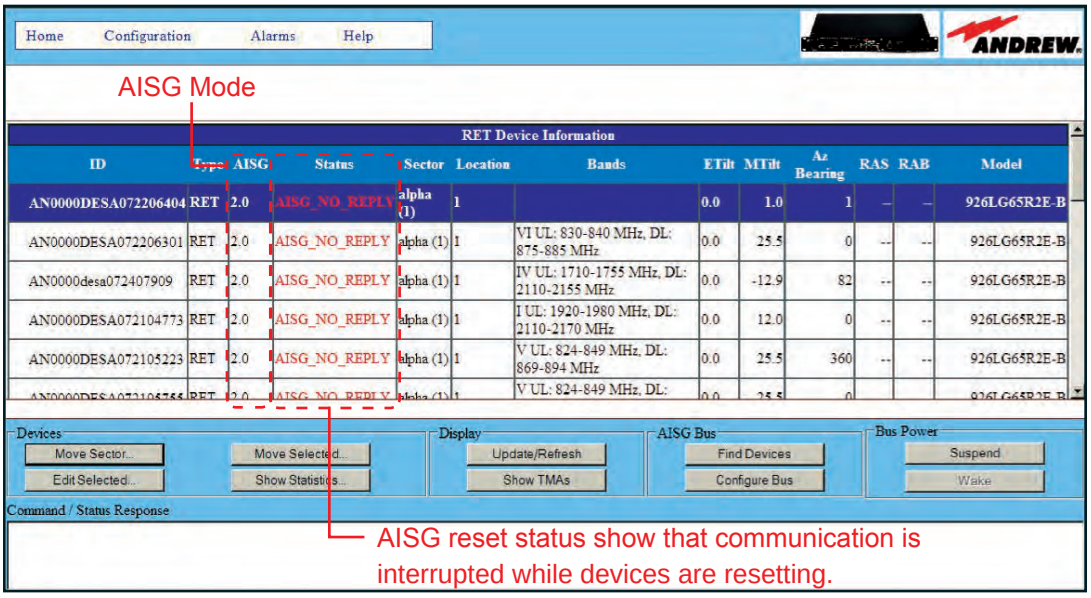

Figure 11-8. AISG 2.0 Reset Status Displayed On The Main Interface Screen.

11.6 CommScope AITM Actuator Mode Management (ATC300 2.34_A and later only)

As of version 2.34_A, the ATC300 controller **Bus Configuration** web page provides the capability to change the operating mode of CommScope AITM internal actuators between multiple-single RET mode and multiRET mode. This feature is targeted to this device type only, and will not be available unless one or more AITM devices have been discovered on the AISG bus.

Note: The product type of devices can be found on the Statistics screen and the Find Devices screen. As an example, in Figure 11-9, this discovered device's **Product Type** is "AITM" and the device **Type** is "MRET", which indicates multiRET. An AITM in multiple-single RET mode would display an entry for each tilt, and would indicate a **Type** of "RET".

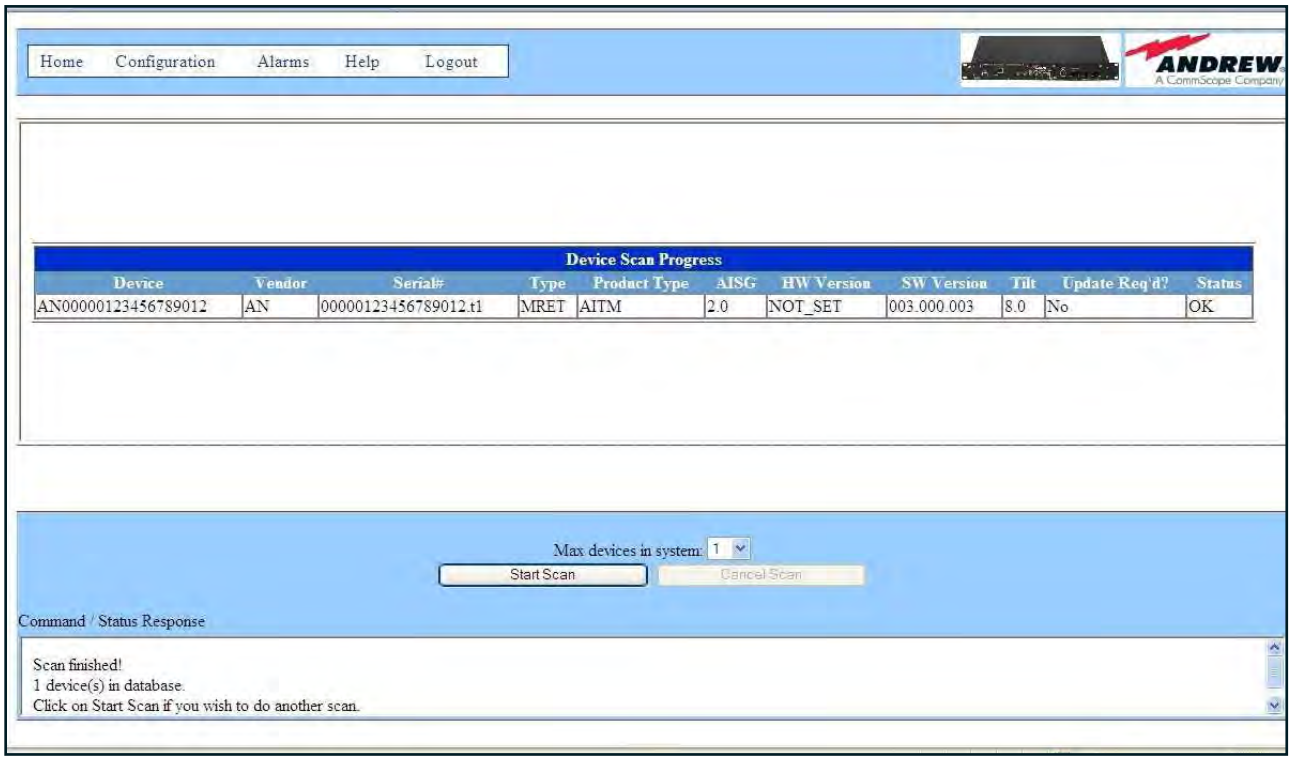

Figure 11-9. Device Scan Results of an CommScope AITM Device in MultiRET Mode

When in multiRET mode, the internal actuators have one bus address, but support multiple tilts. The devices IDs have suffixes of ".t1", ".t2", etc. This mode is sometimes called "Type 17", as this is the AISG-defined indication of a multiRET device.

When in multiple-single RET mode, the internal actuators are assigned one bus address per tilt and act as independent actuators. The 19-character devices IDs end with "t1", "t2", etc. This mode is sometimes called "Type 1", as this is the AISG-defined indication of a single RET device.

11.6.1 Set AITM(s) to Multiple-Single RET Mode

This button is available when at least one CommScope AITM actuator in multiRET mode has been found and is in the database. Select this option to change all AITMs that are in multiRET mode to multiple-single RET mode. After the mode has been successfully changed, the devices will no longer be in communication and should be deleted. Perform a new device scan to find the devices in their new mode.

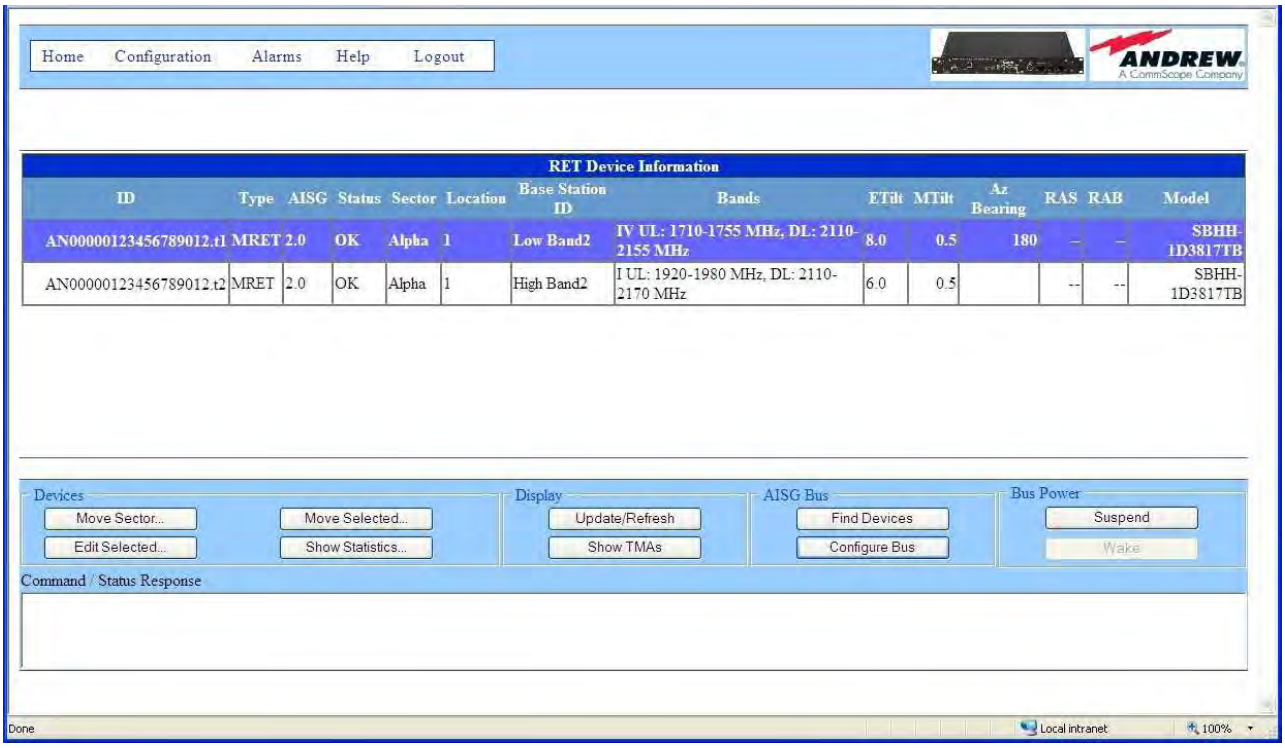

Figure 11-10. CommScopeAITM Device in MultiRET Mode

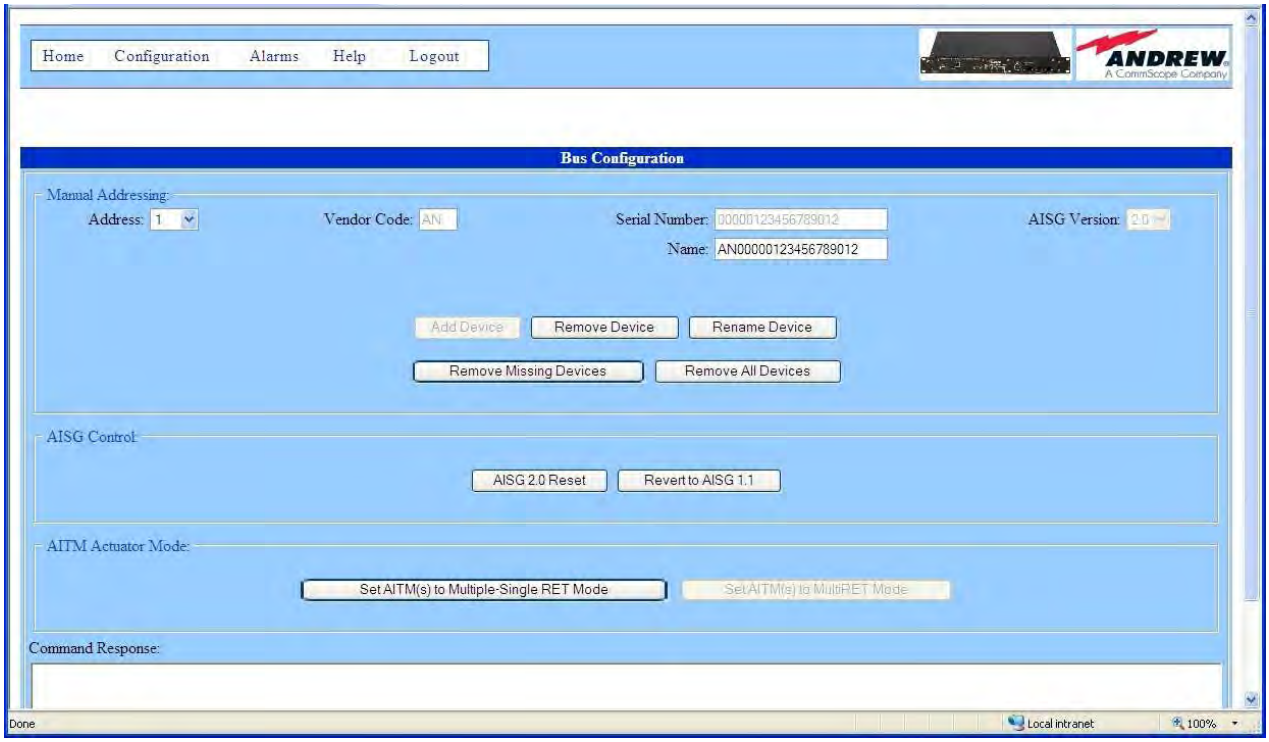

Figure 11-11. Option to Set the AITM to Multiple-Single RET is available

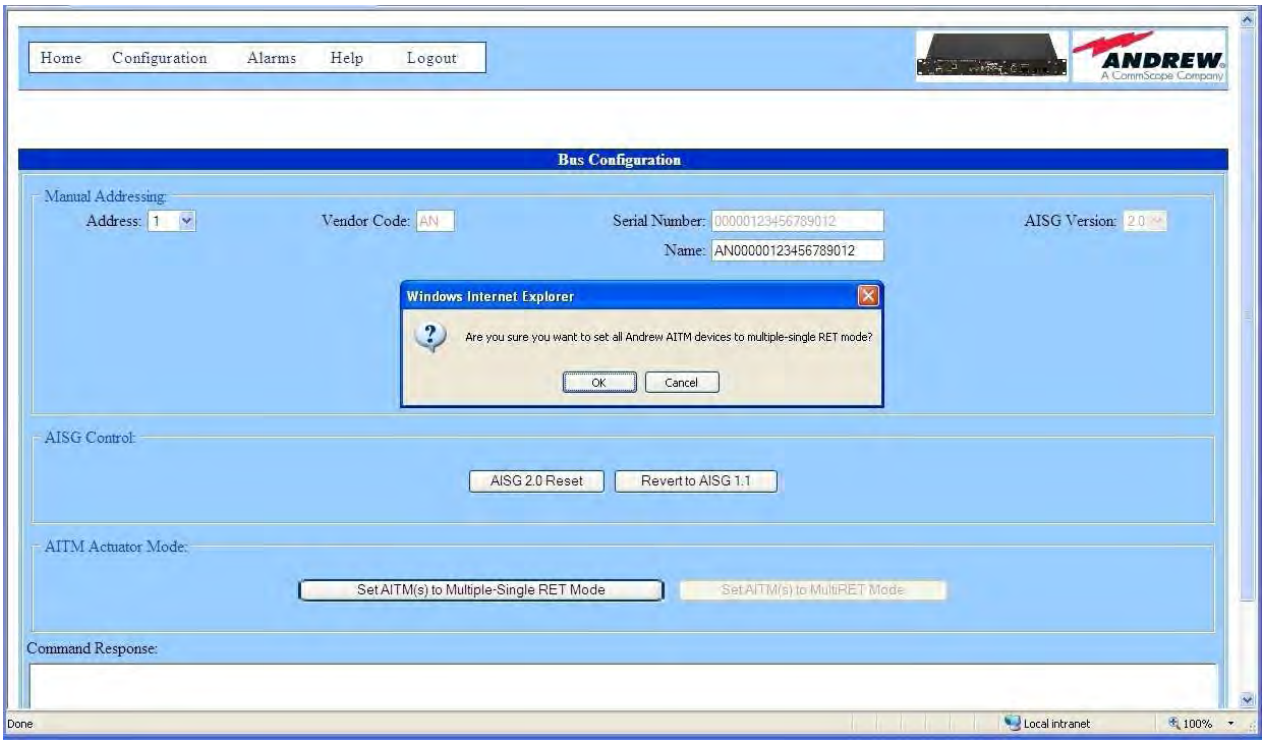

Figure 11-12. Verify Mode Change from MultiRET to Multiple-Single RET

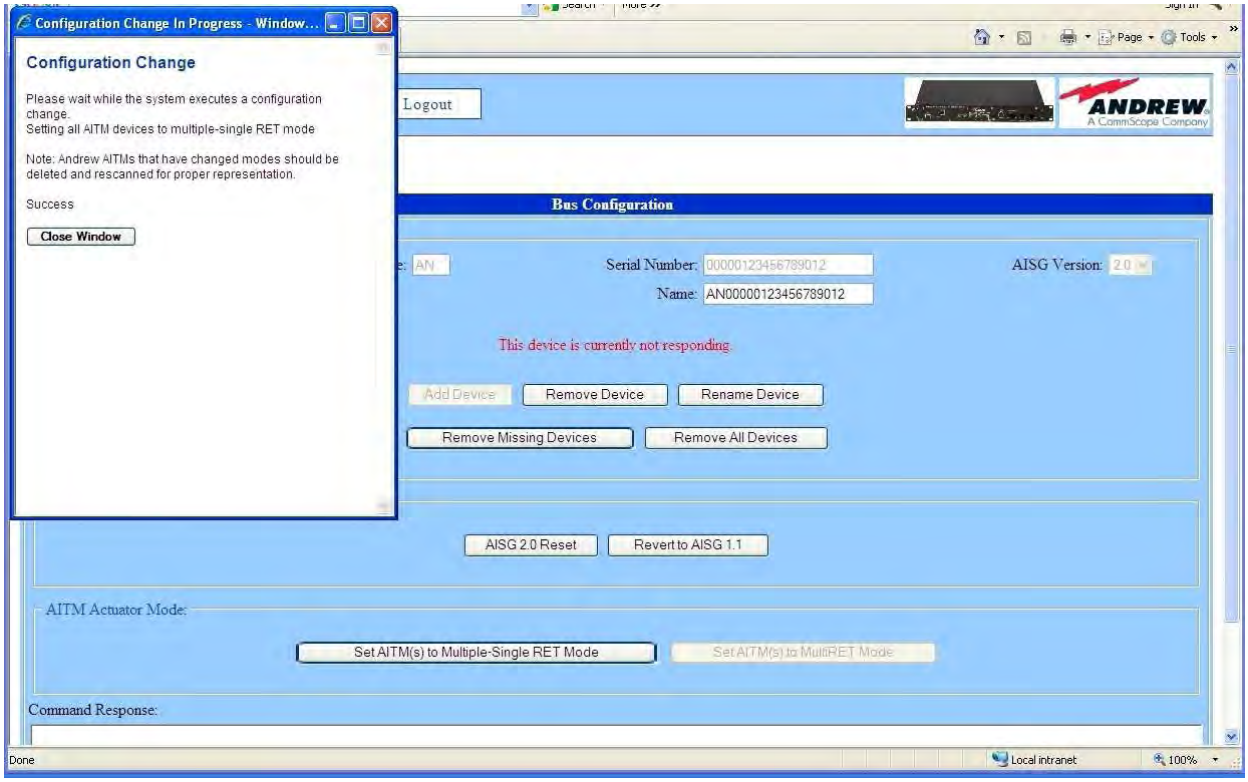

Figure 11-13. Successful Mode Change from MultiRET to Multiple-Single RET

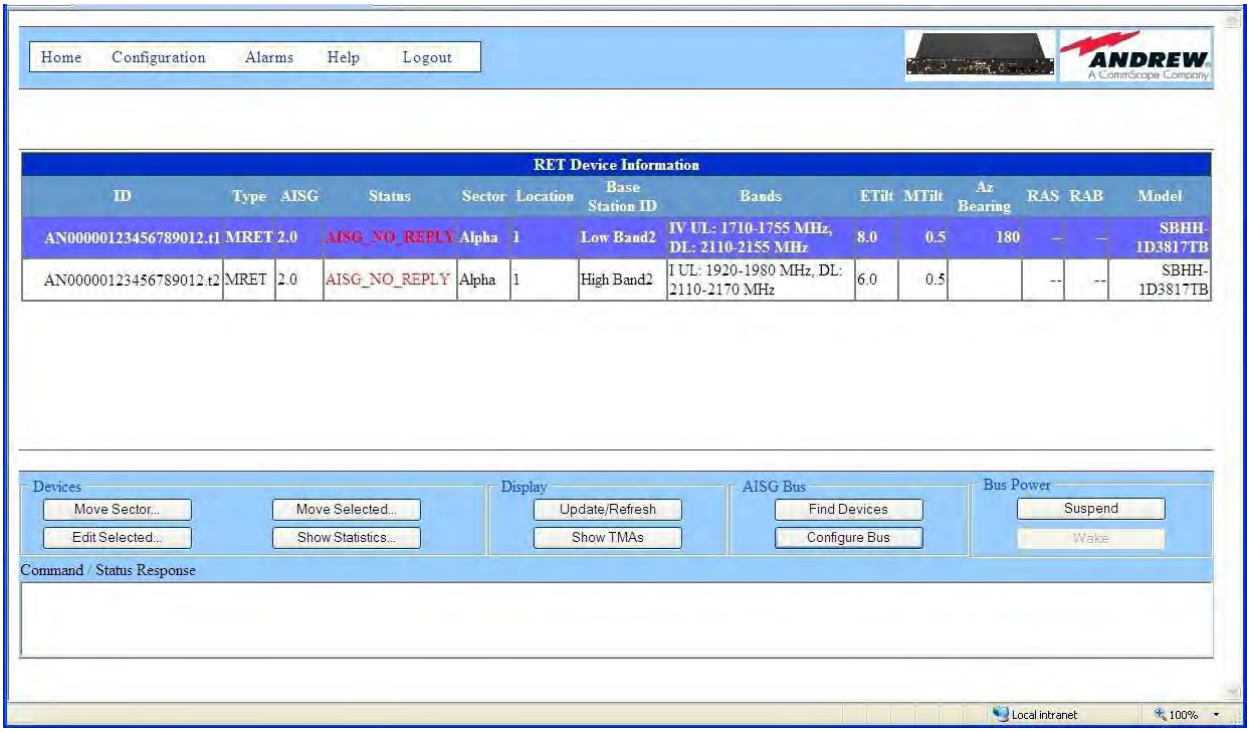

Figure 11-14. Loss of Communication After Mode Change from MultiRET to Multiple-Single RET

11.6.2 Set AITM(s) to MultiRET Mode

This button is available when at least one CommScope AITM actuator in multiplesingle RET mode has been found and is in the database. Select this option to change all AITMs that are in multiple-single RET mode to multiRET mode. After the mode has been successfully changed, the devices will no longer be in communication and should be deleted. Perform a new device scan to find the devices in their new mode.

Figure 11-15. CommScope AITM Device in Multiple-Single RET Mode

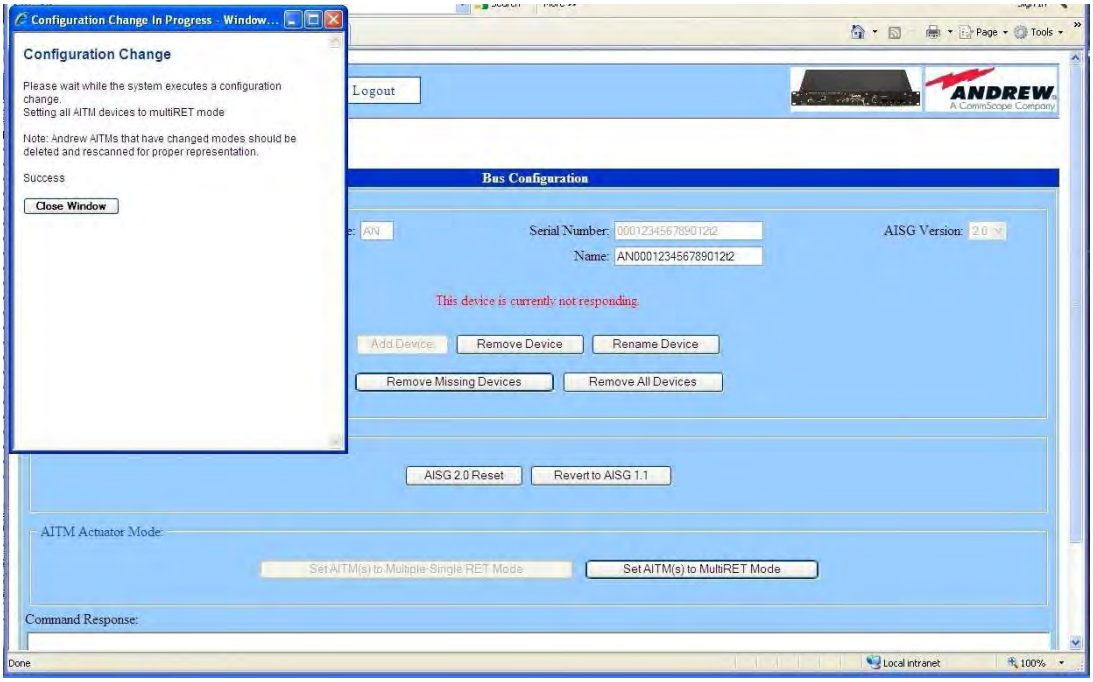

Figure 11-16. Successful Mode Change from Multiple-Single RET to MultiRET

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Part 5

Operating Instructions for Standard Antennas with Attached Actuators

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Section 12
Device Configuration

12.0 Section Overview

Before the controller can successfully send commands to a known device, the device must first be configured to provide specific information about the antenna and its location on the site. Actuators that have been factory installed on an antenna are pre-configured to include the antenna model number, antenna type, and antenna serial number (remaining fields will need to be configured). After each device has been configured, the site configuration can be saved for future reference.

12.1 Configuring a Device

1. From the controller's main interface screen, click on the device that is to be configured to select it; then click on **Edit Selected** (Figure 12-1).

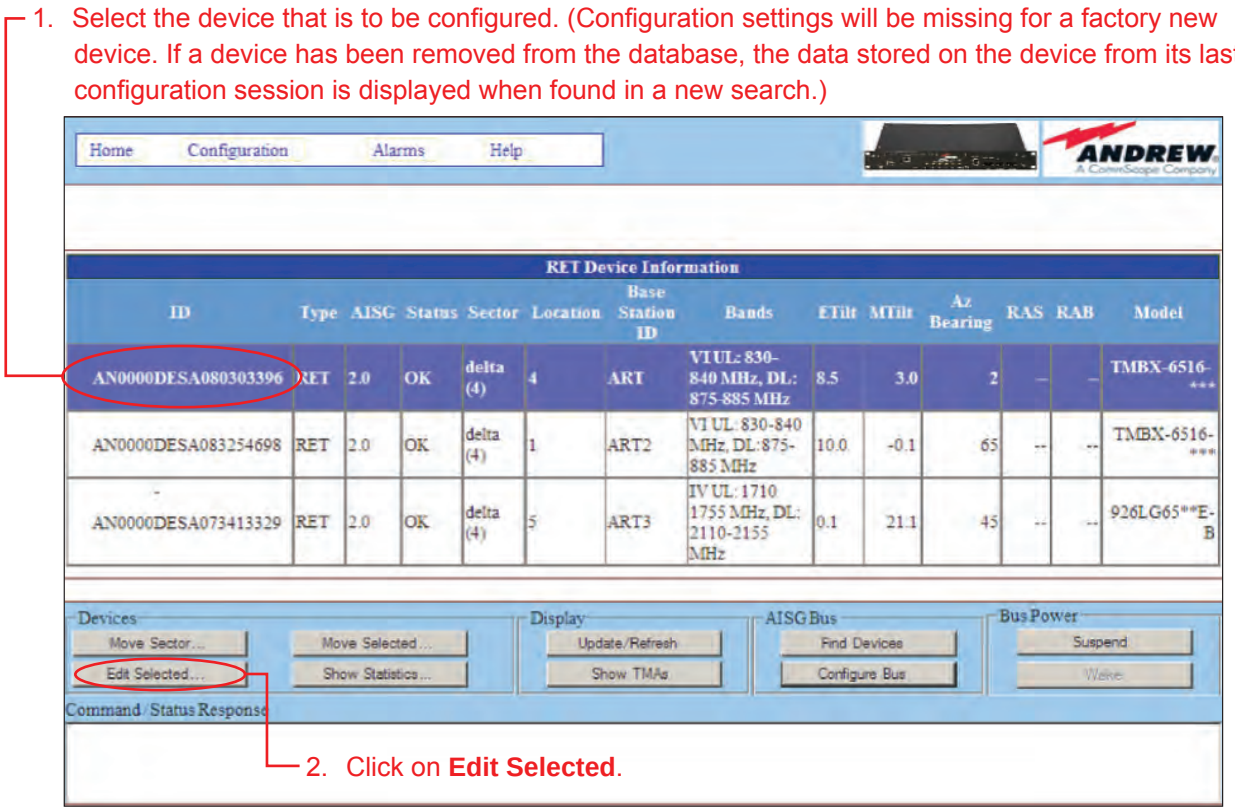

Figure 12-1. Selecting A Device For Configuration.

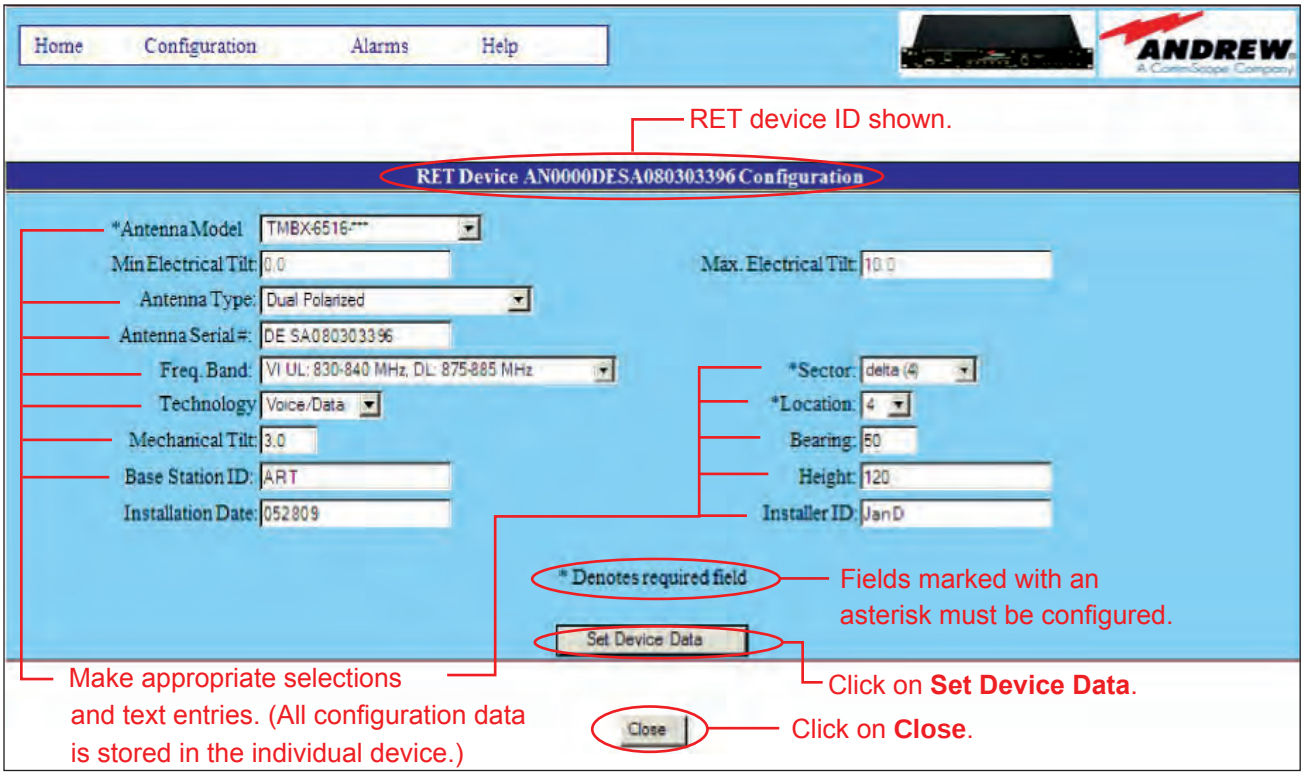

Figure 12-2. Configuring A New Device.

Notice that the ID for the device that was selected from the main screen appears in the title bar of the **Device Configuration** screen. Required fields are marked with an asterisk. Saving a new configuration will not be permitted if any of the required fields are left blank or if values are out of range. Refer to Figure 12-2.

2. Click on the drop down arrow to the right of **Antenna Model**, and select the antenna model that is using the device. As of ACT300 firmware version 2.21_A, and ATC200 firmware version 464A8_A, the CommScope Antenna Definition File now groups the antenna models into logical “families”.

   If no antenna models are available for selection, then an antenna definition file must be loaded on the controller. See Section 9.

   This drop down list displays the CommScope base station antenna models that were defined in the latest antenna definition file.

   Note that after an antenna model is selected, its minimum and maximum electrical down tilt range values are displayed just below the drop down list.

IMPORTANT

The antenna model selected must match the actual installed antenna that is attached to the actuator (device). Movement data specific to this antenna will be sent to the actuator as a result of this selection. If the antenna model selected does not match the attached antenna, the movement range sent to the actuator will be incorrect and may prevent the antenna from functioning correctly. See paragraph 12.2 about the new generic antenna model naming protocol.

Factory installed actuators are pre-configured to include the antenna model number, antenna type, and antenna serial number it is operating.

3. Click on the drop down arrow to the right of **Antenna Type**, and select the type of antenna that is correct for the antenna model you selected. Note that this value is used for reference only and has no direct affect upon the Actuator/Antenna that is being configured.
4. Enter the serial number of the antenna that is attached to this device in the **Antenna Serial #** field. Note that this field is optional. However, if it is entered, it must be from 1 to 17 characters in length and it may contain any combination of letters and numbers.
5. Specify the parameters for the remaining fields (Frequency Band, Technology, Base Station ID, Installer ID, Installation Date, Mechanical Tilt, Bearing, Height, Sector, Location).

   Note the following:

   - The fields of Antenna Type, Technology, Location, and Height are available for CommScope non-TMA devices only.
   - A positive mechanical tilt angle means that the antenna beam is directed below the horizontal plane. A negative mechanical tilt angle means that the antenna beam is directed above the horizontal plane.
   - The **Bearing** is the installed compass orientation for this antenna.
   - The **Height** of the antenna up the tower must be entered in the range of 1 to 999. No specific unit of length, such as feet or meters, is associated with this field. However, you should enter a value that conforms to the units of length customarily used by your company for antenna installations.
   - The **ID** for the base station associated with this antenna must be 1 to 12 characters in length for AISG 1.x devices and 1-32 characters in length for AISG 2.0 devices, and may contain any combination of numbers and letters.
   - The **Installation Date** field must be 1 to 6 characters in length with any combination of letters and numbers.
   - The **Installer ID** must be 1 to 5 characters in length with any combination of letters and numbers.
   - The **Location** field is a string with a numeric value from 1 to 32 that describes an actuator's position within a sector. Each device should have a unique sector-location combination.
   - Mechanical tilt has a valid range of -12.8 to 12.7 in AISG 1.1, and ±180.0 in AISG 2.0.
   - Values specified for the **Frequency Band**, **Technology**, and **Mechanical Tilt** are used for reference only and have no direct affect upon the actuator/antenna that is being configured.
6. Carefully review all selections. If satisfied that all are correct, click on **Set Device Data**. Alternately, the user may go back and edit/change any of the selections made or click on **Close** to quit this process without making any changes to the actuator's current configuration.
7. Click on **Close** after the new settings have finished uploading to the device (Figure 12-2).
8. If the device was successfully configured, the status will indicate the device is **OK** on the main screen. Note that not all of the items that were configured are displayed on the main screen (Figure 12-3).

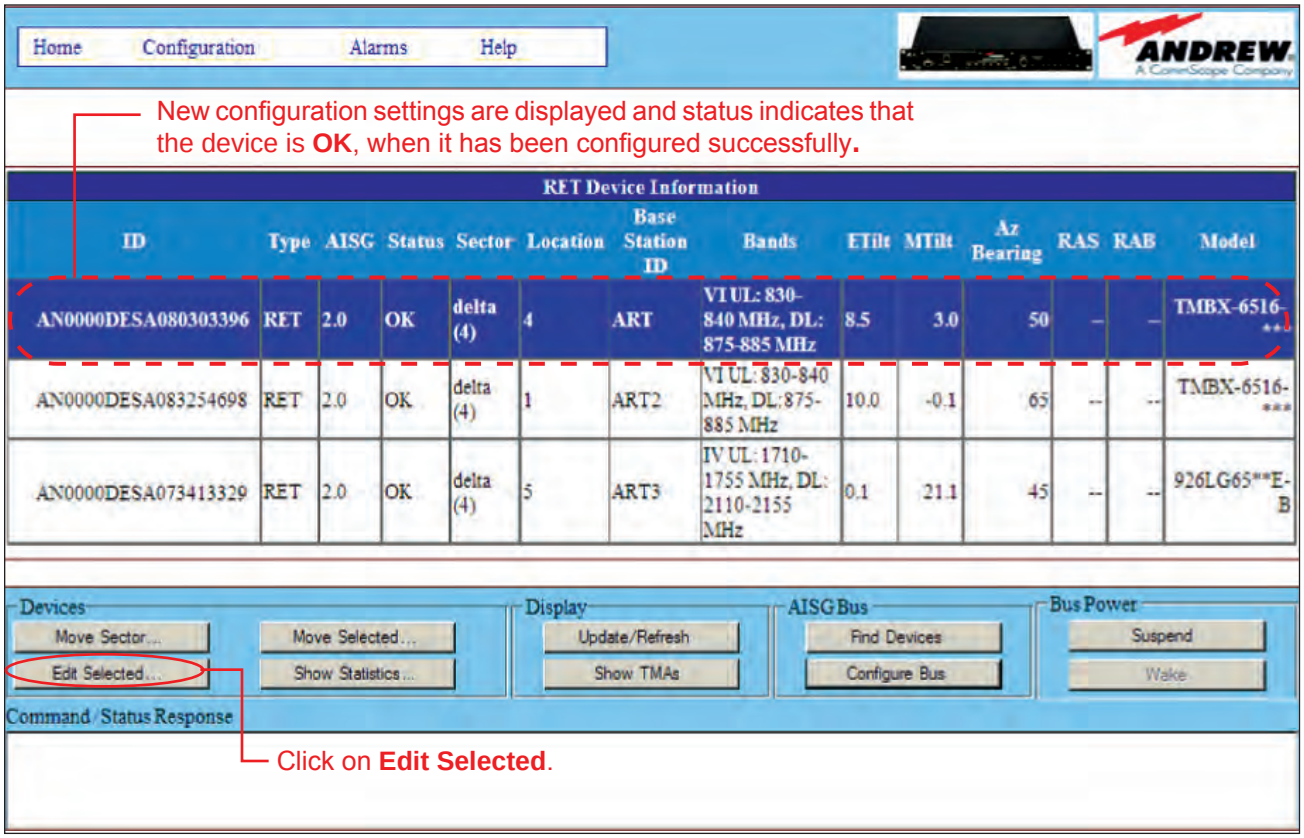

Figure 12-3. Configuration For New Device Displayed In Controller's Main Interface Screen.

To verify that each item configured was set correctly, select the device from the main screen and click on **Edit Selected** to review each item. Click on **Close** when finished verifying the settings to return to the controller's main interface screen (Figure 12-3).

12.2 Generic Antenna Model Naming

As of firmware version 2.21_A, the latest CommScope Antenna Definition File is distributed as part of the firmware bundle. The CommScope Antenna Definition File now groups the antenna models into logical "families".

When configuring a RET, the operator will not find their exact antenna model name listed as an option, but rather should select the appropriate model "family" name (Figure 12-4). Each family model name is followed by three asterisks which designates that several specific related mo This approach allows the controller to support new antenna models within known antenna model families, without a firmware update.

For example, the HBX-6513DS-R2M and HBX-6513DS-VTM antennas are both represented by this family name: HBX-6513DS-***.

Multiband antennas also have a suffix to indicate the band. The DBXLH-6565A model family is represented by: DBXLH-6565A-***-LO and DBXLH-6565A-***-HI.

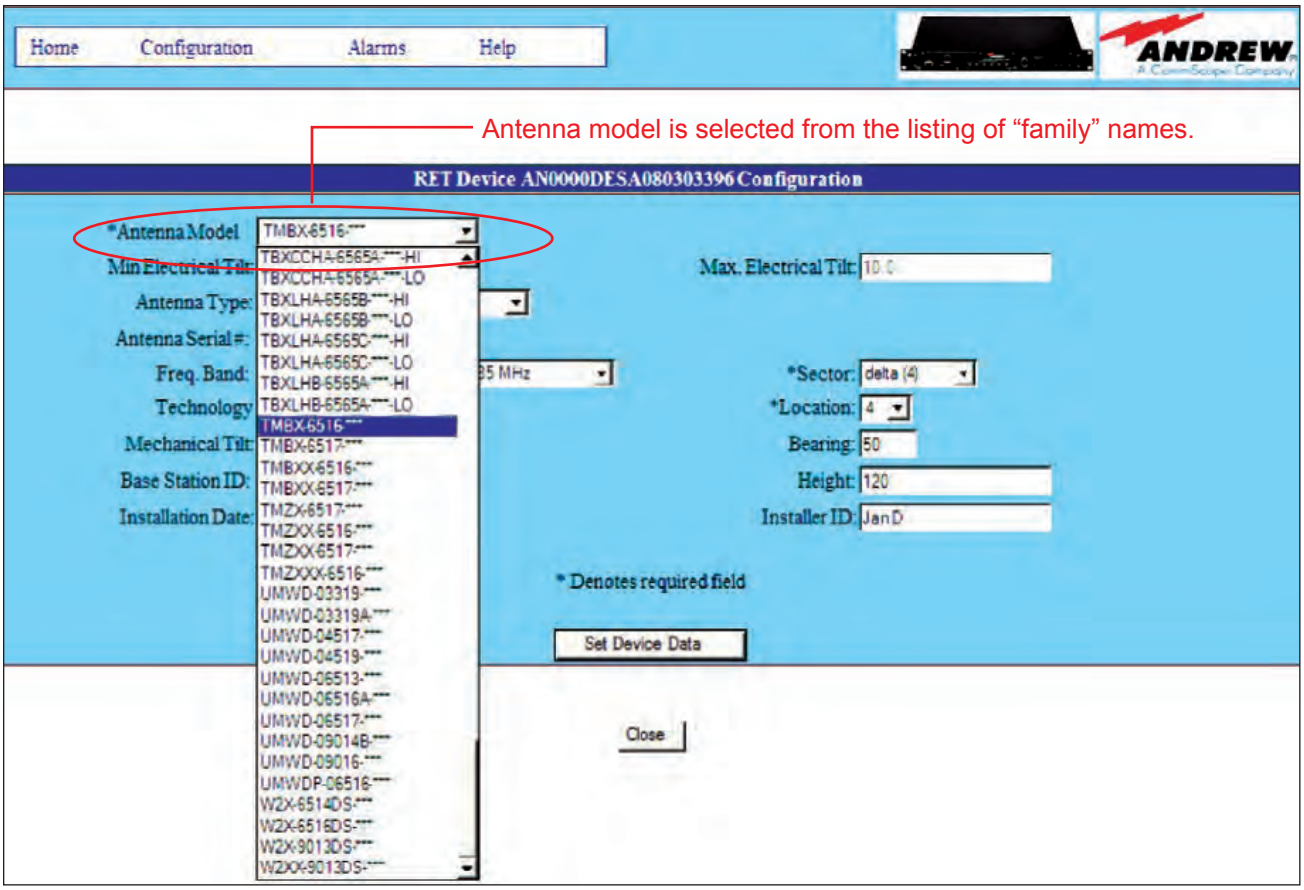

Figure 12-4. Selecting The Appropriate Model "Family" Name.

12.3 Saving a Device Configuration to File

To save your configurations to a file for future reference, place your mouse over the area where the devices are listed on the main screen and right click. From the pop-up menu, select **Export to Microsoft Excel**.

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Section 13
Adjusting the Electrical Downtilt on a Single Antenna

13.0 Section Overview

- The electrical downtilt may be adjusted on any device that is addressed, configured, and whose current state does not prevent antenna movement.
- Movement may be prevented when a device is not responding to commands from the controller, is in the middle of a move or configuration change, or is experiencing a mechanical malfunction.

13.1 Adjusting the Downtilt Angle on a Single Antenna

1. From the controller's main interface screen, select the device to be moved (Figure 13-1).
2. Click on **Move Selected** (Figure 13-1).

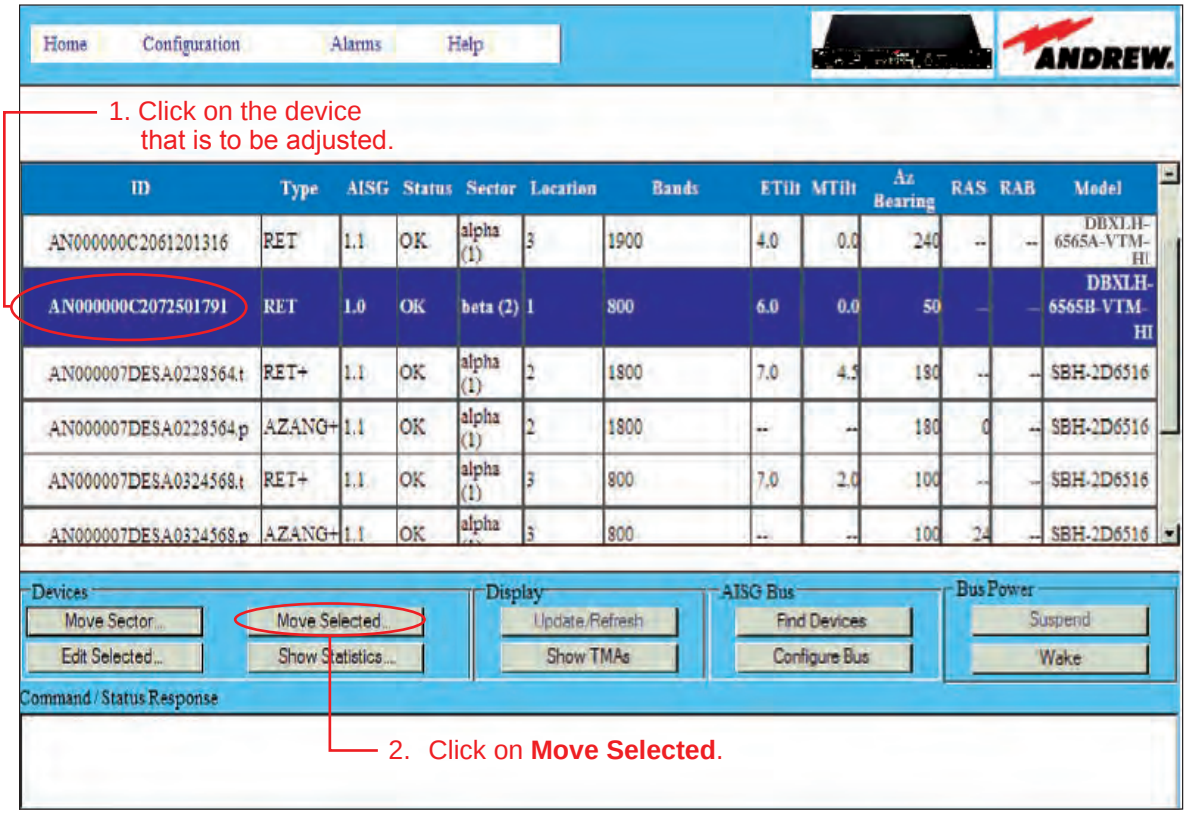

Figure 13-1. Selecting Device To Be Adjusted.

The **RET Device Movement** screen shown in Figure 13-2 displays the information that was previously configured for the device. This information may be used as a reference to help determine the new tilt setting. Note that only tilt changes may be made from this screen. Any changes needed to be made to the configuration for the device must be done from the **Device Configuration** screen as discussed in Section 12.

3. Enter the new angle for the device in the **Set Tilt** field. Note that the allowed range of angle values is displayed in the **Min Electrical Tilt** and **Max Electrical Tilt** fields in the top part of the screen. Any downtilt angle within this range may be entered. Angles may be entered as whole degrees, or as a combination of whole degrees and tenths of a degree (Figure 13-2).

   Examples: Five degrees downtilt may be entered as **5** or **5.0**. A downtilt of five and one-half degrees would be entered as **5.5**.

4. Click on **Set Tilt** to apply the changes to the electrical downtilt for this antenna. Alternately, to exit the screen without sending any changes, click on **Close**.

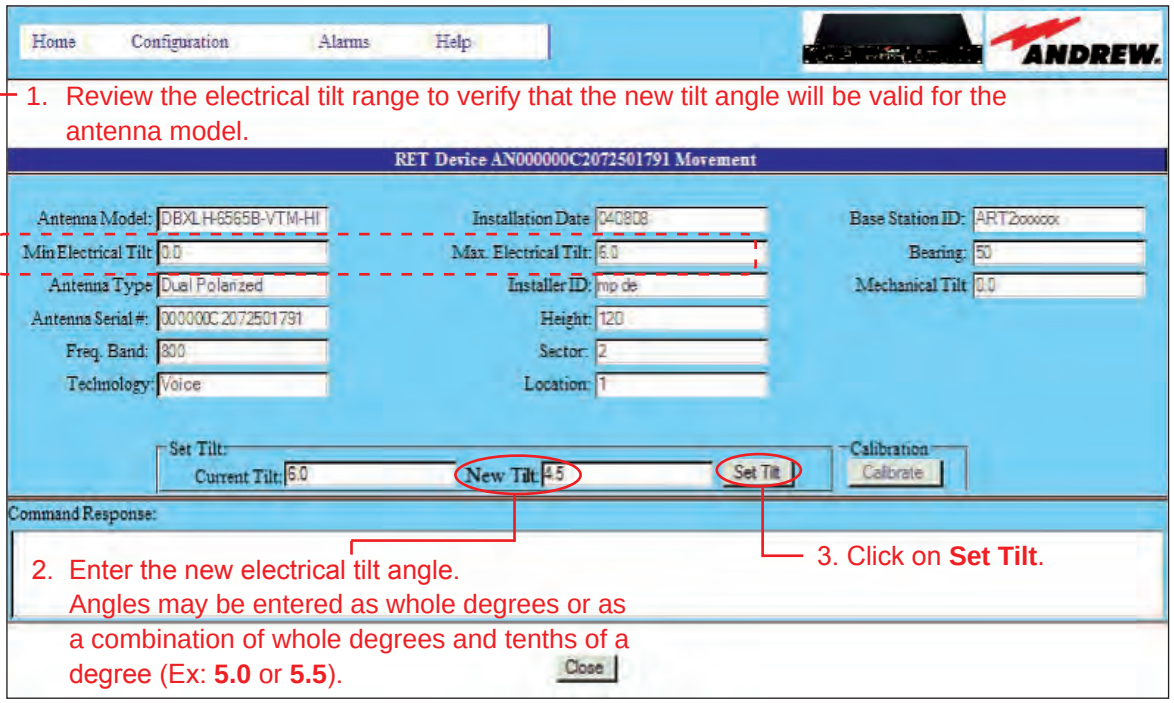

Figure 13-2. Changing Electrical Tilt Setting For Single Antenna.

5. A progress indicator bar will appear in a pop-up window to continually provide an update for as long as the move is in progress. You will be notified when movement is complete. Click on **Close Window** from the pop-up window (Figure 13-3).

   If for any reason the move failed to reach the new downtilt angle specified, you will be notified of the failure.

6. After the antenna has completed movement to its new tilt angle, the new angle will be displayed in the **Current Tilt** field and the **New Tilt** will be cleared in preparation for the next move (Figure 13-3).

   At this point, you may click on **Close** (Figure 13-3) to return to the controller's main interface screen (Figure 13-4). Alternately, this process may be repeated to further adjust the downtilt or to reapply changes where movement had previously failed, such as a temporary mechanical jam.

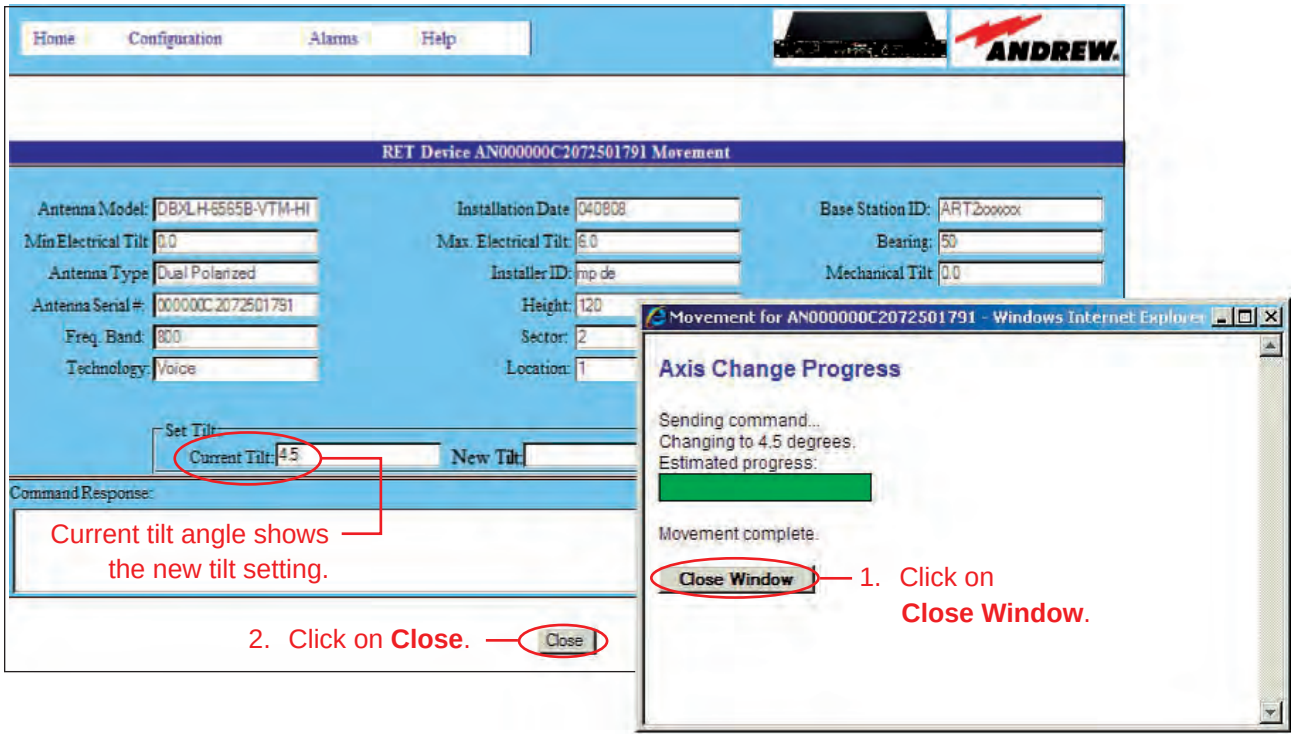

Figure 13-3. Tilt Change Complete For Single Antenna Move.

The new downtilt angle will be displayed on the controller's main interface screen for the antenna/ device that was adjusted (Figure 13-4).

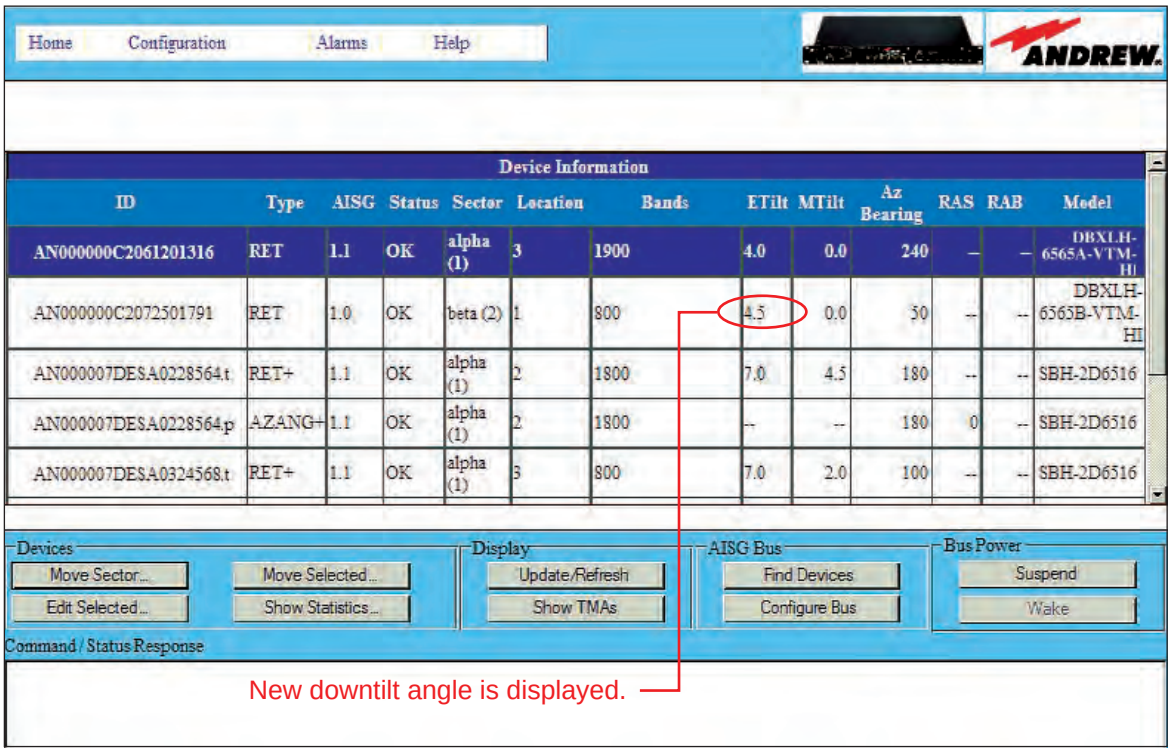

Figure 13-4. New Downtilt Angle Shown For Single Antenna Move.

Section 14
Adjusting the Electrical Downtilt on a Group of Antennas

14.0 Section Overview

In addition to changing the downtilt of a single antenna, changes may also be applied to a group of antennas. The antennas that can be included in a group move must be in the same sector and have the same electrical tilt range (same minimum and maximum tilt) and be the same device type.

14.1 Adjusting the Downtilt Angle on a Group of Antennas

1. Select a device from the controller's main interface screen that is to be included in the sector move (Figure 14-1).
2. Click on **Move Sector** (Figure 14-1).

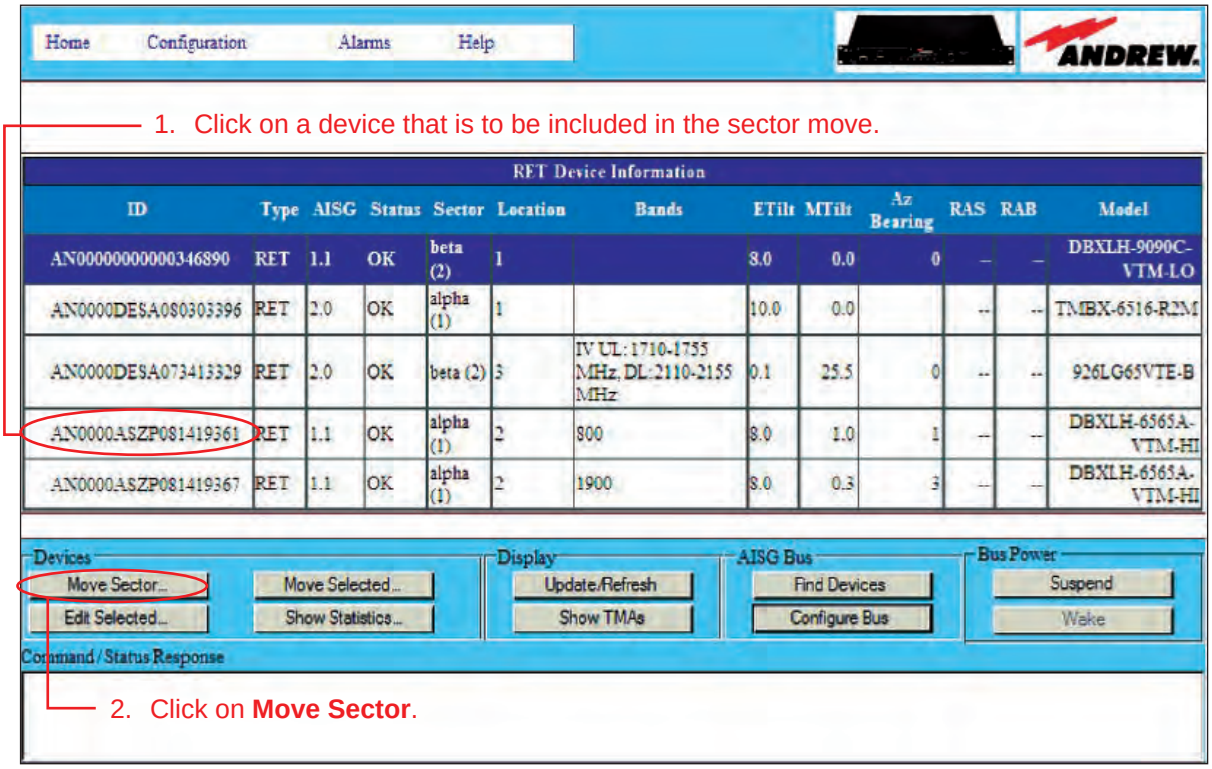

Figure 14-1. Selecting A Device That Is To Be Included In The Sector Move.

Notice that the device that was selected to be included in the sector move is highlighted and displayed in the **Included** box. This box displays a list of all devices that will be included in the sector move. Initially, this box contains only the antenna that was selected from the controller's main interface screen. The minimum, maximum, and current tilt for this device is displayed on this screen (Figure 14-2).

Other devices that have the same sector ID, minimum tilt, and maximum tilt are listed in the **Additional** box. If desired, the configuration settings can be viewed for each device before adding them to the sector group to be moved. Click on each model individually to view the configurations for each device.

Note that up to 12 antenna/device pairs may be selected for a sector move. Any more than 12 will be denied when attempting to add to the group for inclusion in the move.

3. Select the device, and click on **Add** (Figure 14-2). (Alternately, double-click on the device from the **Additional** box to move the device to the **Included** box.)
4. Examine the group selected for the sector move (shown in the **Included** box), to ensure that the group does not include any antennas that are not desired for this move. If you find that a device is not wanted for inclusion in the sector move, click on the device, and click on **Remove**. (Alternately, double-click on the device to remove it from the group.)

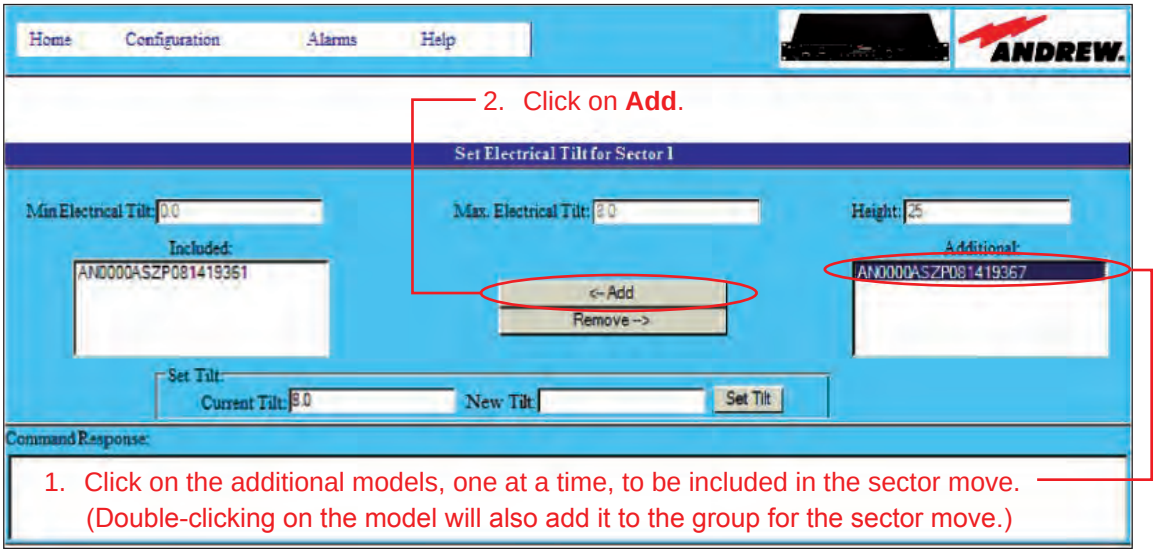

Figure 14-2. Adding Models To Be Included In The Sector Move.

5. When satisfied with the list of antennas that will be included in the group move, enter a new downtilt angle in the **New Tilt** text entry field, and click on **Set Tilt** to begin the move (Figure 14-3). Progress for each antenna movement in the group will be displayed separately (Figure 14-4).
6. You will be notified when all antennas have successfully reached the new tilt angle. Click on **Close Window** from the pop-up window (Figure 14-4).
7. The new angle will be displayed in the **Current Tilt** field and the **New Tilt** field will be cleared. If further adjustments are needed, they may be done before exiting this screen. When the desired adjustments are complete, click on **Close** (Figure 14-4) to return to the controller's main interface screen (Figure 14-5).

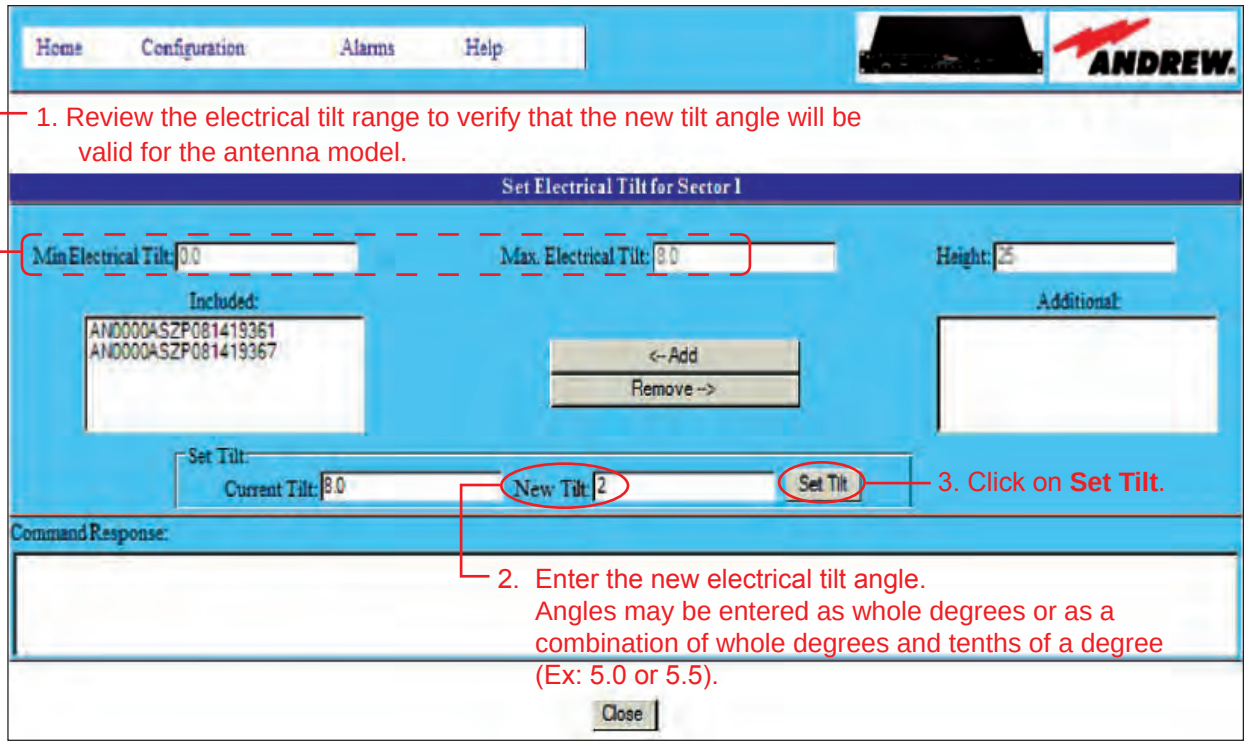

Figure 14-3. Changing Electrical Tilt Setting For Antennas In Sector Move.

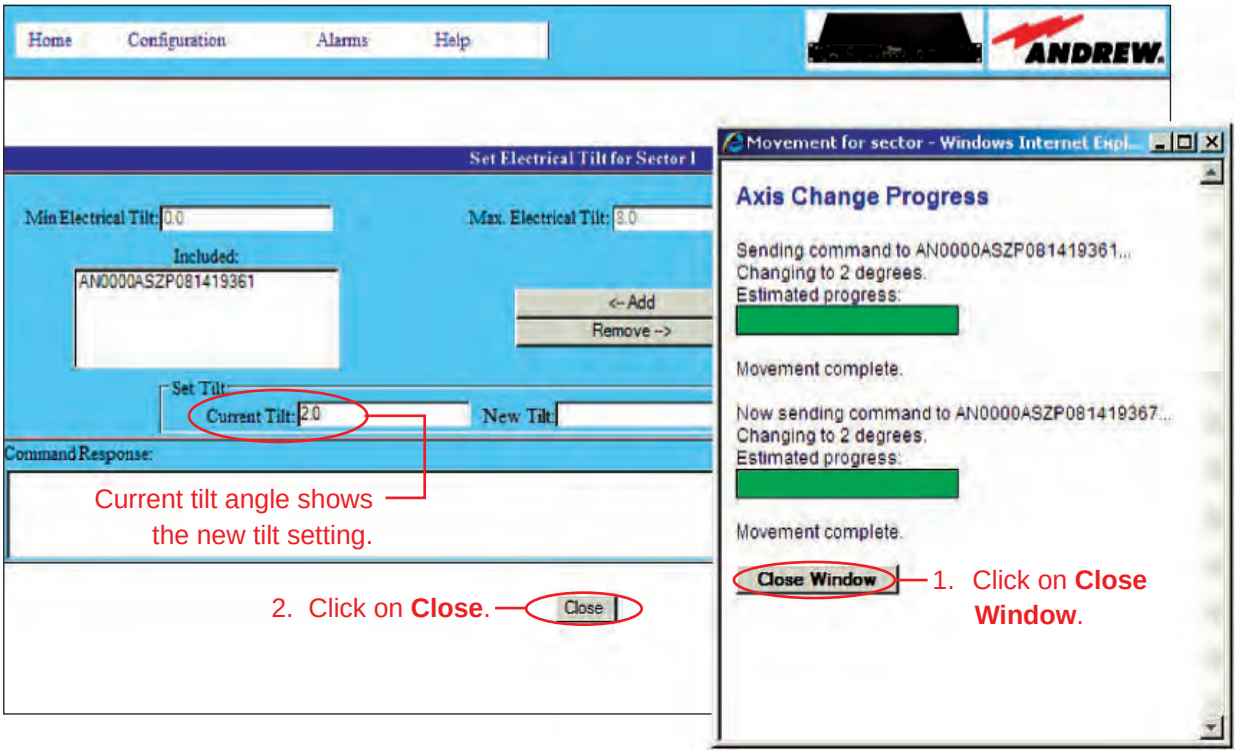

Figure 14-4. Tilt Change Is Complete For Sector Move.

The new downtilt angle will be displayed on the controller's main interface screen for the antennas/ devices that were adjusted in the sector move (Figure 14-5).

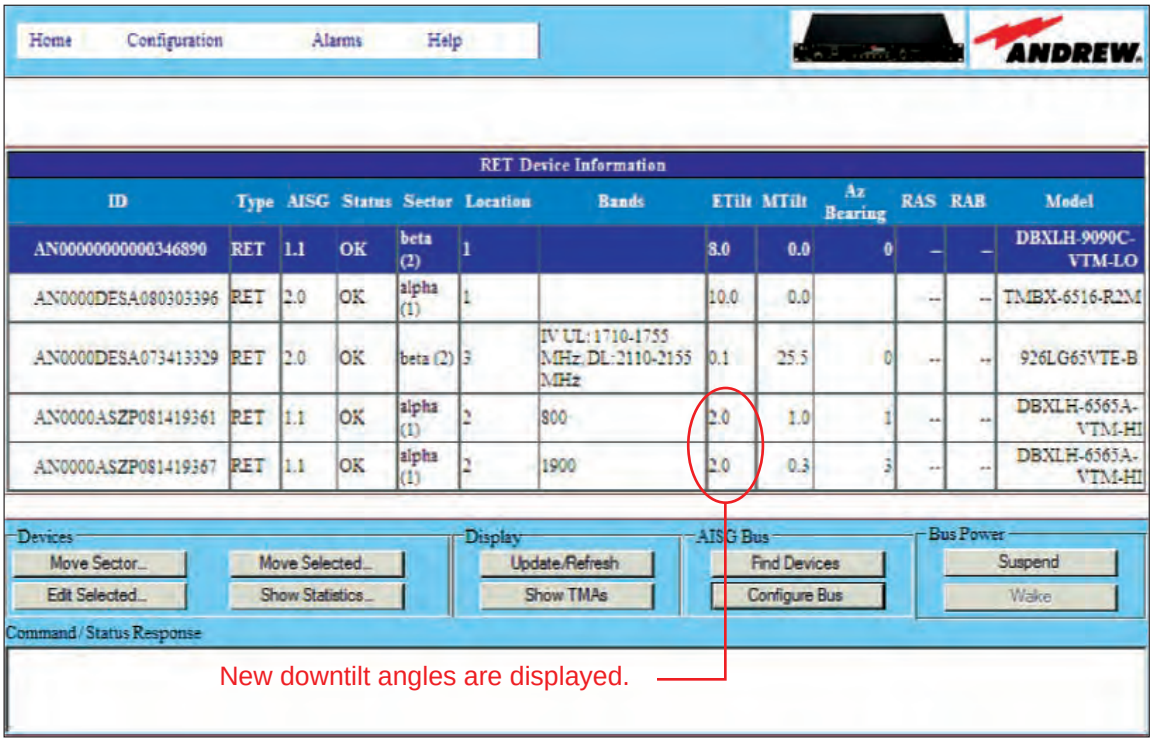

Figure 14-5. New Tilt Angles Shown For Sector Move.

Part 6

Operating Instructions for Antennas with Multiple Integrated Actuators

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Section 15
Device Configuration for Antennas with Multiple Integrated Actuators

15.0 Section Overview

Before the controller can successfully send commands to a known device, the device must first be configured to provide specific information about the antenna and its location on the site. Actuators that have been factory installed on an antenna are pre-configured to include the antenna model number, antenna type, and antenna serial number (remaining fields will need to be configured). After each device has been configured, the site configuration can be saved for future reference.

15.1 Configuring a Device

1. From the controller's main interface screen, click on the device that is to be configured to select it; then click on **Edit Selected** (Figure 15-1).

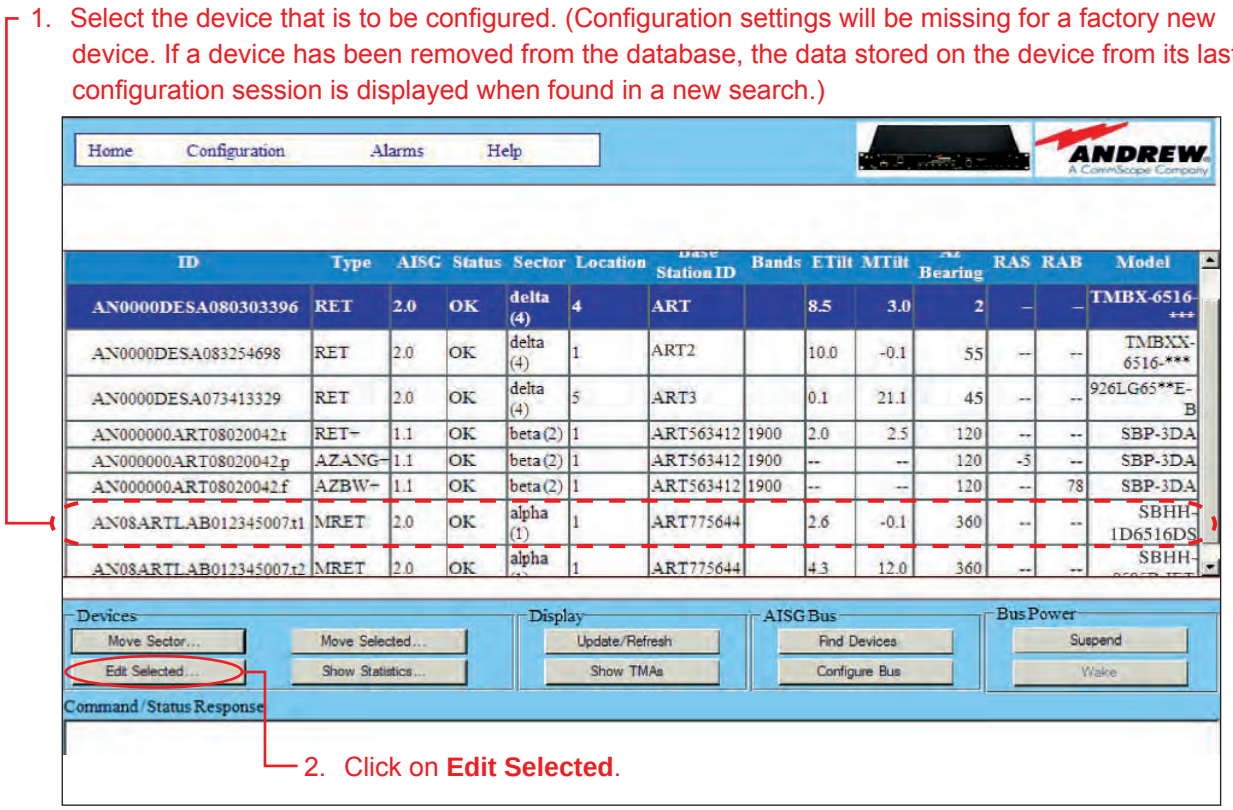

Figure 15-1. Selecting A Device For Configuration.

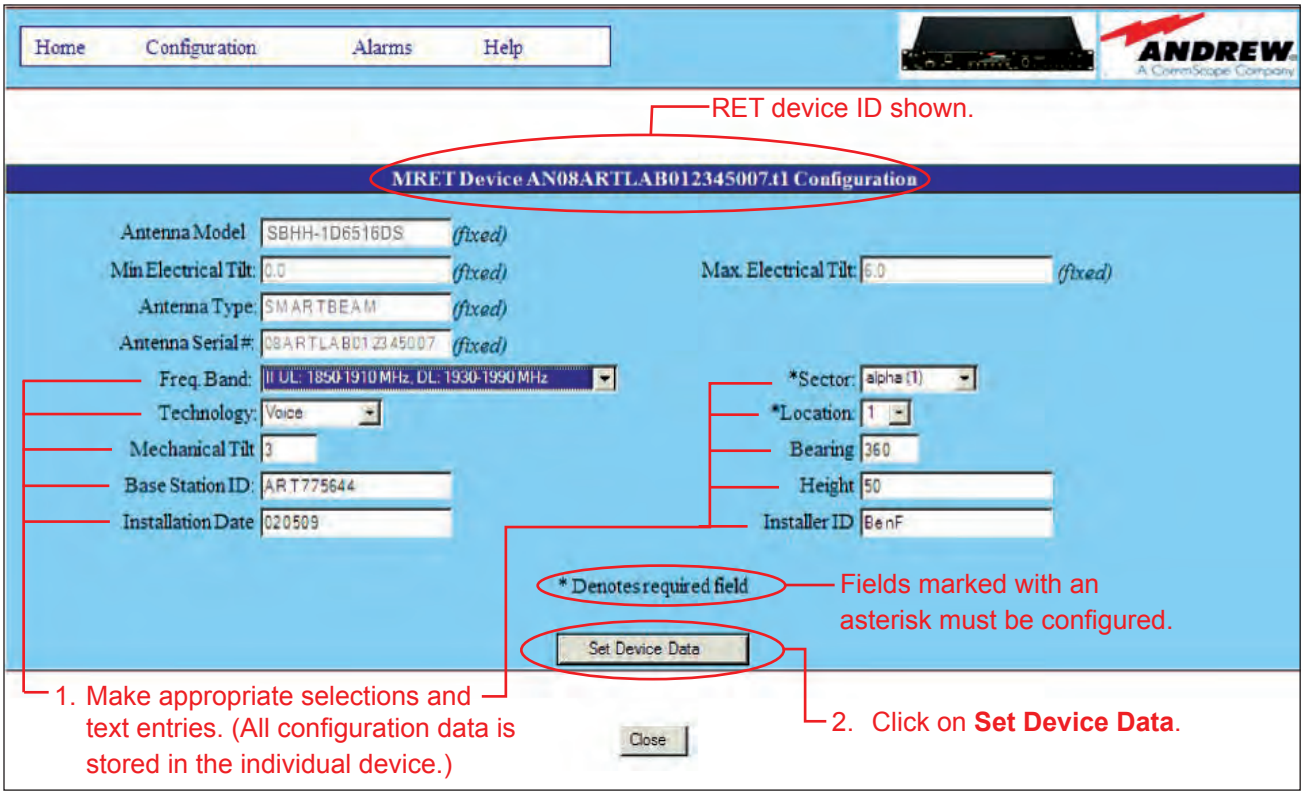

Figure 15-2. Configuring A New Device.

Notice that the ID for the device that was selected from the main screen appears in the title bar of the **Device Configuration** screen. Required fields are marked with an asterisk. Saving a new configuration will not be permitted if any of the required fields are left blank or if values are out of range. Refer to Figure 15-2.

2. Factory installed actuators are pre-configured to include the antenna model number, antenna type, and antenna serial number it is operating.
3. MRET antennas do not allow re-configuring these fields.
4. Specify the parameters for the remaining fields (Frequency Band, Technology, Base Station ID, Installer ID, Installation Date, Mechanical Tilt, Bearing, Height, Sector, Location).

   Note the following:

   - The fields of Antenna Type, Technology, Location, and Height are available for CommScope non-TMA devices only.
   - A positive mechanical tilt angle means that the antenna beam is directed below the horizontal plane. A negative mechanical tilt angle means that the antenna beam is directed above the horizontal plane.
   - The **Bearing** is the installed compass orientation for this antenna.
   - The **Height** of the antenna up the tower must be entered in the range of 1 to 999. No specific unit of length, such as feet or meters, is associated with this field. However, you should enter a value that conforms to the units of length customarily used by your company for antenna installations.

- The **ID** for the base station associated with this antenna must be 1 to 12 characters in length for AISG 1.x devices and 1-32 characters in length for AISG 2.0 devices, and may contain any combination of numbers and letters.
- The **Installation Date** field must be 1 to 6 characters in length with any combination of letters and numbers.
- The **Installer ID** must be 1 to 5 characters in length with any combination of letters and numbers.
- The **Location** field is a string with a numeric value from 1 to 32 that describes an actuator's position within a sector. Each device should have a unique sector-location combination.
- Mechanical tilt has a valid range of -12.8 to 12.7 in AISG 1.1, and ±180.0 in AISG 2.0.
- Values specified for the **Frequency Band**, **Technology**, and **Mechanical Tilt** are used for reference only and have no direct affect upon the actuator/antenna that is being configured.

5. Carefully review all selections. If satisfied that all are correct, click on **Set Device Data**. Alternately, the user may go back and edit/change any of the selections made or click on **Close** to quit this process without making any changes to the actuator's current configuration.
6. Click on **Close** after the new settings have finished uploading to the device (Figure 15-3).

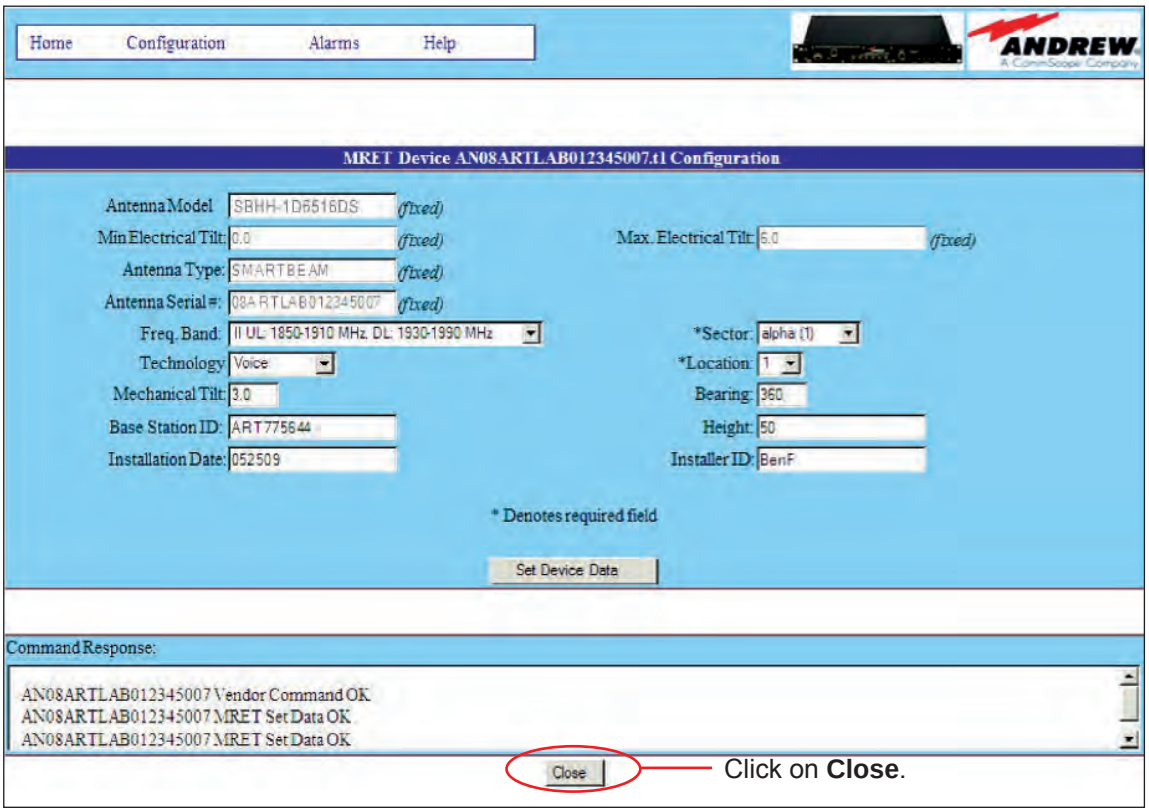

Figure 15-3. Device Configurations Complete.

7. If the device was successfully configured, the status will indicate the device is **OK** on the main screen. Note that not all of the items that were configured are displayed on the main screen (Figure 15-4).

   To verify that each item configured was set correctly, select the device from the main screen and click on **Edit Selected** to review each item. Click on **Close** when finished verifying the settings to return to the controller's main interface screen.

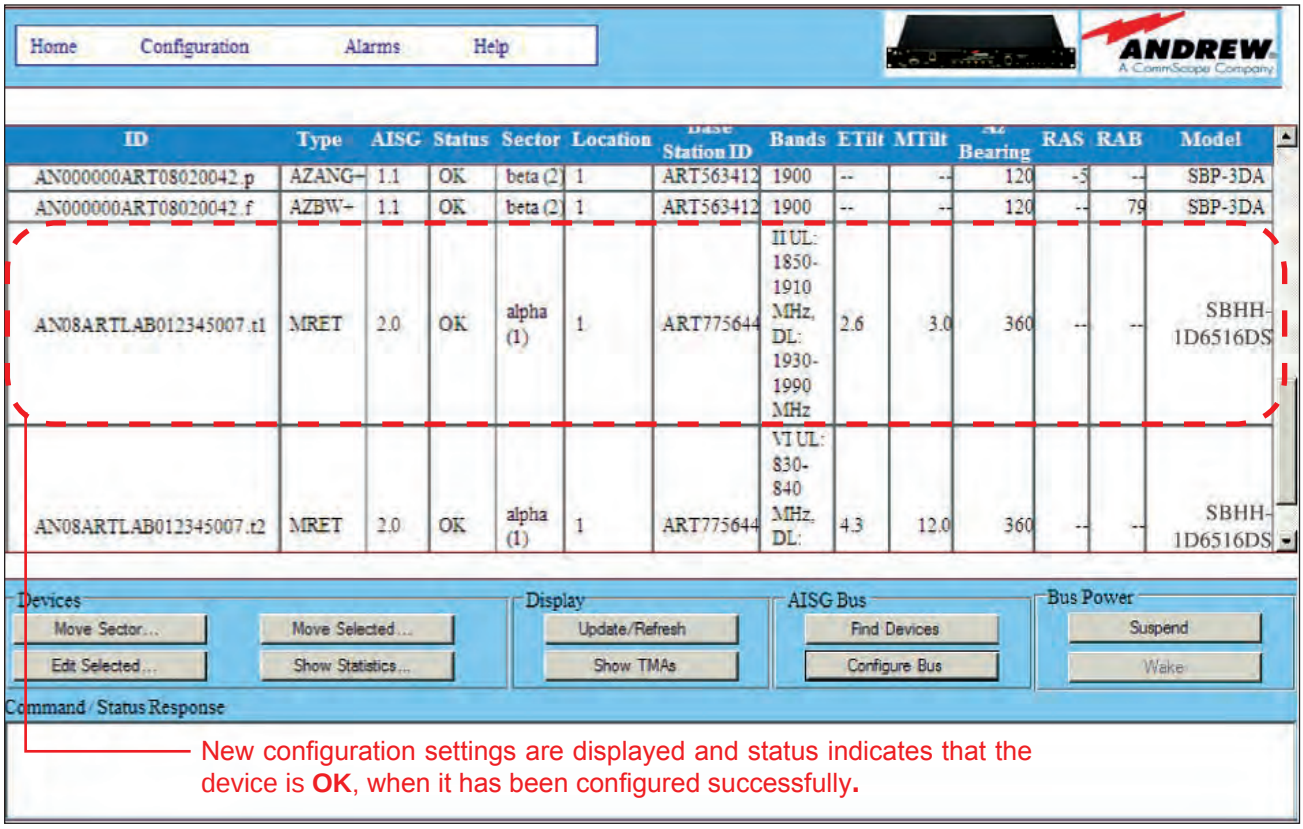

Figure 15-4. Configuration For New Device Displayed In Controller's Main Interface Screen.

15.2 Saving a Device Configuration to File

To save your configurations to a file for future reference, place your mouse over the area where the devices are listed on the main screen and right click. From the pop-up menu, select **Export to Microsoft Excel**.

Section 16
Adjusting the Electrical Downtilt on a Single Antenna Equipped With Multiple Integrated Actuators

16.0 Section Overview

- The electrical downtilt may be adjusted on any device that is addressed, configured, and whose current state does not prevent antenna movement.
- Movement may be prevented when a device is not responding to commands from the controller, is in the middle of a move or configuration change, or is experiencing a mechanical malfunction.

16.1 Adjusting the Downtilt Angle on a Single Antenna

1. From the controller's main interface screen, select the device to be moved (Figure 16-1).
2. Click on **Move Selected** (Figure 16-1).

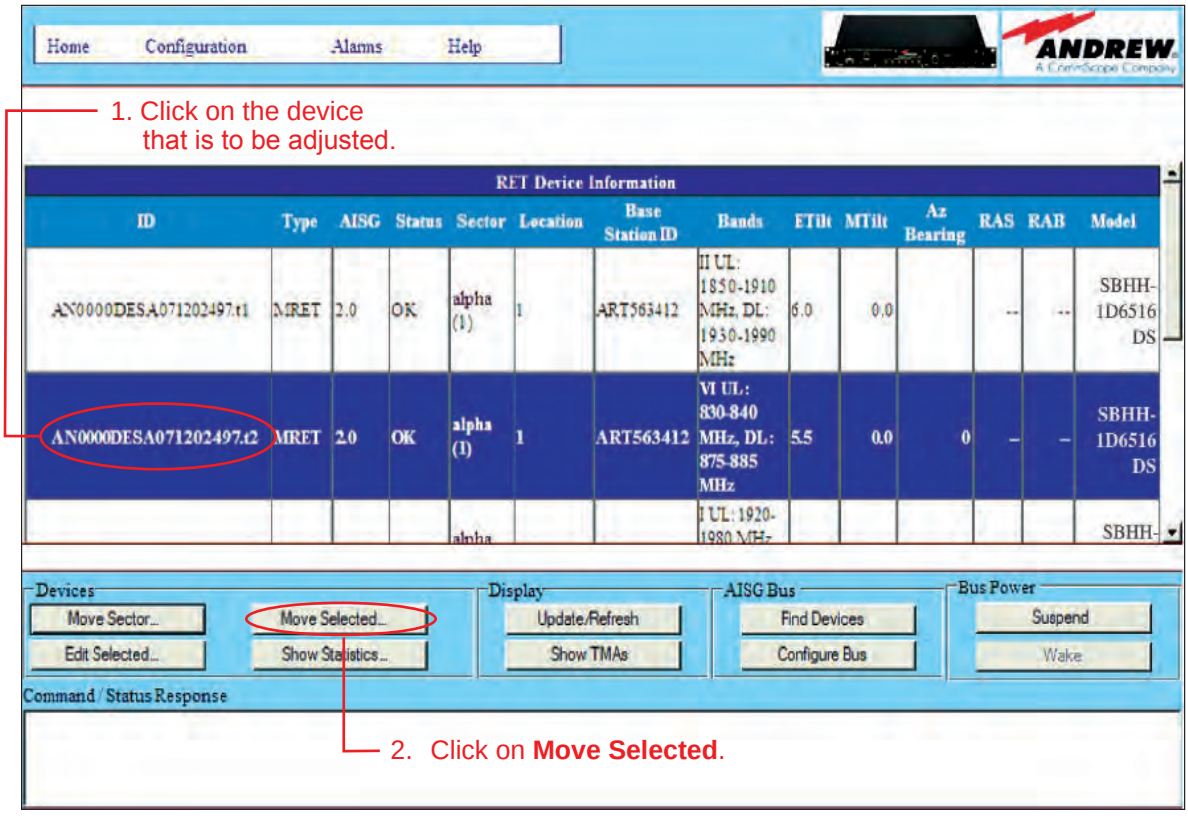

Figure 16-1. Selecting Device To Be Adjusted.

The **MRET Device Movement** screen shown in Figure 16-2 displays the information that was previously configured for the device. This information may be used as a reference to help determine the new tilt setting. Note that only tilt changes may be made from this screen. Any changes needed to be made to the configuration for the device must be done from the **Device Configuration** screen as discussed in Section 12.

3. Enter the new angle for the device in the **Set Tilt** field. Note that the allowed range of angle values is displayed in the **Min Electrical Tilt** and **Max Electrical Tilt** fields in the top part of the screen. Any downtilt angle within this range may be entered. Angles may be entered as whole degrees, or as a combination of whole degrees and tenths of a degree (Figure 16-2).

   Examples: Five degrees downtilt may be entered as **5** or **5.0**. A downtilt of five and one-half degrees would be entered as **5.5**.

4. Click on **Set Tilt** to apply the changes to the electrical downtilt for this antenna. Alternately, to exit the screen without sending any changes, click on **Close**.

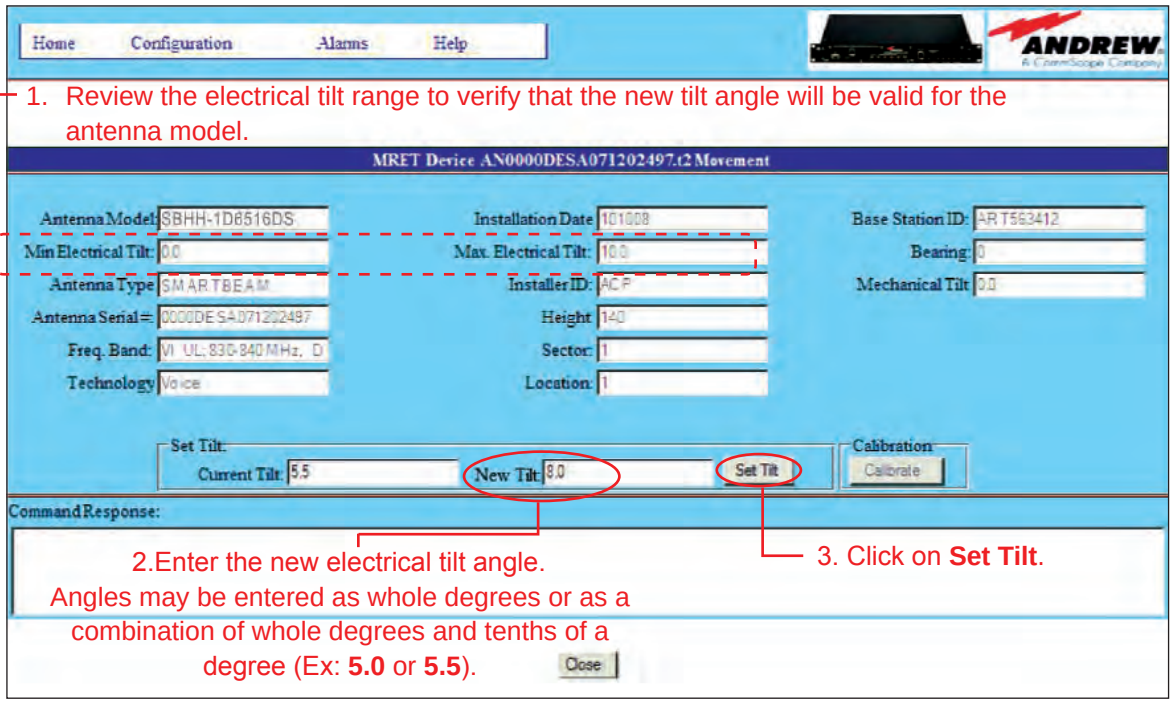

Figure 16-2. Changing Electrical Tilt Setting For Single Antenna.

5. A progress indicator bar will appear in a pop-up window to continually provide an update for as long as the move is in progress. You will be notified when movement is complete. Click on **Close Window** from the pop-up window (Figure 16-3).

   If for any reason the move failed to reach the new downtilt angle specified, you will be notified of the failure.

6. After the antenna has completed movement to its new tilt angle, the new angle will be displayed in the **Current Tilt** field and the **New Tilt** will be cleared in preparation for the next move (Figure 16-3).

   At this point, you may click on **Close** (Figure 16-3) to return to the controller's main interface screen (Figure 16-4). Alternately, this process may be repeated to further adjust the downtilt or to reapply changes where movement had previously failed, such as a temporary mechanical jam.

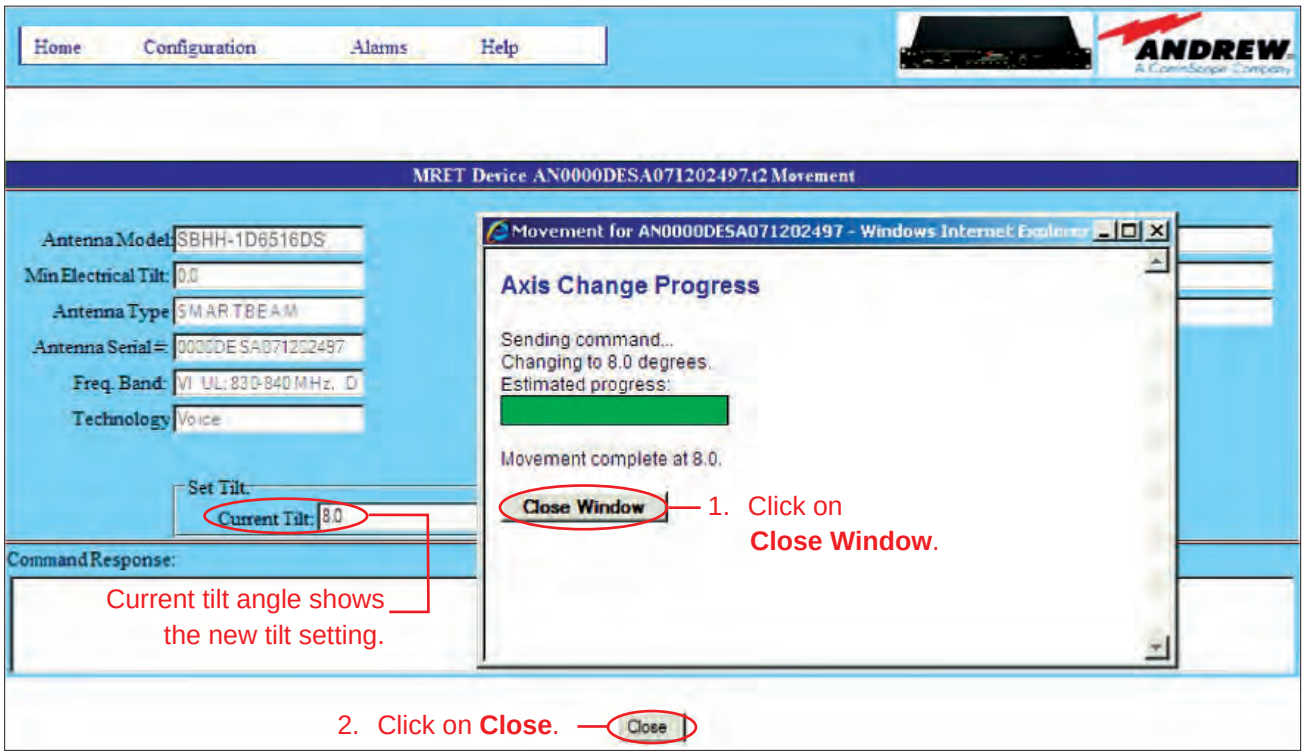

Figure 16-3. Tilt Change Complete For Single Antenna Move.

The new downtilt angle will be displayed on the controller's main interface screen for the antenna/ device that was adjusted (Figure 16-4).

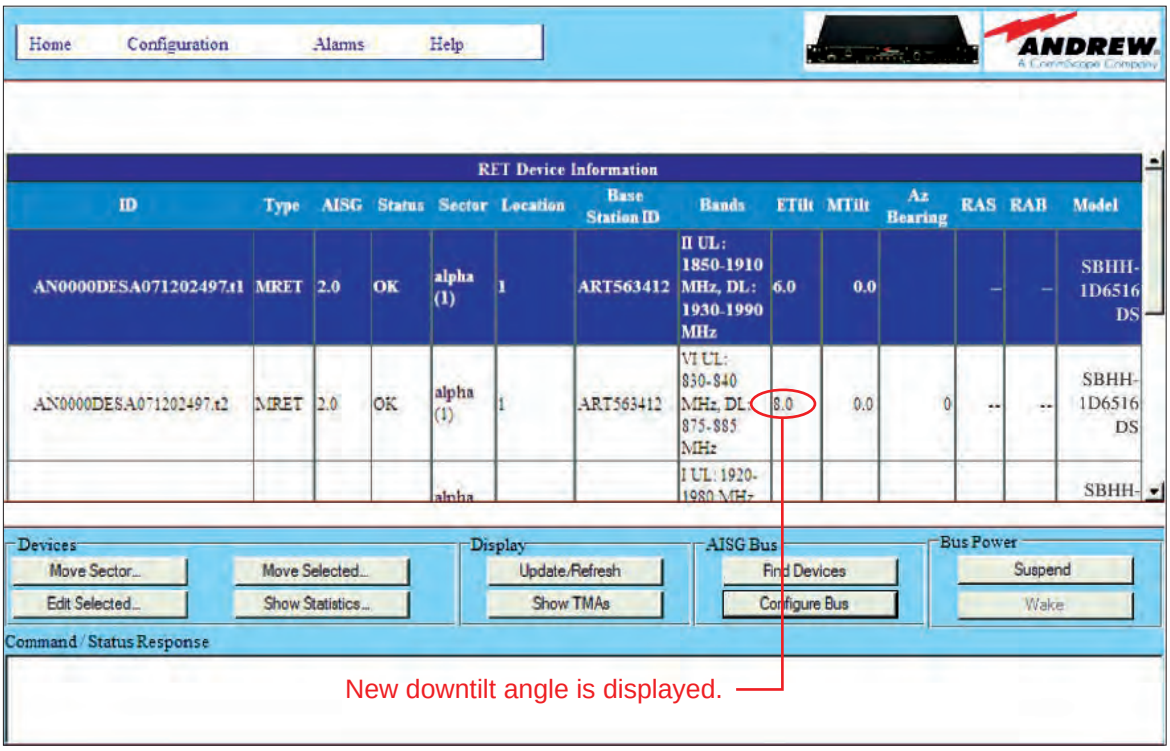

Figure 16-4. New Downtilt Angle Shown For Single Antenna Move.

Section 17
Adjusting the Electrical Downtilt on a Group of Antennas Equipped with Multiple Integrated Actuators

17.0 Section Overview

In addition to changing the downtilt of a single antenna, changes may also be applied to a group of antennas. The antennas that can be included in a group move must be in the same sector and have the same electrical tilt range (same minimum and maximum tilt).

17.1 Adjusting the Downtilt Angle on a Group of Antennas

1. Select a device from the controller's main interface screen that is to be included in the sector move (Figure 17-1).
2. Click on **Move Sector** (Figure 17-1).

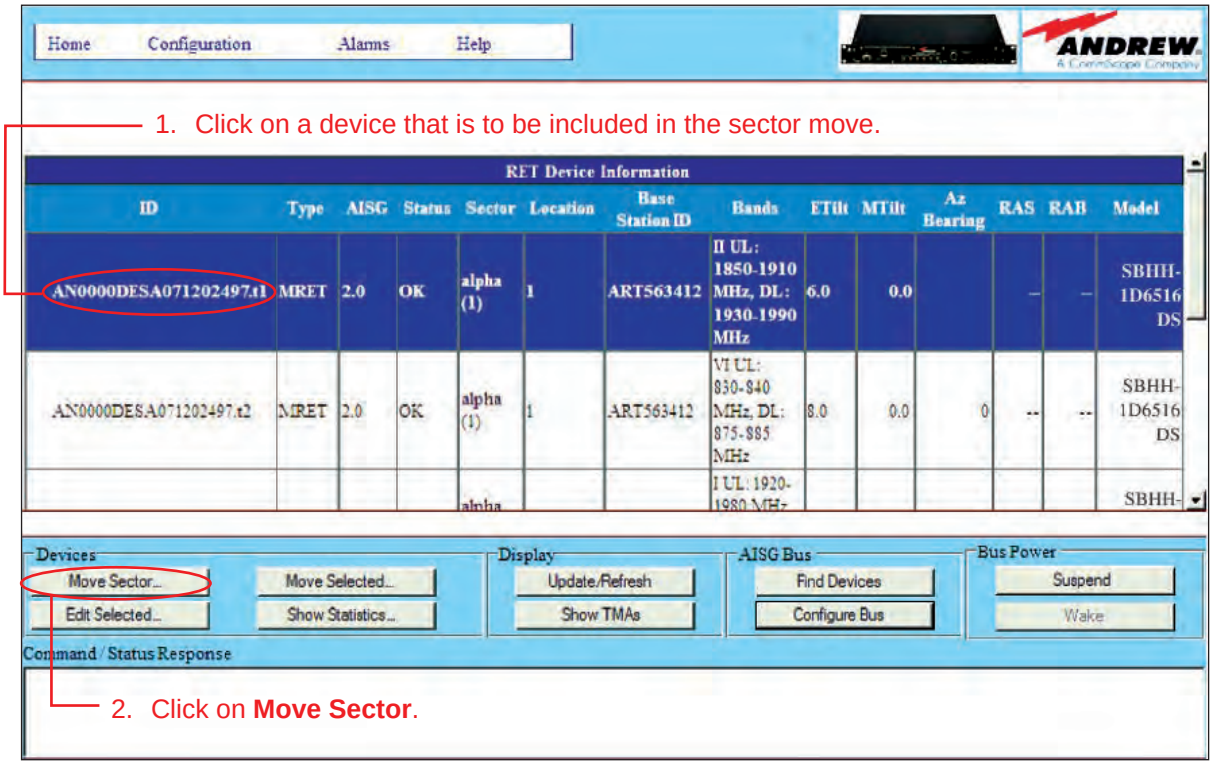

Figure 17-1. Selecting A Device That Is To Be Included In The Sector Move.

Notice that the device that was selected to be included in the sector move is highlighted and displayed in the **Included** box. This box displays a list of all devices that will be included in the sector move. Initially, this box contains only the antenna that was selected from the controller's main interface screen. All of the configuration settings for this device, including its current tilt, are displayed on this screen (Figure 17-2).

Other devices that have the same sector ID, minimum tilt, and maximum tilt are listed in the **Additional** box. If desired, the configuration settings can be viewed for each device before adding them to the sector group to be moved. Click on each model individually to view the configurations for each device.

Note that up to 12 antenna/device pairs may be selected for a sector move. Any more than 12 will be denied when attempting to add to the group for inclusion in the move.

3. Select the device, and click on **Add** (Figure 17-2). (Alternately, double-click on the device from the **Additional** box to move the device to the **Included** box.)
4. Examine the group selected for the sector move (shown in the **Included** box), to ensure that the group does not include any antennas that are not desired for this move. If you find that a device is not wanted for inclusion in the sector move, click on the device, and click on **Remove**. (Alternately, double-click on the device to remove it from the group.)

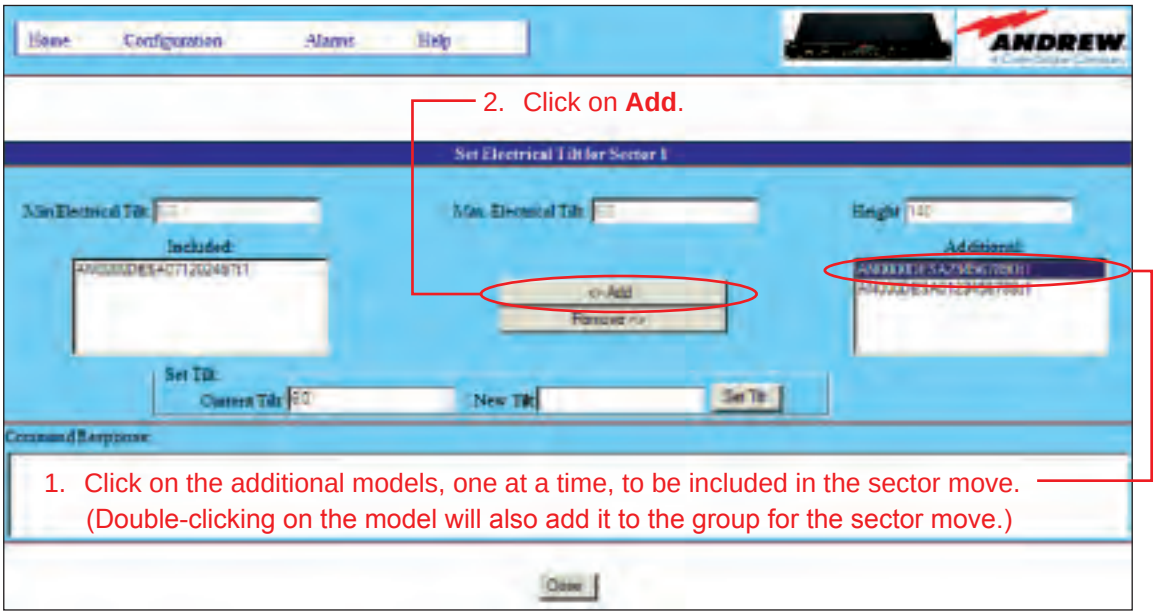

Figure 17-2. Adding Models To Be Included In The Sector Move.

5. When satisfied with the list of antennas that will be included in the group move, enter a new downtilt angle in the **New Tilt** text entry field, and click on **Set Tilt** to begin the move (Figure 17-3). Progress for each antenna movement in the group will be displayed separately (Figure 17-4).
6. You will be notified when all antennas have successfully reached the new tilt angle. Click on **Close Window** from the pop-up window (Figure 17-4).
7. The new angle will be displayed in the **Current Tilt** field and the **New Tilt** field will be cleared. If further adjustments are needed, they may be done before exiting this screen. When the desired adjustments are complete, click on **Close** (Figure 17-4) to return to the controller's main interface screen (Figure 17-5).

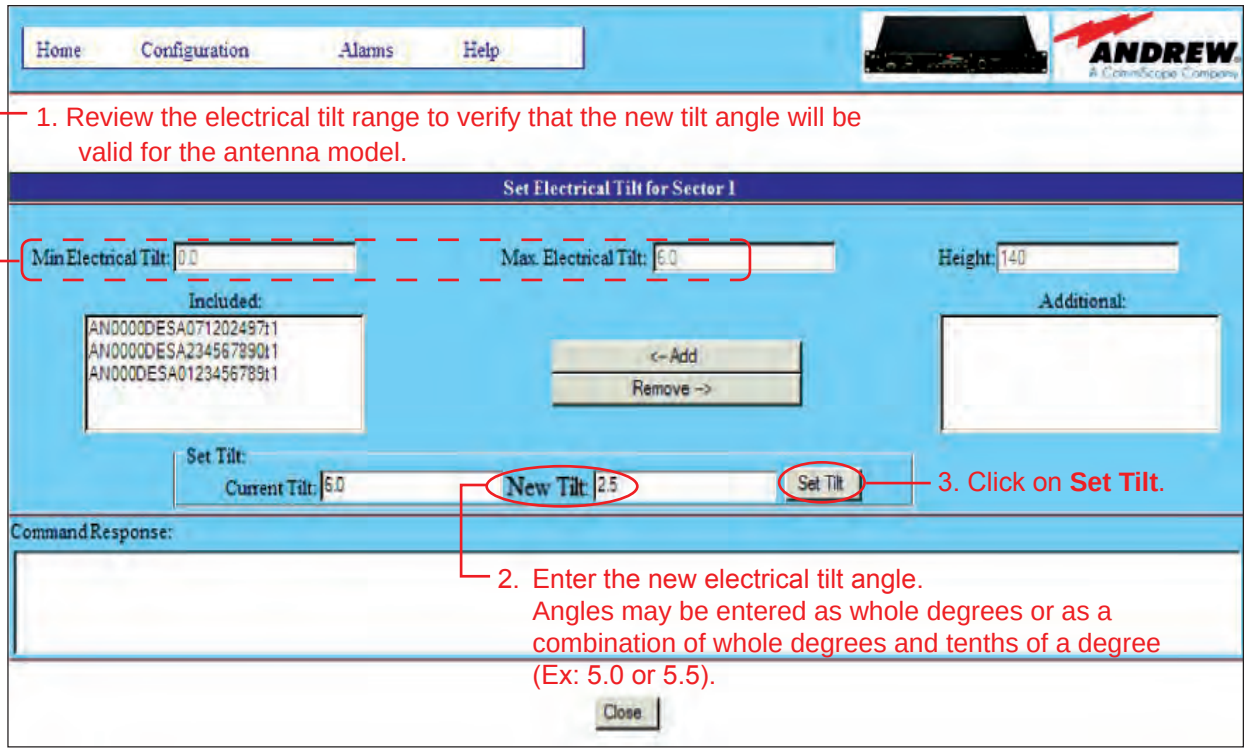

Figure 17-3. Changing Electrical Tilt Setting For Antennas In Sector Move.

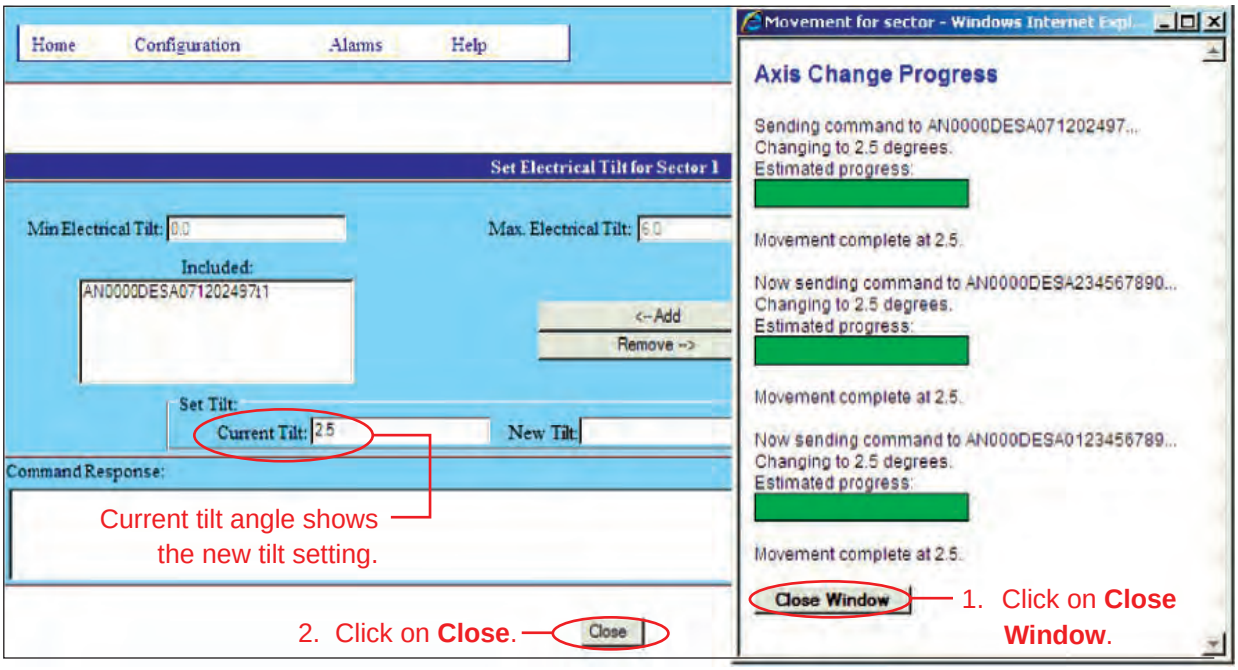

Figure 17-4. Tilt Change Is Complete For Sector Move.

The new downtilt angle will be displayed on the controller's main interface screen for the antennas/ devices that were adjusted in the sector move (Figure 17-5).

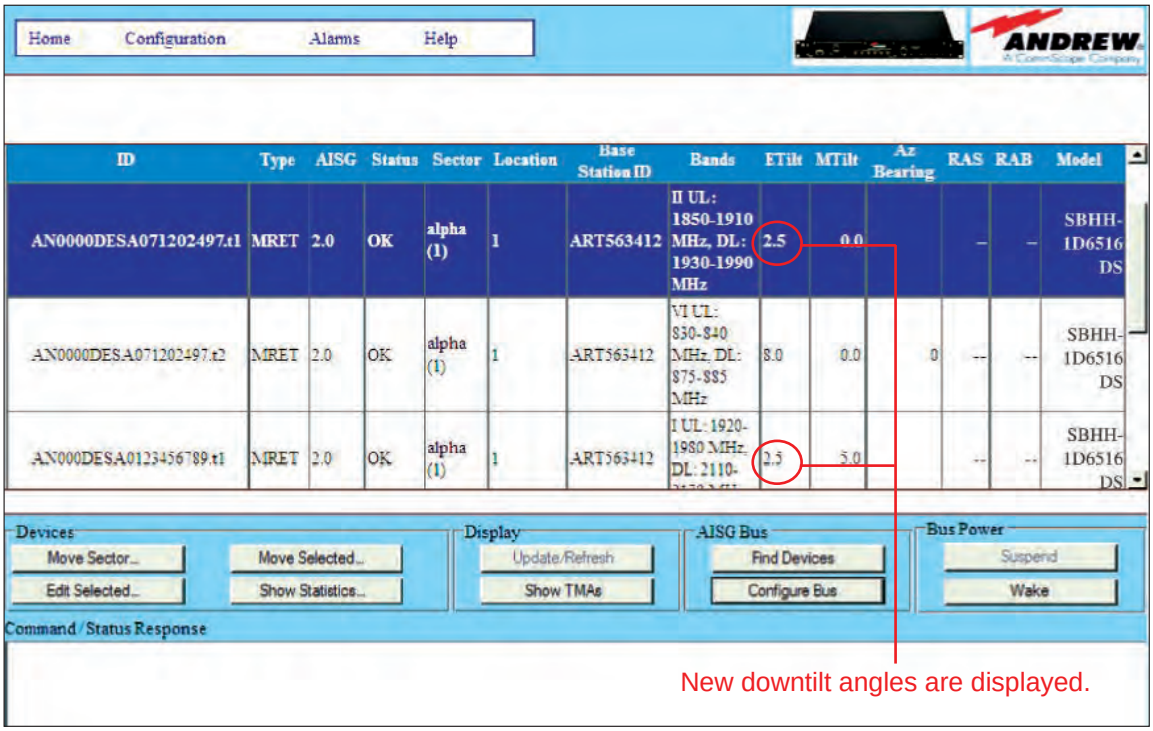

Figure 17-5. New Tilt Angles Shown For Sector Move.

Part 7

Operating Instructions for SmartBeam® Antennas

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Section 18
Device Configuration with SmartBeam® Antennas

18.0 Section Overview

Before the controller can successfully send commands to a known device, the device must first be configured to provide specific information about the antenna and its location on the site. Actuators that have been factory installed on an antenna are pre-configured to include the antenna model number, antenna type, and antenna serial number (remaining fields will need to be configured). After each device has been configured, the site configuration can be saved for future reference.

18.1 Configuring a Device

1. From the controller's main interface screen, click on the device that is to be configured to select it; then click on **Edit Selected** (Figure 18-1).

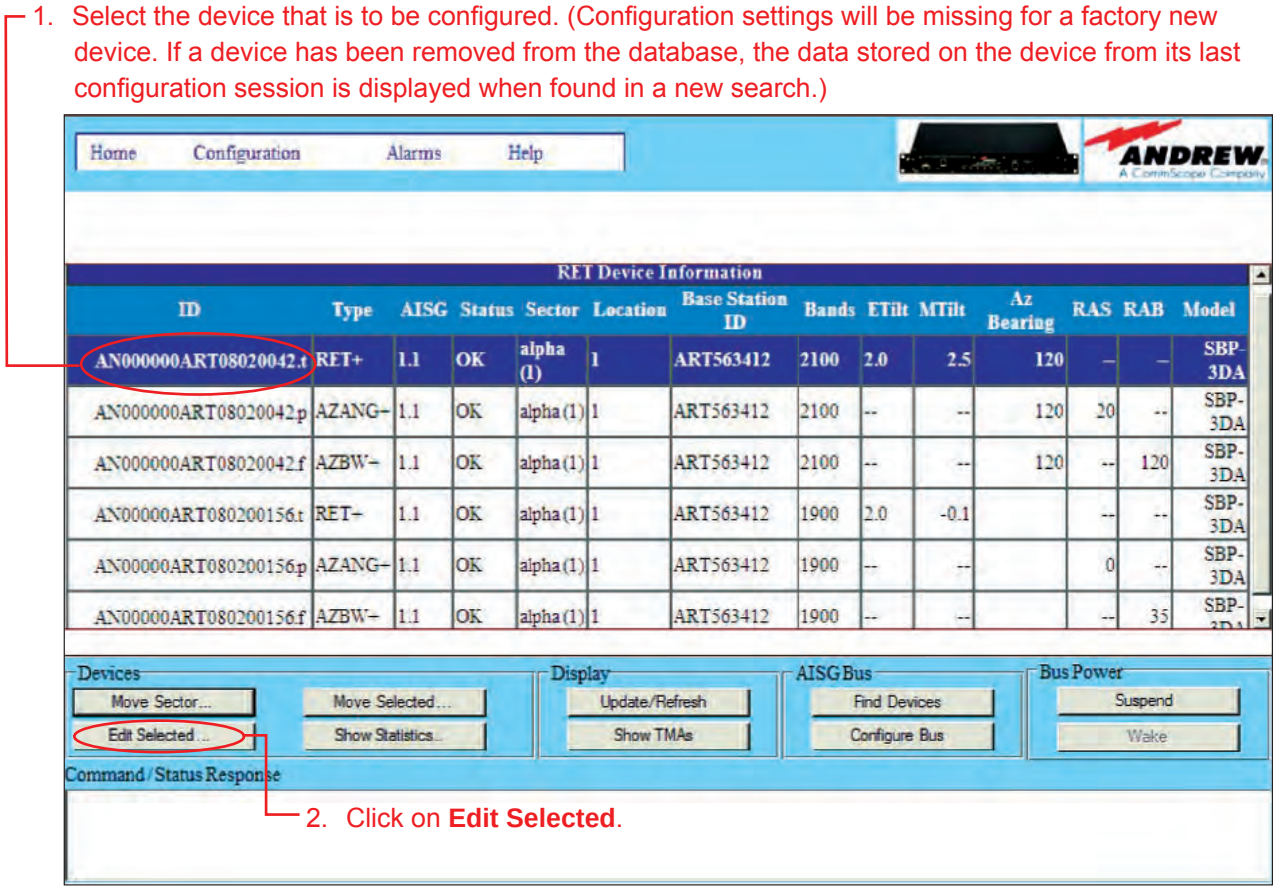

Figure 18-1. Selecting A Device For Configuration.

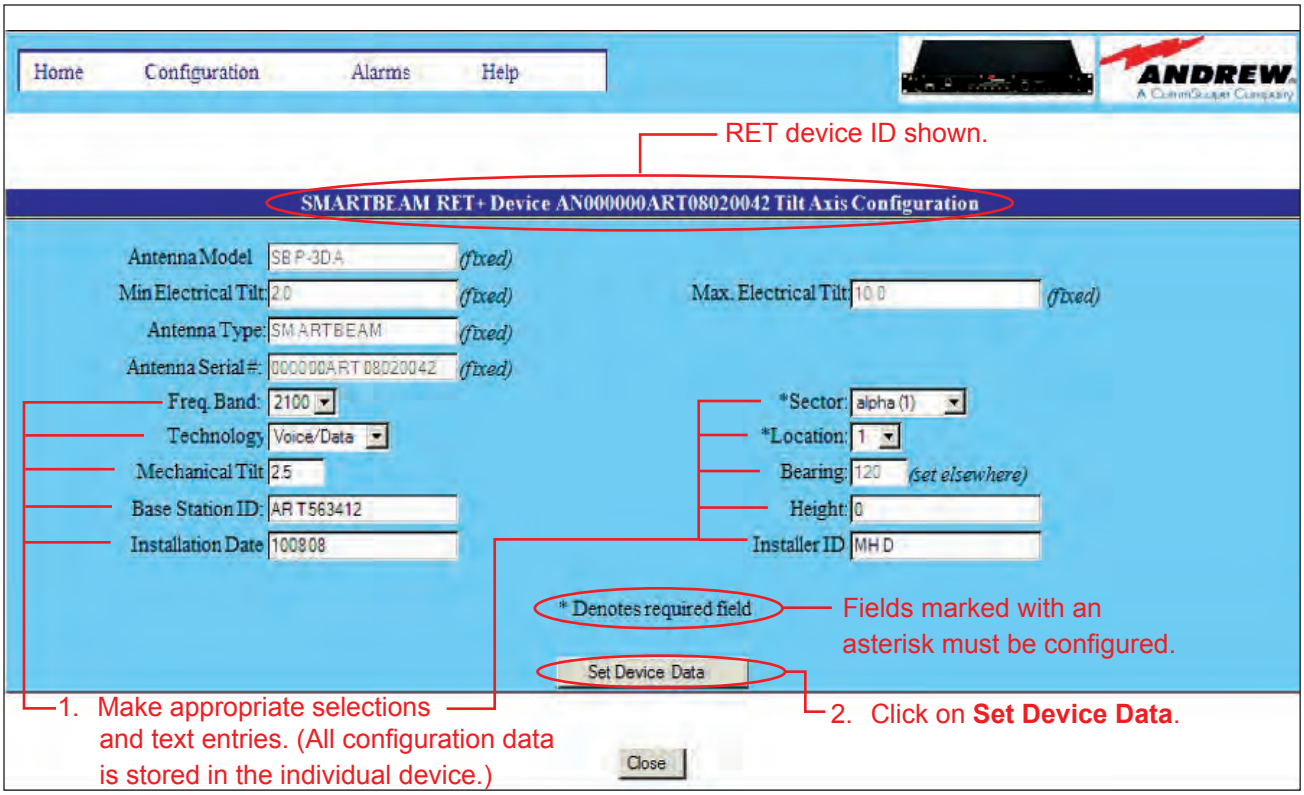

Figure 18-2. Configuring A New Device.

Notice that the ID for the device that was selected from the main screen appears in the title bar of the **Device Configuration** screen. Required fields are marked with an asterisk. Saving a new configuration will not be permitted if any of the required fields are left blank or if values are out of range. Refer to Figure 18-2.

For SmartBeam, when one axis is configured, the other axis(es) have the same changes applied.

2. Factory installed actuators are pre-configured to include the antenna model number, antenna type, and antenna serial number it is operating.
3. SmartBeam antennas do not allow re-configuring these fields.
4. Specify the parameters for the remaining fields (Frequency Band, Technology, Base Station ID, Installer ID, Installation Date, Mechanical Tilt, Bearing, Height, Sector, Location).

   Note the following:

   - The fields of Antenna Type, Technology, Location, and Height are available for CommScope non-TMA devices only.
   - A positive mechanical tilt angle means that the antenna beam is directed below the horizontal plane. A negative mechanical tilt angle means that the antenna beam is directed above the horizontal plane.
   - The **Bearing** is the installed compass orientation for this antenna. For SmartBeam, it may be configured only from the Pan Configuration screen.
   - The **Height** of the antenna up the tower must be entered in the range of 1 to 999.

No specific unit of length, such as feet or meters, is associated with this field. However, you should enter a value that conforms to the units of length customarily used by your company for antenna installations.

- The **ID** for the base station associated with this antenna must be 1 to 12 characters in length for AISG 1.x devices and 1-32 characters in length for AISG 2.0 devices, and may contain any combination of numbers and letters.
- The **Installation Date** field must be 1 to 6 characters in length with any combination of letters and numbers.
- The **Installer ID** must be 1 to 5 characters in length with any combination of letters and numbers.
- The **Location** field is a string with a numeric value from 1 to 32 that describes an actuator's position within a sector. Each device should have a unique sector-location combination.
- Mechanical tilt has a valid range of -12.8 to 12.7 in AISG 1.1, and ±180.0 in AISG 2.0.
- Values specified for the **Frequency Band**, **Technology**, and **Mechanical Tilt** are used for reference only and have no direct affect upon the actuator/ antenna that is being configured. For SmartBeam, it may be configured only from the Tilt Configuration screen.

5. Carefully review all selections. If satisfied that all are correct, click on **Set Device Data (**Figure 18-2). Alternately, the user may go back and edit/change any of the selections made or click on **Close** to quit this process without making any changes to the actuator's current configuration.

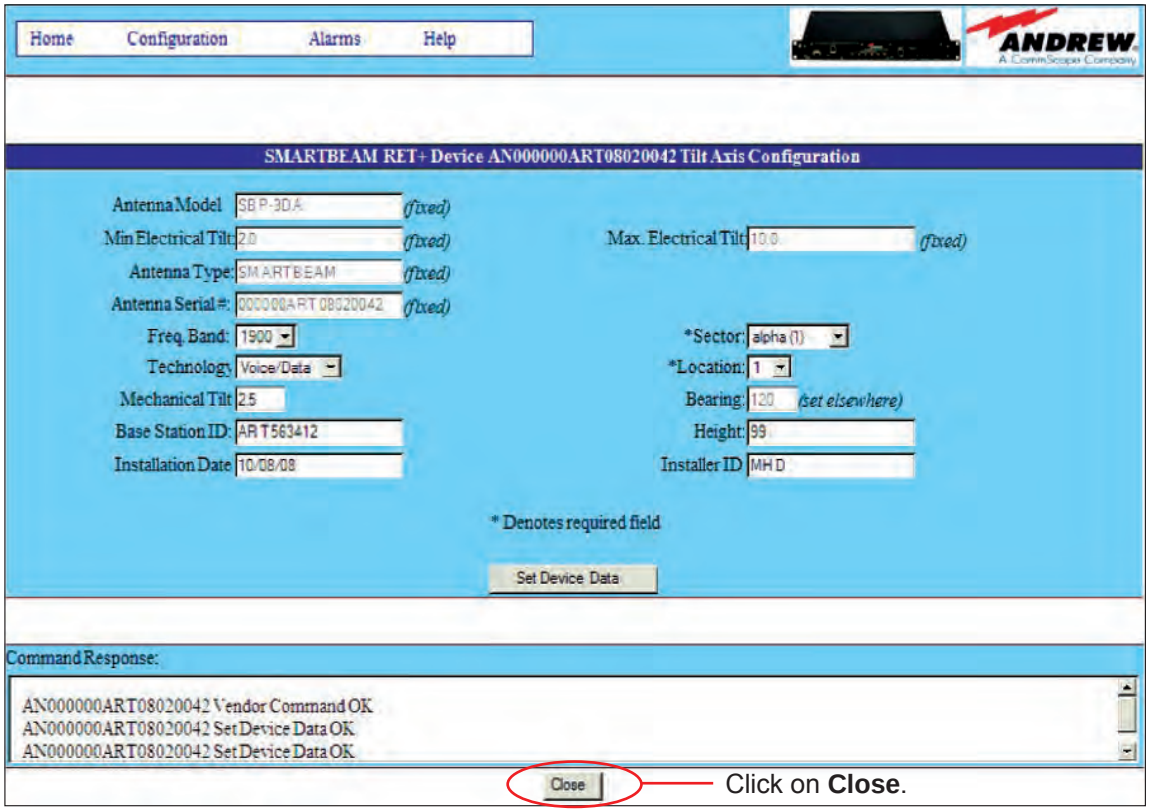

Figure 18-3. Device Configurations Complete.

6. Click on **Close** after the new settings have finished uploading to the device (Figure 18-3).
7. If the device was successfully configured, the status will indicate the device is **OK** on the main screen. Note that not all of the items that were configured are displayed on the main screen (Figure 18-4).

   To verify that each item configured was set correctly, select the device from the main screen and click on **Edit Selected** to review each item. Click on **Close** when finished verifying the settings to return to the controller's main interface screen.

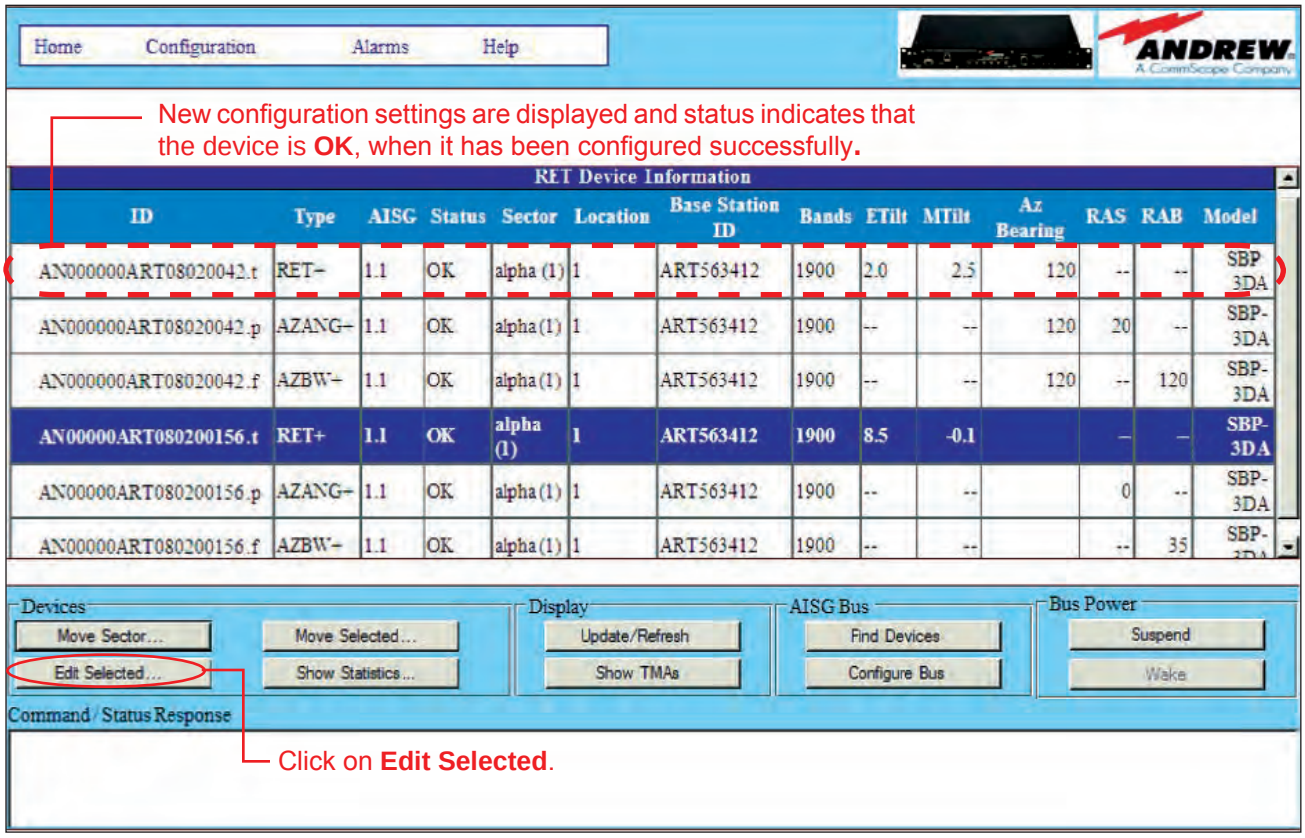

Figure 18-4. Configuration For New Device Displayed In Controller's Main Interface Screen.

18.2 Saving a Device Configuration to File

To save your configurations to a file for future reference, place your mouse over the area where the devices are listed on the main screen and right click. From the pop-up menu, select **Export to Microsoft Excel**.

Section 19
Adjusting the Electrical Downtilt on a Single SmartBeam® Antenna

19.0 Section Overview

- The electrical downtilt may be adjusted on a tilt axis of a SmartBeam antenna that is addressed, configured, and whose current state does not prevent antenna movement.
- Movement may be prevented when a device is not responding to commands from the controller, is in the middle of a move or configuration change, or is experiencing a mechanical malfunction.

19.1 Adjusting the Downtilt Angle on a Single Antenna

1. From the controller's main interface screen, select the device ending in a ".t" (for "tilt") to be moved (Figure 19-1).
2. Click on **Move Selected** (Figure 19-1).

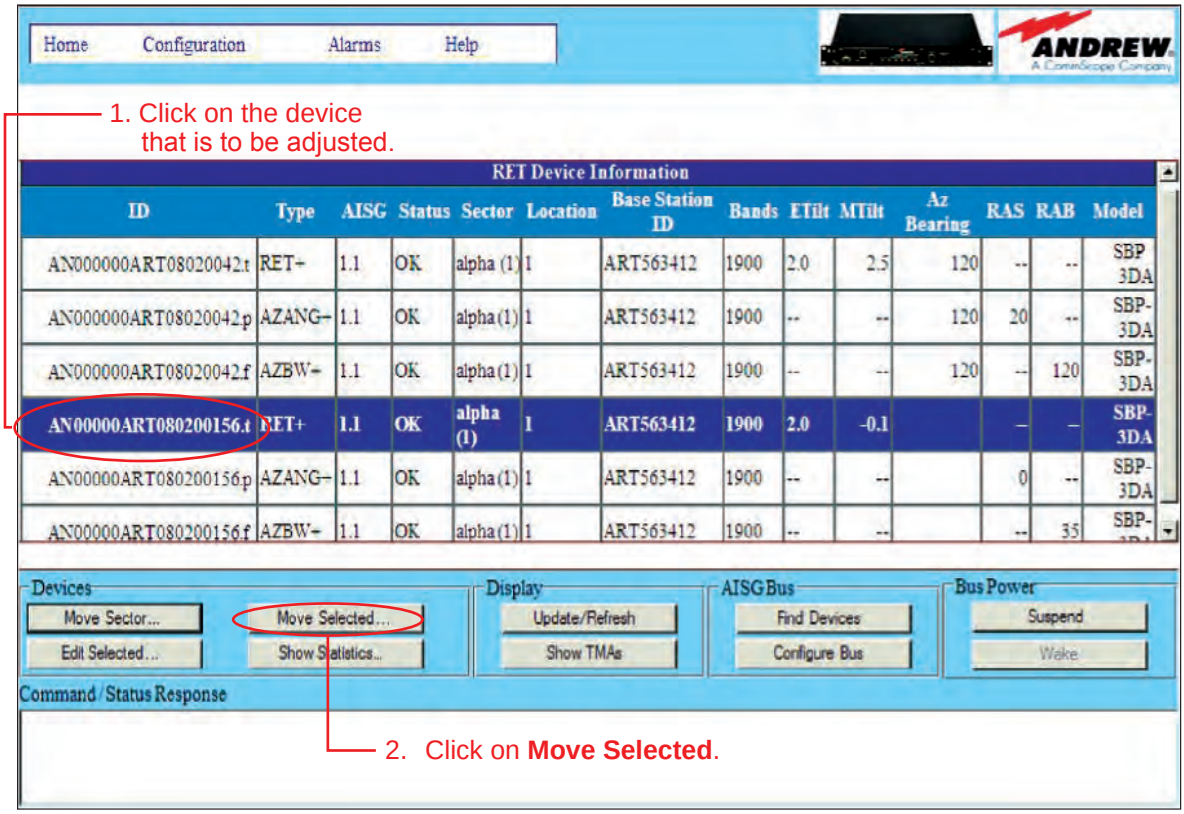

Figure 19-1. Selecting Device To Be Adjusted.

The **Tilt Axis Movement** screen shown in Figure 19-2 displays the information that was previously configured for the device. This information may be used as a reference to help determine the new tilt setting. Note that only tilt changes may be made from this screen. Any changes needed to be made to the configuration for the device must be done from the **Device Configuration** screen as discussed in Section 12.

3. Enter the new angle for the device in the **New Tilt** field. Note that the allowed range of angle values is displayed in the **Min Electrical Tilt** and **Max Electrical Tilt** fields in the top part of the screen. Any downtilt angle within this range may be entered. Angles may be entered as whole degrees, or as a combination of whole degrees and tenths of a degree (Figure 19-2).

   Examples: Five degrees downtilt may be entered as **5** or **5.0**. A downtilt of five and one-half degrees would be entered as **5.5**.

4. Click on **Set Tilt** to apply the changes to the electrical downtilt for this antenna. Alternately, to exit the screen without sending any changes, click on **Close**.

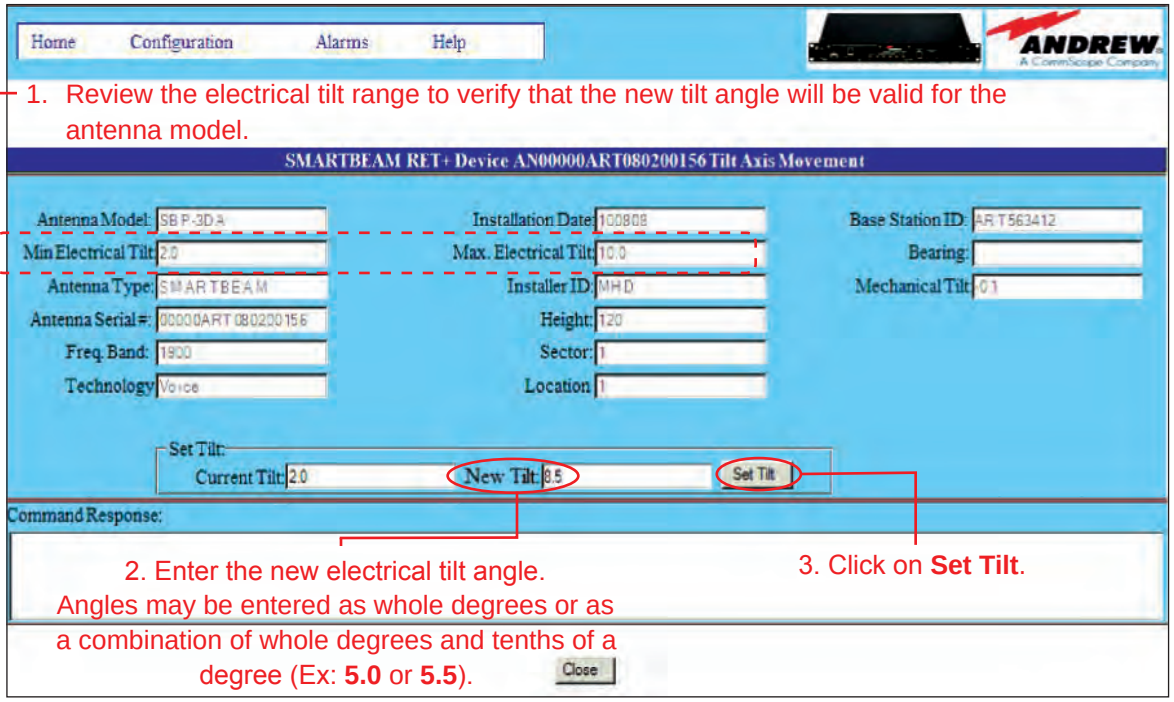

Figure 19-2. Changing Electrical Tilt Setting For Single Antenna.

5. A progress indicator bar will appear in a pop-up window to continually provide an update for as long as the move is in progress. You will be notified when movement is complete. Click on **Close Window** from the pop-up window (Figure 19-3).

   If for any reason the move failed to reach the new downtilt angle specified, you will be notified of the failure.

6. After the antenna has completed movement to its new tilt angle, the new angle will be displayed in the **Current Tilt** field and the **New Tilt** will be cleared in preparation for the next move (Figure 19-3).

   At this point, you may click on **Close** (Figure 19-3) to return to the controller's main interface screen (Figure 19-4). Alternately, this process may be repeated to further adjust the downtilt or to reapply changes where movement had previously failed, such as a temporary mechanical jam.

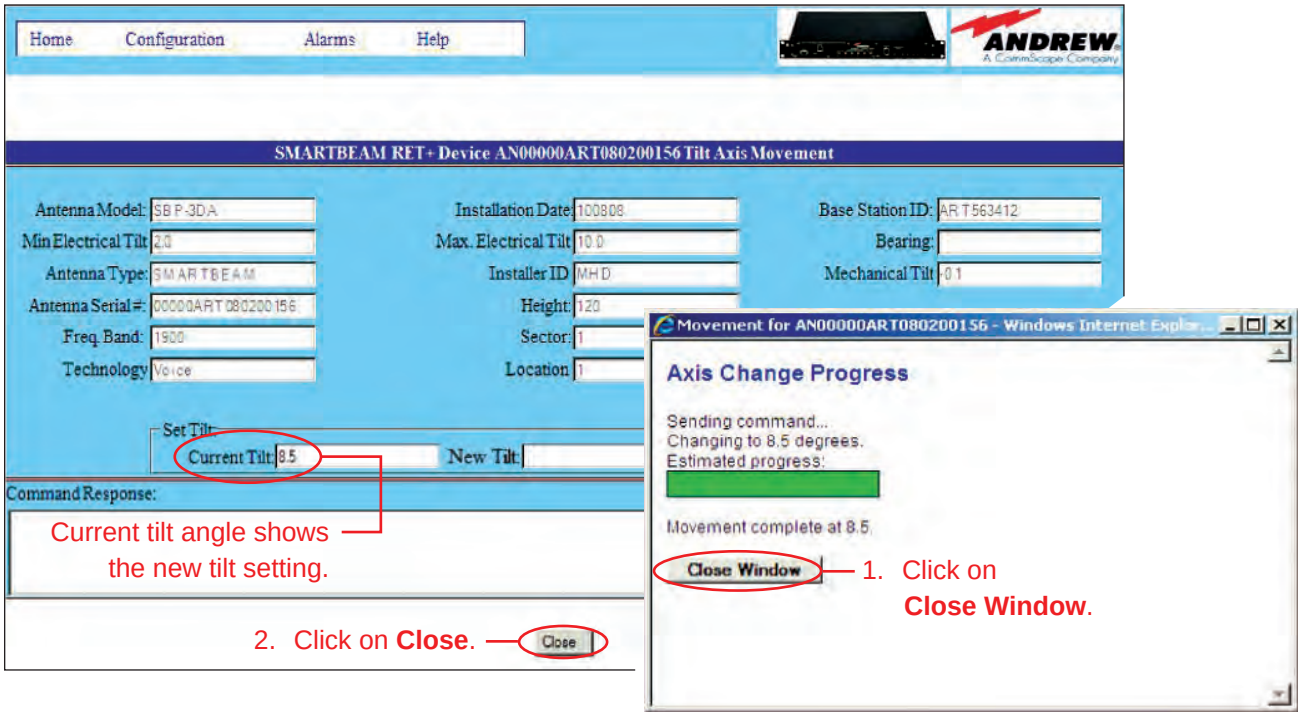

Figure 19-3. Tilt Change Complete For Single Antenna Move.

The new downtilt angle will be displayed on the controller's main interface screen for the antenna/ device that was adjusted (Figure 19-4).

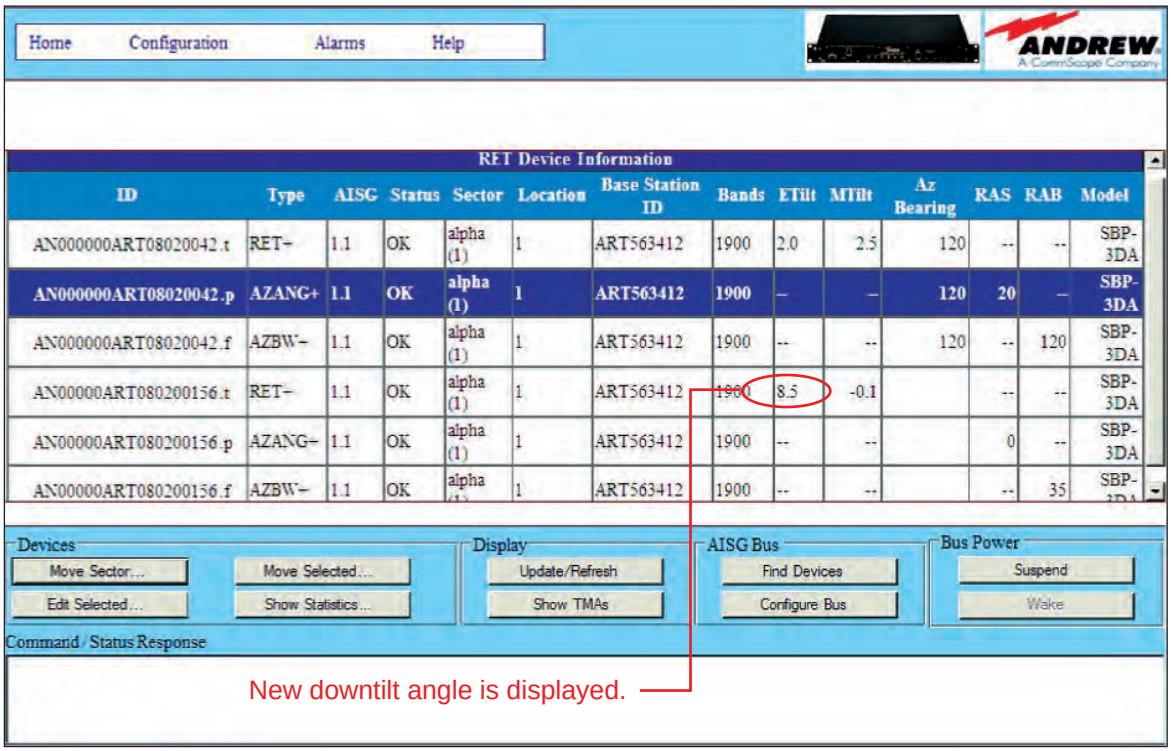

Figure 19-4. New Downtilt Angle Shown For Single Antenna Move.

Section 20
Adjusting the Pan on a Single SmartBeam® Antenna

20.0 Section Overview

- The azimuth offset may be adjusted on a pan axis of a SmartBeam antenna that is addressed, configured, and whose current state does not prevent antenna movement.
- Movement may be prevented when a device is not responding to commands from the controller, is in the middle of a move or configuration change, or is experiencing a mechanical malfunction.

20.1 Adjusting the Pan on a Single Antenna

1. From the controller's main interface screen, select the device ending in a ".p" (for "pan") to be moved (Figure 20-1).
2. Click on **Move Selected** (Figure 20-1).

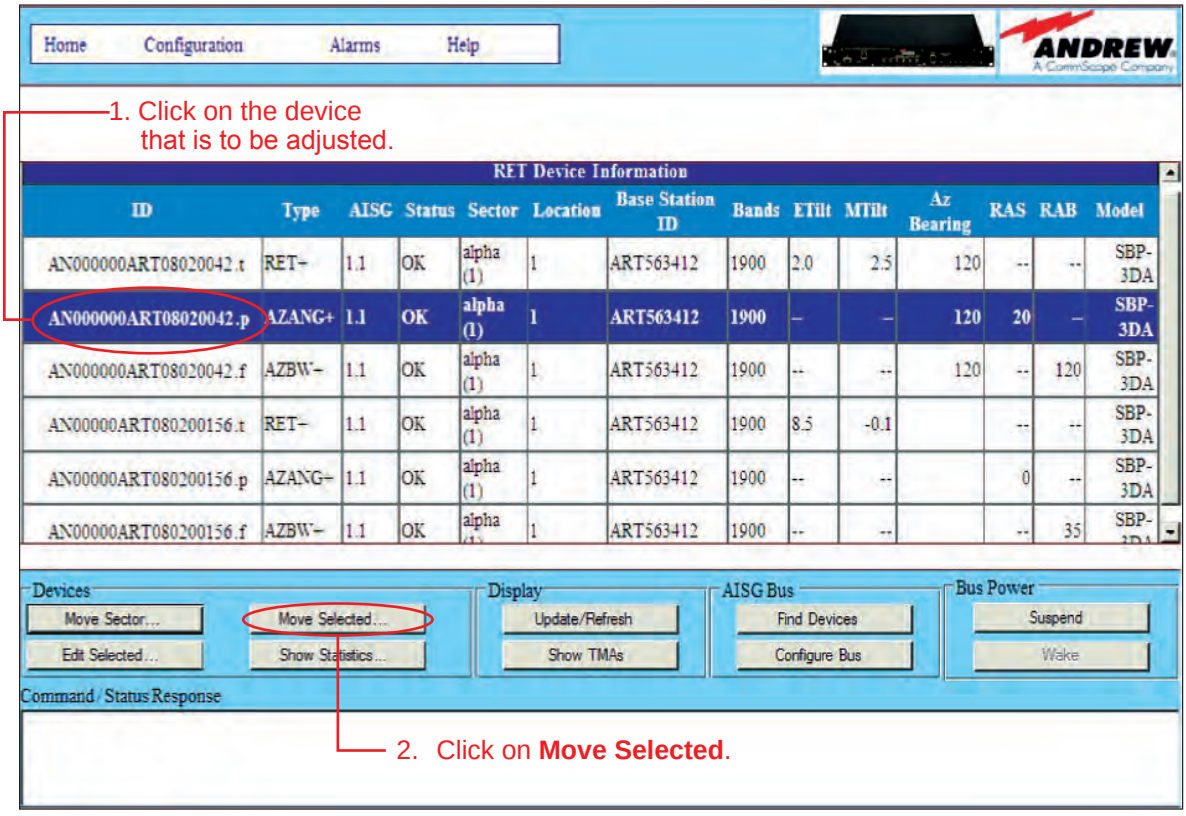

Figure 20-1. Selecting Device To Be Adjusted.

The **Pan Axis Movement** screen shown in Figure 20-2 displays the information that was previously configured for the device. This information may be used as a reference to help determine the new az offset setting. Note that only movement changes may be made from this screen. Any changes needed to be made to the configuration for the device must be done from the **Device Configuration** screen as discussed in Section 12.

3. Enter the new az offset for the device in the **New Az Offset** field. Note that the allowed range of angle values is displayed in the **Min Azimuth Offset** and **Max Azimuth Offset** fields in the top part of the screen. Any value within this range may be entered. Values may be entered as whole degrees only. (Figure 20-2).

   Examples: A value of five may be entered as **5**. A value of five and one-half is not valid.

4. Click on **Set Azimuth Offset** to apply the changes to the pan axis for this antenna. Alternately, to exit the screen without sending any changes, click on **Close**.

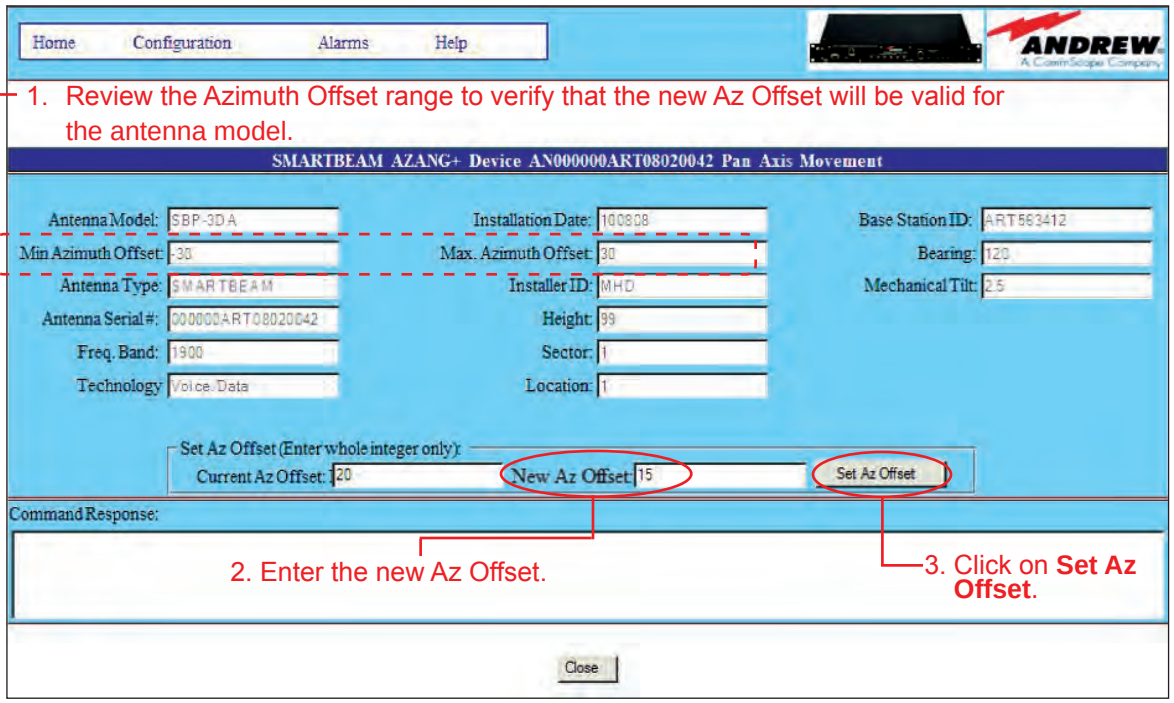

Figure 20-2. Changing Az Offset Setting For Single Antenna.

5. A progress indicator bar will appear in a pop-up window to continually provide an update for as long as the move is in progress. You will be notified when movement is complete. Click on **Close Window** from the pop-up window (Figure 20-3).

   If for any reason the move failed to reach the new az offset specified, you will be notified of the failure.

6. After the antenna has completed movement to its new az offset, the new value will be displayed in the **Current Az Offset** field and the **New Az Offset** will be cleared in preparation for the next move (Figure 20-3).

   At this point, you may click on **Close** (Figure 20-3) to return to the controller's main interface screen (Figure 20-4). Alternately, this process may be repeated to further adjust the downtilt or to reapply changes where movement had previously failed, such as a temporary mechanical jam.

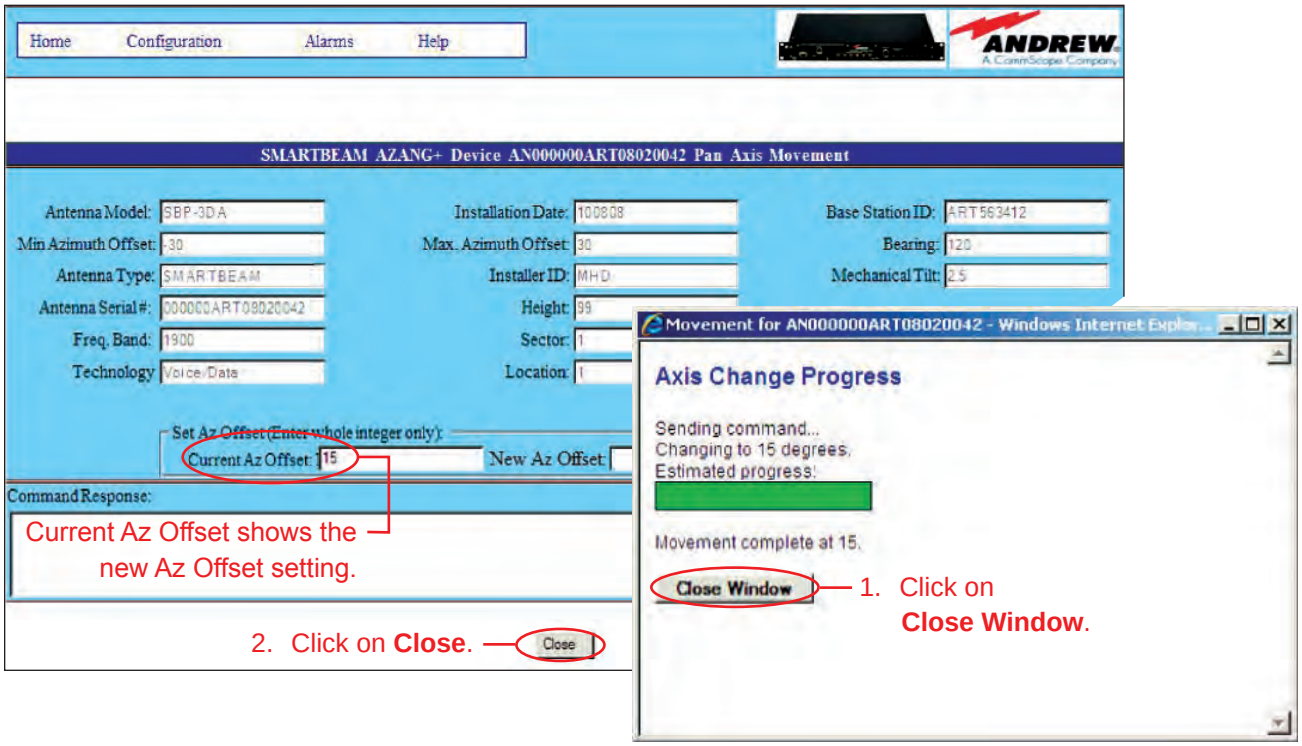

Figure 20-3. Tilt Change Complete For Single Antenna Move.

The new az offset will be displayed on the controller's main interface screen for the antenna/device that was adjusted under the column "RAS". (Figure 20-4).

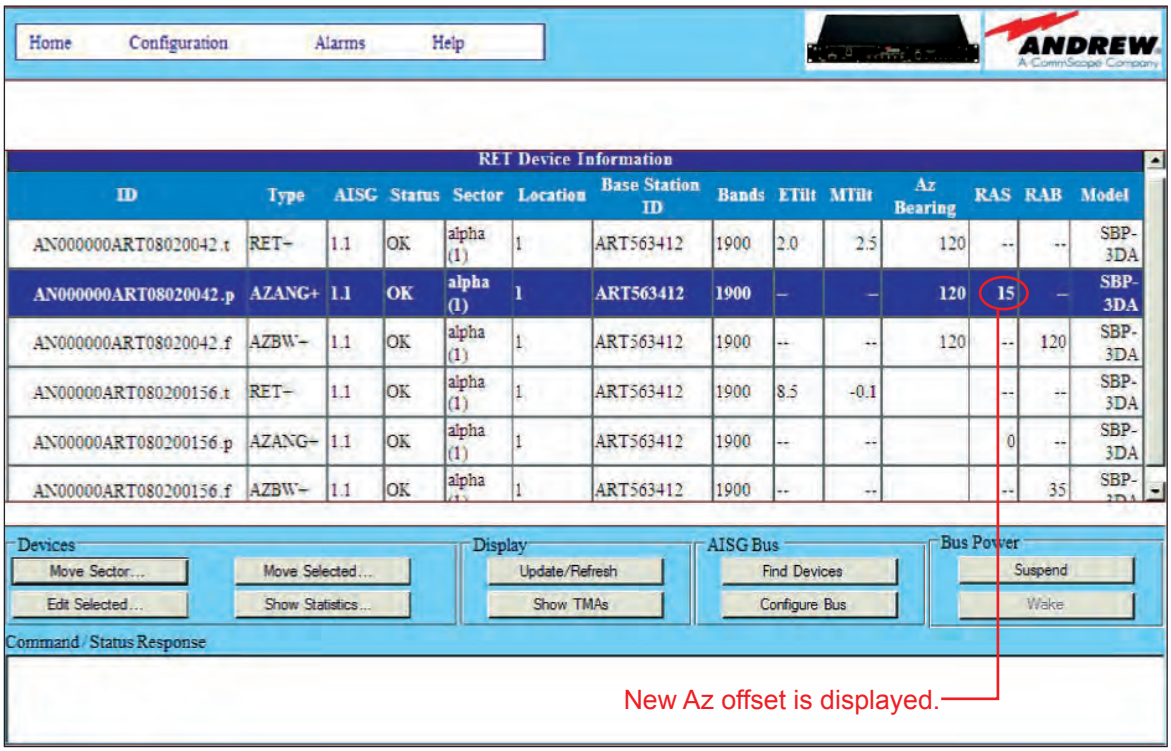

Figure 20-4. New Az Offset Shown For Single Antenna Move.

Section 21
Adjusting the Fan on a Single SmartBeam® Antenna

21.0 Section Overview

- The beamwidth may be adjusted on a fan axis of a SmartBeam antenna that is addressed, configured, and whose current state does not prevent antenna movement.
- Movement may be prevented when a device is not responding to commands from the controller, is in the middle of a move or configuration change, or is experiencing a mechanical malfunction.

21.1 Adjusting the Fan on a Single SmartBeam Antenna

1. From the controller's main interface screen, select the device ending in a ".f" (for "fan") to be moved (Figure 21-1).
2. Click on **Move Selected** (Figure 21-1).

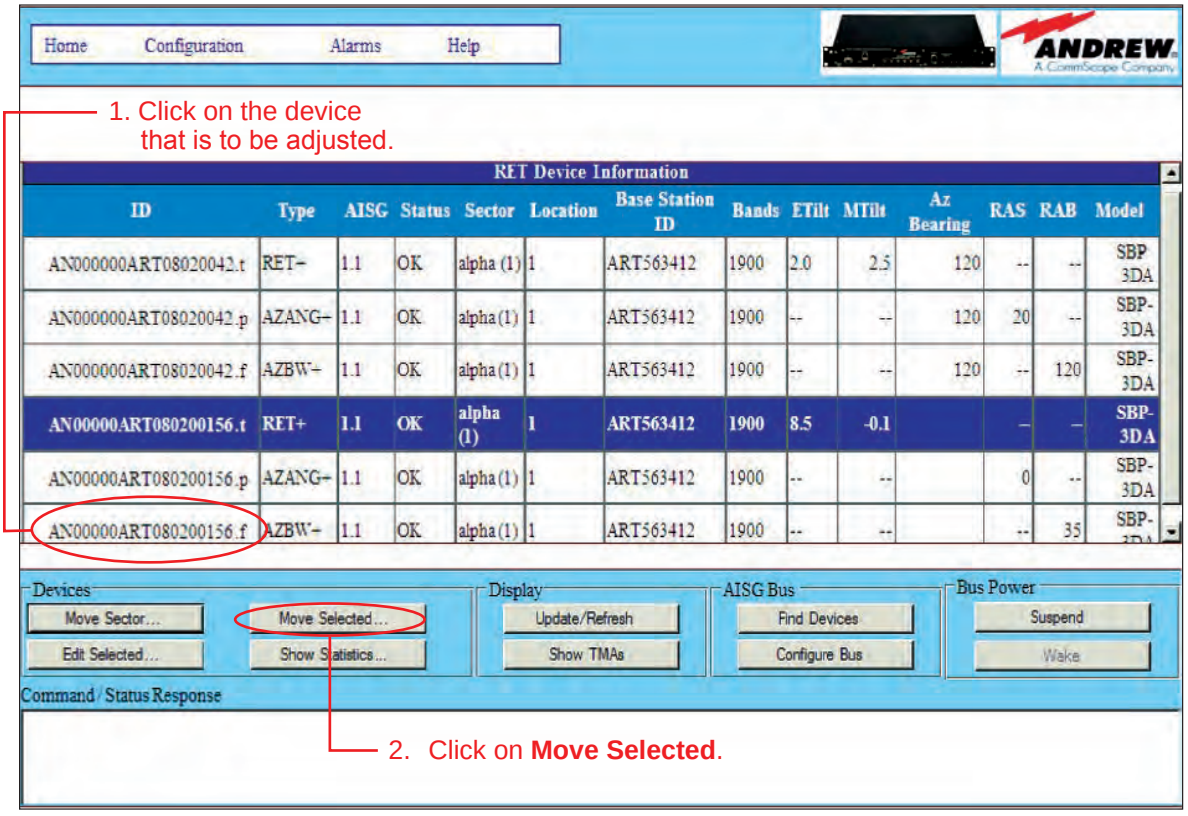

Figure 21-1. Selecting Device To Be Adjusted.

The **Fan Axis Movement** screen shown in Figure 21-2 displays the information that was previously configured for the device. This information may be used as a reference to help determine the new beamwidth setting. Note that only movement changes may be made from this screen. Any changes needed to be made to the configuration for the device must be done from the **Device Configuration** screen as discussed in Section 12.

3. Enter the new beamwidth for the device in the **New Beamwidth** field. Note that the allowed range of values is displayed in the **Min Nominal Beamwidth** and **Max Nominal Beamwidth** fields in the top part of the screen. Any value within this range may be entered. Values may be entered as whole degrees only. (Figure 21-2).

   Examples: A value of eighty may be entered as **80**. A beamwidth of eighty and one-half degrees is not valid.

4. Click on **Set Beamwidth** to apply the changes to the fan axis for this antenna. Alternately, to exit the screen without sending any changes, click on **Close**.

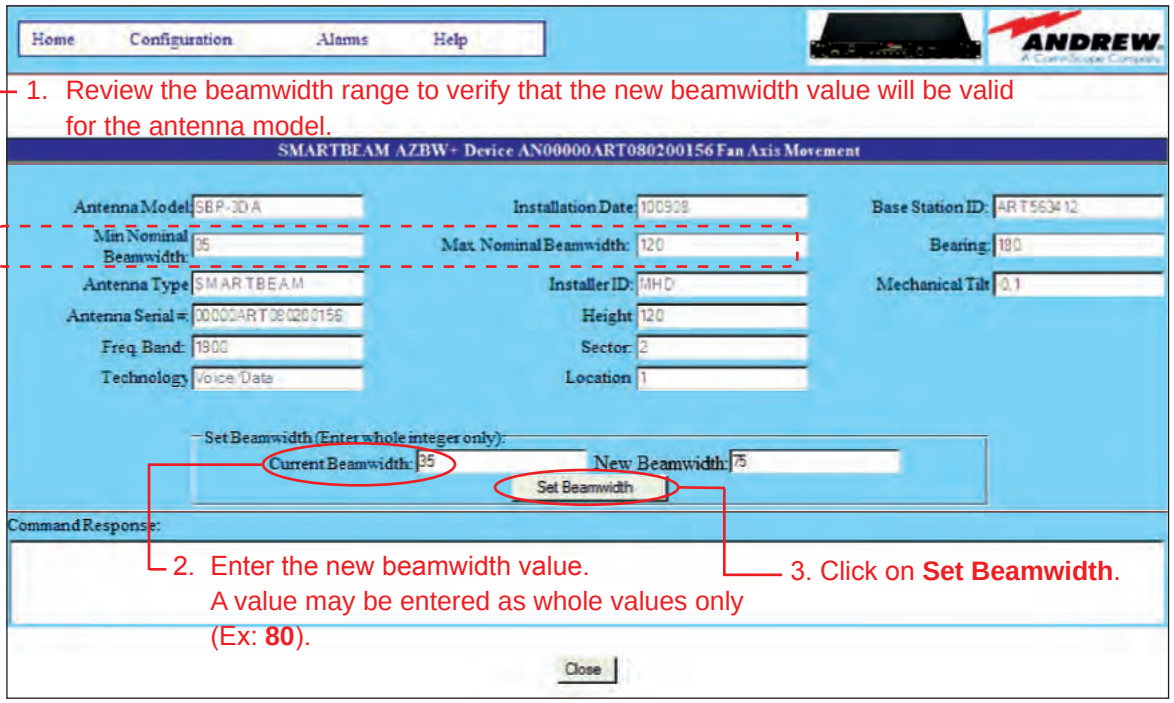

Figure 21-2. Changing Beamwidth Setting For Single Antenna.

5. A progress indicator bar will appear in a pop-up window to continually provide an update for as long as the move is in progress. You will be notified when movement is complete. Click on **Close Window** from the pop-up window (Figure 21-3).

   If for any reason the move failed to reach the new beamwidth specified, you will be notified of the failure.

6. After the antenna has completed movement to its new beamwidth, the new value will be displayed in the **Current Beamwidth** field and the **New Beamwidth** will be cleared in preparation for the next move (Figure 21-3).

   At this point, you may click on **Close** (Figure 21-3) to return to the controller's main interface screen (Figure 21-4). Alternately, this process may be repeated to further adjust the beamwidth or to reapply changes where movement had previously failed, such as a temporary mechanical jam.

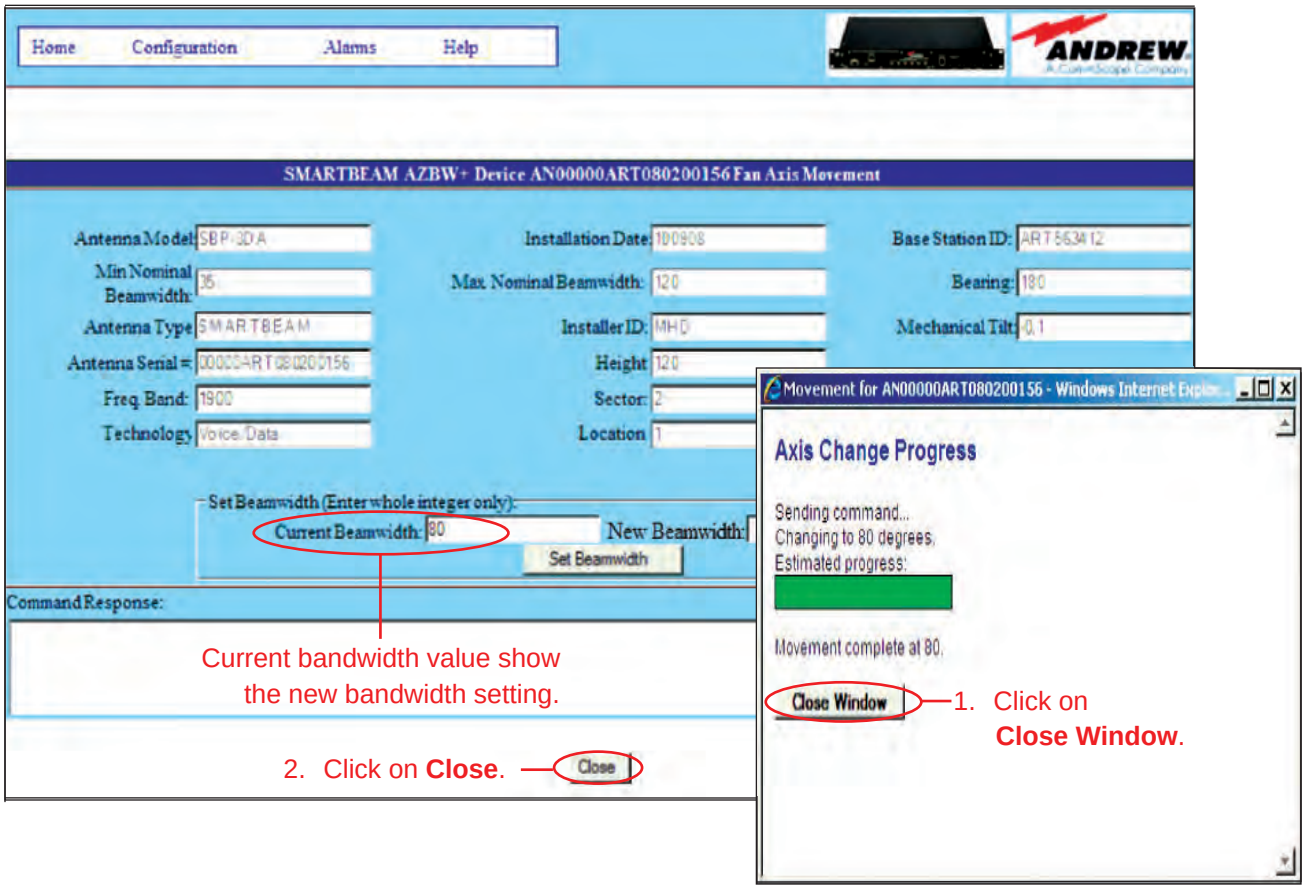

Figure 21-3. Beamwidth Change Complete For Single Antenna Move.

The new beamwidth value will be displayed on the controller's main interface screen for the antenna/ device that was adjusted under the column "RAB" (Figure 21-4).

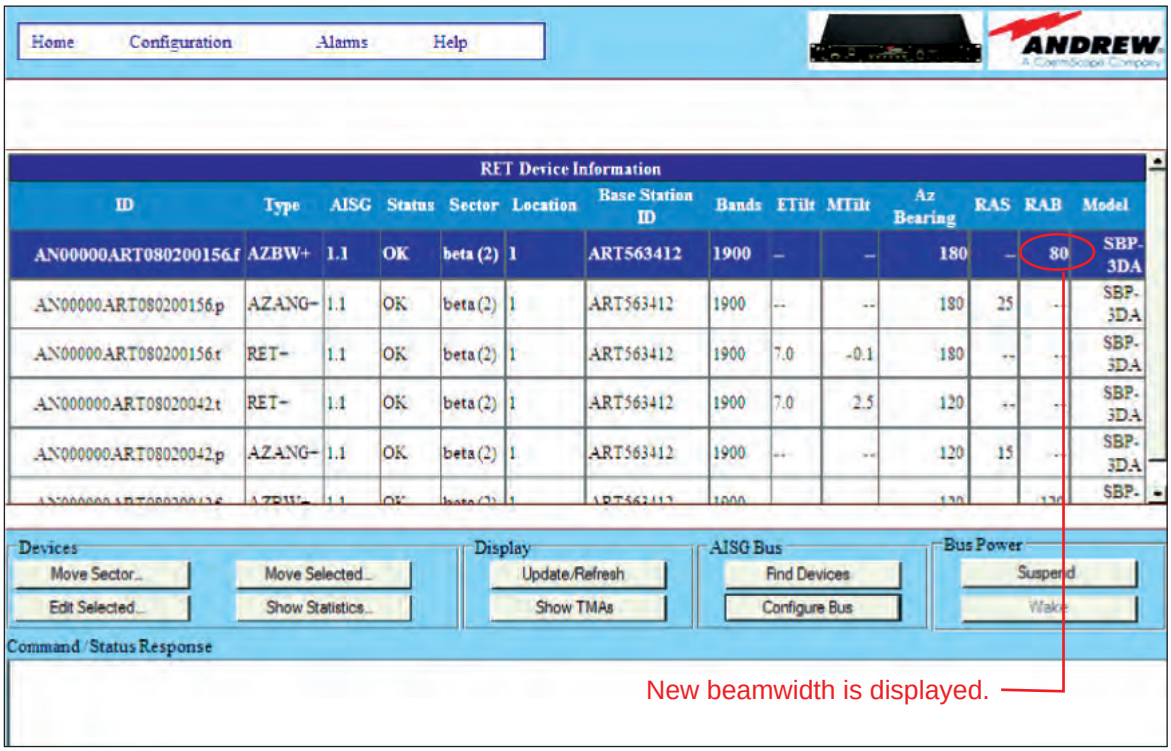

Figure 21-4. New Beamwidth Value Shown For Single Antenna Move.

Section 22
Adjusting the Electrical Downtilt, Pan, or Fan on a Group of SmartBeam® Antennas

22.0 Section Overview

In addition to changing the downtilt, az offset, and beamwidth of a single SmartBeam antenna, changes may also be applied to a group of antennas. The SmartBeam antennas that can be included in a group move must be in the same sector, have the same electrical tilt range (same minimum and maximum tilt), and be the same axis (tilt, pan, or fan).

22.1 Adjusting the Downtilt Angle, Az offset, or Beamwidth on a Group of SmartBeam Antennas

1. Select a SmartBeam axis device from the controller's main interface screen that is to be included in the sector move (Figure 22-1).
2. Click on **Move Sector** (Figure 22-1).

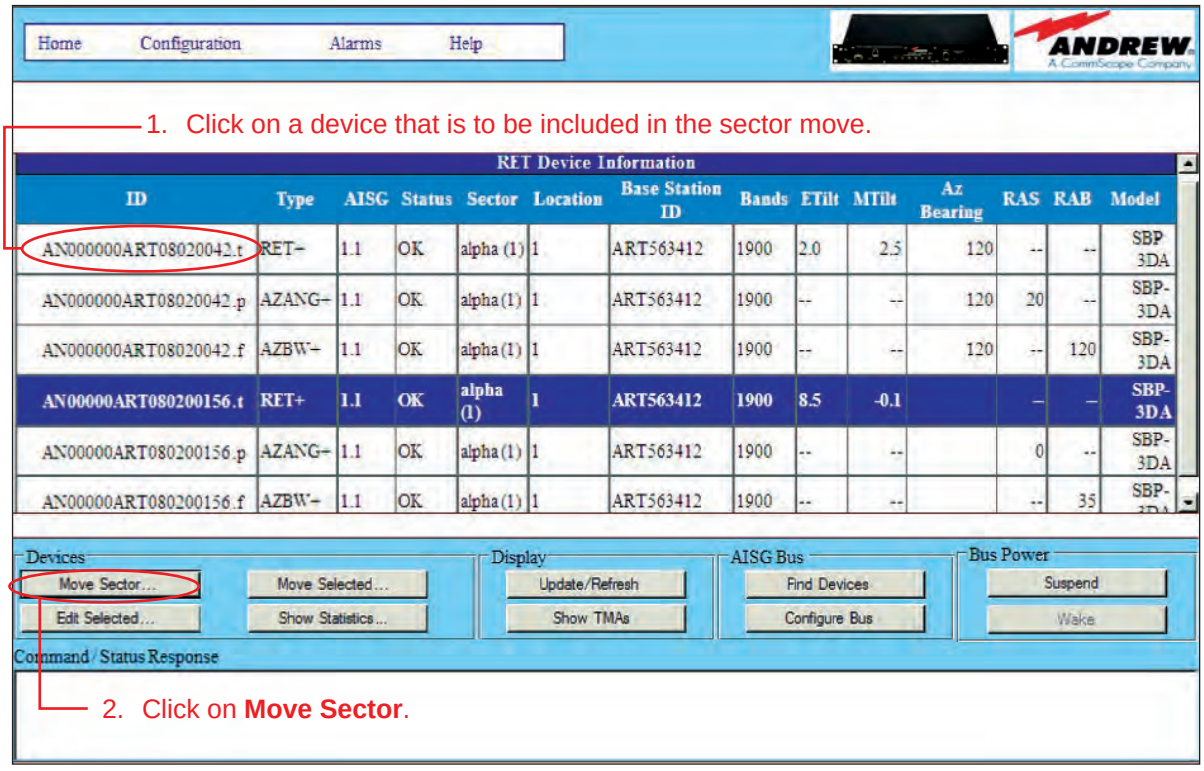

Figure 22-1. Selecting A Device That Is To Be Included In The Sector Move.

Notice that the device that was selected to be included in the sector move is highlighted and displayed in the **Included** box. This box displays a list of all devices that will be included in the sector move. Initially, this box contains only the antenna that was selected from the controller's main interface screen. The minimum, maximum, and current tilt for this device is displayed on this screen (Figure 22-2).

Other devices that have the same sector ID, minimum tilt, and maximum tilt, and are the same axis, are listed in the **Additional** box. If desired, the configuration settings can be viewed for each device before adding them to the sector group to be moved. Click on each model individually to view the configurations for each device.

Note that up to 12 antenna/device pairs may be selected for a sector move. Any more than 12 will be denied when attempting to add to the group for inclusion in the move.

3. Select the device, and click on **Add** (Figure 22-2). (Alternately, double-click on the device from the **Additional** box to move the device to the **Included** box.)
4. Examine the group selected for the sector move (shown in the **Included** box), to ensure that the group does not include any antennas that are not desired for this move. If you find that a device is not wanted for inclusion in the sector move, click on the device, and click on **Remove**. (Alternately, double-click on the device to remove it from the group.)

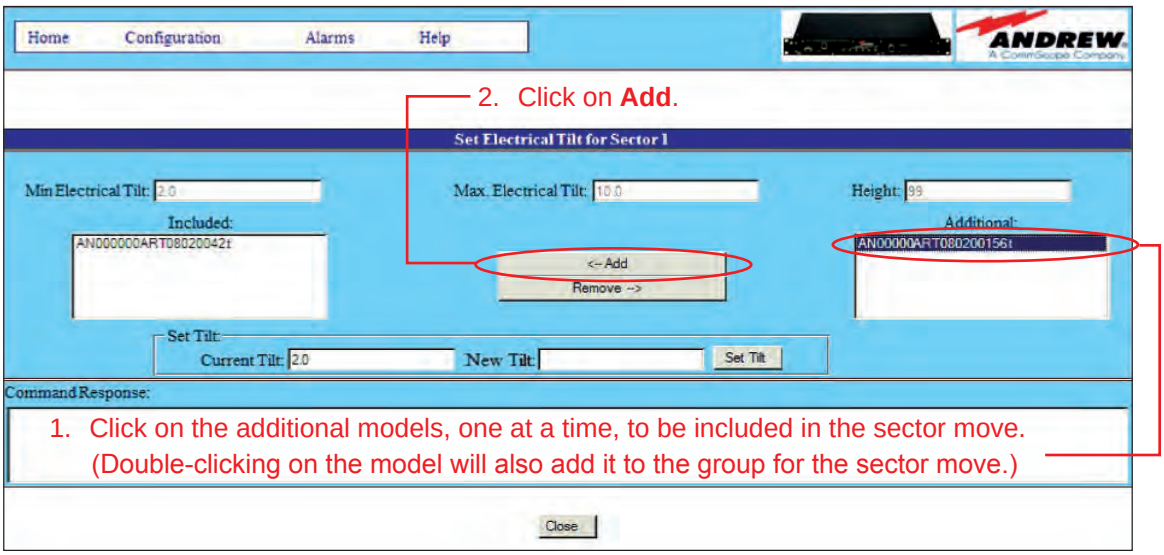

Figure 22-2. Adding Models To Be Included In The Sector Move.

5. When satisfied with the list of antennas that will be included in the group move, enter a new downtilt angle in the **New Tilt** text entry field, and click on **Set Tilt** to begin the move (Figure 22-3). Progress for each antenna movement in the group will be displayed separately (Figure 22-4). (Note that these fields will have the appropriate labels for the axes selected.)
6. You will be notified when all antennas have successfully reached the new tilt angle. Click on **Close Window** from the pop-up window (Figure 22-4).
7. The new angle will be displayed in the **Current Tilt** field and the **New Tilt** field will be cleared. If further adjustments are needed, they may be done before exiting this screen. When the desired adjustments are complete, click on **Close** (Figure 22-4) to return to the controller's main interface screen (Figure 22-5).

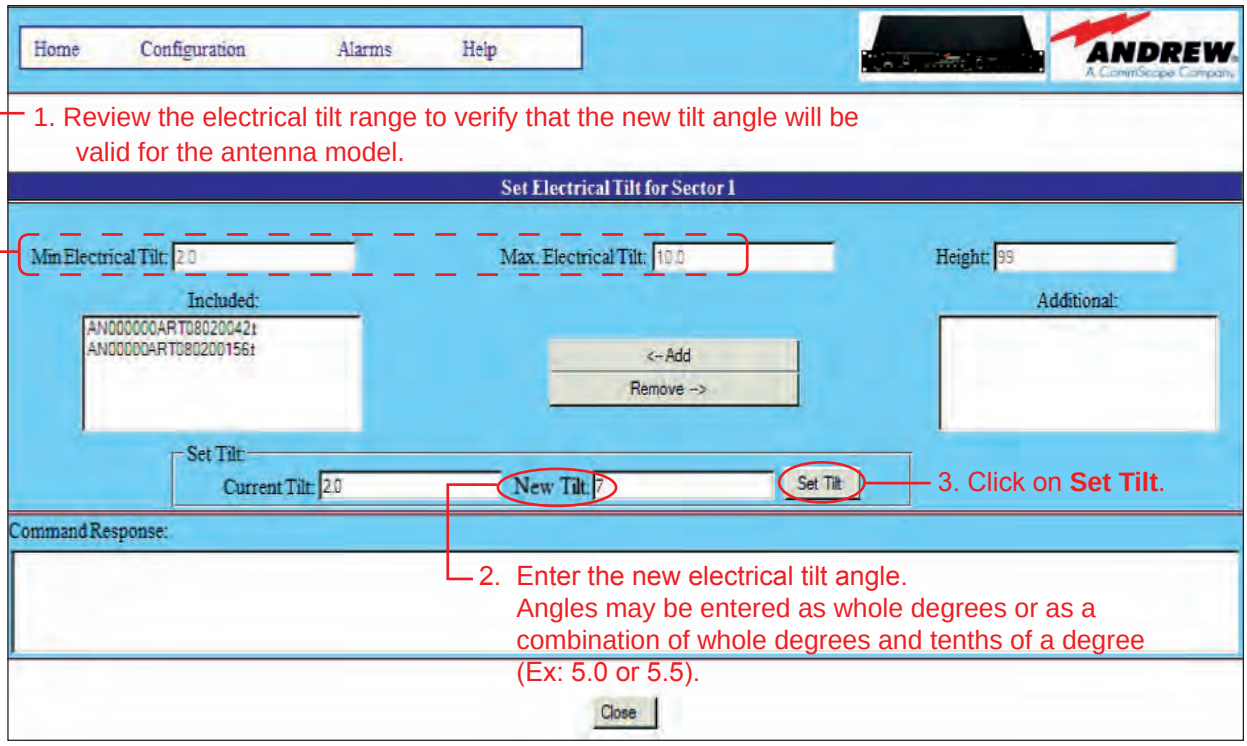

Figure 22-3. Changing Electrical Tilt Setting For Antennas In Sector Move.

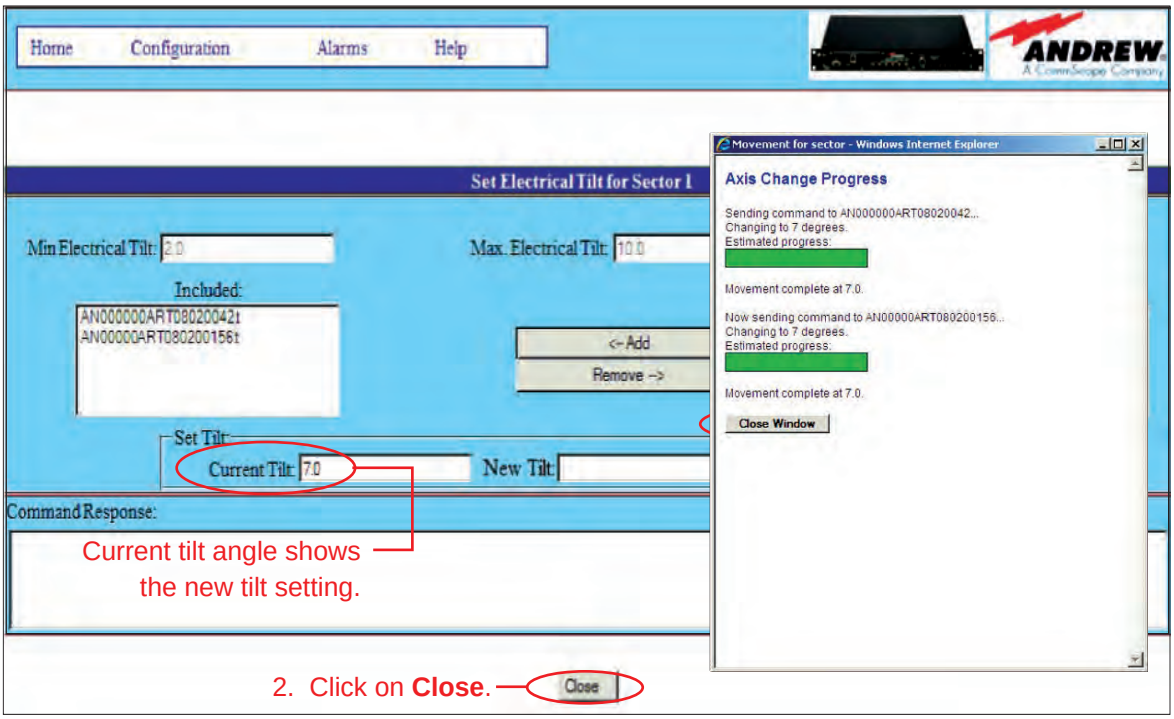

Figure 22-4. Tilt Change Is Complete For Sector Move.

The new downtilt angle, or az offset, or beamwidth, will be displayed on the controller's main interface screen for the antennas/devices that were adjusted in the sector move (Figure 22-5).

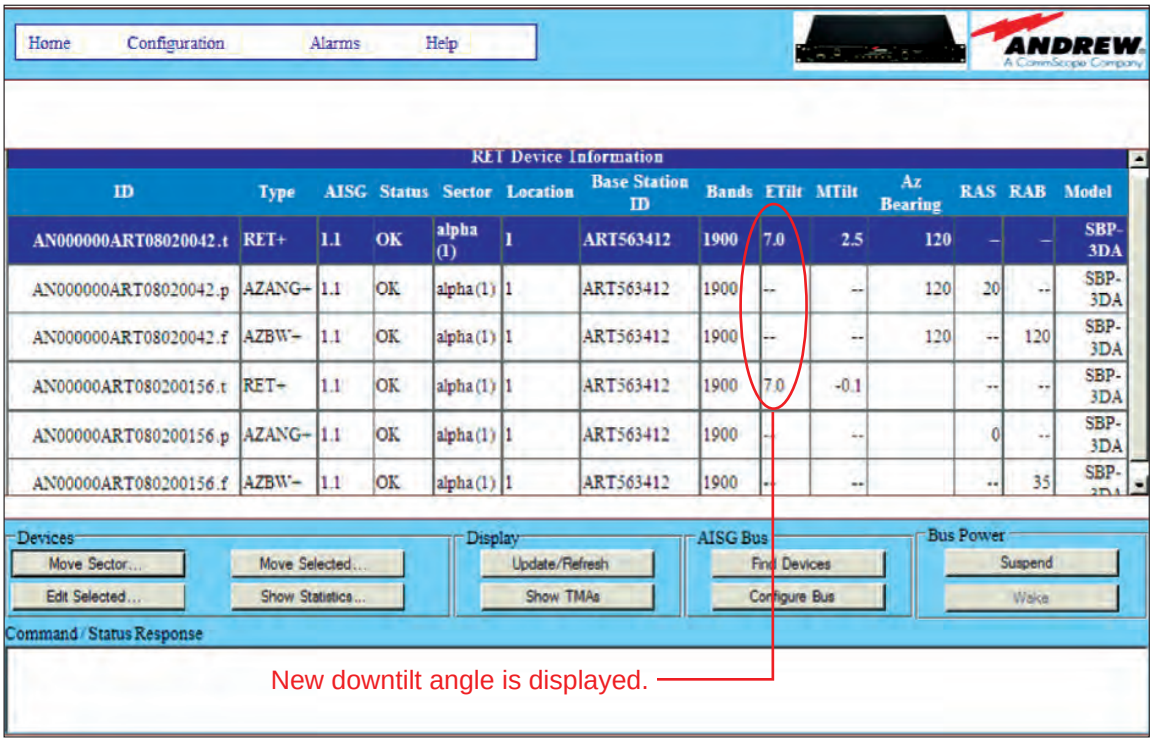

Figure 22-5. New Tilt Angle Shown For Sector Move.

Part 8

Operating Instructions for Tower Mounted Amplifiers

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Section 23
Tower Mounted Amplifier

23.0 Section Overview

CommScope tower mounted amplifiers (TMAs) are installed near the Tx/Rx antenna at the top of a cell tower. A base station antenna transmits a much stronger signal than what it receives back from the mobile phone, but the TMA corrects this imbalance. This uplink improvement with a stronger, clearer signal results in fewer dropped calls, improved call quality, and better coverage.

The CommScope tower mounted amplifier extracts the AISG signal and dc power from the coaxial cable run and delivers it to the antenna RET line devices through its AISG interface.

23.1 AISG TMA (Tower Mounted Amplifier) Applications

- An AISG TMA usually includes its own bias tee at the top of the system to get the dc voltage. If a TMA already uses a bias tee, a top Smart Bias Tee unit is not needed, nor can it be used. (The top Smart Bias Tee unit cannot pass dc power and data to the output RF port.)
- A bottom Smart Bias Tee unit can be used to pass dc voltage and data to the coax line in applications where an AISG TMA has its own bias tee at the top of the system.
- If a system includes both an AISG TMA and actuator(s), the TMA must have an AISG connector that can pass the dc power and data to the AISG jumper cable assembly.

23.2 Finding TMAs

1. Click on **Find Devices** from the controller's main screen (Figure 23-1).
2. Click on **Start Scan** to activate the device search. Figure 23-2 shows a completed device scan.
3. Click on **Home** to return to ATC300 controller's main screen (Figure 23-2).
4. Any RET devices found are initially listed on the main screen. Click on the **Show TMAs** button to see all TMAs found in the device scan. See Figure 23-3.
5. Figure 23-4 shows that one AISG TMA product is installed at the site.

Figure 23-1. Controller's Main Interface Screen.

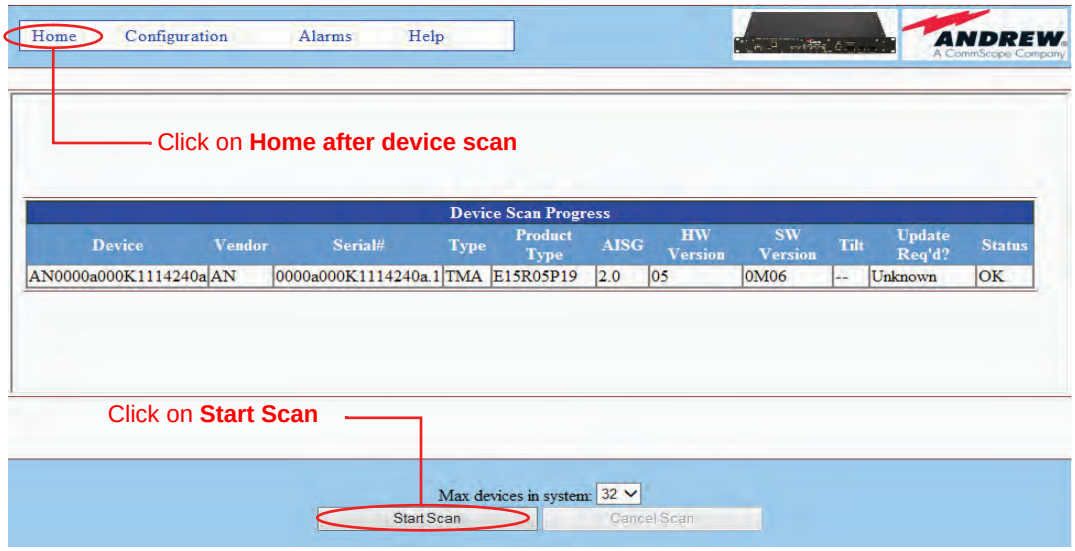

Figure 23-2. Device Scan finds a TMA.

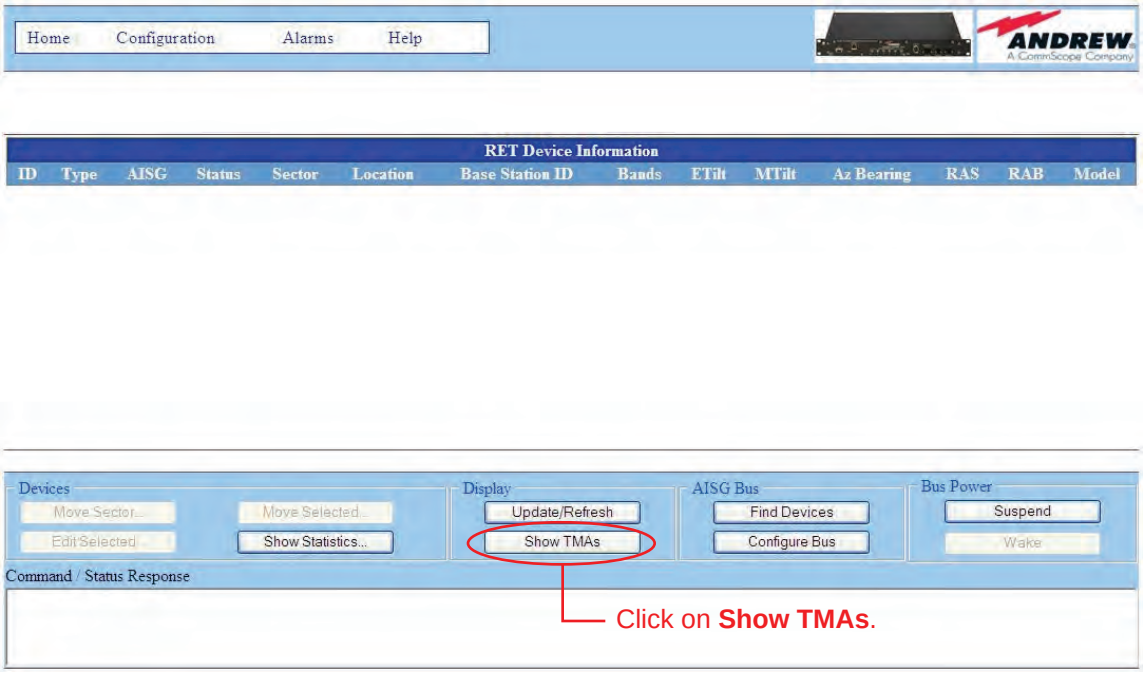

Figure 23-3. ATC300 Controller's Main Interface Screen – RET View.

23.3 Configuring a TMA

1. To configure a TMA, select it from the TMA device list on the controller's main screen, as shown in Figure 23.4. Then click on **Edit Selected TMA** to enter the TMA Device Configuration screen (Figure 23-5). Notice that the ID for the device that was selected from the main screen appears in the title bar of the Device Configuration screen.

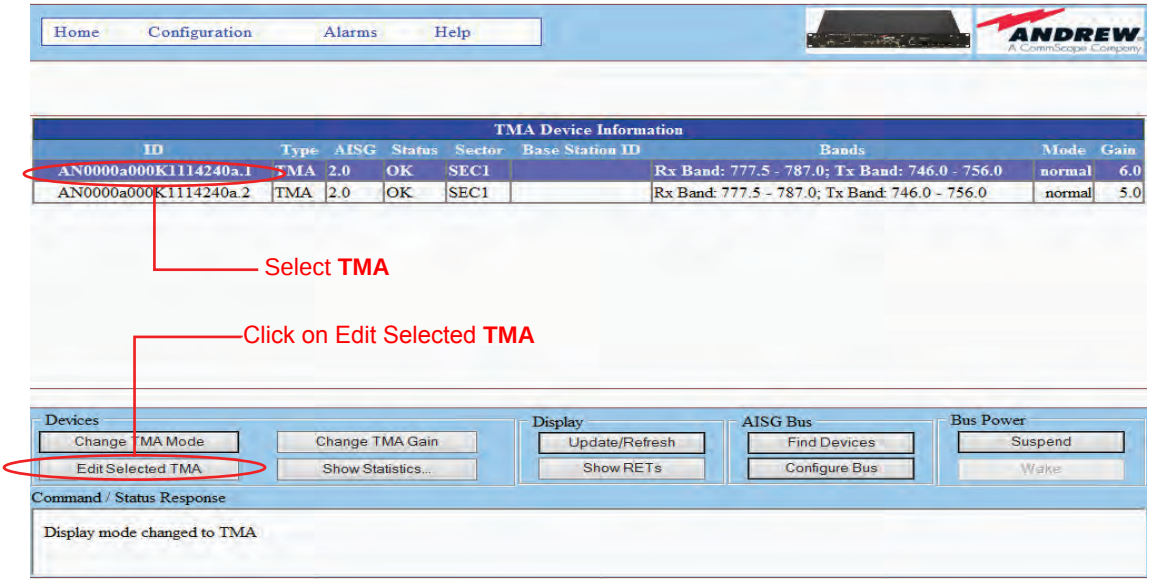

Figure 23-4. ATC300 Controller's Main Interface Screen – TMA View.

2. Required fields are marked with an asterisk. Saving a new configuration will not be permitted if any of the required fields are left blank. Refer to Figure 23-5.
3. Specify the parameters for the fields available (Base Station ID, Sector, Installer ID and Installation date).

   Note the following:

   - The **ID** for the base station associated with this antenna must be 1 to 12 characters in length for AISG 1.x devices and 1-32 characters in length for AISG 2.0 devices, and may contain any combination of numbers and letters.
   - The **Installation Date** field must be 1 to 6 characters in length with any combination of letters and numbers.
   - The **Installer ID** must be 1 to 5 characters in length with any combination of letters and numbers.
   - The Sector value must be 1 to 4 characters in length for AISG 1.x devices and 1-32 characters in length for AISG 2.0 devices, and may contain any combination of numbers and letters.
4. Carefully review all data entered (Figure 23-5). If satisfied that all are correct, click on **Set Device Data**. Alternately, the user may go back and edit/change any of the selections made or click on **Close** to quit this process without making any changes to the TMA's current configuration.
5. TMA Data fields (TMA Type, TMA Rx Band, TMA Tx Band, Max Gain, Min Gain and Gain Resolution) are displayed as read only.

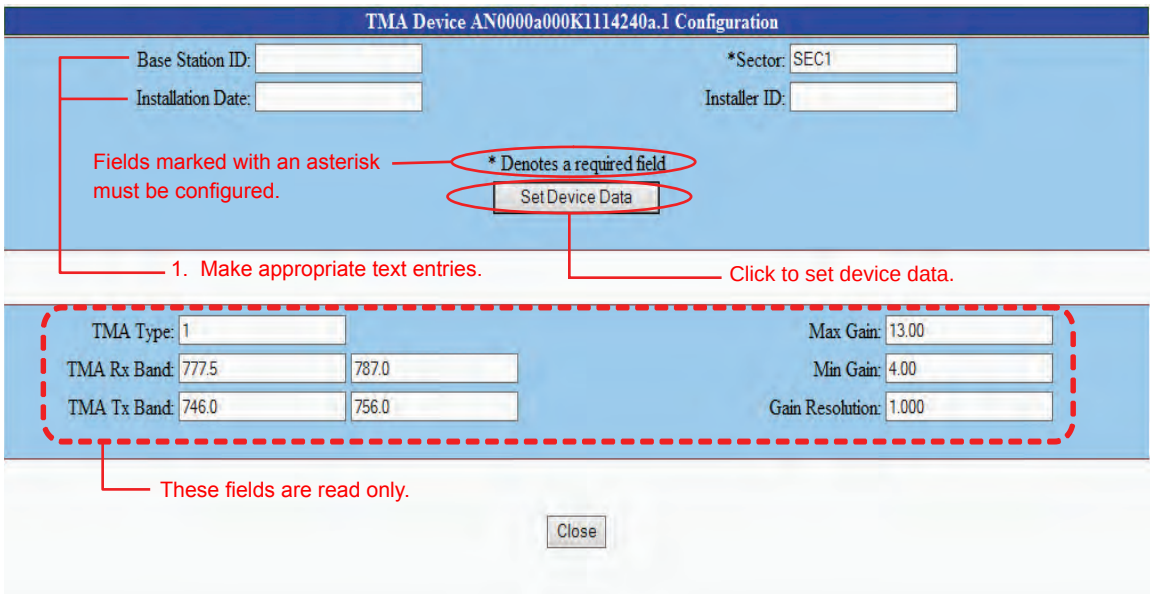

Figure 23-5. TMA Device Configuration Screen.

23.4 Changing TMA Gain

1. To change a TMA's gain, select the TMA from the TMA device information list on the controller's main screen, as shown in Figure 23-6. Then click on **Change TMA Gain** to enter the TMA Device Operation screen (Figure 23-7). Notice that the ID for the device that was selected from the main screen appears in the title bar of the Device Operation screen.

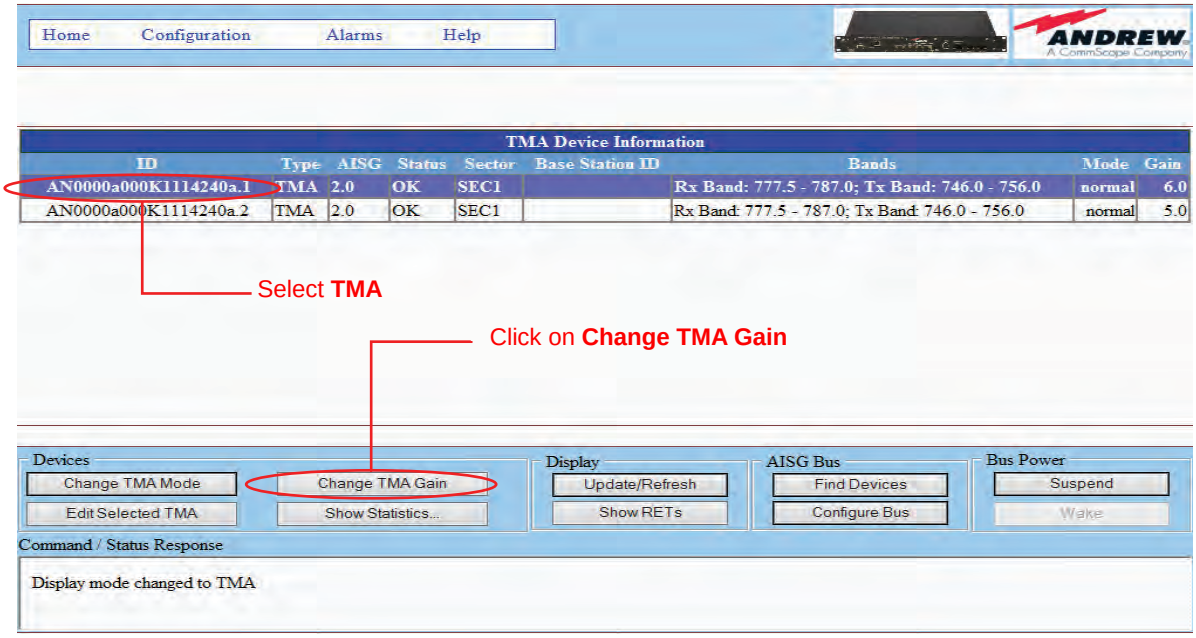

Figure 23-6. ATC300 Controller's Main Interface Screen – TMA View.

2. To change the gain on a variable gain TMA, enter the desired value of gain in the **New Gain** field, and click on **Set Gain**. In Figure 23-7, current gain was 6 dB, and a new gain of 8 dB is being set. Note that for a fixed gain TMA, the **Set Gain** button is not available. Also this screen displays a list of TMA subunits that has the same frequency bands (TMA Rx and TMA Tx) as that of the current subunit. By selecting the checkbox "Change gain on other subunits with the same frequencies," the listed sub units will also be set to the New Gain value when Set Gain is clicked. If this checkbox is not selected the New Gain value is sent only to the current subunit.

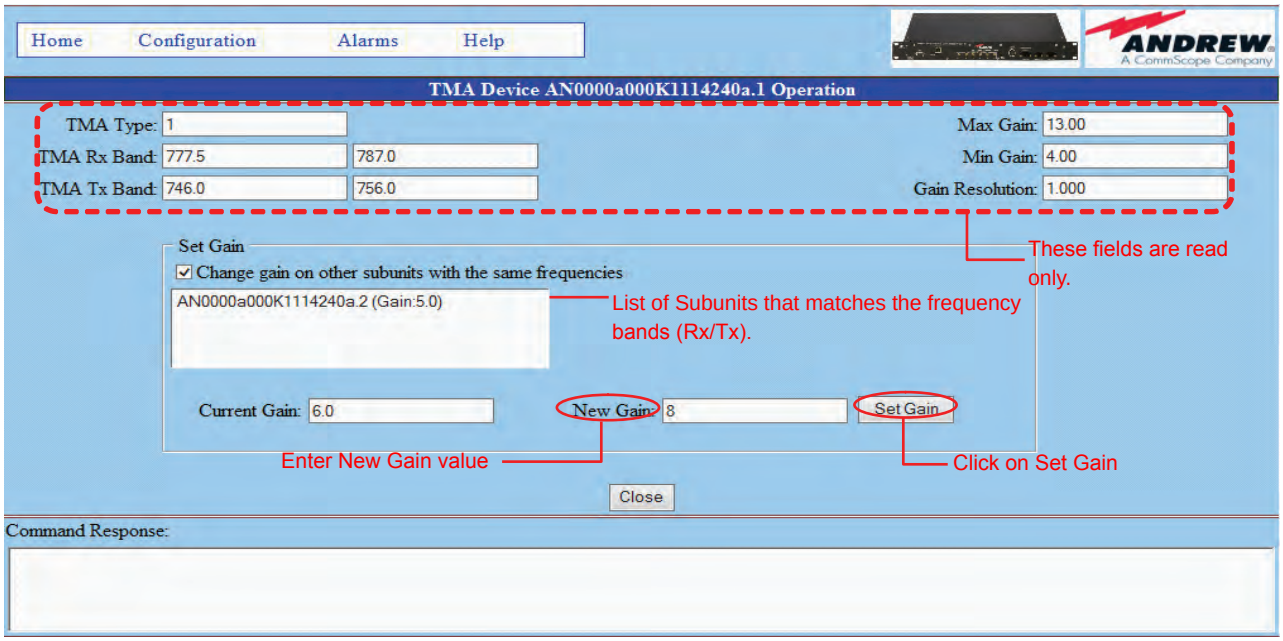

Figure 23-7. Changing the gain on a variable gain TMA.

3. After the TMA has changed its gain, the new gain value is displayed in the **Current Gain** field (Figure 23-8). Also note that the Gain of the TMA subunit displayed in the list under the check-box “Change gain on other subunits with the same frequencies” is also changed to the New Gain value as shown in Figure 23-8.

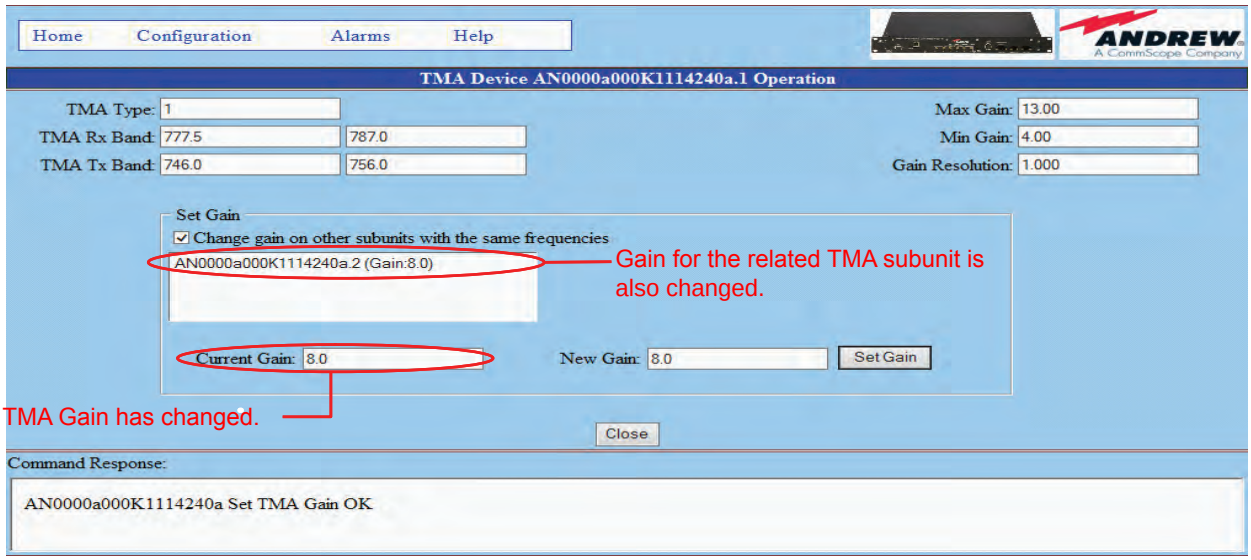

Figure 23-8. TMA Gain has successfully been changed.

4. Go back to the Home page and click on **Show TMAs**. The new gain value will be reflected for the TMA subunits in the Device Information list. (Figure 23-9)

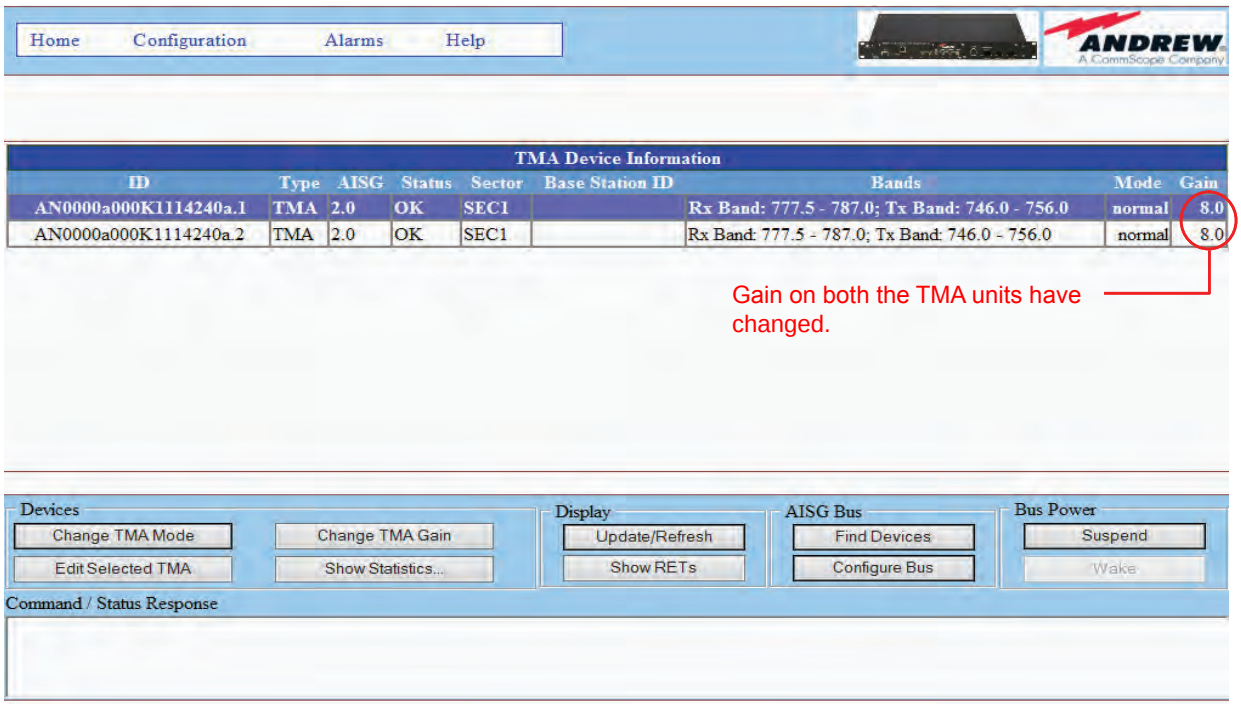

Figure 23-9. TMA Gain has successfully been changed – Main Device Screen.

23.5 Changing TMA Operating Mode

1. To change a TMA's operating mode, select the TMA from the TMA device information list on the controller's main screen, as shown in Figure 23-10. Then click on **Change TMA Mode** to enter the TMA Device Operation screen (Figure 23-11). Notice that the ID for the device that was selected from the main screen appears in the title bar of the Device Operation screen.

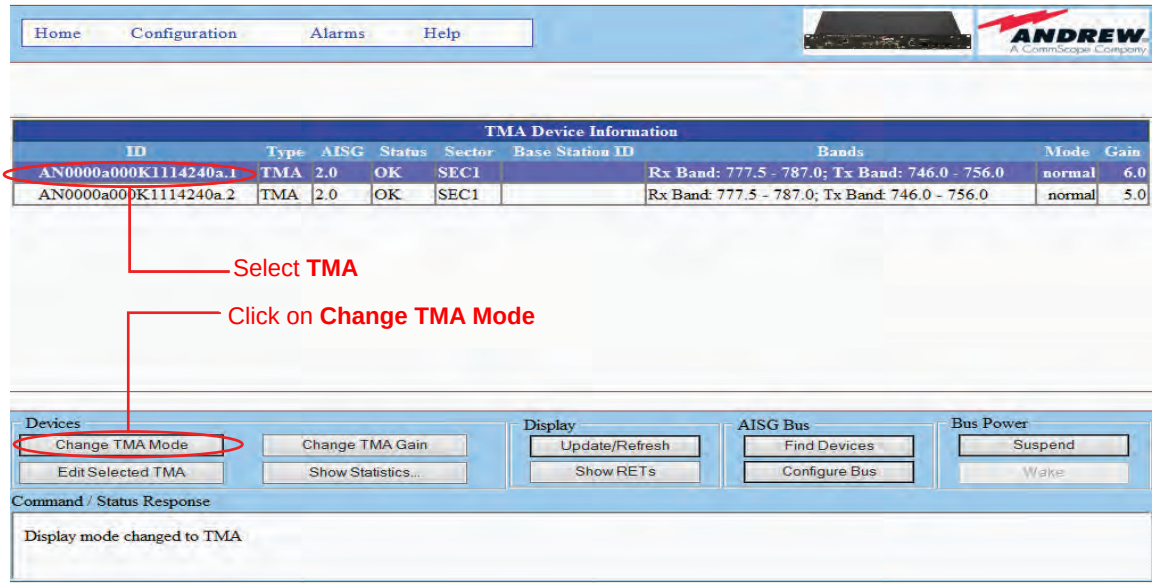

Figure 23-10. ATC300 Controller's Main Interface Screen - TMA View.

2. Select the desired operating mode from the mode dropdown list, as shown in Figure 23-11.The operating mode options are **Amplifier On** or **Amplifier Bypassed**. Then click on **Set Bypass Mode**.

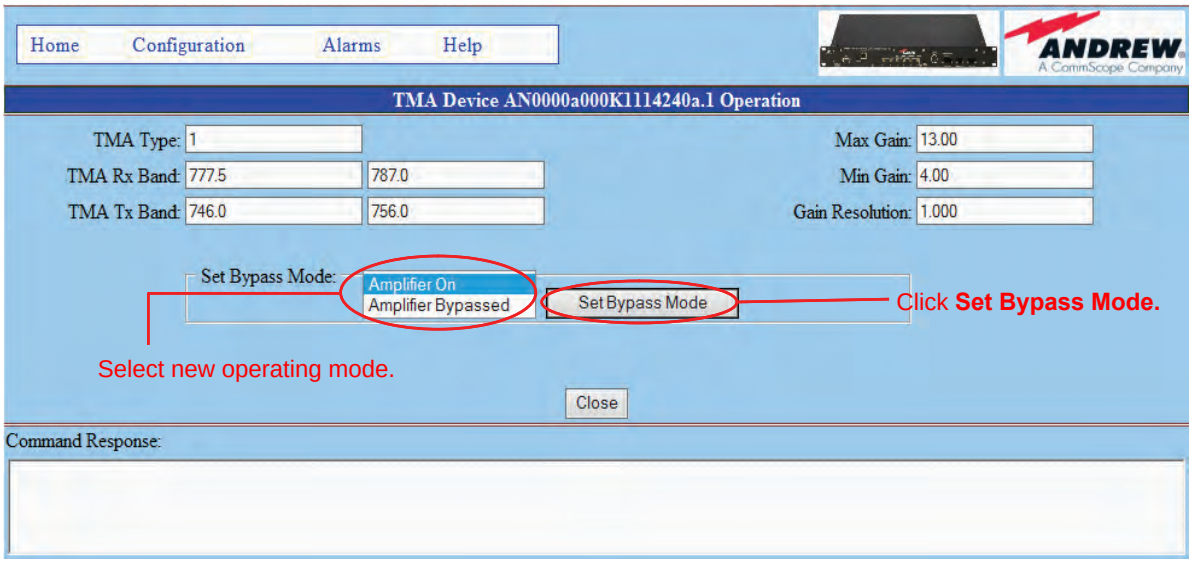

Figure 23-11. Changing the operating mode on a TMA.

3. After the TMA has changed its operating mode, the new mode is displayed in the mode field. (Figure 23-12).

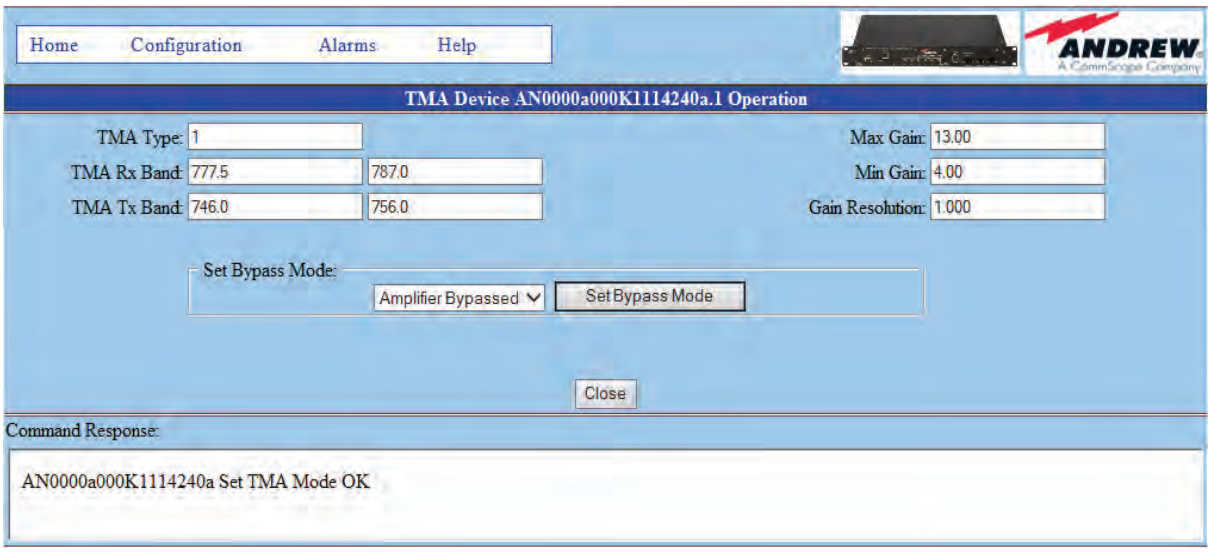

Figure 23-12. TMA Operating Mode has successfully been changed.

4. Go back to the Home page and click on **Show TMAs**. The new operating mode will be reflected for the TMA in the Device Information list.(Figure 23-13) Also note that when a TMA is in Bypass Mode, its gain value is zero.

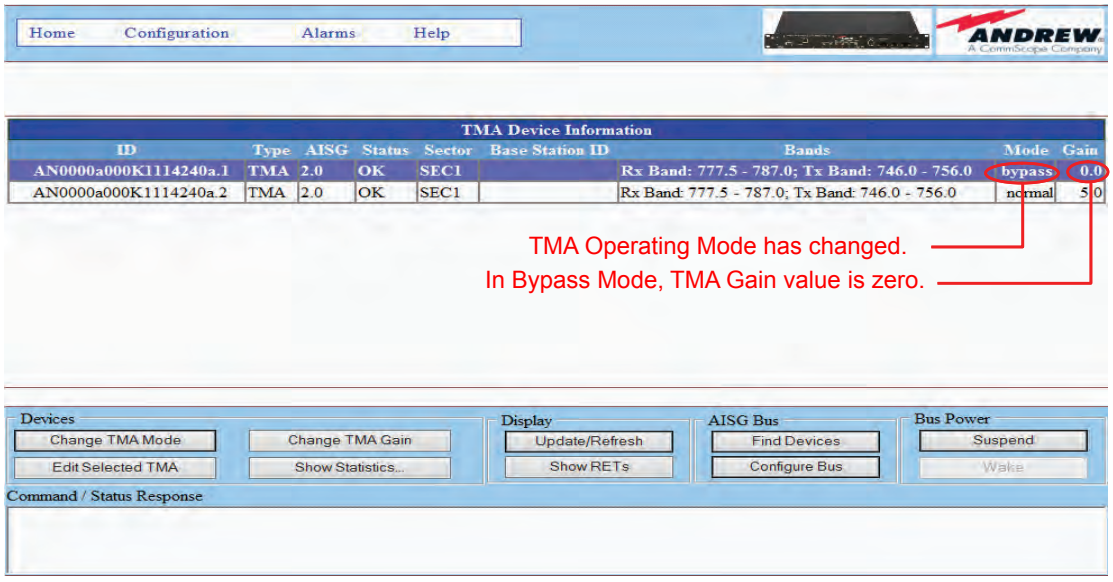

Figure 23-13. TMA Operating Mode has successfully been changed – Main Device Screen.

Part 9

Helpful Information

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Appendix A
Disabling and Enabling the Windows® XP SP2 Firewall

A.0 Appendix Overview

- A firewall may block the use of an FTP server, which is needed for transferring firmware (software) files to the ATC300/200 controller.
- The procedures discussed in this appendix only applies for the Windows® XP SP2 firewall. For any third-party firewall, please consult the manual or on-disk reference document supplied by the vendor.

Note: Other IP connections, like an air card, must also be disabled.

A.1 Opening the Security Center

1. Go to the **Control Panel** (Start, Settings, Control Panel).
2. Double-click on the **Security Center** icon or link.
3. Click on **Windows Firewall** (Figure A-1).

Figure A-1. Selecting ***Windows Firewall*** *From The Security Center.*

4. Select **Off** and click on **OK** to disable the firewall. (Note to re-enable the firewall, select **On** and click on **OK**.) See Figure A-2.

   Corporate users with broad-based computing policy enforcement, may need to consult with the company's computer support organization for assistance with disabling the firewall.

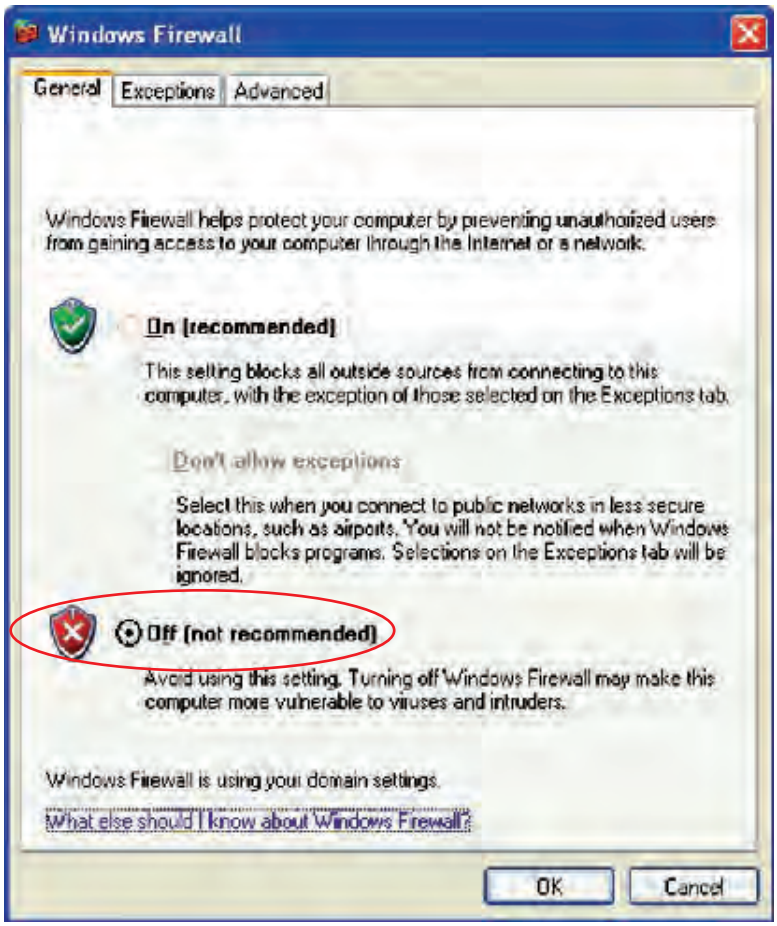

Figure A-2. Disabling the Windows® Firewall.

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Appendix B
IP Addressing

B.0 Appendix Overview

- In order for the ATC300/200 controller to communicate with a local computer or network, their IP addresses must be compatible.
- Connection to the controller is made by typing the controller's static IP address or hostname into an Internet browser's URL address window. The hostname may be used when the controller is configured for DHCP, and is on a network providing a DCHP server. See Figure B-1.
- Paragraph B.2 explains the procedure to follow when using Windows Vista.

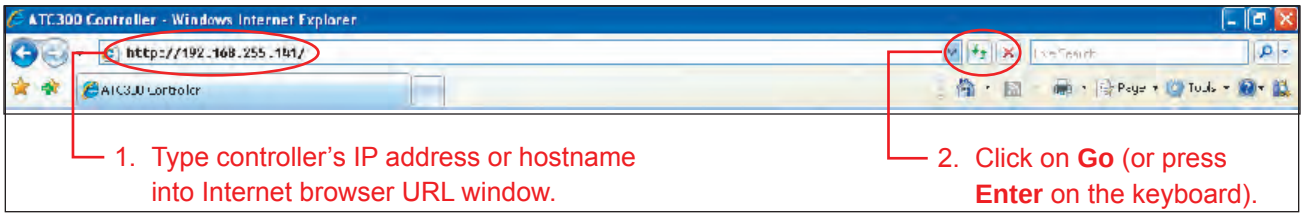

Figure B-1. Entering Controller's IP Address Into Internet Browser.

B.1 IP Settings

- IP settings consist of the **IP address**, **Netmask** (Subnet Mask), and **Default Router**.
- The **IP Address** is a string of numbers separated into four fields by decimal points. The ATC300-1000/2000 controller's factory default IP address is:

  192.168.255.141 (Ethernet Connection)
- The **Netmask** defines which fields in the **IP Address** are required to match exactly for connection to be made to the controller. Fields requiring an exact match are identified in the **Netmask** using the value '255', and fields that allow a range of numbers are identified in the **Netmask** using the value '0'. The ATC300-1000/2000 controller's default **Netmask** is: **255.255.0.0** as shown

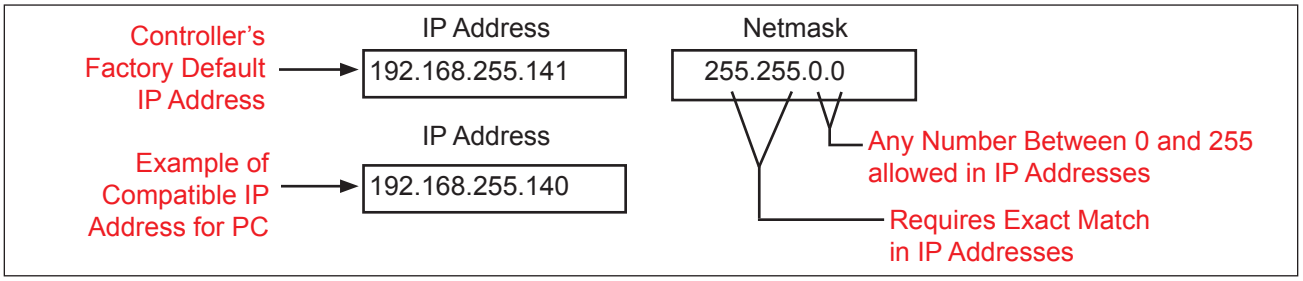

Figure B-2. Example of Compatible IP Address Settings.

in Figure B-2.

Notes:

- Generally, the IP address is temporarily changed on the computer to be compatible with the controller for initial setup. The IP settings are then changed on the controller to match the network it will be accessed/operated through. See Sections 3 and 4 for changing the IP settings on the local computer, and Section 7 for changing the IP settings on the controller.
- The **Default Router** is another IP setting, which provides a gateway for the controller to operate over a network. The **Default Router** setting can be disregarded if the controller will not be using a network. Contact the network administrator for assistance in changing the IP settings for

B.2 Setting An IP Address Using Windows Vista

The following procedure will show you how to change your IP Address if operating a Windows Vista computer, so you can network with the ATC200/300 controller.

This procedure will only work on controllers that are still set up with the default IP Address 192.168.255.141; Subnet Mask 255.255.255.0. If your default address has been changed, consult your operations manual for procedure to reset the default IP address.

1. From your desktop you are going to select **Start** → **Control Panel** (Figure B-3)**.**

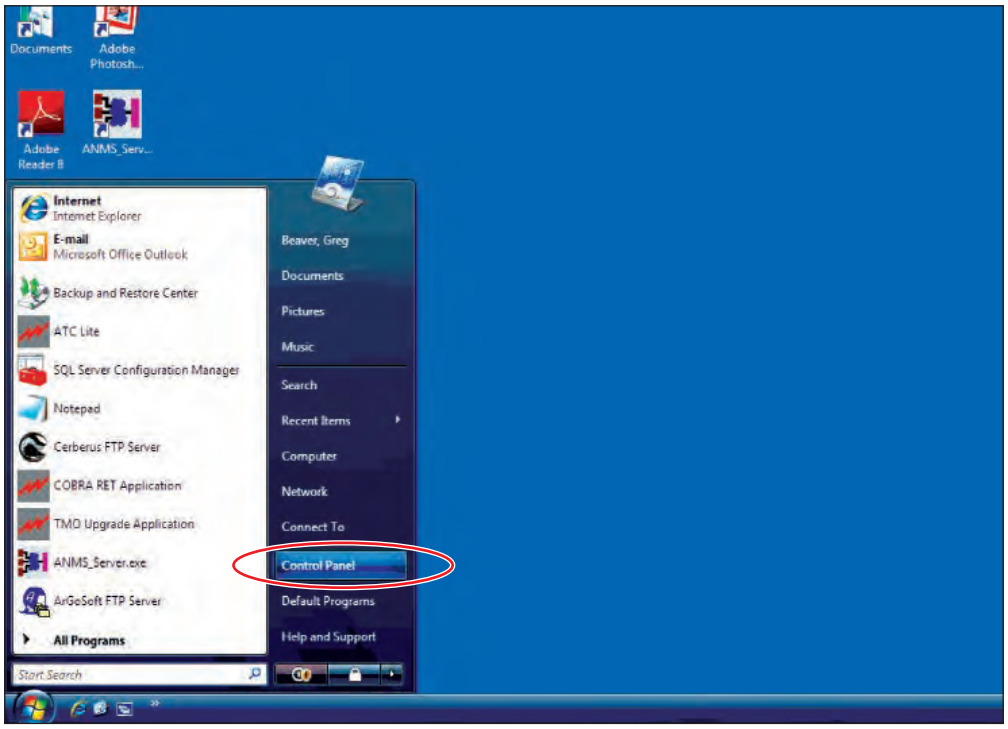

Figure B-3. Selecting **Control Panel**.

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2. Click on **Network and Sharing Center** (Figure B-4).

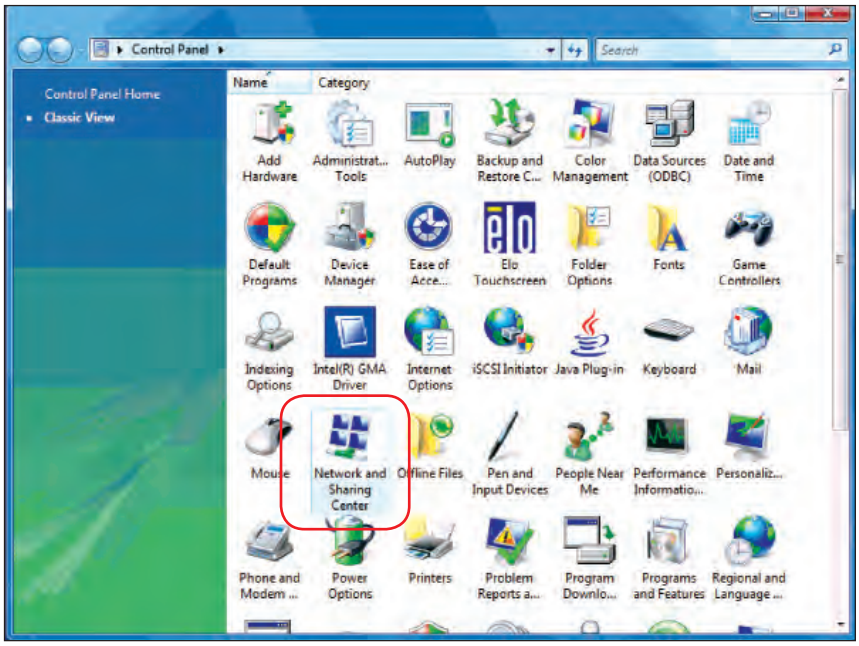


Figure B-4. Selecting ***Network and Sharing Center.***

3. Select **Manage Network Connections** link (Figure B-5).

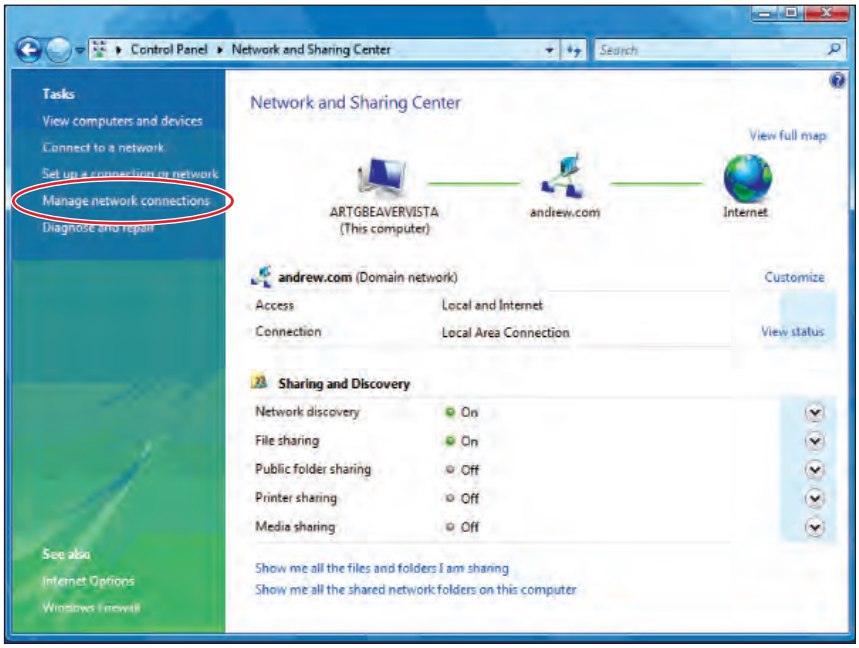


Figure B-5. Selecting ***Manage Network Connections.***

4. Click on **Local Area Connection** (Figure B-6). This may appear differently on your computer. Ensure that you are using the connection that represents your RJ-45 port on the back of your computer.

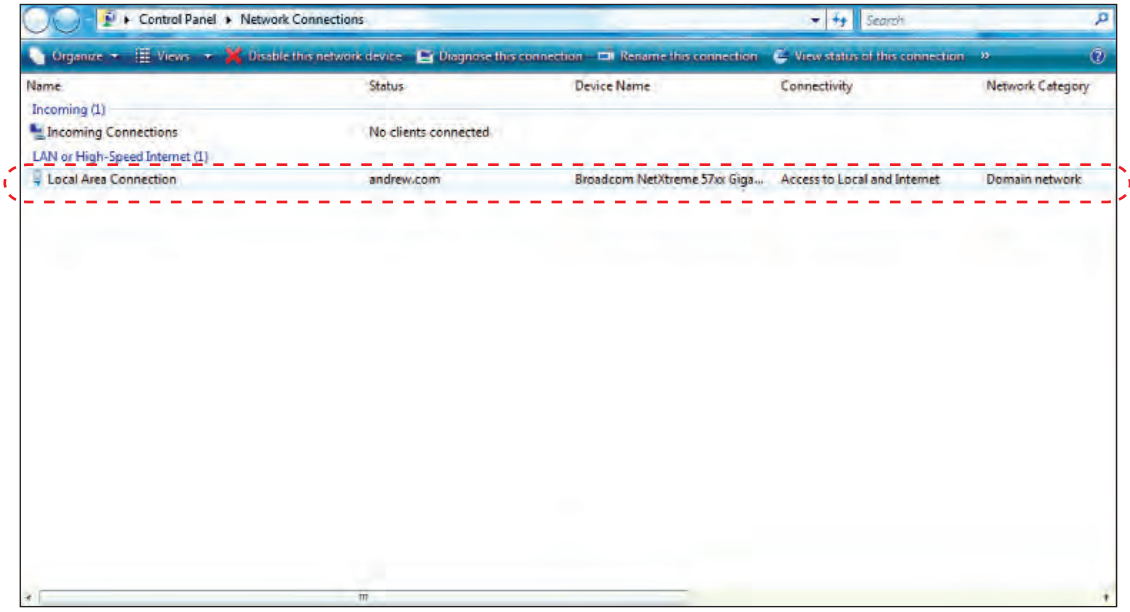


Figure B-6. Selecting ***Local Area Connection****.*

5. Your **Local Area Connection Status** window will open. Select **Properties** (Figure B-7).
6. Double click **Internet Protocol Version 4 (TCP/IPv4).** See Figure B-8.

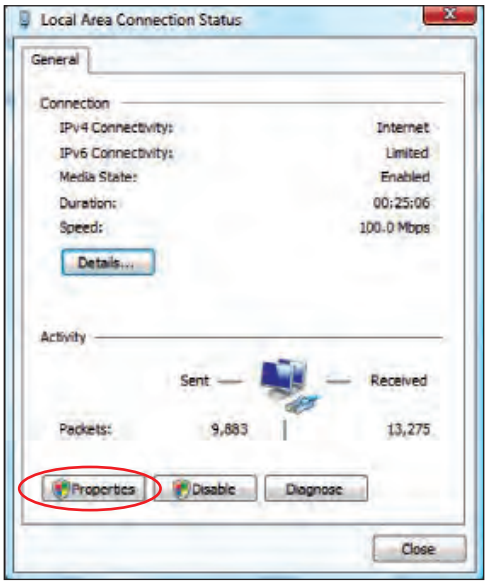


Figure B-7. Local Area Connection Status.

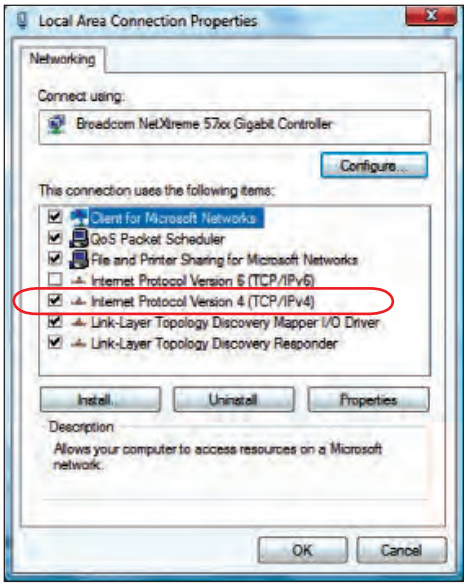
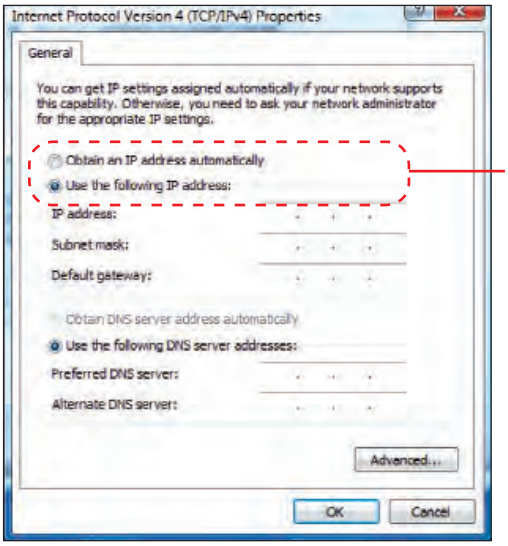


Figure B-8. Local Area Connection Properties.

7. Most computers are setup to use DHCP with their Home/Work Networks. If this is the case, the **Obtain an IP address automatically** radio button will be selected. If you have a static IP address, the **Use the following IP address** radio button will be used (Figure B-9). Ensure that you record your current settings, so when you have completed your work with the ATC200/300, you can reset your system for Home or Office networking (Figure B-9).
8. Select **Use the following IP address** radio button (Figure B-10).
9. Type the IP Address 192.168.255.140 and Subnet Mask 255.255.255.0 (Figure B-10).
10. Select **OK**.



Record the computer's existing setting.

Type the new IP address and Subnet mask for your ATC200/300 controller.

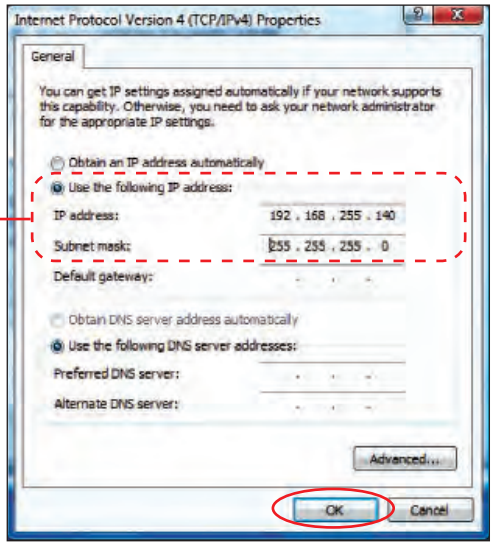


Figure B-9. Setting Needed To Restore The Computer To Its Original IP Identity.

Figure B-10. Enter New IP Address And Subnet Mask.

11. Select **OK** (Figure B-11).
12. Select **Close** (Figure B-12). You can now close any additional windows.

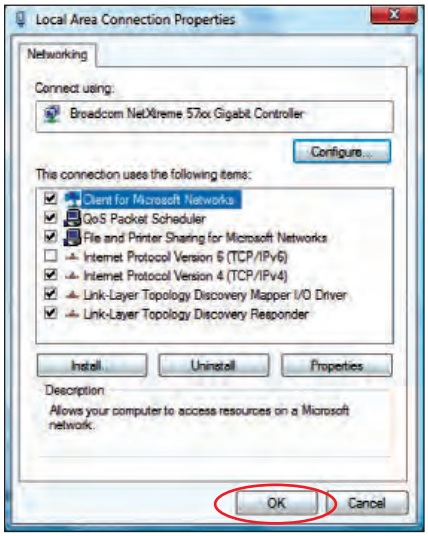


Figure B-11. Local Area Connection Properties.

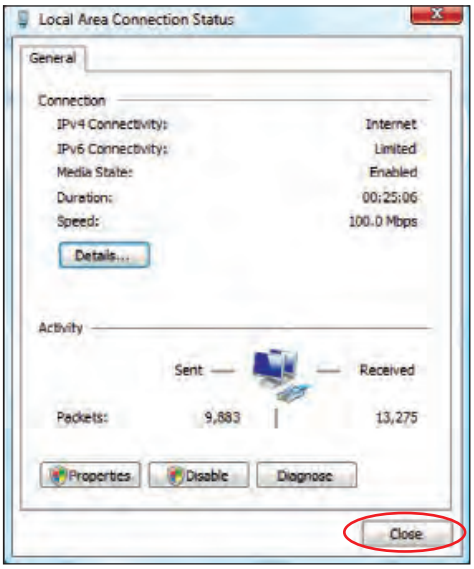


Figure B-12. Local Area Connection Status.

13. From your desk top, open **Internet Explorer**.

Figure B-13. Internet Explorer Desktop Icon.

14. To open the ATC300/200 main interface screen, type **http://192.168.255.141/** in Explorer's address bar.

15. Once you completed controller operations, follow the previous steps to reset your computer to its original configuration.

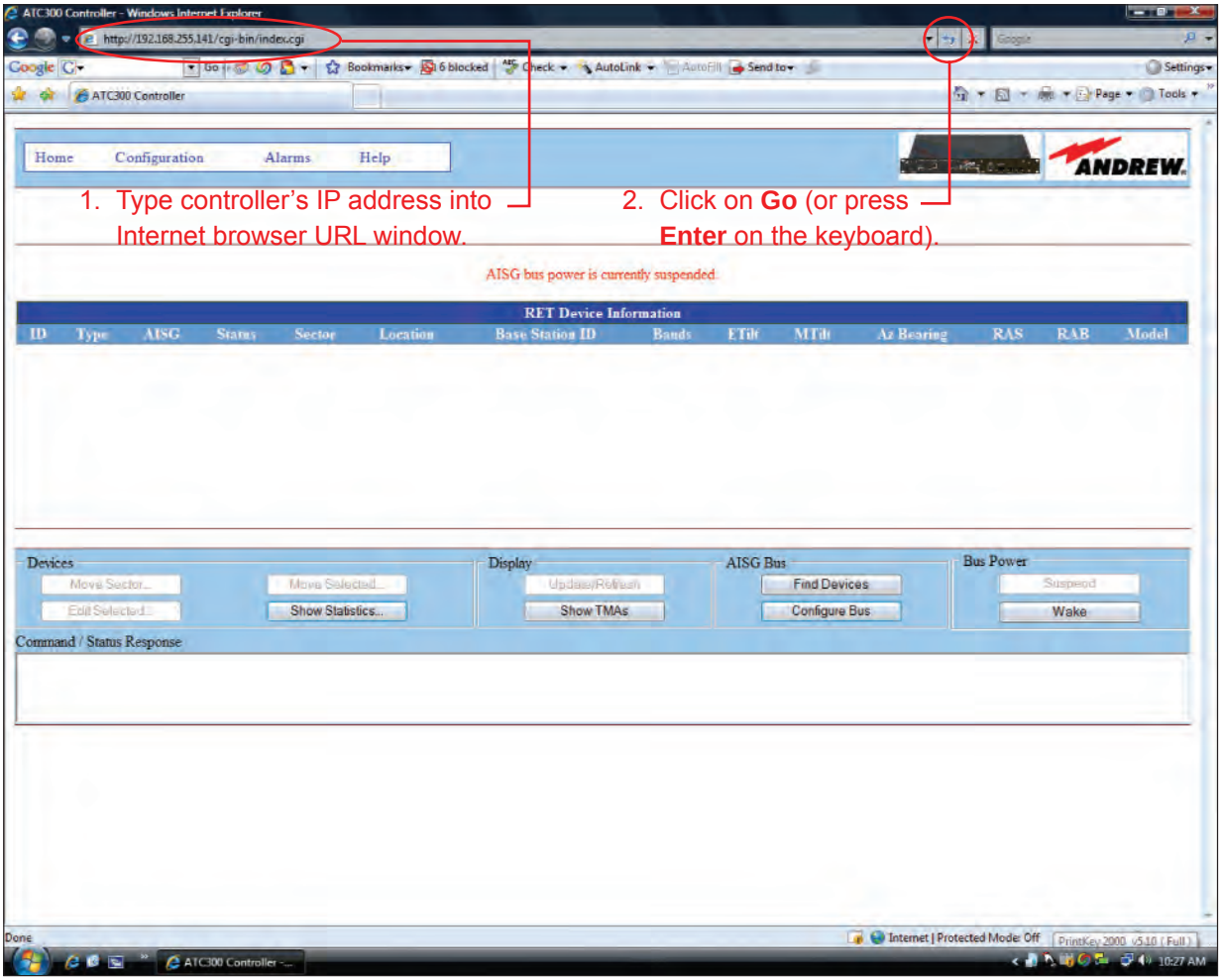


Figure B-14. ATC300-1000/2000 Controller Main Interface Screen.

Appendix C
Uploading the Firmware Manually

C.0 Section Overview

- The screens shown in this section are examples from a Windows® XP PC that have been configured to display the 'Classic' interface and is using Internet Explorer. Screens may differ with other versions of Windows®.
- Netscape and Mozilla web browsers are not supported by the ATC300/ATC200.
- ATC300 version 2.34 (and later) does not require an FTP (file transfer protocol) server to upload files to the controller or to an AISG device connected to the controller.
- ATC200 controllers and ATC300 with software version 2.32 and earlier require an FTP server to upload the firmware files (including the latest antenna definition file) to the controller and AISG devices.
- The IP Config Tool can be used as the FTP server. (If the PC and controller are already connected, it is not necessary to use the **New IP Info** tab. Directly choose the **FTP Server** tab in the **IP Config Tool** window). See Section 9.3. Another FTP application may be used as long as it provides the same functionality. CommScope cannot guarantee the functionality of an FTP server application.
- The Windows® XP Service Pack 2 firewall has been found to sometimes interfere with the FTP Server application (see Appendix A for instructions on disabling/enabling this firewall).
- Periodically, updates are made to the antenna definition file to add data for new antenna models and to maintain the latest data available for existing antennas compatible for the controller system. ATC300 firmware release 2.21_A and ATC200 firmware release 464A8_A introduces "bundled" firmware. These updates are made automatically when the operator installs new controller firmware, because antenna definition file releases are bundled with controller firmware.
- After software upgrades are complete, operations may slightly vary from what is described in this document.

Warning: The ATC300-2000 controller unit requires software release 2.36 or later.

Conversely, however, software release 2.36 and later can be installed on ATC300-1000 controller units. All new features and/or bug fixes provided with the controller software will be available on the ATC300-1000 with the exception of modem port isolation, which is not supported on the ATC300-1000 hardware.

Microsoft, Encarta, MSN, and Windows are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

C.1 Required Resources

Hardware

1. ATC300-1000/2000 or ATC200-1000 controller w/power cord
2. Ethernet cable (or LAN connectivity between the controller and FTP Server PC)
3. One or more AISG-compliant ALDs connected to the controller using AISG-compliant RET cabling

Software

1. FTP application (not required for ATC300 2.34 and later)
2. ATC300 controller firmware (to be uploaded into the controller): (atc300_*.tar or ATC200 controller firmware (RET-AN-AT_*.ascu)
3. Appropriate device firmware (to be uploaded into the AISG devices)
4. Antenna definition files (RET-XX-AT_*.ascu)

Asterisk (*) represents the version number. Use the file with the highest number preceding the file extension for each type file to ensure the latest version data is uploaded.

C.2 Installing, Configuring, and Running the FTP Server (not needed for ATC300 2.34 and later)

Note that the following instructions apply only to the ArGoSoft FTP Server.

1. Create a directory named **ATC200** on the PC's hard drive. Place the FTP software zip file (fssetup.zip) in the **ATC200** directory. The **fssetup.zip** file is available on the web at www.argosoft.com.
2. Double-click on **fssetup.zip** to unzip the FTP software files. Specify the **ATC200** directory for the destination to store the extracted files.

   In some cases, installation may begin after double-clicking on the zip file. If this occurs, follow the prompts, accepting the suggested defaults, to complete the installation.
3. If installation did not begin automatically upon executing the zip file, double-click on the **setup.exe** file for the FTP software (stored in the **ATC200** directory). Follow the prompts, accepting the suggested defaults, to complete the installation.
4. If the defaults suggested during installation were accepted, an icon for the FTP server should be on your desktop. Double-click on the ArGoSoft FTP Server icon
5. Go to Tools\Users to open the **User Setup** configuration dialog box.
6. Click on the **Add New User** icon in the dialog's tool bar (the far left icon).

1. Create a new user named **anonymous.** Enable the **Apply IP Rules** and activate the **Read** and **List** rights, deactivating all other settings as shown in Figure C-1.
8. Click on the **Home Directory** browse ellipses to navigate to the **ATC200** directory (Figure C-1).
9. Click on **OK** (Figure C-1). You should now see an icon for the new user in the **User Setup** dialog box display area.
10. Click on **Close**.

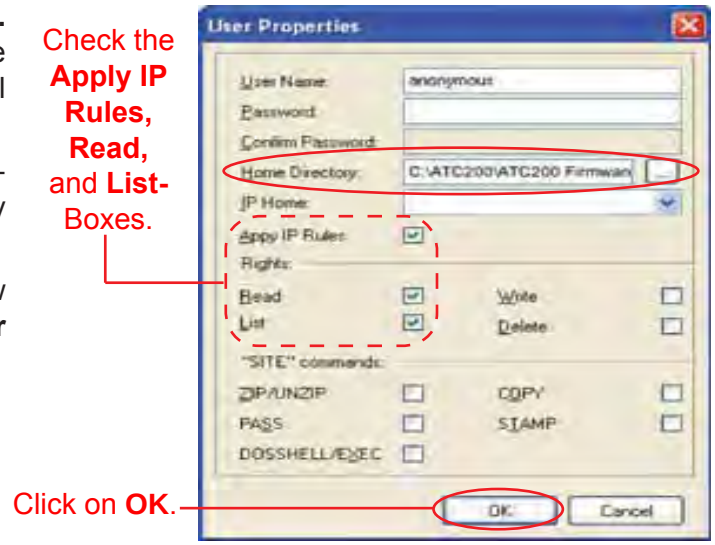


Figure C-1. Add New User Dialog Settings for FTP Server.

11. Go to **File** → **Start** (or double-click on the FTP Server icon from the desktop) to launch the FTP server. A line of text with the current time and date stating **FTP Server started** should be displayed (Figure C-2).
12. Minimize the dialog box (***do not close/exit!***). The FTP server is now ready to transfer files to an ATC200-1000 or ATC300-1000/2000 controller.

    Note that if the ArGoSoft software is unregistered, the FTP server session will disconnect in 120 minutes. You can correct this by re-enabling it manually or shutting it down and restarting it.

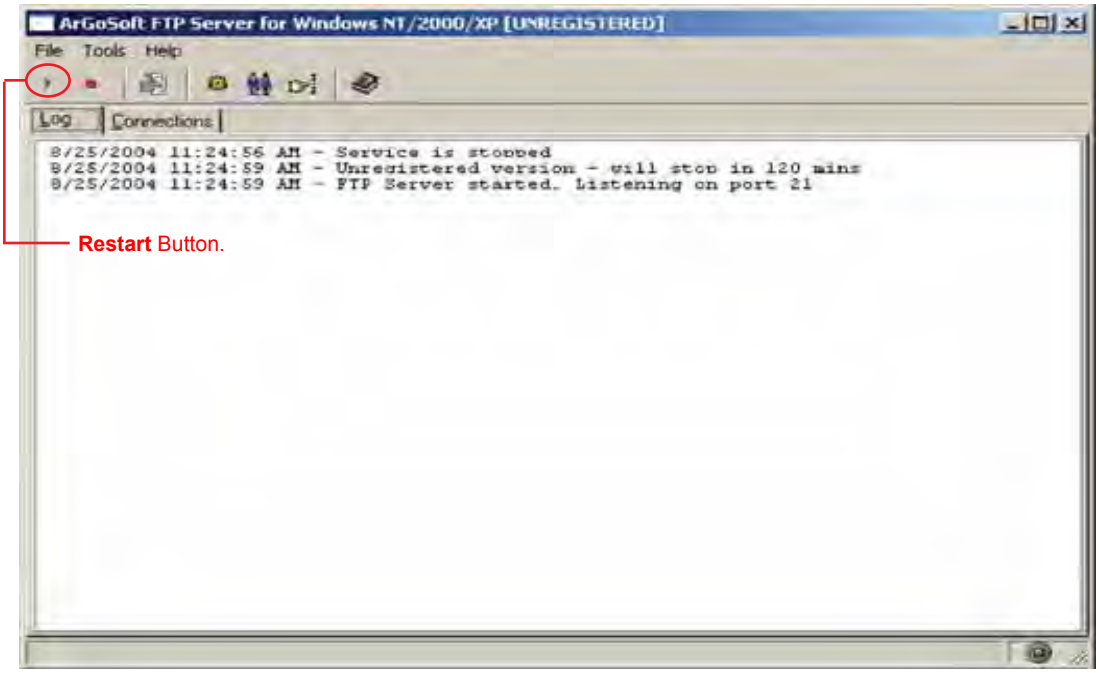


Figure C-2. FTP Server Activated.

C.3 Uploading the Firmware Bundle to the Controller

1. Download the controller firmware bundle from the CommScope web site (www.commscope.com/resources / software) Store the files in the root directory for the FTP Server. Note that if the files are zipped, double-click on the zip files to extract **the files into the FTP Server** root directory.

   The file that may be uploaded to an ATC300-1000/2000 controller is:
   - System Firmware Build (atc300_*.tar)

   The file that may be uploaded to an ATC200-1000 controller is:
   - System Firmware Build (RET-AN-RT_*.ascu)

   An asterisk (*) shown in sample firmware filenames represents the firmware version number. Text preceding the version number in the file name will always be consistent and is used to identify the file type. See paragraph C.4 to verify the version numbers for the currently installed controller firmware. **It may be necessary to type the filenames in with exact upper and lower case lettering, as some FTP servers are sensitive to capitalization for file recognition.**
2. Ensure that the controller is connected and configured to the same Ethernet network that the PC, running the FTP server, is on. If the PC running the FTP server is on a different network from the one that was used to configure the controller in Section 4, the controller's IP addressing will need to be temporarily re-configured for the FTP connection. Contact a network administrator for assistance, if needed.To test this connection, start your Internet browser on the PC that is running the FTP Server. Type the controller's Ethernet IP address (compatible with the network running the FTP Server) into the URL window. If the connection is successful, the controller's main screen will be displayed in the browser.
3. From the controller's main interface screen, go to **Configuration→Software Config.**
4. (ATC300 2.34 and later) Select **Install System File**, navigate to and select the file to upload to the controller. (Figure C-3)

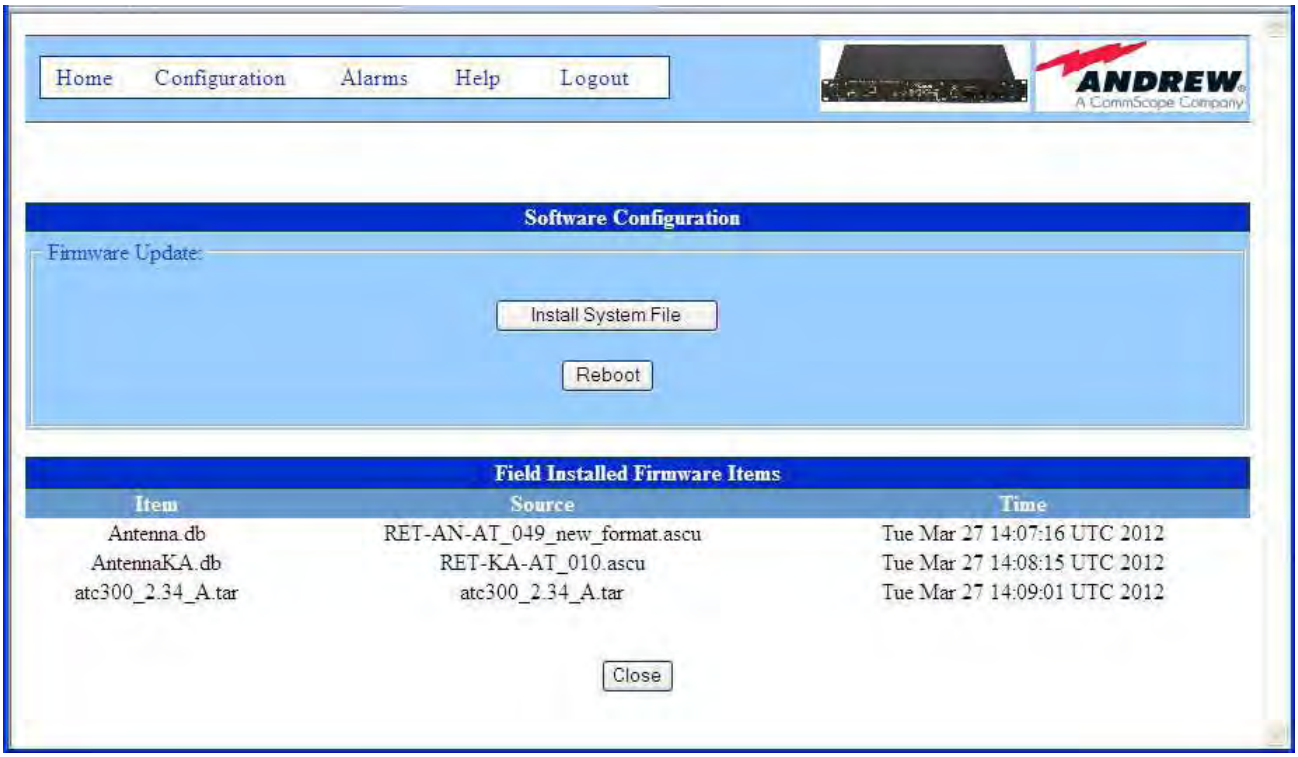


Figure C-3 Software Configuration (ATC300 2.34 and later)

(ATC200 and ATC300 2.32 and earlier) In the Firmware URL window, type in the IP address IP address for the PC that is running the FTP Server (and holds the software files), followed by a forward slash and the name of the file that is to be uploaded. Leave the **User Name** and **Password** blank. The text typed into the **Firmware URL** edit box should look similar to the example shown in Figure C-4.

In Figure C-4, the IP address is **192.168.255.140** and the file to be uploaded is **atc300_2.10.tar.**

The firmware (software) URL address was entered as:
192.168.255.140/atc300_2.10.tar

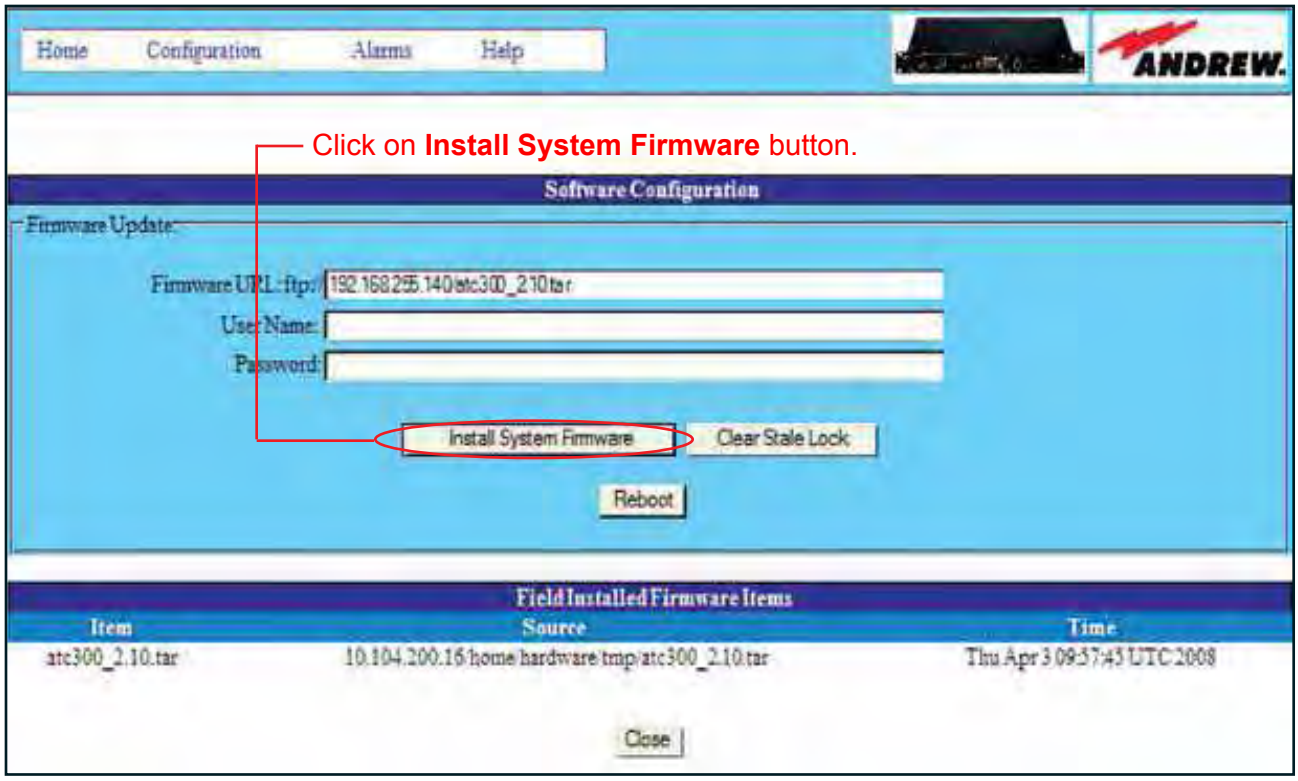


Figure C-4. Entering PC's Network IP Address To Install Software.

Note that this IP address is specific for the PC running the FTP server and should not be confused with the controller's network configured IP address. Also, note that only the version numbers at the end of the filename will vary from release to release. The other characters in the filename, as well as the file extension, are used to identify the file type and will consistently stay the same.

To upload the file, click on **Install System Firmware** (Figure C-4). Feedback from a successful install should look similar to that shown in Figure C-5.

5. Click the link labeled **Back** to return to the **Software Configuration** screen (Figure C-5).
6. Repeat Steps 4 and 5 to upload additional controller software/antenna definition files, or click on **Reboot** to activate a software package that was uploaded. Note that antenna definition files are recognized by the controller upon upload and do not require that the controller be rebooted.

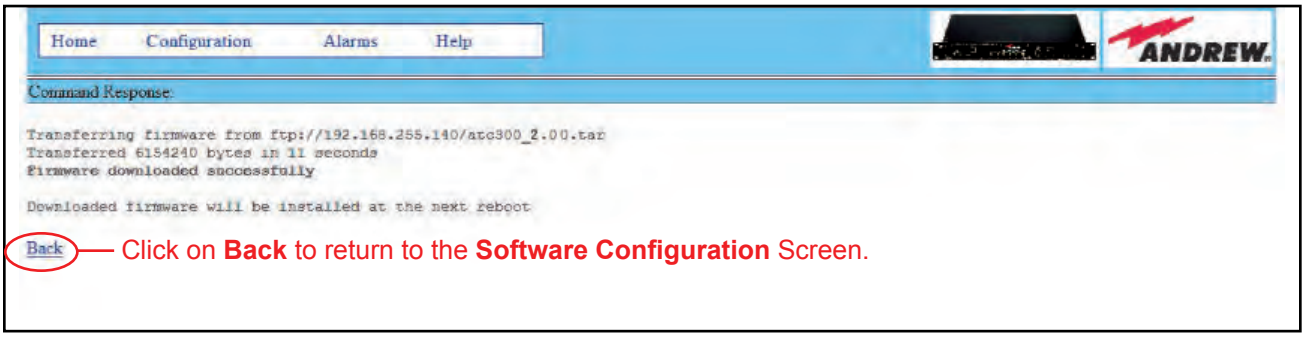


Figure C-5. Successful Software Install Response Screen.

C.4 Uploading Firmware to AISG Devices using the ATC300/200 Controller

The controller offers the capability to field upgrade AISG-compliant devices, including both CommScope and non-CommScope devices.

Prior to uploading the firmware to an AISG device, the controller must be connected to the RET cable running to the device on the tower and recognize the RET device through an earlier device scan. RET devices recognized by the controller will show in the **Device Information** window of the controller's main interface screen (Figure C-6). If a device search has not yet been performed, see Section 10 to do so before proceeding.

In addition, the correct firmware file must be obtained from the supplier and available for the device targeted for upgrading. It is the operator's responsibility to ensure the firmware is appropriate for the device type and model. Uploading incorrect firmware to a device could result in incapacitating the device permanently.

1. (For ATC200 and ATC300 version 2.32 and earlier) The FTP Server must be configured and running, and the device firmware files must be present in the FTP Server root directory.
2. From the controller's main interface screen, click on **Show Statistics** (Figure C-6).
3. Note the Product Type of the AISG devices in the database. Generally, a device firmware file will be appropriate for only one Product Type. Click on **Manual Upgrade** (Figure C-7).

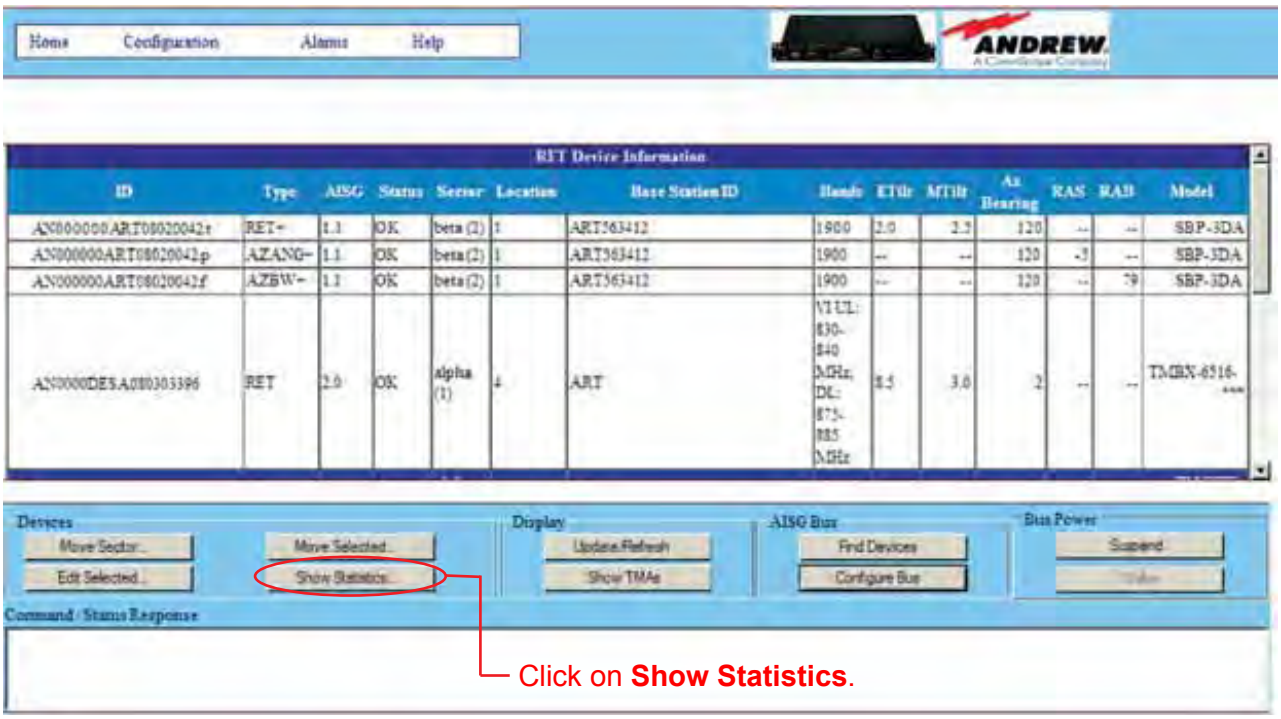


Figure C-6. Selecting Show Statistics.

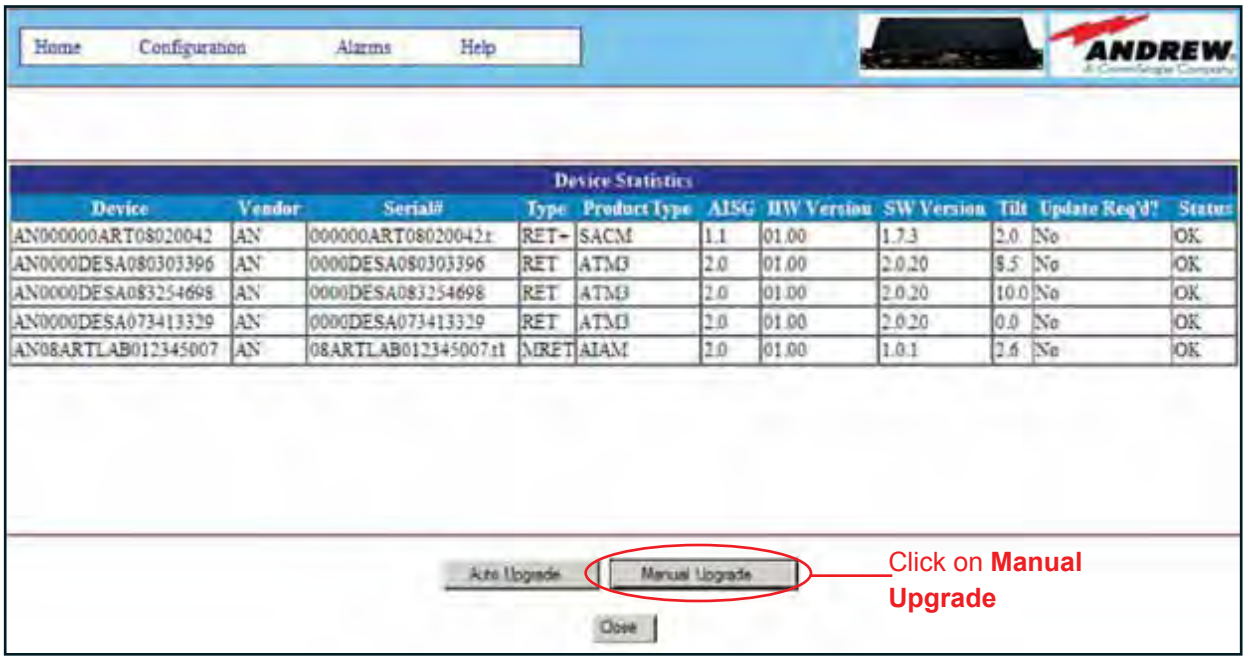


Figure C-7. Manually Upgrading AISG-Compliant Devices.

4. Click on the check box(es) at the far right to select one or more devices for a sof tware upload. As noted in Step 2, the Product Type should be the same for all selected devices, and should be the targeted Product Type for the device firmware file. Note that uploads are performed in succession to each selected device. If several devices are selected, the entire upload process can be time-consuming. (Figure C-8a).
5. (For ATC200 and ATC300 version 2.32 and earlier) In the **Firmware URL:ftp//** field, type in the IP address of the PC that is running the FTP server (and holds the device firmware files), followed by a forward slash and the name of the file that is to be uploaded to the selected devices. If needed, enter a **User Name** and **Password** for the FTP server. Finally, click on **Install Remote Firmware** (Figure C-8a).

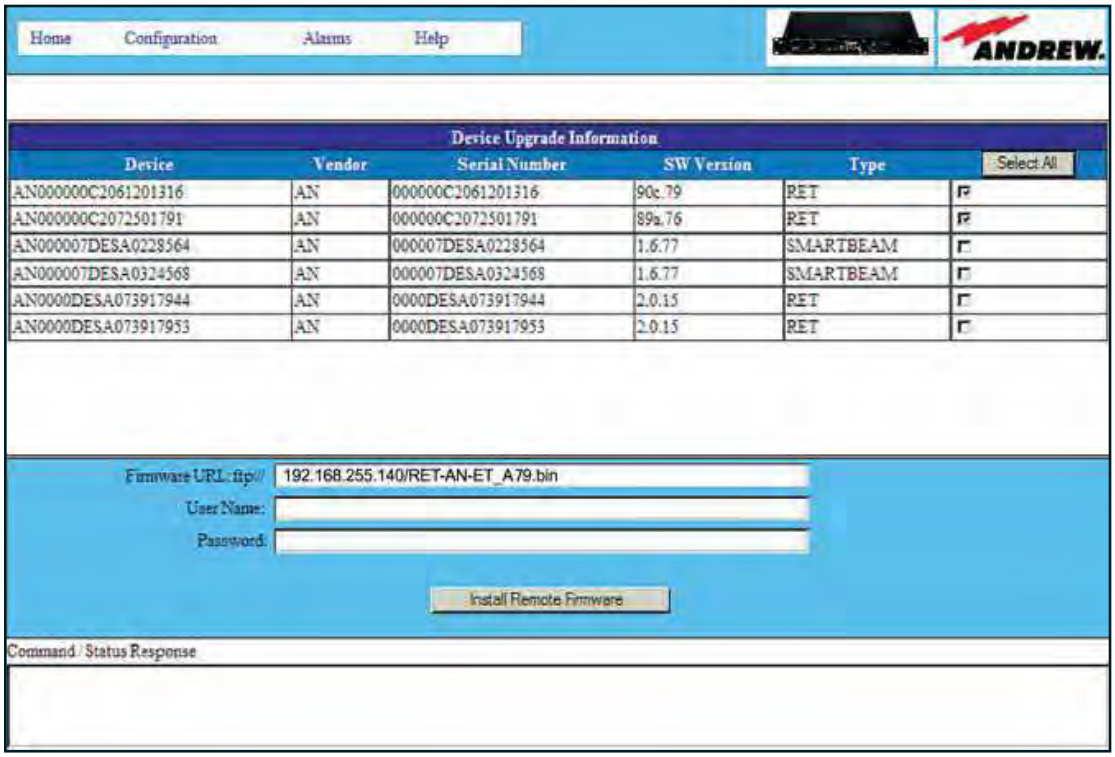


Figure C-8a. Manual Firmware Upload to Selected AISG devices (ATC200, ATC300 2.32 & earlier)

(For ATC300 version 2.34 and later) Click on **Select Device File**, navigate to the firmware file to be uploaded to the selected devices, select and click **Open**. The file will be uploaded to the controller, and then immediately to the selected devices. See Figure C-8b.

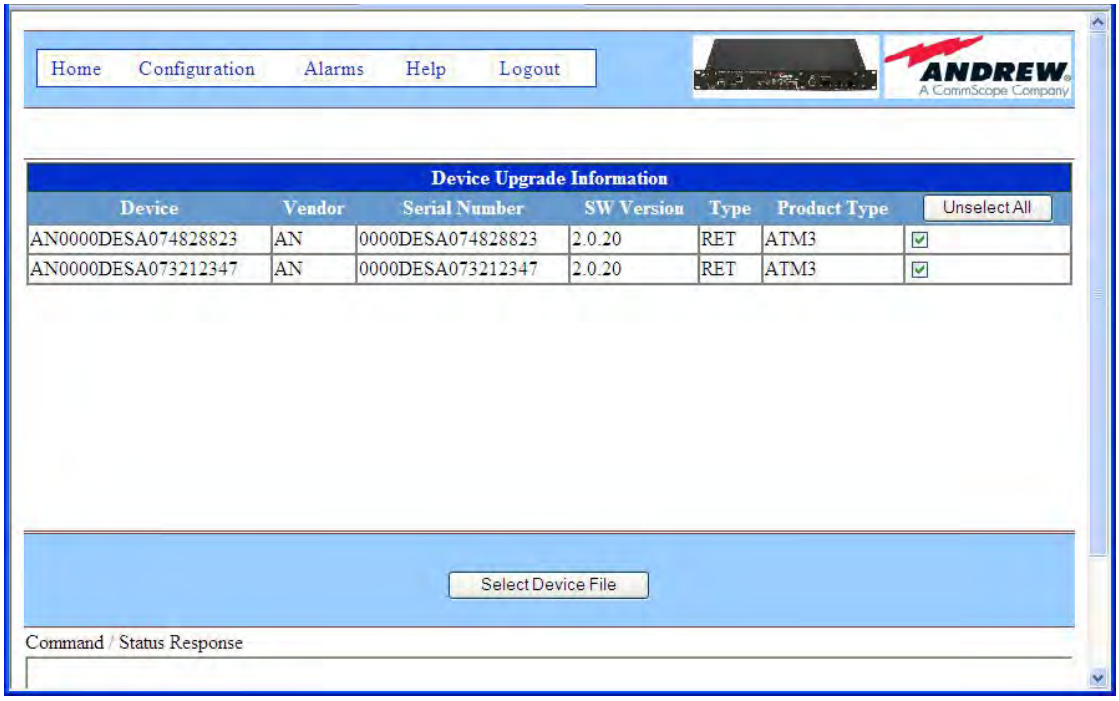


Figure C-8b. Manual Firmware Upload to Selected AISG devices (ATC300 2.34 & later)

C.5 Verifying ATC300/200 Firmware Versions

To view the controller's current firmware version, go to **Help→About** from the top menu bar on the controller's main interface screen.

C.6 Verifying AISG Device Firmware Versions

To view the current AISG device firmware versions, click on **Show Statistics** from the controller's main interface screen. The device firmware versions are shown under the **SW Version** column.

For CommScope ATM200 devices coded with an 'ATC_' **Product Type**, the characters shown before the decimal point represent the version for the application file (RET-AN-ET_A*.BIN) and the characters that follow the decimal point represent the version for the BIOS file (RET-AN-ET_B*.BIN).

Note that if you see an alarm stating, **NO APPLICATION**, re-apply the application firmware update.

IMPORTANT : **If both the BIOS and Application firmware must be manually upgraded on an CommScope ATM200 device with a Product Type of "ATC_", always perform the BIOS firmware upload FIRST before performing the Application firmware upload. If you update the BIOS, you must re-install the application. Ensure you have the correct files before proceeding.**

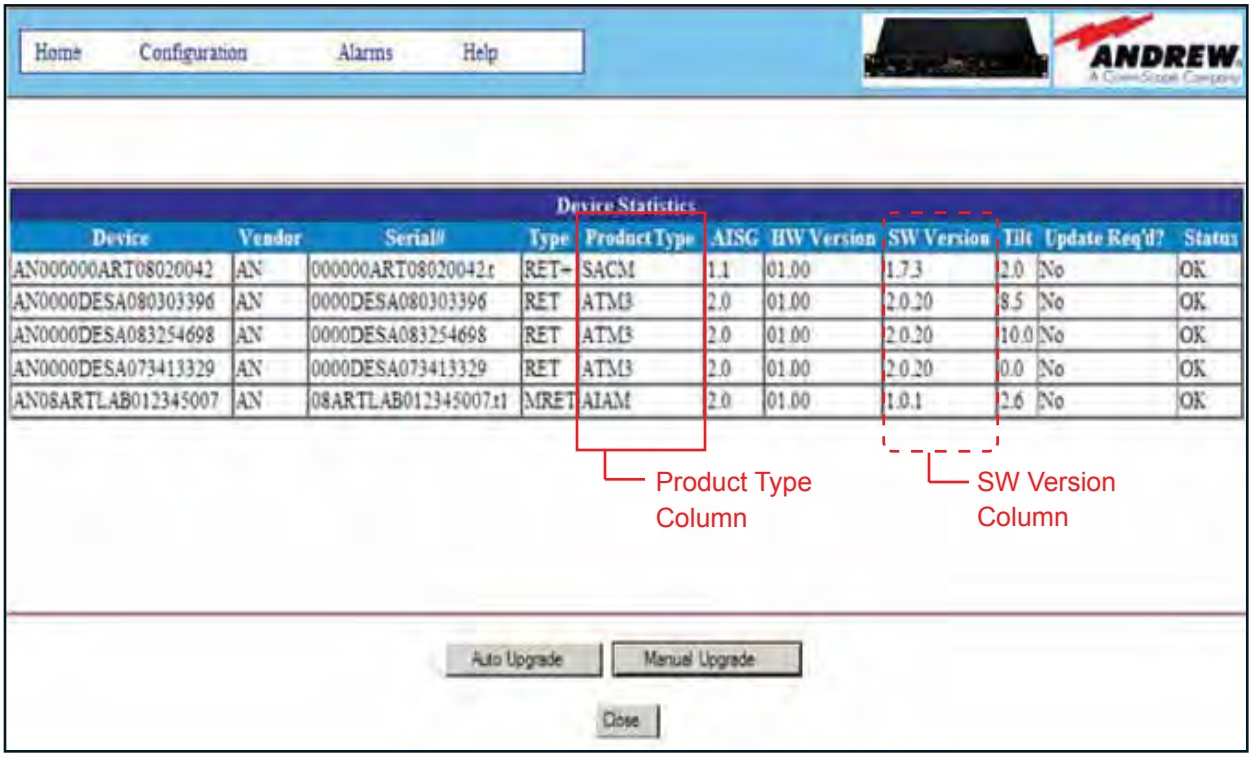


Figure C-9. Firmware Version Example.

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Appendix D
ATC300-1000/2000 Relay Alarms

D.0 Relay Alarm Definitions Table

Major alarms that may be reported by a device are detailed in Table 1, next page.

D.1 Relay Alarm Information

1. A major alarm relay can also be sent by the controller for the following conditions:
   - AISG_NO_REPLY — Communication loss with one or more devices
   - POWER_STATUS — Out of range current or voltage detected
   - INITIALIZATION_STATUS — Occurs during controller startup
2. The controller may also send minor alarm relays for the following condition:
   - DOWNLOAD_STATUS — This condition is not an error. It indicates that the controller firmware is being downloaded.

Meaning		AISG1.0/1.1	AISG 2.0
Actuator Detection Fail	Signals from the actuator are detected but are abnormal or corrupted.	✔	
Actuator Jam Permanent	Actuator cannot be moved.	✔	
Actuator Jam Temporary	Actuator jam has been detected. No movement was temporarily detected in response to the normal stimulus.	✔	
Motor Jam	Motor cannot move.		✔
ActuatorJam	Actuator jam has been detected. No movement of the actuator, but movement of the motor was detected.		✔
EEPROM Error	EEPROM error detected	✔	
Flash Erase Error	Used in combination with software download. Indicates error when erasing flash memory.	✔	
Not Calibrated	The device has not completed a calibration operation, or calibration has been lost.	✔	✔
Not Scaled	No setup table has been stored in the device.	✔	
Not Configured	Actuator configuration data is missing.		✔
Other Hardware Error	Any hardware error which cannot be classified.	✔	
Hardware Error	Any hardware error which cannot be classified. May not be reported as an alarm until the fault is likely to be persistent.		✔
Other Software Error	Any software error which cannot be classified.	✔	
Position Lost	RET controller is unable to return a correct position value. For example, there was a power failure while a Set Tilt command was being executed.	✔	
RAM Error	An error was detected in reading data to/from RAM.	✔	
UART Error	Hardware specific. This error may be sent after recovery from a temporary error which has prevented the sending or receiving of data.	✔	
TMA Alarm Minor	An event has taken place that effects the TMA performance, the TMA continues to function, and bypass is not implemented. (The actual performance degradation criteria must be vendor specified.)	✔	✔
TMA Alarm Major	An event has taken place that renders TMA performance unacceptable. If bypass is fitted, the TMA will switch into bypass.	✔	✔
Bypass Mode	A TMA band is set to bypass mode.		✔
Actuator Interference	An actuator movement outside the control of the RET unit has been detected. Probable cause is manual interference.		✔

Table D-1. Relay Alarm Definitions.

Appendix E
Declaration of Compliance

CE

DECLARATION OF COMPLIANCE

Standards to which Conformity is Declared:

EN 60950-1:2001 and IEC 60950-1:2001

EN 55022 (CISPR 22) Class A

ESTI 300-386 Class A

EN 55024

FCC Part 15 Subpart B Class A Digital Device

Declarer's Name: **Andrew Corporation**
Declarer's Address: **3 Westbrook Corporate Center, Suite 900**
Westchester, IL 60154
Type of Equipment: **Antenna Remote Control System**
Model No: **ATC300-1000/2000**

I the undersigned hereby declare that the equipment specified above conforms to the above Directive(s) and Standards.

Kevin E Linehan (Signature) 10/24/07 (Date)

Kevin E. Linehan (Printed Name) **Engineering Director** (Title)

CE

CE

DECLARATION OF COMPLIANCE

Standards to which Conformity is Declared:

EN60950: 2000

EN61326-1:1998 with EN55011 (CISPR 11):1998

ETS EN 300 386 V1.3.1 with EN55022 (CISPR 22) Class A

ETS EN 300 019-2-2

ETS EN 300 019-2-3

ETS EN 300 019-2-4

FCC Part 15 Subpart C Class A Digital Device

NEBS GR-63-CORE April-2002

GR-1089-CORE October-2002

Declarer's Name: **Andrew Corporation**

Declarer's Address: **10500 West 153rd Street**

Orland Park, IL 60462

Type of Equipment: **Antenna Remote Control System**

Model No: **ATC200-1000, ATC200-1100 System**

I the undersigned, hereby declare that the equipment specified above conforms to the above Directive(s) and Standard(s).

Kevin E. Linehan — (signature)

4/19/2005 — (Date)

Kevin E. Linehan — (printed name)

Director of Engineering — (Title)

CE

ANDREW®
A CommScope Company

System Site Configuration Worksheet

SITE I.D.

Actuator	Antenna	Actuator Serial No.	Sector/ Orientation	Height	Miscellaneous
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					

ANDREW®
A CommScope Company

System Site Configuration Worksheet

SITE I.D.

Actuator	Antenna	Actuator Serial No.	Sector/ Orientation	Height	Miscellaneous
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					