

60042680



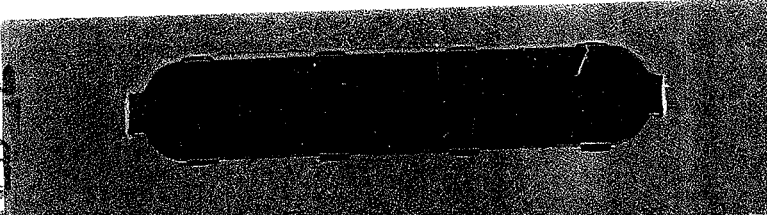
04/03/97

Subclass

Class

ISSUE CLASSIFICATION

SCANNED - 2



TE AMC

PROVISIONAL

SERIAL NUMBER  
607042,680  
PROVISIONAL

FILING DATE  
04/03/97

CLASS

SUBCLASS

GROUP ART UNIT

EXAMINER

APPLICANTS

PAUL G. BANIAK, ST. LOUIS, MO; KRISTIN CHAMBERS, AUSTIN, TX;  
KATHERINE L. KREIN, ST. LOUIS, MO; CHRISTOPHER H. ROLWES, ST. LOUIS, MO;  
TERRY L. VIETH, ST. LOUIS, MO; TRACY L. BROKAW, ST. LOUIS, MO; MARY B.  
CLARK, ST. LOUIS, MO.

\*\*CONTINUING DATA\*\*\*\*\*  
VERIFIED

\*\*FOREIGN/PCT APPLICATIONS\*\*\*\*\*  
VERIFIED

FOREIGN FILING LICENSE GRANTED 09/06/97

Foreign priority claimed  
35 USC 119 conditions met

☐ yes ☐ no  
☐ yes ☐ no

AS  
FILED

STATE OR  
COUNTRY  
MO

SHEETS  
DRWGS.  
5

TOTAL  
CLAIMS

INDEP.  
CLAIMS

FILING FEE  
RECEIVED  
\$150.00

ATTORNEY'S  
DOCKET NO.  
V15538

Verified and Acknowledged

Examiner's initials

ADDRESS

BRODE H BERNSTEIN  
GREENBLUM & BERNSTEIN  
1941 ROLAND CLARKE PLACE  
RESTON VA 20191

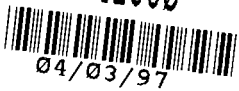
TITLE

PROFILE MANAGEMENT SYSTEM INCLUDING USER INTERFACE FOR ACCESSING AND  
MAINTAINING PROFILE DATA OF USER SUBSCRIBED TELEPHONY SERVICES

U.S. DEPT. OF COMM./PAT. & TM—PTO-436L (Rev.12-94)

SCAN 2mc  
OC

40397 U.S. PTO  
60042680



04/03/97

APPROVED FOR LICENSE



# PATENT APPLICATION



60042680

INITIALS

*1-19-16*

Date  
Entered  
or  
Counted

Date  
Received  
or  
Mailed

## CONTENTS

*4-3-97*

1. Application \_\_\_\_\_ papers.

2. *Right of Access* \_\_\_\_\_ *1-19-16*

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

6. \_\_\_\_\_

7. \_\_\_\_\_

8. \_\_\_\_\_

9. \_\_\_\_\_

10. \_\_\_\_\_

11. \_\_\_\_\_

12. \_\_\_\_\_

13. \_\_\_\_\_

14. \_\_\_\_\_

15. \_\_\_\_\_

16. \_\_\_\_\_

17. \_\_\_\_\_

18. \_\_\_\_\_

19. \_\_\_\_\_

20. \_\_\_\_\_

21. \_\_\_\_\_

22. \_\_\_\_\_

23. \_\_\_\_\_

24. \_\_\_\_\_

25. \_\_\_\_\_

26. \_\_\_\_\_

27. \_\_\_\_\_

28. \_\_\_\_\_

29. \_\_\_\_\_

30. \_\_\_\_\_

31. \_\_\_\_\_

32. \_\_\_\_\_

6

POSITION		ID NO.	DATE
CLASSIFIER			
EXAMINER		Diane Russele	9-4-97
TYPIST		MR	9-7-97
VERIFIER		NO	9/6
CORPS CORR.			
SPEC. HAND			
FILE MAINT			
DRAFTING			

40397 U.S. PTO

60042680



04/03/97

PATENT APPLICATION SERIAL NO. \_\_\_\_\_

U.S. DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICE  
FEE RECORD SHEET

PTO-1556  
(5/87)

350 SC 05/16/97 60042680  
1 114  
150.00 CK V15538



TITLE OF THE INVENTION

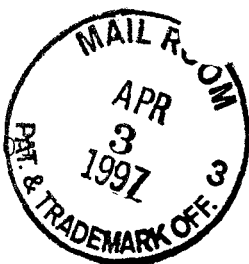
PROFILE MANAGEMENT SYSTEM INCLUDING  
USER INTERFACE FOR ACCESSING AND MAINTAINING PROFILE  
DATA OF USER SUBSCRIBED TELEPHONY SERVICES

INVENTORS

Katherine L. KREIN  
Christopher H. ROLWES  
Paul G. BANIAK  
Tracy L. BROKAW  
Kristin CHAMBERS  
Mary B. CLARK  
Terry L. VEITH

V15538.S01

V15538.S



TITLE OF THE INVENTION

PROFILE MANAGEMENT SYSTEM INCLUDING  
USER INTERFACE FOR ACCESSING AND MAINTAINING PROFILE  
DATA OF USER SUBSCRIBED TELEPHONY SERVICES

5

RELATED APPLICATION DATA

10 The present disclosure is related to the disclosure provided in the U.S. patent application (Attorney Docket No. P14718) filed concurrently herewith, entitled "Apparatus and Method for Facilitating Service Management of Communications Services in a Communications Network", in the names of Larry JOST et al., the disclosure of which is expressly incorporated herein by reference in its entirety.

COPYRIGHT NOTICE

15 A portion of the disclosure of this patent document contains material which is subject to copyright protection. The copyright owner has no objection to the facsimile reproduction by anyone of the patent disclosure, as it appears in the U.S. Patent and Trademark Office patent files or records, but otherwise the copyright owner reserves all  
20 copyrights whatsoever.

BACKGROUND OF THE INVENTION

1. Field of the Invention

25 The present invention generally relates to the field of telecommunications. More particularly, the present invention relates to a user interface, such as a personal computer (PC) interface, for accessing and maintaining profile data of a user's subscribed telephony service.

2. Acronyms

30 The written description provided herein contains acronyms which refer to various telecommunications services, components and techniques, as well as features relating to the present invention. Although some of these acronyms are known, use of these acronyms is not strictly standardized in the art. For

V15538.S01

purposes of the written description herein, acronyms will be defined as follows:

Access Codes (ACODEs)  
Advanced Intelligent Network (AIN)  
5 Computer Access Restriction (CAR)  
Common Channel Signaling (CCS)  
Central Office (CO)  
Calling Party Numbers (CPNs)  
Call Processing Record (CPR)  
10 Data and Reporting System (DRS)  
Flexible Computer Interface Format (FCIF)  
Feature Identifier (FID)  
Integrated Service Control Point (ISCP)  
Local Area Network (LAN)  
15 Personal Computer (PC)  
Positive ID (PID)  
Service Creation Environment (SCE)  
Service Control Point (SCP)  
Service Management System (SMS)  
20 Service Switching Point (SSP)  
Signaling Transfer Point (STP)  
Transaction Capabilities Applications Part (TCAP)  
Transmission Control Protocol/Internet Protocol (TCP/IP)  
User Interface (UI)  
25 Wide Area Network (WAN)  
Working Telephone Number (WTN)

### 3. Background Information

In recent years, a number of new telephony service features have been implemented and provided by an Advanced  
30 Intelligent Network (AIN). The AIN evolved out of a need to increase the capabilities of the existing telephone network architecture and meet the growing needs of telephony customers. The AIN architecture generally comprises two

V15538.S01

networks, a data Messaging network and a trunked communications network. The trunked communications network handles voice and data communications between dispersed network locations, whereas the data Messaging network is provided for controlling operations of the trunked communications network.

An illustration of the basic components of an AIN network environment is shown in Fig. 1, which is provided to facilitate communication between a plurality of network locations or stations 72-86. As shown in Fig. 1, Central Offices (COs) 64-71 are provided for sending and receiving data messages from a Service Control Point (SCP) 56 via one or more Signaling Transfer Points (STPs) 51, 53 and 59. The data messages are communicated to and from the COs 64-71 and the SCP 56 along a Common Channel Signaling (CCS) network 88. Each CO 64-71 may serve as a network Service Switching Point (SSP) and may be equipped with CCS capabilities, which provides for the two-way communication of data messages between each SSP and the SCP 56 via CCS network 88. These data messages may be formatted in accordance with Transaction Capabilities Applications Protocol (TCAP).

Each CO 64-71 serving as a network SSP may route AIN-service related telephone calls between a calling station (e.g., station 72) and a called station (e.g., station 84) based on instructions received from the SCP 56. The SSPs 64-71 may be connected by trunked communication lines 90 to transport voice and/or data signals, and each of the stations may be connected to one or more SSPs 64-71 through private or dedicated telephone lines 93. In AIN-type call processing, the originating SSP is responsible for: identifying calls associated with AIN services; detecting when conditions for AIN service involvement are met; formulating service requests or queries to the SCP for call processing instructions; and



V15538.S01

responding to the instructions or message responses received from the SCP to complete or terminate the call.

5 In Fig. 1, the SCP 56 may be implemented as part of an Integrated Service Control Point (ISCP) 10. The ISCP 10 is an integrated system which may include a programmable SCP 56 and a Data and Reporting System (DRS) 28. The SCP 56 may execute software or programmed-based logic in accordance with a subscriber's Call Processing Record (CPR) and return call routing instructions to the SSPs. The DRS 28 may compile  
10 calling information to be used for billing and administrative purposes. A Service Creation Environment (SCE) may also be provided for programming and provisioning the CPRs stored in the database of the SCP 26, which defines the services for each individual subscriber. The SCE may be integrated with  
15 the ISCP 10 or provided as a separate application or entity. By way of a non-limiting example, the ISCP 10 may be implemented with a Bellcore Integrated Service Control Point (ISCP) available from Bell Communications Research (Bellcore), Murray Hill, New Jersey, and the SCE may be implemented with  
20 SPACE, which is also available from Bellcore.

Additional information regarding AIN and AIN-related network environments, see Berman, Roger K., and Brewster, John H., "Perspectives on the AIN Architecture," IEEE Communications Magazine, February 1992, pp. 27-32, the  
25 disclosure of which is expressly incorporated herein by reference in its entirety.

A number of services have been provided by AIN or AIN-type intelligent networks to provide specialized call processing of incoming calls and detailed call information.  
30 Services such as call routing, call forwarding and call logging have been provided by AIN or AIN-type networks. Service activation of a particular AIN service is normally accomplished by service personnel who receive a service order

V15538.S01

from a customer, and then provision or create the CPR that is unique for each working telephone number (WTN) in the SCP or ISCP. Each customer's CPR contains subscriber or profile data which control and/or define the service features and parameters associated with the AIN service extended to the customer. Modification to a customer's CPR may be performed by service personnel based on requests received from the customer (e.g., by a formal written submission for service modification or via telephone interaction with service personnel). For more "simple" AIN services (i.e., AIN services that are based on very few or limited service parameters), automated modification systems and methods have also been provided to permit a customer or user to modify their service profile data via a telephone connection and touch tone dialing or Dual Tone Multi Frequency (DTMF) response.

While such prior systems have been provided, the ability for a customer to freely access and maintain their service profile data has been limited. Prior attempts have relied upon the involvement of service personnel or have limited a customers ability to access and modify their service profile data. DTMF-based interfaces have also not provided an efficient or user-friendly system by which customers may review and revise their service profile data. Further, for more "complex" AIN-based services (i.e., AIN services that are based on a large number of service parameters or include more complex sets or groups of service parameters) such prior attempts have not provided an effective solution for automated service management and maintenance. Thus, there is currently a need for an interface that permits users to freely access and maintain there service profile data. There is also a need for a user interface that permits a user to review and update their data for services, such as AIN-based services, through

V15538.S01

a computer-based interface that does not require the involvement of or interaction with service personnel.

SUMMARY OF THE PRESENT INVENTION

5 In view of the above, the present invention, through one or more of its various aspects and/or embodiments is thus presented to accomplish one or more objectives and advantages, such as those noted below.

10 A general object of the present invention is to provide a profile management system having a user interface that provides the ability for a customer to freely access and maintain their service profile data.

15 Another object of the invention is to provide a profile management system for AIN-based services. A further object of the invention is to provide such a system that does not rely upon the involvement of service personnel to permit a user to access and modify their AIN service profile data.

20 Still another object of the invention is to provide a profile management system that provides an efficient and user-friendly manner by which customers may review and revise their service profile data.

25 Yet another object of the invention is to provide a profile management system for more "complex" services (e.g., AIN services that are based on a large number of service parameters or include more complex sets or groups of service parameters), that permits a user to more effectively access and maintain their profile data for such a complex service.

30 Another object of the invention is to provide a profile management system that includes a user interface that permits a customer to review and update their profile data for services, such as AIN-based services, through a computer-based interface.

V15538.S01

The above-listed and other objects, features and advantages of the present invention will be more fully set forth hereinafter.

BRIEF DESCRIPTION OF THE DRAWINGS

5 The present invention is further described in the detailed description which follows, by reference to the noted plurality of drawings and appendices by way of non-limiting examples of preferred embodiments of the present invention, in which like reference numerals represent similar parts  
10 throughout the several views of the drawings, and wherein:

Fig. 1 illustrates the components of a conventional Advanced Intelligent Network (AIN) network environment;

Fig. 2 illustrates in block diagram form an exemplary system architecture for implementing the various features and  
15 aspect of the present invention;

Fig. 3 illustrates in block diagram form another exemplary system architecture for implementing the features of the present invention;

Fig. 4 illustrates yet another exemplary system architecture and environment for implementing the present  
20 invention; and

Fig. 5 illustrates a further exemplary system architecture and environment for implementing the features of the invention.

25 BRIEF DESCRIPTION OF APPENDICES

In order to facilitate the detailed description of the present invention, reference is made to the noted plurality of appendices by way of non-limiting examples of preferred  
30 embodiments of the present invention, in which detailed descriptions and comments are provided with respect to the various features, operations and functions of the invention, and wherein:

V15538.S01

Appendix A contains the "POSITIVE ID: User Guide", Southwestern Bell Telephone (1996), which discloses the system requirements for the PID PC Client and the various functions and operations of the PID Client software;

5       Appendix B contains a detailed description of exemplary interactions between the various main components of the profile management system (e.g., the PID PC Client, the PID PC Server, and the PID Status Server) and exemplary contents of the PID Database;

10       Appendix C contains a detailed description of exemplary flow events between the various main components of the profile management system (e.g., the PID PC Client, the PID PC Server, and the PID Status Server); and

15       Appendix D contains the "Requirements Document: PC User Interface", Southwestern Bell Telephone (July 17, 1996).

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to the accompanying drawings and appendices, a detailed description of the preferred embodiments, features and aspects of the present invention will be provided.

20       The present invention relates to a profile management system having a user interface, such as a personal computer (PC) interface, for accessing and maintaining profile data of a user's subscribed telephony service. The telephony service may be a AIN-based service that includes profile data which  
25       control and/or define the service features and parameters associated with the AIN service extended to the customer. Through the user interface of the present invention, a customer may freely access, maintain and modify their service profile data without the involvement of or interaction with  
30       service personnel. The present invention also provides the ability to selectively access and maintain complex service profile data with a user-friendly and effective interface. When the interface is implemented with a PC interface, one or

V15538.S01

more display screens may be provided to display the customer's profile data, and to permit a user to build and maintain their data.

5 The various features and aspects of the present invention are disclosed herein with reference to a particular AIN-based service, which is referred to as "Positive ID (PID)" or "Computer Access Restriction (CAR)" herein. Although the present disclosure describes a particular implementation of the present invention with respect to the PID service, the  
10 scope of the invention is not limited to this implementation and the various features and aspects of the invention may be adapted for other AIN-based services or telephony. Changes may be made, within the purview of the disclosure, as presently stated, without departing from the scope and spirit  
15 of the invention in its various aspects. Further, although the invention has been described herein with reference to particular means, materials and embodiments, the invention is not intended to be limited to the particulars disclosed herein; rather, the invention extends to all functionally equivalent structures, methods and uses.  
20

As disclosed herein, PID is an AIN-based service that permits a user to control access to their telephone or private line. PID may be used to restricts phone line access to computer systems or other proprietary systems (e.g., PBXs,  
25 etc.) of a subscriber. According to one aspect of PID, a screening list of authorized calling party numbers (CPNs) is stored at an ISCP or SCP. When a call is placed to a subscriber's number (e.g., the number of the phone line used to access the subscriber's computer system), an AIN query is  
30 launched to the SCP by the serving or originating SSP in order to determine whether the calling party is authorized to access the subscriber's system. Authorization is confirmed when the number of the calling party is located in the screening list

V15538.S01

of authorized CPNs. If the calling party is not authorized, a denial message may be played back to indicate that access has been restricted. A screening list of override Access Codes may also be stored in the SCP, to permit employees or other calling parties who are calling from an unauthorized phone number to override the rejection and gain access by entering an Access Code contained in the screening list.

In accordance with an aspect of the invention, a profile management system may be provided as a tool to PID customers for building and maintaining their profile data, including their lists of authorized telephone numbers and access codes associated with their PID-equipped lines. The user interface of the invention may comprise a PC interface including client software which allows a user to access a secured server of the PID service provider, which will accept changes made by a user through their PC interface. These changes may include revisions to a customer's list that are sent to the AIN network that screens the PID customer's incoming calls. According to an aspect of the invention, the server may also automatically track log-on activity to a customer's account and provide reports so that a user can verify that only authorized individuals have accessed their tables.

Fig. 2 illustrates in block diagram form an exemplary system architecture for implementing the present invention. The profile management system of the present invention may include a PID PC Client 102 that serves as a PC interface for the PID user or client. Although Fig. 2 depicts a single PID PC Client 102, a plurality of PID PC Clients may be provided for each AIN-service based user and/or depending on the number of users accommodated by the profile management system of the invention. The PID PC Client 102 may comprise PID client software residing on a micro-processor based system or personal computer platform. The PID client software may be

V15538.S01

programmed with a high level programming language, such as C++, and provide various display windows or screens for facilitating the building and maintenance of the user's profile data. A detailed description of the system requirements for the PID PC Client, and the functions and operations performed by the PID client software is provided in Appendix A, which contains the "POSITIVE ID: User Guide", Southwestern Bell Telephone Company (1996). In Appendix A, the service set-up and activation procedures are disclosed, as well as the features of the Positive ID Selection Screen, and the manner by which a user may view, edit and submit data files.

The PID PC Client 102 may include a modem for dialing and accessing a PID PC Server 104 through a dedicated/private line or network and using TCP protocols. Messaging middleware such as "DATAGATE" (which is a message based middleware available from Southwestern Bell Telephone Co.) may be utilized by the PID PC Client 102 to send and receive messages and information to the PID PC Server 104. Although Fig. 2 only depicts one PID PC Server, depending on the number of users and system capacity, one or more PID PC Servers may be provided that each serve a plurality of PID PC Clients. The PID PC Client 102 may communicate with the PID PC Server 104 to obtain a list of the Positive ID numbers that a client can work with, and to obtain the detailed information associated with each Positive ID number, the working telephone numbers (WTNs) and the Access Codes (ACODEs) for user maintenance. The PID PC Server 104 may comprise an application service to handle the PID client connections and to communicate with a Service Management System (SMS) Server 204 to obtain profile data on behalf of clients and also to submit client orders. The PID PC Server 104 may be implemented with a UNIX-based mainframe or computer, utilizing threads and software comprising a high



V15538.S01

level programming language such as C++. The PID PC Server may access and interact with the SMS Server 204 via a suitable communication channel or network connections (e.g., a dedicated line, local area network (LAN) or wide area network (WAN)) using TCP protocols and messaging middleware such as "DATAGATE". The SMS Server 204 may be implemented with a UNIX-based mainframe or computer (e.g., a SPARCCenter 2000 with a Solaris operating system), and may send information to and receive information from an ISCP or SCP via a service creation environment (SCE) such as SPACE. A more detailed description of the various features of the SMS Server 204 may be found in the U.S. patent application (Attorney Docket No. P14718) filed concurrently herewith, entitled "Apparatus and Method for Facilitating Service Management of Communications Services in a Communications Network", in the names of Larry JOST et al., the disclosure of which is expressly incorporated by reference herein.

As further shown in the embodiment of Fig. 2, the profile management system of the invention may also include a PID Status Server 106 and PID Database 110. The PID Status Server 106 may comprise an application service to handle asynchronous acknowledgments of client order completion and new PID order notifications from the SMS Server 204. The detailed profile data for each Positive ID number (i.e., the telephone number list and access codes) may be stored by the SMS Server 204 and in the database of the ISCP or SCP. The SMS Server 204 may keep a duplicate of the profile data that is stored in the ISCP to facilitate update and modification of a user's profile data and to provide a backup in case of system failure or outage. The PID Database 110 may store the additional data required by the profile management system of the present invention (Appendix B includes examples of the content of the PID Database). The PID Status Server 106 may be implemented

V15538.S01

with a UNIX-based mainframe or computer, utilizing threads and software comprising a high level programming language such as C++. The PID Status Server 106 may access and interact with the SMS Server 204 via suitable communication channels or network connections (e.g., a dedicated line, local area network (LAN) or wide area network (WAN)) using TCP protocols and messaging middleware such as "DATAGATE". The PID Database 110 may be implemented with a suitable storage device or as part of the memory of a UNIX-based mainframe or computer system. It is also possible that several of the main components of the profile management system, including the PID PC Server, the PID Status Server and the PID Database, be implemented on a single mainframe or computer system (such as a UNIX-based mainframe).

A detailed description of exemplary interactions between the various main components of the profile management system (i.e., the PID PC Client, the PID PC Server, the PID Status Server, and the PID Database) is provided in Appendix B of the present application. Appendix B includes examples of: PID PC Client to PC Server Interactions (pp. 1-8); PID PC Server to SMS Interactions (pp. 1-7); SMS to PID Status Server Interactions (pp. 1-8); Definitions for Update Action (UPD\_Action) Flexible Computer Interface Format (FCIF) Tags (pp. 1-3); and PID Database Contents (pp. 1-3). In addition, a detailed description of exemplary flow events between the various main components of the profile management system (e.g., the PID PC Client, the PID PC Server, the PID Status Server, and the SMS Server) is provided in Appendix C.

Fig. 3 illustrates In block diagram form another exemplary system architecture for implementing the features of the present invention. The main components of the profile management system (i.e., the PID PC Client 102, the PID PC Server 104, the PID Status Server 106, and the PID Database

V15538.S01

110) may be configured similar to that described with reference to Fig. 2. The SMS Server 204 may also be configured similar to that in Fig. 2, or may be implemented with two main interfaces (e.g., a SMS Query Server and a SMS OSS Server) as shown in Fig. 3. The SMS Query Server may comprise an interface for the PID PC Server 104 and send queries to the ISCP or SCP database via SPACE to obtain a customer's profile data for subsequent viewing at the PC Client 102. The service profile data that is obtained by the SMS Query Server (based on a request from the PC Server 104) may be sent back to the PC Client 102 via the PC Server 104. As noted above, the SMS Server 204 may also comprise a database (not shown) for storing a copy of the profile data of all PID customer's stored in the ISCP or SCP. This redundancy may be provided to protect against outages or system defaults at SPACE or the ISCP/SCP, and the data that is stored at the SMS may be updated with the ISCP/SCP profile data on a periodic basis (e.g., once a day, etc.) to maintain accuracy. When a copy of the customer's profile data is provided at the SMS Sever 204, the SMS Query Server may query the SMS database to obtain a customer's profile data for viewing. In addition, a SMS OSS Server (see Fig. 3) may be provided as part of the SMS Server 204 to handle updates to a customer's profile data (received from the PC Client 102 via the PID PC Server 104) and to initiate and process a customer's service order (e.g., to activate or initiate PID service request) and to acknowledge the status of the customer's order (in the form of a feedback message to the PID Status Server 106).

Various methods and procedures may be provided for service initialization and activation. For example, in the embodiment of Fig. 3, a user that wishes to subscribe to PID may contact service personnel (e.g., by telephone, the Internet or e-mail) and request that a service order be

V15538.S01

placed. When placing the service order, a client may provide contact information to the service personnel. After collecting all of the pertinent information, the client order will be entered by the service personnel (e.g., at a SOAC system terminal) and will flow to SMS for provisioning. The SMS server 204 will then send an acknowledgment message (e.g., via the SMS OSS Server) to the PC Status Server 106 to confirm, for example, receipt of the customer's order and that the processing of the order has been initiated. The PID Database 110 may include a SOAC order table to list a new client's order that has been received and confirmed by the SMS. Support personnel may access and view the SOAC order table of the PID Database 110 via a PID Admin Tool 130 (which may comprise a computer based interface for accessing and storing information with the PID Database). When a support person sees that a new order is present in the SOAC order table, the support person may contact the customer or client based on the contact information that was provided. From the new customer or client, the service person may gather various information to provision the PID PC interface feature of the invention. For example, the service personnel may obtain and setup a user ID and password for the user of the PID PC Client software, and determine the client's system specifications. The service person may also confirm the user's address and send the PC Client software to the user for installation. The user ID and password may be provisioned and stored in an access database 120 by the support person, to provide a security feature for limiting access to the PID PC Server and access to the customer's profile data. The access database 120 may be implemented with "Graceland", which is an access and security management tool available from Southwestern Bell Telephone, and the database may be queried and searched by the PID PC Server 104 to verify a user's password and user ID

V15538.S01

before granting access to a client at PID PC Client 102. A more detailed description of the various procedures and operations for provisioning and initiating the PID service and PC Client interface may be found in Appendix D, which  
5 comprises the "Requirements Document: PC User Interface", Final, Southwestern Bell Telephone (July 17, 1996). The disclosure of Appendix D may be applied to implement the embodiments of Figs. 2 and 3, as well as the other embodiments disclosed herein.

10 Other implementations and system architectures may be utilized to carry out the various features and aspects of the invention. For example, Figs. 4 and 5 illustrate in general block diagram form other exemplary system architectures and environments for implementing the invention. Fig. 4  
15 illustrates a system environment in which the invention may be implemented, with the PC Server 104 and the PID Status Server 106 residing on the same platform or entity. Although not shown in Fig. 4, the PID Database 110 may also be provided on the same platform or system entity of the PID PC Server and  
20 Status Server. In addition, Figs. 5 illustrates an exemplary WAN-based architecture for implementing the invention. A description of the various components depicted in Figs. 4 and 5 may be found in the U.S. patent application (Attorney Docket No. P14718) filed concurrently herewith, entitled "Apparatus  
25 and Method for Facilitating Service Management of Communications Services in a Communications Network", in the names of Larry JOST et al., the disclosure of which is expressly incorporated by reference herein.

30 While the invention has been described with reference to several exemplary embodiments, it is understood that the words which have been used herein are words of description and illustration, rather than words of limitations. Changes may be made, within the purview of the disclosure, as presently

V15538.S01

stated and as amended, without departing from the scope and spirit of the invention in its aspects. Further, although the invention has been described herein with reference to particular means, materials and embodiments, the invention is not intended to be limited to the particulars disclosed herein; rather, the invention extends to all functionally equivalent structures, methods and uses.



# APPENDIX A

V15538.S01



# Positive ID

User Guide

Southwestern Bell

"...because you have a business to run."

©1996



---

**TABLE OF CONTENTS**

---

<b>GETTING STARTED .....</b>	<b>1</b>
<b>What Is Positive ID? .....</b>	<b>1</b>
<b>Service Set-up and Activation.....</b>	<b>1</b>
Personal Computer Interface (Setup) .....	1
Interactive Voice Response (IVR) Activation.....	2
PC Requirements .....	3
User ID.....	4
Password .....	4
<b>Installing the Program.....</b>	<b>5</b>
Positive ID Software.....	5
Modem Settings.....	6
<b>USING THE SOFTWARE .....</b>	<b>7</b>
<b>Positive ID Selection Screen .....</b>	<b>7</b>
Active Status .....	7
Pending Status.....	8
New Status.....	8
Toolbars and Menus.....	9
<b>Viewing the Tables .....</b>	<b>11</b>
Authorized Number Table.....	12
Access Code Table.....	12
Sorting.....	12
<b>Editing Positive ID Tables.....</b>	<b>13</b>
Selecting the Positive ID Number.....	13
Authorized Number Table.....	14
Access Code Table.....	15
Copying and Pasting .....	16
<b>Working with Multiple Positive ID Numbers.....</b>	<b>18</b>
<b>Submitting Files.....</b>	<b>19</b>

---

**TABLE OF CONTENTS, (continued)**

---

<b>ACTIVITY LOG .....</b>	<b>21</b>
<b>Viewing the Activity Log.....</b>	<b>21</b>
<b>Possible Field Values .....</b>	<b>23</b>
Activity Field Values.....	23
Status Field Values .....	23
<b>ADMINISTRATIVE FUNCTIONS .....</b>	<b>24</b>
<b>Changing Your Password.....</b>	<b>24</b>
<b>Password Expiration .....</b>	<b>24</b>
<b>Resetting Password.....</b>	<b>24</b>
<b>Changing Modem Settings.....</b>	<b>24</b>
<b>Adding User IDs to Your Profile.....</b>	<b>24</b>
<b>DIAL-IN ACCESS NUMBER.....</b>	<b>24</b>
<b>HELP DESK FUNCTIONS.....</b>	<b>25</b>
<b>REPAIR FUNCTIONS.....</b>	<b>25</b>
<b>UNDERSTANDING ERROR MESSAGES .....</b>	<b>26</b>
<b>Log-On Errors .....</b>	<b>26</b>
<b>Invalid Effective Dates .....</b>	<b>27</b>
<b>Table Errors.....</b>	<b>27</b>
<b>TIME OUTS.....</b>	<b>28</b>

---

## GETTING STARTED

---

### **What Is Positive ID?**

Positive ID provides *control* over who has access to your telephone line. It enables you to create an *authorization profile* by specifying incoming calls that can access selected telephone numbers. Calls from phone numbers that have been authorized for clearance or from callers who have been given an access code, gain access. All other calls are denied.

Controlling telephone access to computer systems, faxes and/or PBX features are examples of applications for Positive ID.

You can identify up to five hundred telephone numbers and up to one hundred access codes that are allowed to access your phone line. Authorized callers can be changed, expanded or updated via the Personal Computer (PC) software anytime, or on an emergency basis, via Touch-tone input into the Interactive Voice Response (IVR) system.

If you ordered the Successful Attempts Log or the Unsuccessful Attempts Log from a Southwestern Bell representative, then attempts to access your phone line are recorded and displayed on these reports. They are available for distribution either weekly or monthly on diskette or paper. Each attempted call (whether successful or unsuccessful) is date and time stamped. Also, the access code utilized (if any) is displayed. The reports are available in addition to basic monthly service.

---

### **Service Set-up and Activation**

#### ***Personal Computer Interface (Set-up)***

The Positive ID Personal Computer (PC) is a Microsoft Windows application that provides you a tool for building and maintaining the lists of authorized telephone numbers and access codes associated with your Positive ID-equipped line(s). The software allows you to access a secured server within Southwestern Bell which will accept the changes you make to your lists and send them to the system which actually screens your incoming calls. The server automatically tracks log-on activity on your account so you can verify that only authorized individuals have access to your tables.

The dial-in access number is 1 800 286-5169.

---

---

**GETTING STARTED, (continued)**

---

**Service  
Set-up and  
Activation  
(continued)*****Interactive Voice Response (IVR) Activation***

To ensure you always have the ability to make changes to your screening lists, even if you are away from your PC, Southwestern Bell also provides an Interactive Voice Response (IVR) system which allows you to add/delete/verify authorized numbers and access codes from any location using a Touch-tone phone.

Once the initial telephone number and access code tables have been created and transmitted via the PC Interface, you must call the IVR in order to activate the service. The service should not be activated until the tables have been created via the PC software and submitted to Southwestern Bell. If the service is activated before the tables are populated and submitted, all calls attempting to dial the Positive ID number will be restricted. As soon as the service is activated, each call will be scrutinized to determine if it is authorized.

On an emergency basis, the IVR may be used as a way to update subscriber data. By calling the IVR and following touch-tone commands, updates can be made that will be effective immediately. **If changes are made through the IVR, the same changes should be made through the PC software and a new file should be submitted to Southwestern Bell.** If changes are made using the IVR and they are not also added to the tables available via the software, the next time an update is made through the PC software, the IVR modifications will be overwritten.

The IVR can also be used at any time to audibly review the tables of authorized telephone numbers and access codes.

To use the IVR, you must use a PIN that enables you to access your information. The default for this PIN will be set to the last 6 digits of the Positive ID number and you will be prompted to change it upon your first use of the IVR. The combination of the Positive ID-equipped telephone number and the PIN will authenticate users and allow access to the IVR, while a User ID and password will authenticate users and allow access to the PC software.

*To summarize, the IVR is available to:*

- Activate the Service,
  - Make emergency authorization changes,
  - Review authorized telephone numbers and access codes.
-

**GETTING STARTED, (continued)**

---

**Service  
Set-up and  
Activation  
(continued)****PC Requirements**

In order to run the Positive ID software, you must have an IBM compatible Personal Computer (PC) with a 486SX or higher microprocessor along with the following requirements:

- ⇒ A minimum of 8 MB of RAM
  - ⇒ Hard Disk with 15 MB of free storage space
  - ⇒ One 3.5" high-density disk drive
  - ⇒ VGA or higher resolution video adapter
  - ⇒ A mouse or compatible pointing device
  - ⇒ Operating systems of DOS (version 5.0 or higher)  
or OS/2 (version 2.11 or higher)
  - ⇒ A Hayes Compatible modem with a minimum speed of 9600 baud
  - ⇒ Microsoft Windows 3.1 or later, Windows for Workgroups (version 3.11)  
or Windows 95
-

**GETTING STARTED, (continued)**

---

**Service  
Set-up and  
Activation  
(continued)****User ID**

A User ID and password are required to access the PC server and make changes to Positive ID tables. When ordering Positive ID, your company specifies a contact to serve as your local User ID administrator. Southwestern Bell's application coordinator will contact your administrator to build the User ID and initial password. The User ID can be 4 to 8 characters in length, alpha-numeric, containing no spaces or special characters. Each Positive ID-equipped telephone number can have up to two User IDs associated with it. The application coordinator also mails your administrator diskettes with the PC software and the User Guide for the software.

Changes to User ID or contact information are made by calling the Application Coordinator at 1 800 274-8919. The coordinator will then call back to the Contact Name that is associated with the Positive ID service before making changes. This procedure helps to ensure the proper party is making the change.

Inquiries about ordering Positive ID on additional telephone lines or adding features such as the call processing reports, should be made to your account representative or by calling the local business office. The Application Coordinator is available to assist in all PC interface related requests.

**Password**

Each password must be six to eight characters in length and include one of the following characters: 0123456789!@#\$%. The special character cannot be in the first or last digit of the password. The password cannot be the same as the User ID and will expire every 30 days. The software will provide a prompt when the password has expired and a new one is required. The same password cannot be re-used for six months.

---

---

GETTING STARTED, (continued)

---

**Installing  
the  
Program**

When you subscribe to Positive ID, Southwestern Bell mails you Installation Diskettes that load an *Application Manager* program and *Positive ID* software programs on your PC. The *Application Manager* provides connectivity to Southwestern Bell for distribution of the *Positive ID* software. Loading the *Application Manager* requires approximately 10 minutes. Downloading and then installing the additional *Positive ID* components takes between 5-15 minutes.

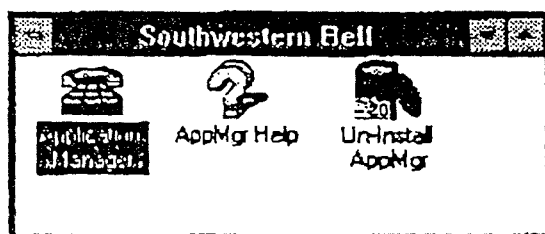
*During installation you will be prompted to input your Network User ID and Network Password provided to you by the Application Support Contact on the cover letter.*

***To Install the Application Manager programs....***

Insert diskette one in your 3.5 inch floppy drive. Choose the *File*, then *Run* command within the Program Manager. If in A: drive, type *A:\setup* and press *<enter>*. At the Dial-up or WAN prompt, Select *Dial-up*. Follow the on-line instructions during installation. Several new directories and files will be added to your machine. We recommend you use the default settings.

Your Autoexec.bat file will be updated during installation. To activate changes the system will prompt you to reboot your machine. Select Yes, at this point your machine will reboot.

After completing this installation, a new program group called *Southwestern Bell* should appear within the Program Manager. Inside the *Southwestern Bell* group will be the *Application Manager*, the *Application Manager Help* and the *Un-install Application Manager* icons. If you run Windows 95, the *Southwestern Bell* group is in your Start menu.



---

GETTING STARTED, (continued)

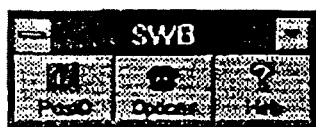
---

**Installing  
the  
Program**

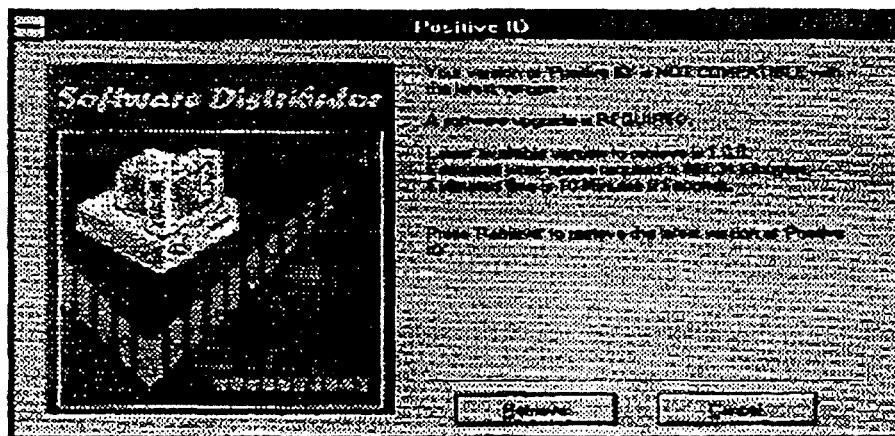
*To run the Application Manager, access the Southwestern Bell server, and to install the software for Positive ID ....*

Double click on the **Application Manager** icon. The icon is found in the **Southwestern Bell** program group (or in Windows 95 in the Start menu).

Input your User ID and Password, click OK. The Application Manager will initiate a call to the Southwestern Bell Server. Once you have successfully logged on to the Application Manager, the following toolbar called **SWB** will appear. Inside the **SWB** toolbar will be the Positive ID, Options and Positive ID Help icons.



Click on the **PosID** icon to access the Positive ID program. The **Software Distributor** screen will appear. You will then be given the opportunity to download and install the Positive ID software. Select the **Retrieve** button; a setup package will be downloaded to your machine and executed to install the Positive ID software. At the setup prompt Select the **OK** button.



All subsequent releases of the Positive ID software will be downloaded to your machine in the same manner. The version of your Positive ID software is verified each time you access Southwestern Bell. When a new release is available, the **Software Distributor** screen will appear during log-on giving you the opportunity to download the updated software. Select **Retrieve** to obtain the new software.

---



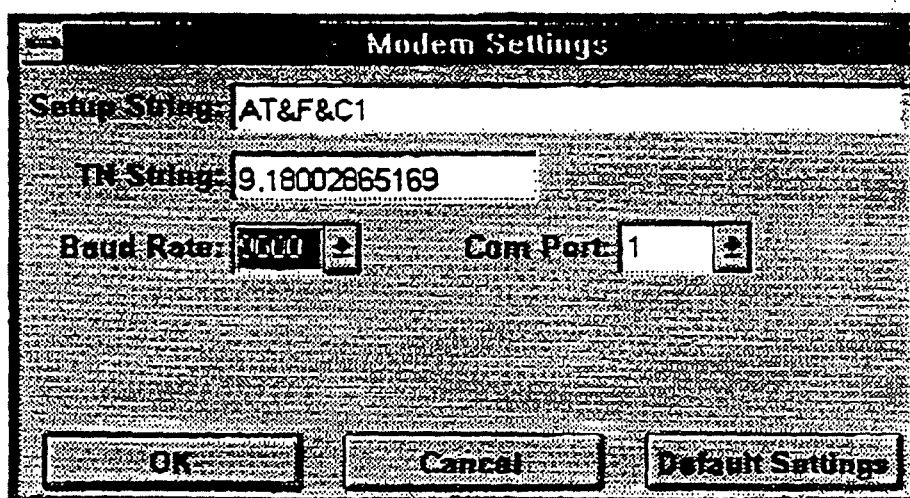
---

**GETTING STARTED**, (continued)

---

**Installing  
the  
Program****Modem Settings**

The Modem Settings are available from the *Welcome* screen and the *Options* button within the Application Manager. The illustration below shows the *Default Settings* to connect to Southwestern Bell.



Verify the settings on the screen are appropriate for your modem. This is where you would input a suggested modem string included on your Customer Contact Form (received with the software), if this was discussed with the Application Coordinator.

Also, verify the telephone number string (TN String), Baud rate, and Com Port are correct for your location. For example, replace the '9' in the TN String if a different number is used to access an outside line at your location. To verify your Com Port...

Go to the **Accessories** window in the **Program Manager**. Select **Terminal, Settings**, and then **Communications**. Go to the **Connector Box** and select **COM1** and then click on **OK**. At the **Terminal** window type **AT** and hit the **<enter>** key. If you see a response, like "OK", then that is the correct option for your modem port. If not, change to the next connector and repeat until a response is received.

When you click the *Default Settings* button, the following message appears:

**"This will revert all modem settings to the default settings."**

---

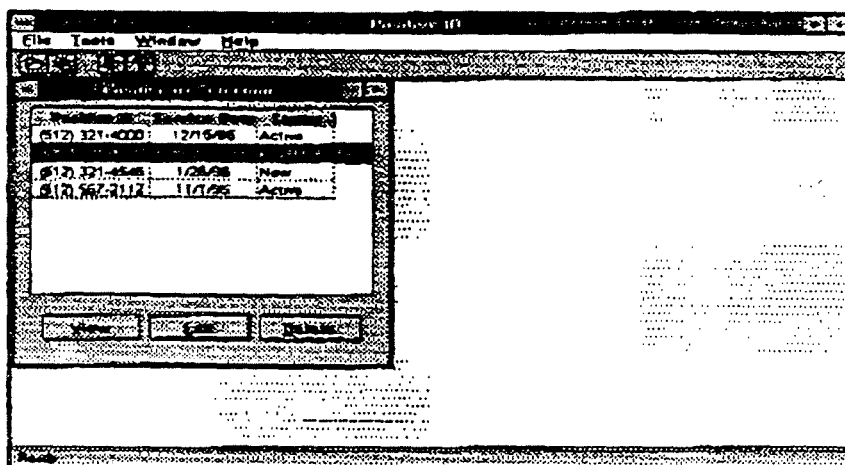
---

USING THE SOFTWARE

---

**Positive ID  
Selection  
Screen**

The *Positive ID Selection Screen* is the first screen shown when the software is executed. It displays Positive ID-equipped numbers associated with the User ID. For each Positive ID number, there are several possible "status's" to choose from:

**Active Status**

If a number is shown as *Active*, the date on the screen indicates the date that this file was put into service to restrict calls. If no pending files exist for that number, both the *View* and the *Edit* button are available. If you choose to edit the *active* status file, this actually creates a *pending* status file. The *Delete* button is unavailable for the active status file.

Viewing the active status is particularly important when trying to establish if an authorized person's telephone number is, in fact, on the table or a given access code is valid.

**Pending Status**

If a number has a *Pending* status file available, then a file has been created with changes in it, but those changes have not yet been made effective. Pending files can be created for immediate processing or with an effective date that is at some point in the future.

A pending file can also be deleted, which will completely eliminate the submitted file. When a pending file is deleted, a new pending file can be created by editing the *Active* status.

**New Status**

From the time that the Positive ID number is ordered until the service establishment date passes, the number will appear as *New* on the selection screen.

---

---

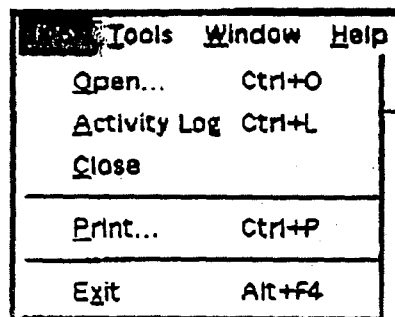
**USING THE SOFTWARE, (continued)**

---

**Toolbars  
and Menus**

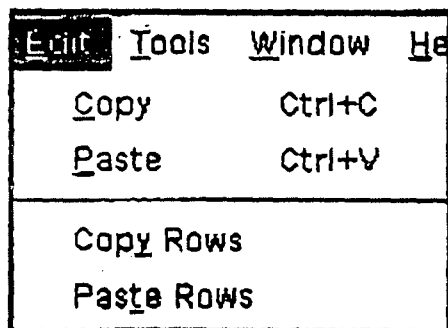
Toolbars and Menu options vary based on what screen is displayed.

From the *File Menu*, you can:



*Open* the Positive ID Selection Screen, access the *Activity Log*, *Close* the active window, *Print* and *Exit*.

From the *Edit Menu*, you can:



*Copy* and *Paste* (cells), and *Copy Rows* and *Paste Rows*.

---

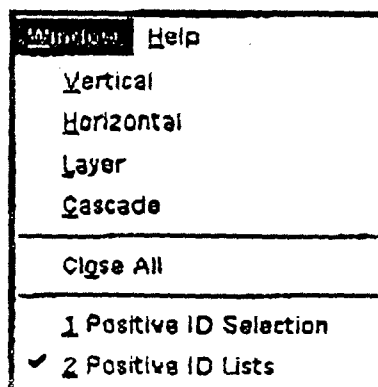
---

**USING THE SOFTWARE.** (continued)

---

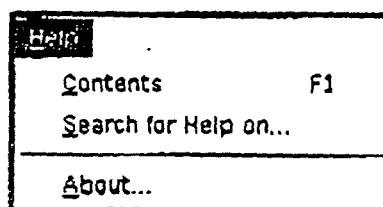
**Toolbars  
and Menus**  
(continued)

From the *Window Menu*, you can:



View multiple screens Tiled Vertically, Horizontally, Layered or Cascaded. You can close all open files or toggle between open files by choosing the file from the *Window Menu* screen.

From the *Help Menu*, you can:



Access the Help text starting at the *Table of Contents*. The *About* selection provides information about the software version.

The *Toolbar Buttons* are:



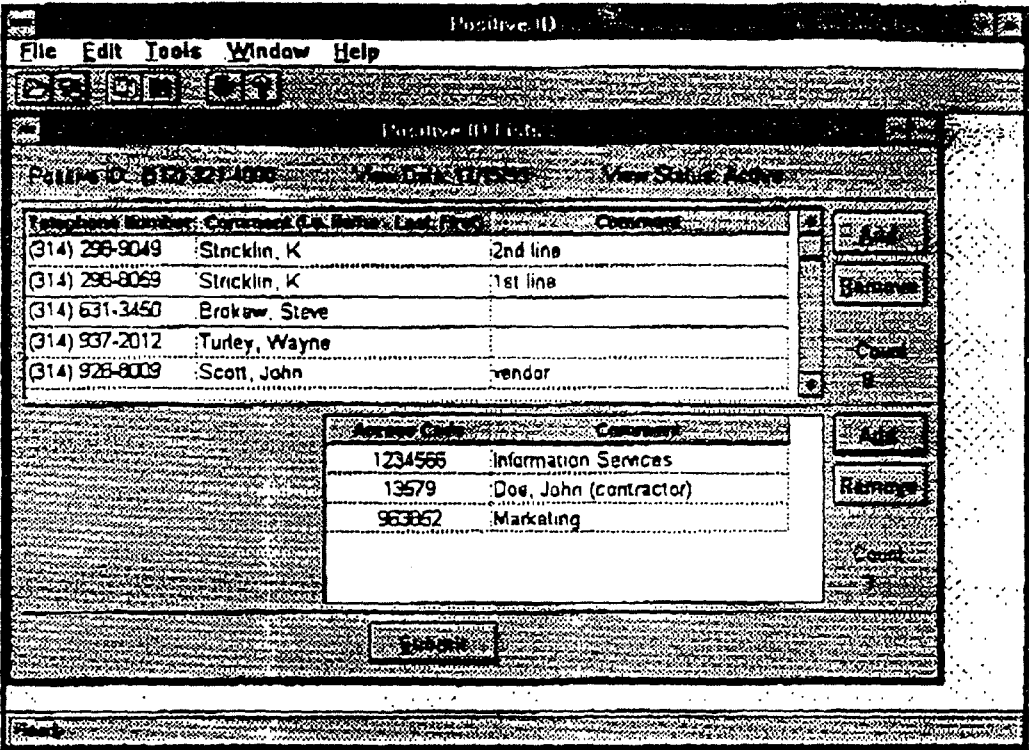
*Open, Activity Log, Copy Rows, Paste Rows, Exit and Help*

---

USING THE SOFTWARE, (continued)

Viewing the Tables

From the Positive ID Selection Screen:  
To select the Positive ID Telephone Number you want highlight the desired number by clicking the mouse on that row of the table and click the *View* button.



Both the *Authorized Number* and *Access Code* tables appear on this screen. Since the view option was selected, no edits can be made on this screen. The software will not accept any “overtyping” of entries and will provide an audible “beep.” The *Add*, *Remove* and *Submit* buttons are disabled.

Both tables can be sorted to provide ease in analyzing the information. By double-clicking on any column heading, the data will be sorted by the information in that column in ascending order. For example, by double-clicking on the column for “Telephone Numbers” your Authorized Number table will be sorted by telephone number. By double-clicking on the comments field, your Authorized Number Table will be sorted by the comments, alphabetically. This sorting tool can be extremely helpful in finding and evaluating information.

USING THE SOFTWARE, (continued)

Viewing the  
Tables  
(continued)

Authorized Number Table

The Authorized Number Table displays up to 500 numbers. The telephone numbers are initially listed in ascending order. The numbers are in the area code - telephone number format, which is 10 digits in length. Also displayed on the screen is a count of the entries in the table. When the 500 number limit is reached, the *Add* button is disabled and no new numbers can be added before some entries are removed.

This table also contains two *Comments* fields of up to 30 characters. The first *Comments* field could be used for the name associated with the telephone number. The second *Comments* field may be the department or other related information. No edits are performed against the *Comments* fields. The table may also be sorted by these fields by double-clicking on the column heading.

Telephone Number	Comments 1st Line	Comments 2nd Line
(314) 298-9049	Stricklin, K	2nd line

Access Code Table

The Access Code Table is limited to 100 entries. When the 100 limit is reached, the *Add* button is disabled and additional entries cannot be made until some access codes are removed. The codes are initially listed in ascending numerical order. The entries can be 4 to 7 digits in length.

This table contains one *Comment* field of up to 30 characters for information such as the department associated with each Access Code. The table may be sorted by this field by double-clicking on the column heading.

Access Code	Comment
1234565	Information Services

Sorting

Each field in the Authorized Number Table and Access Code Table can be sorted. By double-clicking on the column header, the rows will be sorted by the information in the selected column in ascending order. Therefore, if a sort is performed on either *Comments* field, the rows will be sorted alphabetically by that field. If a sort is performed on the Authorized Number or Access Code fields, the rows will be sorted in numerically ascending order.

---

USING THE SOFTWARE, (continued)

---

**Editing  
Positive ID  
Tables***Selecting the Positive ID Number**New Status*

If a Positive ID number shows a status of *New* then the tables can be edited by selecting the *Edit* button. This action will create a Pending version of the tables that may be submitted to Southwestern Bell when editing is completed.

*Active Status*

If a Positive ID number is shown as *Active* and if no pending files exist for that number, both the *View* and the *Edit* button are available. If you choose to Edit the active status file, this actually creates a pending status file. If a number has both an Active status and a Pending status or another user is editing the Active file, then the Active status can only be viewed (not edited), because only one pending file can exist for each Positive ID number.

*Pending Status*

If a Positive ID number has a pending status file available on the Positive ID Selection Screen, then a file has been created with changes to the tables associated with that Positive ID phone number and it has been submitted to Southwestern Bell, but those changes have not yet been made effective. Pending files can be created for immediate processing or with an effective date that is at some point in the future.

Each Positive ID number is permitted one pending file. A pending file can be edited, but the edited version will replace the existing pending version. If editing the pending file is the desired action, a confirmation prompt will appear stating that the existing pending file will be replaced by the new changes. Click *OK* on this screen to edit the pending status file.

**"Changes to a pending file will replace the existing pending version."**

---

---

**USING THE SOFTWARE, (continued)**

---

**Editing  
Positive ID  
Tables  
(continued)**

A pending file can also be deleted, which will completely eliminate the submitted file. When a pending file is deleted, a new pending file can be created by editing the Active status. If deleting a pending file is the desired action, a prompt will appear asking for confirmation of the delete.

**"If you delete this view now it will not be available for any further edits or corrections. Are you sure you want to delete this pending view?"**

**Authorized Number Table**

Telephone numbers can be added and removed from the Authorized Number Table. To add a number, click on the *Add* button. A new row will appear with the ( ) and - already filled in. There is a limit of 500 authorized telephone numbers and when the limit is reached, the *Add* button is disabled.

The software will check to ensure that the first digit of the area code or the first digit of the telephone number were not input as a 0 or 1; there are no valid numbers that start with those digits. The software will also check that the phone number entered was a full ten digits (area code + telephone number). If alphabetical characters are typed in the telephone number field, the software will not accept them and provide an audible "beep." The Comments fields associated with each telephone number are up to 30 characters in length and these fields are not checked by the software.

To remove a telephone number, highlight the desired number by clicking the mouse anywhere in that row of the table and click on the *Remove* button.

The edited table cannot be submitted if there are duplicate entries. An *error message* will appear:

**"Duplicates exist in the Telephone Number Table. They must be resolved before the submit will be accepted."**

To identify where the duplication exists click on the Telephone number field to sort the Telephone Numbers in ascending order.

---



---

**USING THE SOFTWARE, (continued)**

---

**Editing  
Positive ID  
Tables  
(continued)****Access Code Table**

Access Codes can be added to and removed from the Access Code Table. To add an Access Code, click on the *Add* button and a new row will appear. There is a limit of 100 Access Codes and when the limit is reached, the *Add* button is disabled.

The software will check to ensure that each Access Code is at least four digits. If more than seven digits are typed, the software will ignore the additional digits. If alphabetical characters are typed in the Access Code field, the software will not accept them and will provide an audible "beep." The Comments field associated with each Access Code is up to 30 characters in length and this field is not checked by the software.

To remove an access code, highlight the desired code by clicking anywhere in that row of the table and click on the *Remove* button.

The edited tables cannot be submitted with duplicate entries. An *error message* will appear:

**"Duplicates exist in the Access Code Table. They must be resolved before the submit will be accepted."**

To identify where the duplication exists click on the Access Code field to sort the Access Code in ascending order.

---

---

USING THE SOFTWARE, (continued)

---

**Editing  
Positive ID  
Tables**  
(continued)***Copying and Pasting******Copying a Cell***

There are two methods for copying and pasting. One method is to copy a *cell*, such as one telephone number and paste it into other telephone number fields. This function would be helpful if there are several telephone numbers to add and they all have the same area code.

- ⇒ ***Highlight*** the cell to be copied.
- ⇒ Choose ***Copy*** from the ***Edit*** menu, or choose the ***Copy*** from the toolbar button.
- ⇒ Then click on the ***Add*** button for as many new entries as needed.
- ⇒ Place the cursor in the new entry field.
- ⇒ Choose ***Paste*** from the ***Edit*** menu, or choose the ***Paste*** toolbar button.
- ⇒ Use the arrow keys, tabs or the mouse to advance to the next field.
- ⇒ Choose ***Paste*** from the ***Edit*** menu again.
- ⇒ Repeat the procedure as needed, depending on the number of new entries.

Once the copy function is completed, each entry can be modified to enter the correct, unique information. Telephone numbers and Access Codes must be unique, but Comments fields do not have to be unique.

If the Paste command is chosen and the cursor is on a field already containing data, that data will be overwritten by the new information.

---

---

USING THE SOFTWARE, (continued)

---

**Editing  
Positive ID  
Tables**  
(continued)*Copying and Pasting, (continued)**Copying a Row*

The second method of copying is to copy a *row*. This function would be helpful if there are several entries in the authorized telephone number table that need to appear on several Positive ID lists. To copy an entire row or number of rows:

- ⇒ **Highlight** one field in the row to be copied. If multiple rows are to be copied, hold the shift key down and click on another row to select all of the rows in a sequence or hold the control key down and click on a row to individually select / deselect a row that is not in a sequence.
- ⇒ Choose **Copy Row** from the **Edit** menu, or choose the **Copy Rows** toolbar button.
- ⇒ Click on the table where the rows are to be inserted. (The Positive ID list will need to be opened).
- ⇒ Click on a cell in that row.
- ⇒ Choose **Paste Row** from the **Edit** menu or choose the **Paste Rows** toolbar button. The copied rows will be inserted immediately following the highlighted row.

Unlike the Copy Cells procedure, new rows will be automatically added without clicking on the **Add** button. Information in a highlighted cell will not be overwritten by the pasted information. New rows beneath the highlighted row will be inserted.

If a Paste function is attempted that would exceed the maximum size of the table, an error will appear.

---

---

USING THE SOFTWARE, (continued)

---

**Working  
With  
Multiple  
Positive ID  
Numbers**

Users can have responsibility for more than one Positive ID number. Each Positive ID number associated with the current User ID and will appear on the Selection Screen.

The software will allow multiple Positive ID numbers to be viewed or edited at the same time. This capability is useful if you need to compare the tables for two Positive ID numbers or to copy telephone numbers or access codes from one table to another.

To view or edit multiple numbers:

- ⇒ Select a number from the Positive ID Selection Screen.
- ⇒ After opening the first Positive ID number, Choose the *Open* command from the *File* menu. This will display the Positive ID Selection Screen.
- ⇒ Select another number to work with.

When multiple windows are open, there are several ways to alternate between the windows:

- ⇒ Use the *Window* menu to change the active window, or to *Tile* or *Cascade* all of the windows that are currently open.
- ⇒ Minimize an open window by clicking on the small down arrow at the right of the title bar for that number (minus sign if using Windows 95), or move the screen aside by clicking on the title bar and dragging.

When working with multiple Positive ID numbers, the Window Menu functions will be useful. This will display the Positive ID Selection Screen again. Select a second number and the tables associated with that number will appear.

Data can be copied from one Positive ID number to another by using the copy and paste functions outlined previously.

---

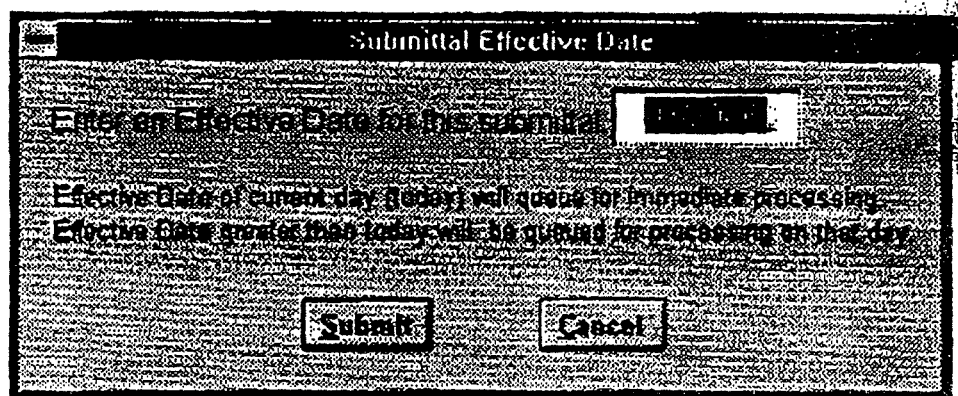
---

USING THE SOFTWARE, (continued)

---

**Submitting Files**

After all of the desired changes are completed to a Positive ID number's tables, a new file must be submitted to Southwestern Bell. When the *Submit* button is clicked, the following message appears:



The *Effective Date* will automatically be filled-in with today's date. All files sent with today's date will be queued for immediate processing. The interval for processing changes should be just a few hours or less.

After September 1, 1996, files sent for immediate processing will receive an estimated wait time message to indicate approximately when the changes will be effective.

**"The changes have been queued for processing. The estimated completion is 90 minutes from now."**

---

**USING THE SOFTWARE, (continued)**

---

**Submitting  
Files  
(continued)**

If desired, an effective date that is in the future can be entered. This feature will allow for changes to be made in advance of when they are needed. For example, a new employee may be joining the team next week and the file could be updated and sent to Southwestern Bell today - but not be effective until next week when the employee is actually on the payroll.

Assigning a future date also is a way to save partially completed updates. Because all data is saved by Southwestern Bell and cannot be saved locally, a partially completed file can be sent to Southwestern Bell with a future effective date. This creates a Pending status for that Positive ID number. Subsequently, that Pending status file can be edited and re-submitted to Southwestern Bell.

**Note:** One Pending file can only be edited and re-submitted 25 times. If additional changes are needed, either wait until the Pending file becomes Active and then submit more changes or delete the existing Pending status file.

From the *Submit* screen, if *Cancel* is chosen, the display returns to the tables that were being edited before the submit button was pressed.

If changes were made to tables and then the Software is commanded to close the Application without submitting the edited file, a *Last Chance message* would appear:

**"Are you sure you want to close this view without submitting (saving) your changes?"**

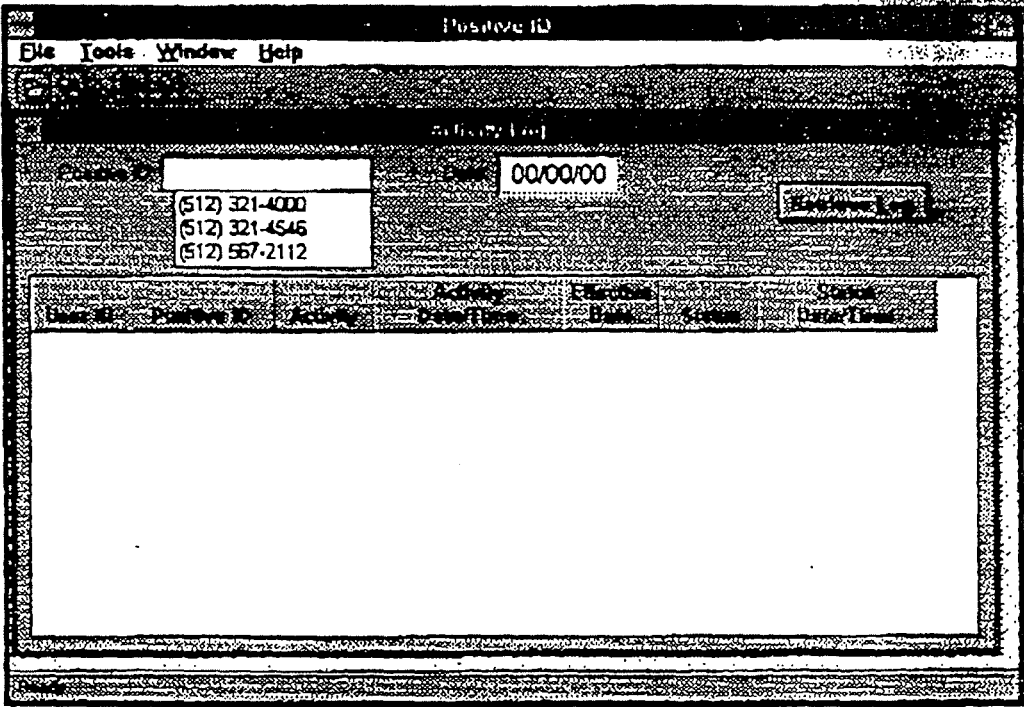
---

ACTIVITY LOG

Viewing  
The  
Activity  
Log

Choose *Activity Log* from the *File Menu*, or click the *Activity Log* toolbar button.

The *Activity Log* screen will appear:



The Activity Log can be viewed either in its entirety or the view can be narrowed by selecting a specific telephone number and/or by choosing a date after which all entries should be displayed. If no specific Positive ID telephone number or date is chosen to limit what is displayed, the Log will display all Positive ID numbers associated with your User ID and all activity for those numbers.

If desired, select a specific Positive ID number for which you want to review log information.

If desired, select a date and the log will display all transactions on or after the entered date.

---

ACTIVITY LOG, (continued)

---

Viewing  
The  
Activity Log  
(continued)

Click *Retrieve Log*.

User ID	Call Number	Activity	Activity Date/Time	Call Date	Status	Status Date/Time
JD1234	(512) 321-4000	Submitted	12/23/95 08:56:00	1/3/96	Failed	12/23/95 09:42:00
JD1234	(512) 321-4546	Accessed	1/3/96 08:30:00			
JD1234	(512) 321-4546	Submitted	2/5/96 13:21:00	1/20/96	Canceled	1/3/96 17:35:00
JD1234	(512) 321-4546	Cancel	2/5/96 17:05:00		Completed	1/3/96 17:35:00
T80964	(512) 321-4546	Submitted	2/20/96 18:35:00	1/3/96	Pending	

The *Activity Log* displays transactions by all User Ids associated with your Positive ID numbers. Each transaction is saved on the Positive ID server for 90 days after the completion date.

---



**ACTIVITY LOG, (continued)**

---

**Possible  
Field  
Values*****Activity Field Values***

- Accessed:* Positive ID number tables that were reviewed.
- Submitted:* Positive ID Number tables that were changed and sent to Southwestern Bell. A modified table will show two Log entries, one for "accessed" and one for "submitted".
- Cancel:* A pending file was canceled before it became active.
- Replaced:* A pending file was edited and re-submitted to Southwestern Bell. A modified table will show two Log entries, one for "accessed" and one for "replaced."

***Status Field Values***

- Pending:* The files have been submitted, but have not become Active yet. The Effective Date column on the Activity Log shows the date that the file is to be made active. If the pending file was submitted for a future effective date, it will remain in pending status until edited or the effective date passes. If the effective date field is today's date, the file was sent for immediate processing and will show in Pending status until confirmation is received that the changes have become active in the Southwestern Bell network.
- Completed:* The file that was submitted is now effectively restricting access to the Positive ID number.
- Failed:* The submitted file failed. Southwestern Bell will contact you if any action is required.
- Canceled:* The pending file was deleted before it was made Active. Any authorized user may delete a pending file, not only the originator of the file. The Activity Log provides the User ID information so that changes can be tracked.
-

## ADMINISTRATIVE FUNCTIONS

---

### **Changing Your Password**

When the password expires, you will be prompted to enter a new one. You may also change your password without being prompted. The *Change Password* option is available from the *Options* menu of the Application Manager toolbar. The screen displayed will look like the log-in screen and you can enter your new password and then verify it by entering it again. The next time you log-in, your new password will be effective.

---

### **Password Expiration**

The software will display a message "*Customer Password Expired*" when the password has expired and immediately proceed to the change password screen.

---

### **Resetting Password**

If the password is forgotten, it can be reset by calling the Application Coordinator at 1 800 274-8919. The Application Coordinator will place a call to the designated customer contact associated with the Positive ID phone line number to verify that a password change is appropriate.

---

### **Changing Modem Settings**

After you initially install the Application Manager and specify your modem settings, you can change those settings at any time. The modem settings are available from the Welcome screen and the *Options* button within the Application Manager.

---

### **Adding User IDs to Your Profile**

You are allowed two User IDs per Positive ID. If you would like to add a second User ID, or change one of your User IDs that manage your Positive ID numbers, your local administrator should contact the SWBT Application Coordinator. They should provide the name(s) and desired User ID(s) they wish to be changed.

---

### **Dial In Access Number**

The number is 1 800 286-5169.

---

## HELP DESK FUNCTIONS

---

The Help Desk will assist you in the following areas:

- ◆ User ID Establishment
- ◆ Database Administration
- ◆ Software Assistance
- ◆ Hardware Configuration
- ◆ Server and Dial Up Access Concerns
- ◆ Terminal Emulation

**Help Desk Number: 1 800 274-8919**

**Help Desk Hours: 7 a.m. to 5 p.m. (Central Time) on weekdays (excluding holidays)**

---

## REPAIR FUNCTIONS

---

It is possible that you may have questions or concerns about aspects of your Positive ID service that are not related to the software. These questions should be directed to your local repair bureau. Examples of these questions might be:

- "There is a number on my Authorized Telephone Number list and that caller cannot get through to the Positive ID line."
  - "There is an access code on my Access Code list and one of my employees is having difficulty using it to get through to the Positive ID line."
  - "I ordered the Successful Attempts Log and/or the Unsuccessful Attempts Log from my service rep and I have not received them."
-

---

## UNDERSTANDING ERROR MESSAGES

---

### **Log On Errors**

- 1) Both a User ID and password were not entered on the *Welcome* screen:

**"Both your User ID and Password must be entered."**

Click the **OK** button and re-enter your User ID and/or password.

- 2) An incorrect log on was attempted:

**"Login failed. Try Again."**

Click the **OK** button and re-enter your User ID and/or password.

- 3) An incorrect log-on was attempted three times.

**"Login failed. Max Times."**

followed by

**"Maximum number of login attempts reached. System will shut down."**

Click the **OK** button and restart the Application as the software will shut down automatically in this situation.

- 4) New Password is invalid.

**"Invalid Request - Password Illegal."**

Click the **OK** button.

- ◆ Each password must be six to eight characters in length
  - ◆ Must include one of the following characters: 0123456789!@#%\$
  - ◆ The special character cannot be in the first or last digit of the password
  - ◆ The password cannot be the same as the User ID
  - ◆ The same password cannot be re-used for six months
-

**UNDERSTANDING ERROR MESSAGES, (continued)**

---

***Invalid  
Effective  
Date***

If a file is submitted with an effective date prior to the service establishment date, the software will display an error message requesting an effective date on or after the service establishment date. For example, you order Positive ID from Southwestern Bell on 4/5/96 and request the service to be established on 5/1/96. You will receive the software in April and can begin populating your tables. However, when you submit the files to Southwestern Bell, the effective date must be on or after 5/1/96.

**"For new Positive IDs, the effective date requested must be on or after the view (service) date displayed."**

---

***Table  
Errors***

The Authorized Telephone Number table and Access Code table will both be automatically checked when the tables are submitted to ensure that there are no duplicate entries.

Both tables will also be automatically checked as numbers are entered to verify that enough information was input - at least 4 digits (and no more than 7 digits) for each Access Code and a ten digit number (area code + telephone number) for each Authorized Telephone Number.

The Authorized Telephone Number table has an additional automatic check for telephone number format. The first digit of the area code and the telephone number cannot equal 0 or 1, because there are no valid telephone numbers that begin with these digits.

---

## TIME OUTS

---

There are two types of Time Outs:

- ◆ After fifteen minutes of inactivity within this software, the password must be re-entered on the screen to resume the application. The keyboard will be locked relative to this application until the password is re-entered. Inactivity is defined as NO keystrokes input on the keyboard.
  - ◆ After 30 minutes of inactivity, the modem link will be dropped. As long as the application appears on the screen, the changes have not been lost. When the application is resumed and a file is submitted to Southwestern Bell, the modem connection will be automatically reestablished. This may take 30-45 seconds.
-



# APPENDIX B

V15538.S01

## **Positive Id PC Interface**

The Positive Id PC Interface consists of four main components as follows:

**PC Client** - Communicates with the PC Server to obtain a list of the Positive Id numbers that a client can work with . Also obtains the detailed information associated with each Positive Id number, the working telephone number's(WTN's) and access codes(ACODE's) for user maintenance.

**PC Server** - Application service to handle the PID client connections. Communicates with SMS to obtain data on behalf of clients and also to submit client orders.

**Status Server** - Application service to handle asynchronous acknowledgments of client order completion and new PID order notifications from SMS.

**Positive Id Database** - The detail data for each Positive Id number (telephone number list and access codes) are stored by SMS and in the ISCP. Additional data required by the application is stored in the Positive Id database.

The Positive Id Service was originally named Computer Access Restriction (CAR).



## Positive ID (PID) PC Client to PC Server Interactions

V15538.S01

Positive Id (PID) PC Client to PC Server Interactions

→ Such as DATAGATE

Using SWB proprietary messaging middleware the PC Client connects to the Positive Id PC Server over dial-up or dedicated line TCP (currently using CORE's TCP stack).

1. Application Login Transaction

Transaction used for application user-id/password validation.

PC Client initiated request  
Request:

Event: APP\_LOGIN\_REQ 1

Structure: LoginReq {  
char        userid[ MAX\_LOGIN\_UID\_LEN ];  
char        passwd[ MAX\_LOGIN\_PASSWD\_LEN];  
char        appVersion[ MAX\_LOGIN\_VER\_LEN]  
}

PC Server response  
Response:

	Event Code ( Code that is sent to indicate event type )
Events: APP_LOGIN_RSP_OK	3
APP_LOGIN_RSP_REJECTED	4
APP_LOGIN_RSP_APPL_REJECTED	5
APP_LOGIN_RSP_PASSWD_EXPIRED	6
APP_LOGIN_RSP_FAILED_RETRY	7
APP_LOGIN_RSP_GENERAL_FAILURE	8
APP_LOGIN_RSP_INVALID_VERSION	9

Structure: LoginRsp {  
char retMsg[ MAX\_LOGIN\_MSG\_LEN ];  
char currentAppVersion[ MAX\_LOGIN\_VER\_LEN ];  
}

2. Change Password Transaction

Transaction used for password maintenance.

PC Client initiated request  
Request:

	Event Code
Event: CHANGE_PASSWD_REQ	20

Structure: ChangePassWdReq {  
char        userid[ MAX\_LOGIN\_UID\_LEN ];  
char        old\_passwd[ MAX\_LOGIN\_PASSWD\_LEN ];  
char        new\_passwd[ MAX\_LOGIN\_PASSWD\_LEN ];  
}

Positive Id (PID) PC Client to PC Server Interactions

PC Server response

Response:

	<u>Event Code</u>
Events: CHANGE_PASSWD_RSP_OK	21
CHANGE_PASSWD_RSP_REJECTED	22
CHANGE_PASSWD_RSP_ILLEGAL	23
CHANGE_PASSWD_RSP_GENERAL_FAILURE	24

Structure: ChangePassWdRsp {  
char retMsg[ MAX\_LOGIN\_MSG\_LEN ];  
}

3. CAR Number List Transaction

Transaction to retrieve the list of PID numbers that the user has access to along with information about the latest and all pending activity to be performed on the PID number. The UI will use the information to display a list as shown below.

<u>CAR Number</u>	<u>Date</u>	<u>Status</u>	
(314)235-3805	01/02/96	A	A = Active P = Pending I = Initial
	01/10/9	P	
(314)235-3806	12/05/95	A	
	01/20/96	P	
(314)235-3807	12/12/96	I	

The response will always include at least one entry for each of the user's PID numbers. For a new PID number that is not yet established (due date not met), and the user has yet to submit tables for the new PID number, then the PC Server will generate a fictitious entry in the list. The status for this entry will be set to "Initial". The user may edit the tables associated with this entry and submit a "pending" modification.

If there is a pending request against the PID number, then the pending Status flag will be greater than zero. In this case, the pending Status mod(100) will yield the number of prior revisions on the order.

PC Client initiated request

Request:

	<u>Event Code</u>
Event: CAR_LIST_REQ	130

Structure: xdr\_void

Positive Id (PID) PC Client to PC Server Interactions

PC Server response

Response:

	<u>Event Code</u>
Events: CAR_LIST_RSP	131
Structure: CarListRsp {	
unsigned	count;
CarRecord	carRecs[ 20 ];
boolean	eod; (Last record sent.)
}	
Structure: CarRecord {	
char	carNum[ MAX_CAR_NUM_LEN ];
char	viewType; (A-ACTIVE, P-PENDING, I-INITIAL)
char	viewDate[ MAX_DATE_LEN ];
boolean	readOnly;
int	pendingStatus; (> 0 its pending, mod(100) for prior rev number)
char	lockingUser[ MAX_UI_LEN ];
	("CNOC" or "MAX_REVISION_LIMIT")
}	
	<u>Event Code</u>
Event: CAR_GENERAL_FAILURE	9999
Structure: ErrorRsp {	
int	code;
char	msg[ MAX_ERROR_MSG_LEN ];
}	

4. View/Edit CAR Number Tables Transaction

Transaction used to retrieve the working telephone number (WTN) list and Access Code (ACODE) list associated with a PID number. The user may request the "active", or "pending" view. The response includes a "readOnly" field which is set to TRUE if another user is currently working with the same PID number. (NOTE: A user may lock a PID number that has a pending order, if they are requesting the pending view. However, if they are requesting the active view, the lock will be rejected.) If there is a pending request against the PID number, then the pendingStatus flag will be greater than zero. In this case, the pendingStatus mod(100) will yield the number of prior revisions on the order. The lockingUser will hold the User ID of the use that has the PID Number locked.

PC Client initiated request

Request:

	<u>Event Code</u>
Event: CAR_NUM_EDIT_REQ	140
Structure: CarNumEditReq {	
char	carNum[ MAX_CAR_NUM_LEN ];
boolean	lockit; (User wants to edit)
char	viewType; (A-ACTIVE, P-PENDING, I-INITIAL)

## Positive Id (PID) PC Client to PC Server Interactions

### PC Server response Response:

Zero or more CAR\_NUM\_EDIT\_RSP\_WTNS events are returned, followed by zero or more CAR\_NUM\_EDIT\_RSP\_ACODES events, followed by one CAR\_NUM\_EDIT\_RSP\_END event.

Event: CAR\_NUM\_EDIT\_RSP\_WTNS Event Code  
141

Structure: CarWtnTable {  
    unsigned int       count;  
    WtnRecord         wtnRecs[ 50 ];  
    boolean           eod;  
}

Structure: WtnRecord {  
    char     wtn[ MAX\_WTN\_LEN ];  
    char     descrip1[ MAX\_WTN\_DESCRIP\_LEN ];  
    char     descrip2[ MAX\_WTN\_DESCRIP\_LEN ];  
}

Event: CAR\_NUM\_EDIT\_RSP\_ACODE Event Code  
142

Structure: CarAcodeTable {  
    unsigned int       count;  
    AcodeRecord       acodeRecs[ 50 ];  
    boolean           eod;  
}

Structure: AcodeRecord {  
    char         acode[ MAX\_ACODE\_LEN ];  
    char         descrip1[ MAX\_ACODE\_DESCRIP\_LEN ];  
};

Event: CAR\_NUM\_EDIT\_RSP\_END Event Code  
143

Structure: CarNumEditRsp {  
    char         viewType; (A-ACTIVE, P-PENDING, I-INITIAL)  
    boolean       readOnly;  
    int           pendingStatus; (> 0 is pending)  
    char         lockingUser[ MAX\_UID\_LEN ];  
                    ("CNOC" or "SUSPENDED" or locking user ID.)  
}

Note: For Refresh-requested pending, but it could be now active.  
If no pending found, server sends active view.

Event: CAR\_GENERAL\_FAILURE Event Code  
9999

Structure: ErrorRsp

Positive Id (PID) PC Client to PC Server Interactions

5. Submit Modifications To A PID Number

Transaction used to modify the WTN List and the ACODE list associated with a PID number. Note: the changeIndicators will be set to '1' if the user modified an element in the associated table. This generates a client order which is sent via the PC Server to SMS.

PC Client initiated request  
Request:

One CAR\_NUM\_SUBMIT\_REQ event received, followed by zero or more CAR\_NUM\_SUBMIT\_REQ\_WTNS events, followed by zero or more CAR\_NUM\_SUBMIT\_REQ\_ACODES events, followed by one CAR\_NUM\_SUBMIT\_REQ\_END event.

Event: CAR\_NUM\_SUBMIT\_REQ Event Code  
150

Structure: CarNumSubmitReq {  
char carNum[MAX\_CAR\_NUM\_LEN];  
char dueDate[MAX\_DATE\_LEN];  
bool revisePending;  
char chngIndct[ 5];(Indexs: 0-wtn,1-wtnDescrip1,  
2-wtnDescrip2, 3-acode, 4-acodeDescrip)  
}

Event: CAR\_NUM\_SUBMIT\_REQ\_WTNS Event Code  
151

Structure: CarWtnTable

Event: CAR\_NUM\_SUBMIT\_REQ\_ACODES 152

Structure: CarAcodeTable

Event: CAR\_NUM\_SUBMIT\_REQ\_END 153

Structure: xdr\_void

PC Server response  
Response:

Event: CAR\_NUM\_SUBMIT\_RSP\_OK 155

Structure: xdr\_void

Event: CAR\_GENERAL\_FAILURE 9999

Structure: ErrorRsp

## Positive Id (PID) PC Client to PC Server Interactions

### 6. Establish User's Lock on a PID Number

This transaction is used to lock the PID number. It is not needed currently, since the Edit MAO locks the PID number. Initially it will not be implemented.

#### PC Client initiated request

##### Request:

Event Code

Event: CAR\_NUM\_LOCK\_REQ 160

Structure: CarNumLockReq {  
    char carNum[MAX\_CAR\_NUM\_LEN];  
}

#### PC Server response

##### Response:

Event: CAR\_NUM\_LOCKED 161

Structure: xdr\_void

Event: GENERA\_FAILURE 9999

Structure: ErrorRsp

### 7. Release User's Lock on a PID Number

When a user request's the active view of a PID number, the PC Server will "lock" the PID number, preventing any other user from submitting modifications to the PID number. This transaction is used to unlock the PID number. This is sent by the user interface when the user has exited the PID Edit screen, and has not submitting changes to the PID number.

#### PC Client initiated request

##### Request:

Event: CAR\_NUM\_UNLOCK\_REQ 170

Structure: CarNumUnlockReq {  
    char carNum[MAX\_CAR\_NUM\_LEN];  
}

#### PC Server response

##### Response:

Event: CAR\_NUM\_LOCKED 171

Structure: xdr\_void

Positive Id (PID) PC Client to PC Server Interactions

8. Cancel Pending Request

Transaction used to allow a user to cancel a pending request against a PID number. Since there may be only one pending request, against a PID number, the orderNum and pendingDate are optional. If the orderNum is specified, then the PC Server will cancel the associated order against the PID number. If pendingDate is specified, the PC Server will cancel the order due on the pending date. (Note: This assumes that there is at most one order due on the PID number for any give date.) If neither is specified, then the PC Server will cancel the next order to be worked against the PID number. After canceling a pending request on a PID number, the UI may allow the user to edit the pending view (retrieved prior to the cancellation) and re-submit the request. The user must obtain a lock on the PID number after performing the cancel.

Don't allow the cancellation of an order for a PID number that is locked, unless it being canceled by the user that has it locked.

PC Client initiated request  
Request:

Event Code

Event: CAR\_NUM\_CANCEL\_REQ            180

Structure: CarNumCancelReq {  
    char            carNum[MAX\_CAR\_NUM\_LEN];  
    char            orderNum[MAX\_ORDERNUM\_LEN];  
    char            pendingDate[MAX\_DATE\_LEN];  
}

PC Server response  
Response:

Event: CAR\_NUM\_CANCELLED 182

Structure:    xdr\_void

Event: CAR\_GENERAL\_FAILURE            9999

Structure: ErrorRsp

Note: In the event of a failure, the client software must examine the ErrorRsp structure to determine if the Cancel or the Lock activity failed.

9. PID Number Status Log Request

Transaction to retrieve the status log history of a specific PID number, or all PID numbers, for a user. If a PID number is specified in the request, then the log for that PID number is returned. Otherwise, the log for all of the user's PID numbers are returned. The statusDate field is also optional. If unspecified, the PC Server will return all available log information for the PID number(s).



## Positive Id (PID) PC Client to PC Server Interactions

### PC Client initiated request

#### Request:

	<u>Event Code</u>
Event: CAR_LOG_REQ	190
Structure: CarNumLogReq {	
char	carNum[MAX_CAR_NUM_LEN];
char	statusDate[MAX_DATE_LEN];
}	

### PC Server response

#### Response:

Event: CAR_LOG_RSP	191
Structure: CarNumLogRsp{	
char	carNum[MAX_CAR_NUM_LEN];
unsigned int	count;
CarLogRecord	logRecs[MAX_CAR_LOG_RECS];
boolean	eod;(Last record sent)
}	
Structure: CarLogRecord{	
char	userId[MAX_LOGIN_UID_LEN];
char	carNum[MAX_CAR_NUM_LEN];
char	orderNum[MAX_ORDERNUM_LEN];
char	activity[MAX_ACTIVITY_LEN];
	(VIEW, SUBMIT-CHANGE, CANCEL)
char	recvDTime[MAX_DATE_TIME_LEN];
char	dueDate[ MAX_DATE_LEN];
char	compDTime[MAX_DATE_TIME_LEN];
char	status[ MAX_STATUS_LEN];
	(PENDING, COMPLETED, FAILED, CANCELED)
Event: CAR_GENERAL_FAILURE	9999
Structure: ErrorRsp	

## Positive ID (PID) PC Server to SMS Interactions

V15538.S01

## Positive Id (PID) PC Server to SMS Interactions

→ such as DATAGATE

Using SWB proprietary messaging middleware the PC Server connects to SMS over Lan/TCP.

### 1. View PID Tables Request From PC Server Transaction

Transaction to request the current or pending view of the working telephone number(WTN) and Access Code(ACODE) tables associated with a PID number.

#### PC Server initiated request

Request:

Event Code

Event: EVT\_SMS            1000

```
Structure: REQUEST {
    char View_Type; ('C'-current, 'F'-future, 'H'-historical)
    string username[8]; (UserID of PC user)
    string tn[10]; (PID Number)
    string date[8]; (View "as of" date)
}
```

#### SMS Server response

Response:

Response:

Possible Event:    EVT\_VIEW\_CG    300

```
Structure: OSS_VIEW_CHANGE{
    char view_type;
}
```

Multiple Events:    EVT\_DATA       200

```
Structure: OSS_PACKET {
    long packet_num; (Sequence # of this packet)
    long rows; (Number of rows in data)
    char eod; (Non-zero if last packet)
    OSS_DATA data[25]; (Array of DATA records < or = 25 rows)
}
```

Positive Id (PID) PC Server to SMS Interactions

```
Structure: OSS_DATA {
    char d_Type; (Type of this rec)
    char restricted; (Y if restricted.)
    string name[32]; (Depends on data type)
    OSS_TEXT text; (Link list of field values)
}
```

D_Type	Data type which this row specifies
Values	G - USOC Group U - USOC F - FID C - Call Variable T - Table D - Table Data
Restricted	Restricted Indicator as shown in the Call Variable Ref Table. Only applied to call variable recs. Value - Y/N
Name	If the Data Type is: G - Populated with Group. Ex - POSID, POS1, POS2 U - Populated with the USOC. Ex - SCMBX F - Populated with FID. Ex - RPI C - Populated with Call Variable. Ex - car_active T - Populated with table call variable. Ex - car_emaacctbl D - Populated with table data. Ex - Row number
Text	If the Data Type is: G - Populated with blank U - Populated with USOC descriptive text. F - Populated with FID descriptive text. C - Populated with Call Variable value or FID value. T - Populated with table column names of the embedded table. D - Populated with table column data of the embedded table.

```
Structure: OSS_TEXT {
    TEXT *next;
    string text[80];
}
```

or

EVENT: EVT\_ERROR 100 (Returned on an ERROR)

```
Structure: OSS_ERROR{
    long code; (Error Code)
    string text[]; (Error Message)
}
```

Positive Id (PID) PC Server to SMS Interactions

2. Update PID Tables Request From PC Server Transaction

Transaction to update the WTN and Access Code tables associated with a PID number.

PC Server initiated request  
Request:

Event: EVT\_UPDATE            1100  
  
Structure: UPD\_ACTION {  
    string text<>; (Message Layout 1 see below)  
}

SMS Server response  
Response:

Event: EVT\_GOTIT            900  
  
Structure: xdr\_void;  
  
or  
  
EVENT: EVT\_ERROR            100  
  
Structure: OSS\_ERROR

2. Cancellation Request From PC Server Transaction

Transaction to cancel the update of the WTN and ACODE tables associated with a PID number.

PC Server initiated request  
Request:

Event: EVT\_CANCEL            1120  
  
Structure: UPD\_ACTION (Message Layout 2 see below)

SMS Server response  
Response:

Event: EVT\_GOTIT            900  
  
Structure: xdr\_void;  
  
or  
  
EVENT: EVT\_ERROR            100  
  
Structure: OSS\_ERROR

## Positive Id (PID) PC Server to SMS Interactions

### UPD ACTION Message Layouts

(UPD-Action = Update Action)

**UPD\_ACTION** Contains the FCIF message associated with the EVT\_UPDATE, EVT\_UPDATE\_POSACK, EVT\_UPDATE\_NEGACK, EVT\_SOAC, EVT\_SOAC\_POSACK, EVT\_SOAC\_NEGACK, EVT\_CANCEL, EVT\_CANCEL\_POSACK, EVT\_CANCEL\_NEGACK. This message will always be associated with the EVT\_UPDATE.

#### 1. Customer Initiated (PC Application Server) Update (sent to the SMS):

Message Type 1 will be embedded within the Datagate Event Type of EVT\_UPDATE, with the message structure UPD ACTION containing the information from the PC Application Server.

Updates can of two types - an initial update and subsequent correction updates. For the INITIAL UPDATE, the structure of the message is as follows:

```
*C3{FT=PRE;
    TT=SO;
    OT=C;
    ORDNO=111111;
    MT=F;
    TRN=1;
    TSYS=CUSTPC01;
    RSYS=SMSA;
    PRI=+4;
    WC=314235;}%
*ODR{
    DIFF=N;
    CS=PCIF;
    DD=060111;}%
*RSC{
    REC{
        CTL{
            CTC=C;
            CTID=TN[3142351000];
        }
        ACL{
            ACT=O;
            CTID=TN[3142351000];
            TN=3142351000;
            AINS{
                AINID=SCMBX;
            }
        }
    }
    ACL{
        ACT=N;
        CTID=TN[3142351000];
        TN=3142351000;
        AINS{
            AINID=SCMBX;
        }
    }
}
```

Positive Id (PID) PC Server to SMS Interactions

#CAR1=1111;  
#CAR1=2222;  
#CAR1=3333;  
#CAR1=4444;  
#CAR1=5555;  
#CAR1=6666;  
#CAR1=7777;  
#CAR1=8888;  
#CAR1=9999;  
#CAR1=2111;  
#CAR1=2333;  
#CAR1=2444;  
#CAR1=2555;  
#CAR1=2666;  
#CM11=COMMENT FOR ACCESS CODE 1111;  
#CM11=COMMENT FOR ACCESS CODE 2222;  
#CM11=COMMENT FOR ACCESS CODE 3333;  
#CM11=COMMENT FOR ACCESS CODE 4444;  
#CM11=COMMENT FOR ACCESS CODE 5555;  
#CM11=COMMENT FOR ACCESS CODE 6666;  
#CM11=COMMENT FOR ACCESS CODE 7777;  
#CM11=COMMENT FOR ACCESS CODE 8888;  
#CM11=COMMENT FOR ACCESS CODE 9999;  
#CM11=COMMENT FOR ACCESS CODE 2111;  
#CM11=COMMENT FOR ACCESS CODE 2333;  
#CM11=COMMENT FOR ACCESS CODE 2444;  
#CM11=COMMENT FOR ACCESS CODE 2555;  
#CM11=COMMENT FOR ACCESS CODE 2666;  
#CAR2=3142351111;  
#CAR2=3142352222;  
#CAR2=3142353333;  
#CAR2=3142354444;  
#CAR2=3142355555;  
#CAR2=3142356666;  
#CAR2=3142357777;  
#CAR2=3142358888;  
#CM21=COMMENT FOR CPN 3142351111 COL 1;  
#CM21=COMMENT FOR CPN 3142352222 COL 1;  
#CM21=COMMENT FOR CPN 3142353333 COL 1;  
#CM21=COMMENT FOR CPN 3142354444 COL 1;  
#CM21=COMMENT FOR CPN 3142355555 COL 1;  
#CM21=COMMENT FOR CPN 3142356666 COL 1;  
#CM21=COMMENT FOR CPN 3142357777 COL 1;  
#CM21=COMMENT FOR CPN 3142358888 COL 1;  
#CM22=COMMENT FOR CPN 3142351111 COL 2;  
#CM22=COMMENT FOR CPN 3142352222 COL 2;  
#CM22=COMMENT FOR CPN 3142353333 COL 2;  
#CM22=COMMENT FOR CPN 3142354444 COL 2;  
#CM22=COMMENT FOR CPN 3142355555 COL 2;  
#CM22=COMMENT FOR CPN 3142356666 COL 2;  
#CM22=COMMENT FOR CPN 3142357777 COL 2;  
#CM22=COMMENT FOR CPN 3142358888 COL 2;

}  
}  
}  
| }%

Positive Id (PID) PC Server to SMS Interactions

For SUBSEQUENT CORRECTION UPDATES, the format of the message is slightly different for the FT and CORS fields in the C3 header section, as indicated below. Please note that the value in the CORS field should be alphabetic character, with "A" for the first PC application server pass, "B" for the second PC application server pass, ... "Z" for the final correction pass. This limits the number of subsequent corrections for one order number to 26.

\*C3{FT=COR:  
\_\_\_\_TT=SO:  
\_\_\_\_OT=C:  
\_\_\_\_ORDNO=111111;  
\_\_\_\_CORS=A:  
\_\_\_\_MT=F:  
\_\_\_\_TRN=2;  
\_\_\_\_TSYS=CUSTPC01;  
\_\_\_\_RSYS=SMSA;  
\_\_\_\_PRI=+4;  
\_\_\_\_WC=314235;}%  
\*ODR/  
\_\_\_\_DIFF=N;  
\_\_\_\_CS=PCIF;  
\_\_\_\_DD=960111;}%  
\*RSC/  
\_\_\_\_REC/  
\_\_\_\_CTL/  
\_\_\_\_CTC=C;  
\_\_\_\_CTID=TN[3142351000];  
  
\_\_\_\_... See previous message layout for initial PC Application  
\_\_\_\_Server update.  
\_\_\_\_



## Positive Id (PID) PC Server to SMS Interactions

### 2. Customer Initiated (PC Application Server) Cancellation of an Update (sent to the SMS):

Message Type 2 will be embedded within the Datagate Event of EVT CANCEL with the message structure UPD ACTION containing the information from the PC Application Server.

```
*C3{FT=CAN;  
  TT=SO;  
  OT=C;  
  ORDNO=111111;  
  MT=F;  
  TRN=2;  
  TSYS=CUSTPC01;  
  RSYS=SMSA;  
  PRI=+4;  
  WC=314235;}%
```

## SMS to Positive ID (PID) Status Server Interactions

V15538.S01

## SMS to Positive Id (PID) Status Server Interactions

→ such as DATAGATE

Using SWB proprietary messaging middleware the SMS Server connects to the Positive Id Status Server via Lan/TCP.

### 1. Update PID Tables Acknowledgment From SMS Transaction

SMS has processed a user requested update order that was generated by the PID PC Server and sent to SMS using an EVT\_UPDATE(1100).

**SMS Server Initiated request**  
**Request:**

Event: EVT\_UPDATE\_POSACK 1112

Structure: UPD\_ACTION (Message Layout 7 with No ERT value  
see below)

or

Event: EVT\_UPDATE\_NEGACK 1113

Structure: UPD\_ACTION (Message Layout 8 see below)

**Status Server response**  
**Response:**

Event: EVT\_GOTIT 900

Structure: xdr\_void;

Action: Update the status of the order in the  
client\_order and the client\_order\_tran tables.

### 2. Cancellation Acknowledgment From SMS Transaction

SMS has processed a user requested cancel order that was generated by the PID PC Server and sent to SMS using an EVT\_CANCEL(1120).

**SMS Server initiated request**  
**Request:**

Event: Event: EVT\_CANCEL\_POSACK 1121

Structure: UPD\_ACTION (Message Layout 7 see below)

or

Event: EVT\_CANCEL\_NEGACK 1122

Structure: UPD\_ACTION (Message Layout 8 see below)

## SMS to Positive Id (PID) Status Server Interactions

### Status Server response Response:

Event: EVT\_GOTIT 900

Structure: xdr\_void;

Action: Update the **status** of the order and transactions in the client\_order and the client\_order\_tran tables.  
Set the status of the order to canceled, the status of the last updating transaction to canceled, and the status of the cancellation transaction to completed.

### 3. SOAC Provision Request From SMS Transaction

SMS has received a Positive Id order from SOAC. This could be an add, change or delete of Positive Id.

### SMS Server initiated request Request:

Event: EVT\_SOAC 1130

Structure: UPD\_ACTION (Message Layout 3 see below)

### Status Server response Response:

Event: EVT\_GOTIT 900

Structure: xdr\_void;

Action: Switch on the Function Type (FT) field of the order:

FT=PRE (New Order)

- Store all new PID numbers in the car\_table.
- Store the order in the database.

FT=COR and CPC ?? (Correcting)

- If we have the prior version of the order then resolve the differences between the two versions.  
(If the prior version of the order creates a PID number not created by the latest version of the PID number, then remove the PID number.  
Add all PID numbers created by the newer version of the order which were not created by the prior version of the order.)

Otherwise, treat the order as a new order.

- Store the order in the database.

## SMS to Positive Id (PID) Status Server Interactions

FT=CAN (Cancel)

- Read in the old order from the database.
- Rollback initial work for the order.
- Set the order status to canceled.
- Update order in the database.

The ACL/ACTIVITY is used to indicate the type of activity on the WTN. (Validate that the record has an AINS/AINID field equal to "SCMBX".)

ACTIVITY=A - adding PID

ACTIVITY=C - changing contact information

ACTIVITY=D - deleting PID

### 4. SOAC Provision Acknowledgment From SMS Transaction

SMS has completed a Soac Order that was sent to the Status Server in an event EVT\_SOAC(1130).

#### SMS Server initiated request

##### Request:

Event: EVT\_SOAC\_POSACK      1131

Structure: UPD\_ACTION (Message Layout 4 see below)

or

Event: EVT\_SOAC\_NEGACK      1132

Structure: UPD\_ACTION (Message Layout 5 see below)

#### Status Server response

##### Response:

Event: EVT\_GOTIT      900

Structure: xdr\_void;

##### Action:

If event is EVT\_SOAC\_NEGACK then ignore the message, a correcting order will be sent.

If event is EVT\_SOAC\_POSACK then complete the order. Perform removals, changes, and nbrchg's for PID numbers on the order now. (New installs were taken care of at initial notification of the order.)

## SMS to Positive Id (PID) Status Server Interactions

### UPD ACTION Message Layouts

**UPD\_ACTION** Contains the FCIF message associated with the EVT\_UPDATE, EVT\_UPDATE\_POSACK, EVT\_UPDATE\_NEGACK, EVT\_SOAC, EVT\_SOAC\_POSACK, EVT\_SOAC\_NEGACK, EVT\_CANCEL, EVT\_CANCEL\_POSACK, EVT\_CANCEL\_NEGACK. This message will always be associated with the EVT\_UPDATE.

#### 3. SOAC Updates received by the SMS (sent to the Application Server):

Message Type 3 will be embedded within the Datagate Event of EVT\_SOAC, with the message structure UPD ACTION containing the information from SOAC updates received by the SMS. Two examples have been provided: the first example depicts a change request adding SCMBX to two TNs and the second example depicts how a SCMBX number change request could appear.

#### REQUEST ADDING SCMBX:

```
*C3{FT=PRE;
  TT=SO;
  OT=C;
  ORDNO=111111;
  MT=F;
  TRN=1;
  TSYS=SOACTS8;
  RSYS=CUSTPC01;
  PRI=+1;
  WC=314235;
  PCSTAT=SOACUPD;}%
*ODR{
  DIFF=N;
  CS=PCIF;
  DD=960111;}%
*RSC{
  REC{
    CTL{
      CTC=C;
      CTID=TN[[3142351000]];
    }
    ACL{
      ACTIVITY=A;
      CTID=TN[[3142351000]];
      AINS{
        AINID=SCMBX;
        ASID=HAIRBOWS;
        CARC=TERRY VIETH, 314 235-3659;
        RPI=351000;
      }
    }
  }
}
```

(SCMBX = Scum Box...  
application that  
indicates service  
type)

SMS to Positive Id (PID) Status Server Interactions

```
REC{
  CTL{
    CTC=B;
    CTID=TN[[3142352000]];
  }
  ACL{
    ACTIVITY=A;
    CTID=TN[[3142352000]];
    AINS{
      AINID=SCMBX;
      ASID=BLUEHAIRBOWS;
      CARC=SUE MERZ, 314 235-3028;
      RPI=352000;
    }
  }
}%
```

NUMBER CHANGE REQUEST:

```
*C3{FT=PRE;
  TT=SO;
  OT=C;
  ORDNO=111111;
  MT=F;
  TRN=1;
  TSYS=SOACTS8;
  RSYS=CUSTPC01;
  PRI=+1;
  WC=314235;
  PCSTAT=SOACUPD;}%
*ODR{
  DIFF=N;
  CS=PCIF;
  DD=960111;}%
*RSC{
  REC{
    CTL{
      CTC=C;
      CTID=TN[[3142355000]];
    }
    ACL{
      ACTIVITY=C;
      CTID=TN[[3142355000]];
      OLDCTID=TN[3142351000];
      AINS{
        AINID=SCMBX;
        ASID=REDHAIRBOWS;
        CARC=TERRY VIETH, 314 235-3659;
        RPI=355000;
      }
    }
  }
}%
```

5

## SMS to Positive Id (PID) Status Server Interactions

### 4. POSACK on a SOAC Update upon successfully provisioning to SPACE (sent to the Application Server):

Message Type 4 will be embedded within the Datagate Event of  
EVT SOAC POSACK, with the message structure UPD ACTION  
containing the information from SOAC.

```
*C0{FT=PRE;  
  TT=SO;  
  OT=C;  
  ORDNO=111111;  
  RSPNS=1;  
  TRN=1;  
  TSYS=SOACTS8;  
  RSYS=CUSTPC01;  
  WC=314235;}%
```

### 5. NEGACK on a SOAC Update upon failure to provision to SPACE (sent to the Application Server):

Message Type 5 will be embedded within the Datagate Event of  
EVT SOAC NEGACK, with the message structure UPD ACTION  
containing the information from SOAC.

```
*C0{FT=PRE;  
  TT=SO;  
  OT=C;  
  ORDNO=111111;  
  RSPNS=2;  
  TRN=1;  
  TSYS=SOACTS8;  
  RSYS=CUSTPC01;  
  WC=314235;}%
```

```
*MSG{  
  REC{  
    ERCODE=000001;  
    ERRTXT=THIS IS AN ERROR MESSAGE FOR ORDER NUMBER 1;  
  }  
}%
```

### 7. POSACK on an Application Server Update after successfully provisioning to SPACE (sent to the Application Server):

Message Type 7 will be embedded within the Datagate Event of  
EVT UPDATE POSACK, with the message structure UPD ACTION  
containing the information from SMS.



## SMS to Positive Id (PID) Status Server Interactions

```
*C0{FT=PRE;
  TT=SO;
  OT=C;
  ORDNO=111111;
  RSPNS=1;
  TRN=1;
  TSYS=SMSA;
  RSYS=CUSTPC01;
  WC=314235;}%
```

8. NEGACK on an Application Server Update upon failure to provision to SPACE (sent to the Application Server):

Message Type 8 will be embedded within the Datagate Event of  
EVT\_UPDATE\_NEGACK, with the message structure UPD\_ACTION  
containing the information from SMS.

```
*C0{FT=PRE;
  TT=SO;
  OT=C;
  ORDNO=111111;
  RSPNS=2;
  TRN=1;
  TSYS=SMSA;
  RSYS=CUSTPC01;
  WC=314235;}%

*MSG{
  REC{
    ERCODE=000001;
    ERRTXT=THIS IS AN ERROR MESSAGE FOR ORDER NUMBER 1;
  }
}%
```

9. POSACK on an Application Server Cancellation after successfully queueing to TIPS.

Message Type 9 will be embedded within the Datagate Event of  
EVT\_CANCEL\_POSACK, with the message structure UPD\_ACTION  
containing the information from SMS.

```
*C0{FT=CAN;
  TT=SO;
  OT=C;
  ORDNO=111111;
  RSPNS=1;
  TRN=1;
  TSYS=SMSA;
  RSYS=CUSTPC01;
  WC=314235;}%
```

## SMS to Positive Id (PID) Status Server Interactions

### 10. NEGACK on an Application Server Cancellation upon failure to place a request on the TIPS queue.

Message Type 10 will be embedded within the Datagate Event of  
EVT CANCEL NEGACK, with the message structure UPD ACTION  
containing the information from SMS.

```
*C0{FT=CAN;  
  TT=SO;  
  OT=C;  
  ORDNO=111111;  
  RSPNS=2;  
  TRN=1;  
  TSYS=SMSA;  
  RSYS=CUSTPC01;  
  WC=314235;}%  
*MSG(  
  REC(  
    ERCODE=000001;  
    ERRTXT=THIS IS AN ERROR MESSAGE FOR ORDER NUMBER 1;  
  )  
)%
```

## Update Action FCIF Flags

V15538.S01

## UPD\_ACTION FCIF TAGS

**UPD\_ACTION**      Contains the FCIF message associated with the EVT\_UPDATE, EVT\_UPDATE\_POSACK, EVT\_UPDATE\_NEGACK, EVT\_SOAC, EVT\_SOAC\_POSACK, EVT\_SOAC\_NEGACK, EVT\_CANCEL, EVT\_CANCEL\_POSACK, EVT\_CANCEL\_NEGACK. This message will always be associated with the EVT\_UPDATE.

### FCIF Tag Definitions:

<b>ACL</b>	Action Line Aggregate - ACL will be located within the *RSC/REC section of an update. There will only be two ACLs within each *RSC/REC section on Application Server initiated updates (both an Old view and a New view). On SOAC initiated updates, there can be one, two or three ACLs depending on the activity for a given WTN.
<b>ACT</b>	Action - An ACT tag is found within the ACL aggregate on Application Server initiated updates. Value will be equal to an N (New) or O (Old).
<b>ACTIVITY</b>	The ACTIVITY will be sent in place of the ACT to the Application Server for SOAC initiated updates. The ACTIVITY tag is found within the ACL aggregate and can occur up to three times within a single ACL. Value will equal an A (Add), D (Delete) or a C (Change) for SOAC initiated orders sent to the Application Server.
<b>AINID</b>	AIN Service Identifier - The value is equal to a USOC.
<b>AINS</b>	AIN Service Aggregate - An AINS structure can have multiple occurrences. The number of occurrences of the AINS aggregate is dependent on the number of AIN USOC's on the order.
<b>*C0</b>	SMS to SOAC or SMS to PC Application Server Route Control Header Section. There will only be one occurrence. The *C0 section is used to contain order and routing information used by SOAC or the PC Application Server in the proper processing of an Activation Response.
<b>*C3</b>	SOAC to SMS or PC Application Server to SMS Route Control Header Section. There will only be one occurrence. The *C3 section is used to contain order and routing information used by SMS in the proper processing of an Activation Request.
<b>CS</b>	Class of Service - This is the class of service of the customer being processed. The PC Application Server will default with a value of PCIF on all messages.
<b>CORS</b>	Correction Suffix - Will occur within the *C3 or *C0 header records for correcting passes. The value is the correction suffix, if any, associated with a service order type and number. This could only occur on updates initiated by SOAC and sent to the SMS.
<b>CTC</b>	Control Code - The CTC code can be found in the *RSC/REC/CTL section. The value of B (Build) indicates the customer is adding AIN involvement. The value of R indicates the customer is removing all AIN involvement. The value of C indicates the customer is changing one of their AIN services.
<b>CTID</b>	Circuit Termination Identifier - This is the TN and contains a 10 digit numeric value.
<b>CTL</b>	Control Aggregate - A single CTL aggregate will occur within each *RSC/REC aggregate. This section contains control information identifying the activity to be performed on a record.

## UPD\_ACTION FCIF TAGS

DD	Due Date - DD is found in the *ODR section and identifies the due date of the order.
DIFF	Differencing Flag - For correction passes of SOAC originated orders, the DIFF field may have a value of Y if differencing between the current pass and the previous pass was performed in SOAC. SOAC Differencing determines the nature of the changes from one pass to another. Although this flag is received and required, the SMS does not current use it. The default value is N.
ERCODE	Error Code - This is an eight alphanumeric value. This field is returned to the PC Application Server or SOAC in a NEGACK. This will be located in the *MSG/REC section.
ERRTXT	Error Text - The value can be up to 512 alphanumerics and is returned to the PC Application Server or SOAC in a NEGACK. This will be located in the *MSG/REC section.
FT	Function Type - The FT is located in both the *C3 and *C0 header records. The possible values include PRE, COR, CPC, or CAN.
*MSG	Message Section - The *MSG section is sent in conjunction with the *C0 header record on negative acknowledgments.
MT	Message Type - The MT is found in the *C3 header record and contains a value of M (Manual Assistance Activation Request) or F (Flow Through Activation Request).
*ODR	Order Section - This section contains order level information such as due dates from a service order.
OLDCTID	Old Circuit Termination Identifier - This is the TN and contains a 10 digit numeric value. This tag will only be present on a number change. This tag identifies the old number or the number the customer is moving from.
ORDNO	Order Number - The ORDNO appears in both the *C3 and *C0 header records. This tag indicates the service order number. The value will be 6 numeric characters.
OT	Order Type - The OT appears in both the *C3 and *C0 header records. This tag indicates the type of service order. Values include N (New Connect), D (Disconnect), C (Change), R (Record), F (From), and T (To). However, the application server will only send updates to the SMS with a value of C (Change).
PCSTAT	PC Status - This tag is found in the *C3 header record of an update which originated in SOAC and is sent to the PC Application Server from the SMS. The value will contain SOACUPD for SOAC originated updates. The value will contain GUIUPD for SMS GUI originated updates. The PCSTAT field is also found in the *C0 header record sent to the PC application Server with a value of ACK. This indicates the message is an acknowledgment from the SMS for an update from the PC application server.
PRI	Priority - This is a two position alphanumeric field in *C3 header record. The priority for SOAC activation requests will contain a value of +1. The priority for PC Application Server updates will contain a value of +4.

## UPD\_ACTION FCIF TAGS

REC	Record Aggregate - One or more occurrences may be included within the *RSC section. Each WTN will be in a separate *RSC/REC section.
*RSC	Resource Section - A single *RSC section will be on either a PC Application Server Update or a SOAC Update.
RSPNS	Response - The RSPNS tag will be on a *C0 header record. This tag indicates the type of activation response. A value of 1 indicates a positive activation response. And, a value of 2 indicates a negative activation response.
RSYS	Receiving System - The receiving system is found on both the *C3 and *C0 header records and can be from 3 to 8 alphanumerics. The value should equal SMSA for updates or cancellations originating on the PC Application Server and sent to the SMS. The value should equal CUSTPC01 for updates, POSACKs and NEGACKs sent to the PC Application Server regarding SOAC originated updates. The value should equal CUSTPC01 for GUI originated updates, POSACKs, NEGACKs or acknowledgments, POSACKs and NEGACKs pertaining to PC Application Server originated updates.
TN	Telephone Number - This field is found within the *RSC/REC/ACL section and is 10 numerics.
TRN	Transaction Number - The transaction number is found on both the *C3 and *C0 header records. The transaction number is used to relate the sequencing of messages between SOAC and the SMS or the PC Application Server and the SMS. The value of the TRN in the *C0 header should be the value of the TRN in the corresponding originating *C3 header.
TSYS	Transmitting System - The TSYS is found on both the *C3 header and the *C0 header. The value can be 3 to 8 alphanumerics. This tag indicates the system entity code of the system transmitting the message. For PC Application Server initiated messages, the value will be CUSTPC01. For SMS responses to PC Application Server initiated messages, the value will be SMSA. For SOAC initiated updates sent to the PC Application Server from the SMS, the value will be that of the originating SOAC system. For example, SOACTS8.
TT	Transaction Type - The TT will be found in both the *C3 header and the *C0 header. The value currently will always contain SO.
WC	Wire Center - The WC will be found in both the *C3 header and the *C0 header. The value will be 6 numerics. This value is used by SOAC for queuing SMS activation responses to the appropriate entity. Also, this value determines the workgroup responsible for handling errors, etc., that occur in the SMS.

## Contents of Positive ID (PID) Database

V15538.S01

## PID DATABASE

### Database used by the Positive Id Server's

#### car\_table

Description: The main table used to keep track of valid PID numbers.

car_num	char(10) not null,
active_date	Date not null,
contact_name	varchar(50),
contact_phone	varchar(12),
contact_street	varchar(80),
contact_city	varchar(40),
contact_state	char(2),
contact_zip	varchar(9),
company_id	varchar(20),
comment	varchar(100),
creating_order	varchar(15),
deleted	int default 0,
deleted_date	Date default null,
asid	varchar(30)

(primary key = car\_num)

#### client\_order

Description: The client\_order table holds information about service orders originated by the user via the PC client and PC server.

order_num	varchar(6) not null,
car_num	char(10),
due_date	Date,
order_act	char(6) not null,
recv_dtime	DateTime Year to Minute,
status	char(6) not null,
est_comp_dtime	DateTime Year to Minute,
comp_dtime	DateTime Year to Minute,
chng_indct	char(5) DEFAULT "00000",
correct_pass	char

(primary key = order\_num)

(order\_act values: VIEW, CHANGE)

(status values: PENDING, COMPLETED, FAILED, CANCEL)



## PID DATABASE

### client\_order\_tran

Description: The client\_order\_tran is used to track all activity on a client service order.

A record may exist in this table for order creation, and cancellation. The status and comp\_dtime fields will be set using the acknowledgment message sent from SMS. Values in these fields will be used to set the status and comp\_dtime fields in the client\_order table. The tran\_id field is sent to SMS in the TRN of the message. It is incremented for each request sent to SMS on that order. The associated acknowledgment will have the same tran\_id value.

order_num	varchar(6),
tran_num	integer not null,
uid	varchar(20) not null,
recv_dtime	DateTime Year to Minute,
tran_type	char(6) not null,
status	char(6) not null,
comp_dtime	DateTime Year to Minute

( primary key = order\_num, tran\_num)  
( tran\_type values: SUBMIT, MODIFY, CANCEL)  
( status values: PENDING, COMPLT, FAILED, CANCEL)

### client\_order\_err

Description: The client\_order\_error table is used to hold the error codes and error message returned by SMS for a service order.

order_num	varchar(6) not null,
tran_num	integer not null,
err_code	integer not null,
err_message	varchar(128)

(primary key = order\_num, tran\_num, err\_code)  
(foreign key = order\_num, tran\_num)

### order\_num\_table

Description: The order\_num\_table holds the last order number that was used in the generation of a client order, it is incremented for each new order.

system_name	varchar(20) not null,
order_num_val	integer not null

(primary key = system\_name)

### soac\_order

Description: The soac\_order holds information about service orders received from SMS to provision PID numbers.

## PID DATABASE

order_id	varchar(15) not null,
order_type	char(1) not null,
order_num	varchar(6) not null,
trans_sys	varchar(8) not null,
order_ver	char(1),
due_date	Date not null,
recv_dtime	DateTime Year to Minute,
status	char(6) not null,
comp_dtime	DateTime Year to Minute

(primary key = order\_id)  
(order\_type values: : CREATE, DELETE, NBRCHG)  
(status values: PENDING, COMPLT, FAILED, CANCEL)

### **soac\_order\_xref**

Description: The soac\_order\_xref table ties the service orders to specific PID numbers.

order_id	varchar(15),
car_num	char(10) not null,
order_act	char(6) not null,
prior_car_num	char(10),
contact_name	varchar(65),
contact_phone	varchar(30),
asid	varchar(30)

(primary key = order\_id, car\_num)

### **usr\_car\_xref**

Description: Table to give access to a PID number to a specific user.

uid	varchar(20) not null,
car_num	char(10)

(primary key = uid, car\_num)

### **usr\_car\_lock**

Description: Table to lock a PID number for a specific user.

car_num	char(10),
uid	varchar(20) not null

(primary key = car\_num)



# APPENDIX C

V15538.S01

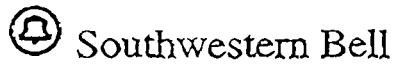
### **An Example of Possible Flow of Events**

- 1 SMS receives a Service Order for Positive Id (PID)
  - 1.1 SMS sends an EVT\_SOAC (1130) to PID Status Server along with an UPD\_ACTION message that contains service order information for establishing one or more PID #'s.
- 2 PID Status Server Receives the EVT\_SOAC (1130) and takes the following actions:
  - 2.1 Inserts the PID numbers into the car\_table.
  - 2.2 Inserts the general order information into the soac\_order table.
  - 2.3 Inserts the PID number specific soac order information into the soac\_order\_xref table.
  - 2.4 Sends an EVT\_GOTIT (900) to SMS to acknowledge receipt of the EVT\_SOAC message.
- 3 New PID Client log's onto the PC Interface.
  - 3.1 PID PC Client sends an event CAR\_LIST\_REQ (130) to the PID PC Server.
- 4 PID PC Server receives event CAR\_LIST\_REQ (130) and takes the following actions:
  - 4.1 Use's the Client user-id to interrogate the usr\_car\_xref table to see what PID numbers the user has access to.
  - 4.2 Checks the car\_table to make certain the PID numbers are valid.
  - 4.3 Checks the client\_order table to see if any of the PID numbers have pending client initiated orders.
  - 4.4 Builds a list of PID numbers with codes to show status (Active, Pending, Initial).
  - 4.5 Sends an event CAR\_LIST\_RSP (131) to the PID PC Client along with the list.
- 5 PID PC Client receives the event CAR\_LIST\_RSP (131) and :
  - 5.1 Displays the list to the user.
- 6 The user highlight's one of the PID numbers and press's the edit button.
  - 6.1 The PID PC Client send an event CAR\_NUM\_EDIT\_REQ (140) to PID PC Server.
- 7 PID PC Server receives event CAR\_NUM\_EDIT\_REQ (140) and takes the following actions:
  - 7.1 Sends an EVT\_SMS (100) along with the REQUEST structure to SMS.
  - 7.2 Waits (blocks) for a response from SMS (can be EVT\_ERROR, EVT\_DATA or EVT\_VIEW\_CHG).
- 8 SMS receives the EVT\_SMS (100) and takes the following actions:
  - 8.1 Does a look up in SMS tables for the working telephone numbers (WTN's) and access code's (ACODE's) for the PID number requested.
  - 8.2 Returns an event EVT\_DATA (200) to the PID PC Server along with the data requested using OSS\_PACKET structure.
- 9 PID PC Server receives the EVT\_DATA (200) and takes the following actions:
  - 9.1 Uses the usr\_car\_lock table to lock the PID number so other users can not modify it.
  - 9.2 Re-formats the WTN data from the OSS\_PACKET structure into the CarWinTable, and WinRecord structures.
  - 9.3 Re-formats the ACODE data from the OSS\_PACKET structure into the CarAcodeTable, and AcodeRecord structures.
  - 9.4 Sends the event CAR\_NUM\_EDIT\_RSP\_WTNS (141) along with the CarWinTable structure to the PID PC Client.

- 9.5 Sends the event CAR\_NUM\_EDIT\_RSP\_ACODE (142) along with the CarAcocdeTable structure to the PID PC Client.
- 9.6 Sends the event CAR\_NUMEDIT\_RSP\_END (143) to the PID PC Client.
- 10 PID PC Client receives the CAR\_NUM\_EDIT\_RSP\_WTNS (141), CAR\_NUM\_EDIT\_RSP\_ACODE (142) and CAR\_NUMEDIT\_RSP\_END (143) events and takes the following action:
  - 10.1 If the structures contained data display the data to the user for modification. If no data was returned (this would be the case on an initial viewing) then display a blank form to allow the user to enter WTN's and ACODES.
- 11 User adds WTN's and ACODE's then press's the submit button. This will submit a client initiated service order to add the WTN's and ACODE's to the PID call records in the ISCP
  - 11.1 PID PC Client format's the user's input into the CarWtnTable and CarAcocdeTable structures.
  - 11.2 PID PC Client sends the event CAR\_NUM\_SUBMIT\_REQ (150) to the PID PC Server.
  - 11.3 PID PC Client sends the event CAR\_NUM\_SUBMIT\_REQ\_WTNS (151) to the PID PC Server.
  - 11.4 PID PC Client sends the event CAR\_NUM\_SUBMIT\_REQ\_ACODES (152) to the PID PC Server.
  - 11.5 PID PC Client sends the event CAR\_NUM\_SUBMIT\_REQ\_END (153) to the PID PC Server.
- 12 The PID PC Server receives the events CAR\_NUM\_SUBMIT\_REQ (150), CAR\_NUM\_SUBMIT\_REQ\_WTNS (151), CAR\_NUM\_SUBMIT\_REQ\_ACODES (152), CAR\_NUM\_SUBMIT\_REQ\_END (153) along with the data structures associated with each event and takes the following actions:
  - 12.1 Creates an entry in the client\_order and client\_order\_tran tables for this order.
  - 12.2 Reformats the data into an UPD\_ACTION message layout 1.
  - 12.3 Sends SMS an event EVT\_UPDATE (1100) along with the UPD\_ACTION structure.
- 13 SMS receives the EVT\_UPDATE (1100) and:
  - 13.1 Sends the PID PC Sever and EVT\_GOTIT (900).
- 14 The PID PC Server receives the EVT\_GOTIT (900) and:
  - 14.1 Sends the PID PC Client an event CAR\_NUM\_SUBMIT\_RSP\_OK.
- 15 Once the order has completed ( the ISCP has been updated via SPACE) then SMS:
  - 15.1 Sends an event EVT\_UPDATE\_POSACK (1112) to the PID Status Server.
- 16 The PID Status Server receives the EVT\_UPDATE\_POSACK (1112) and performs the following actions:
  - 16.1 Updates the client\_order and client\_order\_tran tables, changes the status field's from PENDING to COMPLETE.

# APPENDIX D

V15538.S01



# **Requirements Document**

## **PC User Interface**

**Final**

Revision Date: July 17, 1996

Kristin Chambers  
Product Developer

Table of Contents

TABLE OF CONTENTS ..... 2

DESCRIPTION OF AIN NETWORK..... 4

DESCRIPTION OF POSITIVE ID..... 6

USER INTERFACE ..... 6

    SERVICE NEGOTIATION..... 6

    SERVICE ORDER FLOW ..... 7

        Customer Contact ..... 8

        User IDs and Passwords..... 10

        Resetting Passwords..... 10

    APPLICATION MANAGER DISKETTES..... 11

    USER LOG-ON ..... 11

    THE TABLES..... 12

        Authorized Telephone Number Table ..... 12

        Access Code Table..... 14

        The Activity Log..... 14

    CREATING, SENDING AND CANCELING A PENDING FILE..... 16

    TIME-OUTS ..... 16

    WORKING WITH MULTIPLE POSITIVE ID NUMBERS ..... 17

INTERIM PROCEDURES BETWEEN 4/1 AND 9/7 ..... 17

    ESTABLISHMENT OF USER IDS..... 17

    SENDING TABLES TO SPACE..... 17

    TRANSITION AT 9/7 ..... 19

DIAL-UP PROCEDURES ..... 19

    CNA-NET..... 19

    CNA NETWORK IDS..... 20

    RAS CHANGES..... 20

    SUPPORT CONCERNS ..... 21

    ENCRYPTION..... 21

APPLICATION SERVER ..... 21

AVAILABILITY..... 21

TESTING..... 22

    USABILITY TESTS FOR POSITIVE ID ..... 22

THE NUMBERS ..... 22

HELPDESK..... 22

SERVICE EVOLUTION ..... 23

    REMOTE ACCESS SERVER (RAS)..... 23

    TWO-WAY COMMUNICATION..... 23

    INCORPORATION OF OTHER AIN SERVICES ..... 23

    CALL PROCESSING REPORTS..... 23

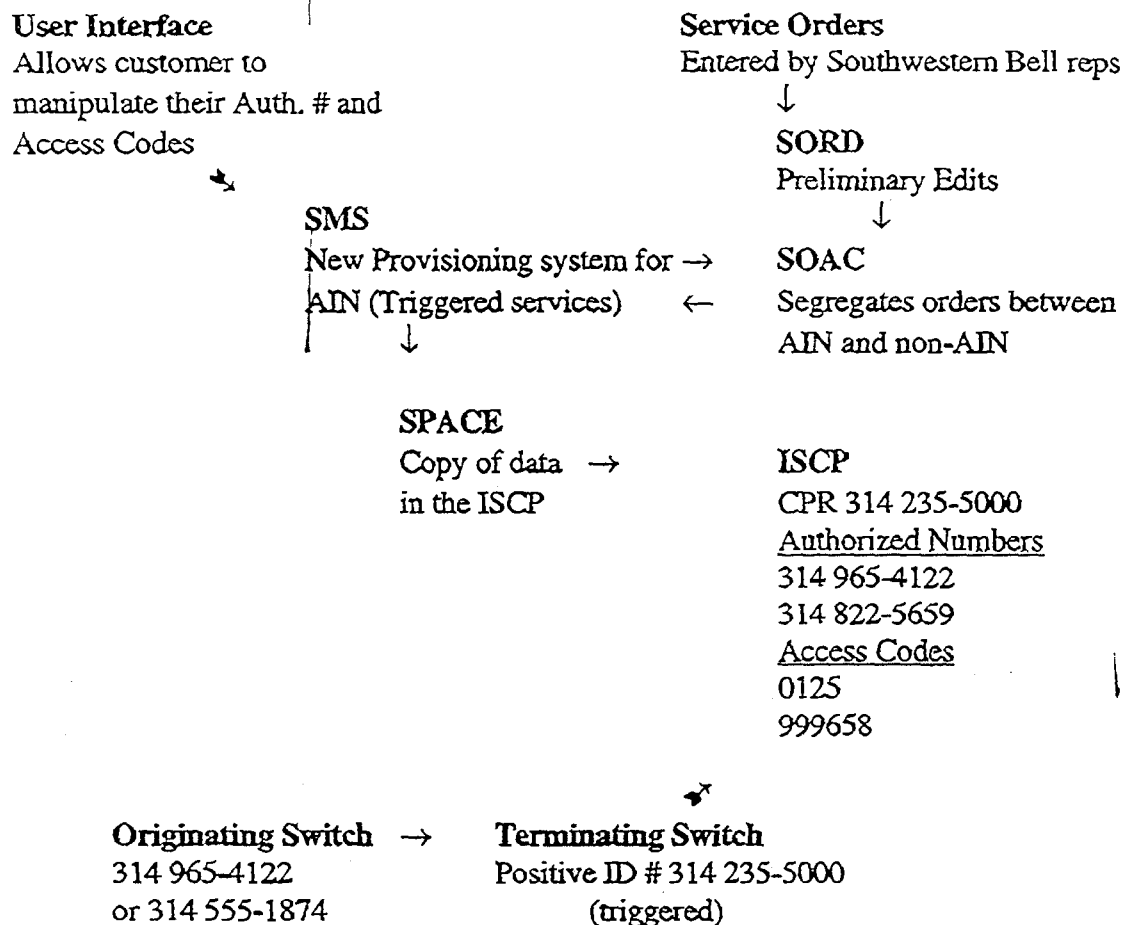


NPA SPLITS.....	23
ATTACHMENT 1 CUSTOMER CONTACT FORM .....	24

## Description of AIN Network

Below is an example of how the Advanced Intelligent Network (AIN) interacts with our existing switch network. The service that is demonstrated is Positive ID. Each of the systems mentioned in the diagram is described on the following pages.

### AIN Flow (using Positive ID as the example)



**AIN:** Originator from 314 965-4122 dials the Positive ID-equipped line of 314 235-5000. The switch notices the trigger against 235-5000, and queries the ISCP for additional information. The ISCP reads the Call Processing Record (CPR) for 235-5000, sees that the customer has Positive ID and checks the screening list to see if the originating number is authorized. 314 965-4122 is on the authorized list, so the ISCP sends a message back to the switch to go ahead and complete the call.

If the originator dialed the Positive ID equipped number from 314 555-1874, the ISCP would find that the number is not on the authorized telephone number list and provide the opportunity for the caller to enter an access code. If the caller did not enter 0125 or

999658, then the call would be disconnected. If a correct access code was input, the call would complete to the dialed number.

**SPACE: (Service Provisioning And Creation Environment):** SPACE carries a copy of the data in the ISCP. SPACE is the network element used for data queries and management by the selected users that have access to it, such as repair. The users do not access the ISCP directly, because we would not want to interfere with call processing by performing data manipulations on the same platform. Updates made through SPACE are input into the ISCP immediately.

**AIN SMS: AIN Service Management System:** Because of the centralized nature of the AIN provisioning, Southwestern Bell needed a new system to analyze service orders and mechanically provision (create) the CPR (call processing record - unique for each working telephone number (WTN)) in the ISCP.

**SOAC:** The SOAC system receives all service order activity from SORD. SOAC contains a series of tables used to identify AIN involved USOCs and FIDs. SOAC isolates the AIN involved service orders and sends them to SMS. Upon successful provisioning, SMS replies to SOAC and SOAC sends a message to MARCH where the AIN trigger is set or removed at the switch.

**User Interface (DTMF):** The customer's CPR contains subscriber data. Southwestern Bell needs to provide a mechanism for customers to establish and maintain their list of 500 Authorized Telephone Numbers and 100 Access Codes. One mechanism to accomplish this is through DTMF updates (Interactive Voice Response - IVR). A customer dials a Southwestern Bell number and follows voice prompts to add or delete numbers or access codes. However, to expect customers to have only the DTMF option to manipulate such extensive data is not providing adequate customer service.

**User Interface (PC):** Thus, the need for a user interface was born. We built a PC interaction between the customer and Southwestern Bell. Customers will load software on their local PC, review and change their subscriber data and send an updated file back to Southwestern Bell. This file will be received by SMS who will send the updated copy to SPACE and subsequently, the ISCP. The file that SMS sends to SPACE will be a complete replacement of data, not transactions adding or deleting entries. Also, the customer will still have the option of updating their data through DTMF. However, we currently do not have an adequate way to pull the current view, **INCLUDING** DTMF updates off of the ISCP. Thus, any updates made through DTMF will NOT be reflected in the User Interface tables. The customer will be alerted that making updates through DTMF will not be reflected in their PC lists and it is the customers responsibility to keep the two systems in sync. We realize that this is less than ideal and hope that future enhancements will allow for two way communication.

The User Interface described in this document includes:

- ◆ The communications software delivered to the customer on diskettes for communication with Southwestern Bell called *App Manager*
- ◆ The specific application software called *Positive ID software*
- ◆ The hardware that is the engine for our Application called the *Application Server*
- ◆ SMS where our data will reside
- ◆ All of the elements of communication including modem banks and RAS.

## Description of Positive ID

Positive ID provides security for access to business phone lines. Positive ID enables subscribers to prevent all incoming calls from being connected, except those from given telephone numbers or those using a customer defined Access Code. Positive ID can be used to limit access to Computer Systems and Remote Access to PBX Features.

Calls are allowed to complete to a Positive ID line only if an authorized CPN is delivered by the SS7 network with the call or if the caller dials an access code when prompted. An 'authorized number' is one that the subscriber has included in their screening list of up to 500 Authorized Telephone Numbers. If no CPN is received or the CPN is not present on the screening list, then the caller may be able to input an access code. The Positive ID subscriber can also create a screening list containing 100 Access Codes. These codes could be distributed to company employees much like SWETN access is handled today; one access code per department. The Positive ID subscriber may choose to use the Authorized Telephone Number screening list, the Access Code screening list or a combination of both.

If the caller into the Positive ID equipped line is not calling from an authorized number and does not input a correct access code, then the call will be sent to a denial announcement and then disconnected.

## User Interface

### *Service Negotiation*

A customer will contact SBAs or Majors to order the Positive ID service. The service rep will negotiate all of the service parameters with the customer. Only certain service elements are described in this document. To obtain complete information about Positive ID, references should be made to the Marketing Service Description or Marketing Methods.

The SCBMX USOC is the Positive ID USOC. It establishes the service, creates the CPR, assigns the trigger and sets up billing for the service.

The CARC FID is placed on the service order with the customer contact name and number behind it. This FID is mandatory on any order with SCMBX. The name behind the CARC FID is the person who will administer Positive ID within the customer's company. This FID is necessary because of the PC User Interface.

The ASID FID is optional on the service order and is used for the sole purpose of validation when a customer calls to have their IVR password reset.

There are minimum requirements to run our software and the service rep that negotiates the order should confirm that the customer has the necessary equipment. To run our software, each Positive ID customer will need to have:

- PC using a 486SX or higher microprocessor
- A minimum of 8 MB of RAM
- Hard disk with 15 MB of free space
- One 3.5" high-density disk drive
- VGA or higher resolution video adapter
- A mouse or compatible pointing device
- Operating Systems of DOS (version 5.0 or higher) or OS/2 (version 2.11 or higher)
- A Hayes compatible modem with a minimum speed of 9600 baud
- Microsoft Windows version 3.1 or later, Windows for Workgroups (version 3.11), or Windows 95

These requirements mean that the interface will not be available to customers operating in an exclusively Macintosh or non-PC environment and we do not support text-based emulations for VT-100s. If a customer cannot meet these requirements, Southwestern Bell will not provide them with the necessary hardware/software. They may either manipulate their data through DTMF exclusively or they cannot purchase Positive ID.

### ***Service Order Flow***

The service order will flow as normal, with some additional processing. The trigger will be provisioned against the line based on the appearance of the SCMBX USOC.

In addition to normal processing, SMS will send a message to the Application Server indicating that a new WTN (working telephone number) has been established and a customer contact must take place to establish the User ID. SMS should send the message of a 'pending' Positive ID number to the application server even before the due date on the service order. This is necessary to allow the subscriber time to set up their list prior to the effective date of their service. This way, they are ready to activate the service at the same time that they begin paying for it. This also implies that SMS will have to send the application server a message if a pending order is canceled. The application server would then need to back-out the WTN that was canceled.

Outward activity on the Positive ID USOCs will be communicated to the server as well. Unlike inward activity, which should cause the subscriber's User ID to be activated within the server prior to due date (so the customer can pre-build their lists prior to due date), disconnect orders should only be worked on their due date. This ensures that the customer can manipulate their lists until the disconnect is due. SMS will send both inward and outward activity to the server as soon as it is received so the server must be programmed to "queue" the disconnect orders until their due date.

Note: The server will keep copies of service order information for 60 days after the completion date of the order. After that, the orders will be deleted, but the server will maintain the active date of the order for editing purposes.

Southwestern Bell has established a new "application coordinator," who is the Southwestern Bell employee that handles the Helpdesk and Support functions for the Positive ID User Interface.

### Customer Contact

For all inward activity, a customer contact will take place. The application server will receive a message from SMS that a new Positive ID TN has been ordered. The server will populate an Admin Tool that is used by the Southwestern Bell application coordinator to maintain User IDs and other customer information. The application coordinator will review the Admin Tool daily and all new customer activity will be highlighted.

The application coordinator will place a call the customer contact. If that contact is unavailable, the coordinator may leave a message with a call back number. Attempts should be made to reach the contact at least 4 times a day (2 hour intervals) until they are successfully contacted.

From the customer, the application coordinator will ascertain the following information:

1. What is the telephone number that Positive ID was ordered against? This is a simple validation procedure to ensure that we are talking to the customer contact.
2. Is this the first telephone number that you have equipped with the Positive ID service?
3. If yes, then ask about the hardware and software configuration of the contact's PC. Do they have our minimum requirements covered? (note: the service rep should have asked this, but always confirm.) What kind of modem do they have? What speed? Do they have enough memory? etc...
4. If yes, acquire an address to send the diskettes to and load the address into the Admin Tool.
5. Ask how many users (one or two) will have access to this Positive ID number.
6. Establish user IDs associated with the Positive ID number following the user ID format, assign the initial password to equal the user ID. The user IDs will be entered into the Admin Tool and a duplicate check will be performed. If the entry is a duplicate, a new user ID needs to be assigned.

7. The User ID assigned to the customer will also be their "Network ID" that will only be necessary when the customer installs the software. Along with their network ID, assign a Network password, that will also be used only in the install process. Note: Only one 'network password' will be assigned per company. Therefore, two User IDs using the same network password can be logged on at the same time.
8. Ask the customer for the company name that they would like associated with this Positive ID number. If subsequent numbers are ordered, they will be grouped by company name. Each company name should be checked for duplicity. If a duplicate, ask the customer to be more specific with their company name, (i.e. by adding a department) so that no confusion occurs.

Therefore, the following information will be held on the Admin Tool and should be displayed to (and edited by) the application coordinator:

- Positive ID WTN (not editable)
- Contact Name and Number
- Diskette Mailing Address
- User IDs assigned (up to 2 fields)
- Network password assigned
- Company name

Based on the information populated by the application coordinator, the Admin Tool will produce a customer contact form containing the information outlined above. The application coordinator will send that form to the customer. An example of the form is an appendix to this document. The application coordinator will also fax a form to a centralized distribution center with the customer contact information. The distribution center will prepare a package containing the Application Manager software diskettes and the User Guides to send to the customer. By following this practice, the diskettes and the User ID information will arrive separately at the customer location.

If the customer contact is an existing customer, the following will occur:

1. If this is NOT the first telephone number that you have equipped with the Positive ID service, then the coordinator will ask for the established User ID.
2. The coordinator will ask the contact to confirm the Company name and the WTN that has been previously connected with the provided user ID for verification.
3. The coordinator will then add the new Positive ID TN to the profile for that user ID.
4. Inform the customer contact that no diskettes will be issued.

To accomplish this task, the Application Coordinator needs to be able to search the Admin Tool by user ID, view the existing profile for that user ID and copy information to be associated with a new Positive ID TN. The coordinator should be able to search by (1) User ID, (2) Positive ID TN, (3) Contact Name and (4) Company name.

An existing user may call the application coordinator to make changes to user profiles. When such a call is made, the coordinator should call back to the contact name and number to ensure that a hacker is not calling the coordinator pretending to be an existing

client. The customer contact should then provide the new User ID information including any changes, deletions or additions. If a User ID is added to a Positive ID number, then a new set of diskettes and User guide, etc. should be sent to the address provided for the new user.

If a customer calls the business office to only change their contact information, then the rep should refer them to the application coordinator and no service order will be issued.

Updates on customer contact information will be sent from the Admin Tool to the server to SMS by sending the CARC FID followed by the new information onto each file that is delivered to SMS. SMS will update all FIDs received from the server, including CARC.

NOTE: A customer cannot order Positive ID by talking straight to the application coordinator, because the coordinator will be unable to originate the service order required to establish the Positive ID logic and trigger against the new line.

#### User IDs and Passwords

The Positive ID customer will have to follow the certain User ID and password standards. The User ID is 6 characters in length following the SUITS ID standard. Our customers User IDs all begin with CUSxxx, with the xxx being just a numeric string.

The password must be at least 6 characters and no more than 8. There must be at least one special character which cannot be either the first or last character. The special character must be one of the following "0123456789!@#\$%". Also the password cannot be the same as the user ID. The password will expire every 30 days and a user cannot repeat a password for six months. In other words, the password used in January cannot be used again until July.

Both User IDs associated with a Positive ID telephone number will have the same access and any changes (additions/deletions) to user IDs will have to be completed by calling the Southwestern Bell application coordinator. Any time a new Positive ID number is ordered to be part of an existing group, a customer contact will be initiated to set up the user IDs appropriately.

#### Resetting Passwords

If a user forgets their password, they should call the application coordinator. When such a call is made, the coordinator should call back to the contact name and number to ensure that a hacker is not calling the coordinator pretending to be an existing client. The customer contact should then confirm the need for a password reset and the password will be reset to equal the User ID.



### ***Application Manager Diskettes***

Three diskettes will be mailed to the Positive ID customer. They should arrive within seven days. Service Negotiation time for Positive ID should be quoted as 10 days to allow for US postage. The three diskettes will contain Application Manager software which is a Southwestern Bell External Customer Access package. It includes all of the dial-up logic and a communication package licensed from CORE. The customer will load the software following prompts. The prompts will include asking the customer for their Network ID (User ID) and Network password, their Comport, the dial-in number that they are trying to reach and other questions.

When the Application Manager software is loaded, an App Manager User ID and password screen will appear. Based on the information populated on this screen, the Application Manager software will create a tool bar with icons for each service that the customer has purchased. Our customer's tool bar will contain an icon for Positive ID. If they click on this icon, the Positive ID application will be launched. The software contains versioning information. When the customer tries to access Positive ID for the first time, the software will notice that they do not have the correct version of Positive ID on their machine (in fact, they have NO version of Positive ID at the moment.) The software will be downloaded to the customer's machine automatically in a process that takes anywhere from 5 to 20 minutes, depending on modem speeds.

No new software should ever need to be sent to the customer, because both App Manager and Positive ID will contain versioning logic. If a customer logs on with an outdated version of either software, the program will download the new software directly (with the customer's concurrence). The App Manager diskettes will be mass produced by the same organization that is copying the Bill Plus diskettes.

By following this procedure, Southwestern Bell has one communication package to maintain (App Manager) for all external customers and the product-specific packages are independent. Diskettes will only be sent to the customer for the initial install and all future updates are made on-line.

### ***User Log-On***

After the customer has successfully completed their installation process, future log-on attempts will be easier. The customer will click on the Application Manager icon in the Southwestern Bell menu. They will be prompted for their User ID and password and then they will connect their modem to Southwestern Bell and bring up their tool bar. From the tool bar, they click on Positive ID and the application will launch.

Based on their User ID, the customer will be provided with a choice of Positive ID numbers to work with. The user's choices will be for the active view of each Positive ID number that they have access to, as well as a pending version if one exists. For example, the screen may look something like this:

<u>Positive ID Number</u>	<u>Service Date</u>	<u>Status</u>
(314) 235-5000	1/12/96	Active
(314) 235-5000	4/2/96	Pending
(314) 331-3100	1/3/96	Active

Once the customer selects a Positive ID number, the application server will launch a query to SMS to pull down the tables (authorized number table and access code table) associated with that Positive ID number. The application server will also 'lock' that Positive ID number so that no other user can access it for editing purposes until the initial user has completed their work.

When the first query is launched, prior to the customer's service order completion date, the server will ask SMS for pending tables at the service order completion date. SMS will have blank tables that they will deliver back to the server.

NOTE: SMS has to send back data for either every AIN service. The server will ignore any extraneous data and only deliver the Positive ID information to the user's screen.

When the customer has created some data, they will "submit" it to Southwestern Bell and software will request an effective date on the changes. If the customer inputs an effective date prior to the service order completion date, then the software will display an error message and ask the customer to enter an effective date on or after the service order completion date. Once the due date is validated, the server will send the tables to SMS who will pass the data through front-end edits and save it until the due date.

If a user wishes to change their data on several occasions prior to the due date on their order, then they may revise their pending view and resend it to SMS when additional changes are made. They may do this up to 25 times before a file is made active.

Note: For accounts in suspended status, SMS will respond to the query from the server requesting their tables with a USOC indicating that the account has been suspended. The software will only allow tables on suspended accounts to be viewed, no edits can be made until the suspension status is removed.

## ***The Tables***

### **Authorized Telephone Number Table**

This table will be a fixed length of 500 entries. The system will automatically filter the customer's entries according to the following rules:

1. The number must be a 10-digit number. The system will automatically surround the NPA portion of the number (area code) with parenthesis and display a dash between the NXX and line number. For example, the user types 3142351122 but the system will display it as (314) 235-1122.

2. The first digit of the NPA portion cannot begin with a 0 or 1 (i.e. 156 will never be a valid NPA).
3. The first digit of the NXX portion of the number cannot begin with a 0 or 1 (035-1940 will never be a valid telephone number).
4. The telephone number cannot contain any spaces or non-numeric characters. If the user attempts to type a non-numeric character in the TN field, the system will simply beep and ignore the keystroke.
5. All telephone numbers in the table must be unique. This edit is not enforced until the user attempts to submit their changes, allowing the copy and paste functions to be used to duplicate entries.

This table will also contain two comment fields of up to 30 characters. Semi-colons will not be allowed in the comments field. The first comment field is intended for the name associated with the telephone number. The field will be populated by the customer (Southwestern Bell will NOT pull calling party name off of any databases), preferably in a last name, first name format to enable the customer to sort on last names of their authorized numbers.

The second comment field will be for something like the department of the person associated with the number or some other handy piece of information. Again, the data can be sorted by this field as well.

By default, the table will be organized in TN order, ascending. This will be accomplished by the software that will sort (or re-sort) the list into TN order before sending the file to the server. When the data is brought down from SMS, it will be in TN order because that is how SMS received it.

Displayed on the screen should be a derived count of the number of authorized telephone numbers that reside on this list. When the customer reaches their 500 limit, the 'new' button will be shadowed and they will not be able to add any more entries. They need to delete some entries before they can proceed.

The number fields AND comments fields will be stored by SMS, but the comments fields will be stripped off prior to SMS sending the messages to SPACE. When two-way communication is available, we will need to coordinate how the SMS tables will be populated by SPACE without losing the comments fields - but that concern for much farther down the road.

Note: The user interface will keep track of the data being manipulated. If the user only changes information in the comments fields, then the interface will send a message to the server indicated that only comments have changed. The server will then send only the comments fields to SMS (without the TN fields) and will mark the change as "local only." This will tell SMS that this update should NOT be sent on to SPACE and the ISCP, but should be saved within SMS.

Access Code Table

This table will be a fixed length of 100 entries. The system will automatically filter the customer's entries according to the following rules:

- 1. The access code string must consist entirely of numeric digits 0 through 9. No non-numeric characters (including spaces) are allowed.
- 2. Access codes must contain at least 4 digits and no more than 7 digits.
- 3. Access codes can contain leading zeros (e.g. the code "0092" will not be treated as "92").
- 4. All access codes in the table must be unique. This edit is not enforced until the user attempts to submit their changes, allowing the copy and paste functions to be used to duplicate entries.

If the software detects that an entry has an error in it, a dialog box will appear explaining the specific problem.

This table will also contain one comments field of up to 30 characters. No semi-colons will be allowed in the comments field. The field will be for the department of the person associated with the number or some other handy piece of information. The data can be sorted by this field. This field will also be stored by SMS, but will be stripped off prior to SMS sending the messages to SPACE.

By default, the table will be organized in Access Code order, ascending. This information will also be sorted by the user interface before it is sent to the server. The data will be sorted by 1st digit, 2nd digit, 3rd digit, etc. regardless of the length of the access code. Therefore, 9901 will appear after 9123456; and 91234 will appear after 9123 (because a blank sorts higher than a number.) This is the standard sort for variable length parameters.

Displayed on the screen should be a derived count of the number of Access Codes that reside on the list. When the customer reaches their 100 limit, the 'new' button will be shadowed and they will not be able to add any more entries. They need to delete some entries before they can proceed.

The same methodology will apply for changes only to the comments fields for the Access Code Tables as applies for the authorized TN tables.

The Activity Log

An Activity Log will be laid out as follows:

<u>USER ID</u>	<u>Positive ID Number</u>	<u>Activity</u>	<u>Date/Time</u>	<u>Effective Date</u>	<u>Status</u>	<u>Status Date/Time</u>
KC1463	(314) 331-2151	Sent file	12/23/95, 08:56	1/3/96	failed	12/23/95, 09:42
KC1463	(314) 235-5000	Accessed	1/3/96, 08:30			
MH1234	(314) 235-5000	Sent file	1/3/96, 13:21	1/20/96	canceled	1/3/96, 17:35

KC1463	(314) 235-5000	Cancel send	1/3/96, 17:05	1/20/96	completed	1/3/96, 17:35
MW3344	(314) 235-6000	Sent file	1/3/96, 18:35	1/3/96	pending	

When a user chooses to retrieve the Activity Log, they have the option to narrow the search to request log entries associated with one specific Positive ID number or all activity after a specified date. If they do not narrow the search, then all entries related to all Positive ID numbers (that the user has access to) for the last 90 days will be displayed.

The log will be saved on the server and individual transactions will age off 90 days after their completion date.

The valid values for the "Activity" field are:

- ✦ Accessed - Positive ID number tables reviewed.
- ✦ Submitted - Positive ID number tables were reviewed, changes were made and sent to SMS. The due date allows users to see which files were sent for immediate queuing and which files are pending for some future date. A Positive ID table that has been modified will show two Log entries, one for 'accessed' and one for 'submitted.'
- ✦ Cancel - Positive ID file that was pending was canceled before it was made active. The due date allows users to know which pending file was canceled by which user, if there happens to be a lot of activity on a given Positive ID account. Note: Cancel actions always queue immediately.
- ✦ Replaced - A pending file was edited and re-submitted to Southwestern Bell. A Positive ID table that was modified will show two Log entries, one for 'accessed' and one for 'replaced.'

The valid values for the "Status" field are:

- ✦ Pending - the files have been submitted, but confirmation has not yet been received from SMS that the tables have become active. Files sent with a future date will, of course, be in pending status for quite some time. Files sent for immediate queuing will be in pending status for the length of time that SMS and SPACE take to process the information. This duration will hopefully be within just a few hours.
- ✦ Completed - the files that were submitted have been provisioned and are now active. The confirmation from SMS has been received.
- ✦ Failed - the submitted files failed somewhere along the way. This will not include a reason description for the failure, because it is probably a problem that requires Southwestern Bell intervention rather than the users. The Southwestern Bell folks will begin working on the fall-out immediately and will notify the customer if any action is required by them.
- ✦ Canceled - pending file was canceled before it was made active. This will allow users to see who sent a file and who canceled it and the timeframes that these activities occurred.

Note: Each Positive ID telephone number is sent as one file. Therefore a customer can work on several numbers during one session, but each Positive ID TN will be a unique

entry on the Activity Log and each Positive ID TN can have unique due dates and/or can be canceled independent of the other Positive ID TNs being manipulated.

### ***Creating, Sending and Canceling a Pending File***

The customer will have an active file and may have one Pending File per Positive ID number. Once a pending file is created, they have 'read only' capability on their Active File (no changes). They have the option to send the pending file to SMS with today's date as the due date (immediate queuing) or a future due date. There is no ability to save a pending file without sending it to SMS.

The customer may choose to edit the Pending file. When they attempt to edit a pending file, they will receive a confirmation message that by editing a pending file, they are canceling their existing pending file. The interface will not attempt to cancel the existing pending file until the customer tries to SUBMIT the new file. Therefore, there is a chance that the initial pending file could become active while edits were being made. If this occurs, a message will be presented to the Customer.

If the user is logged on when a pending file becomes active, the server will update the status on the Activity Log and change the information on the Activity Log from pending to completed.

Additionally, as soon as a pending file is created by any one user - the Active File is 'read only' and no additional pending files can be created. Any authorized user can cancel a pending file, not only the originator - and this activity is captured on the log. The log will show who created the pending file and sent it to SMS and who canceled the file, if that occurred.

We also will establish a 'throttle mechanism' that prevents users from tying up our SMS to SPACE link. The parameters for this will be that one user cannot change one Positive ID number more than 10 times in a 24 hour period. The user ID/Positive ID WTN combination will be the key.

### ***Time-outs***

There are two types of time-outs relative to the Positive ID interface. The first is a 'screen saver' type function that requires the password to be re-entered after a period of inactivity. This period has been defined as 15 minutes. Therefore, after 15 minutes with no keystrokes, the customer's keyboard would lock, relative to this application, until the password is re-entered. The second time-out function is when the modem link will be dropped. After 30 minutes of no keystrokes, the interface will tell the server to drop the connection. As long as the application remains up on the customer's screen - they will NOT lose any of their changes. When they resume the application and they attempt to send the updated file to Southwestern Bell, they will have to wait for 30-45 seconds for the modem connection to be reestablished.

The second (modem) time-out has lead to some new parameters. If the customer edits and submits a new file, the List screen (of all Positive ID numbers and their status) will be refreshed. If the customer is in 'view' mode and exits back to the List screen, no refresh of the list screen will be necessary. If the customer is on the List screen, they can refresh this screen by using the refresh key on that screen.

Customers will be dialing in using an 800 number, of which Southwestern Bell will be paying the toll. Marketing (who is footing the bill) has agreed to the above time-out intervals.

### ***Working with Multiple Positive ID Numbers***

While a customer is working with one Positive ID number, they may choose to open a second number. The procedures will be similar to a single open number - the user may choose between an active view or a pending view, if there is one. The customer may 'toggle' between the two Positive ID numbers similar to how a Microsoft Word user may toggle between open documents. Just as when a single Positive ID number is opened, the server needs to 'lock' the second Positive ID number from being manipulated by any other users, once it is opened.

From one Positive ID table, the customer will be able to copy the entries and paste them into the table for a second Positive ID number. This will assist customer that may have several Positive ID numbers against which they would like the same (or similar) screening lists. The copy function will be performed in a shift/click selection of rows similar to how File Manager operates in Windows. Click and Drag functionality will not be available in the first release of the software.

## **Interim Procedures between 4/1 and 9/7**

### ***Establishment of User IDs***

Because SMS will not be available to pass new Positive ID accounts to the Application Server until 9/7/96, we need an alternative method. SORD has prepared a mechanical search for any inward or outward activity on the SCMBX USOC and copy those orders to a file that is e-mailed to the server. The information needed from the order is the WTN associated with SCMBX, the action code on the SCMBX USOC, the value behind CARC with the customer contact information and the due date of the order. SORD will review the pending file each night and notify the server on a batch basis once a day. The server will then update the Admin Tool once each day with the new information.

### ***Sending Tables to SPACE***

The second concern for this interim period is how new tables sent from the customer through the Application Server will make it to SPACE. This procedure will involve the CNOC and a manual work-around until 9/7/96.

**CNOC Notification of the Positive ID Update**

At midnight each night, the Positive ID server will be programmed to find all updated tables. A batch of changed files will be send to the CNOC. The server will send *both* tables as well as the triggered line via FTP. The CNOC will *not* verify any of the files, rather, they will always load both files.

**CNOC Processing of the Positive ID Update**

Someone in the CNOC will be responsible for receiving the FTP'ed file each morning. This will entail receiving the FTP'ed file and sending it to the appropriate ISCP node SPACE server, opening the Positive ID CPR, editing the table call variables, importing the new customer list files, activating the new Positive ID CPR and finally, confirming back to the Positive ID server that the Positive ID order has been updated in SPACE. The tables are 'embedded' tables in the CPR.

**CNOC Confirmation of the Positive ID Update**

The person assigned to this task will be responsible for confirming that the CPR with the new tables has been activated. This will be accomplished by FTP'ing a message back to the server. Every attempt should be made to complete the FTP'ed file prior to 12 noon on the day received.

The Authorized Telephone Number file on the application server will include the authorized telephone number and 2 comments fields for a total of 3 columns. The Access Code table has the 4-7 digits access codes and only one comments field, for a total of 2 columns. The application server will strip off all comments field and add a row identifier for the file that is to be sent to the CNOC (so the CNOC will receive two tables, each with two columns). The TN table is a fixed length of 500 entries, regardless of how many are populated and is laid out as follows: 10 digit number with no spaces, a tab and then a row identifier (just a sequential number that does not need to be maintained on the server), followed by a carriage return. The row identifier is 3 digits; 001, 002, etc. The Access Code table lay-out is similar; 4 to 7 digit access code, a tab, then a row identifier followed by a carriage return. The Access Code table is a fixed length of 100 entries. The server will always send the CNOC both the access code table and the TN table, regardless of which one was updated.

The server will need to recognize the due date on the service order that SORD stripped off and NOT send tables to the CNOC until the due date has passed. If the CNOC receives files prior to the due date, then they will attempt to provision and will find no CPR to load the tables into.

During the interim period, we will allow users to cancel a pending file only until midnight when the file is FTP'ed to the CNOC.



***Transition at 9/7***

At 9/7, SMS will need to populate their copy of the tables. A flat file will be created by the server and sent to SMS to be uploaded. The lay out of this table has been negotiated and is available on request.

The SMS transaction lay-outs are very important to this project. They are not included in this document, but are available on request.

**Dial-Up Procedures**

The RAS team is currently reviewing the issues with external customer access and timing and RAS is expected to be ready 8/1/96. Therefore, this project initially moved forward by using existing facilities available for CNA-Net.

***CNA-Net***

CNA-Net currently consists of two terminal servers with 32 modems in total. Terminal servers can support 16 modems each and additional terminal servers may be added to the existing set-up up to the limit for Ethernet traffic. There is no capacity concern relative to adding a new terminal server.

After considering capacity and traffic loads, we determined that we will add Positive ID to the CNA-Net modem pool on 4/1/96 without the addition of a terminal server or more modems. No one wishes to purchase modems for just a few months before RAS is in place.

There is also a piece of hardware, a Sparc 10, referred to as the 'Network Management Station.' The network is structured such that inward traffic comes into one of the 32 modems, served off of one of the two terminal servers. These terminal servers are connected to the Network Management Station. After the traffic passes through the Network Management Station, it is passed on to one of the Applications Servers. All application servers are connected to the same Ethernet line and they must all reside on the 7th floor of the Data Center. This will not be an issue for Positive ID, because the CNA application server that we will be sharing is already there. The server that Positive ID will reside on at 4/1/96 is a Sparc 690, affectionately referred to as ELROND.

Also, Positive ID and CNA will reside in a 'quarantined LAN,' because there is one Ethernet interface coming into the application server and there is a second Ethernet interface connecting the server to the Southwestern Bell WAN. By having the two Ethernet interfaces, we have minimized our risk relative to connectivity into our network.

We have a unique 800 number for Positive ID. This is a nation-wide 800 number, in case we have Positive ID administrators outside of the five state region. Marketing (allocated

to each market area) will pay the 800 bill associated with the dial-up line. The Dial-in number for Positive ID is 1-800-286-5169.

With Application Manager, we will distribute a software package called "CORE" to the customer. We are paying CORE based on the number of licenses in use. Many communications packages were researched and CORE was chosen by the support staff and it was also the least expensive.

### ***CNA Network IDs***

The CNA network administrator provides each company with a Network ID and password. One Network ID and password can be assigned for multiple machines. The customer types this into their system during the set-up procedure. This ID and password are also loaded into our Network Management Station. When the customer dials up into our system, the connection will go to the server with the network ID for the specific company (group of customers) machine. Once that is validated, the Network Management Station hands off to ELROND (the application server) who validates the keyed in user ID and password. Therefore, the first network ID is a 'hand-shake' between machines (their local PC and our Network Management Station) and the user is not involved. Then, there is the application server log-on process where the customer will enter their User ID and password on the screen. Once that is validated, the user can access the Positive ID application.

The Network ID and password are each a string of digits that is unique to each company that receives our software. The string values are mailed to the customer on the customer contact form. The Positive ID application coordinator will need to be responsible for obtaining valid Network IDs and coordinate the Network IDs are sent to the customer's and are loaded onto ELROND. This coordination effort should not be a problem because the CNA-Net support staff and the Positive ID application coordinator will reside in the same group.

### ***RAS Changes***

When RAS is available in 3Q 96, then several CNA-Net specific items will change. For example, we will no longer process incoming calls through the Network Management System described above. Incoming calls to our 800 number will terminate into a RAS server in Dallas. The RAS server will perform the validation and pass the caller off to the application server where App Manager will create their toolbar, based on their User ID.

The Network Password and Network ID combination will change also, because we are not using the Network Management System. The application User ID will serve as the customer's Network ID. They will receive a new, case-sensitive Network Password. Therefore, during installation, the customer will enter their User ID and the Network password provided by the application coordinator. After installation, the customer will

not enter their network password on any future log-ins. Their application User ID and password will be all they will need.

### ***Support Concerns***

An overriding concern was expressed that it is difficult to estimate the complexities associated with this type of communication between customer's system and Southwestern Bell system. We may have compatibility issues with modems, TCP/IP stacks, the customer's software that is loaded onto their local PC, the hardware that the customer is running on, with the Network LAN configurations of the customer's company, etc. CNA has had experience with all of these issues and they have found that nearly every customer is walked-through the connectivity issues specific to their situation. Very few customers can set up the software and connection without a conversation with a Southwestern Bell employee. This needs to be factored into future Helpdesk conversations regarding Positive ID.

### ***Encryption***

There is a need for encryption between the customer's PC and our application server. We decided to provide encryption WITHOUT public/private keys. We will hard-code into the software diskette a random string that will turn data into gibberish when sent across the public network. The application server will know the same random string and will decrypt the information. This is accomplished quite easily with an RSA application.

### ***Application Server***

We are going to share server space with CNA. CNA ordered a new SUN server (Sparc 2000) and Positive ID contributed \$40,000 to secure additional memory on that machine.

Since both the Application Server and SMS reside within the Southwestern Bell WAN, the communications between the two will be via Datagate API to ensure proper security.

### ***Availability***

The system will generally be available on a 7 x 24 hour basis. However, it should be noted in customer documentation that system maintenance will be performed in the off-hours and may delay system response time or prohibit access for a brief period of time.

Support in the form of a Helpdesk will only be available from 7 a.m. to 5 p.m. on weekdays.

## Testing

### *Usability Tests for Positive ID*

Preliminary usability tests were performed in Austin by Chuck Green, Human Factors - TRI in November. More formal tests took place on January 23rd with Tracy Brokaw, Peggy Blanner and Chuck and five members of the user community in Austin. The clients ran through the prototype and commented on its functionality. Results of the study are available upon request. No substantial problems or bugs were uncovered and it appears that the software is usable and friendly. Some long-term changes will be documented for incorporation into a later release of the software.

The Application Manager software was not tested by TRI, and consequently, has not been blessed by TRI Human Factors as being usable and friendly. Future testing and enhancements are being coordinated.

## The Numbers

The Helpdesk number for the PC Interface for Positive ID is 1-800-274-8919, which terminates locally to (314) 235-9282. The dial-in number for access to our application server is 1-800-286-5169 and terminates locally to (314) 340-1000 (through 1032).

## Helpdesk

Positive ID has a variety of situations that require some sort of Helpdesk.

- Establishment of user IDs on the Application Server. This will be handled by the Application Coordinator in IS. {1-800-274-8919.}
- Answer PC-specific questions associated with the software and the communications. Questions such as (1) inability to appropriately load the software associated with the PC Interface, (2) terminal emulation concerns in accessing Southwestern Bell's server, (3) PC configuration concerns, (4) Subscriber platform concerns, (5) Southwestern Bell server and/or dial-up access concerns. This will be handled by the Application Coordinator in IS. {1-800-274-8919.}
- Answer AIN and call processing questions. We need an individual who can field questions about AIN triggers and switch functionality. Questions such as why is a number on the screening list not able to complete a call without entering an Access Code? (Could be because no CPN was delivered on the call because of a non SS7 end office.) This call should go to the local Repair bureau.

The AIN Helpdesk, which should be in place in 1996 will answer 'how-to' questions from a philosophical level. They will not assist customers with trouble-shooting exercises but they will explain concepts to customers. Their presence should assist Repair in that 'conceptual' questions are the most time-consuming calls to the repair bureau.

## Service Evolution

### *Remote Access Server (RAS)*

Security would like for all future applications to use the Remote Access Server (RAS) for access into Southwestern Bell applications. It is a more secure method of communication. When RAS is operational for external customers, we will migrate the existing Positive ID customers to the new communications method. This is currently scheduled for 8/1/96.

### *Two-way communication*

Two-way communication is the ultimate goal for this interface, so that when a customer logs onto our server from their PC, their Active view is pulled from the ISCP instead of from a saved version in SMS. This will ensure that any DTMF updates are reflected in the PC file, which today they are not.

An additional concern with two-way communication will be the comments fields associated with the authorized number table and the access code table. Research will need to be done to determine how we can maintain the comments fields.

### *Incorporation of other AIN services*

In mid to late 1997, Intelligent Redirect, Disaster Routing Service, Area Wide Networking and Texan will all require a PC User Interface for their customers. At that time, Positive ID will be redesigned and all of the AIN services will be managed in a similar fashion. We will probably migrate Positive ID logic to an independent application server that will be used by all AIN services and we will have one helpdesk and a common look and feel, etc. This project is named "Customer Change Vehicle" and may even combine the efforts of this interface and the AIN Sales Tool.

### *Call Processing Reports*

One possible evolution is that the call processing reports that are produced for Positive ID from the DRS system, the 'Successful Attempts Log' and the 'Unsuccessful Attempts Log' be delivered to the user through the PC, rather than through the mail. This would be extremely efficient and cost effective.

### *NPA Splits*

As future NPA splits occur, some communication will need to take place with the Application server such that accounts can be changed to the new NPA on the appropriate date. This is a concern and will impact the Dallas and Houston splits that are scheduled for 1996.

## Attachment 1 Customer Contact Form

CUSTOMER NAME HERE,

Thank you for selecting Positive ID service from Southwestern Bell. You will be pleased with the control over your phone line that this service provides. Positive ID service is a line of defense that will help protect your phone line against fraudulent callers and will help you maintain confidentiality and privacy of your communications.

The following information is needed to easily and quickly access Southwestern Bell in order to establish and modify your Authorized Telephone Numbers and Access Codes. For your protection, the software was provided under separate cover.

---

Positive ID was ordered for COMPANY NAME HERE  
to restrict access to the number (XXX) XXX-XXXX.

You requested TWO User ID(s), assigned as USERID1 and USERID2.  
As requested, you are authorized to install this software on TWO machine(s) at your company.  
Additional installations of this software is a violation of the license agreement.

The Network ID that is assigned to COMPANY NAME HERE  
is: XXXXXXXXXXXX . The Network Password is: XXXXXXXXXXXX.  
(Please note this information is case sensitive. So please input the ID and password as it is displayed above).

This information will be required when you install the software. It is specific to your company or division.

Southwestern Bell recommends the following modem string:  
AT&F&C1

The dial-in access number is 1-800-286-5169.

Again, thank you for your purchase of Positive ID. We're here to support you with prompt expert service. Please call 1-800-274-8919 for software installation assistance.

Sincerely,

Southwestern Bell Positive ID  
Application Support Coordinator

150.00 - 114



App: d for use through 04/11/98. ONE 04/03/97  
Patent and mark Office; U.S. DEPARTMENT OF COMMERCE

PROVISIONAL APPLICATION COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION under 37 CFR 1.53

40397 U.S. 60042680 04/03/97

Docket Number	VI5538	Type a plus sign (+) inside this box —>	+
---------------	--------	---	---

INVENTOR(s) / APPLICANT(s)

LAST NAME	FIRST NAME	MIDDLE INITIAL	RESIDENCE (CITY AND EITHER STATE OR FOREIGN COUNTRY)
1-00 BANIAK	Paul	G.	St. Louis, MISSOURI MO

TITLE OF THE INVENTION (280 characters max)

PROFILE MANAGEMENT SYSTEM INCLUDING USER INTERFACE FOR ACCESSING AND MAINTAINING PROFILE DATA OF USER SUBSCRIBED TELEPHONY SERVICES

CORRESPONDENCE ADDRESS

Bruce H. Bernstein  
GREENBLUM & BERNSTEIN P.L.C.  
1941 Roland Clarke Place  
Reston, VA. 20191

STATE	VA.	ZIP CODE	20191	COUNTRY	U.S.A.
-------	-----	----------	-------	---------	--------

ENCLOSED APPLICATION PARTS (check all that apply)

<input checked="" type="checkbox"/> Specification	Number of Pages	<input type="checkbox"/> Small Entity Statement
<input checked="" type="checkbox"/> Drawing(s)	Number of Sheets	<input checked="" type="checkbox"/> Other (specify)
		Appendices A-D

METHOD OF PAYMENT (check one)

<input checked="" type="checkbox"/> A check or money order is enclosed to cover the Provisional filing fees	PROVISIONAL FILING FEE AMOUNT (\$)	
<input type="checkbox"/> The Commissioner is hereby authorized to charge filing fees and credit Deposit Account Number: _____	\$150.00	

The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.

☒ No.  
☐ Yes, the name of the U.S. Government agency and the Government contract number are: \_\_\_\_\_

Respectfully submitted,

SIGNATURE Leslie J. Dwyer Reg No. 33,329 Date 04/03/97

TYPED or PRINTED NAME Bruce H. Bernstein Registration No. 29,027 (if appropriate)

☒ Additional inventors are being named on separately numbered sheets attached hereto

PROVISIONAL APPLICATION FILING ONLY

# PROVISIONAL APPLICATION COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION under 37 CFR 1.53 (b)(2).

Docket Number		V15538		Type a plus sign (+) inside this box —>		+
INVENTOR(S) / APPLICANT(S)						
LAST NAME	FIRST NAME	MIDDLE INITIAL	RESIDENCE (CITY AND EITHER STATE OR FOREIGN COUNTRY)			
BANIAK	Paul	G.	St. Louis, MISSOURI			
TITLE OF THE INVENTION (280 characters max)						
PROFILE MANAGEMENT SYSTEM INCLUDING USER INTERFACE FOR ACCESSING AND MAINTAINING PROFILE DATA OF USER SUBSCRIBED TELEPHONY SERVICES						
CORRESPONDENCE ADDRESS						
Bruce H. Bernstein GREENBLUM & BERNSTEIN P.L.C. 1941 Roland Clarke Place Reston, VA. 20191						
STATE	VA.	ZIP CODE	20191	COUNTRY	U.S.A.	
ENCLOSED APPLICATION PARTS (check all that apply)						
<input checked="" type="checkbox"/>	Specification	Number of Pages	17	<input type="checkbox"/>	Small Entity Statement	
<input checked="" type="checkbox"/>	Drawing(s)	Number of Sheets	5	<input checked="" type="checkbox"/>	Other (specify) <input type="text"/> Appendices A-D	
METHOD OF PAYMENT (check one)						
<input checked="" type="checkbox"/>	A check or money order is enclosed to cover the Provisional filing fees			PROVISIONAL FILING FEE AMOUNT(S)		
<input type="checkbox"/>	The Commissioner is hereby authorized to charge filing fees and credit Deposit Account Number: _____			\$150.00		

The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.

☒ No.  
☐ Yes, the name of the U.S. Government agency and the Government contract number are: \_\_\_\_\_

Respectfully submitted,  
SIGNATURE Leslie J. Orpurne Reg No. 33,329 Date 04/03/97  
TYPED or PRINTED NAME Bruce H. Bernstein Registration No. 29,027  
(if appropriate)

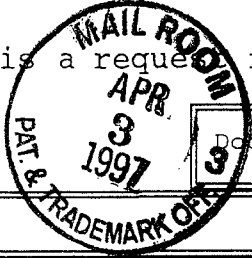
☒ Additional inventors are being named on separately numbered sheets attached hereto

PROVISIONAL APPLICATION FILING ONLY



PROVISIONAL APPLICATION COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION under 37 CFR 1.53 (b)(2).



Docket Number		V15538		Type a plus sign (+) inside this box —>		+	
INVENTOR(S) / APPLICANT(S)							
LAST NAME		FIRST NAME		MIDDLE INITIAL		RESIDENCE (CITY AND EITHER STATE OR FOREIGN COUNTRY)	
BANIAK		Paul		G.		St. Louis, MISSOURI	
TITLE OF THE INVENTION (280 characters max)							
PROFILE MANAGEMENT SYSTEM INCLUDING USER INTERFACE FOR ACCESSING AND MAINTAINING PROFILE DATA OF USER SUBSCRIBED TELEPHONY SERVICES							
CORRESPONDENCE ADDRESS							
Bruce H. Bernstein GREENBLUM & BERNSTEIN P.L.C. 1941 Roland Clarke Place Reston, VA. 20191							
STATE		VA.		ZIP CODE		20191	
COUNTRY		U.S.A.					
ENCLOSED APPLICATION PARTS (check all that apply)							
<input checked="" type="checkbox"/> Specification Number of Pages <input type="text" value="17"/> <input type="checkbox"/> Small Entity Statement							
<input checked="" type="checkbox"/> Drawing(s) Number of Sheets <input type="text" value="5"/> <input checked="" type="checkbox"/> Other (specify) <input type="text"/> Appendices A-D							
METHOD OF PAYMENT (check one)							
<input checked="" type="checkbox"/> A check or money order is enclosed to cover the Provisional filing fees						PROVISIONAL FILING FEE AMOUNT(S)	
<input type="checkbox"/> The Commissioner is hereby authorized to charge filing fees and credit Deposit Account Number: _____						\$150.00	

The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.

☒ No.

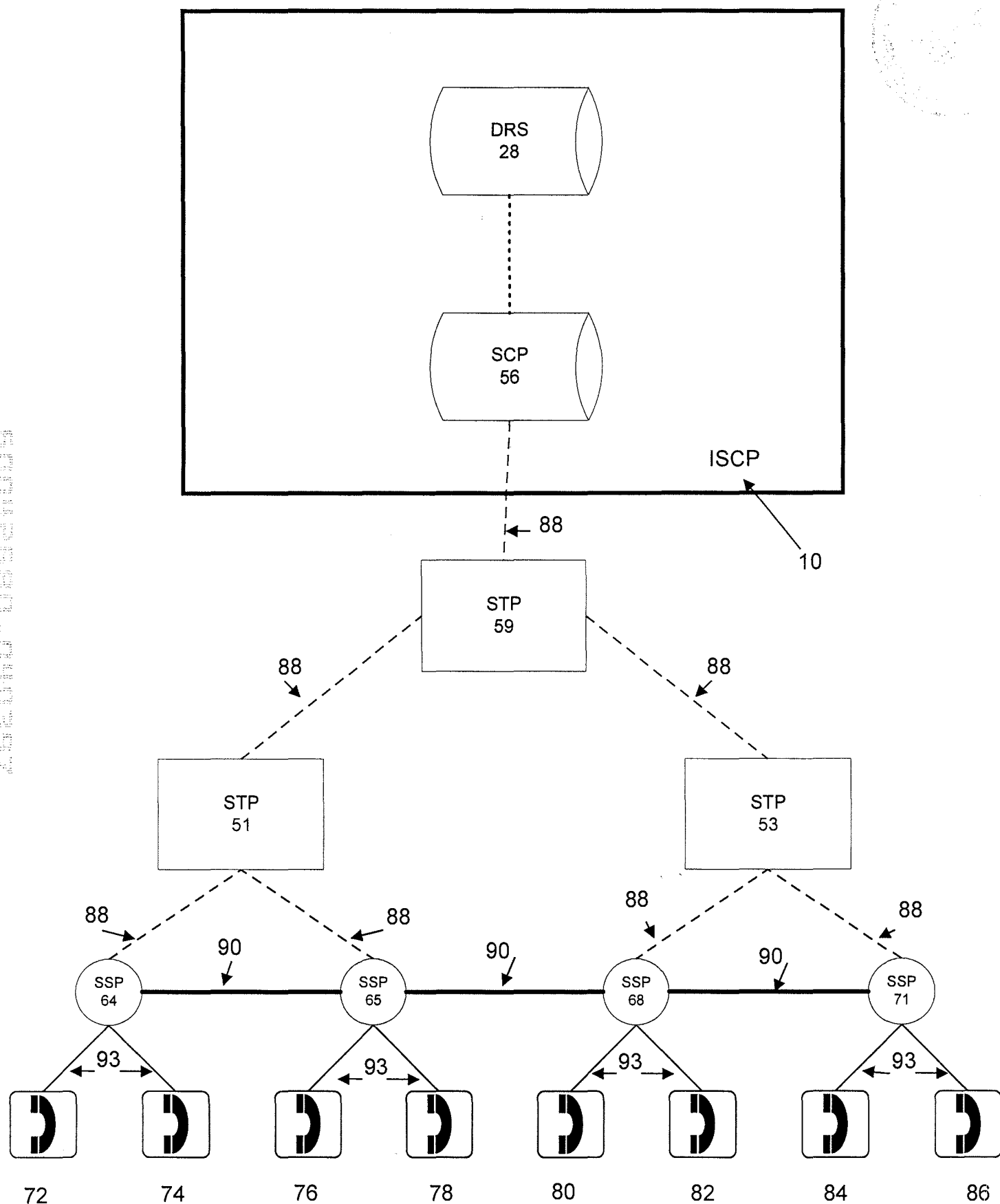
☐ Yes, the name of the U.S. Government agency and the Government contract number are: \_\_\_\_\_

Respectfully submitted,  
SIGNATURE Leslie J. Daperna Reg No. 33,329 Date 04/03/97  
TYPED or PRINTED NAME Bruce H. Bernstein Registration No. 29,027  
(if appropriate)

☒ Additional inventors are being named on separately numbered sheets attached hereto

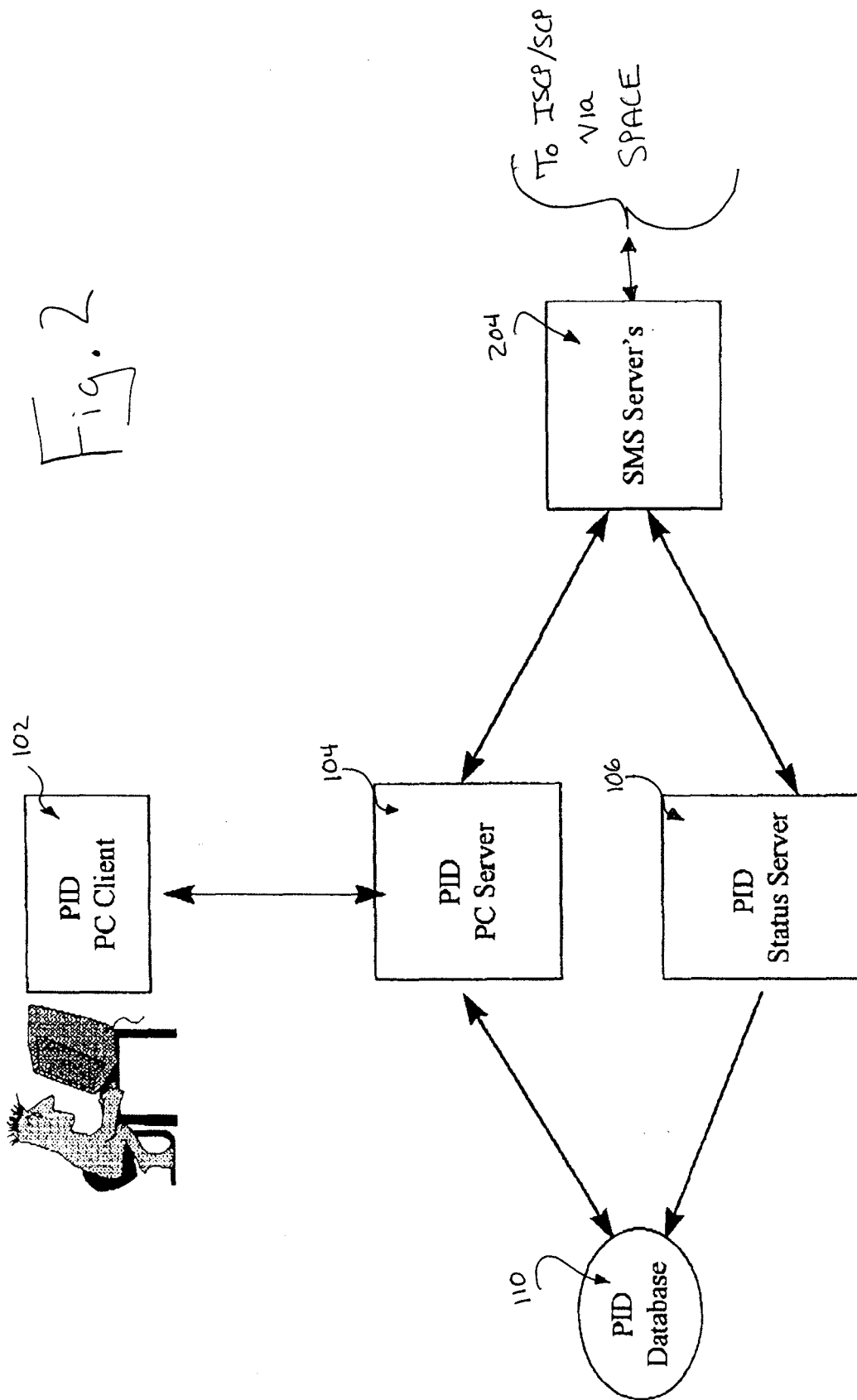
PROVISIONAL APPLICATION FILING ONLY

2025 RELEASE UNDER E.O. 14176

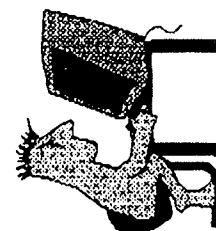
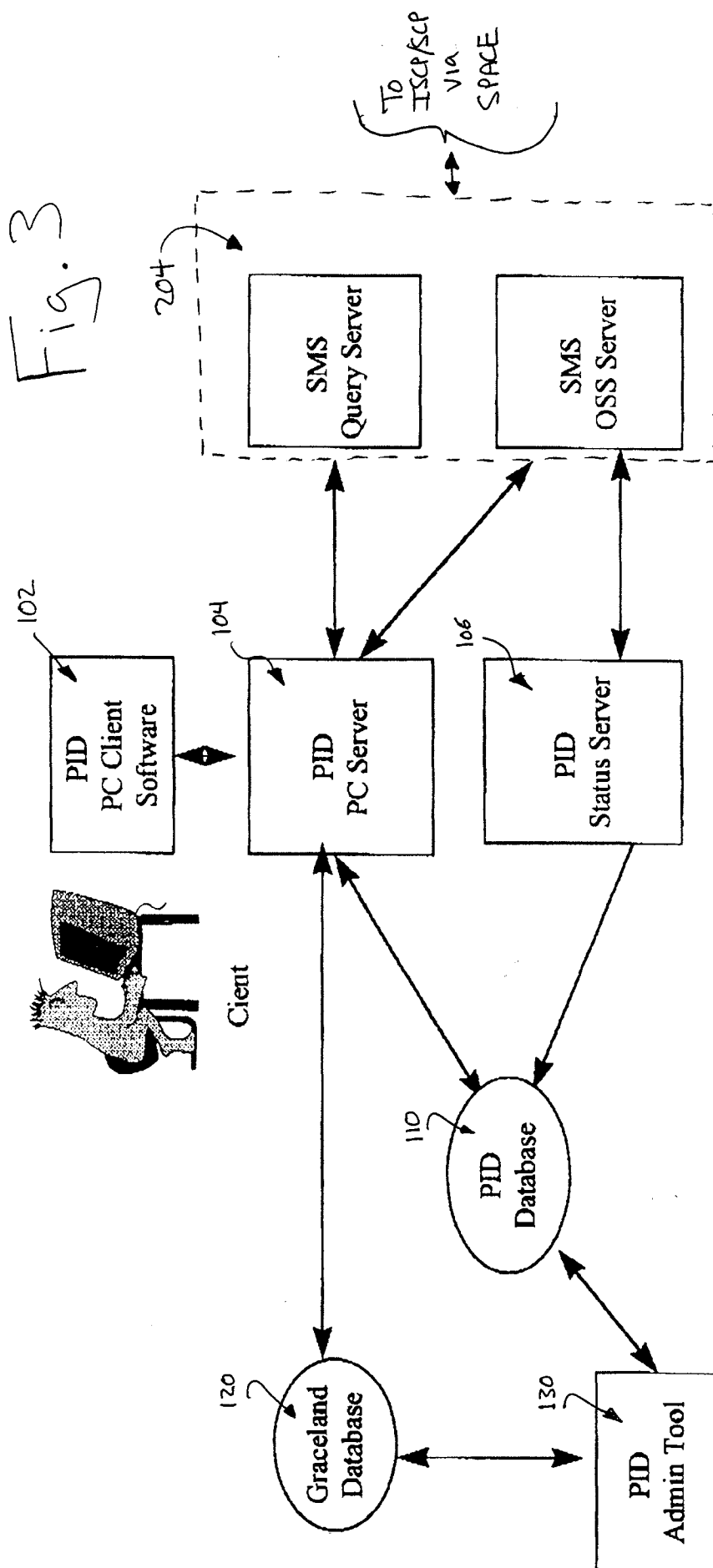


**FIG. 1**  
(PRIOR ART)

Positive ID (PID) Software

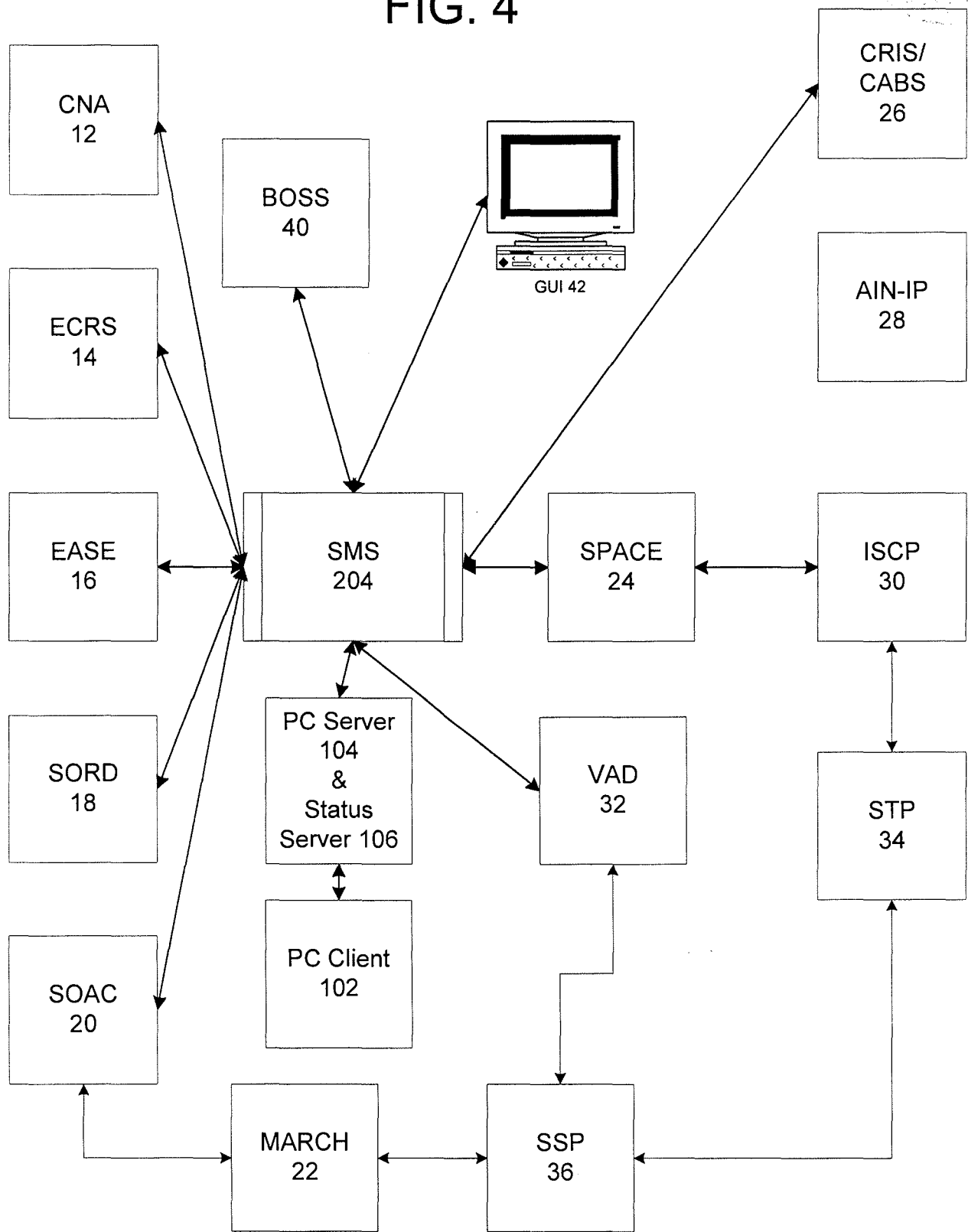


Positive ID (PID) Software



Support Person

FIG. 4



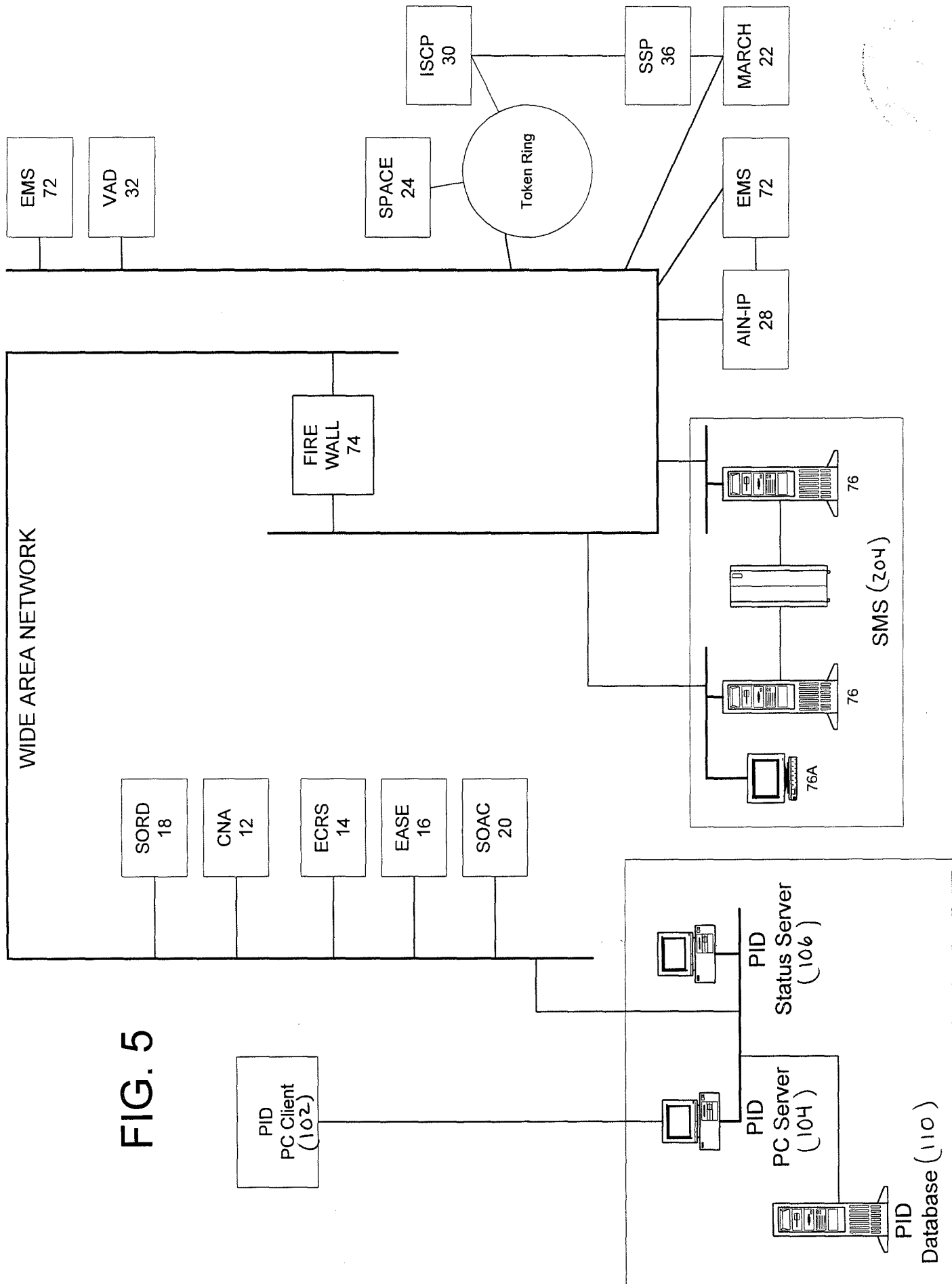


FIG. 5

Form PTO 1130  
(REV 2/94)

PACE DATA ENTRY CODING SHEET

U.S. DEPARTMENT OF COMMERCE  
Patent and Trademark Office

1ST EXAMINER  
Diane Russek

2ND EXAMINER

DATE  
9-4-97

DATE

APPLICATION NUMBER  
60/047,680

TYPE APPL  
9

FILING DATE  
MONTH DAY YEAR  
04 03 97

SPECIAL HANDLING

GROUP ART UNIT

CLASS

SHEETS OF DRAWING  
005

TOTAL CLAIMS

INDEPENDENT CLAIMS

SMALL ENTITY?

FILING FEE  
0150

FOREIGN LICENSE

ATTORNEY DOCKET NUMBER  
V15538

CONTINUITY DATA

CONT STATUS  
CODE

CODE

PARENT APPLICATION  
SERIAL NUMBER

PCT APPLICATION SERIAL NUMBER

PARENT PATENT  
NUMBER

PARENT FILING  
DATE  
MONTH DAY YEAR

PCT/FOREIGN APPLICATION DATA

FOREIGN PRIORITY CLAIMED

COUNTRY CODE

PCT/FOREIGN APPLICATION SERIAL NUMBER

FOREIGN FILING DATE  
MONTH DAY YEAR

ATT-2039

Cox v. AT&T

IPR2015-01227

Page 127 of 135

ATTACHMENT A: LISTING OF ADDITIONAL INVENTOR

2-00  
FULL NAME OF 2ND INVENTOR: Kristin CHAMBERS

RESIDENCE/POST OFFICE ADDRESS: 1616 Guadalupe Room 712

Austin, TX 78701 TX

CITIZENSHIP: U.S.A.

3-00  
FULL NAME OF 3RD INVENTOR: Katherine L. KREIN

RESIDENCE/POST OFFICE ADDRESS: One Bell Center Room 23-P-02

St. Louis, MO 63101 MO

CITIZENSHIP: U.S.A.

4-00  
FULL NAME OF 4TH INVENTOR: Christopher H. ROLWES

RESIDENCE/POST OFFICE ADDRESS: One Bell Center Room 22-N-06

St. Louis, MO 63101 MO

CITIZENSHIP: U.S.A.

5-00  
FULL NAME OF 5TH INVENTOR: Terry L. VIETH

RESIDENCE/POST OFFICE ADDRESS: One Bell Center Room 18-D-01

St. Louis, MO 63101 MO

CITIZENSHIP: U.S.A.

6-00  
FULL NAME OF 6TH INVENTOR: Tracy L. BROKAW

RESIDENCE/POST OFFICE ADDRESS: 10229 Carriage Crossing Place Drive

St. Louis, MO 63101 MO

CITIZENSHIP: U.S.A.



7-00  
FULL NAME OF 7TH INVENTOR: Mary B. CLARK

RESIDENCE/POST OFFICE ADDRESS: One Bell Center Room 18-E-05

St. Louis, MO 63101 *MO*

CITIZENSHIP: U.S.A.

ATTACHMENT A: LISTING OF ADDITIONAL INVENTOR

FULL NAME OF 2ND INVENTOR: Kristin CHAMBERS

RESIDENCE/POST OFFICE ADDRESS: 1616 Guadalupe Room 712

Austin, TX 78701

CITIZENSHIP: U.S.A.

FULL NAME OF 3RD INVENTOR: Katherine L. KREIN

RESIDENCE/POST OFFICE ADDRESS: One Bell Center Room 23-P-02

St.Louis, MO 63101

CITIZENSHIP: U.S.A.

FULL NAME OF 4TH INVENTOR: Christopher H. ROLWES

RESIDENCE/POST OFFICE ADDRESS: One Bell Center Room 22-N-06

St.Louis, MO 63101

CITIZENSHIP: U.S.A.

FULL NAME OF 5TH INVENTOR: Terry L. VIETH

RESIDENCE/POST OFFICE ADDRESS: One Bell Center Room 18-D-01

St.Louis, MO 63101

CITIZENSHIP: U.S.A.

FULL NAME OF 6TH INVENTOR: Tracy L. BROKAW

RESIDENCE/POST OFFICE ADDRESS: 10229 Carriage Crossing Place Drive

St.Louis, MO 63101

CITIZENSHIP: U.S.A.

FULL NAME OF 7TH INVENTOR: Mary B. CLARK

RESIDENCE/POST OFFICE ADDRESS: One Bell Center Room 18-E-05

St.Louis, MO 63101

CITIZENSHIP: U.S.A.

ATTACHMENT A: LISTING OF ADDITIONAL INVENTOR

FULL NAME OF 2ND INVENTOR: Kristin CHAMBERS

RESIDENCE/POST OFFICE ADDRESS: 1616 Guadalupe Room 712

Austin, TX 78701

CITIZENSHIP: U.S.A.

FULL NAME OF 3RD INVENTOR: Katherine L. KREIN

RESIDENCE/POST OFFICE ADDRESS: One Bell Center Room 23-P-02

St.Louis, MO 63101

CITIZENSHIP: U.S.A.

FULL NAME OF 4TH INVENTOR: Christopher H. ROLWES

RESIDENCE/POST OFFICE ADDRESS: One Bell Center Room 22-N-06

St.Louis, MO 63101

CITIZENSHIP: U.S.A.

FULL NAME OF 5TH INVENTOR: Terry L. VIETH

RESIDENCE/POST OFFICE ADDRESS: One Bell Center Room 18-D-01

St.Louis, MO 63101

CITIZENSHIP: U.S.A.

FULL NAME OF 6TH INVENTOR: Tracy L. BROKAW

RESIDENCE/POST OFFICE ADDRESS: 10229 Carriage Crossing Place Drive

St.Louis, MO 63101

CITIZENSHIP: U.S.A.

FULL NAME OF 7TH INVENTOR: Mary B. CLARK

RESIDENCE/POST OFFICE ADDRESS: One Bell Center Room 18-E-05

St.Louis, MO 63101

CITIZENSHIP: U.S.A.

REQUEST FOR ACCESS TO AN ABANDONED APPLICATION UNDER 37 CFR 1.14

Bring completed form to:

File Information Unit, Suite 3A20  
2800 South Randolph Street  
Arlington, VA 22206

Telephone: (703) 756-1800

In re Application of

**RECEIVED**  
**JAN 19 2015**  
**Baniak**

Application Number

**60/042,680**

Filed

**Apr. 3. 1997**

BY: \_\_\_\_\_

Paper No. \_\_\_\_\_

I hereby request access under 37 CFR 1.14(a)(1)(iv) to the application file record of the above-identified ABANDONED application, which is not within the file jacket of a pending Continued Prosecution Application (CPA) (37 CFR 1.53(d)) and which is identified in, or to which a benefit is claimed, in the following document (as shown in the attachment):

United States Patent Application Publication No. \_\_\_\_\_, page, \_\_\_\_\_ line \_\_\_\_\_

United States Patent Number **2001/0048738**, column \_\_\_\_\_, line, \_\_\_\_\_

WIPO Pub. No. \_\_\_\_\_, page \_\_\_\_\_, line \_\_\_\_\_

Related Information About Access to Applications Maintained in the Image File Wrapper System (IFW) and Access to Pending Applications in General

A member of the public, acting without a power to inspect, cannot order applications maintained in the IFW system through the FIU. If the member of the public is entitled to a copy of the application file, then the file is made available through the Public Patent Application Information Retrieval system (Public PAIR) on the USPTO internet web site ([www.uspto.gov](http://www.uspto.gov)). Terminals that allow access to Public PAIR are available in the Public Search Room. The member of the public may also be entitled to obtain a copy of all or part of the application file upon payment of the appropriate fee. Such copies must be purchased through the Office of Public Records upon payment of the appropriate fee (37 CFR 1.19(b)).

For published applications that are still pending, a member of the public may obtain a copy of:  
the file contents; the pending application as originally filed; or any document in the file of the pending application.

For unpublished applications that are still pending:

- (1) If the benefit of the pending application is claimed under 35 U.S.C. 119(e), 120, 121, or 365 in another application that has: (a) issued as a U.S. patent, or (b) published as a statutory invention registration, a U.S. patent application publication, or an international patent application publication in accordance with PCT Article 21(2), a member of the public may obtain a copy of: the file contents; the pending application as originally filed; or any document in the file of the pending application.
- (2) If the application is incorporated by reference or otherwise identified in a U.S. patent, a statutory invention registration, a U.S. patent application publication, or an international patent application publication in accordance with PCT Article 21(2), a member of the public may obtain a copy of the pending application as originally filed.

**Jorge Salazar**  
Signature  
**Jorge Salazar**  
Typed or printed name

**1-19-16**  
Date

Registration Number, if applicable \_\_\_\_\_

Telephone Number \_\_\_\_\_

FOR PTO USE ONLY

Approved by \_\_\_\_\_

**JAN 19 2015**  
(initials)

Unit: \_\_\_\_\_

BY: \_\_\_\_\_

This collection of information is required by 37 CFR 1.11 and 1.14. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. BRING TO: File Information Unit, Suite 3A20, 2800 South Randolph Street, Arlington, Virginia.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



UNITED STATES DEPARTMENT OF COMMERCE  
Patent and Trademark Office

ASSISTANT SECRETARY AND COMMISSIONER  
OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231

**CHANGE OF ADDRESS/POWER OF ATTORNEY**

LOCATION 9200 SERIAL NUMBER 60042680 PATENT NUMBER

THE CORRESPONDENCE ADDRESS HAS BEEN CHANGED TO CUSTOMER # 7055

THE PRACTITIONERS OF RECORD HAVE BEEN CHANGED TO CUSTOMER # 7055.

ON 06/19/98 THE ADDRESS OF RECORD FOR CUSTOMER NUMBER 7055 IS:

GREENBLUM & BERNSTEIN  
1941 ROLAND CLARKE PLACE  
RESTON VA 20191

AND THE PRACTITIONERS OF RECORD FOR CUSTOMER NUMBER 7055 ARE:

28394	29027	30841	31296	31438	31827	32674	33094	33329	33630
35043	36532	36715	38369	40475	40475				

PTO INSTRUCTIONS: PLEASE TAKE THE FOLLOWING ACTION WHEN THE CORRESPONDENCE ADDRESS HAS BEEN CHANGED TO CUSTOMER NUMBER: RECORD, ON THE NEXT AVAILABLE CONTENTS LINE OF THE FILE JACKET, 'ADDRESS CHANGE TO CUSTOMER NUMBER'. LINE THROUGH THE OLD ADDRESS ON THE FILE JACKET LABEL AND ENTER ONLY THE 'CUSTOMER NUMBER' AS THE NEW ADDRESS. FILE THIS LETTER IN THE FILE JACKET. WHEN ABOVE CHANGES ARE ONLY TO FEE ADDRESS AND/OR PRACTITIONERS OF RECORD, FILE LETTER IN THE FILE JACKET.