I. THE ADMIN200 PROGRAM

The System Administrator program (ADMIN200) is a computer software towards programming Karel digital exchanges of models DS200 and DS200S over computer, viewing previously entered programs, as well as taking records and saving in computer.

The ADMIN200 program is made up of two main files:

ADMIN200.EXE: The main program.

SERVICES.TXT: The text file that contains the list of user features, which are in the DS200 and DS200S software.

The ADMIN200 program is presented within a diskette that comes with each DS200 and DS200S system. The cable that will be used for the exchange-computer connection is provided as well, beside that diskette.

The ADMIN200 program has been designed to work on Windows 9x, Windows NT, Windows 2000 and Windows XP operating systems, and it has a structure that would allow it to be used even by ones who have merely basic computer knowledge, due to its friendly GUI.

The DS200 and DS200S exchanges can be programmed through the first analog extension phone, which has been determined as the Operator (Starting extension number is 1110.) by dialing the codes specified for programming. However, programming medium and large-scale exchanges such as DS200 and DS200S in that way may take quite long time and become cumbersome. Therefore, utilizing the ADMIN200 to program the exchange would provide time efficiency as well as facilitation and control of the programming through visual means.

Through the ADMIN200 program, it is possible to do the entire programming that would be coded over the Operator phone. Besides, some features that can be activated by all users through their own phones (e.g. Follow Me) and some operator-specific features can be activated (e.g. the Night Mode). Some programming related to the system parameters, which could not be entered through phone, can also be accomplished through ADMIN200.

The entire program functions are explained in the chapter “How to Use the ADMIN200 Program” in this guide. Since some of the features that can be controlled by ADMIN200 can be accomplished by dialing through phones as well, detailed information about those features are included in other guides, according to the structure of the codes; thus, this guide shall not mention such details, but shall reference to related guides, instead. Detailed information about the settings that can be done only by ADMIN200 has been presented in the final chapter of this guide.

II. INSTALLATION OF THE ADMIN200 PROGRAM

II.1. CABLE CONNECTION

In order to run the ADMIN200 program, the cable for computer-exchange connection that comes with DS200 or DS200S system should be connected first.

That cable has a length of 5 meters. It has a 9-pin, D-type connector at the exchange end and 25-pin, D-type connector at the computer end. The pins used on that cable and the carried signals are in the table below:

The Exchange End (9-pin)	Signal	The Computer End (25-pin)
2	TX	3
3	RX	2
4	RTS	20
5	CTS	7
7	GND	4

The only thing to be done to attain the cable connection is connecting the computer end of the cable to an unused serial output of the computer and connecting the exchange end to the 9-pin, D-type connector on the DS200 CPUKON card. Since the computer end is of 25 pins, in case the computer has no 25-pin output, a 9-pin serial output can be used by employing a standard 25/9 converter.

II.2. SOFTWARE INSTALLATION

The software installation is quite simple. Just create a folder in the hard disk of the computer and then copy the files ADMIN200.EXE and SERVICES.TXT, which are included in the diskette, to that folder.

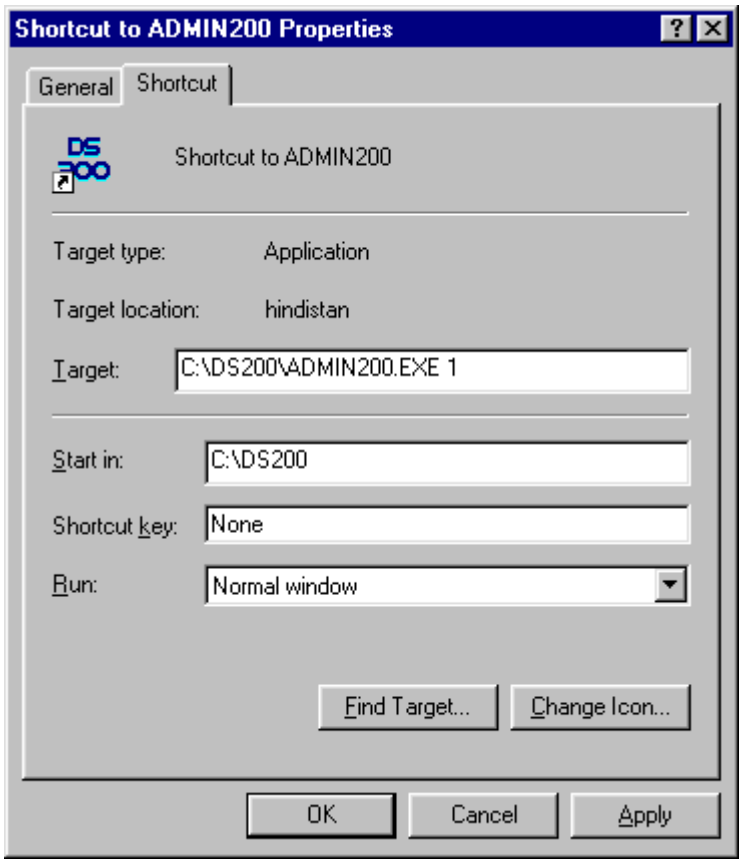
The ADMIN200 program has been designed to run via COM2 port of the computer, by default. If the serial port number used on a specific computer is different, then a shortcut to the file ADMIN200.EXE should be created and the correct serial output number should be entered by making use of characteristics of that shortcut. The necessary procedure for that operation is below:

Open the folder that contains the ADMIN200 program.

Click on the ADMIN200.EXE file with the right mouse button.

Select “Properties” from the menu.

In the “Properties” window that has appeared, type the serial output number, after leaving a space at the end of the “Target” line.



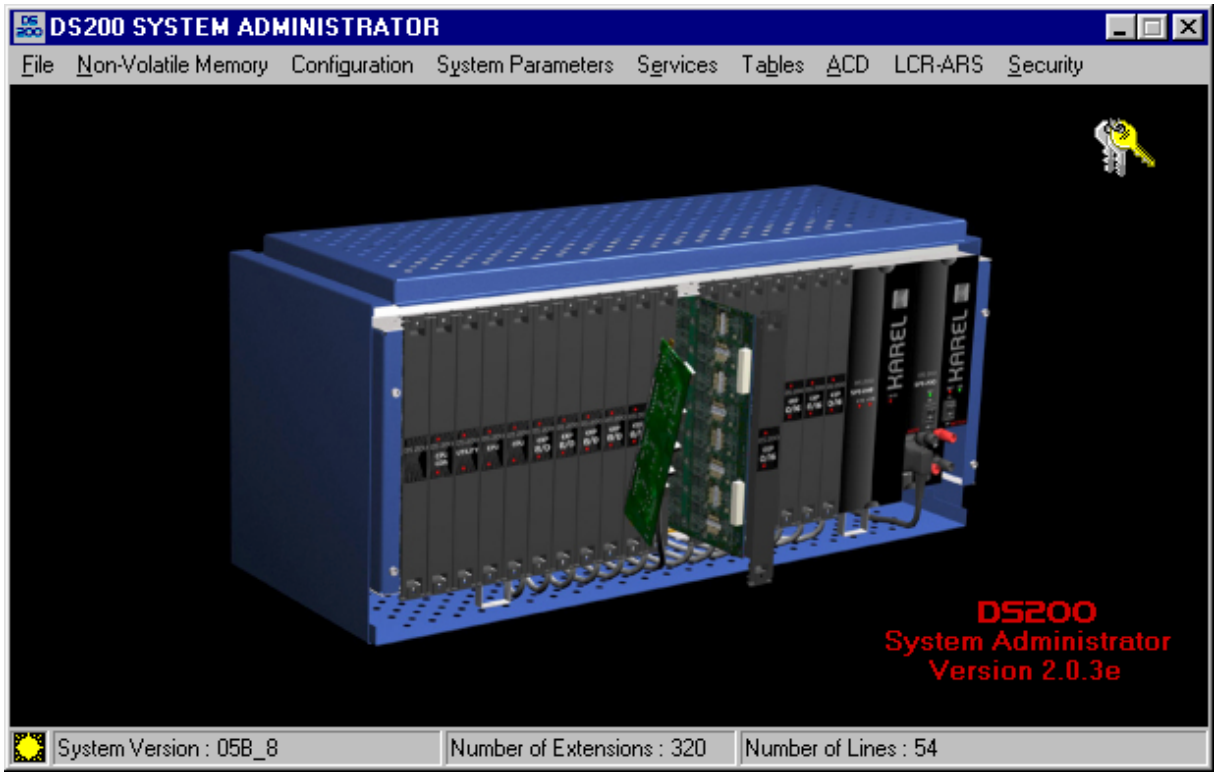
Close the Properties window by clicking “OK”.

After that step, the ADMIN200 program will start to communicate with the exchange directly over the recently entered serial output, when it is run through the already created shortcut.

III. HOW TO USE THE ADMIN200 PROGRAM

When ADMIN200 runs, if the correct serial output has been chosen, then messages that demonstrate that the program is communicating with the exchange and receiving some data are displayed on the opening screen. In the meantime, the program opens a report file, namely DS_DATA.BIN, within the folder it has been installed and records some data into that file during operation.

When the program gets into normal operation mode, the main window of the program is displayed on the screen.



There are three sets of fundamental information about the configuration of the system on this screen. As seen in the taskbar at the bottom of the screen, that information are the main software version of the exchange, the number of extensions and lines of the exchange. In addition to that, again in the taskbar, icons (leftmost) displaying whether the system is in the Night Mode or the Day Mode have been employed.

At the center right in the main screen, the version number of the software being used is displayed in red characters.

Menu options that would be functional for program utilization can be seen in menu bar. Those menus are as follows, from left to right in order:

File

Non-Volatile Memory

Configuration

System Parameters

Services

Tables

ACD

LCR-ARS

Security

Accessing the entire operations related to the ADMIN200 program is achieved over those menus. When any menu is selected, a menu window displaying options_if there is any_ within the menu appears. There are two types of options. One type of option directly initiates an operation and such menu items have no sign next to their titles. On the other hand, some menu items do not carry out any operation, but yield to another submenu with related sub-options. This type of options have a " ▸ " sign right to their titles.

All of these menus are reviewed below one by one. There are a number of general-purpose buttons used in all menus. Since their functions are the same for all menu options, the explanations below apply for all menus; hence, similar explanations shall not be repeated for each menu.

"**Close**" button: When this button is clicked, modifications made on the related menu option are cancelled, the menu option is closed and one proceeds back to the higher-level menu.

"**Program**" button: In order to activate this button, value of at least one of the parameters of the related menu should be modified. Upon clicking that button when it is active, the entire modifications that have already been made are uploaded to the exchange.

"**Program All**" button: This button is valid only if the same type of programming would apply for more than one window, and when it is clicked, all parameters in the entire windows are transferred to the exchange.

"**Update**" button: When this button is clicked, the most up-to-date parameter values of the related menu option are reloaded from the exchange and displayed on the screen. Especially if programming is simultaneously done through the system supervisor phone while ADMIN200 software is being employed, then that button can be useful to view the latest forms of the programs entered through the phone, as well.

"**OK**" button: If this button clicked after the sub-parameters related to a menu option have been programmed, then the modifications are accepted and one proceeds back to the upper level menu; however, those parameters are not uploaded to the exchange yet. One needs to click the button "Program", in order to accomplish that.

"**Cancel**" button: If this button clicked after the sub-parameters related to a menu option have been programmed, then the modifications are cancelled, and then one proceeds back to the upper level menu.

"**File**" button: This button presents two sub-options.

"**Load**": A related parameter file that has been previously saved into the computer is loaded and displayed on the screen through this option. However, those parameters are not transferred to the exchange from the file directly, that operation is rather done after the loading upon clicking the "Program" button.

"**Save**": The parameters displayed on the screen are saved to a file through this option.

"**Reset**" button: The parameters displayed on the screen are reset to their factory defaults through this button. However, they are not uploaded to the exchange until the "Program" button is clicked.

"**Delete**" button: Upon clicking this button, value of the related parameter is deleted and the window is set for another entry.

"**^**"Button: List of the menu options related to the current menu is displayed upon clicking this button and one may proceed to another menu option.

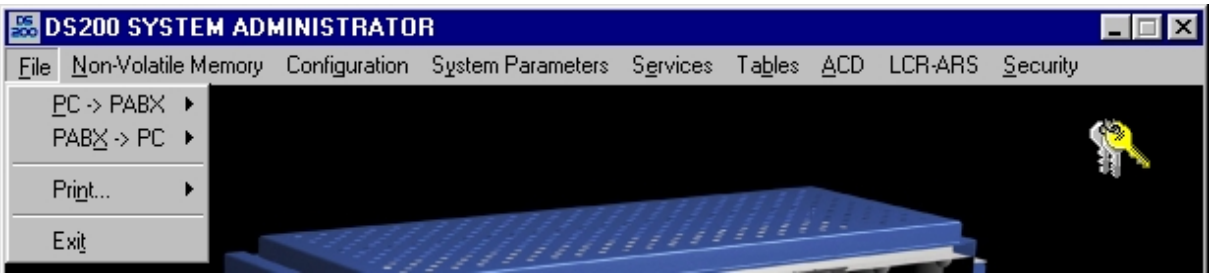
"• "Button: A summarized view can be obtained through this button, if a window contains too many parameters.

"**?**"Button: A specific parameter can be directly located through this button, if a window contains too many parameters.

"**List**" button: A list of specific features can be viewed through this button.

Contents of all menus are explained below, with respect to the order above.

III.1. FILE MENU



PC > PABX option is employed for transferring the exchange parameters, which have previously been saved into PC, to the PABX. Transferring can be performed for the entire parameters as well as for some specific parameter groups. Those parameter groups appear on the screen when the PC > PABX option is selected. Those are:

- Parameter File: The entire system, extension and line parameters. The file name extension is "DS2".
- Common Pool File: The numbers that have been recorded into the common memory of the system with a capacity of 1000 entries. The file name extension is "CPF".
- Private Pool File: The collection of private memory numbers that is created by each user for personal usage. The file name extension is "PPF".
- Account Code Table File: The table in which the customers who can make calls with password and restriction. The file name extension is "MST".
- LCR-ARS File: The parameters that would provide selection of the least-cost route automatically. The file name extension is "ASR".
- All: All of the parameters above. This option functions for all groups as if the entire parameters above have been selected one by one in a row.

When one of those options is selected, name of the file to be loaded is prompted. After a valid file name has been selected, the parameter values in the selected file are written into the volatile memory of the system and the system starts to operate with those values. In order to preserve those parameters in case of a power failure, the parameters should be saved in the non-volatile memory through the option "Write in the Memory" in the "Non-Volatile Memory" menu.

Through the **PABX > PC** option, the parameter values that are active on the PABX are transferred from the PABX to the PC so that their back up is provided. Either the entire parameters can be transferred from the PABX to the PC in a single time or specific parameter groups can be transferred independently. Those parameter groups appear on the screen when the PABX > PC option is selected. Those are:

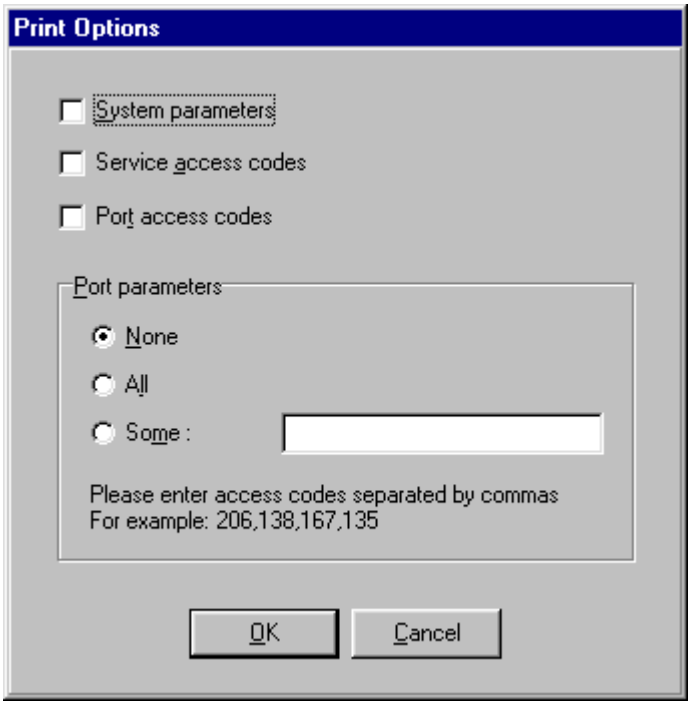
- Parameter File: The entire system, extension and line parameters. The file name extension is "DS2".

- Common Pool File: The numbers that have been recorded into the common memory of the system with a capacity of 1000 entries. The file name extension is “CPF”.
- Private Pool File: The collection of private memory numbers that is created by each user for personal usage. The file name extension is “PPF”.
- Account Code Table File: The table in which the customers who can make calls with password and restriction. The file name extension is “MST”.
- LCR-ARS File: The parameters that would provide selection of the least-cost route automatically. The file name extension is “ASR”.
- All: All of the parameters above. This option functions for all groups as if the entire parameters above have been selected one by one in a row.

When one of those options is selected, name of the file in which the parameters will be saved is prompted and then the parameters are written into the file that has been created in the entered name.

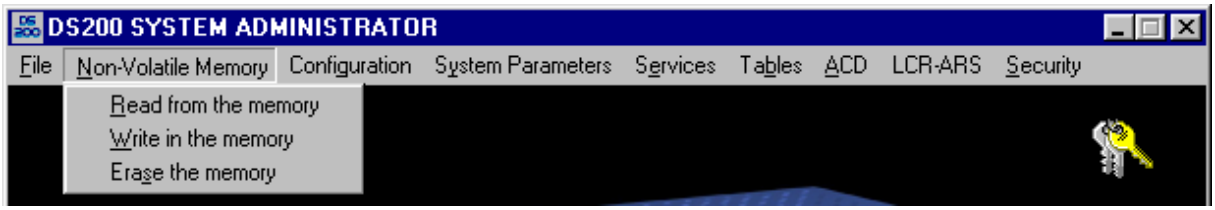
The **PRINT** option allows taking printouts of specific parameters from different environments through a printer. The sub-options for that option are:

- File: This option is used for printing the contents of the file in which the parameters that have previously been transferred to computer environment have been saved. Name of the file containing the parameters to be printed is prompted upon selecting this option. The parameters are printed out upon entering a valid file name.
- Settings: The parameter values that are active on the exchange are printed out.
- Special: Printouts of some of the exchange data are taken optionally. The window below appears after selecting this option and the related parameters are printed out by marking desired items.



The program is exited by the **EXIT** option.

III.2. NON-VOLATILE MEMORY MENU



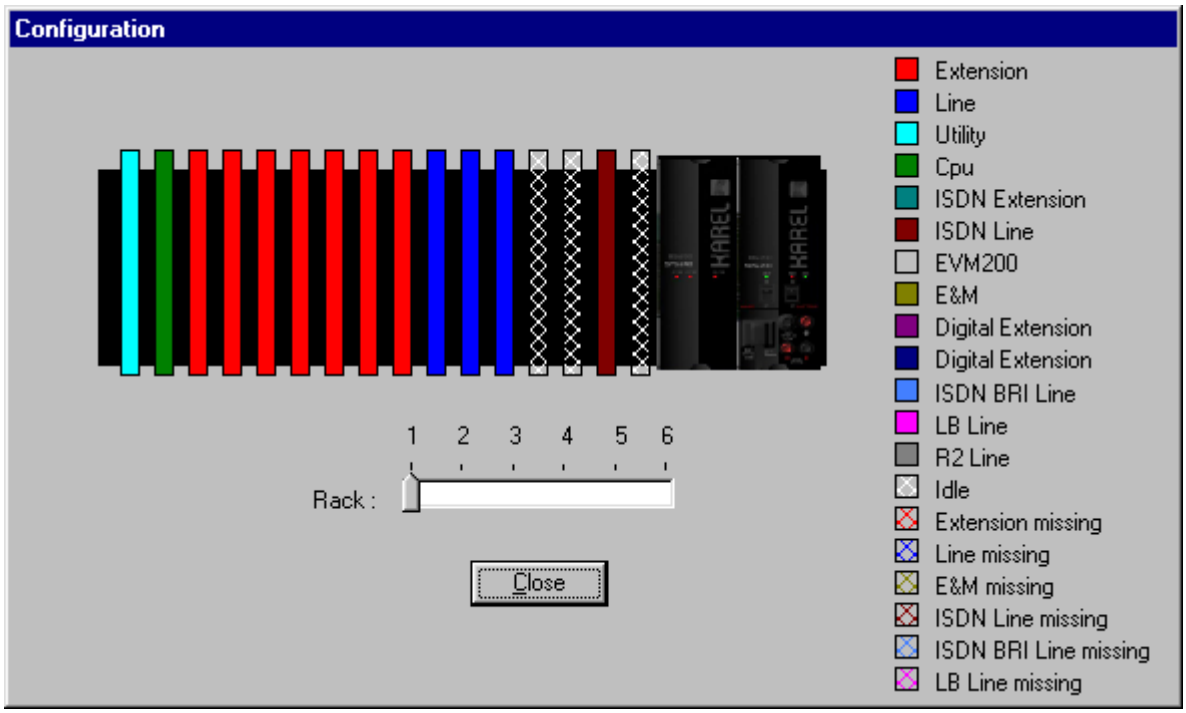
The **READ FROM THE MEMORY** option transfers parameter values that are in the non-volatile memory of the exchange simultaneously both to the volatile memory and to the ADMIN200 program automatically. Hence, it is possible to view and modify the parameters directly, which are in the non-volatile memory.

The **WRITE IN THE MEMORY** option allows writing of the parameters, which have been modified by ADMIN200 and which have already been saved in the volatile memory, into the non-volatile memory in order to preserve them in case of a power failure. This option should definitely be used following completion of the programming by ADMIN200. Otherwise, there might occur undesired loss of parameter values and thus operational malfunctions. Once the operation is over, the system displays the message "The operation has successfully been accomplished".

The **RESET THE MEMORY** option resets the entire parameter values in the non-volatile memory to their factory default values. In that case, either the exchange should be re-programmed from the beginning, or a previously saved parameter file should be loaded. That option is especially useful if there have been some undesired changes in the parameter values, which are active on the exchange, or if the exchange is not functioning satisfactorily. The exchange could be re-programmed or another parameter file could be loaded after employing that option.

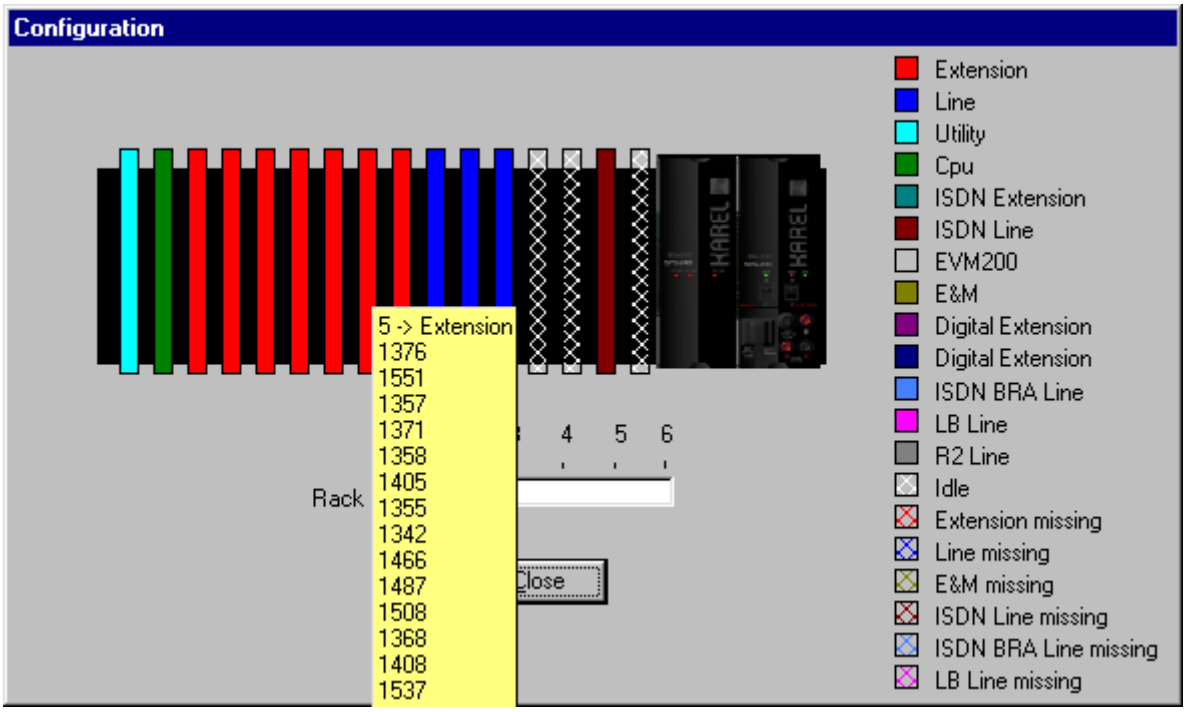
III.3. CONFIGURATION MENU

The window below appears when the "PABX Configuration" option is selected:



The characteristics of a card in any slot of any rack can be viewed in that window. One can choose a rack through the selection bar in the lower section of the window and view a card through a color scheme. The legend for that color scheme is continuously displayed on the right-hand side.

Besides, the numbering plan related to a card can also be viewed by placing the mouse cursor on the card and keeping the left mouse button pressed. As long as the button is kept being pressed, the list of numbers that have been assigned to the lines on the card can be viewed.



As can be seen in the window view above, not only the line numbers, but also information such as the row of the card in the rack and type of the card can be obtained.

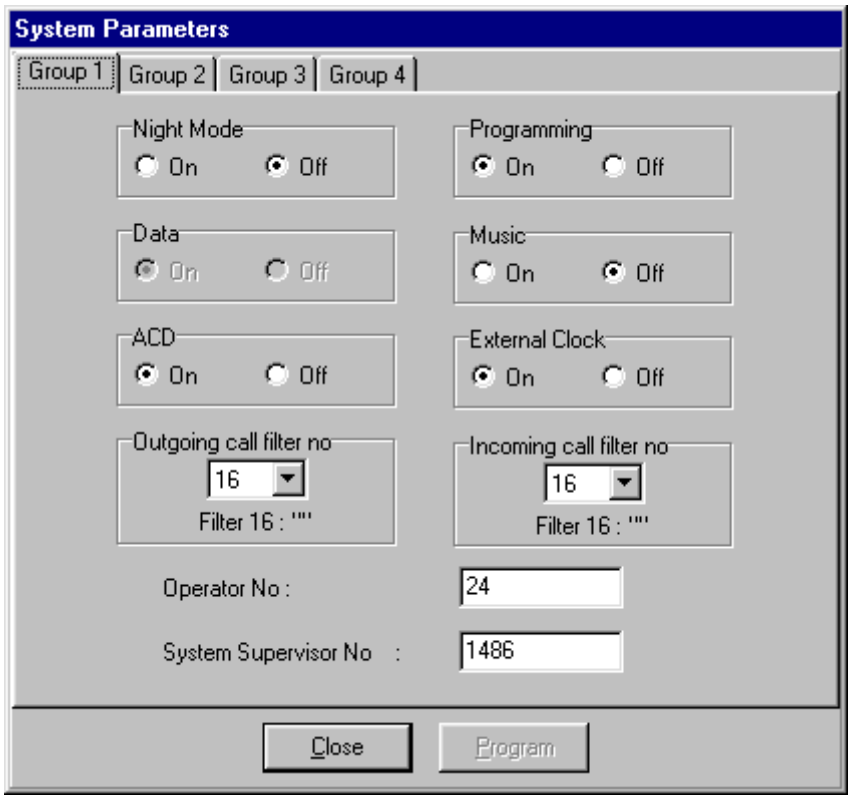
Again, in this window, when the cursor is placed on a card and right mouse button is pressed, three options about the card are presented to the user. Those options are:

`Turn on the card`: The line and extension cards in the exchange can be put on and off line through software control. Any card that has been put off line like this can be put on line again through that option.

`Turn off the card`: Any line or extension card can be put off line through this option. By this way, the card can be disconnected and connected again while the exchange is still working normally.

`Version query`: The software version of the card can be sent to the DS_DATA.BIN file through this option.

III.4. SYSTEM PARAMETERS MENU



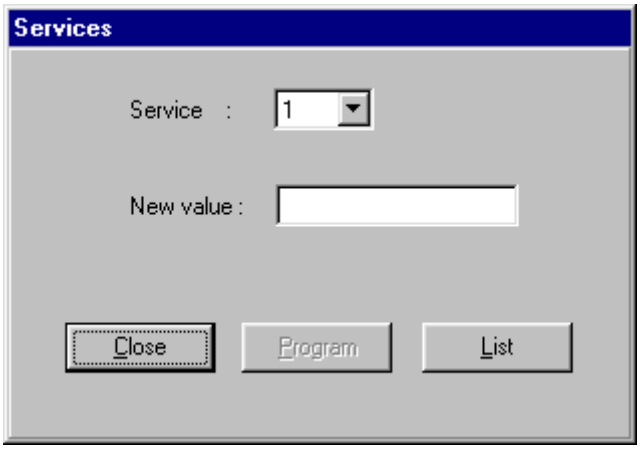
Parameters related to the system in general are contained in four groups in the System Parameters menu. The guides that contain detailed information about the features related to those parameters are referenced to in the table below (PG : Programming Guide, UG: User's Guide, AG: ADMIN200 User's Guide).

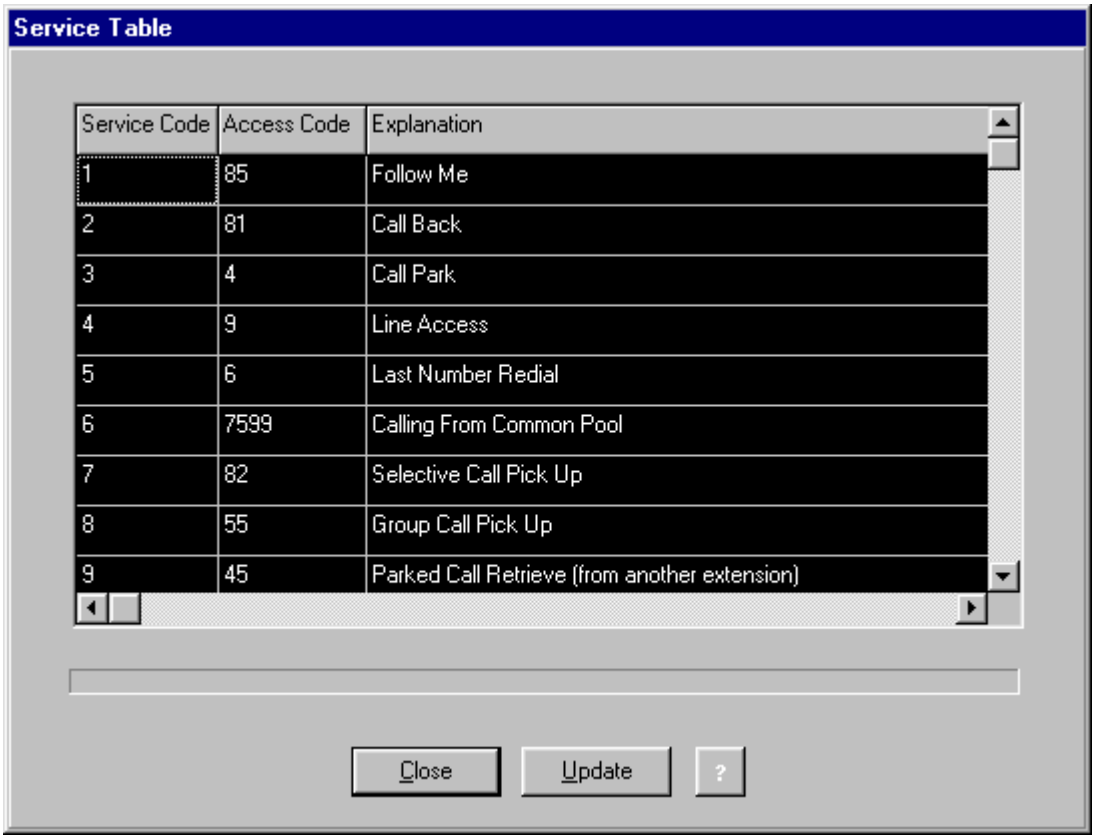
Group No	Parameter	Guide
1	Night Service	UG
1	Programming	PG
1	Data	-
1	Music	UG
1	ACD	PG
1	Auxiliary Clock	PG
1	Incoming Call Filter No	AG
1	Outgoing Call Filter No	AG

1	Operator No	PG
1	System Supervisor No	PG
2	“Follow Me Busy” for external calls?	PG
2	“Follow Me Busy” for internal calls?	PG
2	“Follow Me No Answer” for external calls?	PG
2	“Follow Me No Answer” for internal calls?	PG
2	Automatic Hold Time	PG
2	Incoming Call Time-Out	PG
2	Call Park Duration	PG
3	Automatic Night Mode (ANM)	PG
3	ANM Timing	PG
3	Weekly ANM	PG
4	Relay 1 Timeout	PG
4	Relay 2 Timeout	PG
4	System Messages Gain Level	PG
4	Robot Messages Gain Level	PG
4	PBX Ring Count	PG
4	Robot Messages Gain Level	PG
4	Line Calling An Extension Hears	PG
4	Call Record Filter	PG
4	Pager-Base Station Connected to	PG
4	Serial Printer Language	PG
4	Dial tone After End Of Call	PG
4	LCR Active	PG

No modification can be made on the parameter KTS mentioned above. That parameter indicates whether the serial data line, which is employed by the exchange for feature phone sets, works or not. On the other hand, the “Program” button is activated upon any modification on other parameters and when it is clicked, the modifications are uploaded to the exchange.

III.5. SERVICES MENU



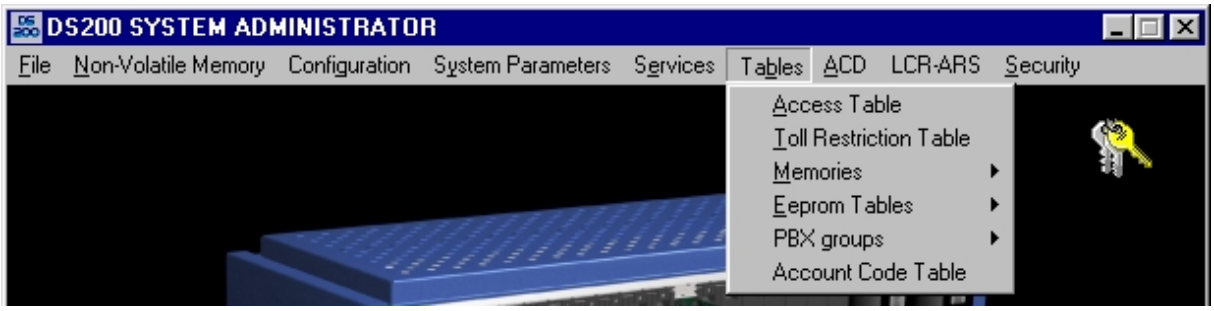


This menu is used for changing the service access codes of the features on the exchange used by extensions or the operator. Each service has an access code and a service code. The "service code" and "access code" list of the services contained in the software of the exchange can be retrieved by clicking the button "List".

The access code of a service code from that list can be changed by entering another code in the "New value" field and clicking the "Program" button. However, if the new value coincides with an existing code on the exchange, no programming can take place and the user receives an error message. In that case, another code that would not coincide should be entered.

In order to view the list mentioned above properly, the file ADMIN200.EXE and the file SERVICES.TXT, which has come together with that file, must be in the same folder. If, somehow, they are not in the same folder, then the list is retrieved again, but the names of the services are displayed as "?". Except this fact, no problem occurs in operations of either the program or the exchange.

III.6. TABLES MENU



The **ACCESS TABLE** option is one of the most comprehensive options of the ADMIN200 program. Upon selecting it, the entire extensions and lines of the exchange are listed according to the order they have been located on the exchange. There are two essential elements in the list:

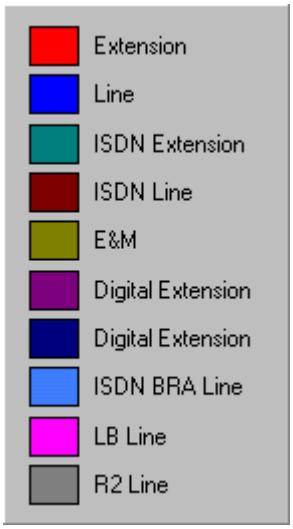
1. The physical address,
2. The access code.

The physical address is an address scheme, which the users are not aware of, used by the exchange in order to locate extensions and lines. Users can access a line by dialing access codes only and they never use the physical address. The list appears as below:

Apparently, the physical addresses starts from "0" at the first extension of the first analog extension card that is installed in the first slot of the first rack and they are incremented by one for all lines. If there are empty slots on the exchange, then physical addresses are assigned to those slots, too, but those empty slots do not appear in the list. By this way, display for occupied slots is provided only.

Different types of lines that are present in that list have been indicated by a color scheme. Although this color scheme is the same as the one displayed in the window reached over the Configuration Menu, it can be viewed in that window as well, upon wish, in order to facilitate the interpretation of the view. The color scheme is displayed by placing the mouse cursor on the button at the upper right corner of the window and keeping the left mouse button pressed.

That list appears as below:

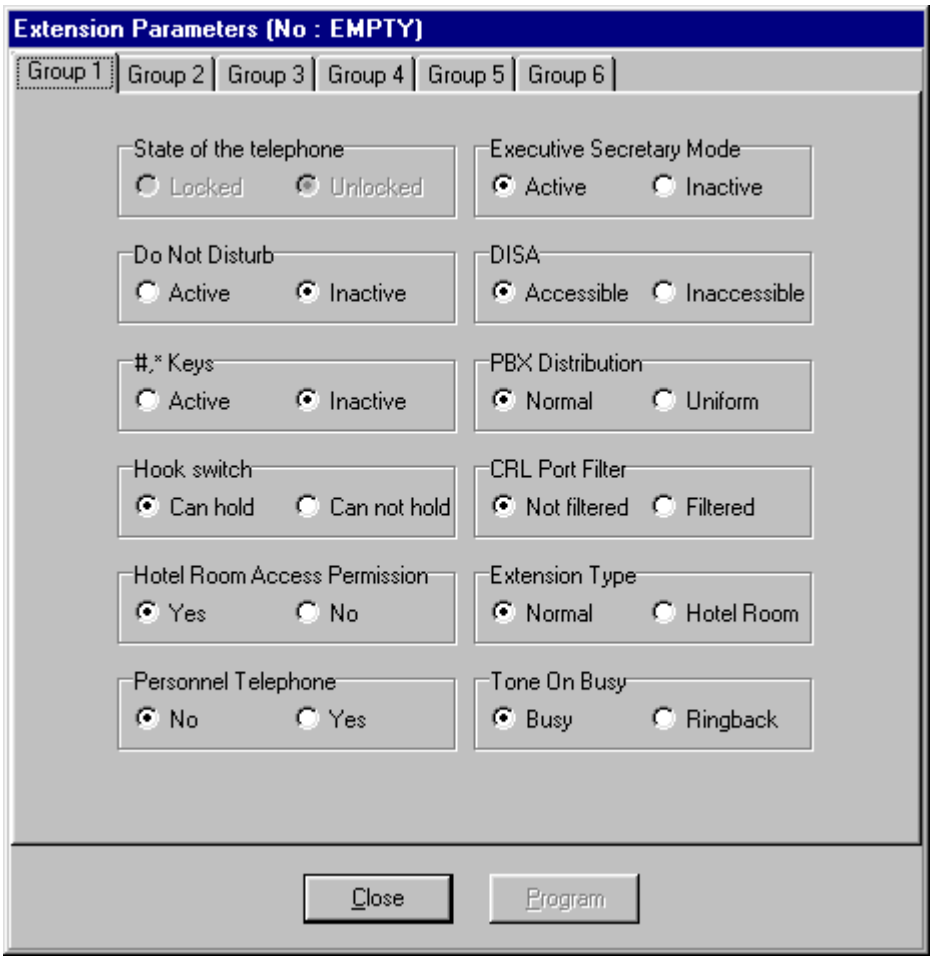


The main purpose of the list seen in this window is providing means to access the entire lines one by one and making necessary modifications, as well as informing the user about the overall configuration. For that purpose, the mouse cursor is placed on the physical address of the related line and the right mouse button is pressed. There are four options in the menu that appears afterwards:

1) Parameters,
2) ARS Access Authorization Level,
3) Program,
4) Delete.

Parameters: When this option is selected, different parameter groups are presented to the user according to the characteristics of the line for each line type. Those are inspected in detail below:

For analog, digital and ISDN extensions:



Parameters related to that type of lines constitute 6 groups. The parameters in those groups and list of the guides, in which details about them can be found, have been given below:

Group No	Parameter	Guide
1	State of the Telephone	UG
1	Do Not Disturb	UG
1	Executive Secretary Mode	UG
1	Call Record (DISA)	PG
1	PBX Distribution	PG
1	#, * Keys	PG
1	Hook Switch	PG
1	CRL Port Filter	PG
1	Hotel Room Access Permission	PG
1	Extension Type	PG
1	Personnel Telephone	PG
1	Tone On Busy	PG
2	Password	UG
2	Outgoing Call Timeout (sec)	PG

2	Intrusion Authority	PG
2	Hot Line	PG
2	Hot Line Mode	PG
2	Can Hold In Hot Line Mode	PG
2	Extension Type	PG
2	Pager	PG
2	Reminder	UG
3	Mode	UG
3	Common Pool Use	AG
3	Line Access Permission	AG
3	Parallel Ringing	PG
3	External Call Authority Level	PG
3	Line Access Group No	PG
3	Follow Me	UG
3	PBX	PG
3	Follow Me No Answer	UG
3	Can Activate Follow Me	PG
3	Executive Secretary Group	PG
4	Room Vacancy	UG
4	Room Tidiness	UG
5	Message Box	PG
5	Temporary Absent Message	UG
5	Permanent Absent Message	UG
5	Reminder with Message	UG
5	Permanent Reminder with Message	UG
5	System Messages Language	PG
5	Lock Message	PG
5	Access to Message Box	PG
5	Voice Message	PG
6	Call Pick-Up Permission	PG
6	Incoming Calls can be Picked-up	PG
6	Line Calls Can Be Dropped	PG
6	Can Activate Call Back	PG
6	Can Be Signalled	PG
6	Can Access a Line via DISA	PG

The features with group numbers 3 and 6 may be programmed to take different parameters for the Day and the Night modes. Therefore, the mode of the programming should be selected at the top of the window and then the modifications should be done accordingly.

When any parameter in any group is modified, the "Program" button becomes active and when it is clicked, the modifications are uploaded to the exchange.

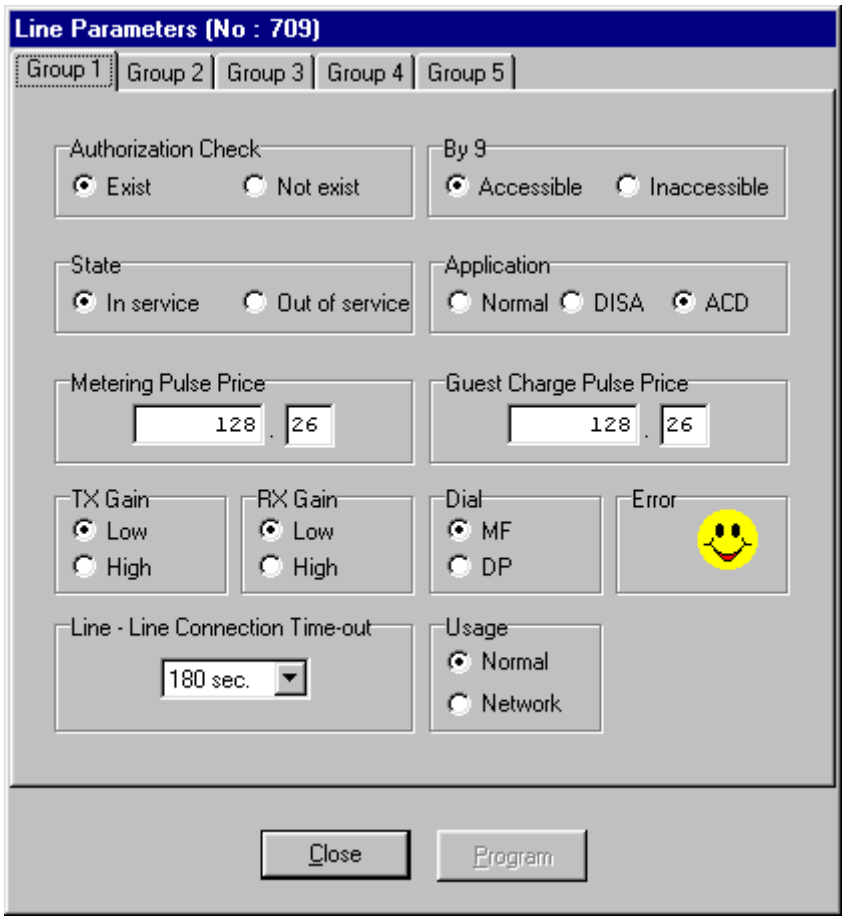
Notes:

1- The data related to the features Temporary Absent Message and Temporary/Permanent Audio Alarm cannot be modified; rather, only the data of the features activated through an extension phone can be viewed.

2- The Permanent Absent Message is not selectable unless there is already a recording. It can take place in that section in order to be activated or cancelled only after a message has been recorded.

3- There is no operation associated to the Message Box option. It is there only for displaying to the user whether there is any new message.

For Analog Line:



Parameters related to that type of lines constitute 5 groups. The parameters in those groups and list of the guides, in which details about them can be found, have been given below:

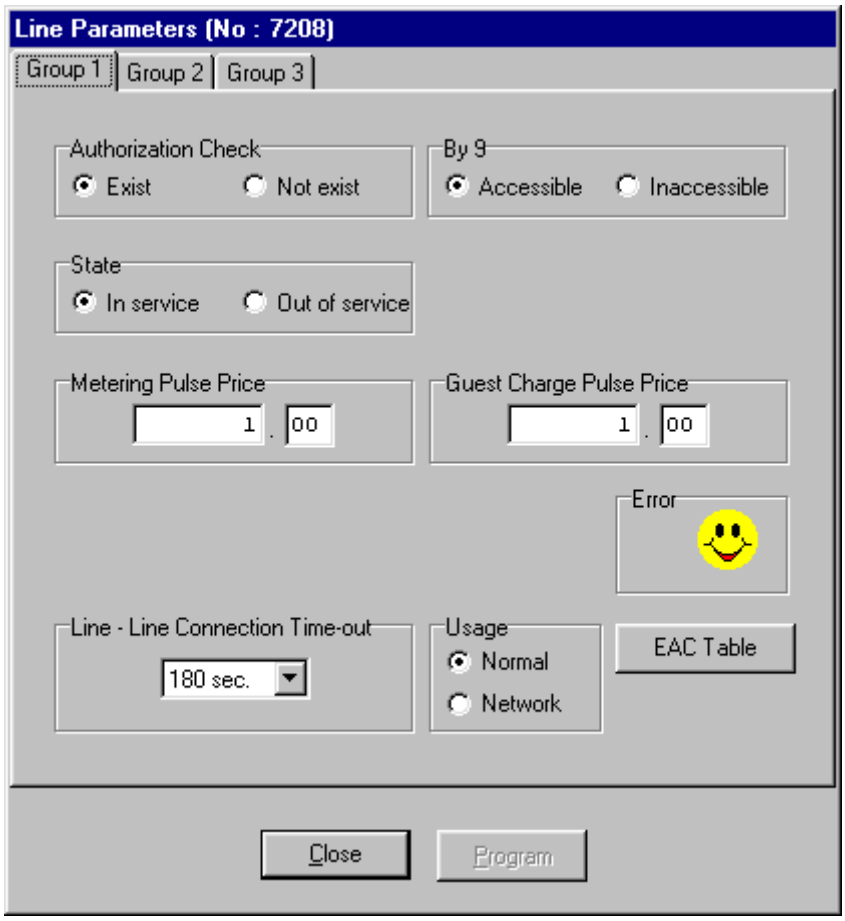
Group No	Parameter	Guide
1	Authorization Check	PG
1	By 9	PG
1	Dial	PG
1	State	PG

1	TX Gain	PG
1	RX Gain	PG
1	Metering Pulse Price (TL)	PG
1	Guest Charge Pulse Price (TL)	PG
1	Error	AG
1	Application	PG
1	Line-Line Connection Time-out	PG
1	Usage	PG
2	In Service for Extension Groups	PG
2	Ringing Extension No	PG
2	PBX	PG
3	Remote Line Access Time-out	PG
4	Greeting Menu Number	PG
4	Busy Menu Number	PG
4	No Answer Menu Number	PG
4	Night Greeting Menu Number	PG
4	DISA Remote Line	PG
4	DISA Error Line	PG
4	No Answer Menu (Network)	AG
4	Busy Menu (Network)	AG
5	Check Dialtone	PG
5	Before Sending Numbers	PG

The features with group numbers 2 may be programmed to take different parameters for the Day and the Night modes. Therefore, the mode of the programming should be selected at the top of the window and then the modifications should be done accordingly.

When any parameter in any group is modified, the "Program" button becomes active and when it is clicked, the modifications are uploaded to the exchange.

For the PRI ISDN, R2, BRI ISDN lines:



Parameters related to that type of lines constitute 5 groups. The parameters in those groups and list of the guides, in which details about them can be found, have been given below:

Group No	Parameter	Guide
1	Authorization Check	PG
1	By 9	PG
1	State	PG
1	Metering Pulse Price	PG
1	Guest Charge Pulse Price	PG
1	Error	AG
1	Line-Line Connection Time-out	PG
1	Usage	PG
1	EAC Table**	PG
2	In Service for Extension Groups	PG
2	PBX	PG
3	Remote Line Access Time-out	PG
4*	Greeting Menu No	PG
4*	Busy Menu No	PG
4*	No Answer Menu No	PG

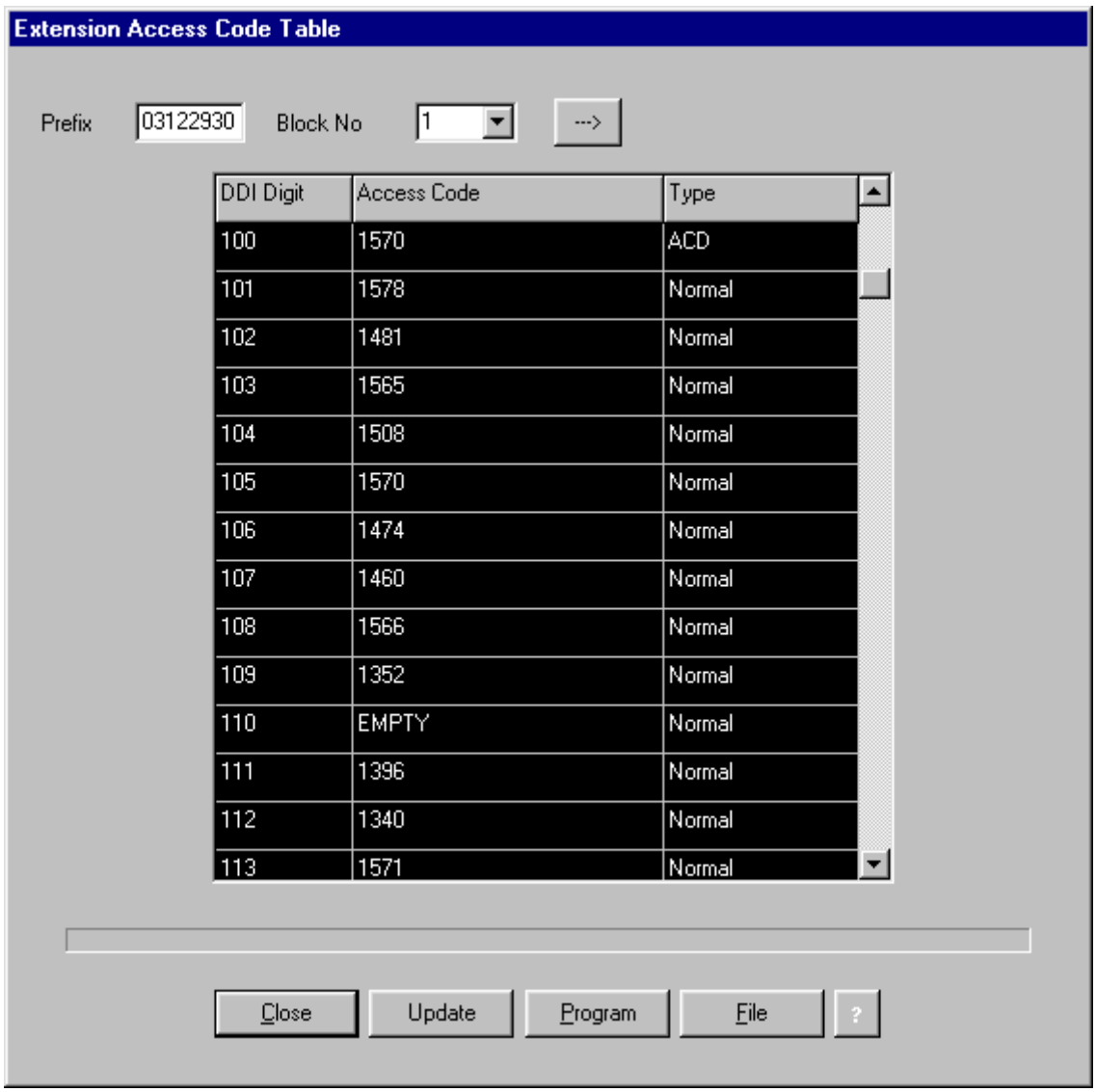
4*	Night Greeting Menu No	PG
4*	Line Access from DISA Line	PG
4*	After Error DISA Line	PG
4*	No Answer Menu No (Network)	AG
4*	Busy Menu No (Network)	AG

The features with group numbers 2 may be programmed to take different parameters for the Day and the Night modes. Therefore, the mode of the programming should be selected at the top of the window and then the modifications should be done accordingly.

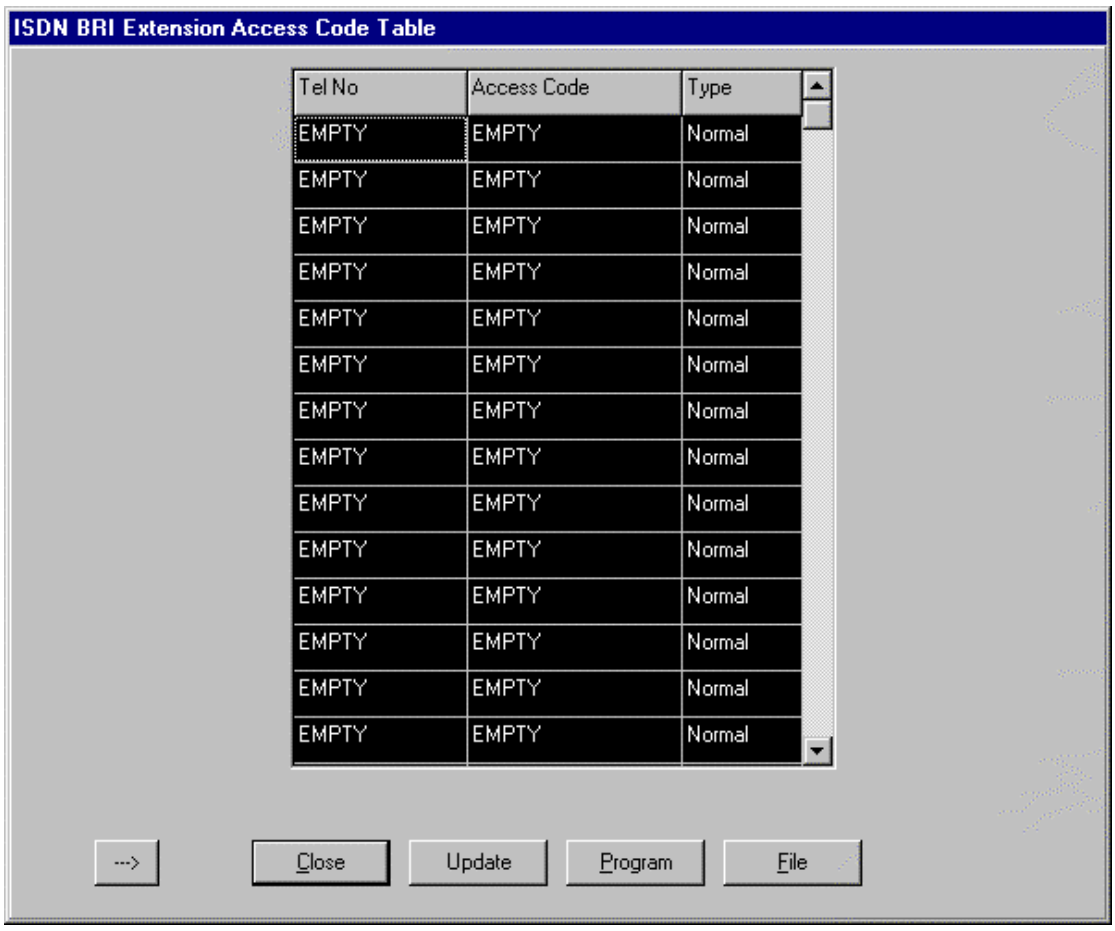
When any parameter in any group is modified, the "Program" button becomes active and when it is clicked, the modifications are uploaded to the exchange.

* The values of the marked parameters in the group 4 must be modified according to the EAC Table. (The details about the AEK Table are below).

** EAC Table is a quite important table for PRI ISDN, BRI ISDN and R2 lines. In that table, according to the numbering plan obtained from CO, specific numbers ring at specific extensions through corresponding programming upon wish. Besides, it can also be determined through programming, provided that there is EVM200 card on the exchange, whether a line will be answered by ACD and if it that is the case, the menus to be activated will be determined, too. That table can be viewed in two ways on the screen. The first of them is as can be seen below:



EAC Table for PRI ISDN and R2 Lines



EAC Table for BRI ISDN Lines

The permanent part (the part excluding the last three digits) of the number obtained from CO is entered in the "Prefix" field that is located at the top of that screen. The term "VACANT", which appears in the fields next to the DDI digits, which vary in the range 000..999, demonstrates that those lines have not been allocated to any extension. The field "Block No", on the other hand, allows the user to browse through the DDI number table automatically. For instance, if "9" is entered as the "Block No", then the DDI numbers starting from 900 are displayed in the table. Alternatively, the scroll bars at the right side of the table can also be used for browsing the table.

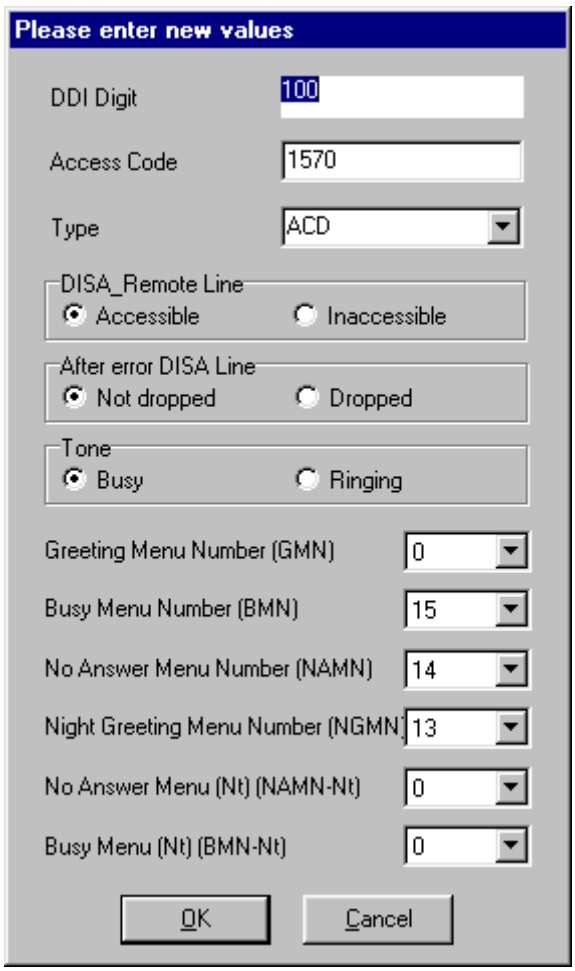
Two options are presented to the user when the right mouse button is clicked on a DDI number:

1) Delete

2) Edit

The Delete option is employed for deleting an extension number - if there is any - defined for the related DDI number.

The Edit option, on the other hand, is employed for changing an extension number that has been defined for the related DDI number, or if there is no such extension number, then the option is employed for defining one. The window below appears upon selecting the Edit option:



The complete number is entered in the field "Tel No", for BRI ISDN lines and only the DDI digits (last 3 digits of the number) for the PRI ISDN or R2 lines. Then the forwarding for the entered number is done to the extension whose number has been entered in the Access code field.

The Access code displays the extension at which the line with the number in the "Tel No" field will ring. The access codes of the related extensions should be entered in that field.

The "Type" field is employed for determining the line with the defined Tel No as normal, DISA or a line to be answered by ACD.

The other fields are employed for determining the DID line and ACD features.

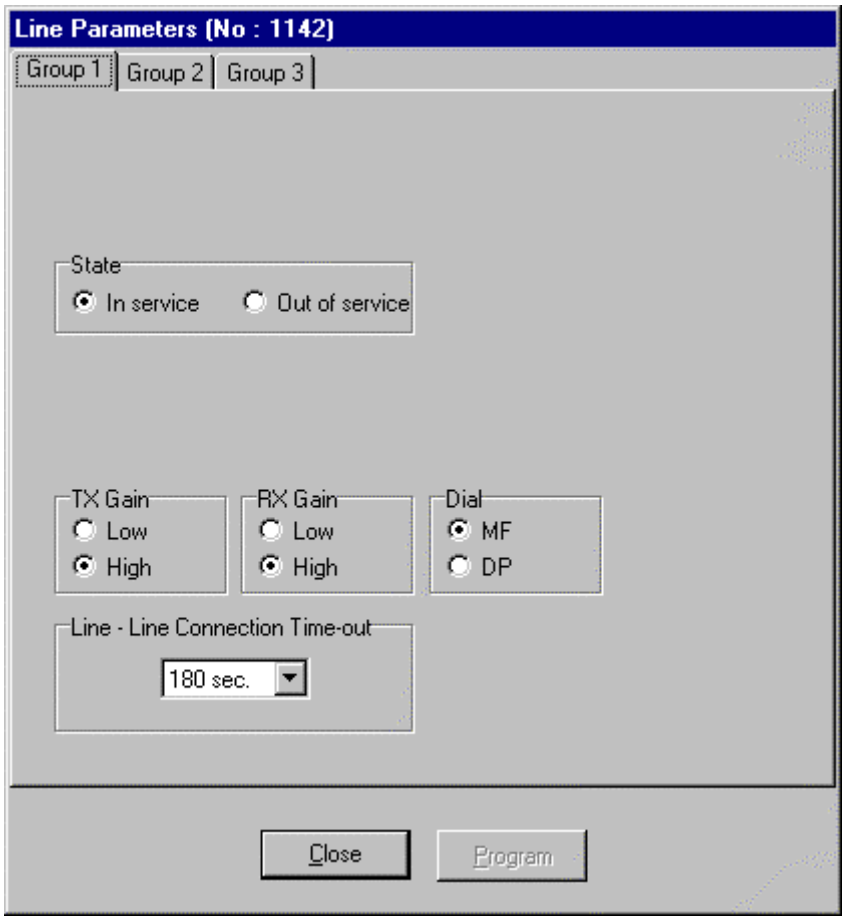
The window displaying the main list can be extended to display the ACD menu parameters as well, upon wish. The sign "→", which is at the upper right side of the window, should be clicked for that.

When any modification in that table is made, the "Program" button becomes active and when it is clicked, the modifications are uploaded to the exchange.

Moreover, there is a "File" button in that window, too. The current table can be saved in a file or a saved table can be loaded from a file by making use of that button. When one of those options is selected, a file name with the extension AET is prompted and the desired operation is accomplished through the selected file name.

Another button that takes place in that window is the button "?". The "Access Code" is prompted upon clicking that button. An extension number entered in that field is searched in the table, and if that number has previously been recorded to the table, then the related table line is displayed.

For E&M lines:



Parameters related to that type of lines constitute 5 groups. The parameters in those groups and list of the guides, in which details about them can be found, have been given below:

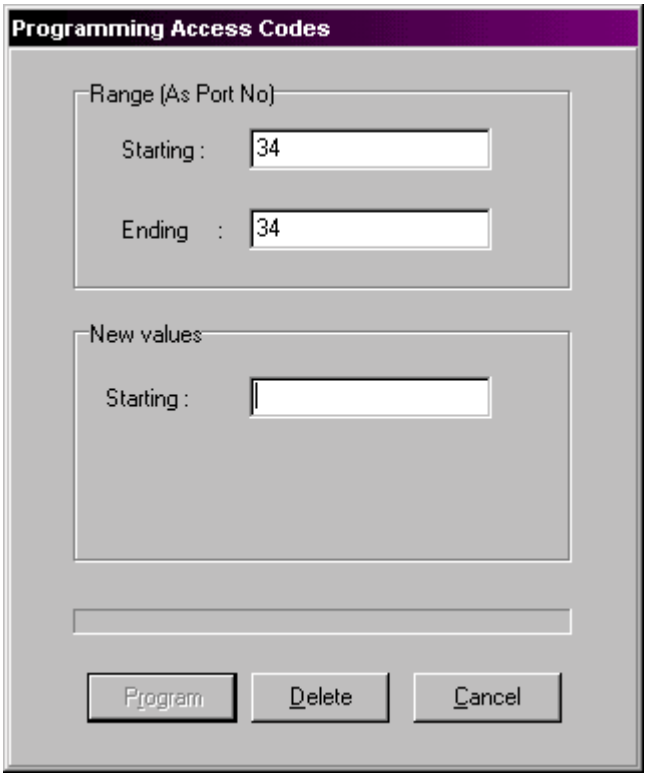
Group No	Parameter	Guide
1	Dial	PG
1	Status	PG
1	TX Gain	PG
1	RX Gain	PG
1	Line-Line Time-out	PG
2	PBX	PG
3	DISA-E&M Time-out	PG
3	Dial Tone on the E&M Line ([A] Audible [nA] Not Audible)	PG
3	Dial Tone on the E&M Line ([T] Transmitted [nT] Not Transmitted)	PG

The features with group numbers 2 may be programmed to take different parameters for the Day and the Night modes. Therefore, the mode of the programming should be selected at the top of the window and then the modifications should be done accordingly.

When any parameter in any group is modified, the "Program" button becomes active and when it is clicked, the modifications are uploaded to the exchange.

The ARS Access Authorization Level option presents different parameters for extensions and lines. For the extensions, The ARS system utilization authorization levels for

the Day and the Night Services for the related extensions are displayed and modified, upon wish. For the lines, on the other hand, Access Authorization Levels are displayed and modified, upon wish. The ARS parameters cannot be programmed through phone. Therefore, the details about that topic have been presented at the final chapter of this guide.



The Program option is employed for changing the access code of the line. The window below appears upon selecting this option. Here, the new access code for that line should be entered in the field "Starting" and then the "Program" button should be clicked.

No modification can be done in the Range (As Port No) field in this window.

The Delete button deletes the access code of the line. If the "Program" button is clicked, while the access code of a line has already been deleted, then that line appears to be vacant in the access table and it cannot be accessed.

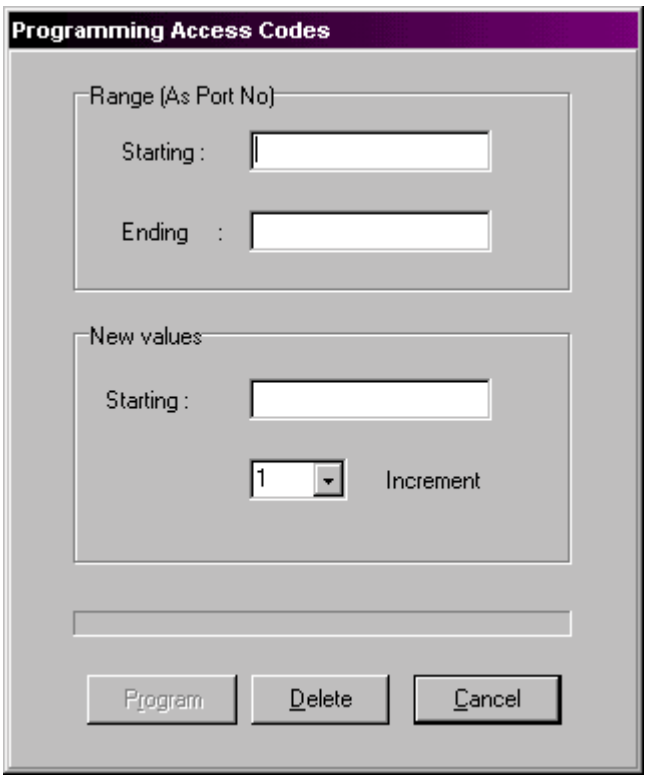
On the other hand, if the number of the line is changed and then the "Program" button is clicked, then the new value is uploaded to the exchange. However, if the new code coincides with an already existing code, then the program will warn the user by an error message and require another code that would not cause a conflict.

The Delete option deletes the access code of the related line.

There are general-purpose buttons in the Access Tables window. They are located at the bottom of the screen.

The Close button closes the window.

The data related to the table can be retrieved from the exchange by making use of the Update button. By this way, if there are problems that have already occurred in the table, then they will automatically be eliminated.



The access codes of lines that are in a specific physical address range of the exchange can be change altogether by making use of the "Program" button.

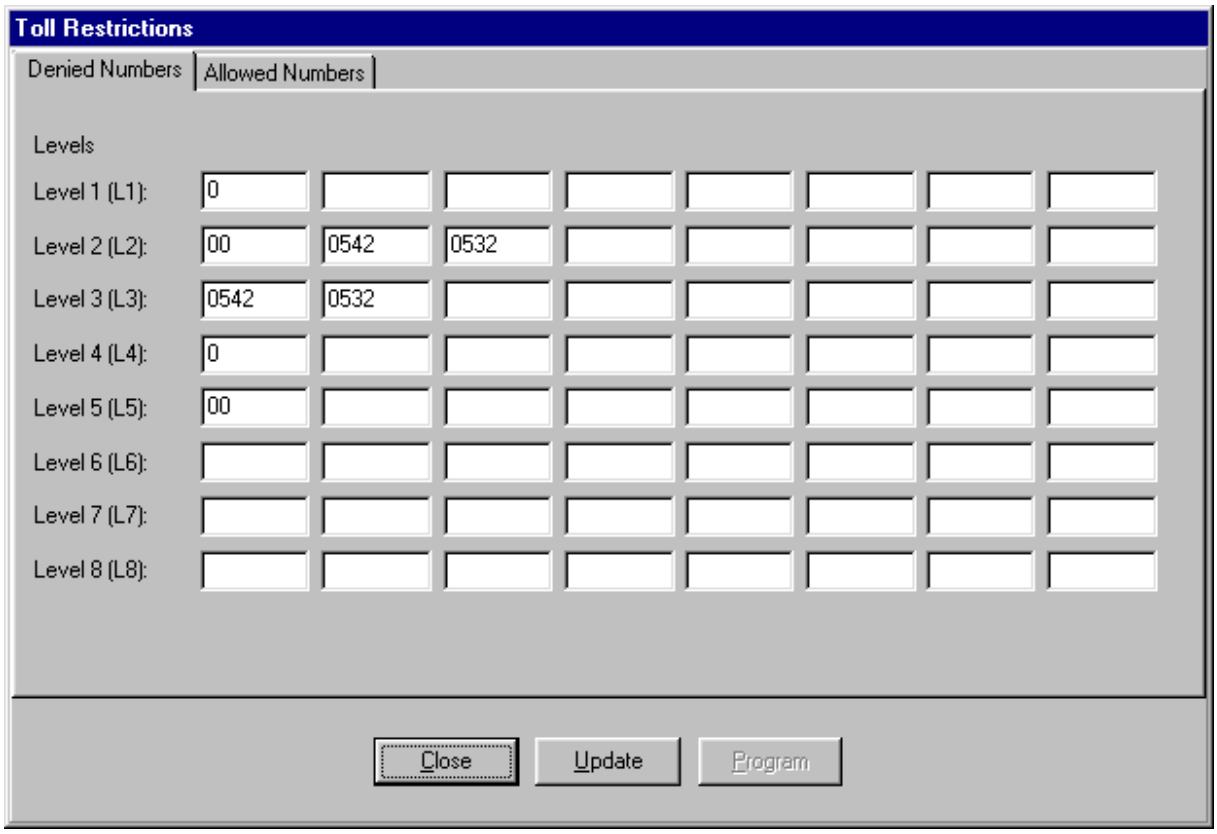
The physical address of the first line to be programmed is entered in the "Starting" field in the Range section, and the physical address of the last line is entered in the "Ending" field. The access code that will be assigned to the first physical address is entered as the Starting value and the increment value to be used for increasing the access codes is entered in the Increment field. Increments of 1, 5 or 10 can be chosen in that field.

The changes made in the Access Table are cleared and the table is reset to factory default access code values upon clicking the Reset button. That button does not change the settings for extensions and lines; it rather resets the access codes to their factory default values only.

Lines, which are normally listed according to their physical addresses, are displayed with respect to their access codes in the Access Table by pressing the "• " button. However, no operation can be done on the lines displayed in that view.

The "Access Code" is prompted upon clicking the "?" button. If the entered access code exists in the system, then it is located in the list and the line is directly displayed on the screen.

The **TOLL RESTRICTION TABLE** option displays and allows modifications of the fields of the Line Restricted Prefix Table (see PG), which consists of the line numbers that the extensions are not allowed to dial according to their authorization levels, and the Line Permitted Prefix Table (see PG), which consists of the numbers that are allowed to be dialed by the extensions beyond their authorization levels.



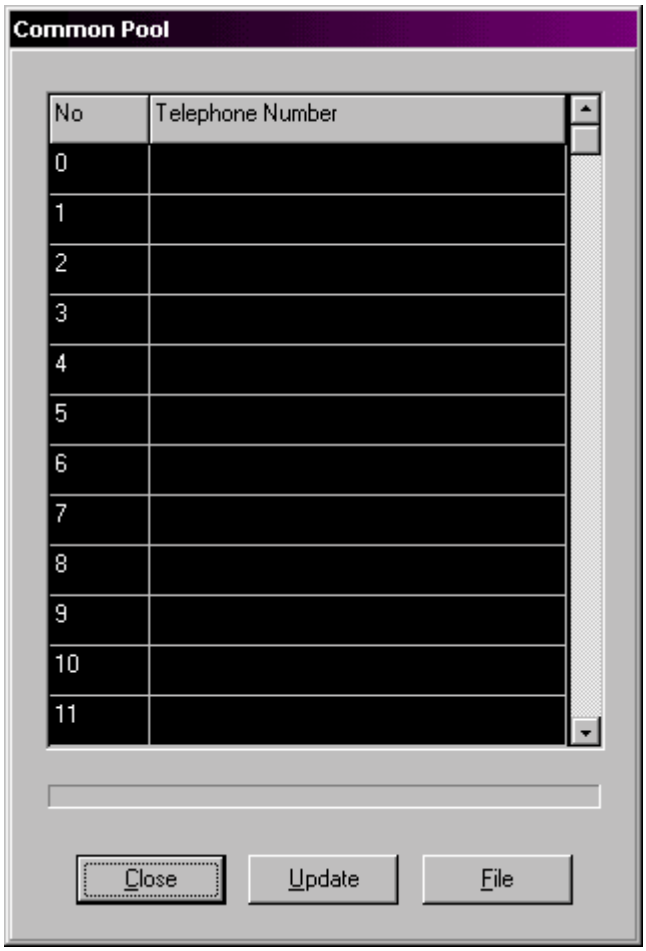
Two tables appear on the screen when that option is selected.

Table 1 corresponds to the Line Restricted Prefix Table and the prefixes entered in this table are applied as restrictions to extensions.

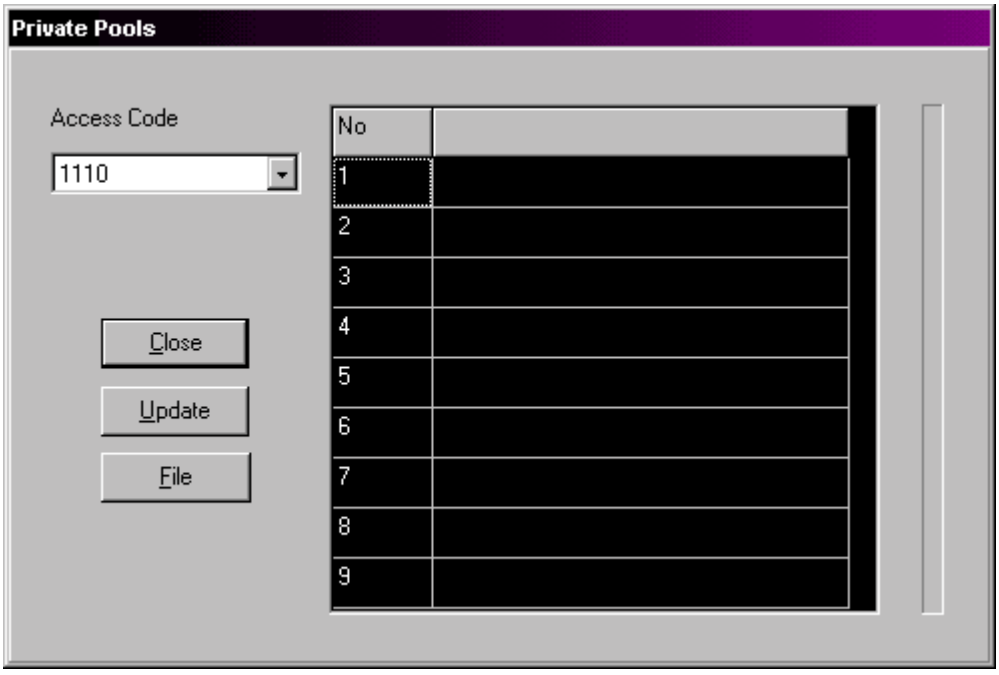
Table 2 corresponds to the Line Permitted Prefix Table and extensions can call the numbers with the prefixes entered in this table, against their authorization restrictions.

The **POOLS** option presents two sub-selections to the user:

The Common Pool selection lists 1000 common pool numbers of the exchange and changes can be done on each entry, upon wish. In order to make changes on a record, click the right mouse button on a number in the "No" column and then select the "Change" option. If a delay period is required between two digits, then entering a comma between the related digits in the "Number" field allows the exchange to wait during the processing of those digits.



The "Program" button should be clicked for the modifications or additions to take effect. The changes can be saved to a file or an existing file can be loaded by clicking the "File" button. A file name will be prompted in either case. The necessary operation will be accomplished according to the entered file name.

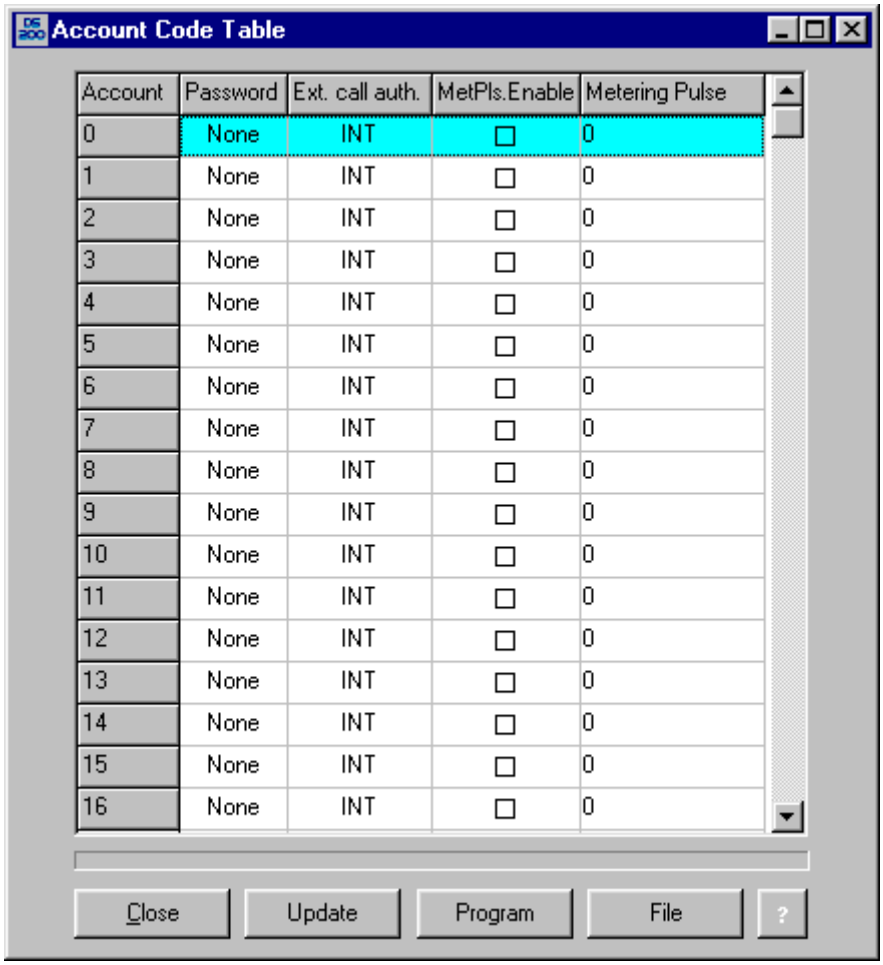


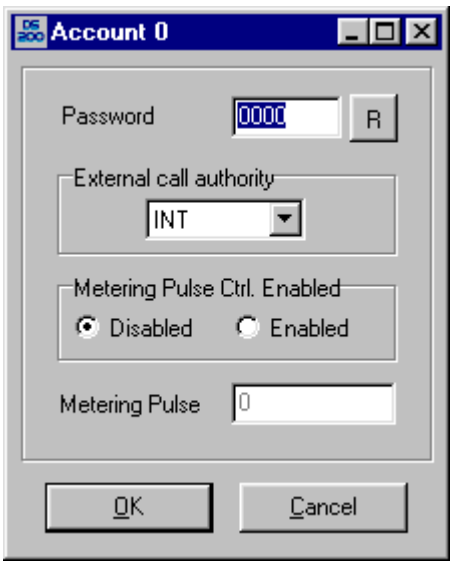
The Private Pool option lists 10 private pool numbers of the exchange, which are specific to the related extension and changes can be made on each entry, upon wish. In order to list the private pool numbers of a specific extension, the corresponding number of the

related extension is selected in the Access Code field. Later, in order to make changes on one of the listed records, click the right mouse button on a number in the "No" column and then select the "Change" option. If a delay period is required between two digits, then entering a comma between the related digits in the "Number" field allows the exchange to wait during the processing of those digits.

The "Program" button should be clicked for the modifications or additions to take effect. The changes can be saved to a file or an existing file can be loaded by clicking the "File" button. A file name will be prompted in either case. The necessary operation will be accomplished according to the entered file name.

Through the **ACCOUNT CODE TABLE** option, settings done by the Forced Account Code User and the related programs are displayed and accomplished. The table below is reached through that option:



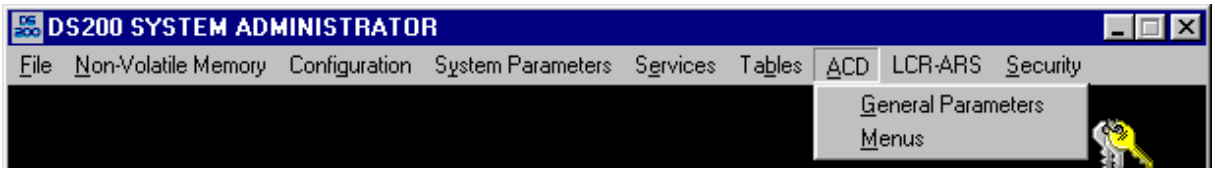


In this table, those can be entered: guest codes in the range 0..999, parameters determining the activation statuses for password, line authorization level and pulse price check for the related guest, as well as the amount of customer charge pulse price. The table below is reached after clicking on the related line with the right mouse button:

After adjusting the necessary parameters for the related guest code in this window, the record entry is completed by clicking the "OK" button. The R button next to the password field in this window can be used for allowing the computer to assign a random password automatically. The data is uploaded to the exchange by clicking the "Program" button that is in the lower section of the main table, after the settings for the related guest code are done.

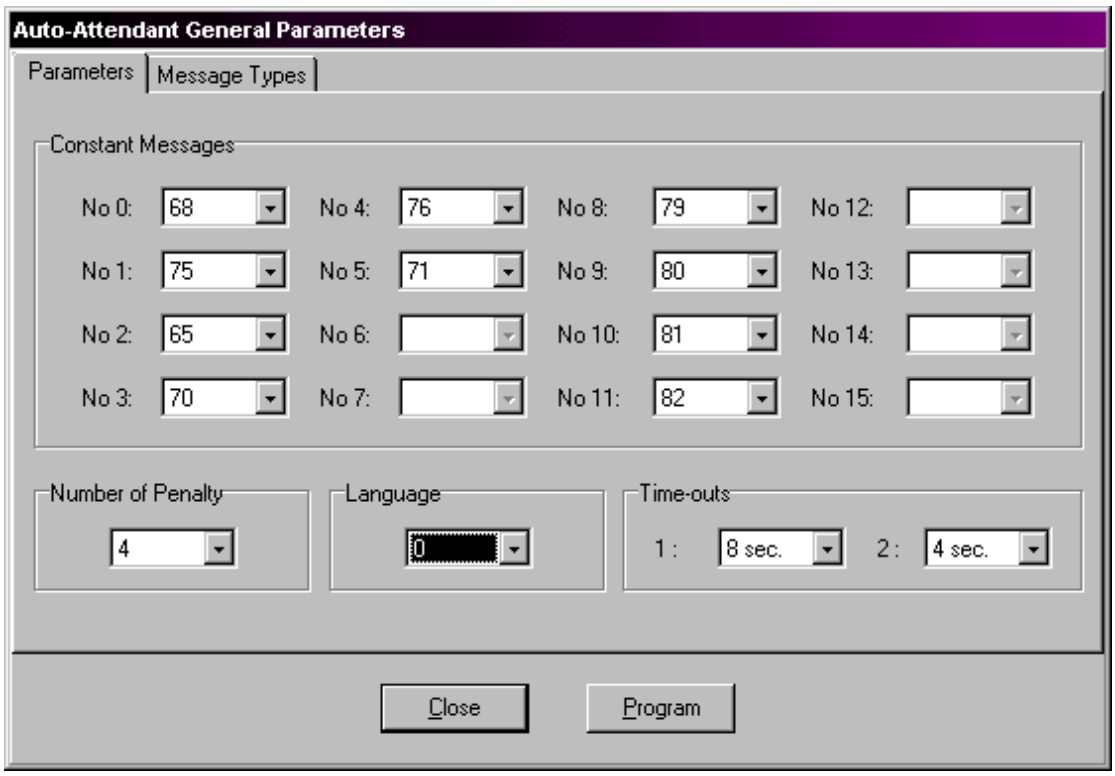
Another button located in the Guest Codes Table is the "Close" button. The window is closed by this button. The "Update" button is used for making sure that the most current form of the table is being displayed. The "File" button, on the other hand, is used for saving the changes to a file or retrieving a table previously saved in a file. A file name will be prompted in either case and the necessary operation will be accomplished according to the entered file name. The user is prompted to enter a guest number when the "?" button is clicked. The corresponding line in which the information about the related guest is displayed when the number has been entered.

III.7. ACD MENU



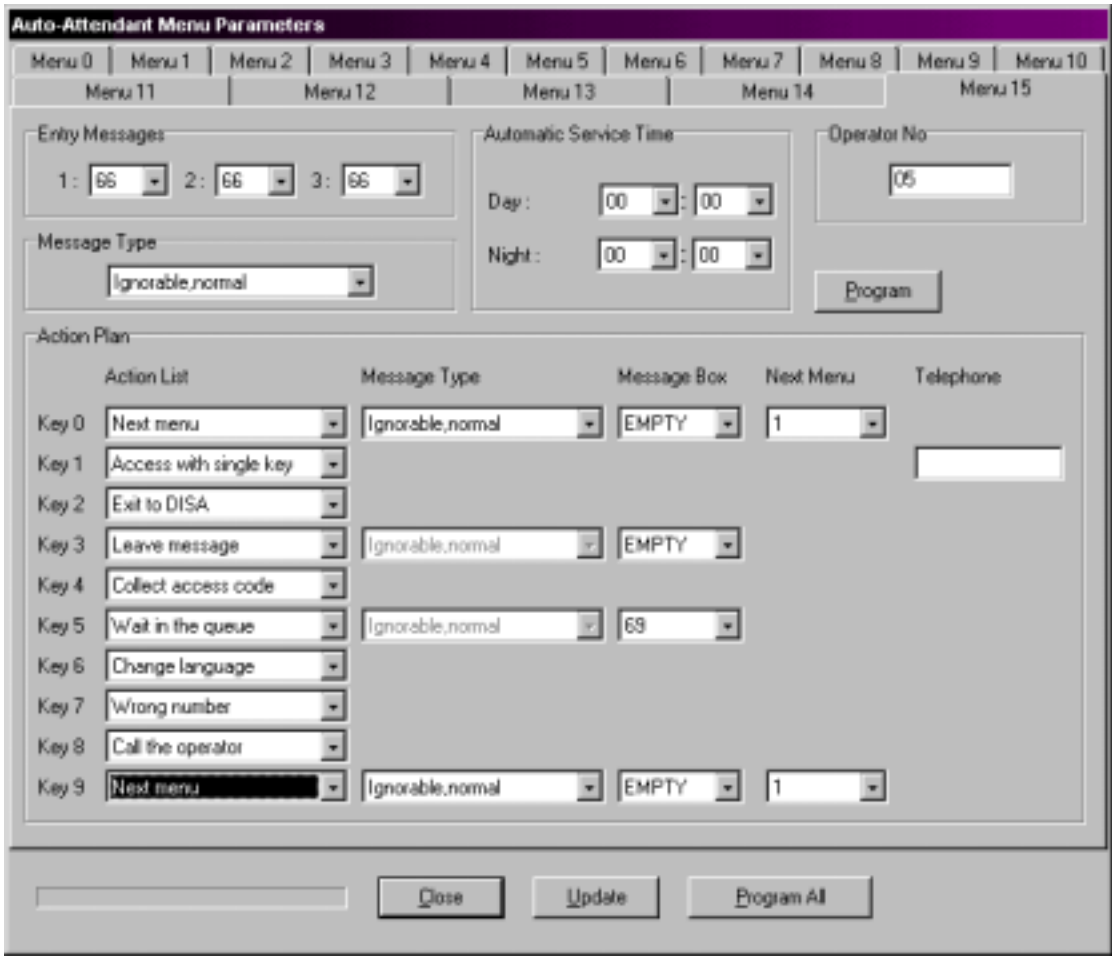
This menu is employed only when there is EVM200 Auto-Attendant and Voice Message module installed on the exchange, for checking the parameters related to that module.

The window below appears when the **GENERAL PARAMETERS** option is selected:



Details about the entire parameters seen in the windows with the group titles “Parameter” and “Message Types” can be found in PG.

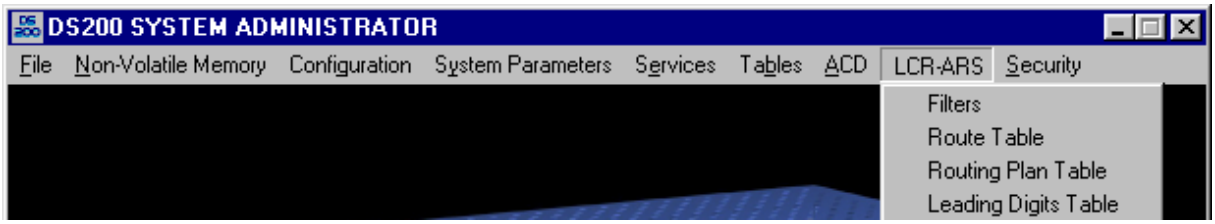
When any of these parameters is modified, the “Program” button becomes active and when it is clicked, the modifications are uploaded to the exchange.



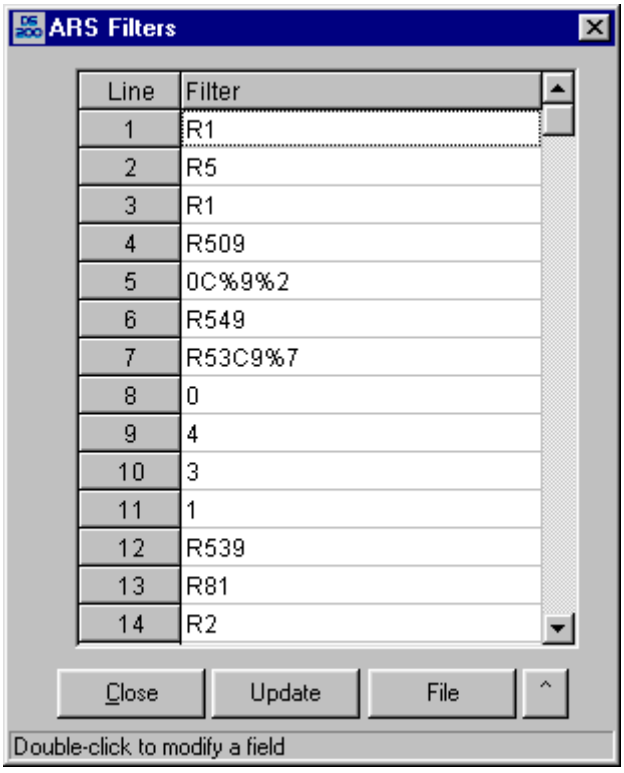
The window below with 16 groups, for 16 menus that are all the same, appears when the **MENU** option is selected:

There are windows above containing the same parameters under the group headings extending from Menu 0 to Menu 15 for 16 Auto-Attendant Menus. Details about the entire parameters in those windows can be found in PG.

III.8. LCR-ARS MENU



None of the parameters in this menu can be entered in the exchange through programming by phone. Hence, details about the LCR-ARS menu have been presented in the final chapter of this guide.



The window below opens when the CALL FILTERS option is selected:

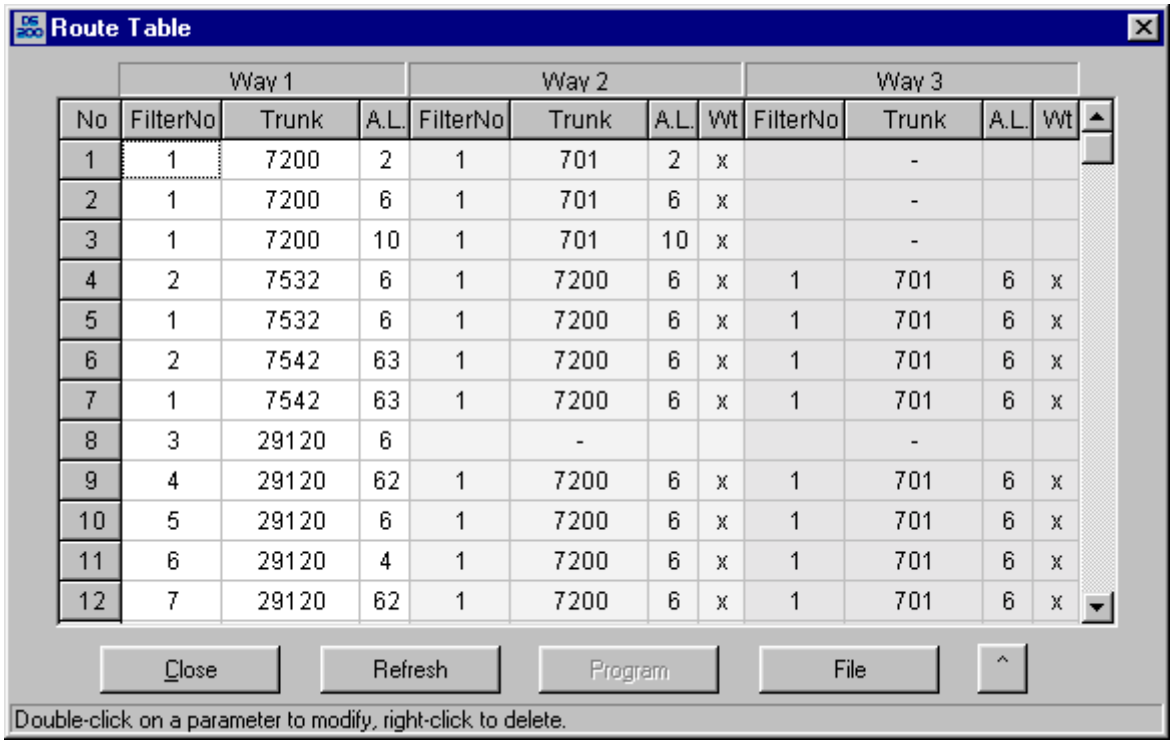
In this window, the filters that will be applied to the number dialed through the LCR are defined for every ARS (Automatic Route Selection) line. Those filters defined here will be used for the Routing Table entries.

In order to enter data in any line in this window, the filter section of the related line is double clicked with the left mouse button and then the necessary filter value is typed. The elements that can be used for defining filters have been explained in detail in the next chapter.

The "File" button is used for saving the changes to a file or retrieving values that has previously been saved in a file. A file name will be prompted when this button is clicked and the necessary operation will be accomplished according to the entered file name.

The LCR-ARS definitions are very comprehensive and all settings must be flawless in order to make use of the LCR-ARS feature. Therefore, one can proceed through the "^" button to the other tables related to the other settings.

The window below opens when the ROUTE TABLE option is selected:



This window explains how checks and operations are done according to the numbers dialed by the extensions for making external calls. When extensions access lines and dial numbers, the exchange checks those numbers one by one. If those numbers coincide with the ones that are in the Routing Table, then the exchange takes the actions in the related line of the table. The extensions are unaware of those operations. Therefore, that feature is called the Automatic Route Selection.

There are different definitions for the 3 routes mentioned in the table above. Details of the parameters in that table have been explained in the final chapter of this guide.

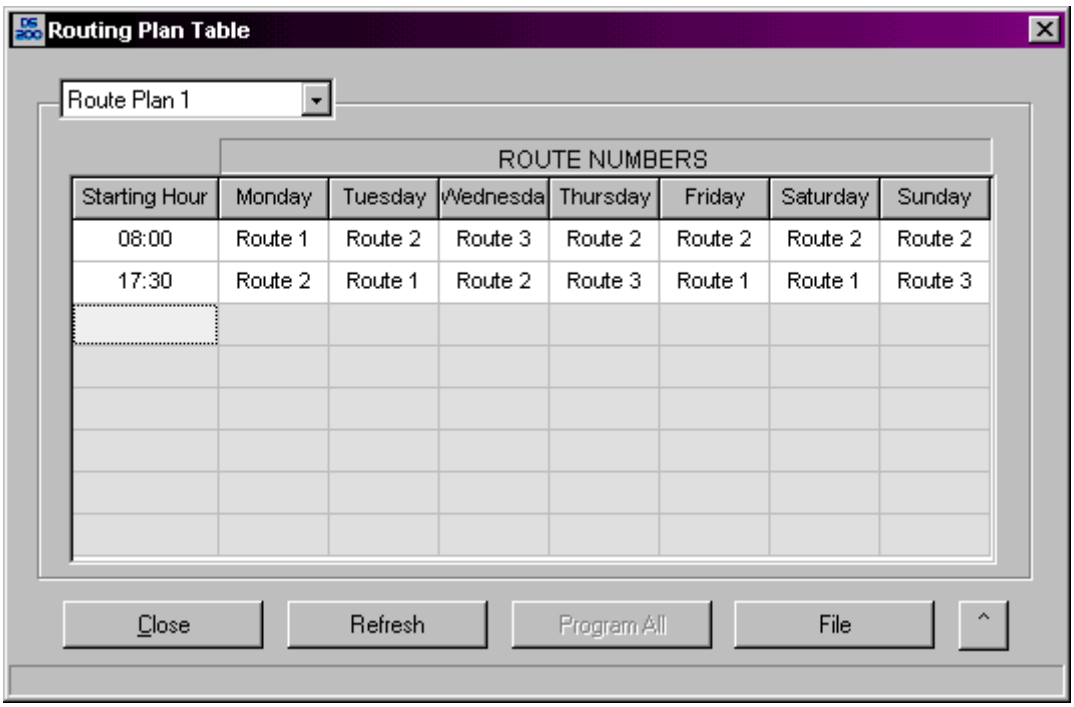
The "Close" button in the "Routing Table" window is used for closing the window.

The "Update" button is used for loading the current form of the table that is in the memory of the exchange.

The "Program" button becomes active when modifications with any parameter have been done and those modifications are uploaded to the exchange when the button is clicked.

The "File" button is used for saving the modifications in a file or retrieving data that have previously been saved in a file and loading it to the table. A file name is prompted when this button is clicked. The necessary operation is accomplished according to the entered file name.

The "^" button is used for proceeding directly to the other tables related with LCR-ARS.



The window below opens when the ROUTING PLAN TABLE option is selected:

The day and time of usage of the routes defined in the Routing Table are determined by the parameters that are entered in the Routing Plan Table. In order to enter a value, one should double click the related field and enter the value. Moreover, it is possible to define 16 different Routing Plan Table through this table. Details about those parameters are in the final chapter of this guide.

The “Close” button is used for closing the window.

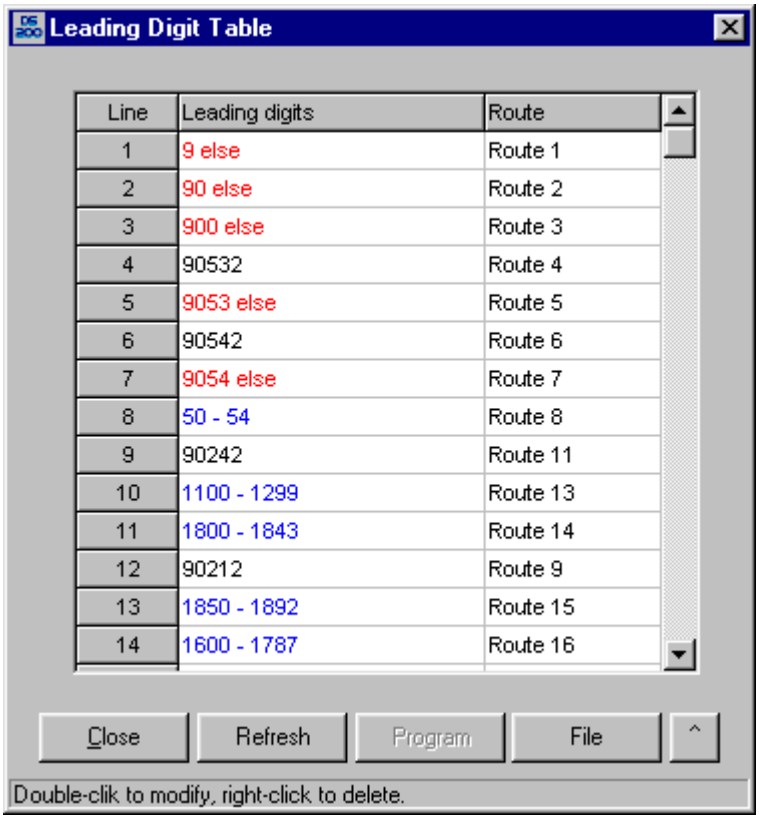
The “Update” button provides displays the current form of the table that is in the memory of the exchange.

The “Program All” button is used for uploading the entire modifications in different Routing Plan Tables to the exchange.

The modifications can be saved in a file or data in a file that has previously been created can be retrieved through the “File” button. A file name will be prompted when this button is clicked. The necessary operation is accomplished according to the entered file name.

The “^” button is used for proceeding directly to the other tables related with LCR-ARS.

The window below appears when the LEADING DIGIT TABLE option is selected:



The routes that the exchange will apply according to the numbers dialed by the extension is defined in this table. In order to enter a value, one should double click the related field and enter the value. Details about those parameters in this table are in the final chapter of this guide.

The “Close” button is used for closing the window.

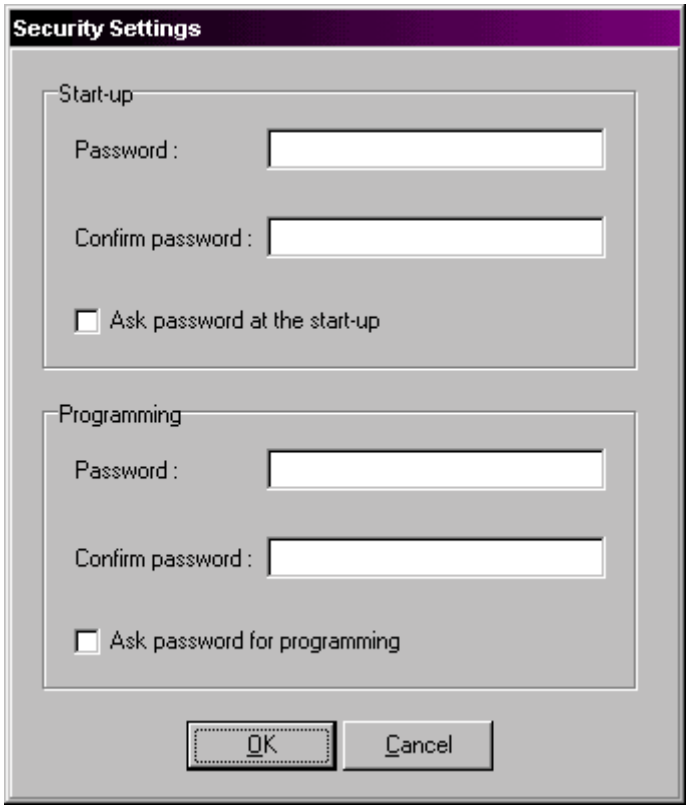
The “Update” button provides displays the current form of the table that is in the memory of the exchange.

The “Program” button is used for uploading the entire changes to the exchange.

The modifications can be saved in a file or data in a file that has previously been created can be retrieved through the “File” button. A file name will be prompted when this button is clicked. The necessary operation is accomplished according to the entered file name.

The “^” button is used for proceeding directly to the other tables related with LCR-ARS.

III.9. SECURITY MENU



This menu has no sub-selections. When it is selected, the window below opens:

The Security Menu includes password check feature to the ADMIN200 program, according to the needs of the user. There is no default password for ADMIN200. The user can define two different passwords for two different functions by this window, upon wish.

The first of them is the password that is defined for Startup. That password can be defined by entering it twice in the "Password" and "Password Again" fields and then clicking the "OK" button. If "Ask for password at startup." box is marked, in addition to defining that password, then the user is prompted for a password at startup each time the program runs.

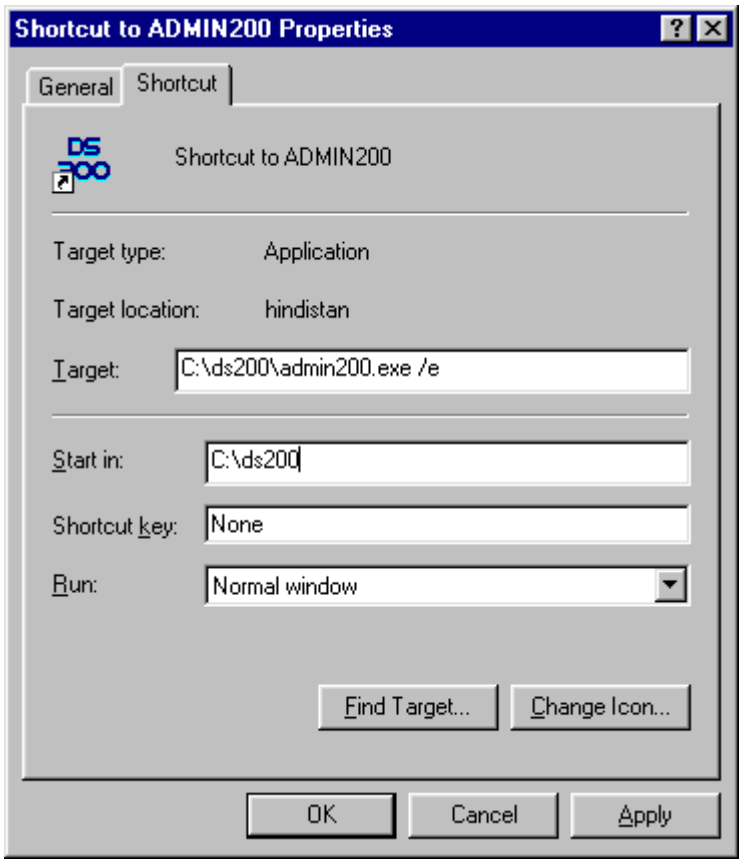
The other password is the one that can be defined for programming. That password can be defined by entering it twice in the "Password" and "Password Again" fields and then clicking the "OK" button. If "Ask for password at programming." box is marked, in addition to defining that password, then the user is prompted for a password each time a parameter is modified and the "Program" button is clicked. In fact, that password is prompted only for the first programming request and if the correct password is entered, there will be no other password request until the program is exited.

Another function of the Security feature is represented in the main window of ADMIN200 with the icon depicted by a group of keys (see the figure below). If the program will not be used for a while even though it still runs, or it should keep running for some queries while the user is away, then this function can be employed in order to prevent unauthorized usage and modifications.  When this icon is clicked, the program is minimized to the Windows taskbar. The startup password is prompted in order to maximize the program again and if the entered password is incorrect, then accessing the program will be impossible.

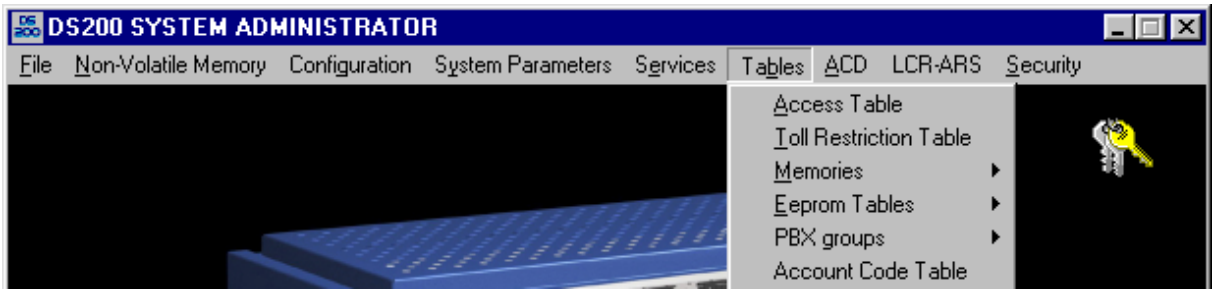
III.10. SPECIAL OPERATION OF ADMIN200

The ADMIN200 program has been designed in a way that will enable programming of lower level parameters as well. All the facts mentioned so far are related to the settings that can be done through normal usage of the ADMIN200 program. In addition to those, it is possible to view the contents and setting the memory elements that are on the entire extension and line cards. However, since such settings would affect the overall performance of the exchange, one must consider the results of the actions related to such parameters very carefully. If one is not absolutely sure about the settings, then no setting on the parameters must be done. Besides, the parameters to be modified may be ones that will be affected by external variables (such as some clocking parameters). Hence, the sufficiency of the modifications must be checked afterwards and the convenient values must be set by varying the parameter value.

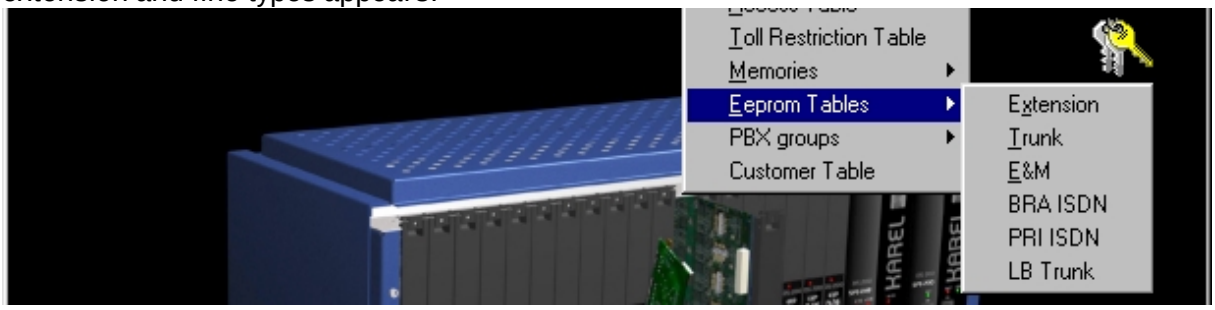
In order to run this special operation of ADMIN200, an addition to the shortcut file for running the program is required, very similar to adding serial output number. That addition is performed as shown below.



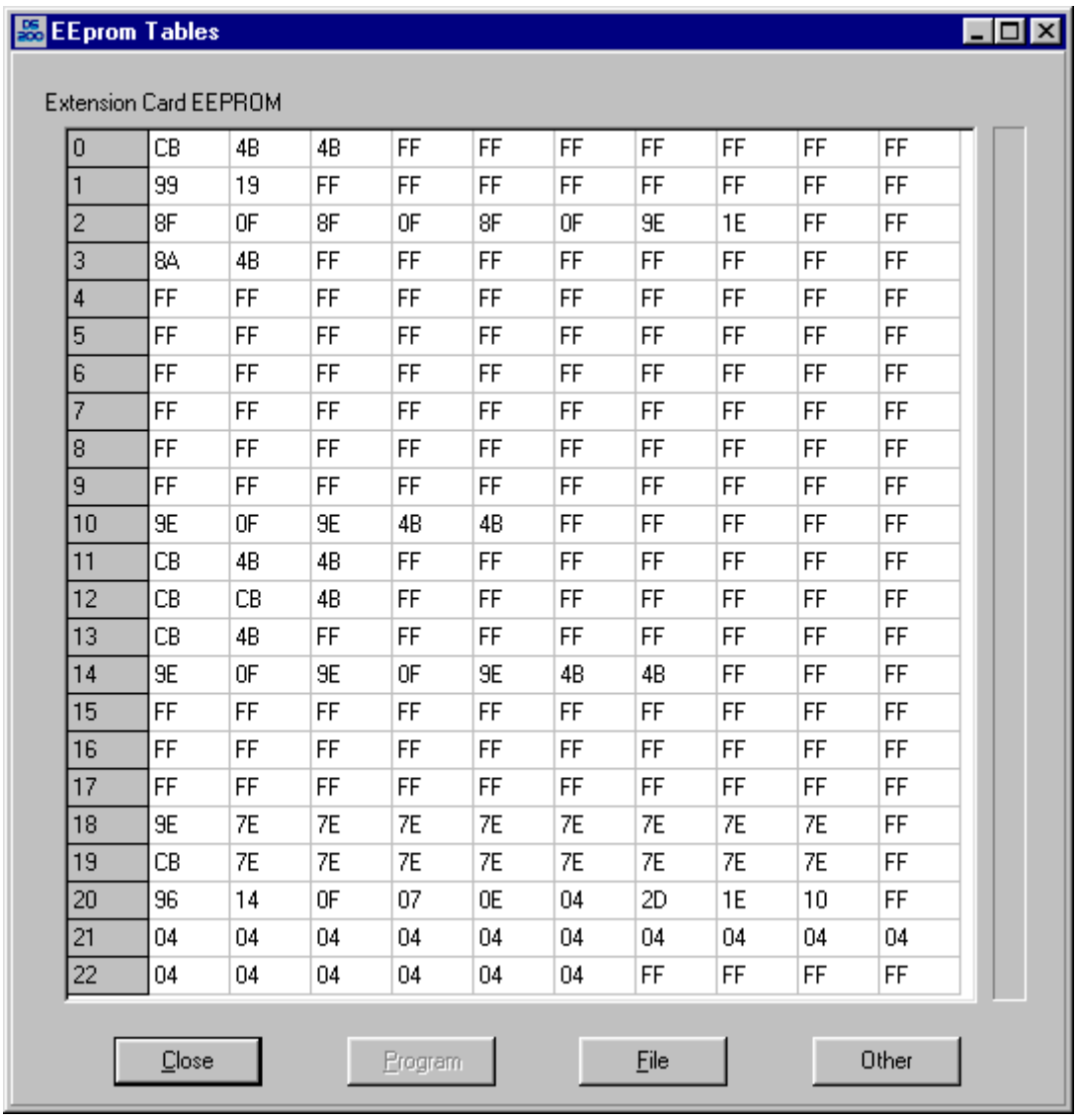
When the program runs after that addition, one can observe that the entire main window structure and the structures of the menus, except the "Tables" menu, have remained absolutely the same. The "EEPROM Tables" option is added to the "Tables" menu. For the modifications made through that option to take effect, the exchange or the entire cards of the same type as the one, whose parameters have been changed, must be turned off and on again.



When the **EEPROM TABLES** option is selected, a menu containing options for different extension and line types appears:



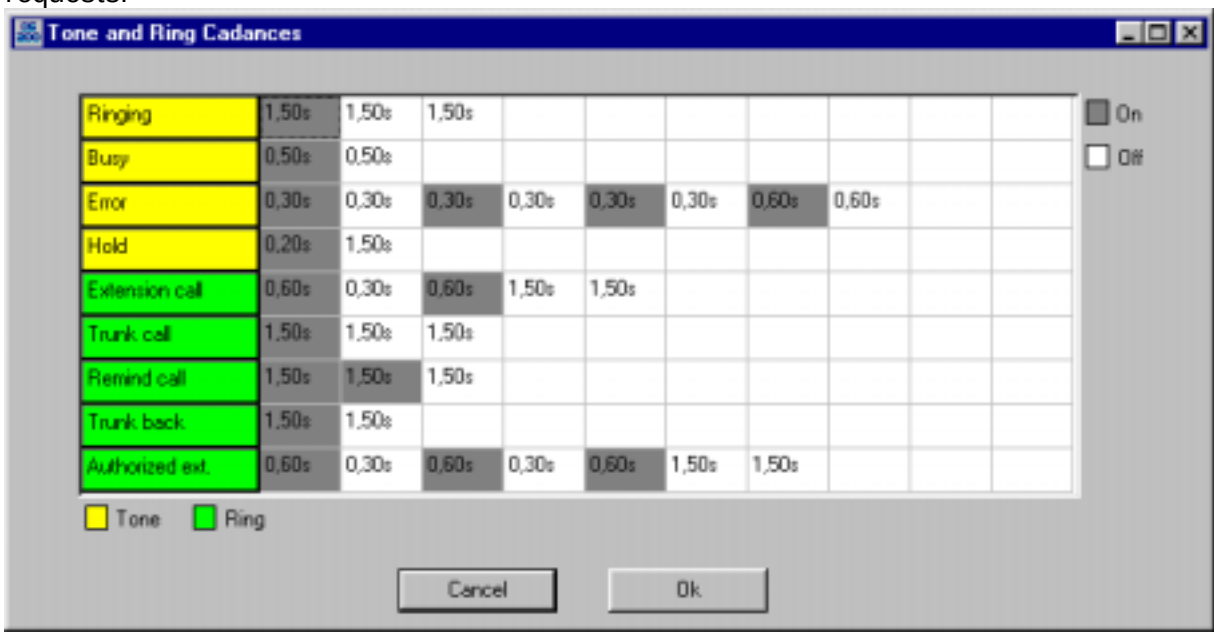
When the `Extension` option is selected, the contents of the memory element, which is on the extension cards, are presented as a table in hexadecimal. This table is rather for R&D purposes; hence making modifications in that table might disrupt operation of the exchange. In addition to that, a button has been included at the bottom of the window, in order to interpret and set the parameters more easily in a visual way.



0	CB	4B	4B	FF	FF	FF	FF	FF	FF	FF
1	99	19	FF	FF	FF	FF	FF	FF	FF	FF
2	8F	0F	8F	0F	8F	0F	9E	1E	FF	FF
3	8A	4B	FF	FF	FF	FF	FF	FF	FF	FF
4	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
5	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
6	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
7	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
8	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
9	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
10	9E	0F	9E	4B	4B	FF	FF	FF	FF	FF
11	CB	4B	4B	FF	FF	FF	FF	FF	FF	FF
12	CB	CB	4B	FF	FF	FF	FF	FF	FF	FF
13	CB	4B	FF	FF	FF	FF	FF	FF	FF	FF
14	9E	0F	9E	0F	9E	4B	4B	FF	FF	FF
15	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
16	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
17	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
18	9E	7E	7E	7E	7E	7E	7E	7E	7E	FF
19	CB	7E	7E	7E	7E	7E	7E	7E	7E	FF
20	96	14	0F	07	0E	04	2D	1E	10	FF
21	04	04	04	04	04	04	04	04	04	04
22	04	04	04	04	04	04	FF	FF	FF	FF

Two options are presented to the user when the "Other" button is clicked.

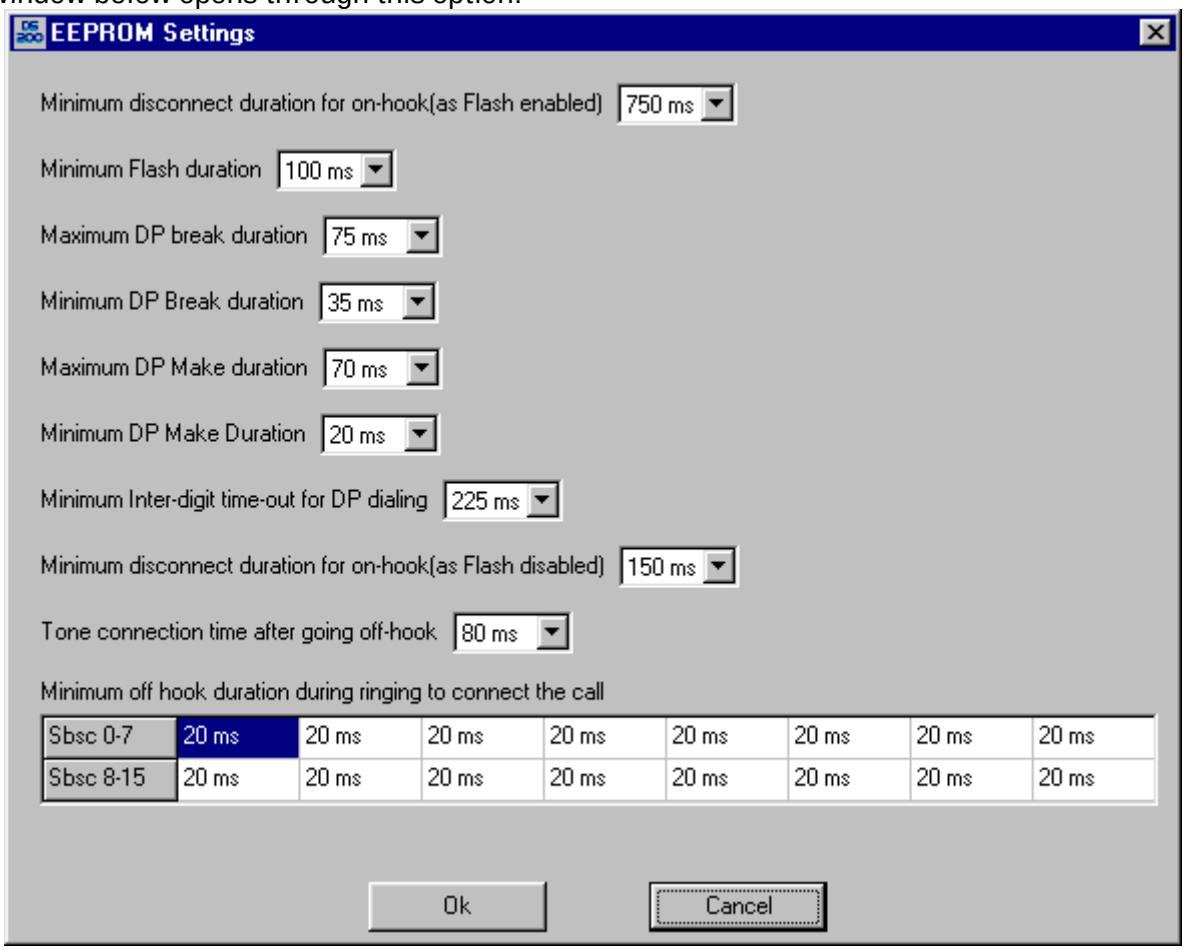
The ***Cadence Settings*** option changes the timings of the tones that extensions hear during the calls they make and the ringing tones of their phones during incoming call requests.



The first four parameters seen in this window show the valid time intervals of the tones heard in various cases during calls by handset, and the last five parameters show the valid time intervals of the ring cadence of phones for various types of incoming calls. Modifications can be made on those time intervals, upon wish.

The boxes in dark colors are used for determining the time periods in which tones or rings will be heard (ON), and the boxes in light colors are used for determining the time periods in which tones or rings will not be heard (OFF). Since the values that can be entered in each box varies in the range 0.02 and 2.25 seconds, in cases when durations longer than 2.52 seconds are required, two consecutive boxes can be selected as ON or OFF. Once the necessary changes are completed, the "OK" button is clicked and the new timing parameters become effective from then on for the next extension operations.

Some low level settings related to extensions are done by the ***Other Settings*** option. The window below opens through this option:



Explanations of the parameters in this window are below:

Minimum disconnect duration for on-hook (as flash enabled): This parameter sets the duration of the period in which an extension must keep the handset on hook in order to terminate a call (while the extension has hook-flash authorization). The value of the parameter can be entered as in the range 5-1250 msec. That value also determines the upper limit of the hook flash period, i.e., on hook durations that are shorter than the determined period are considered as hook flash, and the ones longer than that period are considered as hanging up.

Minimum flash duration: This parameter sets the minimum duration of period in which an extension should keep the flash switch off in order to put a call on hold. The value of the parameter can be entered as in the range 5-1250 msec.

Maximum DP Break duration: If an extension is employing the flash switch of her/his phone to make hook flash, then the duration of that hook flash must not be short as to be confused with the DP break signal. Through this parameter, the maximum signal length that the exchange will detect as the DP break signal is determined. The value of the parameter can be entered as in the range 5-1250 msec.

Minimum DP Break duration: The minimum duration of the DP break signal is determined through this parameter to prevent detection of some very short disconnections, which might occur on the line while an extension is dialing a number, as a DP digit. The value of the parameter can be entered as in the range 5-1250 msec.

Maximum DP Make duration: This parameter determines the duration of the maximum make signal that will be created on the line while an extension is dialing DP numbers. The value of the parameter can be entered as in the range 5-1250 msec.

Minimum DP Break duration: This parameter determines the duration of the minimum make signal that will be created on the line while an extension is dialing DP numbers. The value of the parameter can be entered as in the range 5-1250 msec.

If DP phones of extensions are generating out-of-standard signals, then the parameters related to DP dialing can also be set to detect those signals.

Minimum Inter-digit time-out for DP dialing: This parameter sets the length of the delay period between two digits dialed consecutively in order to make sure those digits are detected correctly by the exchange. The value of the parameter can be entered as in the range 5-1250 msec.

Minimum disconnect duration for on-hook (as flash disabled): This parameter sets the duration of the period in which an extension must keep the handset on hook in order to terminate a call (while the extension does not have hook-flash authorization). The value of the parameter can be entered as in the range 5-1250 msec. That value also determines the upper limit of the hook flash period, i.e., on hook durations that are shorter than the determined period are considered as hook flash, and the ones longer than that period are considered as hanging up.

Tone connection time after going off-hook: This parameter sets the length of the minimum period in which an extension has to keep the handset off hook for the handset to be detected by the system as lifted. The value of the parameter can be entered as in the range 5-1250 msec. This parameter can be employed especially to avoid such cases when the hook switch is turned on and off for very short time intervals unintentionally due to the very own characteristics of a phone while the extension is lifting the handset, the system may interpret such intervals as dialed DP digits and disconnect the dial tone.

Minimum off hook duration during ringing to connect the call: In case of a coming call request, this parameter sets the length of the period in which an extension has to keep the handset off hook, in order to be detected by the system as answering the call. The value of the parameter can be entered as in the range 5-1250 msec. This parameter can be employed especially to avoid the misinterpretation by the system of the cases, when the hook switch is turned on and off for very short time intervals unintentionally while the extension is lifting the handset, due to the very own characteristics of a phone, as the call is being answered and to avoid dropping of the line.

The entire parameters, except the last one, in this window are valid for all extensions, whereas the last parameter may be extension-specific. However, changes made through this window will exactly be reflected to the entire extension cards.

When the Line option is selected, the contents of the memory element, which is on the analog line cards, are presented as a table in hexadecimal. This table is rather for R&D purposes; hence making modifications in that table might disrupt operation of the exchange.

In addition to that, a button has been included at the bottom of the window, in order to interpret and set the parameters more easily in a visual way.

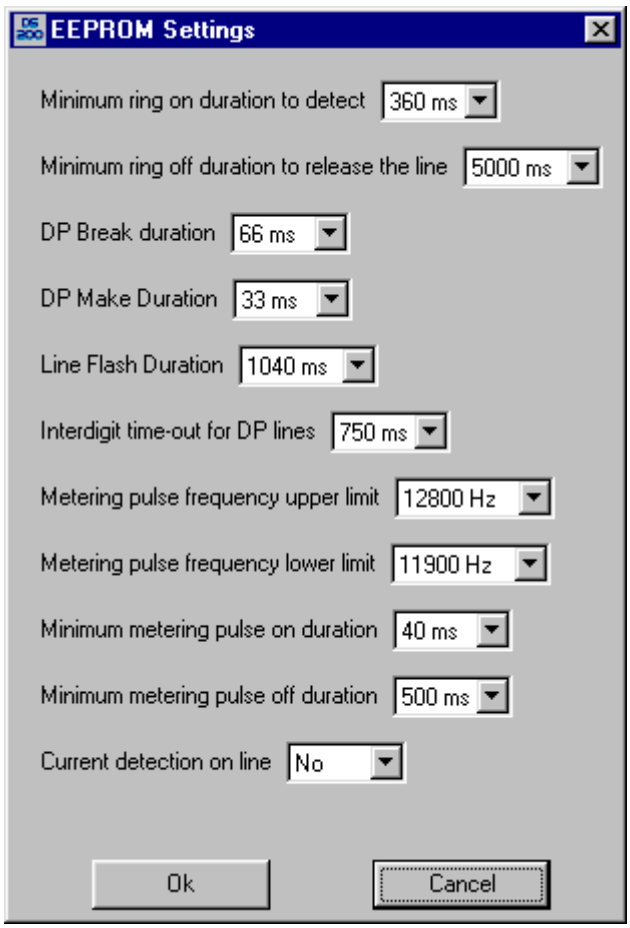
Two options are presented to the user when the "Other" button is clicked.

The ***Cadence Settings*** option changes the timings of the signals of the tones heard during line access.

The first four parameters seen in this window show the valid time intervals of the tones heard in various cases during line access, and the last five parameters show the valid time intervals of the ring cadence of phones for various types of incoming calls. Modifications can be made on those time intervals, upon wish.

The boxes in dark colors are used for determining the time periods in which tones or rings will be heard (ON), and the boxes in light colors are used for determining the time periods in which tones or rings will not be heard (OFF). Since the values that can be entered in each box varies in the range 0.02 and 2.25 seconds, in cases when durations longer than 2.52 seconds are required, two consecutive boxes can be selected as ON or OFF. Once the necessary changes are completed, the "OK" button is clicked and the new timing parameters become effective from then on for the next extension operations.

Some low level settings related to lines are done by the ***Other Settings*** option. The window below opens through this option:



Explanations of the parameters in this window are below:

Minimum ring on duration to detect: This parameter sets the length of the ring signal that can be detected by the system in case of an incoming call request. The value of the parameter can be entered as in the range 40-1000 msec. If the ringing lasts shorter than the entered value, then the system will not detect that as a valid ring signal.

Minimum ring off duration to release the line: When an incoming call request is detected by the exchange, this is the minimum time interval for the exchange to detect that the call is over after the remote party hangs up. The value of the parameter can be entered as in the range 40-1000 msec.

DP Break duration: This parameter sets the length of the DP break signal that will be transmitted to the remote system when the line is in DP signaling mode. The value of the parameter can be entered as in the range 1-250 msec. That value is 66 msec for Turkey.

DP Make duration: This parameter sets the length of the DP make signal that will be transmitted to the remote system when the line is in DP signaling mode. The value of the parameter can be entered as in the range 1-250 msec. That value is 33 msec for Turkey.

Line Flash duration: Making hook flash over line may be required in order to exploit some CO services or for some exchange-exchange connections. This parameter sets the period in which the line is disconnected. The value of the parameter can be entered as in the range 40-10000 msec.

Interdigit time-out for DP lines: This parameter sets the length of the period in which the exchange has to wait between two consecutive DP digits, for the network, to which the exchange is connected, to detect the DP signals correctly, which are generated from lines. The value of the parameter can be entered as in the range 5-1250 msec.

Metering pulse frequency upper limit: This parameter sets the upper limit of the frequency range in order to detect the pulse price signal transmitted from the network to which the exchange is connected. The value of the parameter can be entered as in the range 100-25000 Hz. The pulse price signal frequency is 12000 Hz for Turkey.

Metering pulse frequency lower limit: This parameter sets the lower limit of the frequency range in order to detect the pulse price signal transmitted from the network to which the exchange is connected. The value of the parameter can be entered as in the range 100-25000 Hz. The pulse price signal frequency is 12000 Hz for Turkey.

Minimum metering pulse on duration: This parameter sets the minimum duration of the pulse price signals to be detected correctly, which are transmitted from the network to which the exchange is connected. The value of the parameter can be entered as in the range 10-2500 msec.

Minimum metering pulse off duration: This parameter sets the minimum wait time between two consecutive pulse price signals, which are transmitted from the network to which the exchange is connected, for the signals to be detected correctly. The value of the parameter can be entered as in the range 10-2500 msec.

Current detection on line: This parameter controls whether current check will be done on an analog line. If current check is performed on a line and if the exchange does not detect current on that line, then the line is taken out of service, so that extensions are prevented to access such malfunctioning lines.

The entire parameters in that window will be valid for all analog lines.

When one of the ***E&M, BRI ISDN and LB*** Lines options is selected, the contents of the memory element, which is on the cards of those lines, is presented as a table in hexadecimal. This table is rather for R&D purposes; hence making modifications in that table might disrupt operation of the exchange. In addition to that, a button has been included at the bottom of the window, in order to interpret and set the parameters more easily in a visual way.

The ***Cadence Settings*** option is presented to the user when the "Other" button is clicked. That option changes the timings of the signals of the tones heard during line access.

The first four parameters seen in this window show the valid time intervals of the tones heard in various cases during line access, and the last five parameters show the valid time intervals of the ring cadence of phones for various types of incoming calls. Modifications can be made on those time intervals, upon wish.

The boxes in dark colors are used for determining the time periods in which tones or rings will be heard (ON), and the boxes in light colors are used for determining the time periods in which tones or rings will not be heard (OFF). Since the values that can be entered in each box varies in the range 0.02 and 2.25 seconds, in cases when durations longer than 2.52 seconds are required, two consecutive boxes can be selected as ON or OFF. Once the necessary changes are completed, the "OK" button is clicked and the new timing parameters become effective from then on for the next extension operations.

When the PRI ISDN option is selected, the contents of the memory element, which is on the PRI ISDN cards, are presented as a table in hexadecimal. This table is rather for R&D purposes; hence making modifications in that table might disrupt operation of the exchange. In addition to that, a button has been included at the bottom of the window, in order to interpret and set the parameters more easily in a visual way.

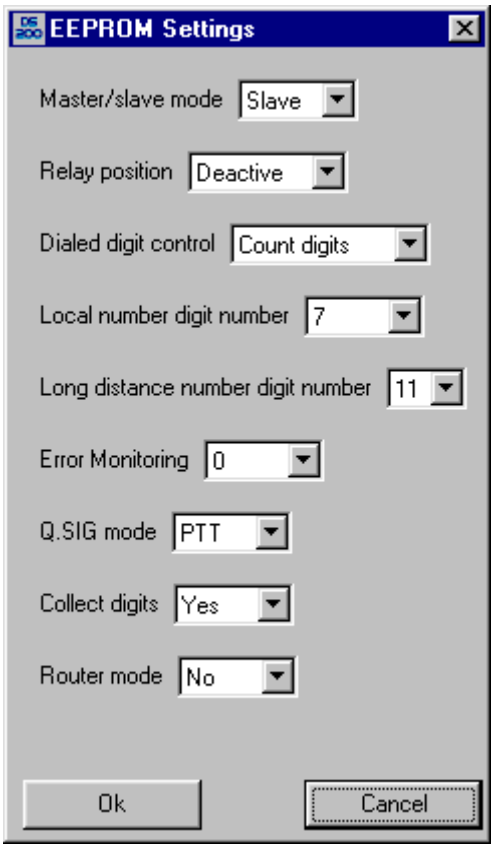
Two options are presented to the user when the "Other" button is clicked.

The ***Cadence Settings*** option changes the timings of the signals of the tones heard during line access.

The first four parameters seen in this window show the valid time intervals of the tones heard in various cases during line access, and the last five parameters show the valid time intervals of the ring cadence of phones for various types of incoming calls. Modifications can be made on those time intervals, upon wish.

The boxes in dark colors are used for determining the time periods in which tones or rings will be heard (ON), and the boxes in light colors are used for determining the time periods in which tones or rings will not be heard (OFF). Since the values that can be entered in each box varies in the range 0.02 and 2.25 seconds, in cases when durations longer than 2.52 seconds are required, two consecutive boxes can be selected as ON or OFF. Once the necessary changes are completed, the "OK" button is clicked and the new timing parameters become effective from then on for the next extension operations.

The window below opens if the ***Other Settings*** option is selected:



Explanations of the parameters in this window are below:

Master/Slave Mode: If the PRI card is to be employed for videoconferencing or other similar type of data communication application, then the card must receive the clock signal from the line it is connected to, or problems with the applications might occur. For such cases when the PRI card is to receive an external clock signal, the card must be in Slave mode. If, on the other hand, the card does not need to receive the clock signal externally, i.e., if it is to be employed only for voice communication, then it may be set to Master mode.

Relay Position: In order to use the PRI ISDN module for connection of two exchanges, line on one side must be in NT (extension) mode, whereas the line on the other side must be in TE (line) mode. When the relay is on, the line will be in NT mode, and when it is off, on the other hand, the line will be in TE mode.

Dialed digit control: The exchange can check the dialed numbers in two ways for the calls through PRI ISDN lines:

1) The time-out check (wait for 4 sec.): In that case, if there happens a delay of 4 seconds between two consecutive digits of the dialed number, then the digits dialed so far are transmitted as in block structure (N-Block) in ISDN format and the rest of the digits dialed afterwards are transmitted in DTMF format.
2) Digit count check for a dialed number (Count digits): In that case, the quantity of digits to be dialed through the PRI ISDN lines is determined according to the first dialed number. Unless the determined number of digits have been dialed, the number is not transmitted to the line:
    a) If the first digit to be dialed is 0, then a number is expected to be dialed with digits whose quantity has been determined as in the field “Long distance number digit count“.

b) If the first digit to be dialed is 1, then a number with 3 digits is expected to be dialed.

c) If the first digit to be dialed is neither 0 nor 1, then a number is expected to be dialed with digits whose quantity has been determined as in the field "Local number digit count".

Local number digit number: If "Dialed number check" has been selected as "Count digits", then, for the cases when numbers do not start with 0 or 1, the quantity of digits for a number expected by the exchange to be considered as a local number is determined.

Long distance number digit number: If "Dialed number check" has been selected as "Count digits", then, for the cases when numbers start with 0, the quantity of digits for a number expected by the exchange to be considered as a long distance number is determined.

Error monitoring: This is used for monitoring a PRI line against possible problems and transferring the necessary data to the DS_DATA.BIN file. For the case when the value is "0", no parameter is monitored. Various parameters of the line are monitored for different values. The values to be set should be selected by consulting Karel.

Q.SIG Mode: If PRI is connected to a router or to another PABX and if Q.SIG features are required to be used on this line then the Q.SIG mode must be selected. Otherwise, PTT mode can be selected.

Collect Digits: This parameter is used to define the number dialing mode of the PRI line. If "Yes" is selected then N-Block dialing is use, otherwise overlap dialing is used. For Q.SIG mode "No" must be selected.

Router Mode: If the PRI line is to be connected to a router, to provide the full efficiency for the communication between the PRI line of the system and the router, router mode must be activated, otherwise must be deactivated.

When the BRI ISDN Extension option is selected, the contents of the memory element, which is on the BRI ISDN and digital extension cards, are presented as a table in hexadecimal. This table is rather for R&D purposes; hence making modifications in that table might disrupt operation of the exchange. In addition to that, a button has been included at the bottom of the window, in order to interpret and set the parameters more easily in a visual way.

Two options are presented to the user when the "Other" button is clicked.

The ***Cadence Settings*** option changes the timings of the signals of the tones heard during line access.

The first four parameters seen in this window show the valid time intervals of the tones heard in various cases during line access, and the last five parameters show the valid time intervals of the ring cadence of phones for various types of incoming calls. Modifications can be made on those time intervals, upon wish.

The boxes in dark colors are used for determining the time periods in which tones or rings will be heard (ON), and the boxes in light colors are used for determining the time periods in which tones or rings will not be heard (OFF). Since the values that can be entered in each box varies in the range 0.02 and 2.25 seconds, in cases when durations longer than 2.52 seconds are required, two consecutive boxes can be selected as ON or OFF. Once the necessary changes are completed, the "OK" button is clicked and the new timing parameters become effective from then on for the next extension operations.

The window below opens if the ***Other Settings*** option is selected:

Through the Language option in this window, the language of some messages that will be transmitted to ISDN or digital phones is selected between Turkish and English.

IV. LCR-ARS

LCR (Lease Cost Routing) – ARS (Automatic Route Selection) feature is one of the most superior features of the DS200 and DS200S exchanges.

Thanks to that feature, the exchange automatically figures out the least costly route according to the call type the extension wishes to make and establishes the connection through that route. Hence, that feature provides means to reduce telephone expenses to a minimum. Meanwhile, the extension makes a normal line call, being unaware of such automatic routing operations.

The exchanges must be programmed accordingly first, in order to fulfill such automatic operations. That programming can be realized only by ADMIN200.

Some of the tables used during that programming and parameters used in those tables are below:

IV.1. THE CALL FILTERS TABLE

LINE: This is the number of the filter to be defined. It may take a value in the range 1-32.

FILTER: It determines the sort of modifications to be made with the number dialed by the extension, according to the starting digit number. The number of the filter that is to be defined will be entered in the Routing Table.

Filter definitions are done by establishing several sequences consisting of characters and figures. Each character has specific functions as a filter element. There are characters and sample digits following them in the table below.

Sequence	Meaning
R**3**	The first **3** digits of the dialed number are discarded. Here, the number to be entered should be in the range 1..9.
[**440**]	If the starting digits of the dialed number are **440**, then they are discarded. Otherwise, no action is taken.
%**2**	Two digits from the dialed number are added to the number to be transmitted to the line. Here, the number to be entered should be in the range 1..9.
D**2**	Adds 2 wait periods to the number to be transmitted to the line (1). Here, the number to be entered should be in the range 1..9.
C	Adds a single wait period to the number to be transmitted to the line (2).
A	Exactly transfers the remaining digits of the dialed number to the number to be transmitted to the line.
X	Deletes the entire remaining digits of the dialed number.
123	Adds **123** to the number to be transmitted to the line.

When the exchange detects a wait character while calling a number, it interprets the first wait character as 'Wait until receiving "the connection has been established" signal from the other party'. In this case, if there are other digits to be dialed, then they are transmitted after the call has been established.

The wait character is interpreted as 'Wait until receiving "the connection has been established" signal from the other party'.

Filter groups can be formed from those sequences. For example:

Filter	Dialed number	Number to be transmitted to the line
R2987D2	49123	987,,123
R2%2987D2	49123	12987,,3
R2987%2D2	49123	98712,,3
R2987AD2	49123	987123,,
R2987D2%1X	49123	987,,1
[55]A49	5412	541249
[55]A49	5512	1249

The filters in LCR-ARS work cumulatively, i.e., once the filters to be used have been determined (they are determined by referring to the Leading Digit Table, according to the dialed digits), the resulting digits from one portion of the filter group are used for the next portion of the filter. Such processing of the digits continues until the entire sequences in the filter are completely executed. That means a dialed number can be received either wholly or in parts, if that is the case, filter group processing will resume.

In the example below, digits dialed by an extension are arriving in 3 separate groups until the filter is completely executed. The dialed digits, the numbers resulting from the filter and that are transmitted to the line, respectively, are below, from the top to the bottom.

Filter	Dialed number	Number that is transmitted to the line
%1[55]X%2R149	123456	1 (Here, the digits after "1" are discarded by X, the filter pauses at %2 sequence and a number is awaited.)
	5	5 (the first digit that will be processed by the %2 sequence)
	6	6 (%2 completed its task, i.e., it transmitted two more digits to the line).
	7	49 ("7" was discarded because of R1 and 49 was added.)

As the result, the number 15649 was transmitted to the line. The digits that will be dialed later will be exactly transmitted to the line.

IV.2. THE ROUTING TABLE

ROUTE NUMBER: Three alternative routes can be created for various actions according to the number dialed by an extension. Those appear as 1st Route, 2nd Route and 3rd Route in the Routing Table window.

NO: It is the route number. It can take values in the range 1..32.

FILTER NO: It is the filter number that will be used in the related route line. That filter number is the parameter that appears as "Line" in the Call Filters Table.

TRUNK: If the exchange is supposed to access a specific line according to the number dialed by an extension, then the access code of the related line is entered in this field.

A.L.: Not only the least costly route, but also the most reliable route can be selected by the LCR-ARS feature sometimes. That route may be more costly than the other routes; hence, not all the extensions may be allowed to make use of that route. The ARS access authorization levels for the extensions are defined for that purpose (Access Tables – ARS Access Authorization Level). The value in the M.R. field displays the minimum necessary ARS Authorization Access Level for the extensions that can use the route in the indicated direction. For instance, if there is 7 in this field, the extensions with the ARS access authorization level 7 or higher can use that route, whereas the level six or lower levels are not sufficient to use the route.

WT: It determines whether an extension will hear a warning tone from handset in case somehow there is necessity for the 2nd or 3rd routes to be used. By this way, the extension knows the line access is not through the most convenient route according to the criteria set by her/him, but through an alternative route instead.

IV.3. THE ROUTING PLAN TABLE

ROUTING PLAN NUMBER: It is the highest-level parameter. It can take values in the range 1..16. That means 16 different routing plan tables can be created to employ for different intervals of time.

STARTING TIME: If the routes to be applied have been determined to differ according to day and time, then the related time is specified here. There are check boxes next to this parameter field for the 7 days of the week.

ROUTING NUMBERS FOR DAYS: Route numbers (The "No" field in the Routing Table), which are to be used starting from the specified day and time, are entered in the check boxes for days next to the Starting Time parameter field.

IV.4. THE LEADING DIGITS TABLE

LINE: The line number

LEADING DIGITS: The group of digits that are to be considered by the exchange during the checking of numbers dialed by the extension. That group of digits is not necessarily the same as the leading digits of the dialed number. Numbers with structures mentioned below can be entered in this field:

Starting: If the number dialed by an extension starts with those digits, then the route for that number is applied. If even a single digit fails to match the definition, then the route does not apply.

Range: A lower and an upper limit are defined. If the dialed number is within this range, then the corresponding route is applied. The entire digits must be dialed for that application. For instance, suppose that the defined value is in the range 1200-1500. In that case, that route is selected if the extension dials, say, 1300, but not 13.

Else: The entered values must not match the values in the other lines except this line and must start with the number specified in this line, for the corresponding route to be applied.

ROUTE: The route (Routing Table) or the routing plan to be applied is selected when the defined numbers are dialed.

Before starting with LCR-ARS programming, planning is required considering the entire parameters in the tables mentioned above. For example:

Suppose a GT02 GSM Gateway device has been connected to the lines 7200 and 7201 of the DS200 exchange. The line 7200 is connected to the GSM operator with the code 0542 (That operator supports calls with the codes 0543 and 0546 as well) and the line 7201 is connected to the GSM operator with the code 0532 (That operator supports calls with the codes 0533 and 0535 as well.)

One does not need to dial the prefix 0542 to call a number beginning with the code 0542 on the operator "0542".

Likewise, One does not need to dial the prefix 0532 to call a number beginning with the code 0532 on the operator "0532".

The extensions are required to make their GSM calls over the GT02 device. However, if the entire lines of GT02 are busy during a GSM call, then certain extensions will be enabled to call through the normal CO line with number 701. The ARS Access Authorization level of the extensions that will be allowed to make use of the normal line is required to be at least 10. In that case, the extensions will receive the warning tone.

In the meantime, it is required that other GSM calls starting with 05xx shall be made through the operator with the code 0542.

In that case, the following should be considered for the planning:

Leading digit numbers:

90542, 90543, 90546, 90532, 90533, 90535, 905 else

2) The lines to be used:

For 90542, 90543, 90546, 905 else: 7200,

For 90532, 90533 and 90535: 7201.

Ranges in time and day base:

None.

Filters:

R5 for 90542 and 90532 (In order to discard the entire prefix)

R1 for the others (In order to discard 9 only, which is the line access code)

A.L.

0 for the 1st route,

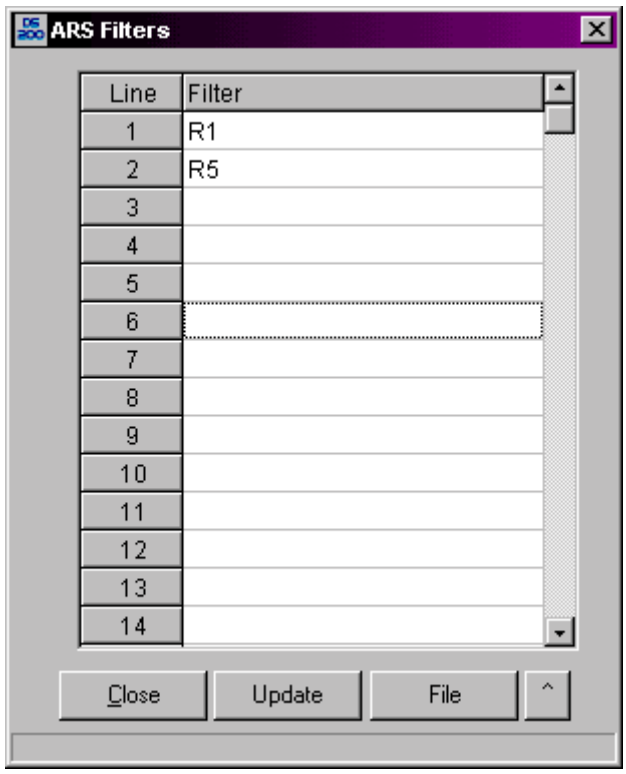
10 for the 2nd route.

WT

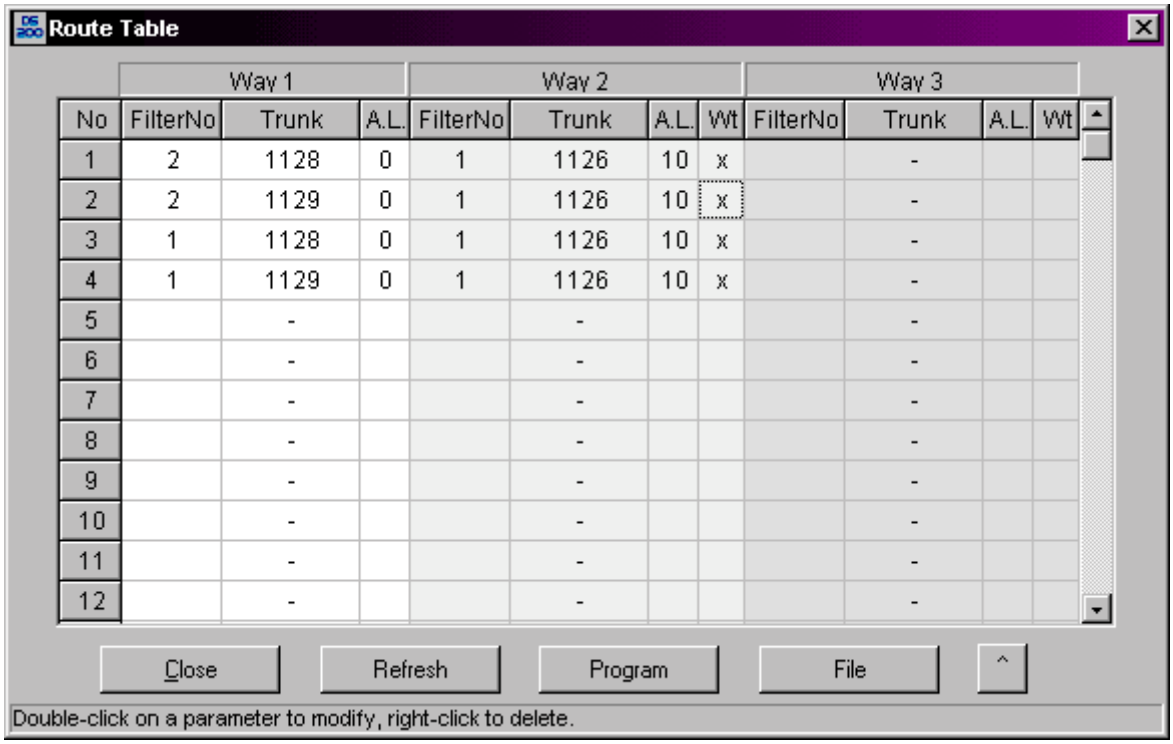
Let the extensions receive the warning tone for the cases when 2nd route is selected: Present.

The programming can start after determining all those.

First of all, the "ARS filters" table is opened and the filters are defined:

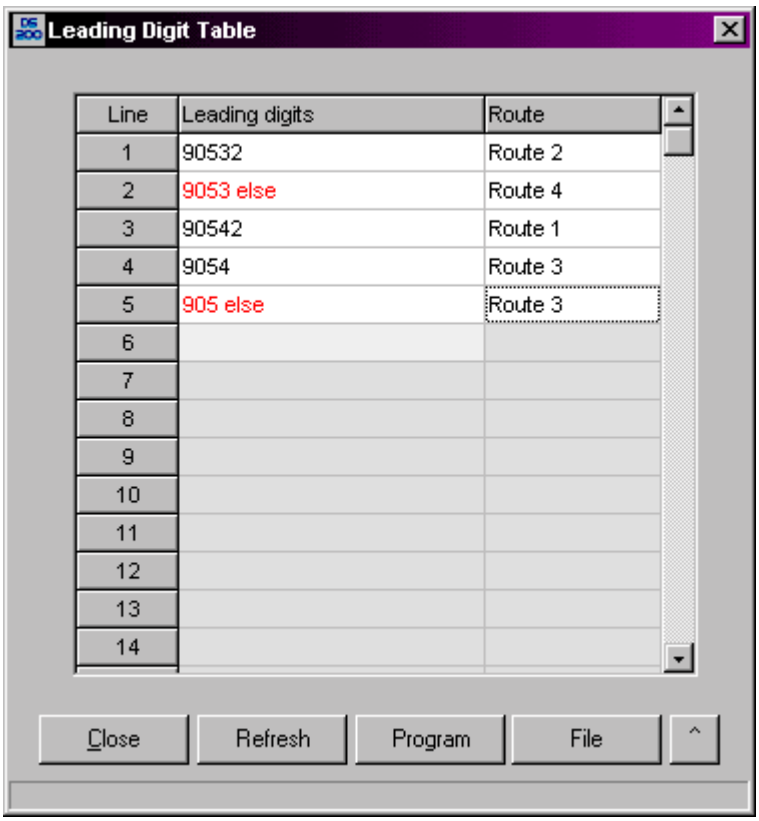


Then the Route Table is created:



There is no need for a Routing Plan Table, since there is no setting related to date and time.

Finally, the Leading Digit Table is created:



Therefore, all the programming necessary at startup has been completed.