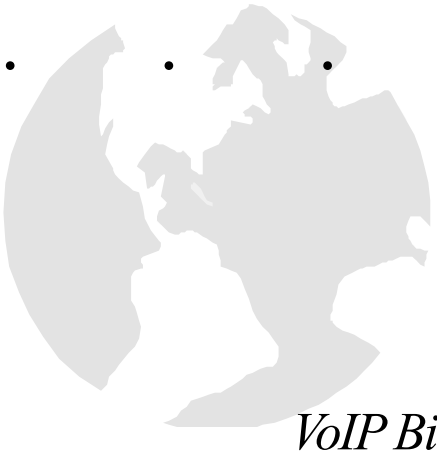
Parwan Electronics Corporation

CardSaver™ VoIP Billing and Call Management



VoIP Billing Solution for Prepaid Calling Cards, ANI Prepaid, Postpaid, Wholesale Reselling, Wholesale Termination, Call Shop & Internet Telephony Service Providers.

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CardSaver™
VoIP Billing & Call Management

About Parwan Electronics Corporation

Founded in 1984, Parwan Electronics Corporation (PEC) is located in Aberdeen, New Jersey, a corporate center just outside of New York City. PEC provides innovative information technology solutions to the telecom industry by providing added services to their customer base. PEC serves clients in the United States, Canada, Europe, South America, Middle East and South Asia. Our customers are distributors, dealers, telephone operating companies, and businesses. We have outstanding long term relationships with our distributors, worldwide dealers, and our direct customers.

PEC's goal is to make the telecom companies more successful by providing them with useful communications software that will make them more competitive and profitable. We serve organizations that are among the largest in the world to small businesses of less than 25 employees.

Throughout PEC's history, we have stayed ahead of the constant and innovative changes of the communications industry. As important decisions impact the industry, PEC introduces solutions to keep our customers competitive and meet the challenging needs of the industry. Our mission is to use the strengths in each of us to continuously improve service and support of our customers' telephone call processing environment profitably.

From local to international, using wireless or wire line technologies, PEC offers a full portfolio of products as well as management and consulting services, ranging from traditional telecommunications products to comprehensive design, security, and professional services.

PEC has a well-rounded 25 years of experience in the telecommunications software industry and has researched and developed feature-rich, cost-efficient, and cost-effective products. PEC's products meet all industry standards and go beyond them to offer you the latest in groundbreaking telecommunication technology. PEC's knowledgeable technical support staff is always available and ready to answer all of your questions and meet any of your demands.

We are one of the few organizations in the world that have strong experience in both the telephone and computer industry. Our computer telephony solutions have been certified by many organizations within the United States and many foreign government communications agencies.

Milestones

1984.
Parwan Electronics Corporation (PEC) was founded in Marlboro, New Jersey, U.S.A by Suraj Tschand, a Bell Laboratories senior engineer. PEC was formed to meet the market demand for voice messaging and interactive telephony products.

1985.
PEC develops the Check Calls system for trucking companies. This allowed truck drivers to enter data using the Touch Tone telephones.

1987.
PEC develops Voice Mail and Auto Attendant systems for the trucking companies. The product is trademarked as VoiceSaver® and is one of the first of its kind. Truck drivers now have an efficient means of communication with their base office and their families at home.

1988.
International Voice Exchange of Salt Lake City, Utah, U.S.A. now Calware selects PEC to provide Voice Mail systems for the franchisees of the company.

1988.
The DialSaver™ Autodialer is introduced to the PEC product line. DialSaver is used for direct marketing, non-profit use, and political campaigns.

1989.
Mobile Data Systems, later acquired by Motorola, begins to deploy the voice processing systems developed by PEC.

1990.
The incumbent candidate of the presidential election in Venezuela chooses DialSaver to market his campaign. He is successful and returns to office. DialSaver is used by other South American countries.

1991.
PEC enhances its products to support digital trunks (such as T1/E1) with different communications protocols for the United States, Canada, and Europe.

1992.
Portugal Telecom certifies the digital PEC Voice Products for the Portuguese market. PEC begins to market its products in Portugal.

1993.
Hungary, Czech Republic, Poland, and Romania certify PEC's entire line of voice processing products. PEC begins to market its products throughout Eastern Europe.

1994.
BPL Telecom Ltd. of India, the largest telecom group in India, selects PEC Voice Products for the Indian Market. The systems are used by Coca-Cola, Oracle, Texas Instruments, Sheraton Hotels, Bombay Cellular, IBM, and many other companies.

1996.
PEC introduces its line of Windows NT based voice processing products. PEC also introduces its line of OS/2 based voice processing products. PEC ships 60 Windows NT based units after the first month of product introduction.

1997.
PEC enhances its products to support the Telephony Signaling 7, ISDN Europe. The applications for the product include: Voice Mail, Call Routing, Fax processing, Conferencing, Cal l routing, and Interactive Voice Response (IVR).

Mid-1997.
PEC purchases a 7,000 square foot office building in Aberdeen, New Jersey, U.S.A. which is 35 miles south of Manhattan. PEC relocates its operations from Englishtown, New Jersey to the new location in Aberdeen.

1998.
PEC introduces the Reminder™ package which helps the medical industry to make outbound calls to remind patients about their appointment date and time.

PEC USA

1999.
PEC adds the features Voice to Email, Fax to Email, and Email notification to its software. Also, PEC adds the multi-party conferencing feature to its messaging software platform.

2000.
PEC adds support for TNPP over the Internet, which is a feature used by the paging companies.

September, 2000.
PEC introduces the TimeSaver Predictive Dialer to its product line. TimeSaver is used by inbound and outbound call centers to market and support their products and services.

Early-2001.
Tecore Corporation, a premier manufacturer of cellular phone switches, starts selling the messaging platforms from PEC along with their switches. PEC adds the Short Message Service (SMS) support to its software.

March, 2002.
PEC introduces the CardSaver VoIP (Voice over Internet) Billing and Call Management software to its line of telecom Products. CardSaver is initially designed to support billing for the VoIP termination business.

June, 2002.
To reach a larger market, CardSaver is enhanced to support prepaid calling cards and postpaid calling services. Within six months, CardSaver is installed in over 50 sites around the world.

February, 2003.
PEC opens its first international branch. Located in New Delhi, India, the Indian branch is given the task to promote and support sales throughout Southeast Asia and Eastern Africa.

June, 2003.
Pulse, Inc., the largest reseller of Quintum VoIP gateways, chooses PEC's CardSaver as its preferred VoIP billing and call management software.

October, 2003.
PEC enhances the TimeSaver predictive dialer to support VoIP. This breakthrough enables international call centers to have their dialers situated in one country and their agents located in another without incurring any long distance charges.

March, 2004.
In order to meet increased demands, PEC relocates its Indian branch to a larger 3,000 square foot office in the Greater Kailash section of New Delhi.

December, 2004.
PEC adds VoIP Support to its VoiceSaver Voicemail & IVR Product. Both SIP & H323 are supported for incoming and outgoing calls.

March, 2005.
PEC adds ITSP Support to its Cardsaver Billing Solution allowing for ITSP Service Providers provide Complete Billing for their Internet Telephony Customers.

October, 2005.
PEC adds CallShop Support to its CardSaver Software allowing for an easy interface to manage seats within CallShops.

January, 2006.
PEC purchases a 10,000 square foot office building in Noida, India which is 5 miles south of New Delhi, India. All the Indian staff are moved from Greater Kailash to Noida.

PEC India

March, 2006.
PEC adds Credit Card Support to its CardSaver Billing Solution allowing customers to recharge their accounts 24 hours a day/7 days a week. All transactions can be monitored by an administrator.

February, 2007.
PEC adds a complete Reseller Interface, where agents can easily administer customer accounts, and retain commissions for sales made. There is full logging of all transactions for accountability and for agents to see their sales/commissions.

December, 2007.
PEC starts provide USA Local DID (Direct Inward Dialing) Origination Services to provider higher quality service to its customers.

June, 2008.
PEC provides full Cisco VoIP-VoIP Support for Calling Card and Pinless Services allowing for higher quality sound and more features.

October, 2008.
PEC provides Cisco Administration within Cardsaver Web Interface allowing customers to administer calling routes directly from the Cardsaver Interface and not have to learn the Cisco CLI (Command Line Interface) administration.

March, 2009.
PEC adds Automatic Recharge Functionality to the Cardsaver Product. This allows customer accounts to be setup with a credit card number on file. When the customers balance falls below a specified threshold, an automatic charge is placed on their credit card and their balance is recharged.

May, 2009.
PEC provides Direct Dial Support to the Cardsaver product. This allows a customer to dial a specified access number and the system automatically dials a direct dial number that the customer has specified.

August, 2009.
PEC provides Least Cost Routing (LCR) support to the Cardsaver product. This allows the Call Routing to be based on the lowest pricing from the carriers.

November, 2009.
PEC provides direct Asterisk integration with Cardsaver.

February, 2010.
PEC adds Callback support to Cardsaver.

June, 2011.
PEC announces the release of an upgraded version of its popular DialSaver Multiuser Dialout Systems. The new system allows individual web-based access and management by several users on one system, thus offering convenience, complete control and easy administration.

January, 2012.
PEC introduces three FREE iPhone Apps:

- CardSaver iAgent APP
- DialSaver APP
- Free Toll Free APP

February, 2012.
PEC offers Toll Free Termination over VoIP (Free Service).
PEC announces the release of its new and upgraded DialSaver Auto Dialer Systems as the first ever Multi-user Web Enabled software package in the market.

CardSaver Billing Software

CardSaver is a truly complete turnkey billing solution for voice services, offering all the necessary features demanded by today's voice service providers along with added features to propel them ahead of their competition. The CardSaver software may be managed from any Web browser from anywhere in the world with security and ease-of-use that is unmatched in the industry. This flexible management interface enhances the provider's ability to stay ahead of the market by being able to make immediate updates and changes to the system. CardSaver offers the same flexibility and convenience to end-customers that it provides to providers. The customers have full access to view and update their account information and account balance online through any browser, from any Internet connection in the world.

The platform is used effectively for numerous voice solutions. For companies that wish to offer service for Prepaid/Postpaid/ANI-Prepaid/ANI-Postpaid Calling Cards, PEC CardSaver Software is the ideal solution. Unlike many other software packages in the market, it is both powerful and extremely simple to use.

When the call is made on a Local or Toll Free number, the Local Telephone Company routes the call to the Quintum/Cisco Media/VoIP Gateway. The Gateway sends a RADIUS (Remote Authentication Dial-In User Service) packet to the Platform and based on the number dialed, the Platform asks the caller to enter the PIN (Personal Identification Number). If the PIN entered is valid, the gateway plays to the callers the balance and asks the caller to enter the desired long distance destination number. The software calculates the amount of time available for the call based on the rate table assigned to the customer's account. Then the system plays the amount of time available for the call to the caller. The connection between the caller and the called party is made by routing the call through the defined carriers. Once the call is disconnected, the Voice Gateway sends a Radius packet to the platform indicating the call has disconnected. The software then deducts the appropriate amount of funds from the caller's account.

The RADIUS (Remote Authentication Dial-In User Service) protocol has become the industry standard that is widely used for billing and other management applications to control network access. The process is often referred to as authentication, authorization and accounting (AAA). RADIUS provides standardized message formats for transmitting and receiving keypad input, account data, authorization codes and other information between access gateways.

The CardSaver software may be managed from any web browser such as Microsoft Explorer, Firefox, Safari, and Google Chrome from anywhere in the world with security and ease-of-use that is unmatched in the industry. This flexible management interface enhances the provider's ability to stay ahead of the market by being able to make immediate updates and changes to the system.

CardSaver offers the same flexibility and convenience to end-customers that it provides to providers. The customers have full access to view and update their account information and account balance online through any browser, from any Internet connection in the world. In addition, using PEC's CreditSaver Credit Card Authorization Module, customers can easily recharge their accounts securely via credit card online.

CardSaver Applications:

- Prepaid/Postpaid Calling Cards
- Prepaid/Postpaid ANI/Caller ID Based Services
- Prepaid/Postpaid long distance
- Wholesale Reselling Services (Postpaid/Prepaid)
- Wholesale Termination (Prepaid/Postpaid)
- Call Shop Support
- IP Phone(CPE) Prepaid/Postpaid Calling
- Internet Telephony Service Providers (ITSP)
- IP-PBX
- Callback

Additional application variations that can be implemented, contact PEC for further information:

- Prepaid customer support services
- Prepaid medical services
- Prepaid Audio text and Music services
- Prepaid Legal Services
- Prepaid business conferencing services
- Prepaid chat services
- Prepaid Translation Services

Prepaid/Postpaid Calling Card Application

Prepaid calling cards are one of the most highly used ways to make cost effective domestic and international calls. Customers have the ability to control and know in advance what the cost of a call would be without worrying about being charged exorbitant fees from their local or long distance providers.

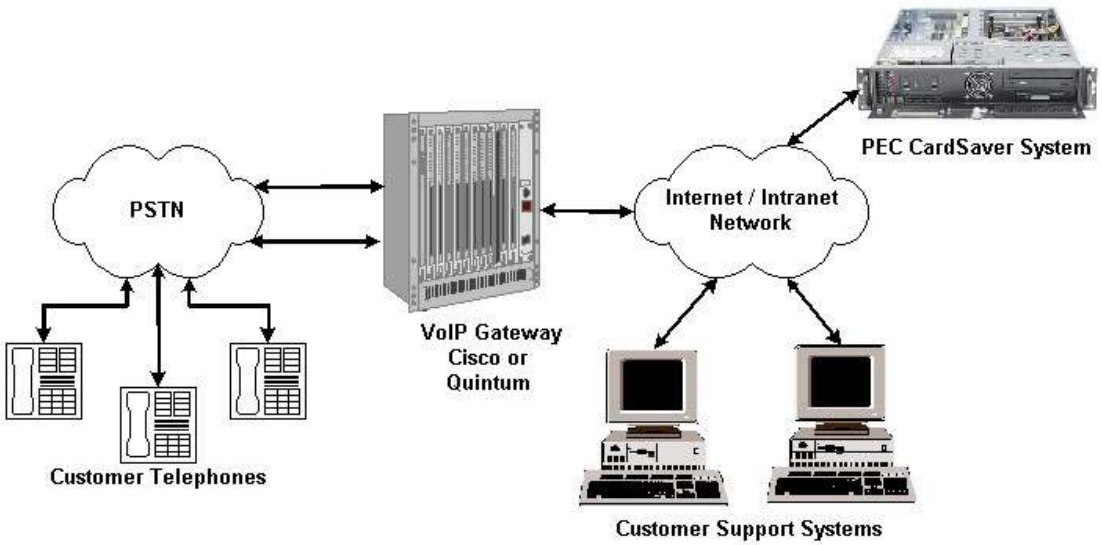
In addition, specified customers may be provide PIN accounts which are postpaid. Invoices can be generated and sent to postpaid customers as agreed upon with the customers.

The CardSaver PIN Generator is used to create batches of calling card numbers that have the same characteristics. Each batch can have unique characteristics, such as fees, value, expiration date, etc. Card numbers (PIN) are generated randomly using a configurable pattern that can contain up to 12 digits. The program verifies in the database to ensure that a PIN is unique. Each card is also assigned a unique serial number, which is used to track an account without a customer giving a customer service representative his PIN.

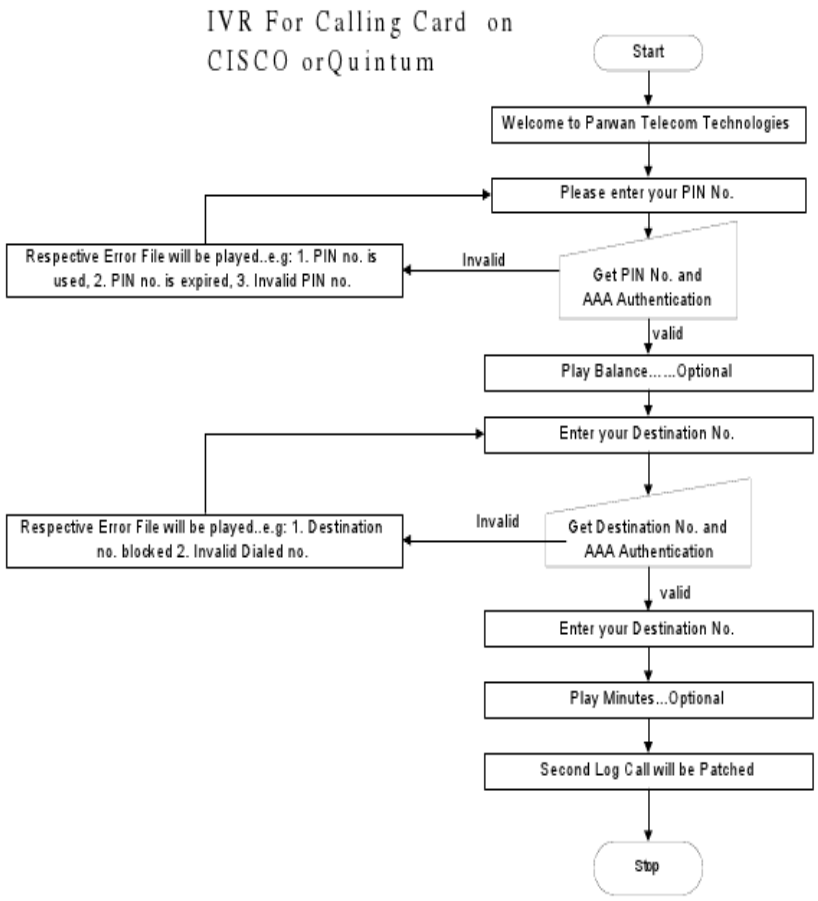
PINs are generated in a batch, and each PIN within a batch has the attributes of the batch. The attribute are:

- Batch number
- Number of PINs generated for that batch
- PIN pattern
- Card value *
- Initial fee *
- Periodic fee and period length in days *
- International rate tables *
- National rate tables *
- Number of card's valid days *
- Absolute expiration date *

*Can be modified after creation
The numbers generated are added to the system's Card Database.



IVR for Calling Card on CISCO or QUINTUM



The IVR Call Flow is customizable as per the requirement. Cisco's dial peer will be configured to run a TCL for prepaid.

Prepaid/Postpaid ANI Based Services

When utilizing the Prepaid ANI (Automatic Number Identification AKA Caller ID) based calling feature you can offer access to specified customers without the customer having the hassle of remembering numerous PIN numbers. When the call is made from a phone number that is registered within the "trusted numbers" of your CardSaver system, CardSaver uses the ANI's matched account number to automatically authenticate the caller.

In the case of pre-paid accounts, the customer may see the status of his account online. The customer has the ability to check the number of calls made, the phone numbers of the calls, duration, charges of the calls, and many more options.

Benefits that can be offered to ANI based Customers

- Easy Calling (No Pin Numbers Required)
- Multiple ANI's tied to the same account. Calls from the home phone, work phone and cell phone billed to the same account.
- Easy access to long distance facility anytime, anywhere
- Easy recharging of accounts
- Low financial commitment
- No fear of misuse of long distance calling facility
- Control on expenses
- Complete account control via the World Wide Web
- Up to 99 speed dials per account
- Last number redial functionality
- Automatic recharge

Employees

- Allow employees to make international calls that are tacked to their account. This allows for employee call tracking, cost controls, and further billing.

Features

- Flexible integrated billing system installed at central server, thereby, generates all billing details for all classes of users.
- Database Management
- Multi-lingual prompts, giving option to the user of choosing a supported language
- Account and balance details of a user
- Rating in different currencies
- Card activation and expiration schemes
- Service access codes
- Restricted calling times and numbers
- Recurring charges
- Call routing capabilities.

When combining ANI based billing with a postpaid calling card you can then offer the customer complete hassle free long distance calling. In this case there will never be a time when the card needs to be charged in the middle of a call. Every call made is included in a monthly bill, either mailed monthly or taken directly out of a credit card after a set increment of time or by usage of credit. This type of service appeals to the end-users significantly since they can use your service as naturally as they would use the telephone services that they have grown accustomed to.

From the customer's standpoint, Post-Paid calling cards have slightly higher rates than prepaid calling cards, but the connection fees and billing increments are much less. Also, they pay only for the minutes used; there are no expiration dates on their minutes since they pay for them after being used.

Postpaid calling card services also offer subscribers ongoing access to the long distance network. As with prepaid calling cards, the postpaid service is often hosted by a wholesale carrier to improve profitability. The main difference between prepaid and postpaid calling card services is that service authorizations under the postpaid model are not tied to call rating and services do not expire, except in the case of a limited-credit postpaid service. Since call rating does not happen in real time, more pricing schemes and bundling options are feasible. Wholesalers bill their carrier customers after calls have been made and the carriers in turn bill their end users.

Prepaid/Postpaid Long Distance

Utilizing the Cardsaver Billing Solution and VoIP Gateways, you can provide Prepaid/Postpaid Long Distance Services to your customers. A call may originate from a PSTN line, authenticated by CardSaver, and then routed through VoIP or TDM.

Wholesale Reselling and Termination

CardSaver may be used as a billing and call monitoring solution by VoIP wholesale and termination providers. PEC understands that wholesale businesses can deal with high volumes of traffic and often very low profit margins, and thus has developed a product that can support the necessary requirements of the industry. With CardSaver you can terminate and track VoIP traffic for thousands of customers at a time.

CardSaver supports both Wholesale Resale Tracking and Wholesale Termination Tracking:

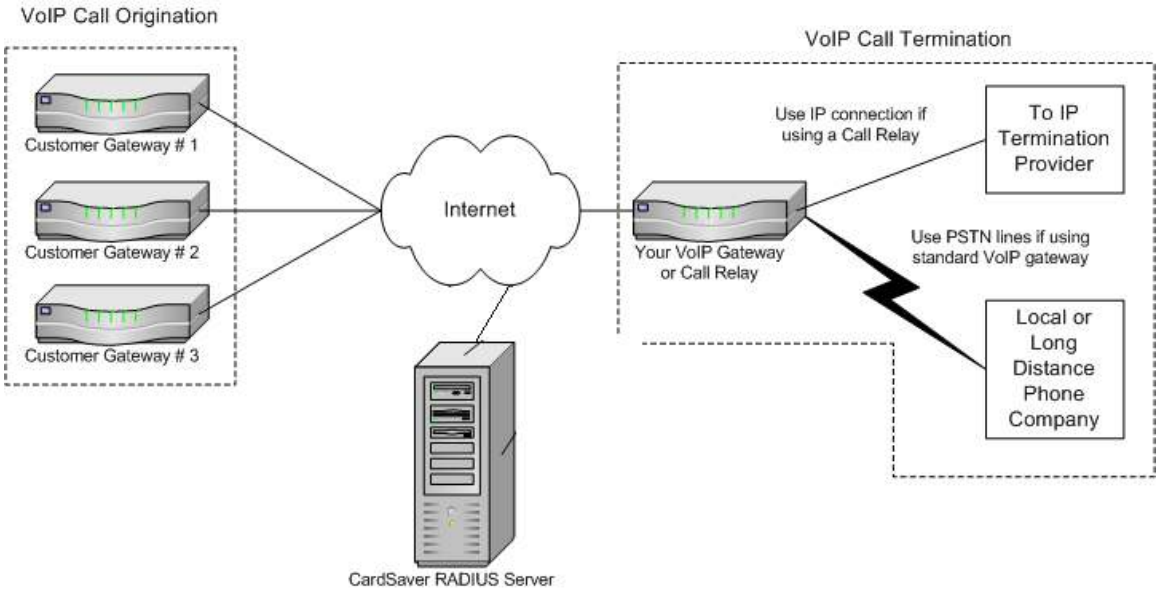
Wholesale Reselling:

Wholesale reselling allow resellers who have routes through various termination (long distance) providers to purchase these routes at cost effective prices. Resellers are then able to resell these routes to their customers at higher rates then they are buying at, and make the margin in through the process.

Wholesale reselling is usually sold to other long distance carriers, Call Shops, Prepaid Calling Card Companies, enterprises, etc. Cardsaver fully supports the complete tracking of all these calls, keeping track of the cost of the calls, based on the route that is used, as well as the amounts the calls are being sold at. Profit/Loss for each route/destination is tracked by Cardsaver. Cardsaver also provides complete invoicing, graphs, and call reporting for wholesale reselling.

Wholesale Termination:

Wholesale Termination is the concept of having VoIP/TDM equipment in one or more specific destinations, where long distance carriers, wholesale resellers, or end customers send you calls. Cardsaver fully supports the complete tracking of all these calls, keeping track of the cost of the calls, based on who is sending the calls and how much to charge for the calls. Profit/Loss for all calls are also tracked by Cardsaver. Cardsaver also provides complete invoicing, graphs and call reporting for wholesale termination.



Call Shop

A Call Shop is a location where callers can come to and make both domestic and international calls. Most call shops are used for callers to make international calls, and tend to be in tourist locations, Countries where calling from a normal phone or mobile phone is too expensive or poorer areas where callers do not have their own phone lines. A Call Shop customer would come into the call shop and either pay for the call that they are going to make in advance or once the call is over, depending on the call shop.

Cardsaver has a module designed specifically for Call Shops, where a CallShop Manager, would be able to track all the available seats in the Call Shop from a single user interface, enabling the seat as a customer comes into the Call Shop, and defining the customer as either a prepaid or postpaid customer.

IP Phone Prepaid/Postpaid Calling

IP Phones are located at customer's sites, and allow them to make calls through your VoIP Network. An IP Phone generally looks like a standard phone set except for the fact that it connects through the Internet rather than the POTS Line. IP phones allow customers to make calls as simple as normal telephone calls, without the hassles of a phone cards, or going to a call shop, but still providing much more cost efficient pricing. Cardsaver provides full support of IP phones, and even allows multiple IP phones to be part of the same account for corporate clients. Cardsaver provides functionalities for prepaid and postpaid customers, as well as online invoicing and recharging of accounts online. IP Phone Only services are generally used for outbound calling only.

Internet Telephony Service Providers (ITSP)

Internet Telephony Service Providers (ITSP) are providers of phone service through the Internet for both Inbound and Outbound Calling. ITSPs are rapidly growing in the worldwide market, because of cost saving to the customer, flexibility and features for the customer. ITSP's provide customers with an IP Phone, or PC Dialer that are connected either to their broadband internet connection or through a Dial-Up Internet connection. ITSP's provide each customer with his own phone number that anyone can dial, and it will ring on his IP Phone/PC Dialer. ITSP provide such features as Call Waiting, Call Forwarding, Call Transfer, Call Conferencing, Voicemail and many more.

CardSaver provides full billing support with many SIP Server solutions to allow customers to launch a complete and successful ITSP.

IP-PBX

IP-PBX's are being used to replace traditional PBX's (Office Phone Switches). They provide the same functionalities as traditional PBX's, without the requirements of using proprietary phone sets, and providing additional remote flexibility. Using an IP-PBX a customer can connect their IP phone in their home/office/other remote locations, and they are able to receive and make calls as if they are in front of their desk in their office. They can transfer and forward calls and conference other parties into a call, while still utilizing their standard voicemail. Cardsaver can provide full authentication and accounting for all calls made through the IP-PBX to provide businesses with call accountability and tracking.

Callback

Callback is a functionality that allows customers to trigger the CardSaver System to call them and after answer provide dial tone. Then customer may make a call to another destination. This feature is highly used overseas where long distance charges are extremely expensive.

Network Topography

CardSaver runs on a computer that communicates with the various VoIP Equipments within the customers network, including but not limited to VoIP Gateways, VoIP Relays, Soft Switches, IP-PBX's, Sip Servers, or IP Phones. All communications between the VoIP Equipment and the Cardsaver is done using the RADIUS protocol. The Cardsaver RADIUS Server component accepts Authentication, Authorization and Accounting Requests from the Authorized Equipment. The server can then use the inputted data to identify the customer, verify their identity, check the account status, and send back response messages in RADIUS format, instructing the equipment whether or not to proceed with the call.

CardSaver Features:

Reports & Statistics

- Generate Hourly, Daily, Monthly, or Yearly Graphs on Calls
- Extremely User Friendly
- Generate Summary Reports/Invoices to send to Resellers
- Generate Accurate Call Summaries to send to Wholesale/Termination Providers
- View Reports on Customer Service Credits issued
- View Detailed Summaries and Invoices of all User Calls
- View Performance of all Prepaid/Postpaid Accounts
- View Agent/Reseller Performance
- Generate Profit/Loss Statements for Wholesale or Calling Cards
- Set the Date/Time Format you wish to display based on the country.
- View Live Calls

Rate Tables

- Create Unlimited Rate Tables
- Rate Tables based on Destination Number (DNIS)
- Rate Tables support 1 second - 60 minute billing.
- Bill differently during Day, Evening, and Night Hours
- Import Rate Tables directly from XLS, CSV or TXT files
- Export Rate Tables to CSV or TXT file.

Calling Card

- Create Prepaid, Postpaid, ANI-Postpaid, or ANI-Prepaid Accounts
- Generate unlimited random PINs instantly between 8 and 16 digits long.
- Assign to different Resellers and Rate Tables
- Supports H323 & SIP Protocol for IP Phone Usage
- Export the Card Information and PINs and send directly to printer
- Charge Maintenance, Disconnect, and Activation Fees
- Expire cards X days after first date of use
- Charge Toll-Free and Payphone Surcharges
- Apply Surcharges based on the ANI (Caller ID) or Dialed Number (DNIS)
- Play Dollar/Minutes remaining in the card
- Allow multiple ANI users for each Account (Great for corporate customers)
- Allow End-Users to recharge their Accounts online
- Play Messages to callers in the middle of the call

IP Phone/ITSP/IP-PBX

- Create Prepaid, Postpaid Accounts
- Assign accounts to different Resellers and Rate Tables
- Supports H323 and SIP protocols
- Charge Maintenance, Disconnect, and Activation Fees
- Expire Accounts X days after first date of use
- Apply Surcharges based on the ANI (Caller ID) or Dialed Number (DNIS)
- Allow multiple users for each Account (Great for corporate customers)
- Allow End-Users to recharge their Accounts online
- Support for Call Forwarding, Call Transfer, Call Waiting

Wholesale Reselling and Termination

- Create Prepaid, Postpaid Accounts
- Assign accounts with different Rate Tables
- Supports H323 and SIP Protocol
- Full Reporting, Invoicing, Call Details and Graphs
- Prefix Manipulation
- Flexible Tracking based on Origination Customers and Termination Gateways
- Ability to control numbers of simultaneous calls allowed per customer
- Allow multiple IP addresses per customer

Call Shop

- Supports both Prepaid/Postpaid Accounts
- Supports H323 and SIP Protocol
- Full Reporting, Invoicing, Call Details and Graphs
- Walk In Customer Invoice Generation
- Call Shop interface to manage each Call Shop Seat
- Multiple Call Shops can be managed using a single Cardsaver system

Callback

- Supports both Prepaid/Postpaid Accounts
- Supports H323 and SIP Protocol
- Full Reporting, Invoicing, Call Details and Graphs
- ANI Trigger Support
- DNIS Trigger Support
- Web based Trigger Support
- PIN based Trigger Support
- Bill each leg of the call independently
- Control whether to play the balance/minutes per account.

Manage System Users

- Create 4 Different User Types (Administrator, Agent/Reseller, Customer Service, or Account Holder/End-User
- Allow Account Holders to view balances and pay bills online.
- Create/Modify System Users & Permissions
- Set Maximum Usages for all Wholesale Carriers (End Point Authentication)

Security

- System tracks all user activity including IP Address.
- ANI (Caller ID) blocking for X number of bad attempts.
- Highly encrypted logins for secure access.
- Secure data with CardSaver's Database backup utility

Global Applications

- Supports International Date/Time Formats
- Supports Multiple Languages
- Supports Multiple Currencies
- Supports Customized Greetings and Messages to Callers
- Supports Toll-Free and Remote Area Calls

Product Strength and Reliability

- Runs on Robust Operating Systems (Windows 2000, XP, Vista, 2003, 2008).
- Fully scalable: 8 to 5000 ports (simultaneous callers).
- Unit can be upgraded in increments of 8-ports.
- No performance degradation due to multiple call handling.
- Heavily tested on systems with up to 100 million calls per month.

List of Features of the CardSaver Software

Feature	Standard	Optional
800 Surcharge	□	
Activation Fees	□	
Agent/Wholesaler Interface	□	
ANI Prepaid/PostPaid Accounts	□	
Archival of Data	□	
Automated Backup	□	
Batch PIN Generation	□	
Callback Support		□
Call Shop Interface & Support		□
Cisco Support (IOS must be confirmed in advance)	□	
Cisco Easy Routing from Web Interface	□	
Connection Fees	□	
Copy/Search/Update RateTables	□	
Credit Card Purchase and Recharge Module		□
Customer PIN Holder Interface	□	
Customer Service Credits Reports	□	
Customer Service Interface	□	
E-mail Ability(Invoices, Graphs, etc)	□	
Email Invoices in PDF Format, with CDR	□	
Endpoint Authentication	□	
Expiration Dates set based on first date used of card	□	
Firewall Security	□	
IP-PBX Module		□
IP Phone Support (Basic)	□	
ITSP Module		□
Least Cost Routing (Cisco Only)	□	
Maintenance Fees	□	
Multiple Rate Tables	□	
Multiple User Login Ability	□	
MySQL Database Support	□	
PIN Activation Reports	□	
PIN Disablement	□	
PIN Exporting (For Card Printing)	□	
PIN Management	□	
PIN Prepaid/PostPaid Accounts	□	
RADIUS Server	□	
Rate Table Export Feature	□	
Rate Table Generation	□	
Rate Table Import Feature	□	
Rate Table Management	□	

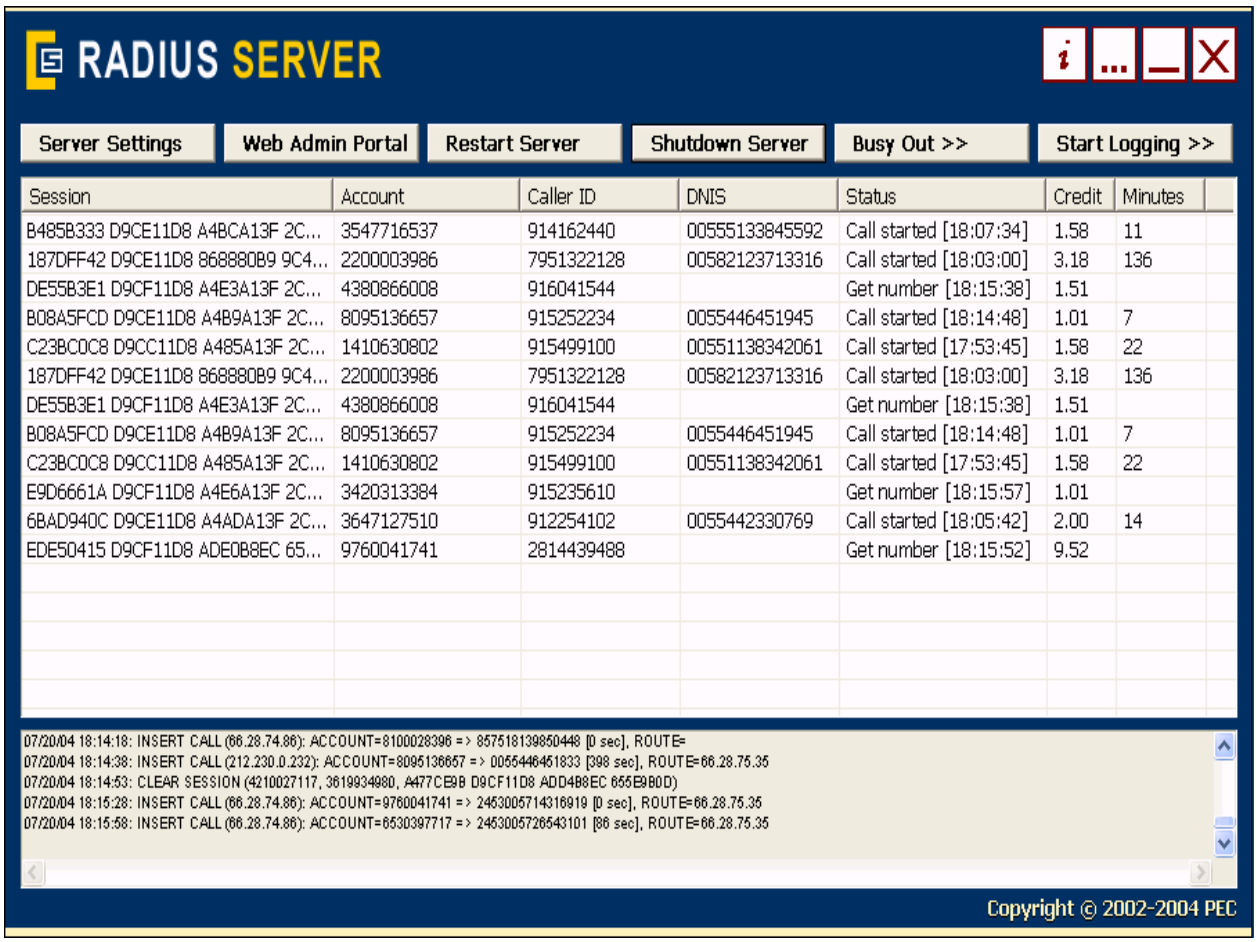
Reseller Module	□	
Routing Control per Card Group (Cisco Only)	□	
Search/Update PINS	□	
Set RateTable Billing Increments	□	
User Security Log	□	
Wholesale Billing	□	
Wholesale Graphs	□	
Wholesale Statements/Reports Wholesale Reselling and Termination Module	□ □	

Phone Based Features

Last Number Redial (Customer dials 0# to redial the last number dialed)	□	
Speed Dial Support (Up To 99 per user)	□	
Direct Dial Support (Cisco Only)	□	
User Option Features (Customer dials * to enter user options) 1. Add Phone Number to the account (makes pin based account pinless) 2. Remove Phone Number from the account 3. Manage Speed Dials 4. Recharge account with Credit Card 5. Recharge account with a recharge (top off) pin number	□	
## Next Call Support (Dial ## to make another Call)	□	
Low Balance Notification (Play a message to the caller to let them know their balance is running low)	□	
Play a different welcome (greeting) message per access number	□	
Multiple Language Support	□	
Multiple Currency support	□	

The Radius Server

The PEC Radius Server is shown below. For each session, the Radius Server logs the start and end times, the account number, the origin of the call (ANI or Caller ID), the dialed number (DNIS), the duration of the call, the amount of credit available for the call.



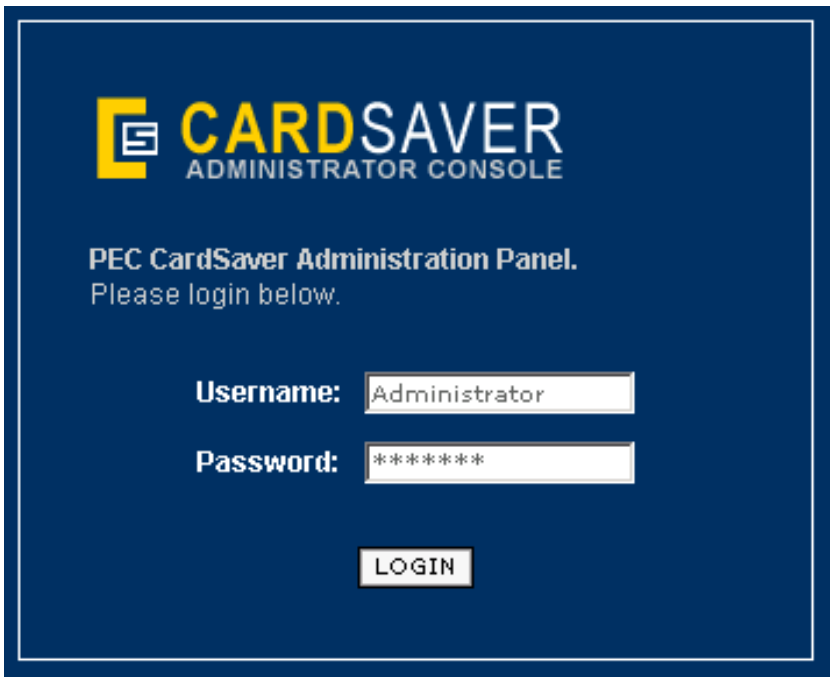
The CardSaver Web Interface

System Accessibility

Your CardSaver system can be accessed from any web browser, from anywhere in the world. The CardSaver Web interface has been designed to provide quick and simple functionality to allow effective navigability for all system users.

System Security

The CardSaver interface has also been designed with security in mind. A secure login system provides security to ensure that no unauthorized users will be able to access your CardSaver system. Below is the initial login screen to the CardSaver Administration Panel.



User Types

There are four unique login types that can access the CardSaver Administration Panel: **Administrator**, **Agent (Reseller or Distributor)**, **Card Account Holder (End-user),** and **Customer Service Representative**.

- **Administrator:** This is the system administrator. The Administrators have full access to the CardSaver system. Administrators have permission to modify the Agent, Card, Access Number, and Rate Table databases for all users of the system. They can also modify the user interface for all users.

- **Agent:** This is the card distributor or reseller that is responsible for distributing the card. Agents have limited access to the CardSaver system. Agents have permission to view

reports and statistics on all card accounts assigned to them in the Card Table. Agents do not have permission to modify the Card Table or credit accounts.

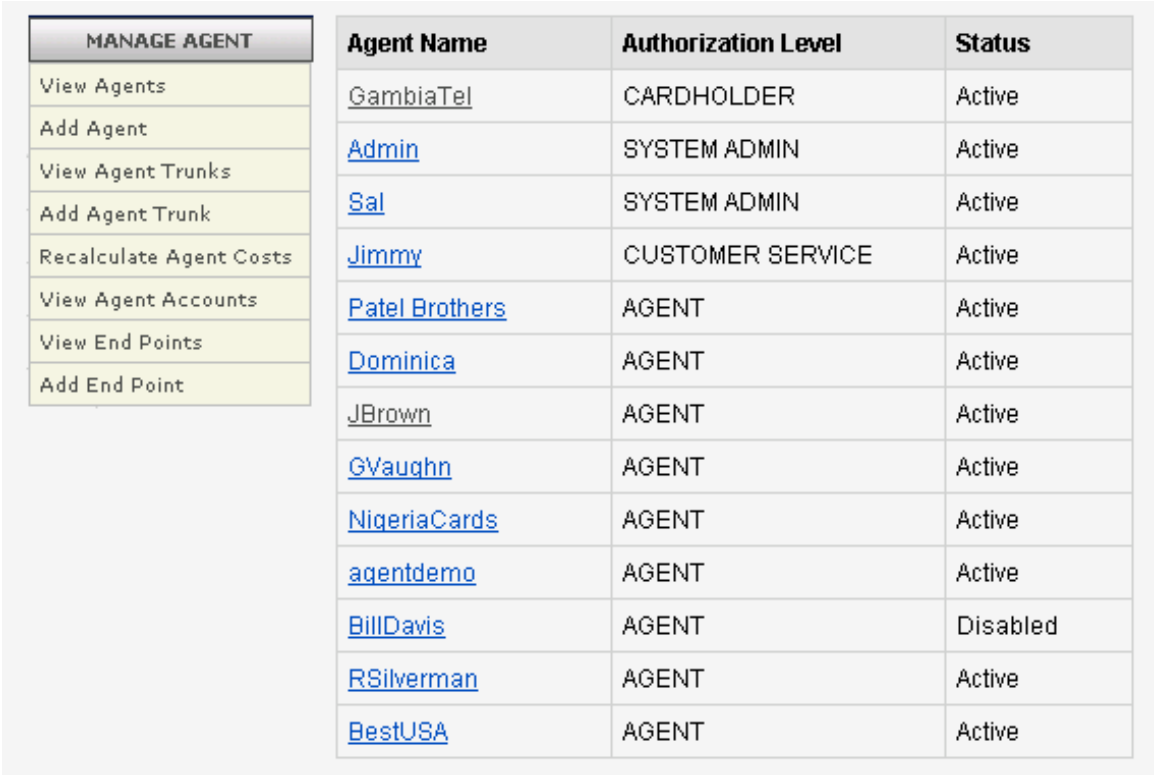
- **Account Holder:** This is the card end-user. The Account Holder has limited access to the CardSaver system. Account holders have permission to view reports on all call details pertaining to their own account, including the durations and costs of calls. An Account Holder also has the ability to recharge his account with a credit card or electronic check via the web interface.

- **Customer Service:** This is the login for the Administrator's Customer Service Representative. The Customer Service Representative can settle disputes by viewing detailed call information and determining whether or not to issue credit to cardholders. Each Customer Service Rep is allowed to issue credit up to an amount specified by the Administrator.

Administrator Agent Management

After logging in as an Administrator, selecting "**Manage Agent**" from the system menu accesses the CardSaver Agent Management system. The Agent Management system allows Administrators to easily add and remove users, manage user permissions, modify specific user information, and view agent account statistics.

The Agent Table is shown below. It contains all Administrators, Agents, and Account Holders that have access to the CardSaver system.

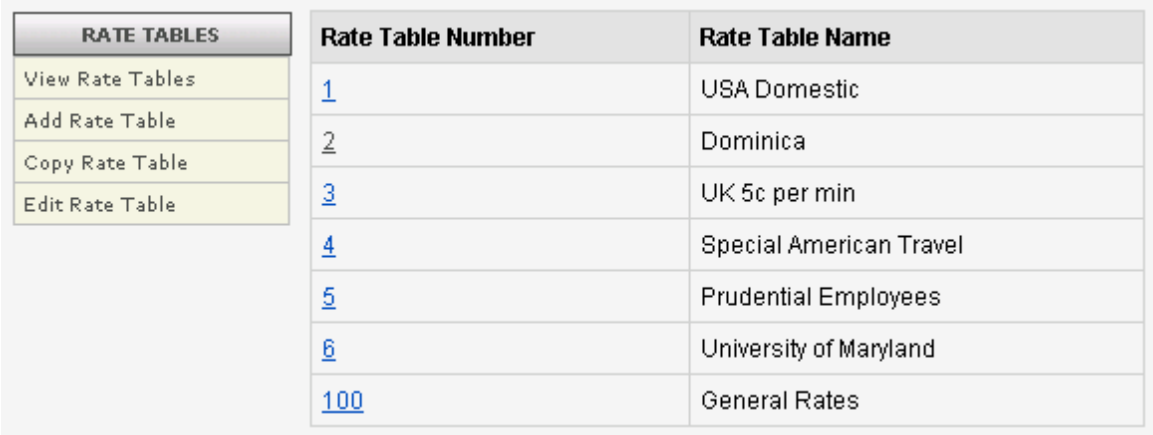


Agent Name	Authorization Level	Status
GambiaTel	CARDHOLDER	Active
Admin	SYSTEM ADMIN	Active
Sal	SYSTEM ADMIN	Active
Jimmy	CUSTOMER SERVICE	Active
Patel Brothers	AGENT	Active
Dominica	AGENT	Active
JBrown	AGENT	Active
GVaughn	AGENT	Active
NigeriaCards	AGENT	Active
agentdemo	AGENT	Active
BillDavis	AGENT	Disabled
RSilverman	AGENT	Active
BestUSA	AGENT	Active

The Rate Table

The Rate Table is a database table that provides cost information for many different carriers and many different rate plans per carrier. The rate table also gives you the ability to bill differently for calls made during day, evening, night, and late night time periods and lets you charge different rates for weekends and holidays.

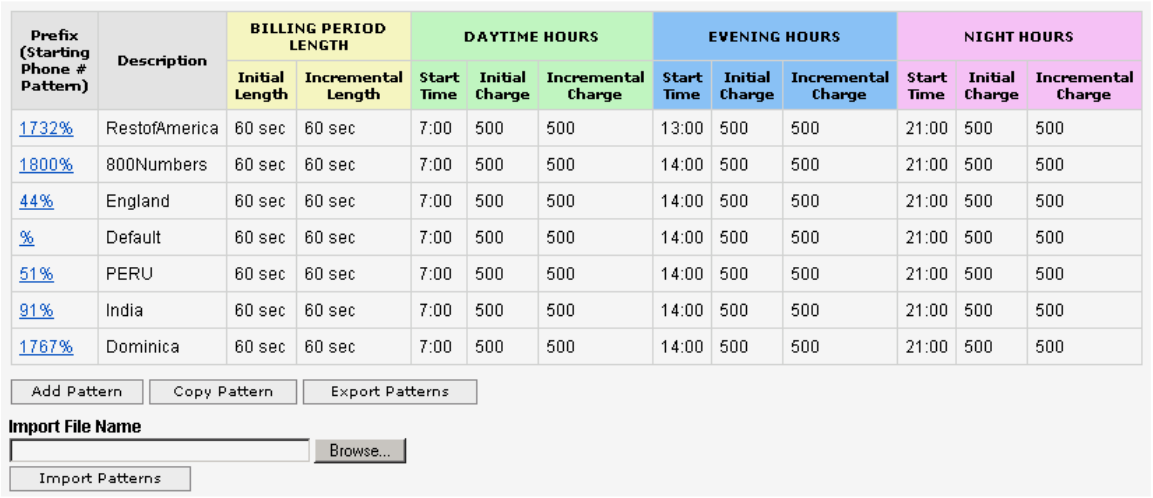
You may view the list of Rate Tables from the Administrator's Screen by selecting "**Rate Tables**" and then "**View Rate Tables**." The example below contains six rate tables, but you may add as many as you wish.



RATE TABLES
View Rate Tables
Add Rate Table
Copy Rate Table
Edit Rate Table

Rate Table Number	Rate Table Name
1	USA Domestic
2	Dominica
3	UK 5c per min
4	Special American Travel
5	Prudential Employees
6	University of Maryland
100	General Rates

By selecting a particular Rate Table Number, CardSaver will display the details of that specific table. The following screen shows the data for Rate Table Number 4, Special American Travel.



Prefix (Starting Phone # Pattern)	Description	BILLING PERIOD LENGTH		DAYTIME HOURS			EVENING HOURS			NIGHT HOURS		
		Initial Length	Incremental Length	Start Time	Initial Charge	Incremental Charge	Start Time	Initial Charge	Incremental Charge	Start Time	Initial Charge	Incremental Charge
1732%	RestofAmerica	60 sec	60 sec	7:00	500	500	13:00	500	500	21:00	500	500
1800%	800Numbers	60 sec	60 sec	7:00	500	500	14:00	500	500	21:00	500	500
44%	England	60 sec	60 sec	7:00	500	500	14:00	500	500	21:00	500	500
%	Default	60 sec	60 sec	7:00	500	500	14:00	500	500	21:00	500	500
51%	PERU	60 sec	60 sec	7:00	500	500	14:00	500	500	21:00	500	500
91%	India	60 sec	60 sec	7:00	500	500	14:00	500	500	21:00	500	500
1767%	Dominica	60 sec	60 sec	7:00	500	500	14:00	500	500	21:00	500	500

Add Pattern | Copy Pattern | Export Patterns

Import File Name

Browse...

Import Patterns

As an example, in the case above, if a caller wishes to dial "1-732-566-8800" during the specified evening hours (13:00 to 21:00), CardSaver will accept the transaction, and the caller will be charged 70 cents for the first 60 seconds and 5 cents for each additional 60 seconds.

The Account Database

By selecting "**Card Accounts**" from the side menu, you can access the Calling Card Database. This Calling Card Database is a database that provides information on any specific calling card. Specifically, you are able to see the date on which acard was first used, the card's current status (disabled or active), the used-value of the card, the type of card, the expiration date on the card, etc.

As an Administrator, you may see the entire list of Accounts or Cards. The following screen shows a sample of the cards in the database:

SerialNo	PIN	GroupID	BatchNo	Owner	Rate Table	Type	Expiration	Value	Status	Used	Details	
101000	340586501874	123	100	BillDavis	UK 5c per min	PrePaid	12/05/2003	45.0000	0	.0000	Invoice	Calls
101001	291287113407	123	100	Dominica	UK 5c per min	PrePaid	12/05/2003	45.0000	0	.0000	Invoice	Calls
101110	3456	11122	73	JBrown	UK 5c per min	PrePaid	01/12/2004	30.0000	0	.3000	Invoice	Calls
101491	000794078691	11122	76	NigeriaCards	UK 5c per min	PrePaid	01/12/2004	30.0000	0	.0000	Invoice	Calls
101621	001580480206	11122	78	RSilverman	UK 5c per min	PrePaid	01/12/2004	30.0000	0	.0500	Invoice	Calls
101622	12345	134	0	BestUSA	Dominica	PrePaid	12/01/2005	30.0000	0	.0900	Invoice	Calls
10000002	3003850168	0	0		USA Domestic	PrePaid		.0000	0	.0000	Invoice	Calls
10000003	62231332718200	122	200		Special American Travel	PrePaid	12/31/2004	10.0000	0	.0000	Invoice	Calls
10000004	12230316481625	122	200		Special American Travel	PrePaid	12/31/2004	10.0000	0	.0000	Invoice	Calls
10000005	72231436145285	122	200		Special American Travel	PrePaid	12/31/2004	10.0000	0	.0000	Invoice	Calls

Previous 1-10 of 534 Next

By selecting "**Invoice**," on the far right, you can generate an invoice for an agent for a specific calling card account. This invoice includes a detailed list of all the calls this cardholder has made within a specific billing period. The invoice is shown is for the card with serial number 101110.

PEC CardSaver Invoice Back Save Email Print Date: 07/02/2003

Vendor	Serial No	PIN	Invoice Number	Billing Period
JBrown	**101110**	**3456**	**JBrown-101110-1057166988**	

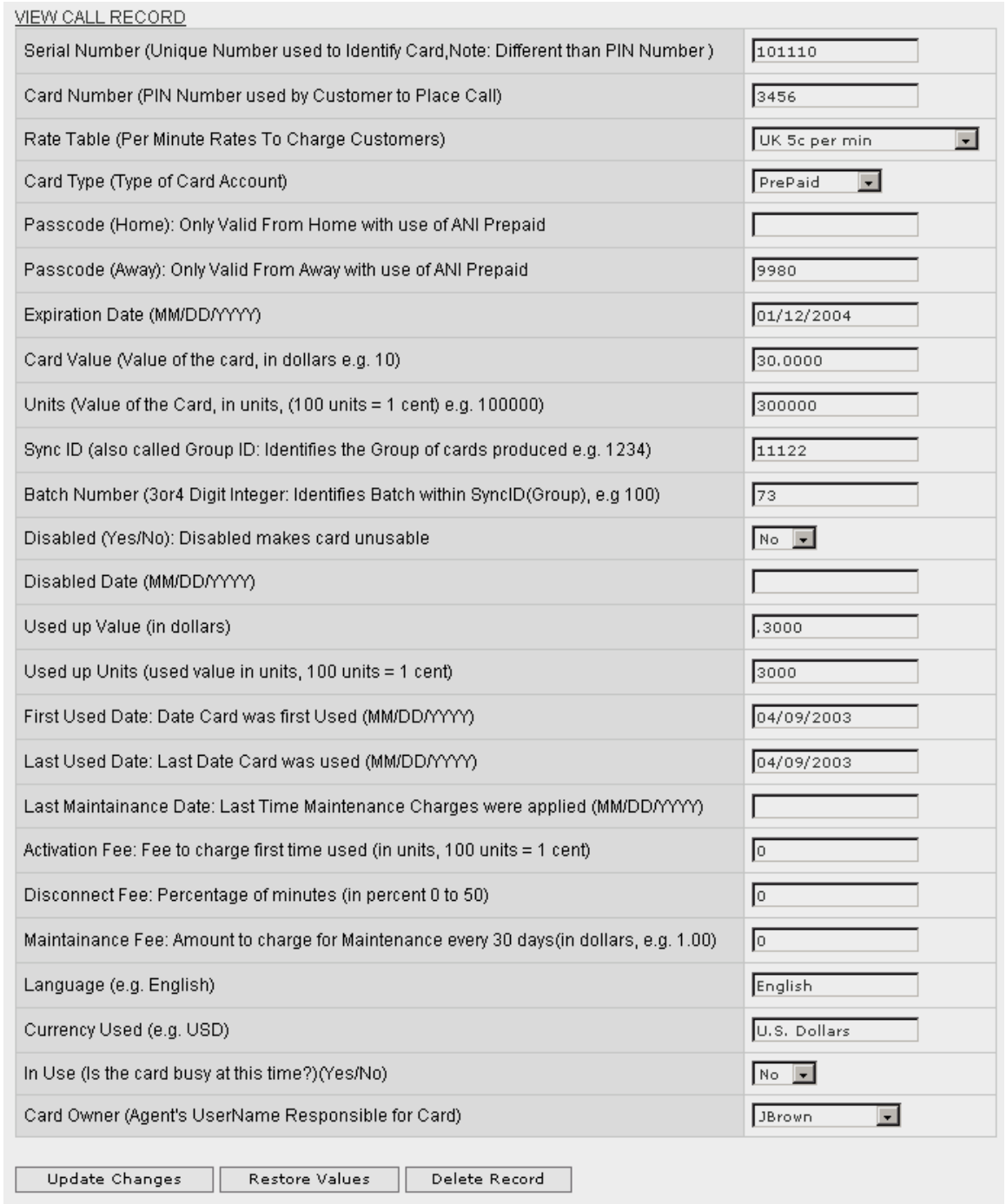
Vendor Info

Company	Address
Brown Enterprises	**45 East Hanover Dr., Matawan, New Jersey, 07747, USA**
	Phone: 732-290-1000, Email: jbrown@brownent.com

Call Detail Summary

Caller ID	Destination	Connect Time	Disconnect Time	Minutes	Amount
	7325551212	04/09/2003 16:50:38	04/09/2003 16:50:53	1:00	0.05 U.S. Dollars
	17325551212	04/09/2003 16:51:21	04/09/2003 16:51:33	1:00	0.05 U.S. Dollars
	17325551212	04/09/2003 16:51:58	04/09/2003 16:52:04	1:00	0.05 U.S. Dollars
	17325551212	04/09/2003 16:52:24	04/09/2003 16:52:31	1:00	0.05 U.S. Dollars
	17325551212E	04/09/2003 16:53:00	04/09/2003 16:53:11	1:00	0.05 U.S. Dollars
	173255551212	04/09/2003 16:53:35	04/09/2003 16:53:42	1:00	0.05 U.S. Dollars
Subtotal	**6 Calls**			**6:00**	**0.3 U.S. Dollars**

To view the details about a specific card account, click on the serial number. For serial number 101110, the following details appear:



VIEW CALL RECORD

Serial Number (Unique Number used to Identify Card,Note: Different than PIN Number)	101110
Card Number (PIN Number used by Customer to Place Call)	3456
Rate Table (Per Minute Rates To Charge Customers)	UK 5c per min
Card Type (Type of Card Account)	PrePaid
Passcode (Home): Only Valid From Home with use of ANI Prepaid	
Passcode (Away): Only Valid From Away with use of ANI Prepaid	9980
Expiration Date (MM/DD/YYYY)	01/12/2004
Card Value (Value of the card, in dollars e.g. 10)	30.0000
Units (Value of the Card, in units, (100 units = 1 cent) e.g. 100000)	300000
Sync ID (also called Group ID: Identifies the Group of cards produced e.g. 1234)	11122
Batch Number (3or4 Digit Integer: Identifies Batch within SyncID(Group), e.g 100)	73
Disabled (Yes/No): Disabled makes card unusable	No
Disabled Date (MM/DD/YYYY)	
Used up Value (in dollars)	.3000
Used up Units (used value in units, 100 units = 1 cent)	3000
First Used Date: Date Card was first Used (MM/DD/YYYY)	04/09/2003
Last Used Date: Last Date Card was used (MM/DD/YYYY)	04/09/2003
Last Maintainance Date: Last Time Maintenance Charges were applied (MM/DD/YYYY)	
Activation Fee: Fee to charge first time used (in units, 100 units = 1 cent)	0
Disconnect Fee: Percentage of minutes (in percent 0 to 50)	0
Maintainance Fee: Amount to charge for Maintenance every 30 days(in dollars, e.g. 1.00)	0
Language (e.g. English)	English
Currency Used (e.g. USD)	U.S. Dollars
In Use (Is the card busy at this time?)(Yes/No)	No
Card Owner (Agent's UserName Responsible for Card)	JBrown

Update Changes | Restore Values | Delete Record

Call Data Record (CDR):

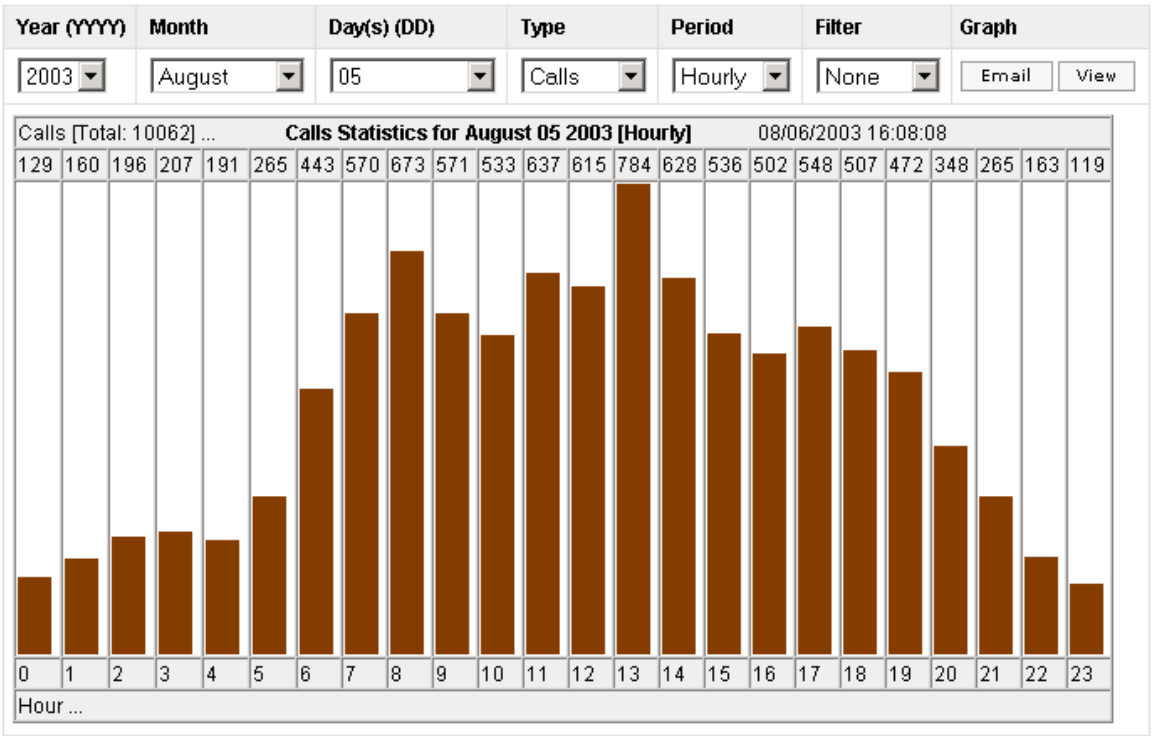
The Call Data Record provides the most in-depth information about the calls that have been made from a single point of presence.

This information is sent over the Internet from the PSTN access provider to the Card Saver server and stored locally in a file. These text files are then saved daily and named accordingly. When CardSaver reads the data file it can generate customer statistics based on issues such as: Call elapsed time, Numbers called, Average call duration, rate table used, expense, etc…

This information can then be made to generate call statistics every day at the end of the day and save the report to file or send it via e-mail to a supervisor or end-user. The information can then be stored locally for as long as desired so that statistics from one day, month, or year can be compared to show elapsed business growth.

Graphical Reporting

CardSaver allows all of the Agents/Resellers to view detailed reports of every call that has originated or terminated through them. Aside from the detailed call summaries, Agents/Resellers have the capability to use CardSaver's powerful graphical reporting utility. View graphs broken down by hour, day, or month, for the total number of calls, total duration of calls, ASR, and revenue generated from calls. The following graph is an example of what the graphical reporting utility looks like.

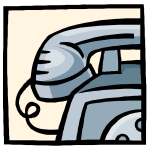


Dealer Report

A dealer has the responsibility of distributing prepaid calling cards or prepaid services in the market. CardSaver maintains information on the use of the minutes and separated by the dealer.

There will be several ways for the Dealer Report to be accessed by a dealer remotely. The first method reads the amount of minutes and other desired information after entering in a PIN over the phone. Another method of remotely providing information is through the email. At a certain time everyday the system can send an email with the preferred statistics to a desired address. These two features allow the dealer to be fully aware of how the system is running from anywhere in the world at all times. Another would be to go onto the CardSaver server through an Internet browser and receive all the information desired.

Accounting Information Access from the Phone:



Customers can access accounts from any telephone in the world or via the Internet. Intuitive, voice-prompted menus guide customers through all stages of account validation, service usage and balance recharge. The menu is a completely interactive interface minimizing the need to talk to a live representative.

Multiple service requests can be processed during a single call session, conserving both the customer's time and system resources. The most convenient and productive way to access the account would be over the Internet. This allows for the visual perspective and gives the customer a sense of control.

Customer Support Call Processing:

PEC is absolutely dedicated to the successful launch of your billing solution. To each of our customers, we assign an experienced program manager who supervises a cross-discipline team, highly skilled in business planning, installation and implementation, service development, and service rollout. We will, as a team, work with your account so when it is completely implemented it will be a smooth problem-free process striving for 100% customer satisfaction.

Credit to Customers and Complaint Handling

For any complaints on the calling card, the cardholder is able to check all of the records on the card in the Call Record for Customer Support, by going online and filling out a complaint form. This database records the called phone numbers, date/time of the calls made, duration of the calls, memory on the card, card's hardware and software, what kind of card the caller holds, where the calls were made from, etc. The record of the card is based on the cards PINs. This database gives the cardholder the ability to check his or her card record.

Handling disputes from International Carrier

The CardSaver Platform keeps detailed logs of all calls including call duration, caller ID of the person accessing the system, call destination, and many more details about the calls. Using the information that our software logs and the associated organization, makes finding the information that you want very simple, and enables you to handle any kind of disputes from international carriers.

Avoiding Abuse and Fraud

Customer fraud can take the form of customers trying multiple combinations of username and password. In the PEC system randomly generates PINs make it difficult to guess the valid PINs. As well, CardSaver's ANI Authentication allows for secure authentication. With IP Phone Authentication, Cardsaver securely authenticates each packet of data coming via the MD5 encryption to avoid fraud. VoIP Gateways and IP Phones are authenticated securely using MAC Addresses and secured SIP usernames and passwords. Simultaneous calling is blocked in the PEC system. Account can be limited to support only one session at a time.

Credit Card Module: Purchase/Recharge PIN via Internet

Rechargeable Prepaid Accounts offer the convenience of having a single account (Calling card or IP Phone) that does not expire. Keep your account and recharge it as many times as you want, while keeping detailed reports of all recharges and new purchases.

Purchasing/Starting a New Account:

1. User visits the company web site and clicks on purchase option.
2. User makes a selection for the value of the account.
3. User enters the credit card number and the expiration date of the card and clicks to confirm.
4. The system displays the new PIN and access number or Account Information after validating the credit card data, and sends it to them via E-mail.

To recharge your account:

5. User visits the company web site and logs into his account.
6. User makes a selection to recharge his account, and selects the amount to recharge.
7. User enters the credit card number and expiration date and clicks to confirm.
8. The system validates the credit card data and displays the confirmation to the customer.

VoIP and TDM Overview

IP Protocol Technical Specifications:

The Internet Protocol (IP) is the method or protocol by which data is sent from one computer to another on the Internet. Each computer (known as a host) on the Internet has at least one IP address that uniquely identifies it from all other computers on the Internet. When you send or receive data (for example, an e-mail note or a Web page), the message gets divided into little chunks called packets. Each of these packets contains both the sender's Internet address and the receiver's address. A packet is sent first to a PC that understands a small part of the Internet. The PC reads the destination address and forwards the packet to an adjacent PC that in turn reads the destination address and so forth across the Internet until one PC recognizes the packet as belonging to a computer within its immediate neighborhood or domain. That PC then forwards the packet directly to the computer whose address is specified.

Switching Overview (Circuit and Packet)

There are a few terms that one must understand before realizing the tremendous efficiency of Voice-Over IP (VoIP). When a normal telephone call is placed between one person and another person down the street for instance, a method of switching called Circuit Switching is used. Circuit Switching is an age old and proven technology that has been around for over 120 years! What Circuit Switching actually does is make a connection from the phone in one house through the CO (Central Office) to the next home, which is held for the entire length of the call. For this dedicated connection someone has to pay for the connection to be made and for it to stay connected and used. A voice channel over a normal phone line is 64 Kilobits per second and is transmitting data in both directions the entire time. This wastes a great deal of bandwidth because a good percentage of a telephone conversation is silence since only one person is usually talking at a time. In conclusion, Circuit Switching dedicates a 64 Kilobit connection up and down for a total of 128 Kilobytes of data being transferred for this call per second. To do some simple math say the call lasts 40 minutes in a normal conversation, a total of 38,400 Kilobytes of information (also roughly equivalent to 38.4 Mega-bytes) either way is transmitted. This is a huge amount of information that is being transferred. That being said we shall move on to Packet Switching.

One of the most amazing things that the Internet entails is a massive amount of routing redundancy. For instance the “World Wide Web” is tangled so tightly that if one strand in the web is broken it is very likely that you can find another way to your destination. And once connected to the Internet, the customer doesn’t pay for anything else, therefore the rest is free, meaning you don’t have to pay for the amount of information downloaded. When a connection is made from one Voice-Over IP to another they basically acknowledge that they will both transmit and receive data from each other on both sides of the connection, data is only sent and received when there is activity coming from or to, otherwise there is no data being transmitted thereby allowing more calls to be made at the same time over a limited amount of bandwidth. To finish the comparison, VoIP could easily knock out half of the bandwidth needed for one phone call; this would leave that extra bandwidth for other calls that could be made simultaneously on the same line.

The switching in these two scenarios clearly has their differences, now we can move on to the theory behind IP Telephony and the benefits it has over the legacy system.

IP Telephony

Voice over IP takes advantage of the "free" aspect of the Internet. It definitely costs money to connect to the Internet although once you are connected you can literally communicate with someone on another continent for free. Voice over IP uses the Internet to transmit phone singles and eliminate the need for an international long distance transport services, thus saving large amounts of money.

PSTN Interface Specifications

PSTN (public switched telephone network) is the world's collection of interconnected voice-oriented public telephone networks, both commercial and government-owned. It's also referred to as the Plain Old Telephone Service (POTS). Today, it is almost entirely digital technology except for the final link from the central (local) telephone office to the user.

In relation to the Internet, the PSTN actually furnishes much of the Internet's long-distance infrastructure. Because Internet service providers ISPs pay the long-distance providers for access to their infrastructure and share the circuits among many users through packet-switching.

Product Strengths

- No perceived performance degradation due to multiple call handling.
- Very easy to install and setup. Our staff could have the system up and running in minutes.
- Fully scalable: 8 to 1000's of ports.
- Full support for T1, E1, Analog & SIP lines (requires RADIUS based VoIP Gateways)
- Fully customizable to suit your needs.
- Complete control from anywhere via the Internet.
- Automated customer service available.
- Easy to read reports, statistics, and graphs.
- Portable, system can go anywhere you go with an Internet connection.
- Cost- effective.
- Customer satisfaction
- Calling Card Support
- Pinless Calling Support
- Speed Dial Support
- Agent Reseller Support
- Flexible Fees
- Least Cost Routing
- 24/7 Availability

Interconnection Relationships

PEC'S RELATIONSHIPS WITH OTHER VENDORS

PEC will help you establish relationship with the following service providers:

Long Distance and International Carriers
If you do not have a long distance or international carrier to work with, PEC will introduce you to some of the companies we work with. PEC will also make sure that your service is technically compatible with the services they offer. There are many international and domestic carriers. In general you do not have to sign any contract with the Voice carriers. They are very eager to do business with you.

Dedicated Internet Service Providers
For voice communications, you need a dedicated internet service. This assures there is no quality of sound degradation. PEC will introduce you to some of our favorite service providers and your platform should work flawlessly with it. PEC will negotiate the technical specifications and other issues related to your work.

Co-location Facility
If you do not have your own telecom facilities, PEC will help you locate a location where your telecommunications platform is installed and interconnected to the worldwide telecommunications infrastructure. There are many co-location spaces in the country, but most of them are only suited for providing Internet Services. Make sure the co-location space that you select has connectivity to the Public Switched Telephone Network (PSTN).

Card Printing
We will introduce you to companies that print the pre-paid calling cards. They undertake the function of design and quality printing. However If you want to market through Internet, you may not need to print cards.

Parwan Electronics Corporation (PEC):

URL:	http://www.pecbilling.com
Customer Support:	1-732-290-1900
Fax:	1-732-566-8771
URL:	http://www.pecbilling.com
Email:	sales@voicesaver.com
Twitter:	@ VoiceSaver