



SCRAM System User Manual

(Interim cover)

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Introduction

Many federal, state, and local law-enforcement agencies prohibit individuals on probation or parole from consuming alcohol, and require frequent testing to ensure that these individuals remain alcohol-free. Officials might also require individuals to participate in an alcohol monitoring program as a condition of a court-ordered release in lieu of pretrial detention or post-sentence incarceration.

Alcohol Monitoring Systems, LLC was established in 1998 by individuals interested in developing a remote alcohol detection system for the corrections market that did not require client intervention, and would be as accurate and reliable as evidential breath alcohol test equipment.

This system is called SCRAM (Secure Continuous Remote Alcohol Monitoring). The heart of the SCRAM system is the SCRAM Bracelet, which is attached to the client's ankle and uses a fuel cell detector to sense and measure ethanol concentration through the skin. Continuous monitoring eliminates the client's ability to manipulate their drinking patterns to avoid detection. The system time stamps and stores all readings and any tamper indications and sends this information to a Central Monitoring Station at designated or random time intervals without client involvement.

Although several different remote alcohol monitoring devices are on the market, few have the advantages and benefits of the SCRAM system, which include:

- Collects alcohol readings 24 hours a day, 365 days a year, regardless of the location or activity of the client.
- Detects alcohol concentrations to as low as .020%, and is as accurate and reliable as evidential breath alcohol test equipment.
- Enables the program officer to determine when, where, and how often the client is to be tested.
- Requires little client participation, and enables clients to maintain normal daily routines such as work, counseling, community service, family obligations, and recreation.
- Contains tamper-detection components.
- Does not generate false readings for diabetic clients.
- Contains safeguards that guard against false positives.

How the SCRAM System Works

Considering the complexity of the technology used, the SCRAM system is surprisingly simple and consists of three major components:

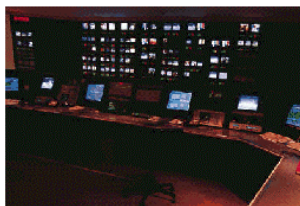
- **The SCRAM Bracelet**, which is attached to the client's ankle and continuously senses and measures ethanol concentration through the skin. The bracelet stores and time stamps all readings taken and uploads these readings to the SCRAM Smart Modem.
- **The SCRAM Smart Modem**, which resides in the client's home and transmits alcohol readings and any tamper information from the SCRAM Bracelet to the Central Monitoring System via existing telephone lines.
- **The Central Monitoring Station**, which receives the information and immediately notifies the supervising agency and service provider if it receives positive alcohol readings, tamper notifications, or encounters diagnostic or maintenance issues.



SCRAM Bracelet continuously monitors ethanol concentration through the skin, regardless of client's location and activity, and time stamps and stores all readings.



The SCRAM Smart Modem transmits alcohol readings and any tamper information from the SCRAM Bracelet to the Central Monitoring System via existing telephone lines.



The Central Monitoring Station receives information from the Smart Modem and immediately notifies the supervising agency and service provider, if necessary.

The SCRAM Bracelet

The SCRAM Bracelet consists of two different parts:

- The first part contains a fuel cell detector, which tests vapor as it evaporates through the skin to determine alcohol concentration on a pre-determined schedule.
- The second part contains a compilation of electronics for tamper detection, power control, temperature sensing, and for collecting, storing, and transferring data. A tamper detection strap acts as an electronic link between the two parts, and secures the bracelet to the client's ankle.



The SCRAM Bracelet

Determining Alcohol Concentration

Legal alcohol intoxication cannot be determined on the basis of the amount of alcohol a person has consumed, since the exact quantity consumed, times of ingestion, body weight, rate of absorption and elimination vary from person to person. After consumption, alcohol rapidly becomes associated with all parts of the body, and concentrations of alcohol will be proportional to body water content. Consequently, law enforcement officials have traditionally estimated the total amount of alcohol in the body by determining a Blood Alcohol Concentration (BAC).

In order to obtain a BAC reading, law enforcement officials typically conduct a breath analysis test, which measures alcohol concentration in breath perspiration. Unfortunately, breath analysis tests require “deep lung” breath samples, which are sometimes difficult to obtain and require client involvement.

The SCRAM Bracelet uses a new and less invasive form of alcohol testing—transdermal measurement, which tests vapor as it escapes through the skin when we sweat. Literally translated, transdermal means “transfer through the skin.” Since the water concentration in the skin is very low in comparison to other organs of the body, alcohol migrates last through the skin, resulting in a slightly slower, but ultimately accurate, alcohol reading that directly correlates with breath analysis results.

NOTE: Since the SCRAM system can detect alcohol concentrations to as low as .020%, clients are prohibited from using products such as aftershave, perfume, and shower gels that contain alcohol while wearing the bracelet because these products might generate a false positive alcohol reading.

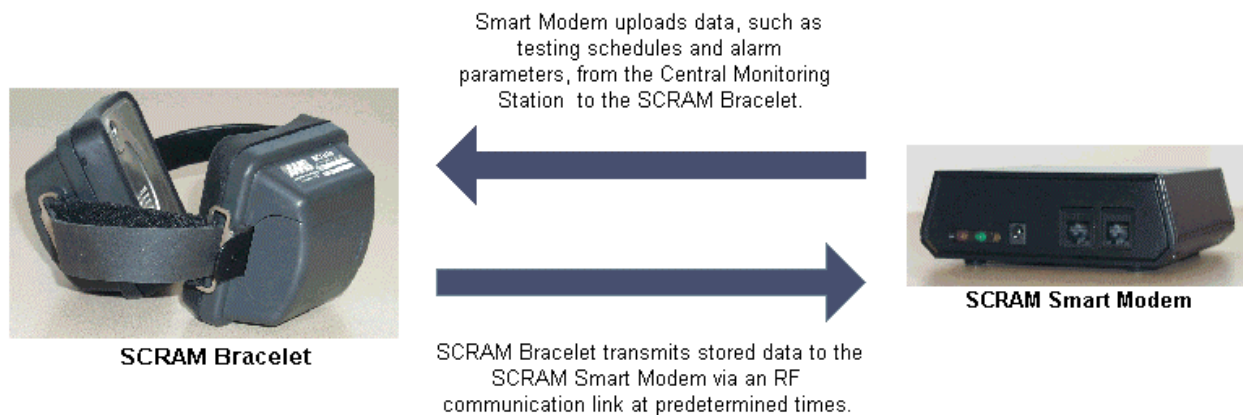
Detecting Removal or Tampering

Once the SCRAM Bracelet is securely attached to the client's ankle, it cannot be removed without destroying the tamper clips. If the client cuts or removes the bracelet, the bracelet will record a tamper alarm and send this alarm to the Central Monitoring Station.

Technicians have also thoroughly tested the SCRAM Bracelet to ensure an alcohol-positive client cannot "trick" the bracelet into yielding a negative result by placing household products, such as saran wrap, tape, paper, aluminum foil, and playing cards between the bracelet and the client's skin. If a client attempts to trick the bracelet, it will record and send a tamper alarm to the Central Monitoring Station.

Collecting, Storing, and Transferring Data

The SCRAM Bracelet does not require client participation in order to obtain alcohol readings. Clients never know when the bracelet is taking a reading, and only representatives from the program agency can setup and modify the testing schedule. Each reading is date and time stamped and stored in a memory chip within the bracelet. The Smart Modem collects stored data at a predetermined time and transfers that data to a host computer at the Central Monitoring Station.



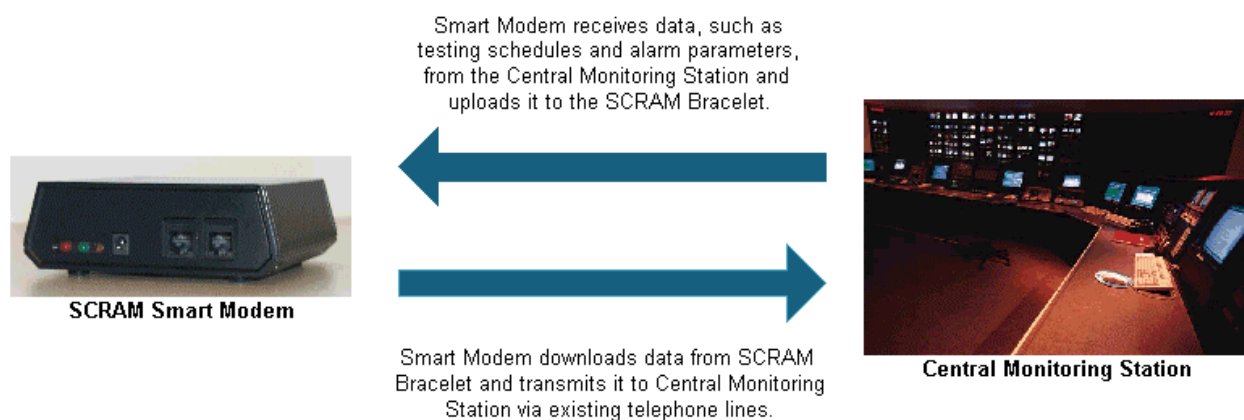
If the SCRAM Bracelet takes an alcohol reading and the results are positive, it will send an alert message to the Central Monitoring Station via the SCRAM Smart Modem, which will notify the client's program agency.

Controlling Battery Power

The SCRAM Bracelet also contains a power controller, which allows the bracelet to turn itself on and off in order to conserve the battery. A representative from the program agency must replace the battery on a client's bracelet every 60 days.

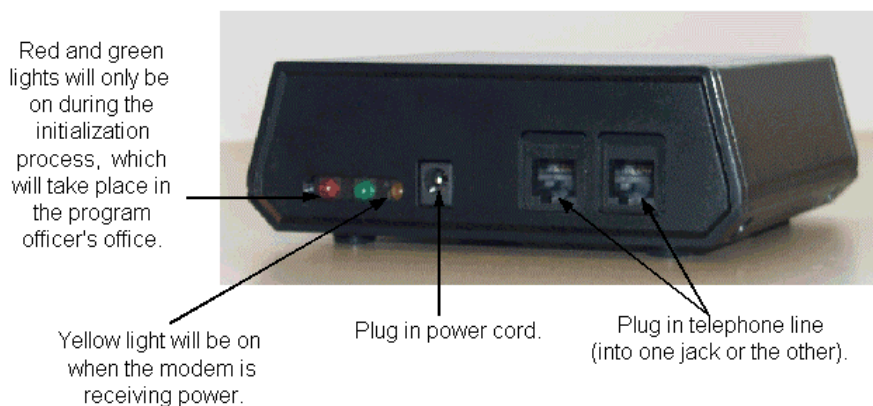
The SCRAM Smart Modem

The SCRAM Smart Modem is the communicator component of the system that collects data such as alcohol readings and alarms from the SCRAM Bracelet via an RF communication link and downloads the data to the Central Monitoring Station via a modem link through an existing telephone line. The modem also receives data, such as alcohol testing schedules and alarm parameters through this link and uploads it to the SCRAM Bracelet.



In order to transfer this data back and forth between the SCRAM Bracelet and the Central Monitoring Station, the client must plug the Smart Modem into both an electrical outlet and a telephone outlet. When the modem is receiving power, the yellow light will be on. The red and green lights will only be on during the initialization process, which will take place in the program agency's office.

The SCRAM Smart Modem



Experts recommend that the SCRAM Smart Modem resides in the client's bedroom, preferably within 25 feet of the bed, to ensure that the modem can upload alcohol readings between the hours of 12 a.m. and 6 a.m. each night.

The Central Monitoring Station

The Central Monitoring Station receives encrypted data from the SCRAM Smart Modems and stores it in a secured central location, where program agencies can retrieve it through a web-based application. The Central Monitoring Station validates the modem's identity and authenticates the data before it is stored. This system can support a variety of corrections agencies, from small county agencies to nationally-run call centers. Each program agency has its own separate data storage area so that representatives from the agency can retrieve the data they need when they need it.

This type of system setup saves correction programs money on investments in hardware and software, incremental investments on upgrades, and reoccurring costs of IT staff. Even the smallest agencies can experience enterprise-level system security, stability, and availability.

Viewing Client Information

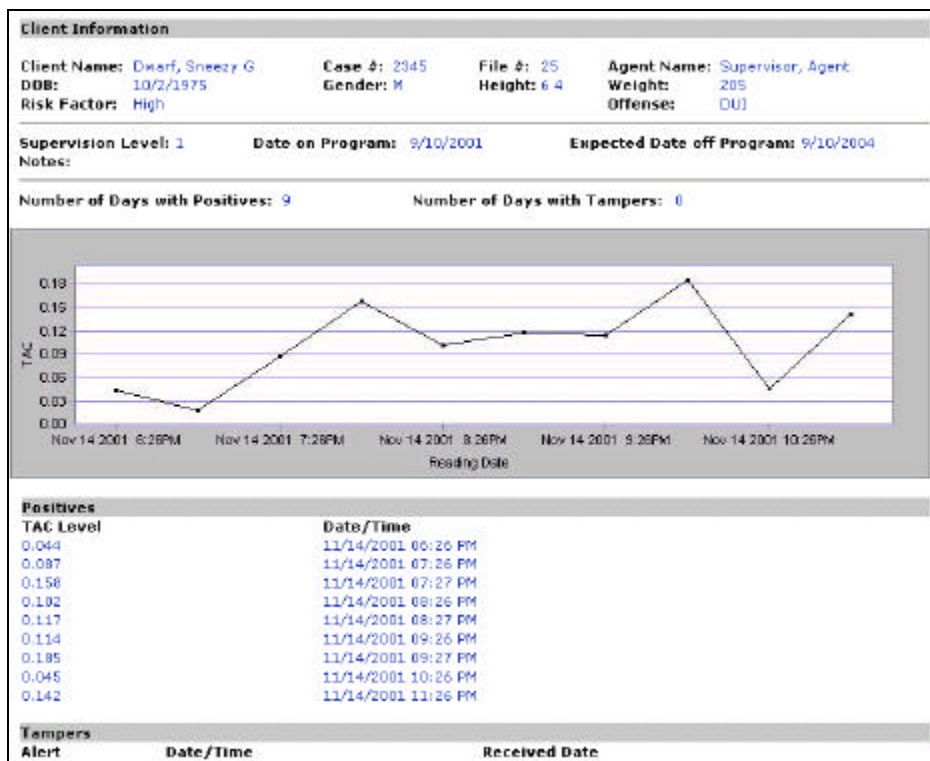
Not all corrections agencies operate the same way, and information that is important to one agency might not be important to another. This web-based application enables corrections agencies to use the application on virtually any type of computer and customize the data for their needs.

Every person using this application is assigned a primary user role, which will tailor the information on the person's home page and correspond to the needs of the person in the role. Each agency security role is described below:

- **Equipment Operator.** A person with this assigned role assigns and removes equipment and changes the batteries in the SCRAM Bracelets, when necessary.
- **Inventory Specialist.** A person with this assigned role tracks SCRAM Bracelets and SCRAM Smart Modems. The Inventory Specialist can also perform the duties of the Equipment Operator.
- **Agent.** A person with this assigned role sets clients up in the SCRAM system, reviews client activity, and resolves alerts if a service provider is not used. An agent can also run client reports, and review and change testing schedules.
- **Agent Supervisor.** A person with this assigned role sets Agents up in the SCRAM system and reviews the activity and workload for agents that report to him. An Agent Supervisor can also set clients up in the system, run client reports, and review and change testing schedules.
- **Agency Chief.** A person with this assigned role reviews summaries of all of the agency's current workload and activities. An Agency Chief can also set up clients in the system, run client reports, and review and change testing schedules.

Reporting

Court officials and corrections agencies need monitoring reports to accurately assess a client's progress in the program. This system provides corrections agencies the ability to customize reports and create graphs, which provide a quick snapshot of the client's activities. Agencies can run these reports for a specific date range or on demand to display the latest information available.



Report Example

(will change when more relevant example is available)

Receiving Technical Support

Alcohol Monitoring Systems, LLC provides 24-hour technical support for our customers, and continuously monitors the system's performance levels and security.

The Machine Authentication page appears.

Machine Authentication

Please enter your machine's authorization key, then click submit.

Authorization Key:

You logged into this page at 3/14/2002 3:37:40 PM

3. Enter your machine authorization key and click the **Submit** button.

The User Login page appears.

User Login

User Name:

Password:

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4. Enter your user name and password in the appropriate fields and click the **Login** button.

The Home page appears, and will look similar to the example shown below.

Alcohol Monitoring Network [Home](#) | [Search](#) | [Inventory](#) | [Log Out](#)

Location: [Agent: Agent Agent 2 >](#)

Workload
Activity
Clients
Agent
Schedules
Contacts

Agent: [Agent 2, Agent](#) Case Load: 9 [Add Client](#)

Positives		Tampers		Equipment Alerts		Scheduled Maintenance	
#	Oldest in days	#	Oldest in days	#	Oldest in days	#	Soonest in days
1	122	1	121	12	121	1	-134

[View All](#)

Positives (1)					
Client	Status	TAC Level	Risk	Date/Time	Recd Date
Dwarf, Dopey D	Unresolved	0.113	High	11/10/2001 10:31 PM	11/11/2001

Tampers (1)					
Client	Status	Alert	Severity	Date/Time	Recd Date
Dwarf, Dopey D	Unresolved	Bracelet-Error	Severe-security	11/11/2001 01:31 AM	11/11/2001

Equipment Alerts (12)					
Client	Status	Alert	Severity	Date/Time	Recd Date
Dwarf, Dopey D	Unresolved	NoModemCall	Warning	02/22/2002 07:30 AM	02/22/2002
Dwarf, Dopey D	Unresolved	NoModemCall	Warning	02/23/2002 07:30 AM	02/23/2002
Dwarf, Dopey D	Unresolved	NoModemCall	Warning	02/24/2002 07:30 AM	02/24/2002
Dwarf, Dopey D	Unresolved	NoModemCall	Warning	02/25/2002 07:30 AM	02/25/2002
Dwarf, Dopey D	Unresolved	NoModemCall	Warning	02/26/2002 07:30 AM	02/26/2002
Dwarf, Dopey D	Unresolved	NoModemCall	Warning	02/27/2002 07:30 AM	02/27/2002
Dwarf, Dopey D	Unresolved	NoModemCall	Warning	02/28/2002 07:30 AM	02/28/2002

NOTE: The Location field near the top of the page will help you navigate through the system.

Adding a New Client to the Central Station Database

The following steps illustrate the process of adding a new client to the Central Station database.

1. Click the **Add Client** link near the top right corner of the Home page.

The following page appears.

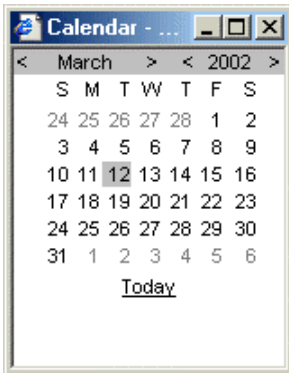
The screenshot shows the 'Add Client' form within the Alcohol Monitoring Network interface. The form is titled 'Add Client' and includes the following fields:

- * First Name:
- * Middle Name:
- * Last Name:
- * Case #:
- File #:
- * DOB:
- * Height: ft. in.
- * Weight:
- * Gender:
- * Date On Program:
- * Expected Date Off Program:
- Notes:

At the bottom of the form are two buttons: 'Cancel' and 'Next >>'.

2. Complete the following fields. An asterisk (*) implies that the field is required.
 - **First Name.** Enter the client's first name.
 - **Middle Name.** Enter the client's middle name, if applicable.
 - **Last Name.** Enter the client's last name.
 - **Case #.** Enter the client's case number.
 - **File #.** Enter the client's file number, if applicable.
 - **DOB.** Enter the client's date of birth.
 - **Height.** Enter the client's height in the appropriate ft. and in. fields.
 - **Weight.** Enter the client's weight.
3. Select the client's gender from the **Gender** drop-down list.
4. Today's date automatically appears in the **Date on Program** drop-down list. You can enter a different date in this field, or click the icon to select the appropriate date from the online calendar.

The online calendar is shown below.



Use the arrows in the upper corners of the calendar to select dates within a month other than the month displayed.

5. Enter the date or use the online calendar to select the date that the client is expected to be off of the program in the **Expected Date Off Program** field.
6. Enter relevant notes or comments in the **Notes** field.
7. When you are finished entering client information, click the **Next** button.

The following page appears.

Alcohol Monitoring Network
Home | Search | Inventory | Log Out

Location: [Agent: Agent Agent 2 >](#)

Workload
Activity
Clients
Agent
Schedules
Contacts

Agent: **Agent 2, Agent** Case Load: 9 [Add Client](#)

Add Client

Addresses

Contact Methods

<p>Type: <input type="text" value="Select A Type"/></p> <p>Address: <input type="text"/></p> <p>City: <input type="text"/></p> <p>State: <input type="text"/></p> <p>Zip: <input type="text"/></p> <hr/> <p>Type: <input type="text" value="Select A Type"/></p> <p>Address: <input type="text"/></p> <p>City: <input type="text"/></p> <p>State: <input type="text"/></p> <p>Zip: <input type="text"/></p>	<p>Primary Contact:</p> <p><input type="text" value="Select A Type"/> <input type="text"/></p> <hr/> <p>Other Contacts:</p> <p><input type="text" value="Select A Type"/> <input type="text"/></p> <hr/> <p><input type="text" value="Select A Type"/> <input type="text"/></p> <hr/> <p><input type="text" value="Select A Type"/> <input type="text"/></p>
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8. In the Addresses section of the page, select the type of address (home address, work address, etc.) you are entering from the **Type** drop-down list.
9. Enter the client's contact information in the following address fields:
 - **Address.** Enter the street address for the designated address.
 - **City.** Enter the city for the designated address.
 - **State.** Enter the state for the designated address.
 - **Zip.** Enter the zip code for the designated address.
10. Enter additional addresses in the appropriate fields as necessary.
11. In the Contacts Methods section of the page, select the primary method of contacting the client from the **Primary Contact** drop-down list. If you select a telephone number or fax number, enter the number in the corresponding field. If you select email or web address, enter the appropriate address in the corresponding field.
12. If you will have secondary methods of contacting the client, enter this information in the **Other Contacts** section of the page.
13. When you are finished entering contact information, click the **Next** button.

The following page appears.

The screenshot displays the 'Alcohol Monitoring Network' web application. At the top, there is a navigation bar with links for 'Home', 'Search', 'Inventory', and 'Log Out'. Below this, the current location is shown as 'Agent: Agent Agent 2 >'. A menu bar contains tabs for 'Workload', 'Activity', 'Clients', 'Agent', 'Schedules', and 'Contacts'. The main content area shows 'Agent: Agent 2, Agent' and 'Case Load: 9', with an 'Add Client' link. Below this is a section titled 'Add Client' and 'Assign Risk Factor'. A note indicates '* Indicates required fields'. The form contains four required dropdown menus: 'Agent' (Select an Agent), 'Risk Factor' (Select a Risk), 'Type of Offense' (Select an Offense), and 'Supervision Level' (Select a Level). At the bottom of the form are 'Cancel' and 'Next >>' buttons. The footer shows the login time 'You logged into the application on 03/12/2002 03:17 PM' and the copyright notice '© 2002, Alcohol Monitoring Systems, LLC'.

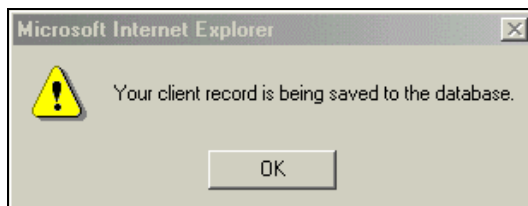
14. Select your name from the **Agent** drop-down list.
15. Assign the client a risk factor level from the options in the **Risk Factor** drop-down list.
16. Select the type of offense that the client committed from the **Type of Offense** drop-down list.

17. Assign the client a supervision level from the options in the **Supervision Level** drop-down list.
18. When you are finished, click the **Next** button.

The following page appears.

19. Indicate how often you want the SCRAM Bracelet to take alcohol readings from the client by selecting the minute interval from the **Minutes** drop-down list.
20. Indicate the times of day that you want the SCRAM Bracelet to send readings to the SCRAM Smart Modem in the **Time 1** and **Time 2** fields.
21. To add more download times, click the **Add Another Time** link on the right side of the page.
22. When you are finished, click the **Next** button.

The following message appears.



23. Click **OK**.

The following page appears.

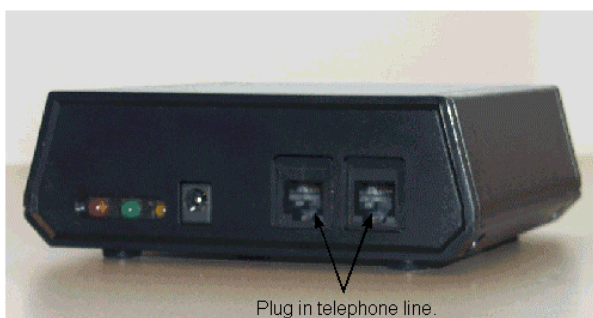
24. Enter the SCRAM Bracelet serial number in the appropriate field, or click the **Find** button to locate the SCRAM serial number in the database and assign it to the client.
25. Enter the Smart Modem serial number in the appropriate field, or click the **Find** button to locate the Smart Modem serial number in the database and assign it to the client.
26. Click the **Next** button.

Now that the client is in the Central Station database, you need to set up the SCRAM Smart Modem.

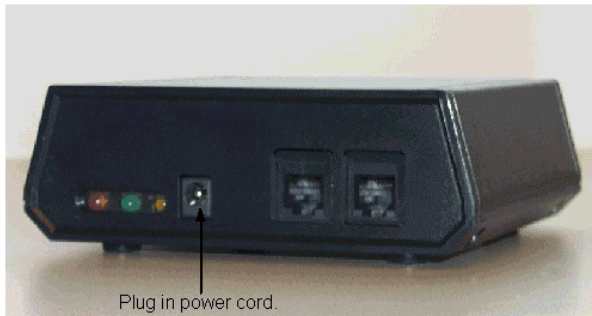
Setting up the SCRAM Smart Modem

The following steps illustrate the process of setting up the SCRAM Smart Modem.

1. Plug a telephone line into either jack.



2. Plug the power cord into the modem and to an electrical outlet. The yellow light will be on when the modem is receiving power.



The SCRAM Smart Modem should be ready to communicate with the other components of the SCRAM system. Now, attach the SCRAM Bracelet to the client's ankle.

Attaching the SCRAM Bracelet to the Client's Ankle

The following steps illustrate the process of attaching the SCRAM Bracelet to the client's ankle. Be sure that the client has washed his ankle with alcohol-free soap before you attempt to attach the bracelet.

1. Open the SCRAM Bracelet. The bracelet will look similar to the example shown below.



2. Wrap the bracelet around the client's ankle, just above the ankle bone. The elastic band should wrap around the back of the ankle and the battery should be on the outside of the ankle.



3. Insert the tamper detection strap into the buckle and place the pegs on the appropriate holes, as shown in the example below.



The SCRAM Bracelet should be movable and the back strap should not contain any tension.

4. Once the bracelet is firmly in place, insert the battery as shown in the example below.



5. Ensure that the client is comfortable wearing the SCRAM Bracelet.
6. Insert the tamper clip, as shown in the example below.

(insert pic)

Now that the client is wearing the bracelet, you need to initialize all components of the SCRAM system.

Initializing All Components of the SCRAM System

The following steps show you how to initialize all components of the SCRAM system and ensure that the components are communicating. Throughout these steps, keep in mind that the yellow light on the modem will be on when the modem is receiving power.

1. After setting up the SCRAM Smart modem and SCRAM bracelet, the green and red lights will begin alternately blinking on the modem.
These lights indicate that the modem is communicating with the Central Monitoring Station.
2. After a short amount of time, the green light will begin blinking on its own.
The blinking green light indicates that modem is attempting to communicate with the SCRAM bracelet.
3. When the modem is able to communicate with the SCRAM bracelet, the red and green lights will begin blinking randomly, not alternately.
4. After a period of time, anywhere from 30 seconds to two minutes, both lights will go out.
This indicates that the SCRAM Bracelet is calibrating and taking alcohol, temperature, and distance readings from the client to determine the client's baseline.
5. After about 30 seconds of blackout, the green light will begin blinking again.
The blinking green light indicates that the modem is waiting for information from the SCRAM.
6. After about three to four minutes, the red light will come on and the green light will turn off.
The red light indicates that the SCRAM is uploading the initial readings to the modem.
7. When the upload process is complete, all lights will go out for about five seconds.
8. The green light will be on solid for about 10 seconds while the modem attempts to communicate with the Central Monitoring Station.
9. The lights will start alternately blinking again while the modem uploads the reading and alert information to the Central Station.
10. When the upload process is complete, all of the lights on the modem turn off, and will remain off during normal operation.

Printing the Program Contract for the Client

After the initialization process is complete, click the **Print Contract** link on the right side of the page. The contract will look similar to the example shown below.

(not able to get capture of contract at this time)

Viewing Agent Workload and Client Activity

Interpreting Data and Resolving Issues

As a program officer, you will receive positive alerts, tamper alerts, equipment alerts, and scheduled maintenance alerts on occasion from the SCRAM system. This section describes what these alerts mean and how to resolve them.

Replacing Equipment

Occasionally, SCRAM system equipment might fail or need to be turned into the program agency for scheduled maintenance. The following steps show you how to replace the SCRAM Smart Modem and the SCRAM bracelet.

Replacing the SCRAM Smart Modem

Replacing the SCRAM Bracelet

Removing and Returning Equipment

When a client completes the alcohol monitoring program, he will need to bring the SCRAM Smart Modem into the program agency's office and have an official remove the SCRAM bracelet from his ankle.

Troubleshooting