

EchoPoint Reader SR-640-101 Installation Guide

Version 1.0



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U.S. Regulatory Approvals

EchoPoint Reader SR-640-101

Federal Communications Commission (FCC) Notice

The Federal Communications Commission has established technical standards regarding radio frequency energy emitted by computer devices. This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference with radio/TV reception. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.



Changes or modifications to this equipment that are not expressly approved by Savi Technology could void the warranty and the authority to operate this equipment.

Savi Technology is not responsible for radio/TV interference caused by using unauthorized cable or by making unauthorized changes to this equipment.

Product Safety

The EchoPoint Reader SR-640-101 is ETL listed (UL 1950).

Network Adapter SA-640-01

Federal Communications Commission (FCC) Notice

The Federal Communications Commission has established technical standards regarding radio frequency energy emitted by computer devices. This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference with radio/TV reception. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.



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Conventions in this Guide

The following table explains guide conventions and typography usage.

Guide Conventions

<i>Example</i>	<i>Meaning and Use</i>
Note:	<i>Notes call attention to facts or advice that deserve special attention.</i>
	<i>Caution notices call attention to the possibility of damaging the product, the system, or your work (for example, potential loss of data).</i>
	<i>Warning notices call attention to the possibility of injury to people.</i>
	<i>Examples provide a scenario to further explain the preceding direction or procedure.</i>
Terminal Locked	Bold type is used for prompts, field names, and other text as displayed on the screen.
A:\INSTALL	Bold type is also used for text you enter exactly as shown.
1005 DATA	Monospaced type is used for system messages, examples of data files, program code, and other text where column alignment is important.
<i>name.bmp</i> or <i>tag_id</i>	Italic type is used for emphasis of a word or phrase that is new or especially important.
Ctrl + Z	Used for a keyboard control codes or manual keystrokes. This example tells you to hold the Ctrl key while you press the Z key.

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1

Introduction

Savi's EchoPoint technology leverages the best features from several traditional RFID technologies into a single solution. Using two operating frequencies, Savi EchoPoint combines long-range communication with precise spot-level locating.

The Savi Series 600 RFID System employs a unique multi-frequency design and three-element system architecture to achieve both reliable long-range communication and short-range locating capability. Rather than using a traditional tag and reader system architecture, Series 600 adds a third unique element—the signpost—to create a highly flexible, low-cost architecture that can map into existing business processes.

Series 600 signposts communicate with tags over a short-range inductive link, and tags communicate with readers over a long-range UHF link (100m). Series 600 signposts, which can be fixed or mobile, notify tags of their location when tagged items pass through dock doors or other portals, or are placed in specific storage locations or parking slots. Series 600 tags then communicate their location back to the reader, along with a unique identifier and other application data. This capability enables items to be tracked effectively and accurately throughout the supply chain, allowing even detailed location information to be obtained. The signposts can also transmit commands and configuration information to the tags, enabling data read/write, adjustment of tag communication rate, and adjustment of tag frequency. In addition, signposts can activate and deactivate tags, which is especially important for air cargo and other items that must adhere to strict FAA regulations.

Readers acquire identity, location, and status data from all tags within an area and forward the information to the SmartChain platform. Multiple readers may be networked to cover large facilities. Handheld readers are also available.

Savi Series 600 Reader

Built on Savi EchoPoint technology, EchoPoint readers are part of an innovative, highly reliable data collection solution. Working with EchoPoint signposts and tags, EchoPoint readers provide a complete RFID solution for real-time, end-to-end visibility of goods and critical assets moving through the supply chain. EchoPoint readers bring together a unique combination of features to effectively solve a full range of data collection applications.

Features:

- Long-range, omnidirectional communication enables effective monitoring of thousands of tagged items over a 100-meter radius—ideal for yards, terminals, and warehouses
- Ethernet network connectivity supports wired and wireless installations, allowing multiple readers to be easily networked together
- UDAP network protocol provides interoperability with other data collection devices, including bar code scanners and other RFID readers
- Seamless interface to Savi SmartChain platform and applications
- Rugged, weatherproof packaging for indoor and outdoor use

EchoPoint Reader Description

The EchoPoint Reader SR-640-101 has an omnidirectional read pattern with an adjustable range of up to 300 feet (91.44 meters), and can be networked to provide cellular coverage of a nearly unlimited area. Its power source can be 92 to 125 VAC, 184 to 250 VAC, or 6 to 15 VDC. A portable tripod mount, a solar power unit, or a cable for powering the reader from a vehicle are all available for use with the EchoPoint Reader SR-640-101.

The EchoPoint Reader SR-640-101 operates at 433.92 MHz.

Tag Communication

The EchoPoint Reader SR-640-101 can transmit control commands and data over a UHF link to Series 600 tags. In return, the Series 600 tags transmit status information, recognition codes, and data over the UHF link to the reader, depending upon the commands the tag received.

Specifications

The EchoPoint Reader SR-640-101 can be mounted in permanent or semipermanent sites, as well as in a mobile vehicle. EchoPoint Readers are designed for indoor or outdoor use.

Table 1-1 EchoPoint Reader SR-640-101 Specifications

Physical	
Dimensions:	30 cm (12 in.) dia. x 14 cm (5.5 in.)
Case Material:	Polypropylene with UV inhibitors
Weight:	1.9 kg (4.2 lb)
Environmental	
Temperature:	–32°C to +60°C (operating) –40°C to +70°C (storage)
Humidity:	100% condensing
Vibration:	MIL-STD-801E Method 514.4, Category 10
Power	
AC Source:	92–125/184–250 VAC, 50/60 Hz, 100 mA max.
DC: Source:	6–15 VDC, 300mA average (internally regulated)
Digital	
Data Rate:	28 Kbps (RF tag communication)
Memory:	512 K RAM for interim tag data
Wireless	
Frequency:	433.92 MHz (transmit and receive); SAW stabilized local oscillator
Rx Range:	328 feet (100 meters) (typical)
Tx Range:	75 feet (23 meters) (typical)
Transmission Power:	0.1 mW ERP
Modulation:	FSK; +/- 50 KhZ
Receiver Sensitivity:	–98 dBm
Type:	Superheterodyne
IF Frequency:	10.7 MHz
IF Bandwidth:	500 KHz

Models and Options

EchoPoint Readers are supplied with network cables and power cables necessary for operation.

Available accessories include a solar power unit, a vehicle power cable, AC power adapter and cables, spare batteries, a battery charger, and mounting hardware. Please contact your Savi Customer Service representative for information about ordering additional equipment or accessories.

Table 1-2 shows the EchoPoint Reader models and their options. All models operate at 433.92 MHz.

Table 1-2 EchoPoint Reader Models

Model	Description	Power/Plug
SR-640-101	EchoPoint Reader SR-640-101	110-127 VAC 60 Hz
SR-640-101-2	EchoPoint Reader SR-640-101	220-240 VAC 50 Hz
SR-640-101-3	EchoPoint Reader SR-640-101	110-127 VAC 50/60 Hz
SR-640-101-6	EchoPoint Reader SR-640-101	110-127 VAC 50/60 Hz
SR-640-101-7	EchoPoint Reader SR-640-101	240 VAC 50 Hz
SR-640-101-D	EchoPoint Reader SR-640-101	12 VDC Pigtail wires

Getting Assistance

If you have trouble with the product, after you have checked your connections and the *EchoPoint Reader SR-640-101 Installation Guide*, contact Savi Customer Support.

Customer Support

To contact Savi Customer Support:

- Telephone 1-888-994-SAVI (7284) between 8:00 a.m. and 5:00 p.m., Pacific Time
- Or send e-mail to **help@savi.com** at any time

Whether you contact Savi by telephone or e-mail, please have the exact sequence of operations (if possible) that caused the problem and the following information available:

- Site location
- Incident description
- Estimated severity level of the incident
- Model number and version
- Serial number
- Computer type (Gateway, Dell, etc.) and model
- Operating system and service pack level
- Network protocol

2

EchoPoint Reader Installation

Installing the EchoPoint Reader SR-640-101 is a four-step process. First, consult a site plan to determine the reader's installation location. Second, position the reader to enable the most efficient communication range. Third, connect power cables and network cables, and supply power. Finally, verify network communication between the EchoPoint Reader and the computer.

Planning a Site

Please refer to the *Savi System Installation Guide* for complete instructions on conducting a site survey and planning your RFID network configuration. Once the site plan is in place, refer to it to determine the site locations at which to install EchoPoint Readers for the Savi System. Follow this manual to ensure the proper installation of each EchoPoint Reader SR-640-101. For the most efficient use of your Savi EchoPoint System, please consult Savi Customer Service for recommendations.

Positioning EchoPoint Readers

EchoPoint Readers are designed to operate in a wide variety of environments. They are housed in rugged, weatherproof enclosures. In ideal conditions (large, open, and unobstructed areas), EchoPoint Readers can collect tags up to 300 feet (91.44 meters) away.

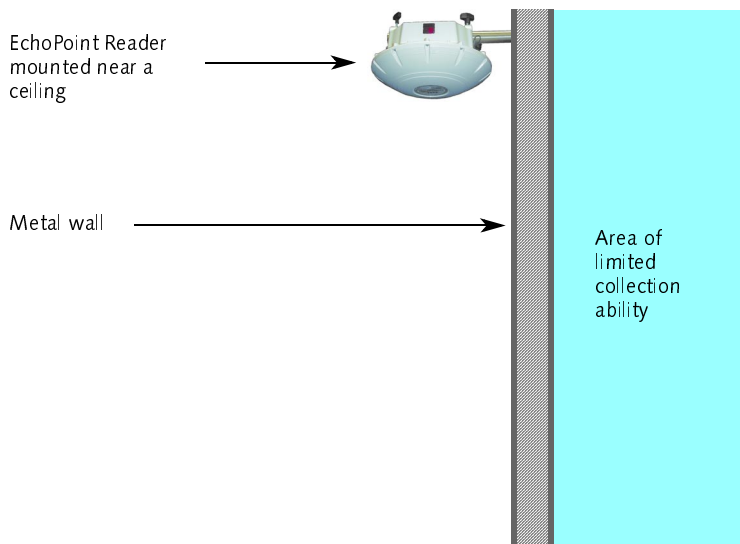
An area can contain factors that limit the EchoPoint Reader collection range, including:

- Asymmetrical shape to the collection area
- Obstructions such as multiple walls, chained areas, solid-core doors, and enclosures
- RF interference from other equipment such as computers, walkie-talkies, cellular phones, elevators, electrical motors, or other RF-emitting devices
- EchoPoint Reader SR-640-101 mounting height of less than 15—30 feet (4.572—9.144 meters)
- Metal or RF-absorbent surface on the tracked item
- Tag location relative to the EchoPoint Reader, such as behind a metal obstruction (as illustrated in Figure 2-1) or stacked under multiple layers

Some of these factors may be beyond your control. The goal when positioning the EchoPoint Reader SR-640-101 is to optimize advantages and reduce limitations to make the collection range as efficient as possible.

Positioning EchoPoint Readers

Figure 2-1 Impediment Limiting the EchoPoint Reader Collection Range



If the location forces you to use a less-than-ideal position for the reader, the collection range could be reduced, requiring additional readers.



If an EchoPoint Reader must be mounted on a wall, the collection range may not extend to the opposite side of the wall. You may need a second EchoPoint Reader to monitor the area behind the wall.

Each of the following recommendations is intended to optimize the collection range of the equipment. Whenever possible, place the EchoPoint Reader:

- In a horizontal plane, with its dome directed downwards
- High off the ground, preferably within the range of 15–30 feet (4.572–9.144 meters)
- Away from large metal surfaces

Mounting the EchoPoint Reader

The EchoPoint Reader SR-640-101 can be mounted using any of the associated mounting hardware available from Savi Technology. However, you might want to be sure that the reader is operational and verified on the network before mounting it in any hard-to-reach position.

A mounting kit is available from Savi Technology which includes hardware to mount an EchoPoint Reader on a pole (wooden, metal, or concrete), I-beam, wall, or a tripod. Please refer to the instructions included with the mounting kit for proper installation.

RFID hardware can be physically attached in any position or location. If your installation requires a special attachment, Savi can develop and manufacture a custom fixture.

If you have any problems communicating with the EchoPoint Reader during or after the installation, please refer to Chapter 3, “Maintenance,” for troubleshooting procedures.

Connecting Power Cables to the EchoPoint Reader

Note: While the EchoPoint Reader SR-640-101 is rated for use in severe environments, the power and network connector seals may deteriorate with repeated installation and removal. Therefore, Savi recommends the use of heat shrink tubing (Savi part number 680-02423-001) for units subject to outdoor use.

When connecting the EchoPoint Reader's power cable, be sure to check any relevant configuration or wiring diagrams beforehand.

The power source can be 6 to 15 VDC, 110 VAC, or 220 VAC. The socket-outlet shall be installed near the equipment and shall be easily accessible. The EchoPoint Reader SR-640-101 does not require adjustment or modification for different power sources. An appropriate power cable is supplied, based on the requirements specified when the order was placed.

You can also power the EchoPoint Reader SR-640-101 from a Savi Solar Power Module, or by vehicle power. A fixed-length, molded cable is supplied with the Solar Power Module. The Vehicle Power Cable can be purchased as an accessory item.

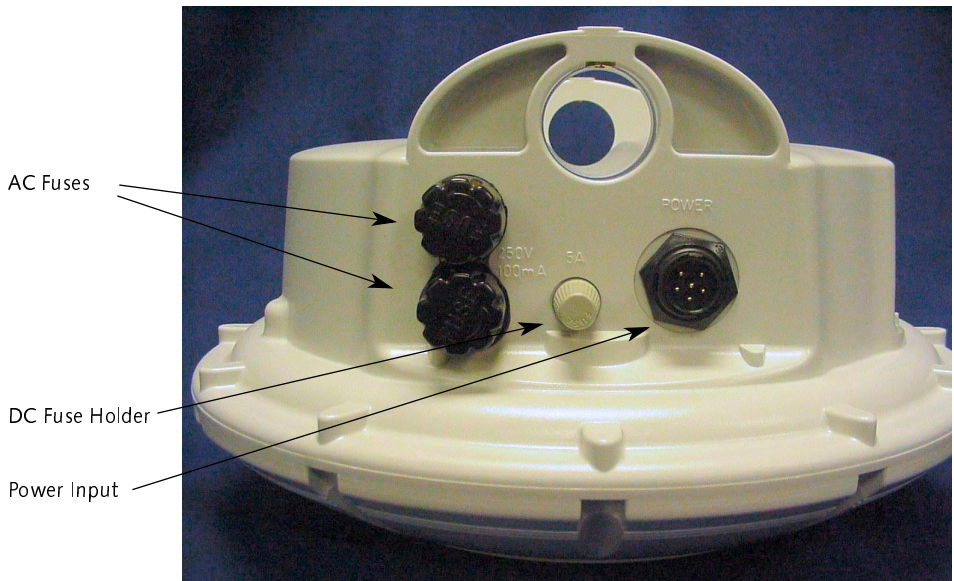
» **To connect the power cable to the reader:**

1. The appropriate power cable for the AC power source should have been included with the reader.
2. If installing the EchoPoint Reader SR-640-101 in an outdoor location, slide heat shrink tubing onto the power cable before connecting the cable to the reader.
 - a. Follow the instructions included with the heat shrink kit to apply the tubing to the cable.

Connecting Power Cables to the EchoPoint Reader

3. On the EchoPoint Reader, plug the cable's female connector into the power input socket next to the DC fuse holder. (See Figure 2-2.)
 - a. Turn the connector to align its notch on the side nearest the EchoPoint Reader's dome.
 - b. Firmly push the locking ring forward and rotate it clockwise to lock the connector.

Figure 2-2 Power Connector and AC and DC Fuses



Connecting the Network Cables

When connecting the EchoPoint Reader's network cables, be sure to check any relevant configuration or wiring diagrams beforehand.

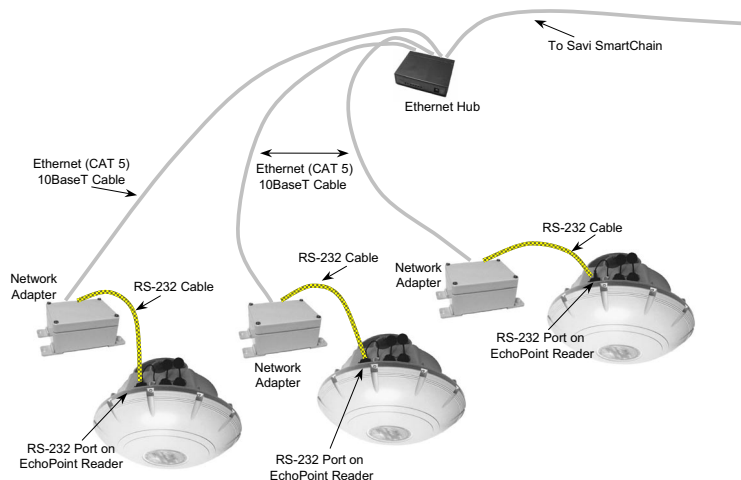
Note: While the EchoPoint Reader SR-640-101 is rated for use in severe environments, the power and network connector seals may deteriorate with repeated installation and removal. Savi recommends the use of heat shrink tubing (Savi part number 680-02423-001) for units subject to outdoor use.

Ethernet Connection

The Ethernet connection requires a Savi Network Adapter SA-640-01 (Savi part number 860-03675-003) and Savi SmartChain software (refer to Figure 2-3 below). The reader communicates with the Savi SmartChain software using the universal data appliance protocol (UDAP).

The Network Adapter is included with the EchoPoint Reader SR-640-101. Savi SmartChain software is available separately from Savi Technology.

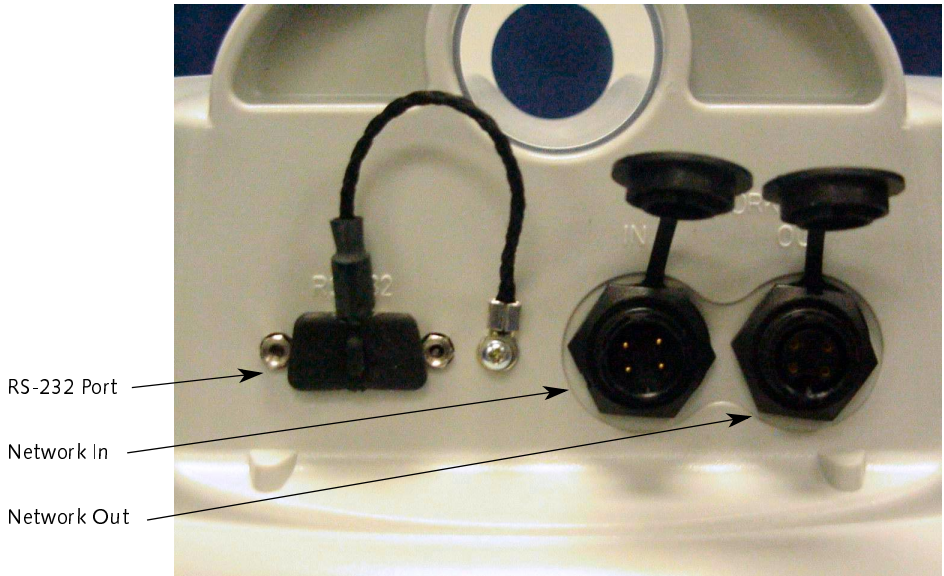
Figure 2-3 EchoPoint Readers in an Ethernet Installation



» To connect the Network Adapter:

1. Connect the DB-9 connector of the RS-232 cable on the Network Adapter to the RS-232 port of the EchoPoint Reader.
 - a. A 3.8" ID x 3/32" thick O-ring gasket (Savi part number 727-03889-001) is provided that should be slipped over the cable (female) connector prior to insertion into the reader housing (male pins) connector so that it is compressed when the adapter screw-jacks are tightened.
2. Connect the RJ-45 connector of the Ethernet cable on the Network Adapter to the Ethernet hub.

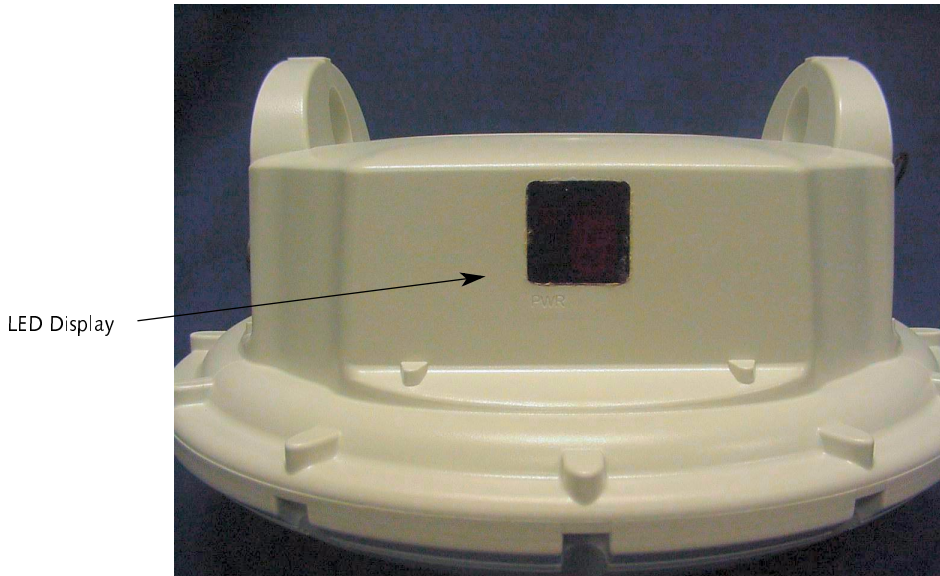
Figure 2-4 Network Connector and RS-232 Ports



Applying Power to the EchoPoint Reader

After connecting power and network cables, apply power to the EchoPoint Reader by connecting the male connector end of the power cable to the appropriate power source, such as the Savi Solar Power Module or an AC outlet.

Figure 2-5 EchoPoint Reader SR-640-101 LED Display Panel



» **To confirm that power is present in the EchoPoint Reader:**

1. Observe the indicators and the seven-segment display on the LED display panel. The power indicator should be illuminated whenever power is present.
 - a. During the initial power-on sequence, the EchoPoint Reader displays its identification number (ID) in the LED display as a sequence of five digits.



EchoPoint Reader ID number 1234 displays the numbers 0, then 1, then 2, then 3, and then 4 in sequence during the initialization process.

- b. After the ID display, two indicators flash at different rates. One is the center bar of the segmented display and the other is a small indicator within the segmented display. If the indicators fail to flash, the EchoPoint Reader is non-operational.
2. If at any time you are not sure that the EchoPoint Reader is operating properly, reset the reader by disconnecting and then reconnecting the power source.

After resetting the EchoPoint Reader SR-640-101, it should repeat the power-on sequence described above.

The EchoPoint Reader is now ready for you to verify communication functions.

Note: *The EchoPoint Reader SR-640-101 has a watchdog sensor that automatically resets the reader if power fluctuations or other interruptions occur that might affect the reader's performance.*

Setting Up the Network Adapter

Once the hardware is installed, you set the IP address for the Network Adapter, ping the adapter to verify its connection, and configure the Network Adapter parameters.

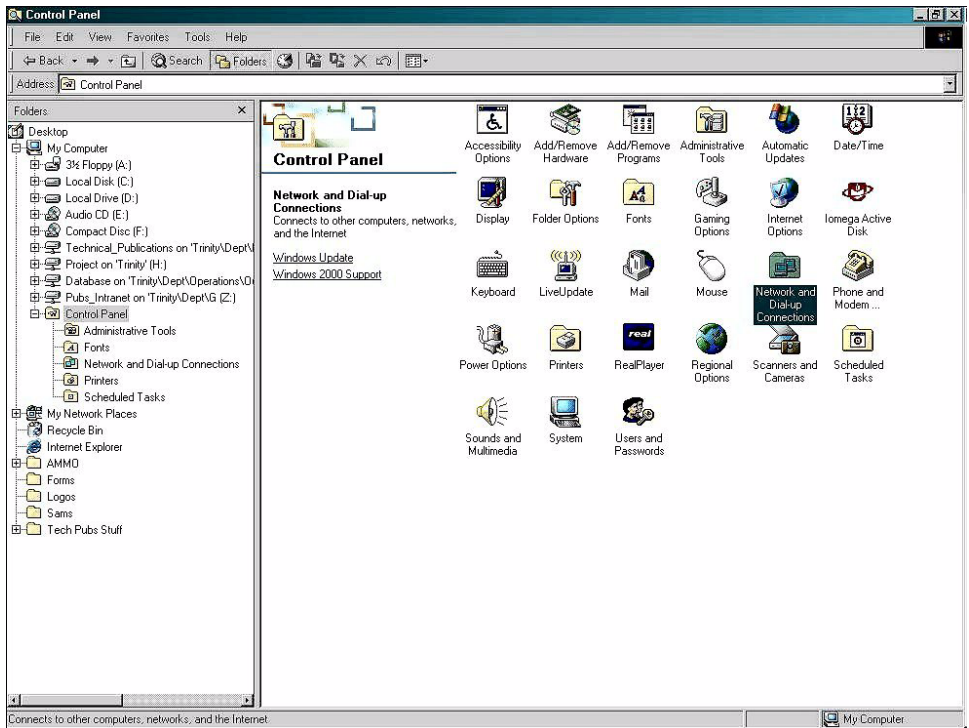
Note: *Before beginning this procedure, make sure that the Network Adapter is connected to the reader and that the reader is powered-up.*

Specifying the IP Address

- » **To set up the proper IP addresses for the Network Adapter and Site Manager:**
 1. At the host computer desktop, select **Start-> Settings-> Control Panel**.

The Control Panel window appears as depicted in Figure 2-6.

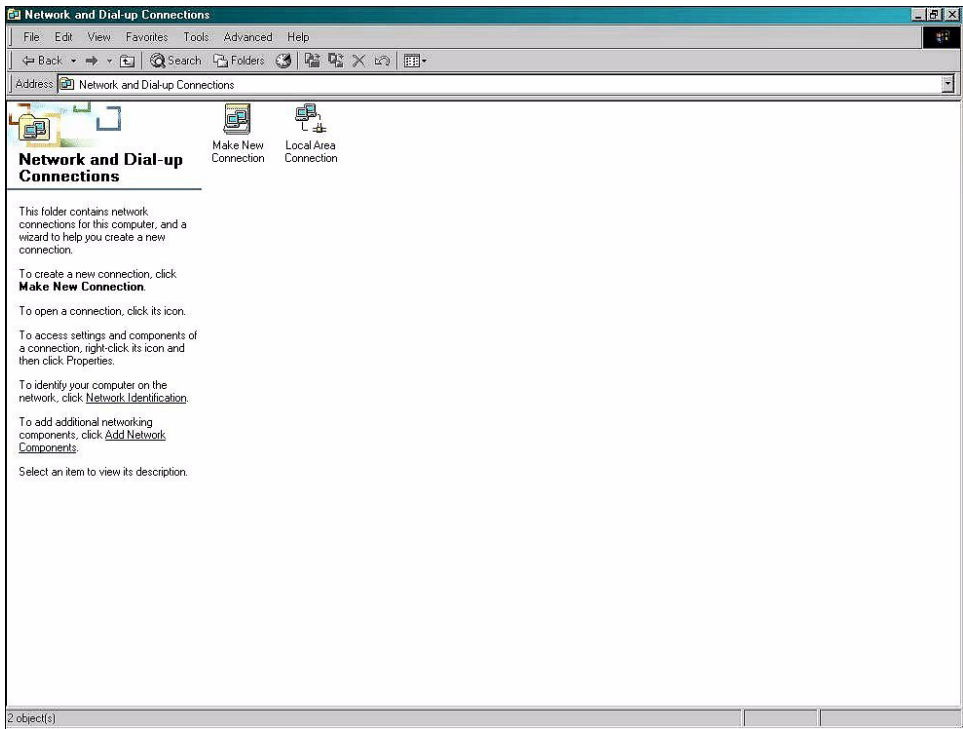
Figure 2-6 Control Panel Window



2. Double-click the **Network and Dial-Up Connections** icon to display the Network and Dial-Up Connections window as shown in Figure 2-7.

Setting Up the Network Adapter

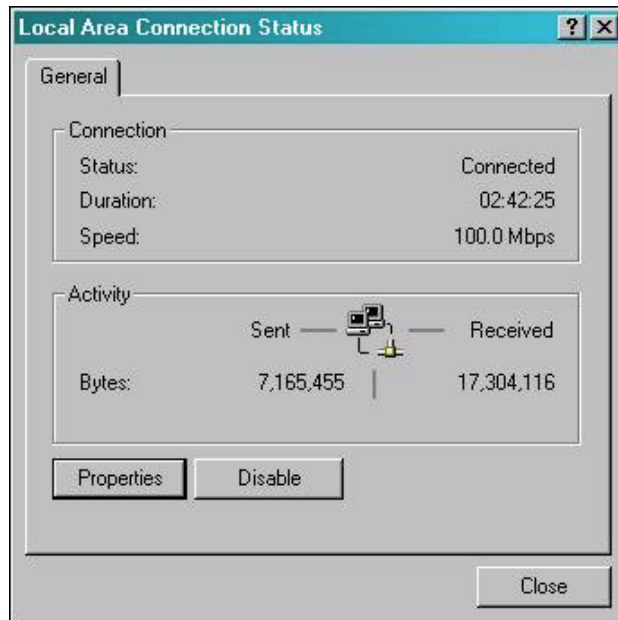
Figure 2-7 Network and Dial-Up Connections Window



3. Double-click the **Local Area Connection** icon.

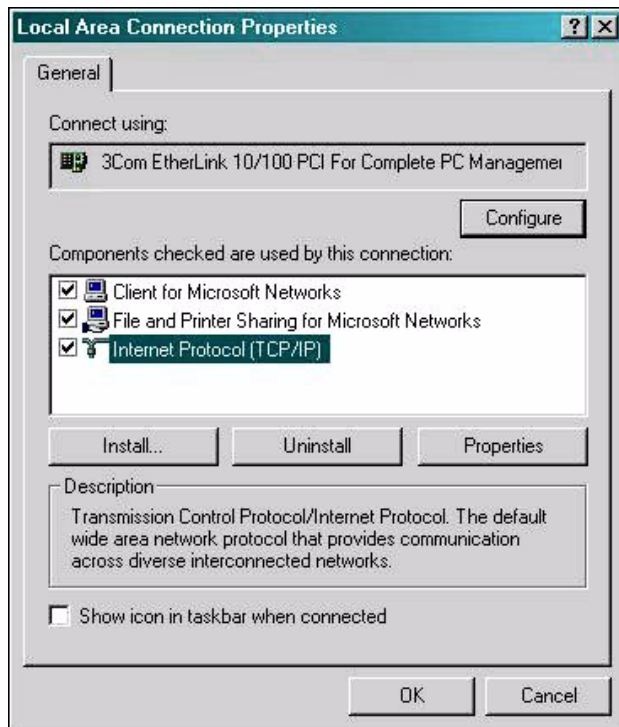
The Local Area Connection Status window appears.

Figure 2-8 Local Area Connection Status Window



4. Click **Properties** to display the Local Area Connection Properties window as shown in Figure 2-9.

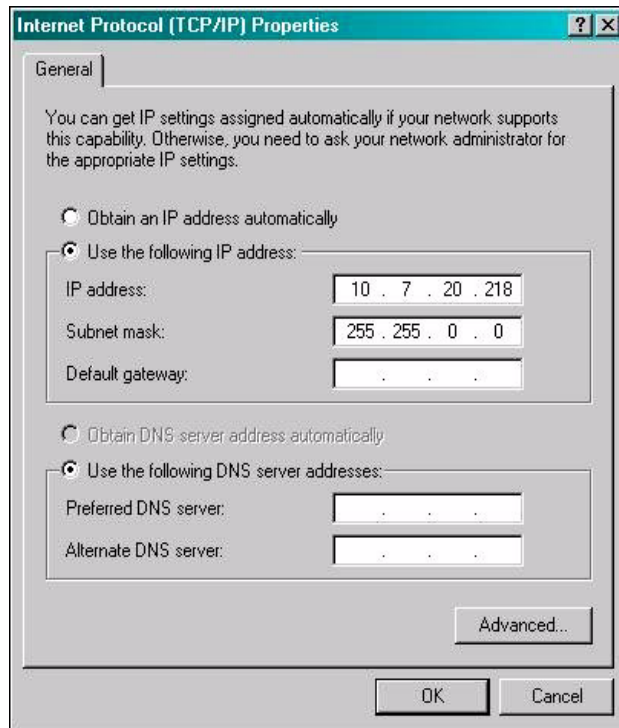
Figure 2-9 Local Area Connection Properties Window



5. Double-click **Internet Protocol (TCP/IP)**.

The Internet Protocol TCP/IP Properties window appears.

Figure 2-10 Internet Protocol TCP/IP Properties Window



6. Make the necessary changes to the **IP address** and **Subnet mask** addresses and click **OK**.



The default IP address for the Network Adapter is 10.7.19.11. You can set the host IP address as 10.7.20.218, the Subnet mask as 255.255.0.0, and leave all others blank.

7. Close all windows and return to the desktop.

Pinging the Adapter

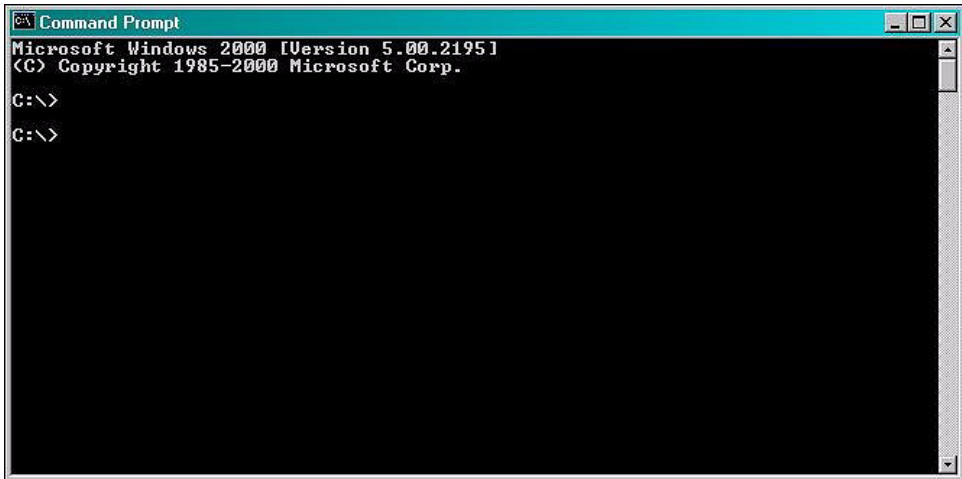
You need to check the network connection from the host computer to the Network Adapter. After successfully pinging the adapter, you can begin the adapter setup process. You use the command prompt to ping the adapter.

» **To ping the adapter:**

1. At the host computer desktop, select **Start-> Programs-> Accessories-> Command Prompt** to open a DOS session.

The Command Prompt window appears as shown in Figure 2-11.

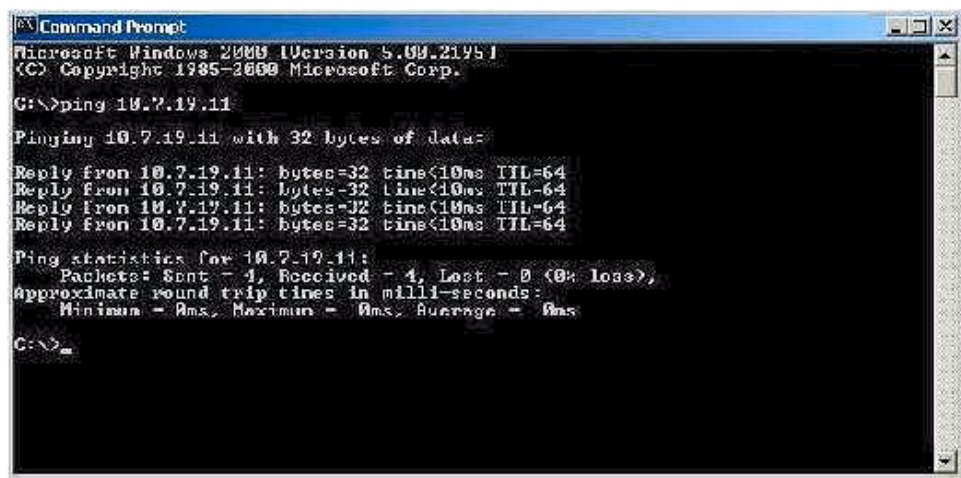
Figure 2-11 Command Prompt Window



2. Type **ping 10.7.19.11** (this is the default IP address of the adapter) and press **Enter**.

Pinging will proceed until it has completed all cycles. Refer to Figure 2-12.

Figure 2-12 Command Prompt Window with Completed Ping



```
Microsoft Windows [Version 5.00.2195]
(C) Copyright 1985-2000 Microsoft Corp.

G:\>ping 10.7.19.11

Pinging 10.7.19.11 with 32 bytes of data:

Reply from 10.7.19.11: bytes=32 time<10ms TTL=64
Reply from 10.7.19.11: bytes=32 time<10ms TTL=64
Reply from 10.7.19.11: bytes=32 time<10ms TTL=64
Reply from 10.7.19.11: bytes=32 time<10ms TTL=64

Ping statistics for 10.7.19.11:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

G:\>
```

3. Upon successfully pinging the adapter, as shown in Figure 2-12, close the Command Prompt window.

Configuring the Adapter Parameters

This section describes how to use Microsoft Telnet Client to connect to the adapter and set up the adapter parameters. Telnet Client software allows a computer to connect to a remote Telnet server and run applications on that server.

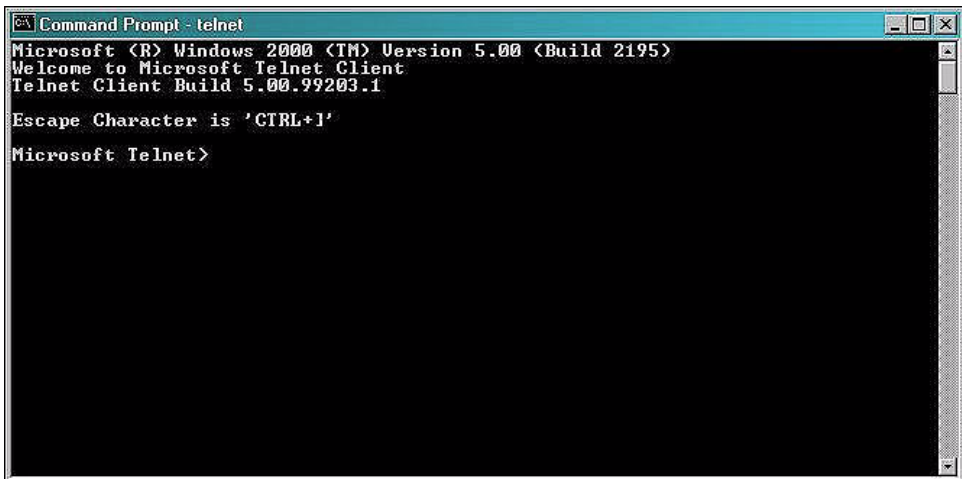
- » **To connect to the adapter and set up the parameters:**
 1. At the host computer desktop, select **Start-> Programs-> Accessories-> Command Prompt** to open a DOS session.

The Command Prompt window appears as shown in Figure 2-11.

2. At the **C:** prompt, type **telnet** and press **Enter** to open a Telnet session.

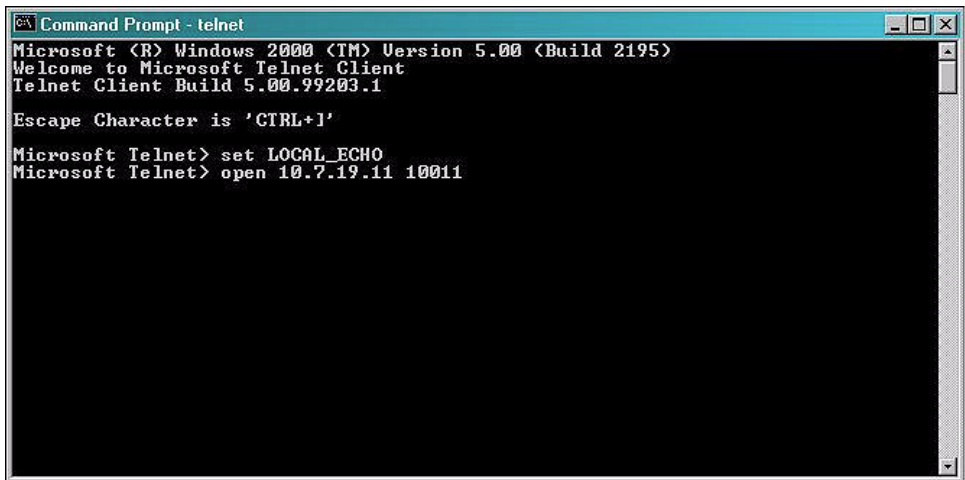
The Telnet Client window appears as shown in Figure 2-13.

Figure 2-13 Telnet Client Window



3. At the first prompt, type **set LOCAL_ECHO** and press **Enter** to enable the echo so you can verify key entries.
4. At the second prompt, type **open 10.7.19.11 10011** and press **Enter** as in Figure 2-14 to connect to the adapter.

Figure 2-14 Telnet Connection Commands



```
Command Prompt - telnet
Microsoft (R) Windows 2000 (TM) Version 5.00 (Build 2195)
Welcome to Microsoft Telnet Client
Telnet Client Build 5.00.99203.1
Escape Character is 'CTRL+I'
Microsoft Telnet> set LOCAL_ECHO
Microsoft Telnet> open 10.7.19.11 10011
```

You will see a blank Command Prompt - telnet window if the telnet connection is successful.

Now you can run commands to modify the properties of the adapter.

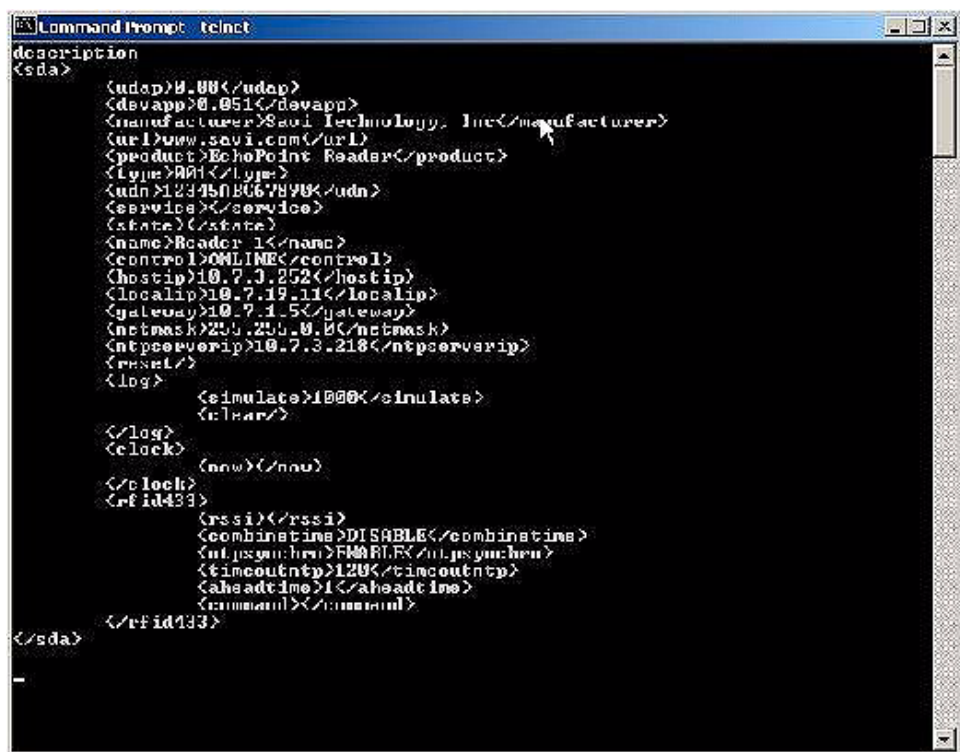
» **To view existing reader properties:**

1. At the cursor, type **description** and press **Enter**.

The current properties of the reader appear that you can view or modify. Not all properties can be modified. See Figure 2-15.

Setting Up the Network Adapter

Figure 2-15 Description of Reader Properties



```
Command Prompt - telnet
description
<sda>
  <udap>0.88</udap>
  <devapp>0.051</devapp>
  <manufacturer>Savi Technology, Inc</manufacturer>
  <url>www.savi.com</url>
  <product>EchoPoint Reader</product>
  <type>001</type>
  <udn>1234567890</udn>
  <service></service>
  <state></state>
  <name>Reader 1</name>
  <control>04LINE</control>
  <hostip>10.7.3.252</hostip>
  <localip>10.7.19.11</localip>
  <gateway>10.7.1.5</gateway>
  <netmask>255.255.0.0</netmask>
  <ntpserverip>10.7.3.218</ntpserverip>
  <reset/>
  <log>
    <simulate>1000</simulate>
    <clear/>
  </log>
  <clock>
    <now></now>
  </clock>
  <rfid433>
    <rss></rss>
    <combination>DISABLE</combination>
    <timeout>120</timeout>
    <aheadtime>1</aheadtime>
    <command></command>
  </rfid433>
</sda>
```

2. At the cursor, type **udap?** and press **Enter** to display the UDAP firmware's value as illustrated in Figure 2-16.

The property udap is a read-only property; you cannot modify it.

Figure 2-16 Telnet UDAP Value Display

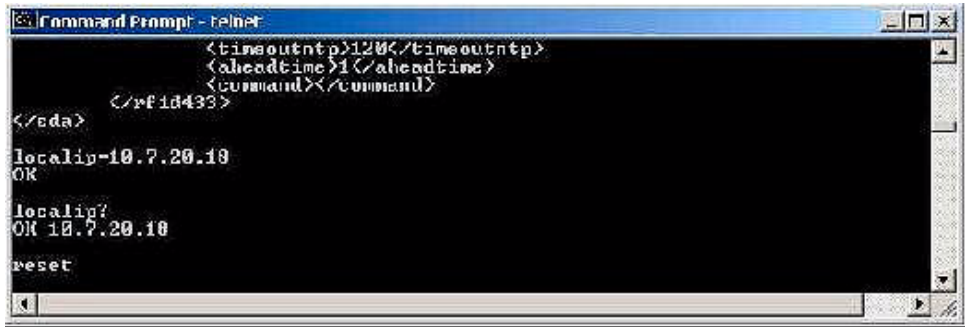


```
Command Prompt - telnet
  <aheadtime>1</aheadtime>
  <command></command>
</rfid433>
</sda>
udap?
OK 0.88
```

- » To assign a new local IP address to the adapter and modify gateway and netmask addresses:
 1. At the cursor, type **localip=10.7.20.118** (or whatever valid IP address you want to assign) and press **Enter** to set the adapter IP address to the input one.

See Figure 2-17.

Figure 2-17 Telnet Local IP Address Display

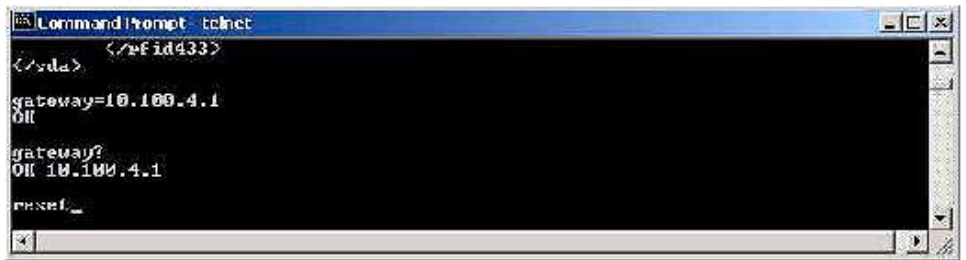


2. Type **reset** and press **Enter** to cause the IP address to take effect.

Now you can use Telnet to connect to the adapter at the new IP address.

3. Type **gateway=10.100.4.1** (or whatever valid IP address you want to assign) and press **Enter** to set the adapter gateway IP address to the input one as shown in Figure 2-18.

Figure 2-18 Telnet Gateway IP Address Display



Setting Up the Network Adapter

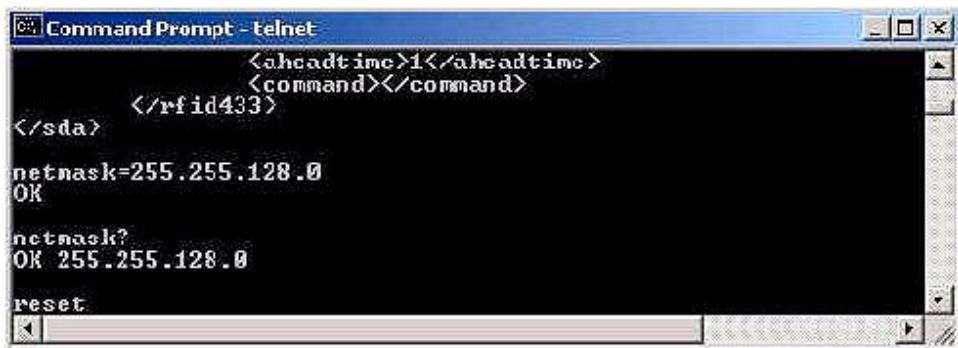
4. Type **reset** and press **Enter** to make the gateway IP address take effect.
5. Type **hostip=10.7.20.18** (or whatever valid IP address you want to assign) and press **Enter** to set the adapter host IP address to the input one. See Figure 2-19.

Figure 2-19 Telnet Host IP Address Display



6. Type **reset** and press **Enter** to apply the host IP address.
The host is the computer to which the adapter sends the event data.
7. Type **netmask=255.255.128.0** (or whatever valid mask you want to assign) and press **Enter** to set the adapter network mask to the input one as depicted in Figure 2-20.

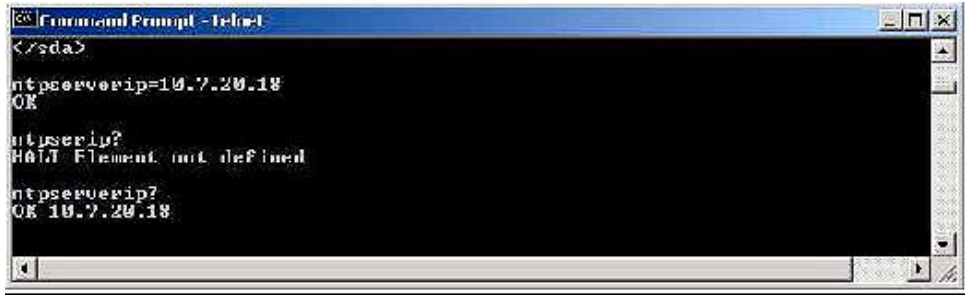
Figure 2-20 Telnet Network Mask Display



8. Type **reset** and press **Enter** to make the netmask take effect.

9. Type **ntpserverip=10.7.20.18** (or whatever valid NTP address you want to assign) and press **Enter** to set the NTP server IP address that the adapter will listen to. See Figure 2-21.

Figure 2-21 Telnet NTP Server IP Address Display



» To set adapter parameters:

1. Type **combinetime=ENABLE** (DISABLE) and press **Enter** to enable (disable) the time of event data from the reader to combine with the time of the tag received from the signpost.

See Figure 2-22.

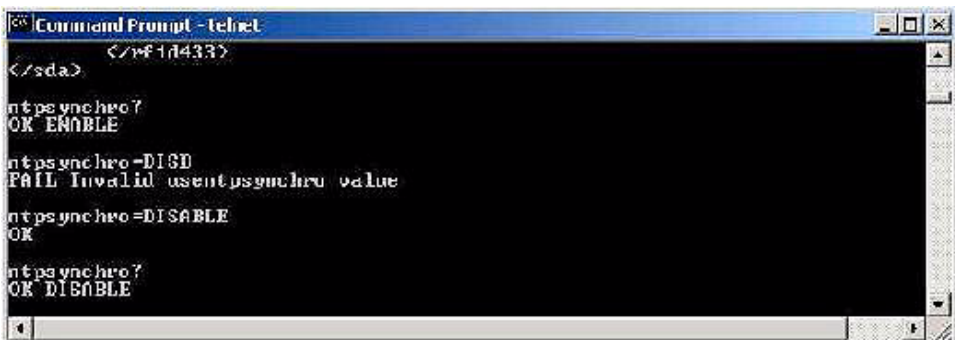
Figure 2-22 Telnet Combine Time Command



2. Type **ntpsynchro=ENABLE** (DISABLE) and press **Enter** to enable (disable) the reader time and date to synchronize with the NTP server as shown in Figure 2-23.

Setting Up the Network Adapter

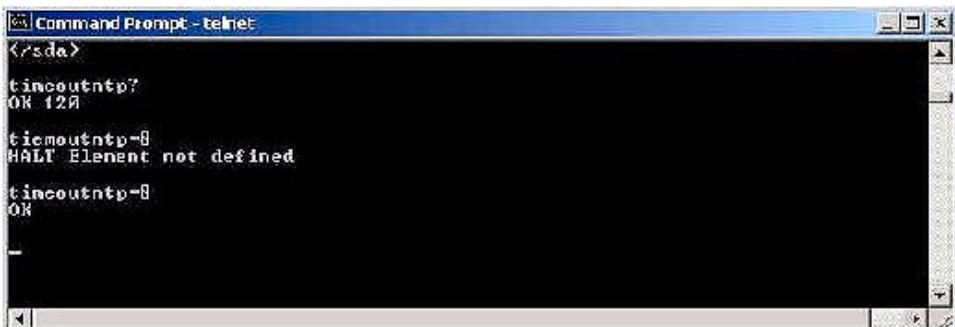
Figure 2-23 Telnet NTP Server Synchronization Command



```
Command Prompt - telnet
</rfid433>
</sda>
ntp synchro?
OK ENABLE
ntp synchro=DISD
FAIL Invalid usentpsynchro value
ntp synchro=DISABLE
OK
ntp synchro?
OK DISABLE
```

3. Type **timeoutntp=8** (unit: minutes) and press **Enter** to set the period (in minutes) for which, if the reader has not received time information, it will assume it has lost time synchronization with the NTP server. See Figure 2-24.

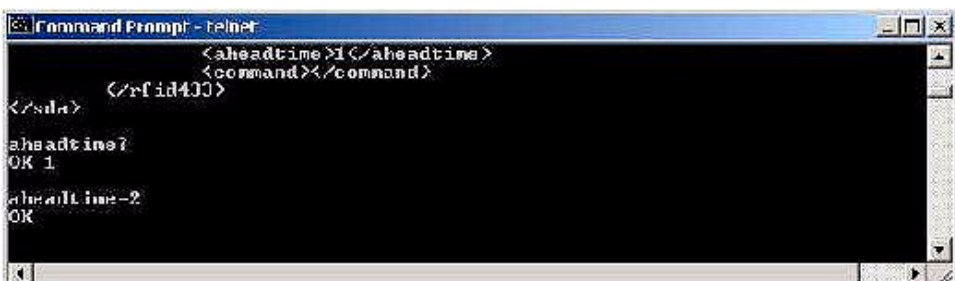
Figure 2-24 Telnet NTP Server Time Out Command



```
Command Prompt - telnet
</sda>
timeoutntp?
OK 120
timeoutntp=8
FAIL Element not defined
timeoutntp=8
OK
-
```

4. Type **aheadtime=2** (unit: seconds) and press **Enter** to set the time (in seconds) that the reader will take ahead of the synchronized NTP server time. Refer to Figure 2-25.

Figure 2-25 Telnet Reader Ahead Time Command

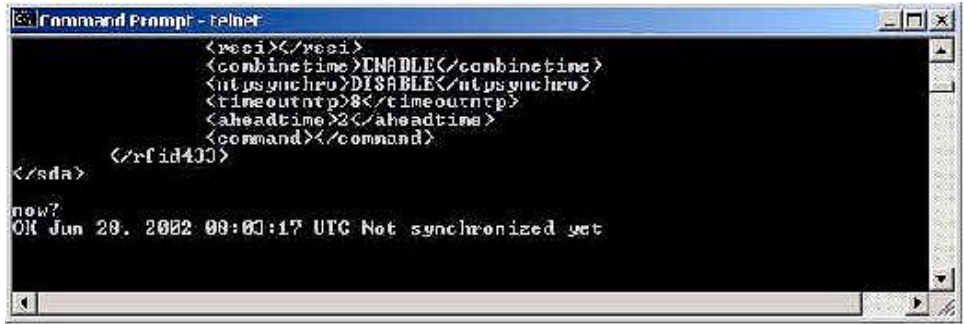


```
Command Prompt - telnet
<aheadtime>1</aheadtime>
<command></command>
</rfid433>
</sda>
aheadtime?
OK 1
aheadtime=2
OK
```

5. Type **now?** and press **Enter** to display current time.

If the reader is not set to synchronize with an NTP server then you can also set the time with this command. See Figure 2-26.

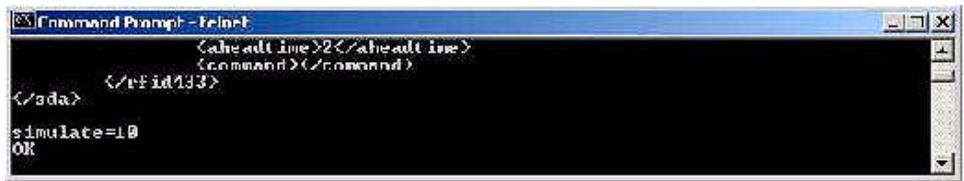
Figure 2-26 Telnet Time Command



6. Type **simulate=10** and press **Enter** to generate ten simulated events.

If you have a daemon listening to the event on the host computer, it will receive the events. Refer to Figure 2-27.

Figure 2-27 Telnet Simulate Command



7. Type **reset** and press **Enter** to reset the Network Adapter with all the new parameters.

Verifying Reader Communication

To confirm that an EchoPoint Reader SR-640-101 is installed and functioning correctly, it is necessary to verify that the Reader:

- Can communicate with the Savi Site Manager (verifies that the reader is detected on the network)
- Can collect tags in the collection area

Once the EchoPoint Reader is installed, refer to the *Savi Site Manager Installation Guide* for instructions on testing the operation of the reader.

3

Maintenance

With minimal care, an EchoPoint Reader SR-640-101 should perform flawlessly. However, in the event that a problem with an EchoPoint Reader occurs, the procedures in this chapter should help you troubleshoot it.



Changes or modifications to the equipment that are not expressly approved by Savi Technology could void the warranty and the authority to operate the equipment.

Using the equipment in a manner not specified by the manufacturer might impair the protection that the equipment provides.

Savi Technology is not responsible for radio/TV interference caused by using unauthorized cable or by making unauthorized changes to this equipment.

Repair and Maintenance

The EchoPoint Reader SR-640-101 is designed to be maintenance-free. It is manufactured with the highest-quality components and is thoroughly tested before delivery.

The EchoPoint Reader uses AC power fuses for circuit protection. Two AC power fuses are mounted with the DC power fuse as shown in Figure 2-2, “Power Connector and AC and DC Fuses,” on page 2-7. The AC fuses are 100 mA (BUSSMAN type MDL-1/10), 250-VAC, Savi part number 670-01294-001. The DC fuse is a 5-amp (BUSSMAN type GMW-5), 125-volt, miniature, non-time-delay fuse, Savi part number 670-00624-003.

Troubleshooting

Table 3-1 lists causes and solutions to problems that could occur with the EchoPoint Reader SR-640-101.

In the unlikely event that an EchoPoint Reader fails or problems occur that simple troubleshooting cannot solve, Savi Customer Support may recommend that the EchoPoint Reader be returned to Savi Technology.

Table 3-1 Possible Problems and Solutions

Problem	Solution
No power (indicator light is not blinking)	– Confirm that power is available by checking any circuit breakers, power switches, or safety switches. – If AC-powered, verify the presence and voltage of the power by connecting a test unit to the power source. Check the AC fuses. – If DC-powered, verify the continuity of the DC power fuse on the EchoPoint Reader, the source voltage (6 to 15 VDC), and the polarity of the connections. – If solar-powered, verify the output voltage of the module is 6 or 12 VDC. – Verify that the power cable is securely plugged into the power source and the EchoPoint Reader input. – Try a different power source. – Replace the power cable.
Network cables damaged or disconnected	– Verify that the network cable is securely plugged into the EchoPoint Reader. – Verify that the network cable is securely plugged into the Network Adapter. – Check cables for physical damage.

Troubleshooting

Table 3-1 Possible Problems and Solutions (Cont.)

Problem	Solution
ID needs confirmation	– Reset the power (by disconnecting and then reconnecting the live power source) to view the EchoPoint Reader serial number, which flashes in sequence after the reader is reset. See “Applying Power to the EchoPoint Reader” on page 2-10 – Compare the EchoPoint Reader serial number to the ID used in the management software and on the printed label.
Unknown	– Turn power off and then back on. – Call Savi Customer Support.

Technical Support

If your EchoPoint Reader SR-640-101 presents a problem that neither this manual nor troubleshooting tips can help you solve, you can contact Savi Customer Support in either of two ways:

- Telephone 1-888-994-SAVI (7284) between 8:00 a.m. and 5:00 p.m., Pacific Time
- Or send e-mail to **help@savi.com** at any time

Whether you contact Savi by telephone or e-mail, please have the exact sequence of operations (if possible) that caused the problem and the following information available:

- Site location
- Incident description
- Estimated severity level of the incident
- Model number and version
- Serial number
- Computer type (Gateway, Dell, etc.) and model
- Operating system and service pack level
- Network protocol

