SIMADO GFX44
System Manual

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Documentation Information

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Section 1: Introduction

Welcome

Welcome to the world of telecom solutions from Matrix and thanks for purchasing a Matrix product.

We want you to get the maximum performance from our product. If you run into technical difficulties, we are here to help. But please consult this system manual first.

If you still can't find the answer, gather all the information or questions that apply to your problem and with the product close to you, call your dealer. Matrix dealers are trained and ready to give you the support you need to get the most from your Matrix product. In fact, most problems reported are minor and can be easily solved over the phone.

In addition, technical consultation is available from Matrix engineers every business day. We are always ready to give advice on application requirements or specific information on installation and operation of our products.

The system manual is divided in following sections:
Section 1: Introduction
Section 2: Features and Facilities
Section 3: Appendices

We suggest the first time users to read this system manual in the following sequence and then remaining chapters.

- Section 1
- Section 2 (in the given below hierarchy)
  - Communication Port 54
  - Programming the System 98
  - Remote Programming 102
  - Software Version/Revision 133
  - Time Table 134
  - Number Lists 96
  - Allowed and Denied Lists 27
  - Automatic Number Translation 37

- Routing Group 110
- Routing Type 116
- Real Time Clock 100
- Daylight Saving Time 57
- FXS Port Parameters 75
- Mobile Port Parameters 86
- Returned Calls to Original Callers (RCOC) 104
- Fixed Dialing 72
- Answer-Number Based Routing 34
- Call Detail Recording 41
- Call Progress Tone Generation 49
- Emergency Number Dialing 67
- International Mobile Equipment Identity (IMEI) 81
- Network Selection 91
- SIM PIN 130

The words 'GSM' and 'Mobile' are synonymous and are used interchangeably in the manual. The words 'SIMADO GFX44' and 'System' are used interchangeably in the manual.

The user can use the pages named 'Notes' given at the end of the system manual for making note of customer's requirements and 'Programming Register' for registering the programming changes datewise. These could be used for future reference.

Packing List

The ideal sales package for SIMADO GFX44 is as mentioned below:

Sr.	Accessories	Qty.
01	SIMADO GFX44	1
02	System Manual	1
03	3 Pin Power Cord, MC-4 Black	1
04	Wall Mounting Nails	2
05	Warranty Card Set	1
06	Support Card	1
07	COM Port Cable (RS232C)	1
08	Mounting Template	1
09	SIMADO GFX44 CD	1
10	Antenna with Cable	1
11	RJ11 Cables (Depends on Configuration)	

- Please make sure that these components are present.
- In case of short supply or damage detection, contact the source from where you have purchased the system.

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Warranty Statement

Matrix Telecom Pvt. Ltd. (Matrix) warrants to its consumer purchaser for any of its products to be free of defects in material, workmanship and performance for a period of 15 months from date of manufacturing or 12 months from the date of installation which ever is earlier.
During this warranty period, Matrix will at its option, repair or replace the product at no additional charge if the product is found to have manufacturing defect. Any replacement product or part/s may be furnished on an exchange basis, which shall be new or like-new, provided that it has functionality at least equal to that of the product being replaced. All replacement parts and products will be the property of Matrix. Parts repaired or replaced will be under warranty throughout the remainder of the original warranty period only.

This limited warranty does not apply to:

1. Products that have been subjected to accident, natural disaster, misuse, modification, tampering, faulty installation, lack of reasonable care, repair or service in any way that is not contemplated in the documentation for the product or if the model or serial number has been altered, tampered with, defaced or removed.
2. Products which have been damaged by lightning storms, water or power surges or which have been neglected, altered, used for a purpose other than the one for which they were manufactured, repaired by customer or any party without Matrix's written authorization or used in any manner inconsistent with Matrix's instructions.
3. Products received improperly packed or physically damaged.
4. Products damaged due to operation of product outside the products' specifications or use without designated protections.

Warranty valid only if:

- Primary protection on all the ports provided.
- Mains supply is within limit and protected.
- Environment conditions are maintained as per the product specifications.

Warranty Card:

- When the product is installed, please return the warranty card with:
  - Date, signature and stamp of the customer.
  - Date, signature and stamp of the channel partner.
- Matrix assumes that the customer agrees with the warranty terms even when the warranty card is not signed and returned as suggested.

The Purchaser shall have to bear shipping charges for sending product to Matrix for testing/rectification. The product shall be shipped to the Purchaser at no-charge if the material is found to be under warranty. The Purchaser shall have to either insure the product or assume liability for loss or damage during transit.

Matrix reserves the right to waive or make any changes in its warranty policy without giving any notice.

If Matrix is unable to repair or replace, as applicable, a defective product which is covered by Matrix warranty, the Matrix shall, within a reasonable time after being notified of the defect, refund the purchase price of the product provided the consumer purchaser returns the product to Matrix.

In no event will Matrix be liable for any damages, including lost profits, lost business, lost savings, downtime or delay, labor, repair or material cost, injury to person, property or other incidental or consequential damages arising out of use of or inability to use such product, even if Matrix has been advised of the possibility of such damages or losses or for any claim by any other party.

Except for the obligations specifically set forth in this Warranty Policy Statement, in no event shall Matrix be liable for any direct, indirect, special, incidental or consequential damages whether based on contract or any other legal theory and where advised of the possibility of such damages.

Neither Matrix nor any of its distributors, dealers or sub-dealers makes any other warranty of any kind, whether express or implied,

with respect to Matrix products. Matrix and its distributors, dealers or sub-dealers specifically disclaim the implied warranties of merchantability and fitness for a particular purpose.

This warranty is not transferable and applies only to the original consumer purchaser of the Product. Warranty shall be void if the warranty card is not completed and registered with Matrix within 30 days of installation.

Introducing the System

- Matrix product SIMADO GFX44 is a versatile analog gateway.
- It is a multi channel GSM Gateway, a solution for medium size companies that widely use GSM lines.
- It makes possible up to 4 simultaneous calls to the GSM network. Four analog phones can also be connected to the gateway.
- It is much more effective to use multi channel gateway for higher call cost savings.
- Thanks to the advanced and powerful Least Cost Router, the gateway selects the cheapest possible route for the calls, taking into consideration the dialed number prefix.
- Frequency band for mobile can be programmed.

Main Benefits of using Matrix gateway:

- The main advantages of the transit function:
  - No need to change the configuration of your PBX, the LCR can be programmed in the gateway.
- Calls to GSM network can be directly initiated from the gateway FXS port which will save the PSTN charges for the call.
- Remote programming.
- Call Detail Recording, for keeping records of calls history.
- COM port for report generation.
- Using RCOC features, callers from the gateway can get their called party's call on their own phone station if they could not call them while they were busy.
- Two option for system programming.
  - Programming with analog phones
  - Windows based programming of all the features and easy to operate with mouse operated GUI.
- Fixed dialing feature allows a user to be contacted even at home also.

SIMADO GFX44 Photograph:

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Protecting the System

Installation Precautions:

- Do not install in direct sunlight and excessive cold or humid places.
- Do not install at places where sulfuric gases are produced and in areas where there are thermal springs, etc. because it may damage the equipment or contacts.
- Do not install at places where shocks or vibrations are frequent or strong.
- Do not install at dusty places or places where water or oil may come into contact with the system.
- Do not obstruct area around the system (for reasons of maintenance and inspection be especially careful to allow space for cooling above and at the sides of the system).

Important Safety Instructions:

When using your telephone equipment, basic safety precautions should always be followed to reduce the risk of fire, electric shock and injury to persons, including the following:

- Read and understand all instructions.
- Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a dry and soft cloth for cleaning.
- Do not use this product near water. For example, near a bathtub, wash bowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool.
- Do not open the system in power ON condition.
- Do not place this product on an unstable cart, stand or table. The product may fall, causing serious damage to the product.
- Interfacing cables should not touch the exposed power line cable.
- This product should be operated with proper supply voltage. If you are not sure about supply voltage, contact authorized dealer. It is advisable to give proper, stabilized power.
- Do not allow anything to rest on the power cord of product or AC-DC Adapter. Do not place this product where the cord will be misused by people walking on it.
- Do not overload wall outlets and extension cords as this can

result in the risk of fire or electric shock.

- To reduce the risk of electric shock, do not disassemble this product. Take it to a qualified serviceman when some service or repair work is required. Opening or removing covers may expose you to dangerous voltages or other risks. Incorrect reassembly can cause electric shock when the appliance is subsequently used.
- Unplug this product from the wall outlet and contact qualified service personnel under the following conditions:
  a) When the power supply cord or plug is damaged or frayed.
  b) If liquid has been spilled into the product.
  c) If the product has been exposed to rain or water.
  d) If the product does not operate normally by following the operating instructions. Adjust only those controls, which are covered by the operating instructions because improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal operation.
  e) If the product has been dropped or the cabinet has been damaged.
  f) If the product exhibits a distinct change in performance.
- Do not use the telephone of the product to report a gas leak in the vicinity of the leak.

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Getting Started

Overview

The Matrix SIMADO GFX44 allows you to call GSM number from the normal analog phone and establish a voice call. Total of four such calls can be established. It can be four GSM calls for different service provider network. The GFX44 connects to four analog phones, four SIM cards and one Antenna. The product looks as shown below:

Left Side Panel Ports

Right Side Panel LEDs

This chapter gets the GFX44 up and running quickly. The details which we have skipped to make this brief can be found elsewhere in the manual. It is divided into four sections:

- Getting to know the GFX44.

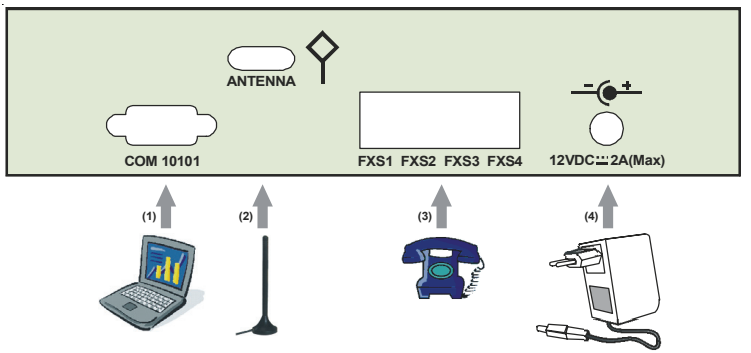
- Instruction for connecting interfaces.
- Basic steps for configuration.
- Making phone calls.

Getting to know the GFX44

This Matrix GFX44 has some ports located on the rear panel and LED's with SIM card slots located on the right side panel, as shown below:

- Left Side Panel Ports.
- Right Side Panel LEDs.

Left Side Panel Ports

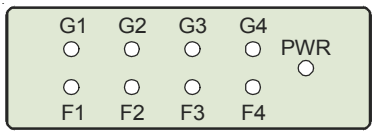


Various interfaces for connection are as mentioned below. The port number index is given as per the picture shown:

Sr.	Port Name	Connector	Description
1	COM	9-Pin D-sub	To download the windows based software for working of the gateway and getting reports output.
2	Antenna	SMA	To connect antenna, provided with GFX44 unit.
3	FXS	RJ11	To connect analog telephone, one at each port. Four ports are provided.
4	Power	DC Jack	Through the power adaptor 9-14 Volt.

Right Side Panel LED's:
It consists of LEDs for indication of status of ports and GSM modules, as shown below:
- Port LED's.
- GSM Module LED's.

Port LED's:
The gateway supports 8-port LED's as mentioned below:
- FXS Port LED's = 4.
- GSM Port LED's = 4.



Port LED's are not used only for the status indication but also used to signify following events:
- Reset Sequence.
- Normal Functioning and Fault Events.

Reset Sequence:

Time	Response
At Power ON	All LEDs glow Red for 500ms. This period depends on type of GSM module.
Reset (Initialization) Cycle	Takes 1-2 minutes

Normal functioning of the System:
On completion of the reset sequence, the card starts communicating with the network.
- The card checks for the events during this cycle and the error is displayed by the LEDs.
- For example, if SIM PIN faulty/Network Absent is detected, it indicates that, GSM module could not log on to the network.
- After the reset cycle is completed, the ports are under different states. There may be a ring event on the port or may be an Outgoing call event on the port. Accordingly, respective LED is glowing. The Gateway supports following LED Indications during

Normal condition:

Event	Color	Cadence in ms (1 cadence is of approx. 3000ms)
Port Disable	--	LED Off
Port Idle	--	LED Off
Port Off hook	RED	Continuous ON
Ring Event	GREEN	400ms On-200ms Off-400ms On-2000ms Off
Port Active **(Note1)**	RED	68ms On-68ms Off (This is to simulate the pulse dialing cadence.)
Speech	GREEN	Continuous ON
GSM Initialization **(Note 2)**	ORANGE	200ms On-200ms Off-200ms On-200ms Off-200ms On-200ms Off-200msOn-200ms Off-200ms On-1200ms Off (5 Blinks)
PUK required	ORANGE	200ms On-200ms Off-200ms On-200ms Off-200ms On-200ms Off-200msOn-1600ms Off (4 Blinks)
SIM PIN faulty	ORANGE	200ms On-200ms Off-200ms On-200ms Off-200ms On-2000ms Off (3 Blinks)
SIM Absent	ORANGE	200ms On-200ms Off-200ms On-2400ms Off (2 Blinks)
Network absent-GSM module could not establish communication with the Network	ORANGE	200 ms On-2800 ms Off (1 Blink)

Note1: From going off hook till receiving either speech event or disconnect event.

Note2: GSM modules take some to reset at power ON. After completion of initialization cycle, if module does not get initialize, it remains in initializing state and failure of GSM module will not be detected.

Port Disabling:

In case if any Port is disabled, system supports following Cadence for the concerned LEDs:

Event	Color	Cadence			
		ON	OFF	ON	OFF
Port Disabled	GREEN	200	200	200	5000

- When the user enables any port, the indications are as per the Table of 'Normal Conditions'.
- When the use goes OFF-Hook, from the port, which is 'disabled' he will get 'Error Tone'.

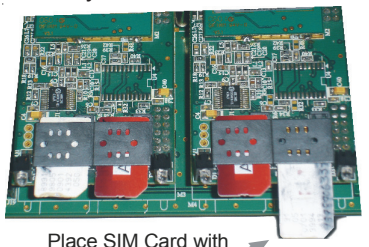
GSM Module LED's:
The gateway supports 4-GSM module LED's and 4-slots for SIM card as mentioned below:
- GSM Module LEDs = 4.
- SIM Holder Slots = 4.

Module LED's indicate status of the 'GSM Module' for registration to the network if signal strength is sufficient. Valid SIM card is inserted in the SIM holder to get registered with the network. The module LED blinking sequence is explained as shown below:

Module status	LED activity
In OFF mode	OFF
ON mode, not registered to network	Permanently ON
ON mode, registered to network, communication inactive	Slow flashing
ON mode, registered to network, communication in progress	Quick flashing

Instruction for Connecting Interfaces:
This section describes the instructions on how to connect the Matrix GFX44 to GSM network and analog telephones.
- Unpack the box. Get satisfied with the contents and the condition of the parts. Refer to Packing List. If parts are OK, proceed with connections as mentioned below.
- Place GFX44 in a safe and convenient location where cables for phone system and power are accessible. For this, mechanical drawing can be used as a reference which is provided at the end of the chapter.

- Connect one end of telephone cable, RJ11 to **FXS1** port and the other end to analog telephone. Place the telephone at maximum possible distance from the GFX44 unit. Likewise connect other telephones to FXS2 to FXS4 port as per your requirement.
- Insert a **SIM card** in the SIM holder at GSM1 port as shown below.
  Similarly insert SIM cards at other GSM ports.



- Connect one **Antenna** which is supplied with the product to the antenna connector as shown in figure. Gently tighten the connection with suitable spanner. If Antenna is 'with cable' type, connect the cable and place Antenna at suitable location.
- Connect the PC to COM of the GFX44, using the cable supplied with the product.
- Check the voltage from the power point from where the supply is to be accessed. It should be between the 90-265VAC, 47-63Hz. Connect one end of the power cord to the AC Mains socket and other end to the 'Mains' of the GFX44.

Basic Steps for Configuration

- Switch ON the GFX44 by 'ON-OFF' switch and wait for LED; to attain normal state.

ABSOLUTELY NEEDED !
• Ensure network availability • Make sure that your GSM module is registered with GSM network

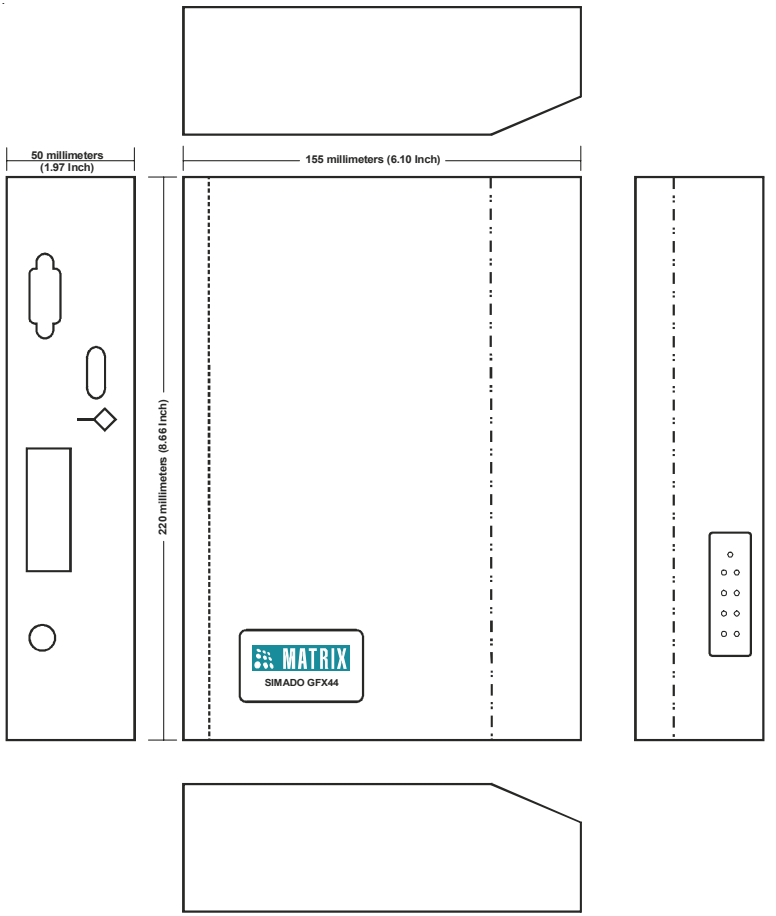
- Default the gateway by dialing ***292-4321-#*.*** You can now call any number from the GSM port.
- You can use the gateway features by two ways:

  - Programming through Windows based software.
  - Programming through analog phone.
- For programming through Windows based software, install the CD provided with the product, to your PC. Click on Start → Programs → Matrix → SIMADO GFX44 Jeeves V1R2. Enter the 'Password', '1234' to start programming. Refer chapter 'Jeeves' in manual.
- For operating GFX44, using commands, enter the programming mode by; Lift the handset → Dial Tone → Dial ****19-1234.*** You get programming tone.
- For enjoying benefits of many useful features of the gateway, program the feature using specific command mentioned in the manual.
- When programming is complete, dial ***00-#****, during the programming tone or just go ON-Hook, to exit the programming mode.
- During programming, if you find there is some network problem, then you can restart the gateway by dialing ***291-#*.*** Wait till the system is resetting.
- If any feature, need to be subscribed from the GSM service provider, contact your service provider, before programming the feature. For example, 'Emergency Number Dialing' is enabled by default, from the service provider.
- If you need to reprogram the system you can get back to factory defaults by dialing ***292-4321-#*.***
- After reset and network registration, your GFX44 is ready to call any number from GSM port.

Making Phone Call:

- Lift the handset; you get the dial tone of GFX44.
- Dial the mobile/telephone number.
- If at least one SIM card is inserted and the gateway is programmed as factory defaults, then the number will be dialed out, from the GSM port and you get Ring Back Tone (RBT).
- If the called party attends the call, speech is established.

Mechanical Dimension of SIMADO GFX44



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Section 2: Features and Facilities

Allowed and Denied Lists

What's this?

- The SIMADO GFX44, supports a feature by which the system can prevent selected numbers to be dialed out, known as Allowed and Denied Lists. For this, the feature should be enabled for the port.
- Allowed and Denied Number Lists are a list of group of number strings. When the number is dialed out, the system compares the dialed-number string with the number strings in the Allowed and Denied Number Lists. If the number matches with the denied Number List, caller will get 'Error Tone'.

How it works?

- This feature keeps a check on the number string dialed through the port.
- If the dialed-number string matches with any of the number strings in the Allowed Number list assigned to the port, the number is processed further.
- If the dialed-number string matches with any of the number strings in the Denied Number list assigned to the port, the number is not processed further.
- If the dialed-number string matches with any of the number strings in both the number list i.e. Allowed Number List as well as Denied Number List assigned to the port, the number is processed further.
- If the dialed-number string does not match any of number strings in either Allowed Number List or Denied Number List assigned to the port, the number is processed further.
- The logic is applied to the port at which the call is originated.
- Each port (Mobile and FXS) is assigned two number lists. One list is for numbers to be denied and other for the numbers to be allowed.
- The system supports 16 Number Lists. Each Number list has 24 entries. Each entry can accommodate 16 digits.

Number List looks as given below:

Loc. Index / No. List Index	01	02	…..	24
01	Number String (16 digits)			
:				
16				

How to program?

Step 1: Program to assign an allowed number list to a FXS port using command ***111.***

Step 2: Program to assign a denied number list to a FXS port using command ***112.***

Step 3: Program to assign an allowed number list to a Mobile Port using command ***113.***

Step 4: Program to assign a denied number list to a Mobile Port using command ***114.***

Step 5: Enable/disable allowed/denied logic on FXS port using command ***115.***

Step 6: Enable/Disable allowed/denied logic on Mobile port using command ***116.***

Step 1

Use following command to assign an allowed number list to a FXS port:

111-FXS Port-Number List-#*

Where,

FXS Port is from 1 to 4.

Number List is from 01 to 16.

By default, Number List 01 is assigned to the FXS port.

Use the following command to assign allowed number list to all the FXS ports:

111-*-Number List-#*

Step 2

Use following command to assign a denied number list to a FXS port:

112-FXS Port-Number List-#*
Where,
FXS Port is from 1 to 4.
Number List is from 01 to 16.
By default, Number List 06 is assigned to the FXS port.

Use the following command to assign denied number list to all the FXS ports:
112-*-Number List-#*

Step 3
Use following command to assign an allowed number list to a mobile port:
113-Mobile Port-Number List-#*
Where,
Mobile Port is from 1 to 4.
Number List is from 01 to 16.
By default, Number List 01 is assigned to the Mobile Port.

Use following command to assign a allowed number list to all the mobile ports:
113-*-Number List-#*

Step 4
Use following command to assign a denied number list to a mobile port:
114-Mobile Port-Number List-#*
Where,
Mobile Port is from 1 to 4.
Number List is from 01 to 16.
By default, Number List 06 is assigned to the Mobile Port.

Use following command to assign a denied number list to all the mobile ports:
114-*-Number List-#*

Step 5
Use following command to enable/disable allowed/denied logic on FXS port:

115-FXS Port-Code-#*
Where,
FXS Port is from 1 to 4.

Code	Meaning
0	Disable
1	Enable

By default, Allowed/Denied logic on all FXS ports is enable.

Use following command to enable/disable allowed/denied logic on all the FXS ports:
115-*-Code-#*

Step 6
Use following command to enable/disable allowed/denied logic on Mobile port:
116-Mobile Port-Code-#*
Where,
Mobile Port is from 1 to 4.

Code	Meaning
0	Disable
1	Enable

By default, Allowed/Denied logic on all Mobile ports is enable.

Use following command to enable/disable allowed/denied logic on all the Mobile ports:
116-*-Code-#*

Example:
Program the gateway such that a phone user at FXS1 port is not allowed to dial, some mobile numbers:
102-08-#* (Clear number list 08)
101-08-01-98-#* (Mobile Number 98 programmed in list 08)
101-08-02-93-#* (Mobile Number 93 programmed in list 08)
101-08-03-94-#* (Mobile Number 94 programmed in list 08)
112-1-08-#* (Assign list 08 as denied list to FXS1)
102-06-#* (Clear No. list 06, assigned to FXS1, by default)
102-01-#* (Clear No. list 01, assigned to FXS1, by default)

Relevant Topic:
1. Number Lists 96

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Answer Signaling on FXS Port

What's this?

- As general application, telecom equipment like PCO machine is connected to the FXS port of the system. Now whenever the called party (remote party) answers i.e. goes off-hook it is required to inform the FXS port so that the PCO machine can consider the call as matured and start billing. In absence of this signal, the call is never considered as matured and hence no billing will be generated.
- To avoid such problems the system supports 'Answer Signaling'. It is a signal which will be generated on FXS port, which indicates that the called party has answered and the call is matured. This helps in accurate billing, avoids billing of unanswered and unsuccessful call attempts.
- During an OG call from FXS to any other port FXO/Mobile, whenever called party answers, they provide an 'answer signal' which can be generated on the FXS port to support any Billing equipment or PCO machine or PBX if connected to the FXS port for considering the call to be matured.
- It is generated in the form of:
  - None
  - Polarity (Battery) Reversal

How it works?

- Answer Signaling is applicable for OG call made from FXS.
- When call is made from FXS port to any other port, system will wait for the call to get matured.
- When the call gets matured, the system will check the Answer Signal programmed for the FXS. The options are as explained below:
  - **None:** If this option is set, the system will not generate any answer signaling on the FXS port.
  - **Battery Reversal:** The Battery polarity of the FXS port will get reversed. For example, if the battery polarity of the FXS port is +ve for TIP and -ve for RING in speech condition then after call maturity, TIP will become -ve and Ring will become +ve.

How to program?
Use following command to program the signal to be generated as Answer Signaling on FXS port:
261-FXS Port-Answer Signal-#*
Where,
FXS Port is from 1 to 4

Answer Signal	Meaning
0	None
1	Polarity (Battery) Reversal

By default, Polarity Reversal for all ports.

Use following command to program the signal to be generated as Answer Signaling on all FXS port:
261-*-Answer Signal-#*

Related Topic:
1. Disconnect Signaling on FXS Port 64

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Answer-Number Based Routing

What's this?

- SIMADO GFX44, has the facility to initiate the call from a specific port based on the number string dialed. This is called Answer-Number Based Routing.
- For this, a separate routing group is assigned for a specific number string and the Member of the group will be the ports for dialing the Number.

How it works?

- The routing group to be used for placing the call is determined from the number dialed.
- This logic is used when routing type is programmed as Answer-Number Based.
- The dialed-number string is compared with the dialed-number string table and if match is found then the call is routed on the routing group assigned to that number string.
- If matching entry is not found in the dialed-number string table then the call is routed with routing type defined as 'answer-fixed'. Please refer the topic 'Routing Type' for more details.
- This routing group can be formed such that number can be dialed out from the port, for which call cost will be minimum. Different prefix can be programmed for the required numbers to be dialed out from the port which will cost minimum compared to other ports in the routing group assigned to that prefix number string.
- Thus Least Cost Routing (LCR) can be implemented by suitable programming of the table.
- The dialed-number string table contains maximum 250 entries.

How to program?

Use following command to program the prefix number string in dialed number string table:

151-Index-Prefix Number String-#*

Where,

Index is from 001 to 250 of the 'Dialed Number String Table'.

Prefix Number String is of maximum 8 digits.

By default, the dialed number prefix table is Blank.

Use following command to clear the dialed number string programmed at the Index:
151-Index-#*
Where,
Index is from 001 to 250.

Use following command to clear the prefix table:
151-*-#*

Use following command to program the Routing Group for the dialed-number string table:
152-Index-Routing Group-#*
Where,
Index is from 001 to 250.
Routing Group is from 1 to 4.
By default, Routing Group is 4.

Use following command to default the entire dialed-number string table:
160-#*

Default dialed-number string table is given below:

Index	Prefix Number String	Routing Group
001	Blank (8 digit Max.)	4
002	Blank (8 digit Max.)	4
003	Blank (8 digit Max.)	4
:	Blank (8 digit Max.)	4
250	Blank (8 digit Max.)	4

Example:
- Call is to be made on the SP's number of City A (022-301220) using routing group 1, then the dialed number string is programmed as (0223) and routing group number is programmed as 2 at index 01.
- If local calls made to City B's number starting with 95792.... using routing group number 2, then the dialed number string is

programmed as (95792) and routing group number is programmed as 2 at index 2.

- If all international calls need to be routed through routing group 3, the dialed number string should be programmed as (00) and routing group number is programmed as 3 at index 3. The table may look as given below:

Index	Prefix Number String	Routing Group
001	0223	1
002	95792	2
003	00	3

Commands:

160-#* (Default entire table)

151-001-0223-#* (Program 0223 at index 1)
151-002-95792-#* (Program 95792 at index 2)
151-003-00-#* (Program 001 at index 3)

152-001-1-#* (Program a routing group 1 at index 1)
152-002-2-#* (Program a routing group 2 at index 2)
152-003-3-#* (Program a routing group 3 at index 3)

202-1-1-#* (Assign selection a first free to routing group 1)
202-2-2-#* (Assign selection a first free to routing group 2)
202-3-3-#* (Assign selection a first free to routing group 3)

Relevant Topics:

1. Routing Group 110
2. Routing Type 116

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Automatic Number Translation

What's this?

- This feature translates the number received from the Call processing logic to be dialed to a number compatible to the port on which it is to be dialed out by the Gateway.
- For e.g. suppose the Gateway is so programmed that all the calls made within the telecom circle (Commonly called 95 calls) are routed through the Mobile port. Now when you make a call to a number, say '952668263172', the Call Handling logic of the Gateway determines a Mobile port on which this number should be dialed. But this number string is invalid for the GSM network.
- Hence the logic is required to translate this dialed number to a valid number before it is dialed by the system. Thus the dialed number string will be translated to '912668263172' by using this feature, called Automatic Number Translation (ANT).

How it works?

In above example, suppose the caller dials 952668263172 then number 912668263172 should be dialed out by the system. Then two number list can be programmed as shown below.
The dialed number list:

Index	Dialed String/Substring
01	95
02	

Substitute number list:

Index	Substitute String
01	91
02	

These two lists are assigned to a port from where, the number is to be dialed out. User can use ANT for dialing international number also. For this '+' sign has to be programmed in the substitute number list. It can be done by entering '#8' from the telephone keypad. For example, +91266 can be entered by string #891266.

How to program?

Step 1: Assign a dialed-number list to a FXS Port using command ***121.***

Step 2: Assign a substitute number list to a FXS Port using command ***122.***

Step 3: Assign a dialed-number list to a Mobile port using command ***123.***

Step 4: Assign a substitute number string to a Mobile port using command ***124.***

Step 5: Enable/disable Automatic Number Translation logic on FXS port using command ***125.***

Step 6: Enable/Disable Automatic Number Translation logic on Mobile port using command ***126.***

Step 1

Use following command to assign a dialed number list to a FXS port:

121-FXS Port-Number List-#*

Where,

FXS Port is from 1 to 4.

Number List is from 01 to 16.

By default, Number List 06 is assigned to the FXS Port.

Use following command to assign a dialed number list to all FXS ports:

121-*-Number List-#*

Step 2

Use following command to assign a Substitute number list to a FXS port:

122-FXS Port-Number List-#*

Where,

FXS Port is from 1 to 4.

Number List is from 01 to 16.

By default, Number List 06 is assigned to the FXS Port.

Use following command to assign a Substitute number list to all FXS ports:

122-*-Number List-#*

Step 3

Use following command to assign a dialed number list to a Mobile port:

123-Mobile Port-Number List-#*

Where,

Mobile Port is from 1 to 4.

Number List is from 01 to 16.

By default, Number List 06 is assigned to the Mobile Port.

Use following command to assign a dialed number list to all Mobile ports:

123-*-Number List-#*

Step 4

Use following command to assign a substitute number list to a Mobile port:

124-Mobile Port-Number List-#*

Where,

Mobile Port is from 1 to 4.

Number List is from 01 to 16.

By default, Number List 06 is assigned to the Mobile Port.

Use following command to assign a substitute number list to all Mobile ports:

124-*-Number List-#*

Step 5

Use following command to enable/disable automatic number translation logic on FXS port:

125-FXS Port-Code-#*

Where,

FXS Port is from 1 to 4.

Code	Meaning
0	Disable
1	Enable

By default, Automatic Number Translation logic on all FXS ports is enable.

Use following command to enable/disable automatic number translation logic on all the FXS ports:
125-*-Code-#*

Step 6
Use following command to enable/disable automatic number translation logic on Mobile port:
126-Mobile Port-Code-#*
Where,
Mobile Port is from 1 to 4.

Code	Meaning
0	Disable
1	Enable

By default, Automatic Number Translation logic on all Mobile ports is enable.

Use following command to enable/disable automatic number translation logic on all the Mobile ports:
126-*-Code-#*

Example:
For the example explained in the beginning, ANT programming can be done as mentioned below:

102-03-#*	(Clear all location of number list 03)
102-05-#*	(Clear all location of number list 05)
101-03-01-95-#*	(Program 95 at index 1 of number list 03, dialed-number list)
101-05-01-91-#*	(Program 91 at index 1 of number list 05, substitute number list)
123-1-03-#*	(Assign dialed-number list to mobile port 1)
124-1-05-#*	(Assign substitute number list to mobile port 1)

Relevant Topic:
1. Number Lists 96

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Call Detail Recording (CDR)

What's this?

- The SIMADO GFX44, supports a facility to store the details of calls made through the Gateway. This is called Call Detail Recording (CDR). User will program 'enable' option of filter, to apply the filter programmed.
- Maximum 200 records can be stored in the buffer.
- The system offers facility to store the call details and even to get the report on the COM port as per the requirement (Report Generation).
- To get report from Jeeves, click on 'Capture Report' on the page for CDR and download the file from option displayed by windows.

How it works?

- A call is stored when the call gets over.
- Calling party number and source port is stored when a call originates on a FXS/Mobile port.

Each record has following parameters or fields:

- Serial Number
- S-Port (FXS, Mobile)
- D-Port (FXS, Mobile)
- Called Number (Maximum 16 digits)
- Calling Number (Maximum 16 digits)
- Date (DD-MM-YYYY)
- Time (HH:MM:SS)
- Duration (four digits)

Where,
S-Port = Source Port
D-Port = Destination Port

Filter Commands:

Various filters can be used to generate a report. These commands enable the user to select the type of call reports generated. It is possible to program the following filters.

Filter	Command
To set filter to print all calls terminated on FXS	***132-FXS Port-FXS Port-#****
To set filter to print all calls terminated on Mobile	***133-Mobile Port-Mobile Port-#****
To set filter to print all calls originated from FXS	***134-FXS Port-FXS Port-#****
To set filter to print all calls originated from Mobile	***135-Mobile Port-Mobile Port-#****
To set filter to print all calls from-to Date	***136-DD-MM-YYYY-DD-MM-YYYY-#****
To set filter to print all calls between time	***137-HH-MM-HH-MM-#****
To set filter to print all calls **(Called Party Number)** matching the Number list	***138-Number List-#* (Default = 01)***
To set filter to print all calls **(Calling Party Number)** matching the Number list	***139-Number List-#* (Default = 01)***
To set filter to print all calls with call duration more than specified	***140-Seconds-#* (Default = 001)***
To set default filters	***149-#****

Where,
FXS Port is from 1 to 4.
Mobile Port is from 1 to 4.
DD is from 01 to 31.
MM is from 01 to 12.
YYYY is from 2006 to 2099.
HH is from 00 to 23.
MM is from 00 to 59.
Number List is from 01 to 16.
Seconds is from 001 to 999.
Default Filters for CDR are All FXS Ports, All GSM Ports, Date from 01-01-2006 to Current date, Time 00:00 to 23:59, Caller Number List 01, Called Number List 01, Duration more than 001 sec.
By default, CDR report are Blank.

How to program?

Step 1: Program to start/stop the CDR report using the command ***131.***

Step 2: Program to clear the CDR buffer using the command ***150.***

Step 3: Program to enable/disable the filter setting for calls terminated on FXS port using the command ***141.***

Step 4: Program to enable/disable the filter setting for calls terminated on mobile port using the command ***142.***

Step 5: Program to enable/disable the filter setting for calls originated from FXS port using the command ***143.***

Step 6: Program to enable/disable the filter setting for calls originated from mobile port using the command ***144.***

Step 1

Use following command to start/stop the CDR report:

131-Code-#*

Where,

Code	Meaning
0	Abort Report
1	Start Report

Step 2

Use following command to clear the CDR buffer:

150-Reverse SE Password-#*

Step 3

Use following command to enable/disable the filter setting for calls terminated on FXS port:

141-Code-#*

Where,

Code	Meaning
0	Disable
1	Enable

By default, Filter setting for calls terminated on FXS port is enable.

Step 4

Use following command to enable/disable the filter setting for calls terminated on mobile port:

142-Code-#*

Where,

Code	Meaning
0	Disable
1	Enable

By default, Filter setting for calls terminated on Mobile port is enable.

Step 5

Use following command to enable/disable the filter setting for calls originated from FXS port:

143-Code-#*

Where,

Code	Meaning
0	Disable
1	Enable

By default, Filter setting for calls originated on FXS port is enable.

Step 6

Use following command to enable/disable the filter setting for calls originated from mobile port:

144-Code-#*

Where,

Code	Meaning
0	Disable
1	Enable

By default, Filter setting for calls originated on Mobile port is enable.

- Called party number and Destination Port can be found when a call terminates on a port.

Example:
A Call originates on an FXS port (FXS port is source port) having routing type = Fixed and Mobile port is the destination port found as per programming. Then in such case, report details will be as below:

- The source port = FXS port.
- The calling party number = blank.
- The destination port = Mobile port.
- The called party number = Number dialed by the FXS port. The call is considered matured after getting the connect message from Mobile Port.
- When call routing type is “Answer-Number Based” gateway immediately answers the call coming on Mobile port and caller will get dial tone of the Gateway. First Digit Wait Timer is loaded on Mobile port and the system starts collecting digits dialed out by the caller. If caller doesn’t dial any digit and first digit wait timer expires, and Fixed Dialing is disabled, then call is rejected and the caller gets the Error Tone. This type of call is not stored in CDR.
- If caller dials any digit during First Digit Wait Timer then, Inter Digit Wait Timer is loaded on the Mobile port and the digits collected which are dialed out through Mobile port. In such case, the Dialed Number will be the “Called Party Number” for the CDR report.

Important Points:

- You can get CDR report with header and footer evenif CDR buffer empty.
- If buffer is empty you will get message ‘CDR Buffer Empty!’.
- But if report is not found, you will get alert ‘No records matching filter criteria found’.
- CDR records will be stored in the system permanently, only after 5 minutes (approx.). Do not restart the system before saving.

Relevant Topics:

1. Communication Port 54
2. Allowed and Denied Lists 27
3. Routing Type 116
4. Jeeves 82

```
           CALL DETAIL RECORDS REPORT as on 01-Jul-2007 at 09:53:56
-------------------------------------------------------------------------------
Source Port       Destination Port  NUM LIST : Called - 02 Calling - 02
FXS : 1 To 4      FXS : 1 To 4      DATE     : 01-Jul-2007 To 01-Jul-2007
MOB : 1 To 4      MOB : 1 To 4      DUR(sec) :   1    TIME : 00:00 To 23:59
-------------------------------------------------------------------------------
SR. S-PORT D-PORT CALLED NUMBER    CALLING NUMBER   DATE        TIME     DUR
-------------------------------------------------------------------------------
  1 FXS 2  FXS 4                                   01-Jul-2007 09:27:53    6
  2 FXS 4  FXS 2                                   01-Jul-2007 09:28:32    3
  3 FXS 2  MOB 2  9898091380                       01-Jul-2007 09:39:59   12
  4 FXS 2  MOB 2  9824981745                       01-Jul-2007 09:49:43    3
  5 FXS 2  FXS 4                                   01-Jul-2007 09:27:53    6
  6 FXS 4  FXS 2                                   01-Jul-2007 09:28:32    3
  7 FXS 2  MOB 2  9898091380                       01-Jul-2007 09:39:59   12
  8 FXS 2  MOB 2  9824981745                       01-Jul-2007 09:49:43    3
-------------------------------------------------------------------------------
Matrix SIMADO GFX44 V1R3                                          Page: 01
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Call Proceeding Tone

What's this?

Some sort of signaling tone is required when a call is terminated on Mobile port to inform the user that call is established. It is done with special Call Proceeding Tone and can be generated by network or gateway.

- This feature is used to avoid silence received from the GSM network while making a call.
- When the caller is calling from a Mobile instrument, he understands the silence but when the call is routed through the gateway, he might hang up due to silence. To take care of this point, this feature is used which is programmable.

How it Works?

For Mobile Port

- When the call is terminated on (routed to) the mobile port, the originating port can be connected to a tone generator (feature tone) or to the GSM network tones.
- If the originating port is connected to the GSM network, immediately on end of dialing, the caller can listen to the tone received from the GSM network.
- Whereas if the caller is connected to the feature tone generator, the caller gets feature tone (which nearly simulates call routing tone of the PSTN network) till 'Call Progress Message' is received from the GSM network.
- On receipt of first Call Progress Message, the originating port is connected to the terminating port.

How to program?

Use following command to set Call Proceeding Tone for mobile port:

277-CPT Type-#*

Where,

CPT Type	Meaning
1	Feature Tone (SIMADO Tone)
2	GSM Network Tone

By default, Call Proceeding Tone is '2'.

Relevant Topic:

1. Call Progress Tone Generation 49

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Call Progress Tone Generation (CPTG)

What's this?

- The SIMADO GFX44 supports generation of different types of tones to indicate the response for various events while establishing a call. These tones are called Call Progress Tone Generation (CPTG). The tones are generated in response to dialing of codes and commands. Various country and region have the specific standard of types of tones.
- GFX44 supports country specific tones. For this, user has to just select the country and program the code for the country.
- The system will automatically generate/play the tones specific for the selected country. Refer table at end of the chapter.
- GFX44 supports following Call Progress Tones:
  - Dial Tone.
  - Ring Back Tone.
  - Busy Tone.
  - Error Tone.
  - Confirmation Tone.
  - Programming Tone or Beep Tone.
  - CCWT.

Dial Tone

This tone is heard when user lifts the handset, it is also given when user tries to press ***flash***.

- Dial tone stays for time of first digit wait timer for the port.

Ring Back Tone

When the user dials a number and if that number is free, he will get the ring back tone. It indicates that called party's telephone number is reached.

- Ring Back Tone continues for 90 seconds.

Busy Tone

When a call is made by system and the called party is OFF-Hook or busy with another call, the caller gets busy tone.

- Busy tone stays for 7 seconds.

Error Tone
This is given when the user performs some invalid operation or some denied access. For example, this tone is given after dial tone, if the user does not dial anything till the end of dial tone duration. In the feature access mode or when this tone is given after the dial tone, this tone remains till the user again goes ON-Hook.
- Error tone stays for 7 seconds.

Confirmation Tone
This tone is given as continuous, fast beeps to indicate that the system has successfully executed a feature command/ programming command issued by the user. This is also called the Programming Confirmation Tone.
- Confirmation tone stays for 5 seconds.

Programming Tone or Beep Tone
When user enters the programming mode or enters some digits of command, this tone is heard. It indicates that the system is responding to programming activity. Programming tone remains continuously till you go ON-Hook or dial a command.

CCWT
When an incoming call arrives while the user is connected to another party, this tone is played by the system.

Use the following command to program the CPTG for a country:
281-Code-#*
Where,

Code	Country	Dial Tone		Ring Back Tone		Busy Tone		Error Tone		Confirmation Tone		Prog. Tone		CGWT	
		Freq.	Cadence	Freq.	Cadence	Freq.	Cadence	Freq.	Cadence	Freq.	Cadence	Freq.	Cadence	Freq.	Cadence
		Hz	second	Hz	second	Hz	second	Hz	second	Hz	second	Hz	second	Hz	second
01	Australia	425*25	cont.	400*25	0.4on 0.2off 0.4on 2.0off	425	0.375on 0.375off	425	0.375on 0.375off	400	0.1on 0.1off 0.2on 0.4off	400	0.1on 0.9off	400	0.3on 6.0off
02	Argentina	425	cont.	425	1.0on 4.0off	425	0.2on 0.2off	425	0.167on 0.167off	400	0.1on 0.1off	400	0.1on 0.9off	400	0.3on 6.0off
03	Belgium	425	cont.	425	1.0on 3.0off	425	0.5on 0.5off	425	0.167on 0.167off	400	0.1on 0.1off	400	0.1on 0.9off	400	0.3on 6.0off
04	Brazil	425	cont.	425	1.0on 4.0 off	425	0.25on 0.25off	425	0.250n 0.25 off	400	0.1on 0.1off	400	0.1on 0.9off	400	0.3on 6.0off
05	China	450	cont	450	1.0on 4.0off	450	0.35on 0.35off	450	0.7on 0.7off	400	0.1on 0.1off	400	0.1on 0.9off	400	0.3on 6.0off
06	Egypt	425*50	cont	425*50	2.0on 1.0off	425*50	1.0on 4.0off	450	0.5on 0.5off	400	0.1on 0.1off	400	0.1on 0.9off	400	0.3on 6.0off
07	France	440	cont	440	1.5on 3.5off	440	0.5on 0.5off	440	0.25on 0.25off	400	0.1on 0.1off	400	0.1on 0.9off	400	0.3on 6.0off
08	Germany	425	cont	425	1.0on 4.0off	425	0.48on 0.48off	425	0.24on 0.24off	400	0.1on 0.1off	400	0.1on 0.9off	400	0.3on 6.0off
09	Greece	425	0.2on 0.3off 0.7on 0.8off	425	1.0on 4.0off	425	0.3on 0.3off	425	0.15on 0.15off	400	0.1on 0.1off	400	0.1on 0.9off	400	0.3on 6.0off
10	India	400*25	cont	400*25	0.4on 0.2off 0.4on 2.0off	400	0.75on 0.75off	400	0.25on 0.25off	400	0.1on 0.1off	400	0.1on 0.9off	400	0.3on 6.0off
11	Indonesia	425	cont.	425	1.0on 4.0off	425	0.5on 0.5off	425	0.25on 0.25off	400	0.1on 0.1off	400	0.1on 0.9off	400	0.3on 6.0off
12	Iren	425	cont	425	1.0on 4.0off	425	0.5on 0.5off	425	0.25on 0.25off	400	0.1on 0.1off	400	0.1on 0.9off	400	0.3on 6.0off
13	Israel	400	cont	400	1.0on 3.0off	400	0.5on 0.5off	400	0.25on 0.25off	400	0.1on 0.1off	400	0.1on 0.9off	400	0.3on 6.0off
14	Italy	425	cont.	425	1.0on 4.0off	425	0.5on 0.5off	425	0.5on 0.2off	400	0.1on 0.1off	400	0.1on 0.9off	400	0.3on 6.0off
15	Japan	400	cont	400*20	1.0on 2.0off	400	0.5on 0.5off	400	0.25on 0.25off	400	0.1on 0.1off	400	0.1on 0.9off	400	0.3on 6.0off
16	Kenya	425	cont	425	0.67on 3.0off 1.5on 5.0off	425	0.2on 0.6off 0.2on 0.6off	425	0.2on 0.6off	400	0.1on 0.1off	400	0.1on 0.9off	400	0.3on 6.0off
17	Korea	350+440	cont	440+480	1.0on 2.0off	480+620	0.5on 0.5off	480+620	0.3on 0.2off	400	0.1on 0.1off	400	0.1on 0.9off	400	0.3on 6.0off
18	Malaysia	425	cont	425	0.4on 0.2off 0.4on 2.0off	425	0.5on 0.5off	425	0.5on 0.25off	400	0.1on 0.1off	400	0.1on 0.9off	400	0.3on 6.0off
19	Mexico	425	cont.	425	1.0on 4.0off	425	0.25on 0.25off	425	0.25on 0.25off	400	0.1on 0.1off	400	0.1on 0.9off	400	0.3on 6.0off
20	New Zealand	400	cont.	400+450	0.4on 0.2off 0.4on 2.0off	400	0.5on 0.5off	400	0.25on 0.25off	400	0.1on 0.1off	400	0.1on 0.9off	400	0.3on 6.0off
21	Phillippines	425	cont.	425+480	1.0on 4.0off	480+620	0.5on 0.5off	480+620	0.25on 0.25off	400	0.1on 0.1off	400	0.1on 0.9off	400	0.3on 6.0off
22	Poland	425	cont.	425	1.0on 4.0off	425	0.5on 0.5off	425	0.5on 0.5off	400	0.1on 0.1off	400	0.1on 0.9off	400	0.3on 6.0off
23	Portugal	425	cont.	425	1.0on 5.0off	425	0.5on 0.5off	450	0.33on 1.0off	400	0.1on 0.1off	400	0.1on 0.9off	400	0.3on 6.0off
24	Russia	425	cont.	425	0.8on 3.2off	425	0.4on 0.4off	425	0.25on 0.25off	400	0.1on 0.1off	400	0.1on 0.9off	400	0.3on 6.0off
25	Saudi Arabia	425	cont.	425	1.2on 4.6off	425	0.5on 0.5off	425	0.25on 0.25off	400	0.1on 0.1off	400	0.1on 0.9off	400	0.3on 6.0off
26	Singapore	425	cont.	425*24	0.4on 0.2off 0.4on 2.0off	425	0.75on 0.75off	425	0.25on 0.25off	400	0.1on 0.1off	400	0.1on 0.9off	400	0.3on 6.0off
27	South Africa	400*33	cont.	400*33	0.4on 0.2off 0.4on 2.0off	400	0.5on 0.5off	400	0.25on 0.25off	400	0.1on 0.1off	400	0.1on 0.9off	400	0.3on 6.0off
28	Spain	425	cont.	425	1.5on 3.0off	425	0.2on 0.2off	425	0.25on 0.25off	400	0.1on 0.1off	400	0.1on 0.9off	400	0.3on 6.0off
29	Thailand	400*50	cont.	400	1.0on 4.0off	400	0.5on 0.5off	400	0.3on 0.3off	400	0.1on 0.1off	400	0.1on 0.9off	400	0.3on 6.0off
30	Turkey	450	cont.	450	2.0on 4.0off	450	0.5on 0.5off	450	0.2on 0.2off 0.4on 1.2off	400	0.1on 0.1off	400	0.1on 0.9off	400	0.3on 6.0off
31	UAE	350+440	cont.	400+450	0.4on 0.2off 0.4on 2.0off	400	0.375on 0.375off	400	0.4on 0.35off 0.525on 0.525off	400	0.1on 0.1off	400	0.1on 0.9off	400	0.3on 6.0off
32	UK	350+440	cont.	400+450	0.4on 0.2off 0.4on 2.0off	400	0.375on 0.375off	400	0.4on 0.35off 0.225on 0.525off	400	0.1on 0.1off	400	0.1on 0.9off	400	0.3on 6.0off
33	USA/Canada	350+440	cont.	440+480	2.0on 4.0off	480+620	0.5on 0.5off	480+620	0.25on 0.25off	400	0.1on 0.1off	400	0.1on 0.9off	400	0.3on 6.0off

Remarks:

- f1*f2 : ‘f1’ is modulated by ‘f2’.
- f1+f2 : Two frequencies without modulation.

=X=X=

CLIP Type on FXS Port

What's this?

- SIMADO GFX44 provides a facility to detect the name and number of the calling party and present it to the FXS port. This is called Calling Line Identification and Presentation. The CLI data can be presented on LCD of the telephone instrument.

How it works?

- The FXS Port supports any of the 3 types of signaling viz. DTMF signaling, V.23 FSK and Bellcore FSK. Depending on the telephone instrument type the FXS Port should be programmed.
- If Name and Number are received from GSM network, the information is passed on to the FXS port and displayed.
- If name and number is not received from GSM network then these are displayed as Blank.
- But if Date is not received then RTC is used by the system and current date is displayed.

How to program?

Use following command to program the CLIP type for the FXS port:
161-FXS Port-CLIP Type-#*
Where,
FXS Port is from 1 to 4.

CLI Type	Meaning
0	None
1	DTMF
2	V.23 FSK
3	Bellcore FSK

By default, CLIP Type is '1'.

Use following command to program the CLIP type for all FXS ports:
161-*-CLIP Type-#*

Example:

Program FXS port 1 to read software version/revision:

161-1-3-#* (Bellcore FSK)

Important Point:

- This command is of help when a Telephone instrument connected to the FXS port is capable of sensing only one type of information.

Relevant Topics:

1. Software Version/Revision 133
2. FXS Port Parameters 75

=X=X=

Communication Port

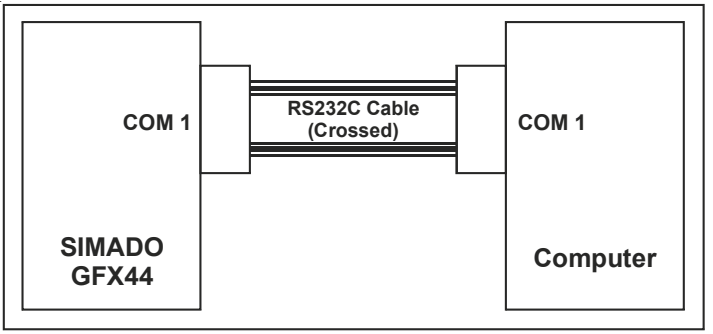
What's this?

- The SIMADO GFX44 supports a communication port which is used for following purpose:
  - To send the Call Detail Recording (CDR) to the computer.
  - For programming through Jeeves.
- Based on application, a process is assigned to the COM port.

How to use it?

- Connect the communication port of the gateway with the communication port of the computer using a crossed communication cable. Matrix provides a crossed communication cable with 9-pin D type female connector on both the sides.

The Jeeves software for the gateway can be installed on any standard computer with Window and NT operating system.



Following attributes programmed in the system are fixed and not programmable:

Baud Rate	115200bps
Stop Bit	1
Parity	Mark
Data Bits	8
Flow Control	None

Following table gives the pin out details of the COM port:

Pin No.	Signal Name
1	Data Carrier Detect (DTD)
2	Receive Data (RXD)
3	Transmit Data (TXD)
4	Data Terminal Ready (DTR)
5	Ground (GND)
6	Data Set Ready (DSR)
7	Request to Send (RTS)
8	Clear to Send (CTS)
9	Ring Indicator (IR)

- The communication port can be assigned for various purpose like CDR, Jeeves program and system debug. Thus port assignment depends on the application the user wants for the gateway. But if he needs debug process, then he can start the debugging. Thus Start and Stop commands will be useful like CDR application.

How to program?

Use following command to assign a process to the COM port:
310-Code-#*

Where,

Code	Meaning
0	None
1	Debug
2	Programming through Jeeves
3	Call Detail Recording

By default, COM port is assigned the process '2'.

Example:

To assign COM port for taking CDR report, use following command:
310-3-#*

Use the following command to start and stop the system debug:
309-Code-#*

Where,

Code	Meaning
0	Stop
1	Start

By default, System debug is 0.

Relevant Topics:

1. Call Detail Recording (CDR) 41
2. Jeeves 82

=X=X=

Daylight Saving Time

What's this?

- Based on sunrise and sunset during different period in a year for different countries; the working time during a day is affected. To consider such problem, the concept of Daylight Saving Time has been involved.
- Daylight Saving Time (DST) is the new local time a region is assigned for a portion of the year, usually an hour forward from its standard official time.
- The clocks are advanced at the beginning of the daylight saving time and delayed at the end of the daylight saving time.

How it works?

- DST can be disabled or set according to week-day-month wise or date-month wise.
- DST can be disabled by the SE if not applicable in the country or it can be entered either using DST type 1 or DST type 2.
- If DST type 1 is selected, the DST is effective on the programmed week, day and the month wise whereas if DST type 2 is selected, the DST is effective on the programmed date and month wise, of the year.
- Different DST type can be selected for DST forward time and DST backward time.
- DST changes on a particular day of a particular week, every year.

How to program?

Step 1: Program to select DST Forward Type using command ***321.***
Step 2: Program to set time for Week-Day-Month for DST Forward Type using command ***322.***
Step 3: Program to set time for Date-Month-Hour-Minute for DST Forward Type using command ***323.***
Step 4: Program to select DST Backward Type using command ***324.***
Step 5: Program to set time for Week-Day-Month for DST Backward Type using command ***325.***
Step 6: Program to set time for Date-Month-Hour-Minute for DST Backward Type using command ***326.***

Step 1
Use following command to select DST forward type:
321-DST Type-#*
Where,

DST Type	Meaning
0	Disabled
1	Week-Day-Month wise
2	Date-Month wise

By default, DST forward Type is 0.

Step 2
Use following command to set time for Week-Day-Month for DST forward type:
322-Week-Day-Month-Hour-Minute-Hour-Minute-#*
Where,
Week is from 1 to 5. (For example For First Sunday of the month, set Week = 1; likewise for last Sunday of the month, set Week = 5. If the month has 4 Sundays in a particular Calendar year then the last Sunday would be automatically the fourth one and if the month has 5 Sundays in a particular month of the Calendar year then the last Sunday would be automatically the fifth one).
Day is from 1 to 7 (Sunday is Day1 and Saturday is Day7).
Month is from 01 to 12.
Hour is from 00 to 23.
Minute is from 00 to 59.
By default, Day is 1, Month is 01, Hour is 00 and Minute is 00.

First Hour-Minute in the command is for current time settings whereas the Second Hour-Minute in the command is for time to which the clock should be forwarded to.
For e.g. In New Zealand, the DST starts on Last Sunday of October. The clock changes from 02:00 to 03:00. Following command should be issued to effect DST in New Zealand.
322-5-1-10-02-00-03-00-#*

Step 3
Use following command to set time for Date-Month for DST forward type:

323-Date-Month-Hour-Minute-Hour-Minute-#*
Where,
Date is from 01 to 31.
Month is from 01 to 12.
Hour is from 00 to 23.
Minute is from 00 to 59.
By default, Date is 01, Month is 01, Hour is 00 and Minute is 00.

For e.g. In Cuba, the DST starts on 1st April of every year. The clock changes from 01:00 to 02:00. Following command should be issued by the SE to affect DST.
323-01-04-01-00-02-00-#*
For e.g. In Syria, the DST starts on 1st April of every year. The clock changes from 00:00 to 01:00. Following command should be issued by the SE to affect DST.
323-01-04-00-00-01-00-#*

Step 4
Use following command to select DST backward type:
324-DST Type-#*
Where,

DST Type	Meaning
0	Disabled
1	Week-Day-Month wise
2	Date-Month wise

By default, DST backward type is 0.

Step 5
Use following command to set time for Week-Day-Month for DST backward type:
325-Week-Day-Month-Hour-Minute-Hour-Minute-#*
Where,
Week is from 1 to 5. (For example For First Sunday of the month, set Week = 1; likewise for last Sunday of the month, set Week = 5. If the month has 4 Sundays in a particular Calendar year then the last Sunday would be automatically the fourth one and if the month has 5 Sundays in a particular month of the Calendar year then the last Sunday would be automatically the fifth one).

Day is from 1 to 7 (Sunday is Day1 and Saturday is Day7).
Month is from 01 to 12.
Hour is from 00 to 23.
Minute is from 00 to 59.
First Hour-Minute in the command is for current time settings whereas the Second Hour-Minute in the command is for time to which the clock should be changed to.
By default, Week is 1, Day is 1, Month is 01, Hour is 00 and Minute is 00.

For e.g. In New Zealand, the DST ends on Third Sunday of March. The clock changes from 03:00 to 02:00. Following command should be issued to affect DST in New Zealand.
325-3-1-03-03-00-02-00-#*
For e.g. In Cuba, the DST ends on last Sunday of October every year. The clock changes from 23:59 (in fact 00:00 midnight) to 23:00. Following command should be issued by the SE to affect DST.
325-5-1-10-23-59-22-59-#*

Step 6
Use following command to set time for Date-Month for DST backward type:
326-Date-Month-Hour-Minute-Hour-Minute-#*
Where,
Date is from 01 to 31.
Month is from 01 to 12.
Hour is from 00 to 23.
Minute is from 00 to 59.
By default, Date is 01, Month is 01, Hour is 00 and Minute is 00.

For e.g. In Syria, the DST ends on 1st October of every year. The clock changes from 23:59 (00:00 midnight of 1st October) to 23:00. This means that DST should be changed on 30th Sept. at 23:59 to 23:00. Following command should be issued by the SE to effect DST.
326-30-09-23-59-22-59-#*

Important Points:

- The day is not changed by the system automatically while forwarding the clock or reverting back to normal. Hence the user has to enter the current time and the forward/backward time keeping this aspect in mind.
- For e.g. In Chile, DST is advanced on second Saturday of October from 00:00 to 01:00. This means that on Second Saturday of October at 00:00, the clock is advanced to 01:00. To effect this in the system, the user has to use following command: ***322-2-7-10-0000-0100-#****
- For e.g. In Chile, DST is reverted back to normal on second Sunday of March at 00:00 to Second Saturday of March 23:00. To effect this, user has to use following command: ***325-2-7-03-23:59-22:59-#****

Relevant Topics:

1. Real Time Clock (RTC) 100
2. Time Table 134

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Default the Configuration

What's this?
Every system comes with pre-defined set of variable like configuring port parameters, timers and other parameters. These pre-defined settings are called default settings.

The default value of each programmable parameter is mentioned in the respective section. If the default setting suits your requirement then, you may not even require programming the system and the system will work with the default settings.

When to use it?
Many times it happens that due to some programming error, the system goes haywire and you are unable to analyze the problem. During such a situation, it is advisable to default the system. However, software default of the system can be done from the programming mode and hence programming password should be known. If you forget the password default cannot be done and in that case hardware default of the system should be done.

How to program?
Use the following command to assign default values to all the programmable parameters:
292-Reverse SE Password-#*
By default, SE Password is 1234.

The following is the list of parameters which will get defaulted:
- Serial COM Port Application Assignment.
- FXS Port Parameters.
- Mobile Port Parameters.
- Routing Groups.
- Number Lists.
- CDR Filters.
- Dialed-Number String Table.
- Time Table.
- DST Parameters.
- Clear RCOC Entries.

- System general parameters like:
  - SE Password.
  - Call Progress Tone Generation.
  - Record Delete Timer.
  - Call Proceeding Tone.

Hardware Default:
In case the SE password is forgotten, no further programming is possible.

To take care of such rare situations, the system allows the System Engineer (SE) to clear the password to its default value. Following steps describe the procedure:
- Switch OFF the system.
- Locate a mini jumper J9 on the main PCB.
- Put the jumper in A-B Position.
- Switch it ON.
- Wait for 15 seconds.
- Switch OFF the system.
- Restore the jumper in its original position (B-C).
- Switch it ON again.
- The SE password gets default to ***1234***.

Important Point:
- SIM PIN and RTC is not assigned any default value while issuing system default command.

Relevant Topics:
1. Getting Started 17
2. Programming the System 98

=X=X=

Disconnect Signaling on FXS Port

What's this?

- As a general application, telecom equipment like PCO machine is connected to the FXS port of the system. Now whenever the called party (remote party) disconnects or goes on-hook it is required to inform the FXS port so that the PCO machine can consider the call as complete and stop billing. In absence of this signal, the call is considered as complete when the caller goes ON-Hook. But this will result in inaccurate billing.
- To solve such problems, the system supports 'Disconnect Signaling'. It is a signal which is generated on FXS port, when the called party has disconnected. This helps to avoid excessive billing.
- If FXS port of 'GFX 44' is connected to FXO port of PBX, the FXS port will serve as exchange for PBX. Hence Disconnect Signaling on FXS port is supported for both IC and OG calls.
- When call is made from FXS to any other port FXO/Mobile whenever called party disconnects, they provide a disconnect signal. Same is generated on the FXS port, so that billing of call can be stopped.
- It can be in the form of:
  - None
  - Polarity Reversal
  - Open Loop Disconnect

How it works?

- When an outgoing call is made from FXS port to any other port and call gets matured, the system will wait for any disconnect signaling.
- When other port gets disconnected due to disconnection event or signal available on the port, the system will check the Disconnect Signal assigned to the FXS port from where call has been made.

The options for Disconnect Signaling are mentioned below:

- ***None*****:** It is used when no signaling is to be generated on FXS for call disconnection. When call is disconnected, user will get Error tone.

- ***Polarity Reversal***: It is used when the call disconnection is to be signaled in the form of Polarity Reversal. The Battery polarity of the FXS port will be reversed. For example, if the battery polarity of the FXS port is +ve for TIP and -ve for RING in speech condition then on disconnection on other port, TIP will become -ve and Ring will become +ve. When call is disconnected, user will get Error tone.
- ***Open Loop Disconnect***: It is used when call disconnection is to be signaled in the form of Open Loop Disconnect pulse. During this:
  - The Battery voltage on FXS port will be removed for time of Open loop disconnect timer programmed for that FXS port and will be restored again.
  - But the Polarity of the FXS port battery voltage will not be changed. When call is disconnected, user gets Error tone.
  - "Open Loop Disconnect Timer" can be programmed and is applicable only if Open Loop Disconnect option is selected for Disconnect Signal.
  - Disconnect signal will also be generated when call is terminated on FXS port i.e. when call is made from Mobile to FXS (terminating) port.
  - When call is terminated on FXS port and call gets matured (user of FXS port goes off-hook), the system will wait for the disconnection of other port.
  - If other (source) port gets disconnected, the system will check the disconnect signal programmed on FXS port and generates the corresponding disconnect signal.
  - User will get Error tone after disconnect signal is generated on the FXS port.

How to program?

Disconnect Signal:

Use following command to program the Disconnect Signal to be generated on FXS port during IC and OG call:

256-FXS Port-Disconnect Signal-#*

Where,

FXS Port is from 1 to 4.

Disconnect Signal	Meaning
0	None
1	Polarity (Battery) Reversal
2	Open Loop Disconnect (Battery Removal or Current Removal)

By default, Polarity Reversal for all ports.

Use following command to program the Disconnect Signal to be generated on all FXS port during IC and OG call:
256-*-Disconnect Signal-#*

Open Loop Disconnect Timer:
Use following command to program the Open Loop Disconnect timer on FXS port:
257-FXS Port-Open Loop Disconnect Timer-#*
Where,
FXS Port is from 1 to 4
Open Loop Disconnect Timer is from 001 to 999 ms.
By default, 500ms for each port.

Use following command to program the Open Loop Disconnect timer on all FXS port:
257-*-Open Loop Disconnect Timer-#*

Related Topic:
1. Answer Signaling on FXS Port 32

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Emergency Number Dialing

What's this?

- The user should be able to contact service personnel like Fire Brigade, Ambulance, etc. from GSM network, when he is facing some adverse situation and needs some help. This is known as 'Emergency Number Dialing'.
- SIMADO GFX44 supports this feature Mobile port. It may happen that you need to call emergency number even when you have not inserted the SIM card and the GSM module is not registered with the network. This is called 'False' status of the GSM port. Normally SIM card is inserted and the module is registered with the network. This is called 'True' status of the GSM port. SIMADO GFX44, supports the emergency dialing feature for both status of GSM port, just like a mobile handset.

How it works?

- The system supports 4 programmable numbers and routing group, which will be used as emergency numbers for dialing. Each number of 8 digits maximum.
- The dialed number is compared with numbers programmed in the emergency number table. If it matches by prefect fit logic then the number is dialed out from the port, selected by routing logic using the routing group programmed in the system.
- The destination port, (GSM port) will send the number to the GSM module for dialing out, even if the port is True or False.
- The system doesn't check the Allowed and Denied Lists or automatic Number Translation, for dialing the emergency number, but the port must be enabled.
- Emergency dial in GSM network is explained in detail as below:
  - A Mobile station has two intelligent systems within itself viz. the GSM Engine and the SIM card.
  - Both, the GSM engine and the SIM card classify few number strings as Emergency numbers. Such numbers are dialed by the module with a specific SET UP message known as Emergency Call Set Up message.
  - These numbers are dialed by the GSM Engine in following cases:

- Not registered with subscribed Service Providers' Network. In such case, the Engine dials the Emergency number using any other available GSM network.
- When SIM is absent.
- When SIM is invalid (Only few Emergency numbers are allowed. This depends on the GSM Engine).
- When SIM is blocked.
- When wrong SIM PIN is entered.

For example, for a specific GSM Engine and a SIM Card from a Service Provider, following sequence is followed to dial an Emergency Number:

- It will first search for emergency call number stored in the SIM phone book. If there is at least one emergency number in the SIM, it will search for the number. If does not match, it will search for 112 or 911.
- If SIM does not have any emergency number stored it will search for the number in the default emergency number list stored in the firmware which are 000, 08, 112, 110, 911, 999.
- If the SIM is invalid means either PUK1 Blocked or PUK2 Blocked or No SIM, it will search for emergency numbers, which are 000, 08, 112, 110, 911, 999, 118 and 119.
- If SIM is blocked means either PIN1 Blocked (PUK1 Requested) or PIN2 Blocked (PUK2 requested) valid emergency numbers are 000, 08, 112, 110, 911, 999.
- If SIM is not inserted 000, 08, 112, 110, 911, 999, 118 and 119 are considered as emergency numbers.
- If wrong PIN is entered 000, 08, 112, 110, 911, 999 are considered as emergency numbers.

How to program?

Step 1: Program emergency Number at an index using command ***233.***

Step 2: Program routing group at on index using command ***234.***

Step 1

Use the following command to program the emergency number in the table:

233-Index-Emergency Number-#*
Where,
Index is from 1 to 4.
Emergency Number is 8 digits maximum.
Refer table for default numbers.

Use the following command to clear the emergency number at an index:
233-Index-#*

Step 2
Use the following command to assign routing group for an index in the table:
234-Index-Routing Group-#*
Where,
Index is from 1 to 4.
Routing Group is from 1 to 4.
By default, Routing Group is 4.

The default, emergency number table programmed in the system looks as shown below:

Index	Emergency Number	Routing Group
1	112	4
2	911	4
3	Null	4
4	Null	4

Example:
Suppose an emergency number 999 is required to be dialed out from Mobile port 1 and another number 110 is required to be dialed out from Mobile port 3, then program the emergency number table:
233-1-999-#* (Program Emergency Number 999)
233-2-110-#* (Program Emergency Number 110)
234-1-4-#* (Program Routing Group Number 4)
234-2-3-#* (Program Routing Group Number 3)

Now, program the routing group 4 such that Mobile port 1 is the first member and selection is first free type. Similarly program routing

group number 3 such that the first member is Mobile port 3 and relation is first free type.

Important Points:

- The GSM port from where, the emergency number is to, be dialed should be enabled, even if it is 'False'.
- The number programmed, which are to be routed through GSM port as emergency number should exist as emergency number either in the GSM module, or in the SIM in the memory storage, which is classified as emergency number. For this information, contact your GSM Service Provider.

Relevant Topic:

1. Mobile Port Parameters 86

=X=X=

End of Dialing Digit

What's this?

- End of dialing digit is a single digit on receipt of which, end of number string is interpreted and the received digits are sent for further analysis.
- End of Dialing digit is not programmable. ***By default, End of dialing Digit as '#'.***
- Because of this feature the dialing is faster and will not wait for expiry of Inter Digit Wait Timer to end the dialing of digits.

Relevant Topic:

1. FXS Port Parameters 75

=X=X=

Fixed Dialing

What's this?
To avoid dialing of a station number or destination number which is frequently used, the Matrix system offers, a feature by which the user has to just pick up his handset and the system will automatically dial out the fixed destination number. This feature is called Fixed Dialing.

How it works?
- When the fixed dialing is enabled, user gets the regular dial tone on going OFF-Hook. If the user does not dial anything for a time period of First Digit Wait Timer of FXS port/Mobile port the SIMADO GFX44 places the fixed dialing call to the programmed number.
- This delay provides a facility to the user to dial out other numbers without canceling fixed dialing.
- Fixed destination number is applicable on FXS/mobile port.
- If fixed dialing is disabled then error tone is issued to the caller on the expiry of First Digit Wait Timer for FXS port.

How to program?
Step 1: Program to enable/disable fixed dialing on a FXS port using command ***171.***
Step 2: Program the fixed destination number for the FXS port using command ***172.***
Step 3: Program to enable/disable fixed dialing on a mobile port using command ***175.***
Step 4: Program the fixed destination number for the mobile port using command ***176.***

Step 1
Use following command to enable/disable fixed dialing on a FXS port:
171-FXS Port-Code-#*
Where,
FXS Port is from 1 to 4.

Code	Meaning
0	Disable
1	Enable

By default, Fixed Dialing is disabled on all the ports.

Use following command to enable/disable Fixed Dialing on all FXS ports:
171-*-Code-#*

Step 2
Use following command to program the fixed destination number for the FXS port:
172-FXS Port-Number String-#*
Where,
FXS Port is from 1 to 4.
Number String is of 16 digits.
By default, the Number String is blank.

Use following command to program the fixed destination number for all FXS ports:
172-*-Number String-#*

Step 3
Use following command to enable/disable fixed dialing on a mobile port:
175-Mobile Port-Code-#*
Where,
Mobile Port is from 1 to 4.

Code	Meaning
0	Disable
1	Enable

By default, Fixed Dialing is enabled on all the ports.

Use following command to enable/disable fixed dialing on all mobile ports:
175-*-Code-#*

Step 4

Use following command to program the fixed destination number for the mobile port:

176-Mobile Port-Number String-#*

Where,

Mobile Port is from 1 to 4.

Number String is of 16 digits.

By default, the Number String is blank.

Use following command to program the fixed destination number for all mobile ports:

176-*-Number String-#*

Example:

A number 9898034498 is required to be frequently dialed out from Mobile port 1, to contact the person X then program the fixed dialing feature as below:

171-1-1-#*	(Enable feature)
172-1-9898034498-#*	(Program destination number)
185-1-1-#*	(Assign routing type as Answer-Fixed to Mobile port for Timezone 1)
201-4-1-1-1-#*	(For FXS1 routing type is Answer-Number Based and routing group is 4 by default. Hence program Mobile Port 1 as a member at index 1)
202-4-1-#*	(Member selection as first free)

Relevant Topics:

1. Routing Type 116
2. Routing Group 110

=X=X=

FXS Port Parameters

What's this?

In order to integrate analog phones with different flash timer specification, FXS port should be programmable, for required flash timer. Also it may be required to differentiate priority level of two incoming calls. This can be done by providing different ring types for two stations. These features can be obtained by suitable programming of FXS port. The SIMADO GFX44 provides a facility in which FXS port can be programmed for following parameters:

- Enable/Disable Port.
- Ring Type.
- Inter Digit Wait Timer.
- Flash Timer.
- First Digit Wait Timer.
- Tx Gain, Rx Gain.
- AC Impedance.

How to program?

Step 1: Program to enable/disable a FXS port using command ***251.***
Step 2: Program to select the ring cadence for a country using command ***252.***
Step 3: Program to set Inter digit wait timer for a FXS port using command ***253.***
Step 4: Program to set Flash Timer for a FXS port using command ***254.***
Step 5: Program to set First Digit Wait Timer for FXS port using command ***255.***
Step 6: Program Tx Gain on FXS port using command ***258.***
Step 7: Program Rx Gain on FXS port using command ***259.***
Step 8: Program AC Impedance for FXS port using command ***260.***

Step 1

Port Status (Enable/Disable)-This command is used to enable/disable FXS port. It is required to disable the port in case, any FXS port has gone faulty.

Use following command to enable/disable a FXS port:

251-FXS Port-Code-#*

Where,

FXS Port is from 1 to 4.

Code	Meaning
0	Disable
1	Enable

By default, all the ports status are enabled.

Use following command to enable/disable all FXS ports:
251-*-Code-#*

Step 2

Ring Type

- During an incoming call, SIMADO GFX44 plays the ring over SLT, as per the ring cadence specified for the country. For example, ring for India is 'Double', whereas for Canada or US it is 'Long Slow'.
- GFX44 supports ring type for 25 countries.
- This doesn't affect the country code for CPTG tones.

Use following command to select a ring type for a country:
252-Code-#*
Where,

Code	Country	Frequency (Hz)	CADENCE (In Seconds)			
			TON1	TOFF1	TON2	TOFF2
01	Australia	25	0.4	0.2	0.4	2.0
02	Belgium	25	1.0	3.0		
03	Brazil	25	1.0	4.0		
04	China	25	1.0	3.0		
05	Egypt	25	2.0	4.0		
06	France	25	1.5	3.5		
07	Germany	25	3.5	5.5	0.79	1.1
08	Greece	25	1.0	4.0		
09	India	25	0.4	0.2	0.4	2.0
10	Israel	25	2.0	3.0		
11	Italy	25	1.0	4.0		

12	Japan	25	1.0	2.0		
13	Korea	25	1.0	3.0		
14	Malaysia	25	2.0	3.0		
15	New Zealand	25	2.0	3.0		
16	Poland	25	2.0	3.0		
17	Portugal	25	1.0	5.0		
18	Russia	25	1.0	3.0		
19	Singapore	25	0.4	0.2	0.4	2.0
20	South Africa	25	0.4	0.2	0.4	2.0
21	Spain	25	1.5	3.0		
22	Thailand	25		3.0		
23	UAE	25	2.0	3.0		
24	UK	25	0.4	0.2	0.4	2.0
25	USA/Canada	25	2.0	4.0		

By default, the Ring Type of the FXS ports is 09 (India).

Remark:

- Waveform is sinewave, TON1 = Tone1 ON period, TOFF1 = Tone 1 OFF period.

Step 3

Inter Digit Wait Timer-This timer signifies the time between two digits dialed on the port.

Use following command to set inter digit wait timer for the FXS port:

253-FXS Port-Inter Digit Wait Timer-#*

Where,

FXS Port is from 1 to 4.

Inter Digit Wait Timer is from 01 to 99 seconds.

By default, Inter Digit Wait Timer is 04 seconds.

Use following command to set inter digit wait timer for all FXS ports:

253-*-Inter Digit Wait Timer-#*

Step 4

Flash Timer-This command is used to program the flash timer for

the FXS port.
Use following command to program the flash timer for the FXS port:
254-FXS Port-Flash Timer-#*
Where,
FXS Port is from 1 to 4.
Flash Timer is from 083ms to 999ms.
By default, the Flash Timer for all the FXS ports is 600ms.

Use following command to program the flash timer for all FXS ports:
254-*-Flash Timer-#*

Step 5
First Digit Wait Timer: This is maximum time period for which system waits for dialing first digit after going OFF-Hook.
Use the following command to program First Digit Wait Timer for FXS port:
255-FXS Port-Timer-#*
Where,
FXS Port is from 1 to 4.
First Digit Wait Timer is from 01 to 99 sec.
By default, First Digit Wait Timer is 06 sec.

Use the following command to program First Digit Wait Timer for all the FXS ports:
255-*-Timer-#*

Step 6
Tx Gain on FXS Port: Sometimes, it is required to adjust the level of outgoing speech. For example, if FXO port of the PBX to be interfaced with FXS Port, is very far from the gateway site, the Tx level will be required to increase.
Use following command to program Tx Gain on FXS port:
258-FXS Port-Code-#*
Where,
FXS Port is from 1 to 4.

Code	Meaning
1	-1.5
2	0
3	+1.5
4	+3

By default, Tx Gain for FXS Port is 2.

Use following command to program Tx Gain on all FXS ports:
258-*-Code-#*

Step 7
Rx Gain on FXS Port: Sometimes it is required to adjust the level of speech of incoming audio. For this, Rx Gain is kept programmable, on FXS port.
Use following command to program Rx Gain on FXS port:
259-FXS Port-Code-#*
Where,
FXS Port is from 1 to 4.

Code	Meaning
1	-1.5
2	0
3	+1.5
4	+3

By default, Rx Gain for FXS Port is 2.

Use the following command to program Rx Gain on all the FXS ports:
259-*-Code-#*

Step 8
AC Impedance on FXS Port: If AC Impedance of communication equipment connected to FXS port is notmatching to that of FXS port, then it may result to signal loss. To avoid such problem, AC Impendance is kept programmable.
Use following command to program AC Impedance on FXS port:
260-FXS Port-Code-#*

Where,
FXS Port is from 1 to 4.

Code	AC Impedance(Ω)
1	600
2	900
3	Complex

By default, AC Impedance on FXS port is 1.

Use following command to program AC Impedance on all the FXS ports:
260-*-Code-#*

Important Points:

- If after completion of 'error tone', FXS port is still OFF-Hook then error tone will continue till user goes ON-Hook.
- If the user goes OFF-Hook from FXS port and that port is disabled, then user will get 'Error Tone'.
- When programming the AC Impedance of the FXS ports, it is recommended that if user wants to program the AC impedance of FXS1 or FXS2, it should be done through FXS3 or FXS4 and vice versa. Otherwise user will get 'Error tone'. The programming of AC impedance should be done only when FXS port is 'Idle'.

Relevant Topics:

1. End of Dialing Digit 71
2. CLIP Type on FXS Port 52

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International Mobile Equipment Identity (IMEI)

What's this?
It may happen that you loose the gateway or it is stolen. Very important personnel information is stored and you don't want somebody to misuse it. To help the user, manufacturer of GSM Module provides a code known as International Mobile Equipment Identity (IMEI) which can be sent to the network operator. The operator will use it to put your GSM module of the specific gateway, in unoperational state. Thus, the IMEI code is used to identify an individual GSM Module. The IMEI number is normally printed on the GSM Module.

How it works?
- This information is available through Jeeves. User has to click in the box for the Mobile port number, for which IMEI information is required.
- When the gateway is powered ON, the GSM module takes some time to reset. Hence if user tries to download IMEI data during this time, he will get only blank or invalid data.
- If the user tries to get 'IMEI' after GSM module is reset, the information is stored by the system which is sent by the GSM module. This IMEI number is then sent to Jeeves and can be read, for all the modules.

Important Point:
- Sometimes it may happen that module does not send the IMEI number during power ON. In such case, the user should restart the system.

Relevant Topic:
1. Mobile Port Parameters 86

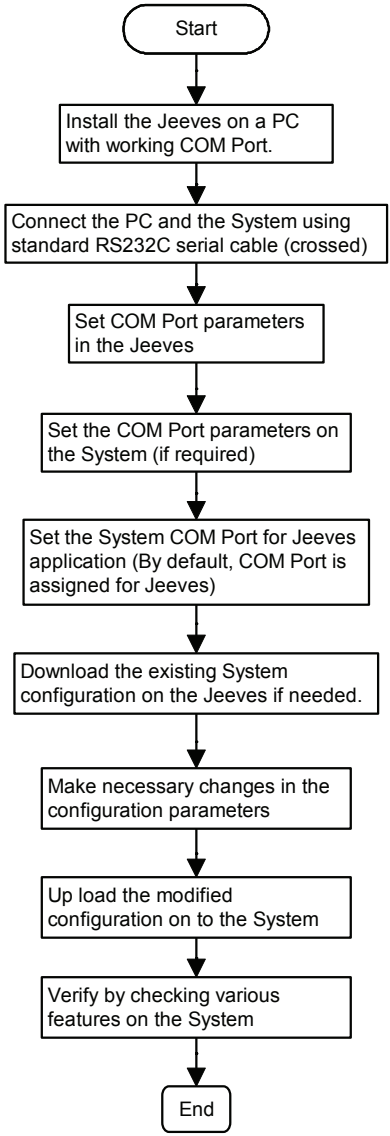
=X=X=

Jeeves

What's this?

- Programming a system through phones, is a bit time consuming process. The Matrix system provides a facility to program it using computer.
- Matrix supplies a customized, windows based software to program the SIMADO GFX44, known as Jeeves.
- The Jeeves is a flexible and friendly tool with mouse operated GUI.

How it works?

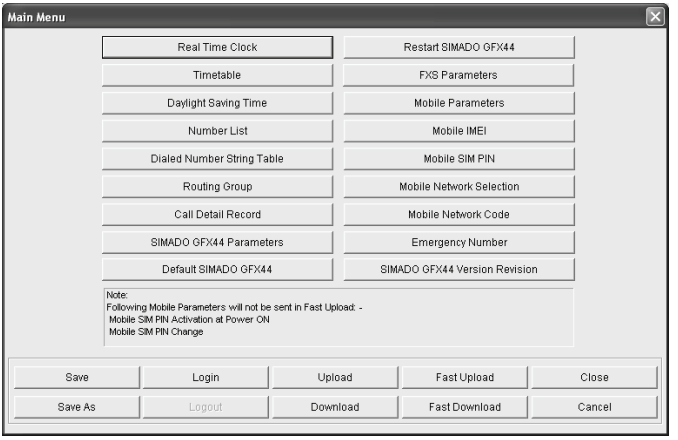

Start
Install the Jeeves on a PC with working COM Port.
Connect the PC and the System using standard RS232C serial cable (crossed)
Set COM Port parameters in the Jeeves
Set the COM Port parameters on the System (if required)
Set the System COM Port for Jeeves application (By default, COM Port is assigned for Jeeves)
Download the existing System configuration on the Jeeves if needed.
Make necessary changes in the configuration parameters
Up load the modified configuration on to the System
Verify by checking various features on the System
End

How to program?
The COM port is assigned to Jeeves using specific command.

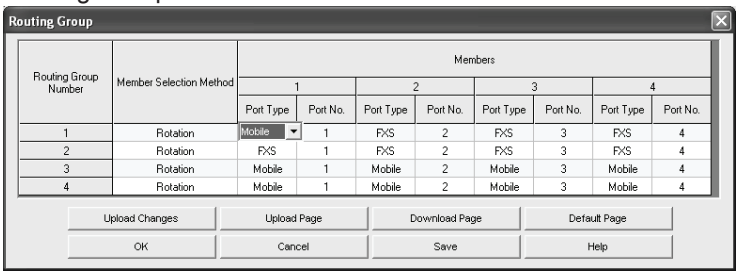
Example:
To dial Mobile number ‘9898507330’ from ‘Mobile-1’ using Routing Group number-1

- The Jeeves screen for ‘GFX44’ looks as shown below:

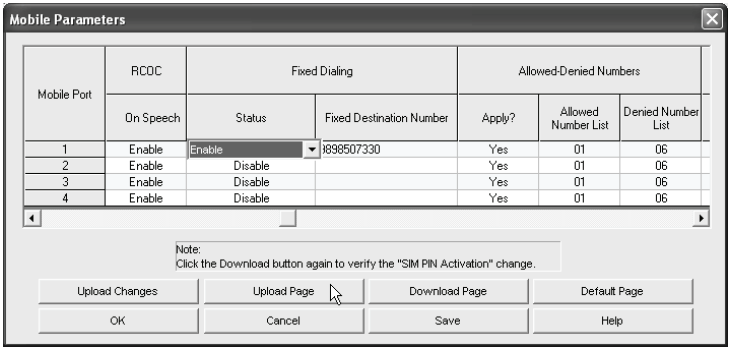
- Main Menu screen looks as shown below:



- Click on ‘Routing Group’ to program ‘Mobile-1’ as first member of Routing Group Number-1.



- Click on ‘Mobile Parameters’ from main Menu. Enable ‘Fixed dialing’ for Mobile-1 port. Program the Mobile Number ‘9898507330’ in the ‘Fixed Destination Number’ field.



Relevant Topics:

1. Communication Port 54
2. Programming the System 98

=X=X=

Mobile Port Parameters

What's this?

- The GSM modules, used by the system need different setting for Rx audio level and Tx audio level, for required speech level at analog phones. For this, user has to optimize the gain of RF module.
- Similarly, different GSM networks take some time to respond the information asked by the gateway. But this time can be very long in case of problem like network congestion. Hence, our system is required to program for maximum time upto which it can wait.
- In order to interface Mobile ports with GSM network, few parameters are required to be programmed. The SIMADO GFX44 provides a facility in which mobile port parameters can be programmed for following parameters:
  - Enable/Disable Port.
  - Receive Gain.
  - Transmit Gain.
  - Inter Digit Wait Timer.
  - First Digit Wait Timer.
  - Mobile Frequency Band

How to program?

Step 1: Program to enable/disable the mobile port using the command ***271.***

Step 2: Program to set receive gain to the mobile port using the command ***272.***

Step 3: Program to set transmit gain to the mobile port using the command ***273.***

Step 4: Program to set inter digit wait timer to the mobile port using the command ***274.***

Step 5: Program to set First Digit Wait Timer for mobile port using command ***276.***

Step 6: Program mobile frequency band using command ***278.***

Step 1

Port Enable/Disable-This command is used to disable a mobile port. Disabling mobile port is required in cases like Budget

exhausted (Pre-paid SIM card), Network problems, SIM problems, Hardware failure, etc. On disabling the port, No calls are possible through this port.

Use following command to enable/disable a mobile port:
271-Mobile Port-Code-#*
Where,
Mobile Port is from 1 to 4.

Code	Meaning
0	Disable
1	Enable

By default, all the ports are enabled.

Use following command to enable/disable all the mobile ports:
271-*-Code-#*

Step 2
Receive Gain-This command is used to increase/decrease the Receive Gain to improve the audibility of the incoming speech.
Use following command to program the receive gain of a mobile port:
272-Mobile Port-Receive Gain-#*
Where,
Mobile Port is from 1 to 4.

Receive Gain	Meaning
1	Very Low
2	Low
3	Normal
4	High
5	Very high

By default, Receive Gain is 3.

Use following command to program the receive gain of all the mobile ports:
272-*-Receive Gain-#*

Step 3

Transmit Gain-This command is used to increase/decrease the transmit gain to improve the output RF signal from the gateway. Use following command to program the transmit gain of a mobile port:

273-Mobile Port-Transmit Gain-#*

Where,

Mobile Port is from 1 to 4.

Transmit Gain	Meaning
1	Very Low
2	Low
3	Normal
4	High
5	Very high

By default, Transmit Gain is 3.

Use following command to program the transmit gain of all the mobile ports:

273-*-Transmit Gain-#*

Step 4

Inter Digit Wait Timer-This timer signifies the time between two digits dialed on the port. This is same as inter digit timer in case of PBX.

Use following command to program inter digit wait timer for a mobile port:

274-Mobile Port-Inter Digit Wait Timer-#*

Where,

Mobile Port is from 1 to 4.

Inter Digit Wait Timer is from 01 to 99 secs.

By default, Inter Digit Wait Timer is 04 secs.

Use following command to program inter digit wait timer for all the mobile ports:

274-*-Inter Digit Wait Timer-#*

Step 5

First Digit Wait Timer: This timer signifies the time for which the system waits after the user has gone OFF-Hook.
Use the following command to program First Digit Wait Timer for Mobile port:
276-Mobile Port-First Digit Wait Timer-#*
Where,
Mobile Port is from 1 to 4.
First Digit Wait Timer is from 01 to 99 sec.
By default, First Digit Wait Timer is 06 sec.

Use the following command to program First Digit Wait Timer for all the Mobile ports:
276-*-Timer-#*

Step 6

Use following command for selection of Mobile Frequency Band on Mobile Port:
278-Mobile Port-Mobile Frequency Band-#*
Where,
Mobile Port is from 1 to 4

Mobile Frequency Band	Meaning
1	900
2	1800
3	1900
4	850 + 1900
5	900 + 1800

By default, Mobile Frequency Band is 900 + 1800.

Use following command for selection of Mobile Frequency Band on all Mobile Ports:
278-*-Mobile Frequency Band-#*

For example:
Program 850 + 1900 GSM frequency band for countries which support both 850 and 1900 MHz frequencies for GSM network.

Network Response Timer:

- 'Network response timer' signifies the time for which the system waits for a response from the network. It is not programmable.
- Network related setting takes more time to get the complete response from the network.
- For example, Auto registration process will be repeated after the expiry of network response timer in congestion with network registration retry timer.
- Hence value of this timer in the system is fixed and long enough to get complete response from the network by the GSM Module. It is 150 second.

Relevant Topics:

1. Emergency Number Dialing 67
2. International Mobile Equipment Identity 81
3. Network Selection 91
4. SIM PIN 130
5. RCOC 104
6. Call Proceeding Tone 47
7. Signal Strength 129

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Network Selection

What's this?

- Many times it happens that the system is installed in a remote place which is hilly or at a place where it is surrounded by multistoryed buildings. In such case, the mobile user may not get registered with a suitable network and his work is affected. Same problem is faced when he is moving out of his home region. User of mobile station (Handset) has the user interface on the LCD, which shows, the name of the available network and he can select the desired network. But such user interface is not available in the SIMADO GFX44, gateway. The same purpose is served by providing multiple network operator options based on their specific network operator code. The subscriber can select the network manually or automatically, for each mobile port. This is known as Network Selection.
- If the subscriber is working in the area where, his home network as well as other network coverage is also available, then he can select the network manually such that he can restrict the extra charges. Normally subscriber uses this mode when he is working outside his home network.
- But if the subscriber is always busy with important business matter, then he would like to get registered with any network operator. He wants to make and receive calls, at any cost. For such requirement he will use this feature, in automatic mode.

How it works?

- User can assign option for network selection to each mobile port he wants to use.
- The feature works, when SIMADO GFX44 is powered ON or if the port is NOT registered with network.
- Maximum 9 network operators can be programmed. In Manual Mode mobile port starts to get registered with network operator, as per order of programming with its network operator code. In Automatic Mode, the GSM port gets registered with the network operator as per field strength. If it doesn't get registered till expiry of network registration retry timer, it starts again the process of network selection.

- User should know the inter network call charges while programming priority network operator codes, for manual mode operation.
- Network operator code, consists of:
  - **MCC**
  - **MNC**
- **MCC:** MCC is Mobile Country Code, which identifies a country. For a country, there can be more than one MCC. It is generally of 3 digits. For e.g. for India, MCC is 404, which is same for all networks in India.
- **MNC:** MNC is Mobile Network Code, which is same for all network operators in India. But it is different in each state for the same network operator. For e.g. Airtel-Gujarat, MNC is '98' and Airtel-Maharastra, MNC is '90'. Thus, MCC-MNC combination uniquely identifies the home network of the mobile terminal. For example, MCC for other countries are as shown below:
  - USA : 310
  - Canada : 302
  - Australia : 505
  - Italy : 222

How to program?

Network selection feature can be programmed for SIMADO GFX44, using following steps:

Step 1: To select network selection mode Manual or Automatic using command ***231.***

Step 2: To program network operator's code with priority using command ***232.***

Step 3: To read the network operator code.

Step 1

Use following command to program Network Selection Mode for the Mobile port:

231-Mobile Port-Mode-#*

Where,

Mobile Port is from 1 to 4.

Mode	Meaning
1	Automatic
2	Manual

By default, Network Selection Mode is Automatic.

Use following command to program network selection mode for all the mobile ports:
231-*-Mode-#*

Step 2
Use following command to program the network operator's number with priority:
232-Mobile Port-Priority-Code-#*
Where,
Mobile Port is from 1 to 4.
Priority is from 1 to 9.
Code: MCC-MNC, Maximum 8 digits.
By default, Network Operator Number is Blank.

The default table programmed in the system for mobile port = 1 will be as shown below:

Mobile Port	Priority	Network Operator Number
1	1	Blank
	2	Blank
	:	:
	:	:
	:	:
	9	Blank

Use the following command to clear network operator number:
232-Mobile Port-Priority-#*
Where,
Mobile Port is from 1 to 4.
Priority is from 1 to 9.

Step 3
User can read the 'Network Operator Code' only by using windows Jeeves.

Example 1:
A user feels call charges of network operator 'X' (MCC 404, MNC 98), will be the cheapest for his SIM card of home region. Second operator 'Y' (MCC 404, MNC 25) is cheaper, but the third operator 'Z' (MCC 404, MNC 21) is little cheap for call charges. Then program the network operator as per priority, as shown below:
He should program the SIMADO GFX44, for manual mode which doesn't depend on field strength of the network. He makes the call from mobile port 3.

231-3-2-#*	(Network selection mode: Manual)
232-3-1-40498-#*	(1st priority to network 'X')
232-3-2-40425-#*	(2nd priority to network 'Y')
232-3-3-40421-#*	(3rd priority to network 'Z')

Example 2:
If user wants that the GSM port 1 should get registered with any of the available network operator, then he should program the network selection mode as Automatic by:
231-1-1-#*
Rest of priority are kept, blank.

Important Points:
- In 'Manual Mode', network is not selected as per the field strength but is selected as per the priority network codes, programmed for that mobile port.
- **Network Registration Timer:**
  - It signifies the time for which the mobile port should try for network registration between two attempts.
  - Network Registration Timer is not programmable.
  - The system implements the network registration as follows:
    - Network registration is attempted at the time of init (System Restart)
    - If the registration response from the desired network operator is not received within 50ms the system reports it

as failure.

- If this happens for all the registered network operators at the time of init, then after system start, the registration process can be reattempted at every two minutes till the port is registered with one of the operators.
- If user reattempts at every two minutes, then he is sure that the port will get registered and the system will be functional.

Relevant Topic:

1. Mobile Port Parameters 86

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Number Lists

What's this?

- The number lists is a group of number strings. The SIMADO GFX44 use these lists to allow/deny a number dialed from the port as well as for automatic number translation.
- SIMADO GFX44 supports 16 number lists.
- Each number list has 24 entries, which can be referred to as location.
- Number string in each location can be of maximum 16 digits long.

Number list looks as given below:

Loc. Index / No. List Index	01	……	24
01	Number String (16 digits)		
:			
:			
:			
:			
16			

How to program?

Use following command to program a number string in a location index in the number list:

101-Number List-Location Index-Number String-#*

Where,

Number List is from 01 to 16.

Location Index is from 01 to 24.

Number String is a string of maximum 16 digits.

Use following command to clear a location in the number list:

101-Number List-Location Index-#*

Use following command to clear all the locations in the number list:

102-Number List-#*

Default number list is given below:

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15-24
01	0	1	2	3	4	5	6	7	8	9	*	#	F	+	B
02	0	95	98	94	3	5	B	B	B	B	*	#	F	B	B
03	0	95	B	B	B	B	B	B	B	B	*	#	F	B	B
04	0	B	B	B	B	B	B	B	B	B	*	#	F	B	B
05	0	B	B	B	B	B	B	B	B	B	*	#	F	B	B
06	B	B	B	B	B	B	B	B	B	B	*	#	F	B	B
07	B	B	B	B	B	B	B	B	B	B	*	#	F	B	B
08-15	Same as 07														
16	B	B	B	B	B	B	B	B	B	B	*	#	F	B	B

Example:
If 0-dialing is to be barred, for a phone, connected to the system, then a number list 04 can be programmed as:
102-04-#* (To clear all location)
101-04-01-0-#* (Program list with 0 prefix)
Assign this list as denied list number to all FXS ports.

Relevant Topics:
1. Allowed and Denied Lists 27
2. Automatic Number Translation 37

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Programming the System

What's this?

- SIMADO GFX44, supports two methods of programming:
  - Programming with analog phones, connected at FXS ports.
  - Programming using Jeeves. Refer chapter Jeeves for this.
- This chapter explains how to enter programming mode for applying various commands.
- You can enter programming mode by using password called System Engineer (SE) Password.

How to Save the configuration of the System?

- To save the configuration in the system, it is recommended for the SE to logout from the programming mode or to wait for 5 minutes if still in the programming mode.
- Restart the system only after saving the configuration in the system else new configuration will be lost.
- Same shall also be applicable when doing programming using Jeeves. Any changes done in Jeeves will take effect permanently only after quitting the Jeeves or 5minutes (approx) after doing the change (if SE is still in Jeeves) whichever occurs earlier.
- The system should be restarted from Jeeves only after saving the configuration in the system else the last configuration will not be saved.

Note:

- To save the CDR records table and RCOC table, user should wait for 5 minutes before restarting the system.

How to use it?

1	Lift the handset.	Dial tone
2	Dial ***-19-SE Password.***	Programming tone

By default, SE Password is 1234.

To exit SE Mode, Dial ***00-#*.***

Use following command to change the SE password:
293-New SE Password-#*

Where,
New SE Password is number string of 4 digits.

Important Points:

- While in programming mode, if you go ON-Hook you will come out (exit) from the SE Mode. You will have to enter SE Mode again, to restart programming.
- The commands are accepted even during confirmation tone.
- You will get programming tone on expiry of the confirmation tone.

Relevant Topics:

1. Jeeves 82
2. Routing Type 116
3. Default the Configuration 62
4. Communication Port 54

=X=X=

Real Time Clock (RTC)

What's this?

- Various features and facilities provided by the gateway, use date and time parameters. These features are:
  - Defining four timezones in the table.
  - Routing type for the FXS and Mobile port for timezone.
  - Routing group for the FXS and Mobile port for timezone.
- Such facilities work properly only if the system is set with correct date and time values.
- For this SIMADO GFX44 is equipped with built in Real Time Clock (RTC) circuit. This circuit is to be set once with current date and time values. It then updates itself regularly to keep track of the parameters. However, please note that the RTC circuit can drift over a long period. Hence it is recommended to check and reset RTC values at least once every month to correct this drift. Please note that the system RTC takes care of the leap year.

However, please note that the RTC circuit can drift over a long period. Hence it is recommended to check and reset RTC values at least once every month to correct this drift. Please note that the system RTC takes care of the leap year.

How to program?

Use following command to program the current date:
296-DD-MM-YYYY-#*
Where,
DD= 01 to 31 (leading zero must in case of single digit date).
MM= 01 to 12 (leading zero must in case of single digit month).
YYYY= Year in four digits from 2007 to 2099.

Use the following command to program current time:
297-HH-MM-SS-#*
Where,
HH= Hours in two digits from 00 to 23 (leading zero must in case of single digit hour).
MM= Minutes in two digits from 00 to 59 (leading zero must in case of single digit minute).

SS = Seconds in two digits from 00 to 59 (leading zero must in case of single digit second).

Use following command to program day for the gateway:
298-Day-#*
Where,
Day is ranging from 1 to 7.

Day	Meaning
1	Sunday
2	Monday
3	Tuesday
4	Wednesday
5	Thursday
6	Friday
7	Saturday

Example:
An important application of RTC is for DST. User should set the system 'Time', 'Date' and 'Day' first using RTC, as per the current values, before programming the system for daylight saving time feature while installed in a country which observes DST.

Important Points:
- RTC doesn't get default, when system is default.
- This will be defaulted only by loading new version and revision of the software.

Relevant Topics:
1. Time Table 134
2. Daylight Saving Time 57
3. RCOC 104
4. CLIP Type on FXS Port 52

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Remote Programming

What's this?
SIMADO GFX44 supports programming of gateway from remote station.

How it works?
- To program the system remotely, the port should be programmed for Routing Type = Answer Number Based or Answer Fixed. Refer Routing Type chapter flow chart for more details.
- User can go OFF-Hook. Dial ***-19-SE Password*** to get system dial tone.
- Now the caller can program the gateway.
- The system plays confirmation tone when correct command is entered, else 'Error Tone' is played.
- After finishing programming, user can exit by dialing ***00-#*.**

Relevant Topic:
1. Routing Type 116

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Restart the System

What's this?

- The Matrix SIMADO GFX44 supports a command from the programming mode to restart the system. This command gives same effect as switching OFF the system and switching it ON again.
- Many times it is difficult to physically walk to the system and restart it. It is convenient if we could do the same from telephone instrument.
- The SIMADO GFX44 offers facility to restart the system by dialing a code.

How to program?

Use following command to restart the system:

291-#*

Wait for the time, till the gateway is rebooting.

Important Point:

- Restarting the system is not defaulting the system. This command doesn't alter any programming parameters.
- Restart the system only after saving the configuration in the system else new configuration will be lost.

=X=X=

Returned Calls to Original Callers (RCOC)

What's this?

- The SIMADO GFX44 provides a facility to detect the calling party number and present it to the user on the LCD of the telephone instrument.
- When a call is made to a mobile user and if he is found busy/not responding, the calling party's number gets stored in the memory of the mobile user. When the mobile user becomes free/available, he calls back the calling party and the call lands on the same extension of the calling party, who made this call through the gateway. This is called Return Calls to Original Callers (RCOC).
- RCOC works only in following calls:
  - Source port is FXS and destination port is mobile.
  - Source port is Mobile and destination port is mobile.

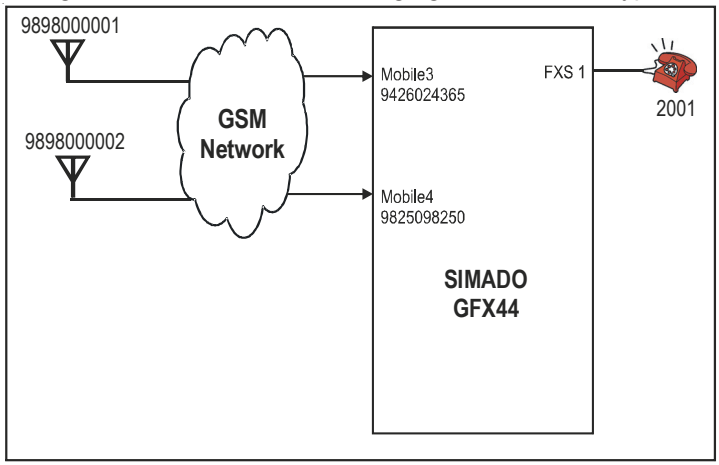
How it works?

- When a call is made through a port, which is RCOC enable and if the called party is found busy/No Response/speech, then the called party number, calling party number (if available) and the calling port software number (call originating port number) is stored in a database.
- Now when the called party calls back, the calling party's number is compared with the previously called party's number in the RCOC database.
- If a match (Best Fit) is found, the call is placed to the same software port that made the call. Since best fit logic is used, the call is placed to the relevant port even if the calling party number does not match 100% with the called party of the OG call made by the gateway.
- The RCOC database is saved in configuration file so that it is not lost during power failure.
- Maximum 100 entries are allowed in the table.

The RCOC database (Formed internally by the system):

Calling Party Number	Called Party Number	Originating S/w Port No.
16 digits	16 digits	

Typical cases of RCOC are given below for reference. The tables show how the entries are made in the RCOC table by the system during various calls. Refer following figure, for RCOC type calls.



Case 1: FXS to Mobile (2001 to 9898000001)

- Call originates from FXS1 (2001) and gets terminated on GSM network on 9898000001, external number using mobile port 3 of the Gateway.

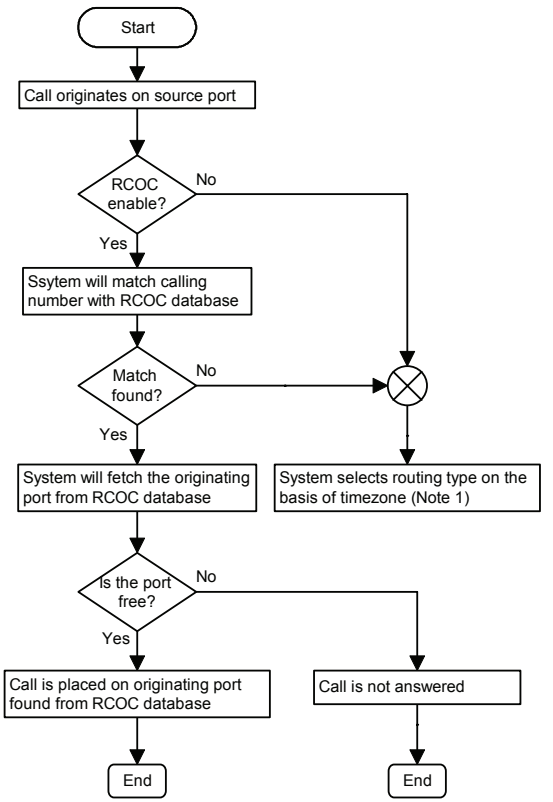
Calling Party Number	Called Party Number	Originating S/w Port Number
2001	9898000001	FXS 1

Case 2: Mobile to Mobile (9898000001 to 9898000002)

- Call from GSM network (9898000001, External Number) comes on mobile Port 3 (call originates on mobile port 3 of the Gateway), and gets routed on GSM Number 9898000002, using mobile port 4 of the gateway.

Calling Party Number	Called Party Number	Originating S/w Port Number
9898000001	9898000002	Mobile 3

This can be further explained using 'Flow Chart' as shown below:



(Note 1):
Further call flow will be same as shown in chapter: 'Routing Type'.

How to program?
Step 1: Program to set record delete timer using command ***221.***
Step 2: Program to enable/disable RCOC for Busy Destination on mobile port using command ***222.***
Step 3: Program to enable/disable RCOC for No Response Destination on mobile port using command ***223.***
Step 4: Program to enable/disable RCOC for Speech with Destination on mobile port using command ***224.***
Step 5: To clear RCOC table entries using command ***225.***

Step 1
Record Delete Timer-This timer signifies the time after which the call is deleted from the table.
Use the following command to program record delete timer:
221-Record Delete Timer-#*
Where,
Record Delete Timer is from 001 to 999 minutes.
By default, Record Delete Timer is 999 minutes.

Step 2
Use following command to enable/disable RCOC for Busy Destination on a mobile port:
222-Mobile Port-Code-#*
Where,
Mobile Port is from 1 to 4.

Code	Meaning
0	Disable
1	Enable

By default, Returned Calls to Original Callers for Busy Destination on a Mobile Port is Enable.

Use following command to enable/disable RCOC for Busy Destination on all the mobile ports:
222-*-Code-#*

Step 3

Use following command to enable/disable RCOC for No Response Destination on a mobile port:

223-Mobile Port-Code-#*

Where,

Mobile Port is from 1 to 4.

Code	Meaning
0	Disable
1	Enable

By default, Returned Calls to Original Callers for No Response Destination on a Mobile Port is Enable.

Use following command to enable/disable RCOC for No Response Destination on all the mobile ports:

223-*-Mode-#*

Step 4

Use following command to enable/disable RCOC When Speech with Destination on mobile port:

224-Mobile Port-Code-#*

Where,

Mobile Port is from 1 to 4.

Code	Meaning
0	Disable
1	Enable

By default, Returned Calls to Original Callers When Speech with Destination on Mobile Port is Enable.

Use following command to enable/disable RCOC When Speech with Destination on all the mobile ports:

224-*-Code-#*

Step 5

Use the following command to clear RCOC table entries:

225-#*

Example:
If a user wants to contact the person urgently. But his mobile number is coming busy. The number is dialed from mobile port 3 of the gateway. The user wants to retained all previous RCOC data only for next 12 hours. Then he should program the feature using following commands:

222-3-1-#* (Enable RCOC on Busy for Mobile Port 3)
221-720-#* (Record is deleted after 12-hours to get more memory space)

Important Points:
- Call details are stored in the RCOC table if this feature is enabled on the Destination Port.
- RCOC table will be saved in the system permanently, only after 5 minutes (approx.). Do not restart the system before saving.
- RCOC can be used on FXS ports also. But it is more relevant for Mobile Ports.
- While placing the call using RCOC, if it is found that the port on which the call is to be placed is busy, the call should not be routed.
- Deleting call record:
  - The call record is deleted only after the call has been placed.
  - If the destination port is busy then call is not routed and user gets error tone.
  - The call record is deleted on expiry of the Record delete timer.
- After placing the call on the basis of this logic, the corresponding entry is deleted from the database.
- The entries in the database follow FIFO logic.

Relevant Topics:
1. Mobile Port Parameters 86
2. Routing Type 116

=X=X=

Routing Group

What's this?

- When a call is initiated from source port the system has to decide, from which port the call will be dialed out. These ports are grouped and specific number is assigned to that group. This is called Routing Group and is assign to a port. The ports from the routing group are selected on the basis of member selection method assigned to each group.
- **Members and Member Selection Method:** The cases mentioned below explain how it is required to assign a Routing Group to FXS and Mobile Port and also how the members of the group are selected:
  - Many times it is required to call any of the person among a group of related people. It may not be important to talk to a particular person. In such a case, the routing group will contain only FXS ports as numbers and routing type is selected as "Answer-Fixed", which is assigned to Mobile port. This is Originating port or Source port on which Incoming call is expected.
  - If for incoming call, landing on a FXS port a Fixed Dialing Number has to be dialed out from a specific Mobile port then, that FXS port is assigned a routing group, with routing type as "Answer-Fixed" and the Mobile port are programmed as members.
  - The member ports of a routing group can be selected by rotation or first free method. If "Rotation Method" is selected, the fresh call will land on the destination next to the one, which received last call. This would enable, equal distribution of incoming calls to all the destinations within the group.
  - If "First Free" is selected, the fresh call will always land on first port which is not used. The system checks for it starting from the first port in the group.

How it works?

- Maximum 4 routing groups can be formed.
- Maximum 4 members can be programmed in each routing group.
- Each port (FXS, Mobile) is assigned different routing groups for

different time zones. Please refer the topic 'Time Table' for more details.

- Each member could be a FXS port and a mobile port.
- The system supports some preprogrammed Routing Groups, which can be selected as per requirement. For this refer a default Routing Group Table.

A routing group looks as given below:

RG Member / RG Number	Member1		.....		Member4	
	Port Type	Port Number			Port Type	Port Number
1	FXS/Mobile	1-4/1-4				
2-3						
4						

How to program?

Step 1: Program to a routing group using command ***201.***

Step 2: Program to assign member selection for routing group using command ***202.***

Step 3: Program to assign a routing group to a FXS port using command ***203, 204, 205*** and ***206.***

Step 4: Program to assign a routing group to a Mobile port using command ***207, 208, 209*** and ***210.***

Step 1

Use following command to program a routing group:

201-Routing Group-Member Index-Port Type-Port Number-#*

Where,

Routing Group is from 1 to 4.

Member Index is from 1 to 4.

Port Type	Meaning	Port Number
0	Null	0
1	FXS	1-4
2	Mobile	1-4

Default routing group table is given below:

Sr.	Member Selection Method	M1		M2		M3		M4	
		PT	PN	PT	PN	PT	PN	PT	PN
1	Rotation	FXS	1	FXS	2	FXS	3	FXS	4
2	Rotation	FXS	1	FXS	2	FXS	3	FXS	4
3	Rotation	Mob	1	Mob	2	Mob	3	Mob	4
4	Rotation	Mob	1	Mob	2	Mob	3	Mob	4

Where, PT=Port Type, PN=Port Number.

Step 2

Use following command to program member selection method for routing group:

202-Routing Group-Member Selection Method-#*

Where,

Routing Group is from 1 to 4.

Member Selection Method	Meaning
1	First Free
2	Rotation

- **First Free:** First free port is selected.
- **Rotation:** Always the N+1th port is selected, where N is the port on which last call was made.
- ***By default, Member Selection Method is '2'.***

Step 3

Use following command to assign a routing group to a FXS port for Timezone 1:

203-FXS Port-Routing Group-#*

Where,

FXS Port is from 1 to 4.

Routing Group is from 1 to 4.

By default, Routing Group 4 is assigned to all the FXS ports.

Use following command to assign a routing group to all the FXS ports for Timezone 1:

203-*-Routing Group-#*

Use following command to assign a routing group to a FXS port for Timezone 2:
204-FXS Port-Routing Group-#*
Where,
FXS Port is from 1 to 4.
Routing Group is from 1 to 4.
By default, Routing Group 4 is assigned to all the FXS ports.

Use following command to assign a routing group to all the FXS ports for Timezone 2:
204-*-Routing Group-#*

Use following command to assign a routing group to a FXS port for Timezone 3:
205-FXS Port-Routing Group-#*
Where,
FXS Port is from 1 to 4.
Routing Group is from 1 to 4.
By default, Routing Group 4 is assigned to all the FXS ports.

Use following command to assign a routing group to all the FXS ports for Timezone 3:
205-*-Routing Group-#*

Use following command to assign a routing group to a FXS port for Timezone 4:
206-FXS Port-Routing Group-#*
Where,
FXS Port is from 1 to 4.
Routing Group is from 1 to 4.
By default, Routing Group 4 is assigned to all the FXS ports.

Use following command to assign a routing group to all the FXS ports for Timezone 4:
206-*-Routing Group-#*

Step 5
Use following command to assign a routing group to a Mobile Port for Timezone 1:

207-Mobile Port-Routing Group-#*
Where,
Mobile Port is from 1 to 4.
Routing Group is from 1 to 4.
By default, Routing Group 1 is assigned to all the Mobile Ports.

Use following command to assign a routing group to all the mobile ports for Timezone 1:
207-*-Routing Group-#*

Use following command to assign a routing group to a mobile port for Timezone 2:
208-Mobile Port-Routing Group-#*
Where,
Mobile Port is from 1 to 4.
Routing Group is from 1 to 4.
By default, Routing Group 1 is assigned to all the Mobile Ports.

Use following command to assign a routing group to all the mobile ports for Timezone 2:
208-*-Routing Group-#*

Use following command to assign a routing group to a mobile port for Timezone 3:
209-Mobile Port-Routing Group-#*
Where,
Mobile Port is from 1 to 4.
Routing Group is from 1 to 4.
By default, Routing Group 1 is assigned to all the Mobile Ports.

Use following command to assign a routing group to all the mobile ports for Timezone 3:
209-*-Routing Group-#*

Use following command to assign a routing group to a mobile port for Timezone 4:
210-Mobile Port-Routing Group-#*
Where,
Mobile Port is from 1 to 4.

Routing Group is from 1 to 4.
By default, Routing Group 1 is assigned to all the Mobile Ports.

Use following command to assign a routing group to all mobile ports for Timezone 4:
210-*-Routing Group-#*

Example:
- To assign to FXS4, the routing group number 4 which has four ports FXS1, FXS2, Mobile 1 and Mobile 2 with member selection method as first free during time 09:00 to 10:00.

Solution:
331-3-1-0900-1000-#* (Program Timezones)
331-3-2-1001-1800-#*

332-4-3-#* (Assign time table 3 to FXS 4)

201-4-1-1-1-#* (Program routing group number 4)
201-4-2-1-2-#*
201-4-3-2-1-#*
201-4-4-2-2-#*

202-4-1-#* (Assign member selection method)

203-4-4-#* (Assign routing group 4 to FXS 4 in timezone 1)

Important Point:
- Because of “Auto Port Sensing” feature at the system, the ports which are not members of the routing group, get disabled automatically. For example, if 2 FXS ports are present in the Routing Group 01, then last 2 FXS ports get disabled and call is not routed on them. The disabled ports are indicated on LED’s.

Relevant Topics:
1. Routing Type 116
2. Fixed Dialing 72
3. Time Table 134

=X=X=

Routing Type

What's this?

- The SIMADO GFX44 provides facility to select option for routing a call, originating on a Source Port. This is called 'Routing Type'. The call originates on FXS port when it goes OFF-Hook but for mobile port, the call is originated when it receives an incoming call.
- The specific Routing Type can be assigned to FXS or Mobile port for a specific Time Zone. Please refer 'Time Table' for more information about time zone.
- Default Routing Type to Mobile Ports are assigned such that any call on mobile port will be directly placed on FXS port instead of answering the call by the system.

How it Works?

Based on user's requirement, routing scheme of the call can be different. For example, user may not like that the system should screen (deny) the number string he is dialing. Some user may prefer to land incoming call on a particular extension. SIMADO GFX44 has considered such applications. It supports following different four types of Call Routing:

- **Routing OFF:** Used in case, no call is to be allowed from the port.
- **Answer-Number Based Routing:** Used when routing group is to be assigned on the basis of number dialed.
- **Answer-Fixed Routing Type:** When calls originating on the source port are to be routed port wise but dialed-number string Table should not be referred.
- **Direct Routing:** Used if user wants to dial the number directly.

Routing OFF

If Routing Type is selected as 'OFF' and a call comes on Mobile port, then it is NOT answered. The FXS port user also does not get dial tone when it goes OFF-Hook. Thus no call is possible from that port.

Answer-Number Based Routing
The caller FXS port gets dial tone when he calls to a Mobile port of the gateway. The system checks the Allowed and Denied Lists when processing the number string. Then it checks the prefix number string and the specific routing group from the dialed-number string table, to decide the destination port. If the system does not allow a specific number string, then the user will get 'error tone' and call will get disconnected. If the source port is Mobile, then it cannot give error tone and gets disconnected. For case of emergency number, refer call flow diagram.

Answer-Fixed Routing
This option is used when the call is to be routed on a specific port. For example, if any call comes on Mobile port 1 and the routing group for this port consists of FXS3, FXS4 and other ports as Blank, then call will land on FXS3 first and phone connected to FXS3 rings. It is useful in a situation when some user wants to avoid the incoming call on his extension, which is coming frequently and if he wants that call to land on the concern person's extension. This can be done by selecting routing type as Answer-Fixed and setting member selection criteria as rotation (disable Fixed Dialing). If the extensions are not so busy, user can program the gateway with Answer-Fixed Routing Type and member selection method as 'First Free'. User has an option even for not getting a call to be landed on his extension by deleting his FXS port from the routing group assigned to the source port. The system checks Allowed and Denied Lists for processing the dialed-number string for this routing type. For emergency number, refer call flow diagram.

Direct Routing:
This is the simplest method of call routing. When this type is selected, call can be placed on the destination port very quickly. The system does not check Allowed and Denied Lists, ANT and dialed-number string table while dialing a number. For this type, if source port is FXS then call cannot be routed to destination port of a Mobile port as the network cannot process the call with blank string. Like wise different source port will route the call as per the destination port programmed by the routing group. For emergency number, refer call flow diagram. The processing by the system is

explained for the two options as below:

- The destination port is free.
- The destination port is busy.

The destination port is free:

These cases are explained for 'Source Port → Destination Port'.

a. FXS → Mobile : The call is dropped by GSM network because GSM network doesn't process the call with blank string.

b. FXS → FXS : The call is placed on called FXS port.

c. Mobile → FXS : The call is placed on called FXS port.

d. Mobile→Mobile: The call is dropped by GSM network because GSM network doesn't process the call with blank string.

The destination port is busy:

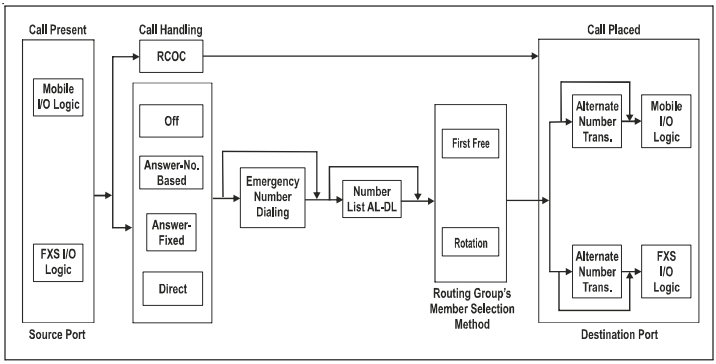
- If the destination port is busy and source port is FXS, then the system plays busy tone/message till the time of busy tone timer and then play the error tone, till error tone timer expires and finally gets disconnected when user goes ON-Hook.
- If in above case, the source port is Mobile, then the caller gets Ring Back Tone (RBT) of the GSM network.

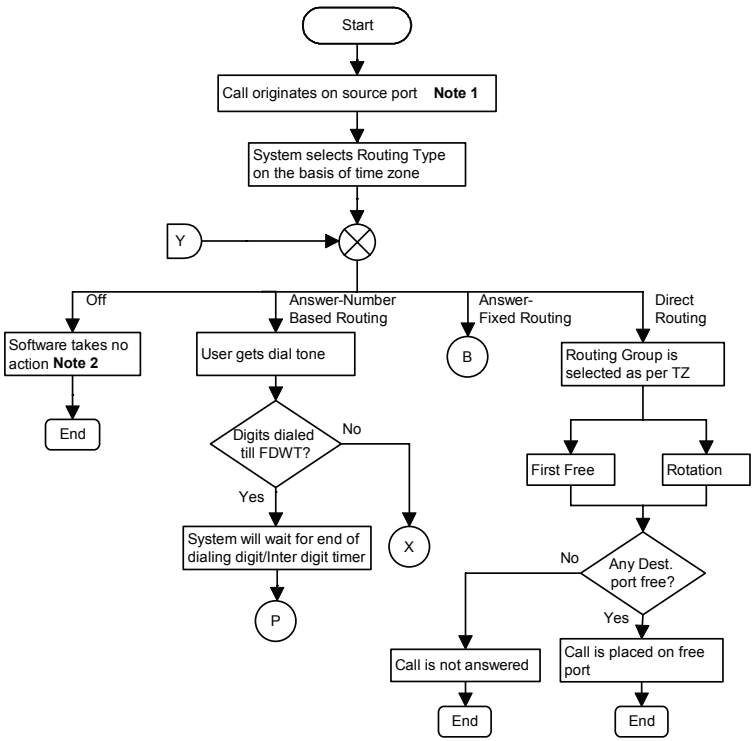
Note:

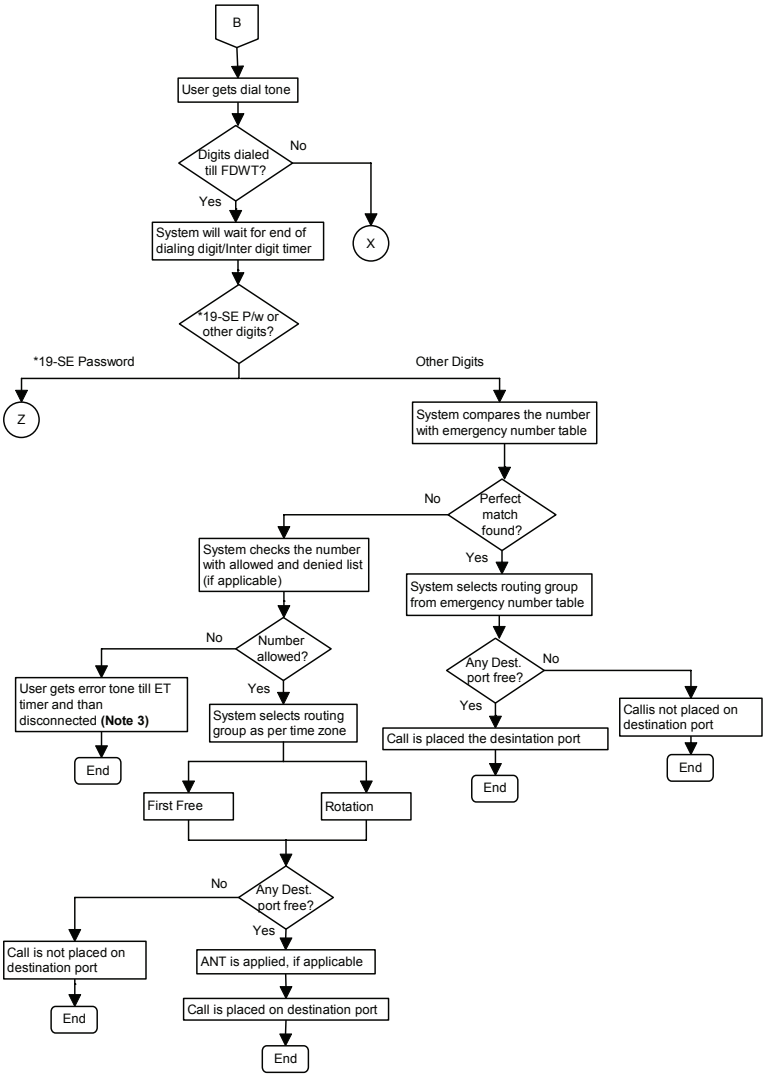
- Except, Routing Type is of 'Direct Routing', if the destination port after, routing the call is not free then the user gets busy tone followed by error tone till the respective timer expires and gets disconnected when goes ON-Hook in case the source port is FXS port. But, if the source port is Mobile port, user gets disconnected only after expiry of busy/error tone timer.

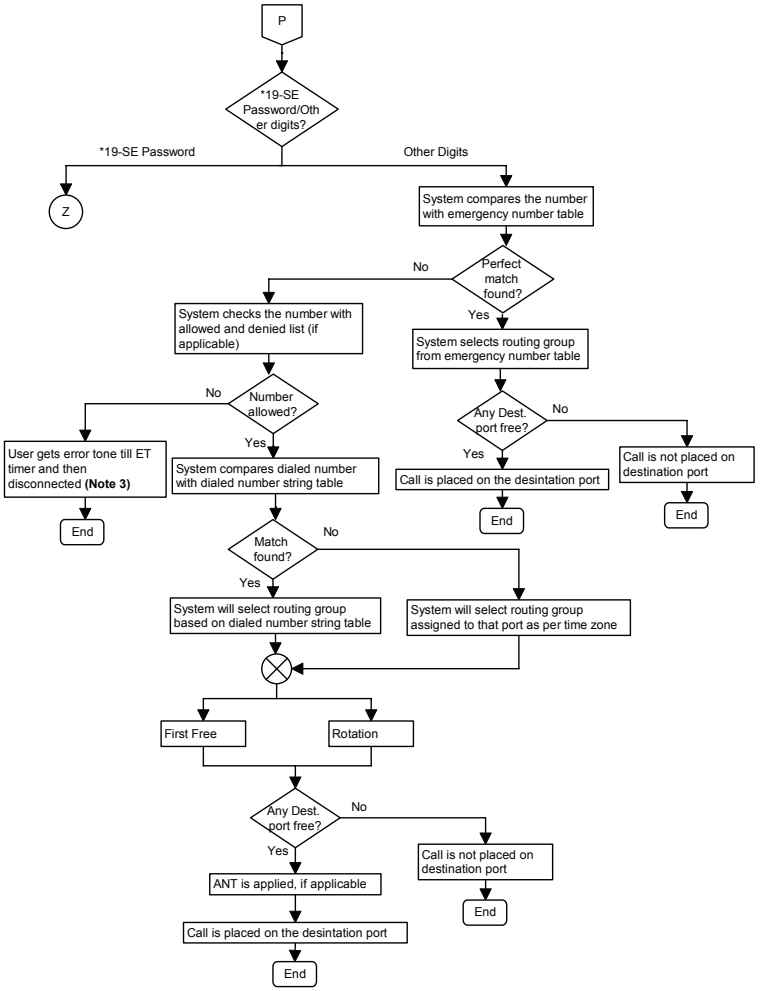
How it works?

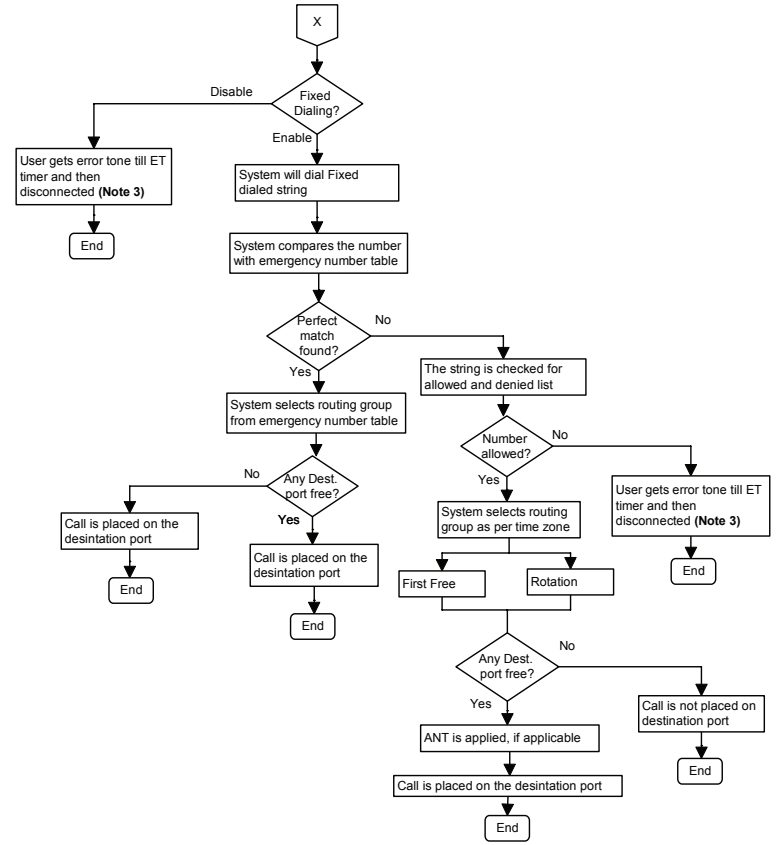
The call flow for GFX44 is explained below:

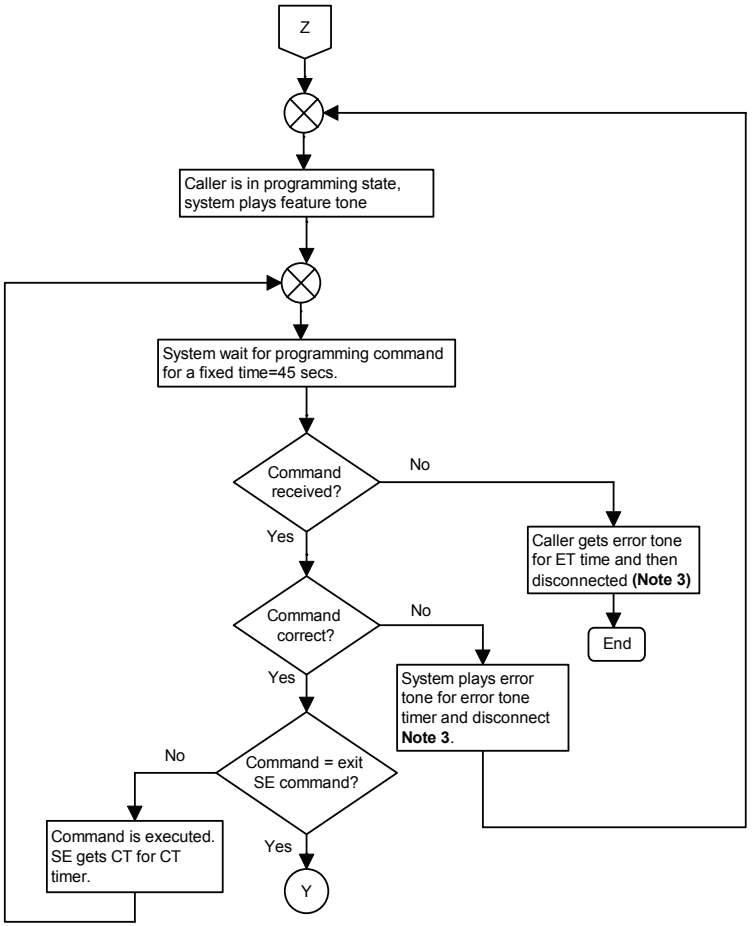

Call Present
Call Handling
Call Placed
RCOC
Mobile I/O Logic
FXS I/O Logic
Off
Answer-No. Based
Answer-Fixed
Direct
Emergency Number Dialing
Number List AL-DL
First Free
Rotation
Routing Group's Member Selection Method
Alternate Number Trans.
Mobile I/O Logic
Alternate Number Trans.
FXS I/O Logic
Source Port
Destination Port


Start
Call originates on source port Note 1
System selects Routing Type on the basis of time zone
Y
Off
Answer-Number Based Routing
Answer-Fixed Routing
Direct Routing
Software takes no action Note 2
End
User gets dial tone
Digits dialed till FDWT?
No
Yes
System will wait for end of dialing digit/Inter digit timer
P
X
B
Routing Group is selected as per TZ
First Free
Rotation
No
Any Dest. port free?
Yes
Call is not answered
End
Call is placed on free port
End


B
User gets dial tone
Digits dialed till FDWT?
No
Yes
System will wait for end of dialing digit/Inter digit timer
X
*19-SE P/w or other digits?
*19-SE Password
Other Digits
Z
System compares the number with emergency number table
No
Perfect match found?
Yes
System checks the number with allowed and denied list (if applicable)
System selects routing group from emergency number table
No
Number allowed?
Yes
Any Dest. port free?
No
Yes
User gets error tone till ET timer and than disconnected (Note 3)
System selects routing group as per time zone
Call is placed the desintation port
Callis not placed on destination port
End
End
End
First Free
Rotation
No
Any Dest. port free?
Yes
Call is not placed on destination port
ANT is applied, if applicable
End
Call is placed on destination port
End


P
*19-SE Password/Other digits?
*19-SE Password
Other Digits
Z
System compares the number with emergency number table
Perfect match found?
No
Yes
System checks the number with allowed and denied list (if applicable)
System selects routing group from emergency number table
Number allowed?
No
Yes
Any Dest. port free?
No
Yes
User gets error tone till ET timer and then disconnected (Note 3)
System compares dialed number with dialed number string table
Call is placed on the desintation port
Call is not placed on destination port
End
End
End
Match found?
No
Yes
System will select routing group based on dialed number string table
System will select routing group assigned to that port as per time zone
First Free
Rotation
Any Dest. port free?
No
Yes
Call is not placed on destination port
ANT is applied, if applicable
End
Call is placed on the desintation port
End


X
Fixed Dialing?
Disable
Enable
User gets error tone till ET timer and then disconnected (Note 3)
End
System will dial Fixed dialed string
System compares the number with emergency number table
Perfect match found?
No
Yes
System selects routing group from emergency number table
Any Dest. port free?
No
Yes
Call is placed on the desintation port
End
Call is placed on the desintation port
End
The string is checked for allowed and denied list
Number allowed?
No
Yes
User gets error tone till ET timer and then disconnected (Note 3)
End
System selects routing group as per time zone
First Free
Rotation
Any Dest. port free?
No
Yes
Call is not placed on destination port
End
ANT is applied, if applicable
Call is placed on the desintation port
End



Note 1:

- Call originates on FXS port when it goes OFF-Hook.
- Call originates on Mobile port when it receives an incoming ring, and checks for RCOC logic. For more details on this refer chapter RCOC.

Note 2:

- The call on Mobile port is rejected (caller shall get RBT of GSM network) whereas SLT user get error tone when it goes OFF-Hook.

Note 3:

- Mobile port gets disconnected on receiving disconnect message from the system.
- SLT port also gets disconnect message from system but ignores it as it cannot disconnect itself. In this case, SLT user gets error tone. The SLT port gets disconnected when SLT user disconnect (goes ON-Hook).

Note:

- CT = Confirmation Tone, ET = Error Tone, TZ = Time Zone, FDWT = First Digit Wait Timer and SE = System Engineer.

How to program?

Step 1: Program to assign routing type for time zone 1 to 4 to a FXS port using command ***181, 182, 183*** and ***184.***

Step 2: Program to assign routing type for time zone 1 to 4 to a mobile port using command ***185, 186, 187*** and ***188.***

Step 1

Use following command to assign routing type for time zone 1 to a FXS port:

181-FXS Port-Routing Type-#*

Where,

FXS Port is from 1 to 4.

Routing Type	Meaning
0	OFF
1	Answer-Number Based Routing
2	Answer-Fixed Routing
3	Direct Routing

By default, Routing Type to a FXS Port is 1.

Use following command to assign routing type for time zone 1 for all the FXS ports:
181-*-Routing Type-#*

Use following command to assign routing type for time zone 2 to a FXS port:
182-FXS Port-Routing Type-#*
Where,
FXS Port is from 1 to 4.

Routing Type	Meaning
0	OFF
1	Answer-Number Based Routing
2	Answer-Fixed Routing
3	Direct Routing

By default, Routing Type to a FXS Port is 1.

Use following command to assign routing type for time zone 2 for all the FXS ports:
182-*-Routing Type-#*

Use following command to assign routing type for time zone 3 to a FXS port:
183-FXS Port-Routing Type-#*
Where,
FXS Port is from 1 to 4.

Routing Type	Meaning
0	OFF
1	Answer-Number Based Routing
2	Answer-Fixed Routing
3	Direct Routing

By default, Routing Type to a FXS Port is 1.

Use following command to assign routing type for time zone 3 for all the FXS ports:
183-*-Routing Type-#*

Use following command to assign routing type for time zone 4 to a FXS port:

184-FXS Port-Routing Type-#*

Where,

FXS Port is from 1 to 4.

Routing Type	Meaning
0	OFF
1	Answer-Number Based Routing
2	Answer-Fixed Routing
3	Direct Routing

By default, Routing Type to a FXS Port is 3.

Use following command to assign routing type for time zone 4 for all the FXS ports:

184-*-Routing Type-#*

Step 2

Use following command to assign routing type for time zone 1 to a mobile port:

185-Mobile Port-Routing Type-#*

Where,

Mobile Port is from 1 to 4.

Routing Type	Meaning
0	OFF
1	Answer-Number Based Routing
2	Answer-Fixed Routing
3	Direct Routing

By default, Routing Type to a Mobile Port is 3.

Use following command to assign routing type for time zone 1 for all the mobile ports:

185-*-Routing Type-#*

Use following command to assign routing type for time zone 2 to a mobile port:

186-Mobile Port-Routing Type-#*
Where,
Mobile Port is from 1 to 4.

Routing Type	Meaning
0	OFF
1	Answer-Number Based Routing
2	Answer-Fixed Routing
3	Direct Routing

By default, Routing Type to a Mobile Port is 3.

Use following command to assign routing type for time zone 2 for all the mobile ports:
186-*-Routing Type-#*

Use following command to assign routing type for time zone 3 to a mobile port:
187-Mobile Port-Routing Type-#*
Where,
Mobile is from 1 to 4.

Routing Type	Meaning
0	OFF
1	Answer-Number Based Routing
2	Answer-Fixed Routing
3	Direct Routing

By default, Routing Type to a Mobile Port is 3.

Use following command to assign routing type for time zone 3 for all the mobile ports:
187-*-Routing Type-#*

Use following command to assign routing type for time zone 4 to a mobile port:
188-Mobile Port-Routing Type-#*
Where,

Mobile Port is from 1 to 4.

Routing Type	Meaning
0	OFF
1	Answer-Number Based Routing
2	Answer-Fixed Routing
3	Direct Routing

By default, Routing Type to a Mobile Port is 3.

Use following command to assign routing type for time zone 4 for all the mobile ports:
188-*-Routing Type-#*

Example:
To program FXS4 port for call routing type “Answer-Fixed Routing” in 09:00 to 10:00 and routing type “Answer-Number Based Routing” in 15:00 to 18:00 hours.
331-3-1-0900-1000-#* (Program time zone)
331-3-2-1001-0259-#*
331-3-3-1500-1800-#*
331-3-4-1801-0859-#*
332-4-3-#* (Assign time table 3 to FXS4)
181-4-2-#* (Assign routing type to FXS4 in timezone1)
183-4-1-#* (Assign routing type to FXS4 in timezone3)

Important Points:
- Call originates on FXS port when it goes OFF-Hook and on Mobile port, when it receives incoming call.
- Destination port is decided by the Routing Type, selected.

Relevant Topics:
1. Routing Group 110
2. Time Table 134

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Signal Strength

What's this?

- The SIMADO GFX44 gives the indication of signal strength available for communication on SLT. Thus the possibility of network availability can be found. This information is important when user is dialing a number/receiving a call.
- Signal strength will be displayed on SLT as '111111…..'
- Signal strength measured in dBm, normally ranges from -113dBm to -51dBm.

How to program?

Use following command to know the signal strength for Mobile Port on the display of SLT:

245-Mobile Port-#*

Where,

Mobile Port is from 1 to 4.

Relevant Topic:

1. Mobile Port Parameters 86

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SIM PIN

What's this?

Subscriber Identification Module (SIM) is a removable plastic card and contains an integrated IC chip with a microprocessor, RAM and ROM.

- The SIM is a smart card containing all subscriber specific data stored in it.
- A programmed (default) PIN (Personal Identification Number) is stored on the SIM.
- SIM PIN is a security feature used by the GSM network.
- If this feature is enabled, the Network asks the user to enter the SIM PIN at every power ON.
- If the SIM PIN entered matches with the one stored in the network then the network marks the user as present on the network else asks the user to enter the SIM PIN again.
- If the user enters wrong SIM PIN three times in a row, the network suspects the user and asks for the Personal Unlock Keyword (PUK).

How it works?

- This feature is disabled by the GSM service providers.
- Now when the SE installs the SIM card in the Gateway and powers it ON, the network does not ask for the SIM PIN since this feature is disabled.
- If the SE wishes to activate this feature, he should first enter the SIM PIN (using command to change the SIM PIN) for the Mobile Port for which this feature is activated and then issue the command to activate this feature. The SIM PIN is stored in the system as two variables: Current variable and Config variable. During normal condition, both numbers are same.
- Now onwards whenever the Gateway is powered ON, the network asks the Gateway to send the SIM PIN.
- If SE wants to change the SIM PIN, he should use the command for changing the SIM PIN and enter the 'New SIM PIN' only. This number is stored in the current SIM PIN variable of the system. The old SIM PIN number is already there with the system as config variable. Hence the user is not required to remember old

SIM PIN.
By default, SIM PIN is 1234.

- The Gateway sends the stored SIM PIN to the network and the network marks the user as present.
- Due to some reasons, if the Gateway sends wrong SIM PIN to the network, the network sends an error to the Gateway. This is displayed on the LED assigned for the Mobile Port.
- The LED assigned for the Mobile Port blinks during the Reset cycle as mentioned in Getting Started chapter.
- Due to this if the SE switches ON/OFF the Gateway three times; the network declares the user as a suspicious user and asks for the PUK.
- This is indicated by glowing of the corresponding LED in the reset cycle, as mentioned in Getting Started chapter.
- In such case, the SE is supposed to remove the SIM card from the Gateway, install it in a mobile device and send the PUK number to the network, change the SIM PIN, re-install the SIM card in the Gateway and follow the procedure explained above.

The following is the data structure for all mobile ports.

Data Structure:

Mobile Port	New SIM PIN
1	
2	
3	
4	

How to program?

Changing SIM PIN

This command is used to enter the SIM PIN for the first time also. In this case, the current SIM PIN is entered as New SIM PIN number as provided by the Service Provider.

Use following command to change the SIM PIN of a mobile port:

243-Mobile Port-New SIM PIN-#*

Where,

Mobile Port is from 1 to 4.

New SIM PIN is from 8 digits maximum.

SIM PIN Request

Use following command to enable/disable SIM PIN request at Power ON for a mobile port:

244-Mobile Port-SIM PIN Request at Power ON-#*

Where,

Mobile Port is from 1 to 4.

SIM PIN Request at Power ON	Meaning
0	Disable
1	Enable

By default, SIM PIN Request at Power ON is '0'.

Use following command to enable/disable SIM PIN request at Power ON for all the mobile ports:

244-*-SIM PIN Request at Power ON-#*

Important Points:

- By default the SIM PIN for all the Mobile ports is '1234' and this PIN number does not get default when the user gives the command to default the SIMADO GFX44 parameters. PIN values get default to 1234, only when the Version or Revision number of the software of the SIMADO GFX44 is changed.
- SIM PIN request flag and SIM PIN change parameters will not get defaulted by issuing default GFX44 command.
- It will get defaulted only by changing software version and revision.

Relevant Topics:

1. Getting Started 17
2. Mobile Port Parameters 86

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Software Version/Revision

What's this?

- Matrix updates its products for upgradation and better performance of some features. Hence the user may like to know the current software version installed in his gateway.
- This feature helps the user to know the version and the revision of the system without opening the system.
- It is very useful for System Engineer (SE), to decide about upgrading the software.

How it works?

User can know these details by two ways:

- Go to Main Menu, click on 'Download' or 'Fast Download'. The Software Version/Revision page will be opened. User can read the details of the software.
- The other way is to open the page 'SIMADO GFX44 Version Revision' from the Main Menu and then click on 'Display' to know the details of the software. For example, the display can be as **'V1R2'.**

Important Points:

- The information is in the form shown below:
  VxRy
  Where,
  Vx: Software Version Number.
  Ry: Software Revision Number.
- The system takes some time to 'reset' at power ON. Hence, if the SE tries to download the s/w version in this state, he may get version information as 'blank' or invalid data. Hence, the SE is requested to download the s/w version once the system is reset after power ON.

Relevant Topic:

1. Mobile Port Parameters 86

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Time Table

What's this?

- A user may prefer to initiate a call from particular phone port at a particular timezone during a day. He may need to receive his mobile call during morning hour on phone 1 and during afternoon hours on phone 2.
- These examples highlight the need for the system to behave differently depending on the time of the day. The SIMADO GFX44 offers a very flexible programming for different time zones. A day can be divided in, four timezones. Such a schedule of a day is called a Time Table. The gateway offers maximum of 4 time tables.

How it works?

- Different Routing Type and Routing Group can be selected for different time zones, which are defined by the time table, assigned to the port.
- Time table can be assigned to each FXS/Mobile port.
- When call originates on source port, time table assigned to source port is checked, to determine call routing option for the time zone.
- If call origination time doesn't match with any of the time zone, of the time table assigned to source port, call routing option programmed for timezone 1 is selected for call routing.

How to program?

Step 1: Program to assign time zones in the time table using command ***331.***

Step 2: Program to assign time table to FXS port using command ***332.***

Step 3: Program to assign time table to mobile port using command ***333.***

Step 1

Use following command to program time zones in the time table:

331-Time Table-Time Zone-Start Time-End Time-#*

Where,

Time Table is from 1 to 4.
Time Zone is from 1 to 4.
Start Time is in form of HH: MM.
End Time is in for of HH:MM.
HH is from 00 to 23.
MM is from 00 to 59.

Default Time Table is given below:

Time Table	Time Zone1				....	Time Zone4			
	Start Time		End Time			Start Time		End Time	
	Hr	Min	Hr	Min	....	Hr	Min	Hr	Min
1	00	00	23	59	....	00	00	23	59
2	00	00	23	59	....	00	00	23	59
3	00	00	23	59	....	00	00	23	59
4	00	00	23	59	....	00	00	23	59

Step 2

Use following command to assign time tables to the FXS port:
332-FXS Port-Time Table-#*
Where,
FXS Port is from 1 to 4.
Time Table is from 1 to 4.
By default, Time Table 1 is assigned to all the FXS ports.

Use following command to assign time tables to all the FXS ports:
332-*-Time Table-#*

Step 3

Use following command to assign time tables to the mobile port:
333-Mobile Port-Time Table-#*
Where,
Mobile Port is from 1 to 4.
Time Table is from 1 to 4.
By default, Time Table 1 is assigned to all the Mobile Ports.

Use the following command to assign time tables to all the mobile ports:
333-Time Table-#*

Example:
A user wants to dial a number from his phone port number 1. He wants that system should allow to dial only during 09:00 to 13:00AM and during remaining time, system should not allow to dial any digit (give error tone).

Solution:
331-2-1-0900-1300-#* (Time Table Number 2)
331-2-2-1301-0859-#* (Time Table Number 2)
332-1-2-#* (Assign Time Table 2 to FXS1)
181-1-1-#* (Routing Type: Answer-Number Based for TZ1)
182-1-0-#* (Routing Type: OFF for Timezone 2)

Relevant Topics:
1. Routing Type 116
2. Routing Group 110
3. Default the Configuration 62

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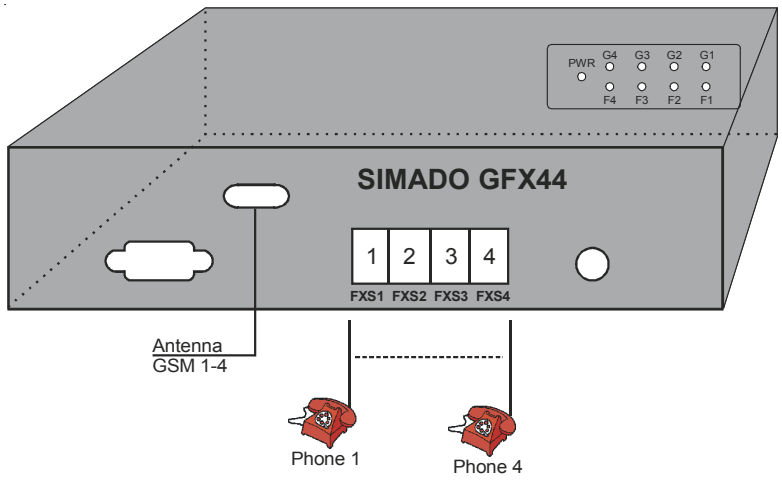
Section 3: Appendices

Appendix A: Applications

The SIMADO GFX44 can be deployed for different application to interface with PSTN network, GSM network or PBX.

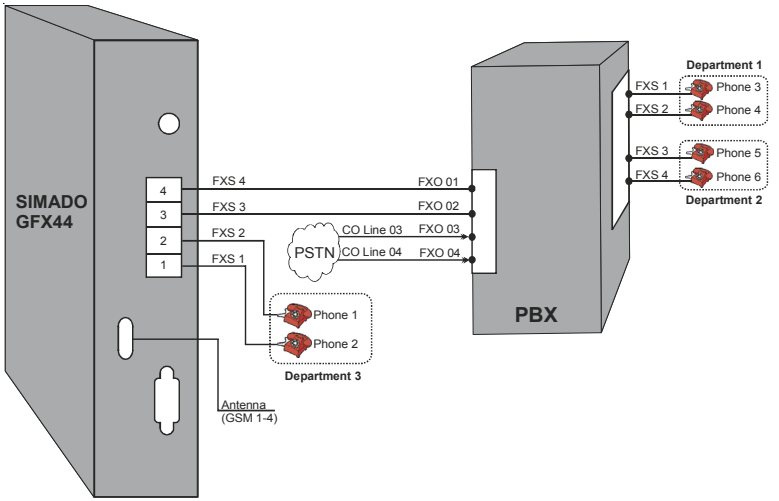
Various application are explained with following cases:
- Standalone with phones are connected and 4-SIM card inserted.
- Connecting PBX at FXS ports.

Application 1: SIMADO GFX44 Standalone



In this application stations are directly connected to the FXS ports of SIMADO GFX44.

Application 2: SIMADO GFX44 with PBX



- As shown in above figure, 3 departments of an enterprise are shown connected with the PBX and gateway. Department 1 can access the gateway for calling to GSM network.
- Department 2 can call to the CO-line of the PBX.
- Department 3 can call to GSM number directly from the gateway.

Important Point:

GFX22 Not supported:

- Please note that the system does not detect automatically the GSM port or FXS Port on the basis of number of GSM modules present and this can lead to continuous blinking of LED's when a Module is absent. Hence configuration of GFX22 is not directly supported at present.

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Appendix B: Technical Specifications

Configuration/Capacity:

	Application	**GFX44**
Maximum GSM Ports	GSM Network	4
Maximum FXS Ports	Analog Phone Connectivity	4
Antenna Port	Antenna Connection	1
COM Port-RS232C	Computer Connectivity	1

GSM Parameters:

GSM Band	Quad Band 850/900/1800/1900, programmable
Compliant	ETSI GSM Phase2 + Standard
SIM Card	One SIM per GSM Channel
RF Transmission Power	2W in case of 850/900MHz band 1W in case of 1800/1900MHz band
RF Sensitivity	Better than -106dBm

FXS (SLT) Port Parameters:

Connection	RJ11
Off Hook Line Impedance	600Ω
Loop Limit	1200Ω Max. (Excluding Telephone Set)
Loop Feed	39mA (Max.)
Ringing Voltage	55Vrms @ 25Hz, 3 REN
Pulse Dialing	10pps and 20pps @ 1:2, 2:3 and 1:1
DTMF Dialing and Reception	ITU-T Q.23 and Q.24
CLIP	DTMF, FSK ITU-T V.23 and FSK Bellcore 202
Flash Timer	83-999msec. (Programmable)
Answer Signaling on FXS	None, Polarity (Battery) Reversal
Disconnect Signaling on FXS	None, Polarity (Battery) Reversal, Open Loop Disconnect

Mains Power Supply : SMPS 90-265VAC, 47-63Hz

Power Consumption : 8W (Typical)

Antenna Parameters:

Type of antenna : Dipole/Whip Fixed/Omni Directional Antenna, Roof-Top antenna with flexible cable of 3mtrs. is optional

Antenna Gain : 2.5dBi

Antenna Connector : SMA(Female), 50 Ohms Impedance

Interface:

Communication Port : DB9 Connector (Male) (RS-232C)

LED Indication:

Number of LEDs : 9 (4 GSM, 4 FXS, 1 Power)

Power Supply Status : Power ON

Network Status : Present, Absent, SIM PIN Faulty, PUK Required

GSM Module Status : Module Fail

Environmental:

Operating Temperature : -10°C to +50°C (14°F to 122°F)

Store Temperature : -40°C to +85°C (40°F to 185°F)

Operating Humidity : 5-95% RH, Non-Condensing

Storage Humidity : Max. 95% Non Condensing at 40°C (104°C)

Packaging:

Dimensions (WxHxD)	155 x 220 x 50 mm (6.10" x 8.66" x 1.97")
Unit Weight	1.00Kg (2.20lbs) Approx.
Installation	Wall Mountable, Desk-Top

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Appendix C: System Commands

Allowed and Denied Lists

To assign an allowed no. list to a FXS Port	***111-FXS Port-Number List-#****
To ass. an allowed no. list to all FXS Ports	***111-*-Number List-#****
To assign a denied no. list to a FXS Port	***112-FXS Port-Number List-#****
To ass. a denied no. list to all FXS Ports	***112-*-Number List-#****
To ass. an allowed no. list to Mobile Port	***113-Mobile Port-Number List-#****
To ass. an allowed no. list to all Mobiles	***113-*-Number List-#****
To assign a denied no. list to Mobile Port	***114-Mobile Port-Number List-#****
To ass. a denied no. list to all Mobiles	***114-*-Number List-#****
To ena/dis allowed/denied logic on FXS	***115-FXS Port-Code-#****
To ena/dis alwd/denied logic on all FXSs	***115-*-Code-#****
To ena/dis alwd/denied logic on Mobile	***116-Mobile Port-Code-#****
To ena/dis alwed/denied logic on all Mobs.	***116-*-Code-#****

Answer Signaling on FXS Port

Prg. signal to be gen. as ans. sig. on FXS	***261-FXS Port-Answer Signal-#****
Prg. signal to be gen. as ans. sig. all FXS	***261-*-Answer Signal-#****

Answer-Number Based Routing

To program the prefix table	***151-Index-Prefix No. String-#****
To clear dialed no. string at an index	***151-Index-#****
To clear the dialed no. prefix table	***151-*-#****
To program RG for dialed no. string table	***152-Index-Routing Group-#****
To default entire dialed no. string table	***160-#****

Automatic Number Translation

To assign a dialed no. list to a FXS port	***121-FXS Port-Number List-#****
To assign a dialed no. list to all FXS ports	***121-*-Number List-#****
To assign a substitute no. list to FXS port	***122-FXS Port-Number List-#****
To ass. substitute no. list to all FXS ports	***122-*-Number List-#****
To assign a dialed no. list to a Mobile port	***123-Mobile Port-Number List-#****
To ass. a dialed no. list to all Mobile ports	***123-*-Number List-#****
To ass. a substitute no. list to Mobile	***124-Mobile Port-Number List-#****
To ass.substitute no.list to all Mobiles	***124-*-Number List-#****
To ena/dis ANT logic on FXS Port	***125-FXS Port-Code-#****
To ena/dis ANT logic on all FXS Ports	***125-*-Code-#****
To ena/dis ANT logic on Mobile Port	***126-Mobile Port-Code-#****
To ena/dis ANT logic on all Mobile Ports	***126-*-Code-#****

Call Detail Recording (CDR)

To start/Stop the CDR Report	***131-Code-#****
To print all calls to terminated on FXS	***132-FXS Port-FXS Port-#****
To ena/dis the filter for calls ter. on FXS	***141-Code-#****
To print all calls to terminated on Mobile	***133-Mobile Port-Mobile Port-#****
To ena/dis the filter for calls ter. on Mobile	***142-Code-#****
To print all calls to originated on FXS	***134-FXS Port-FXS Port-#****

To ena/dis the filter for calls org. on FXS	***143-Code-#****
To print all calls to originated on Mobile	***135-Mobile Port-Mobile Port-#****
To ena/dis the filter for calls org.on Mobile	***144-Code-#****
To print all calls from-to-date	***136-DD-MM-YYYY-DD-MM-YYYY-#****
To print all calls between all calls	***137-HH-MM-HH-MM-#****
To print all calls called party number	***138-Number List-#****
To print all calls calling party number	***139-Number List-#****
To print all calls with call duration	***140-Seconds-#****
To set default filters	***149-#****
To clear CDR buffer	***150-Resverse SE Password-#****

Call Proceeding Tone

To set call proceeding tone for Mobile	***277-CPT Type-#****

Call Progress Tone Generation (CPTG)

To program a CPTG for a country	**281-Code-#***

CLIP Type on FXS Port

To program CLIP type for FXS port	***161-FXS Port-CLIP Type-#****
To program CLIP type for all FXS ports	***161-*-CLIP Type-#****

Communication Port

To assign a process to a COM port	***310-Code-#****
To start and stop the system debug	***309-Code-#****

Daylight Saving Time (DST)

To select DST forward type	***321-DST Type-#****
To set time for W-D-M for DST fwd. type	***322-Week-Day-Mon-HH-MM-HH-MM-#****
To set time for Date-Mon for DST fwd.type	***323-Date-Month-HH-MM-HH-MM-#****
To select DST backward type	***324-DST Type-#****
To set time for W-D-M for DST bkd. type	***325-Week-Day-Mon-HH-MM-HH-MM-#****
To set time for Date-Mon for DST bkd.type	***326-Date-Month-HH-MM-HH-MM-#****

Default the Configuration

To set default all the parameters	***292-Reverse SE Password-#****

Disconnect Signaling on FXS Port

Prg. disc. sig. to gen. on FXS on IC/OG	***256-FXS Port-Disconnect Signal-#****
Prg. disc. sig. to gen. all FXS on IC/OG	***256-*-Disconnect Signal-#****
Prg. open loop disconnect timer on FXS	***257-FXS Port-Open Loop Dis. Timer-#****
Prg. open loop disconnect timer all FXS	***257-*-Open Loop Disconnect Timer-#****

Emergency Number Dialing

To program the emergency no. in table	***233-Index-Emeregency Number-#****
To clear the emergency no. at an index	***233-Index-#****
To assign routing group for an index	***234-Index-Routing Group-#****

Fixed Dialing

To ena./dis. fixed dialing on a FXS port	***171-FXS Port-Code-#****

To ena./dis. fixed dialing on all FXS ports	***171-*-Code-#****
To program fixed destination no. for FXS	***172-FXS Port-Number String-#****
To prg. fixed destination no. for all FXSs	***172-*-Number String-#****
To ena./dis. fixed dialing on a Mobile port	***175-Mobile Port-Code-#****
To ena./dis. fixed dialing on all Mobile	***175-*-Code-#****
To program fixed dest. no. for Mobile	***176-Mobile Port-Number String-#****
To program fixed dest. no. for all Mobile	***176-*-Number String-#****

FXS Port Parameters

To enable/disable a FXS port	***251-FXS Port-Code-#****
To enable/disable all the FXS ports	***251-*-Code-#****
To select a ring type for a country to FXS	***252-Code-#****
To set Inter Digit Wait Timer for FXS	***253-FXS Port-Inter Digit Wait Timer-#****
To set Inter Digit Wait Timer for all FXS	***253-*-Inter Digit Wait Timer-#****
To set Flash Timer for FXS port	***254-FXS Port-Flash Timer-#****
To set Flash Timer for all FXS ports	***254-*-Flash Timer-#****
To set First Digit Wait Timer for FXS port	***255-FXS Port-First Digit Wait Timer-#****
To set First Digit Wait Timer for all FXSs	***255-*-First Digit Wait Timer-#****
To set Tx Gain on FXS port	***258-FXS Port-Code-#****
To set Tx Gain on all the FXS ports	***258-*-Code-#****
To set Rx Gain on FXS port	***259-FXS Port-Code-#****
To set Rx Gain on all the FXS ports	***259-*-Code-#****
To program AC Impedance on FXS port	***260-FXS Port-Code-#****
To program AC Impedance on all FXSs	***260-*-Code-#****

International Mobile Equipment Identity

To read IMEI number of mobile port	***By Jeeves***

Mobile Port Parameters

To enable/disable a Mobile port	***271-Mobile Port-Code-#****
To enable/disable all Mobile ports	***271-*-Code-#****
To program a receive gain of Mobile	***272-Mobile Port-Receive Gain-#****
To program a receive gain of all Mobiles	***272-*-Receive Gain-#****
To program a transmit gain of Mobile	***273-Mobile Port-Transmit Gain-#****
To program a transmit gain of all Mobiles	***273-*-Transmit Gain-#****
To set Inter Digit Wait Timer for Mobile	***274-Mobile Port-IDWT-#****
To set IDWT for all Mobiles	***274-*-Inter Digit Wait Timer-#****
To set First Digit Wait Timer for Mobile	***276-Mobile Port-FDWT-#****
To set FDWT for all Mobiles	***276-*-First Digit Wait Timer-#****
To set mobile frequency band for mobile	***278-Mobile-Mobile Freq. Band-#****
To set mobile freq. band for all mobiles	***278-*-Mobile Frequency Band-#****

Network Selection

To program n/w selection mode for Mobile	***231-Mobile Port-Mode-#****
To program n/w sele. mode for all Mobiles	***231-*-Mode-#****
To program n/w operator no. with priority	***232-Mobile Port-Priority-Code-#****
To clear network operator number	***232-Mobile Port-Priority-#****
To read network operator code for mobile	***By Jeeves***

Number Lists

To program a number string in a location	***101-No. List-loc. Index-No. String-#****
To clear a location in the number list	***101-No. List-Location Index-#****
To clear all the location in the number list	***102-Number List-#****

Programming the System

To change the SE password	***293-New SE Password-#****

Real Time Clock (RTC)

To program the current date	***296-DD-MM-YYYY-#****
To program current time	***297-HH-MM-SS-#****
To program the day of the gateway	***298-Day-#****

Restart the System

To restart the system	***291-#****

Returned Calls to Original Callers (RCOC)

To program record delete Timer	***221-Record Delete Timer-#****
To ena/dis RCOC for busy destination	***222-Mobile Port-Code-#****
To ena/dis RCOC for busy dest. all mobiles	***222-*-Code-#****
To ena/dis RCOC for no response dest.	***223-Mobile Port-Code-#****
To ene/dis RCOC for no res. on all mobiles	***223-*-Code-#****
To ena/dis RCOC when speech with dest.	***224-Mobile Port-Code-#****
Ena/dis RCOC when spc. on all mobiles	***224-*-Code-#****
To clear RCOC table entries	***225-#****

Routing Group

To program a routing group	***201-RG-Index-Port Type-Port No.-#****
To program member selection method	***202-RG-Member Selection Method-#****
To assign a RG to a FXS port for TZ1	***203-FXS Port-Routing Group-#****
To assign a RG to all FXS ports for TZ1	***203-*-Routing Group-#****
To assign a RG to a FXS port for TZ2	***204-FXS Port-Routing Group-#****
To assign a RG to all FXS ports for TZ2	***204-*-Routing Group-#****
To assign a RG to a FXS port for TZ3	***205-FXS Port-Routing Group-#****
To assign a RG to all FXS ports for TZ3	***205-*-Routing Group-#****
To assign a RG to a FXS port for TZ4	***206-FXS Port-Routing Group-#****
To assign a RG to all FXS ports for TZ4	***206-*-Routing Group-#****
To assign a RG to a Mobile port for TZ1	***207-Mobile Port-Routing Group-#****
To assign a RG to all Mobile ports for TZ1	***207-*-Routing Group-#****
To assign a RG to a Mobile port for TZ2	***208-Mobile Port-Routing Group-#****
To assign a RG to all Mobile ports for TZ2	***208-*-Routing Group-#****
To assign a RG to a Mobile port for TZ3	***209-Mobile Port-Routing Group-#****
To assign a RG to all Mobile ports for TZ3	***209-*-Routing Group-#****
To assign a RG to a Mobile port for TZ4	***210-Mobile Port-Routing Group-#****
To assign a RG to all Mobile ports for TZ4	***210-*-Routing Group-#****

Routing Type

To assign routing type for TZ1 for FXS	***181-FXS Port-Routing Type-#****

To assign routing type for TZ1 for all FXSs ***181-*-Routing Type-#****
To assign routing type for TZ2 for FXS ***182-FXS Port-Routing Type-#****
To assign routing type for TZ2 for all FXSs ***182-*-Routing Type-#****
To assign routing type for TZ3 for FXS ***183-FXS Port-Routing Type-#****
To assign routing type for TZ3 for all FXSs ***183-*-Routing Type-#****
To assign routing type for TZ4 for FXS ***184-FXS Port-Routing Type-#****
To assign routing type for TZ4 for all FXSs ***184-*-Routing Type-#****
To assign routing type for TZ1 for Mobile ***185-Mobile Port-Routing Type-#****
To ass. routing type for TZ1 for all Mobiles ***185-*-Routing Type-#****
To assign routing type for TZ2 for Mobile ***186-Mobile Port-Routing Type-#****
To ass. routing type for TZ2 for all Mobiles ***186-*-Routing Type-#****
To assign routing type for TZ3 for Mobile ***187-Mobile Port-Routing Type-#****
To ass. routing type for TZ3 for all Mobiles ***187-*-Routing Type-#****
To assign routing type for TZ4 for Mobile ***188-Mobile Port-Routing Type-#****
To ass. routing type for TZ4 for all Mobiles ***188-*-Routing Type-#****

Signal Strength
To know the signal strength of Mobile port ***245-Mobile Port-#****

SIM PIN
To change a SIM PIN of Mobile port ***243-Mobile Port-New SIM PIN-#****
To ena/dis SIM PIN request for Mobile ***244-Mobile Port-SIM PIN Request-#****
To ena/dis SIM PIN request for all Mobiles ***244-*-SIM PIN Request-#****

Software Version/Revision
To read software version/revision ***By Jeeves***

Time Table
To program time zone in time table ***331-Time Table-TZ-S.Time-E.Time-#****
To assign time table to FXS port ***332-FXS Port-Time Table-#****
To assign time table to all FXS ports ***332-*-Time Table-#****
To assign time table to Mobile port ***333-Mobile Port-Time Table-#****
To assign time table to all Mobile ports ***333-*-Time Table-#****

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Appendix D: Regulatory Information

DECLARATION OF CONFORMITY
EC Directives

CE

We, Matrix Telecom Private Limited, hereby declare that the product listed below, to which this Declaration of Conformity relates, is in the conformity with Directives, Standards and other Normative Documents as listed.

- 1995/5/EC, Radio Equipment and Telecommunications Terminal Equipment Directive (R&TTE)
- 73/23/EEC, Low Voltage Directive (LVD)
- 89/336/EEC, Electromagnetic Compatibility Directive (EMC)

Type of Product	: GSM Gateway
Product Name	: Simado GFX44
Model Number	: M 165
Intended Use	: External Communication

1. **STANDARDS:**

EMI/EMC	: CISPR22	IEC 61000-3-2	IEC 61000-3-3
	IEC 61000-4-2	IEC 61000-4-3	IEC 61000-4-4
	IEC 61000-4-5	IEC 61000-4-6	IEC 61000-4-8
	IEC 61000-4-11		
LVD, Safety	: IEC 60950 3rd Edition (1999)		

2. **NORMATIVE DOCUMENTS AND REFERENCES:**
   Test reports are available at Matrix Telecom Private Limited, 394, GIDC, Makarpura, Vadodara -390 010, India

User Information:
User information on intended use, interface compatibility, system facilities and features are laid down in the following documentation

- Simado GFX44 System Manual

Date : 20th July 2007
Place : Vadodara, India

MATRIX TELECOM PVT. LTD. VADODARA

Ganesh Jivani
(Director)
Matrix Telecom Private Limited, Vadodara

Declaration of Conformity
(RoHS Declaration)

We, Matrix Telecom Private Limited hereby declare that the product listed below, to which this Declaration of Conformity relates, is in the conformity with the requirement of the following European Union Directive for RoHS compliance:

Document No.	Title	Edition/Date of Issue
EN 2002/95/EC	Restriction of Hazardous Substances	27 January 2003

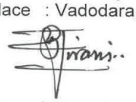
Type of Equipment : GSM Gateway
Equipment Name : Simado
Equipment Models : GFX44

Manufacturer's Name : Matrix Telecom Private Limited
Address : 39 – GIDC
Waghodia – 391 760
Dist: Vadodara, India

Additional Information:

The text of EU Directive 2002/95/EC may be found at the following website:
http://europa.eu.int/eur-lex/pri/en/oj/dat/2003/l_037/l_03720030213en00190023.pdf

Date : 15th May 2007
Place : Vadodara, India



Ganesh Jivani
(Director)
Matrix Telecom Private Limited

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Notes

Notes

Programming Register

S.N.	Date	Major Programming Changes made

Register of Changes

Programming Register

S.N.	Date	Major Programming Changes made

Register of Changes