

SETU VGFX Quick Start



SETU VGFX

VoIP-GSM-FXS-FXO Gateway

Quick Start



Introduction

Thank you for choosing Matrix SETU VGFX! Please read the instruction in this quick start to install this feature reached system.

This Quick Start is meant to help you to install the basic features and parameters of VGFX. For detailed information on installing and configuring SETU VGFX, please refer 'SETU VGFX V1 System Manual' provided to you on the CD-ROM.

Know your SETU VGFX

SETU VGFX has 1 WAN Port, 2 FXO Ports, 2 FXS Ports, 4 Mobile Ports, 9 SIP Trunks, Antenna Connector, a Power Socket and 10 LEDs.



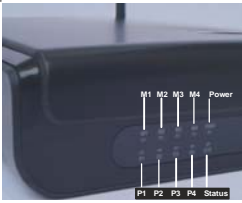
SETU VGFX is available in three different configurations:

1. **SETU VGFX8422:** supports 4 Mobile Ports, 2 FXO Ports and 2 FXS Ports. This is the default configuration of SETU VGFX.
2. **SETU VGFX8404:** supports 4 Mobile Ports and 4 FXS Ports.
3. **SETU VGFX8440:** supports 4 Mobile Ports and 4 FXO Ports.

This Quick Start is written with reference to the default configuration. The term SETU VGFX refers to SETU VGFX8422, unless otherwise specified.

LEDs:

There are total 10 LEDs in VGFX. These LEDs are labeled as M1, M2, M3, M4, P1, P2, P3, P4, STS and PWR as shown in the figure below. These LEDs indicate the status of ports, various events occurring on the ports and also the error conditions.



All LEDs are of dual colour (Red/Green) except Power LED which is of single colour (Red). Power (PWR) and Status (STS) LEDs are non-programmable whereas all port LEDs are programmable.

By default, LEDs labeled as M1, M2, M3 and M4 show status of Mobile Ports. LEDs labeled as P1 and P2 show status of FXO Ports and P3 and P4 show status of FXS Ports.

i Port LEDs can be programmed for showing the status of SIP Trunks also. You can program LEDs for showing status of maximum 8 SIP Trunks simultaneously. (Refer "Step 10" for more details)

Before You Start

Verify Package Contents



SETU VGFX with Antenna
(Rubber ducky SMA)



Adaptor 12VDC, 2A
(Country Specific)



Quick Start and User Card



CD containing System Manual,
Quick Start and User Card



Ethernet Cable (RJ45)

- Two Screws M 7/30 with Grips
- External Antenna SMA with cable
- A Mounting Template
- A Warranty Card Set

Make sure that all the above mentioned components are present when you open the Sales Kit of SETU VGFX. In case any of the part is missing or damaged, contact the source from where you have purchased your VGFX.

Get your Internet Connection ready:

To install VGFX, you must have:

1. Broadband Internet connection from an ISP to make and receive calls through public internet. If you want to make calls within your network, you do not need an internet connection.
2. Connection from an Internet Telephony Service Provider (ITSP) to activate your SIP Trunks. You do not need an ITSP connection for making Peer to Peer calls.

Get your Network Information ready:

Ask your LAN Administrator/ISP for:

1. IP Address
2. Subnet Mask
3. Gateway Address
4. DNS Address
5. DNS Domain Name

Ask your ITSP for:

1. SIP ID/User ID
2. Authentication User ID (in most cases it is same as SIP ID)
3. Authentication Password
4. Registrar Server Address
5. Registrar Server Port
6. Outbound Proxy Server Address
7. Outbound Proxy Server Port

To install VGFX, you should also have:

1. An active SIM card/s from GSM service provider.
2. Analog trunk line from Public Switched Telephone Network (PSTN).

Installing SETU VGFX

Take proper precautions while installing VGFX to reduce the risk of fire, electric shock and injury to the system as well as the person using it. (Refer Installation Precautions and Safety Instructions under 'Protecting SETU VGFX' topic in the System Manual)

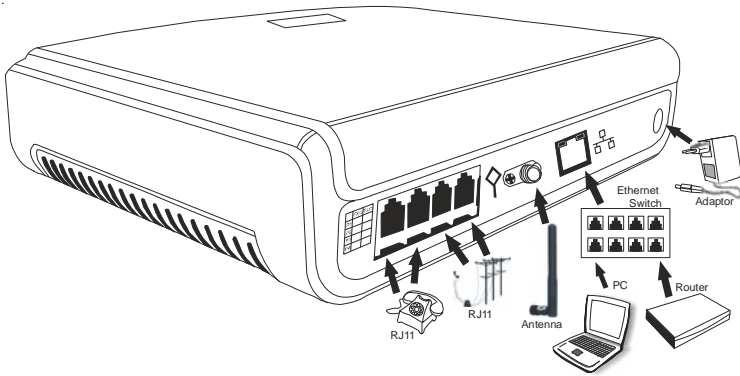
Mounting SETU VGFX on wall:

SETU VGFX should be installed at the airy, dust free and moisture free place.

- Select a suitable place on the wall for mounting SETU VGFX.
- Put the mounting template on the wall and mark the nail hole on the wall.
- Drill a hole of appropriate size.
- Insert the screw and tighten it leaving the screw head a few millimeters protruded of the wall.
- Check the strength of the nail.
- Hang VGFX on the wall.

Connecting SETU VGFX

Connect SETU VGFX as shown below:



- Place SETU VGFX at a suitable place where it can be provided with proper power supply.
- Connect Ethernet (WAN) Port of SETU VGFX to the LAN Switch/Network of the Enterprise.
- Connect PSTN line to the FXO Port of SETU VGFX or connect FXO Ports of SETU VGFX to the FXS Ports of the PBX.
- Connect telephone instruments to the FXS Ports of SETU VGFX or connect FXS Ports of SETU VGFX to the FXO Ports of the PBX.
- Connect Antenna to SETU VGFX.
- Insert SIM Card into the Mobile Port of SETU VGFX for the mobile network.

If SIM protection is enabled in the SIM Card, ensure that SIM PIN of the SIM Card and VGFX is same. By default, SIM PIN of all the Mobile Ports of the VGFX is 1234. To change SIM PIN of the SIM Card, SE is recommended to take following steps:

- Switch Off VGFX.
- Remove SIM Card and insert the same in the mobile instrument.
- Enable 'SIM PIN at Power ON' parameter in the SIM Card. (This step is not required if SIM protection is already ON)
- Change the SIM PIN of the SIM Card to 1234 i.e. the default SIM PIN of VGFX.
- Remove SIM Card from the mobile instrument and insert it in VGFX.
- Change the SIM PIN after VGFX attains normal working position.
- Connect Power Socket of SETU VGFX to the power supply using 12V DC, 2A power adaptor.

Switching ON SETU VGFX

After connecting SETU VGFX as shown above, switch ON the power supply. At Power ON, Power LED will turn ON (Continuous Red). Initialization process will start and LED sequence of all other LEDs during initialization process is shown in the table given below:

System Status	STS	P1	P2	P3	P4	M1	M2	M3	M4	Time in MS
Power ON - UBOOT	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
Kernel UP & LED Driver Loaded	OFF	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	
Application Load	OFF	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	200ms
VOPP Program Download Success	OFF	ON	ON	ON	ON	OFF	OFF	OFF	OFF	200ms
All Init Done, System goes Live	ON	ON	ON	ON	ON	ON	ON	ON	ON	1000 ms
	ON	ON	ON	ON	ON	ON	ON	ON	ON	1000 ms
	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	1000 ms
	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	1000 ms
	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	1000 ms
										(Continuous Last 2 steps)

i Red color text (**Bold**) indicates that led will glow red and Green color text (**Bold+Italic**) indicates that led will glow green.

Mobile Port LEDs (M1, M2, M3 and M4) will display following error/event/status during initialization:

Event/State/Status	Color	Cadence (in ms) (1 cadence is of 4000ms)
GSM Initialization	Red	500ms On- 500ms Off – 500ms On-500ms Off- 500msOn-500ms Off- 500ms On- 500ms Off (4 Blinks)
PUK required	Red	500ms On- 500ms Off – 500ms On-500ms Off- 500msOn-1500ms Off (3 Blinks)
SIM PIN faulty	Red	500ms On- 500ms Off – 500ms On-2500ms Off (2 Blinks)
SIM Absent	Red	500ms On- 3500ms Off (1 Blinks)
GSM network absent	Red	1sec On – 1sec Off

System LED (STS) will display the following error/events/status:

System Status	LED Status	Comment
VoPP Program Down Load Fail.	Red On Continuously	VoPP Program download fail
Gateway started successfully and NW_Up_SIP_Up_CDR_OK	GREEN Blink 1sec On-1sec Off	Gateway Started Successfully. Network link is Up. SIP stack is Up CDR buffer is not full
NW_Down_SIP_down_CDR_OK	Green Blink 500 ms on-500ms off-500 ms on-500ms off-500 ms on-500ms off	Network link is down. SIP stack is down CDR buffer is not full
NW_Up_SIP_down_CDR_OK	Green Blink 500 ms on-500ms off-500 ms on-500ms off- 500 ms on-1500ms off	Network link is Up. SIP stack is down CDR buffer is not full
NW_Down_SIP_down_CDR_Full	Red Blink 500 ms on-500ms off-500 ms on-500ms off-500 ms on-500ms off- 500 ms on-500ms off	Network link is down. SIP stack is down CDR buffer is full

NW_Up_SIP_down_CDR_Full	Red Blink 1sec On-1sec Off	Network link is up. SIP stack is up CDR buffer is full
NW_Up_SIP_Up_CDR_Full	Red Blink 500 ms on-500ms off-500 ms on-500ms off- 500 ms on-1500ms off	Network link is up. SIP stack is up CDR buffer is full

FXS/FXO/Mobile Port LED status during normal functioning is as shown below:

Event/State/Status	Color	Cadence (1 cadence is of 4000ms)			
		ON	OFF	ON	OFF
Port Idle/Disable	-	OFF			
Incoming Ring Event	Red	400	200	400	3000
Off-Hook Event	Red	Continuous			
Speech	Green	Continuous			

i LED of FXS Port, that is used to enter the programming mode, will glow continuous GREEN while the system is in programming mode. Once the command to exit programming mode is issued, the LED will turn continuous

RED i.e. will display the Off-Hook Event.

You can also program Port LEDs for showing the status of SIP Trunks. For example, if you are using only two mobile ports and other two mobile ports are disabled then you can program these LEDs for showing the status of SIP Trunks. (Refer Step 13: 'Checking the Status' for more details)

If LED is programmed for SIP Trunk, it will display following error/event/status:

Event/State/Status	Color	Cadence (1 cadence is of 5000msec)			
		ON	OFF	ON	OFF
SIP Disable	-	OFF			
SIP Registered	Green	Continuous			
SIP Registration Failed	Red	Continuous			
SIP Authentication Failed	Red	200	200	200	3400

i When all LEDs are programmed for SIP Trunks then no LED indication would be displayed for FXS/FXO and Mobile Port.

Accessing Web Jeeves:

Programming of SETU VGFX can be done using Web JEEVES only. It does not support programming of VGFX using telephone instrument except few Network Port Parameters. To access Web JEEVES, Network Port Parameters should be programmed first using conventional phone. Follow the steps shown below: Accessing web jeeves is a very important step in programming VGFX. To access web jeeves, Network Port Parameters should be programmed first using conventional phone.

1. Pick up handset of analog phone connected to SETU VGFX.
2. Dial the programming access code **#19** followed **by default password 1234**. You will get programming tone.
3. To access Web JEEVES using computer/computers in LAN to which VGFX is connected, change IP address and Subnet Mask of SETU VGFX to bring VGFX and computer/computers in LAN in the same subnet. Ensure that their IP Addresses are different.
4. To program Network Port IP address, use command: **11-IP Address-#***
Where,
IP address is of 12 digits in XXX.XXX.XXX.XXX format. Each octet is of three digits ranging from 001 to 255. For example, to program IP address 192.168.1.120, enter the command **11-192168001120-#***. **By default, IP Address of VGFX is 192.168.001.176.**

5. To program Network port Subnet Mask, use command: **12-Subnet Mask-#***
Where,
Subnet Mask is of 12 digits in XXX.XXX.XXX.XXX format. Each octet is of three digits. Valid range is 0, 128, 192, 224, 240, 248, 252, 254 and 255. For example, to program Subnet Mask 255.255.254.0, enter the command **12-255255254000-#***. **By default, Subnet Mask of VGFX is 255.255.255.000.**
 6. To exit programming mode, use command: 00#*.
- i** *VGFX restarts as soon as IP Address or Subnet Mask is changed.*
7. After changing IP Address and Subnet Mask as shown above, open web browser of the computer connected to VGFX and enter IP Address of VGFX in the URL of the web browser. Login page of VGFX Web JEEVES will appear on the screen.
 8. Enter default password 1234 in the login page and reach the home page. Program all the necessary parameters of SETU VGFX one by one by clicking the links given on the left side of the web page.

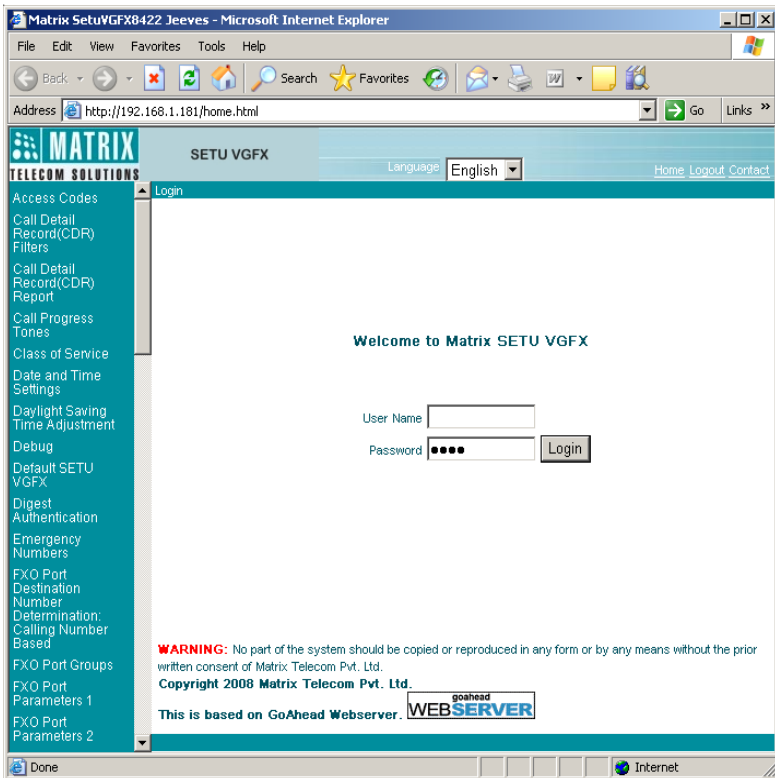
Programming SETU VGFX

Once VGFX is switched ON, the SE is advised to program it in the following sequence:

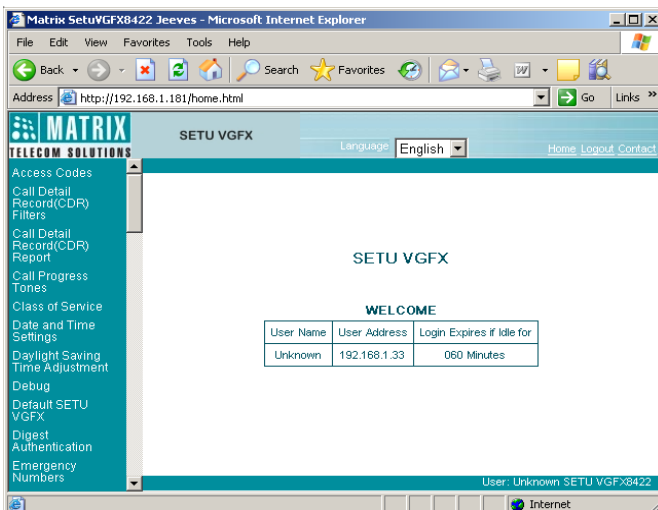
1. SIM PIN
2. Date and Time Settings
3. Call Progress Tones
4. Ring Type
5. Mobile Network Selection
6. SIP Trunk Parameters
7. Routing Groups
8. Routing Mechanism
9. Network Port Parameters

After programming VGFX in above mentioned sequence, you will be able to make and receive calls.

- Open Web browser of the computer connected to VGFX.
- Enter IP Address of SETU VGFX in the URL field and press 'Enter' key. Login Page of SETU VGFX will appear on the screen.



- Enter default SE password (1234) in the 'Password' field and click on 'Login' button. Home page of Web JEEVES will open up.



Step 1: SIM PIN

SIM PIN is a security feature used by the GSM network. This feature is used to protect the SIM card inserted in the system from mis-use.

- If this feature is enabled, the network will ask the user to enter SIM PIN at every Power On.
- If the user enters wrong SIM PIN for three times then the network suspects the user and asks for the Personal Unlock Keyword (PUK).
- If wrong PUK number is entered for ten times then the SIM Card will become useless.

Follow the steps given below to enable SIM protection or change SIM PIN in VGFX:

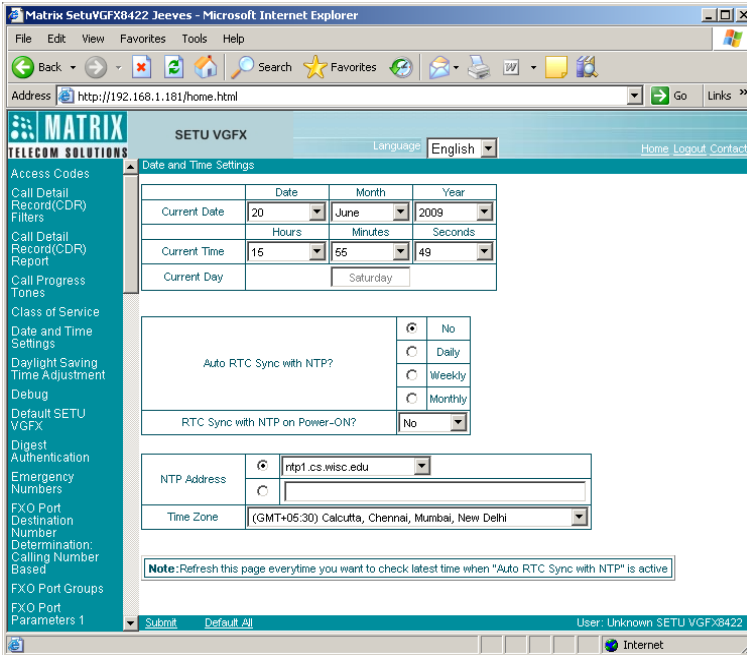
- Switch Off VGFX.
- Remove SIM card and insert the same in the mobile instrument.
- Enable 'SIM PIN at Power ON' parameter in the SIM card. (This step is not required if SIM protection is already ON)
- Change the SIM PIN of the SIM card to 1234. (default)
- Remove SIM card from the mobile instrument and insert it in VGFX.
- Switch on the system and change the SIM PIN after it attains normal working position.

i *SE should take above steps to change the SIM PIN of the SIM Card in case SIM protection of SIM Card is enabled and SIM PIN of SIM Card and VGFX is different else VGFX will not initialize.*

(Refer 'Port Parameters-Mobile' feature in System Manual for more details)

Step 2: Date and Time

Click on 'Date and Time Settings' link and program following parameters:



- **Current Date:** Enter current date in DD-MM-YYYY format.
Valid range for date = 01 to 31
Valid range for month = January to December
Valid range for year = 2008 to 2099
- **Current Time:** Enter current time in HH-MM-SS format.
Valid range for hour = 00 to 23
Valid range for minutes = 00 to 59
Valid range for seconds = 00 to 59
- **Current Day:** Depending on the current date entered by SE, System automatically sets current day in this field.
- **NTP Address:** In this field, select one of following Time Servers:
 1. Ntp1.cs.wisc.edu
 2. Time.windows.com
 3. Time.nist.gov**Default = Ntp1.cs.wisc.edu**

OR

Enter IP address of NTP server address manually.

- Maximum Length = 40 characters
- All ASCII characters allowed

- **Time Zone:** Select the time zone from the given combo box depending on the country of installation of SETU VGFX.

ⓘ After programming Date and Time settings, click on submit button at the bottom of the page to save the settings.

Step 3: Call Progress Tones

Click on 'Call Progress Tones' link and program following parameters:

The screenshot shows the 'Call Progress Tones' configuration page in the Matrix Setu VGFX web interface. The page has a navigation menu on the left with options like 'Access Codes', 'Call Detail Record(CDR) Report', 'Call Progress Tones', etc. The main content area shows a 'Call Progress Tones Selection' section with radio buttons for 'Countrywise' (selected) and 'Customized'. A dropdown menu shows 'India' selected. Below this is a table with columns for 'Tone Type', 'Frequency1 (Hz)', 'Operator', 'Frequency2 (Hz)', and 'Cadence' (subdivided into ON Time1, OFF Time1, ON Time2, OFF Time2, ON Time3, OFF Time3). The table lists various tones such as Dial Tone, Ring Back Tone, Error Tone 1, Error Tone 2, Busy Tone, Confirmation Tone, Feature Tone/ Programming Tone, Prompt Tone, Routing Tone, and Intrusion Tone, each with its respective frequency and cadence values.

Tone Type	Frequency1 (Hz)	Operator	Frequency2 (Hz)	Cadence					
				ON Time1 (msec)	OFF Time1 (msec)	ON Time2 (msec)	OFF Time2 (msec)	ON Time3 (msec)	OFF Time3 (msec)
Dial Tone	0400	^	0026	9999	0000	0000	0000	0000	0000
Ring Back Tone	0400	^	0025	0400	0200	0400	2000	0000	0000
Error Tone 1	0400	No	0000	0250	0250	0000	0000	0000	0000
Error Tone 2	0400	No	0000	1000	1000	0000	0000	0000	0000
Busy Tone	0400	No	0000	0750	0750	0000	0000	0000	0000
Confirmation Tone	0400	No	0000	0100	0100	0000	0000	0000	0000
Feature Tone/ Programming Tone	0400	No	0000	0100	0900	0000	0000	0000	0000
Prompt Tone	0400	No	0000	0100	0100	0100	2000	0000	0000
Routing Tone	0400	No	0000	0100	1900	0000	0000	0000	0000
Intrusion Tone	0400	No	0000	0300	0300	0300	4100	0000	0000

- Select either Countrywise or Customized option. By default, Countrywise option is selected.
- If 'Countrywise option' is selected then the combo box for selecting the country becomes editable. Select the country in which SETU VGFX is installed. By default, INDIA is selected.
- If 'Customized option' is selected then countrywise combo box becomes uneditable and CPTG table will become editable. Program frequency and cadence for each tone. By default, values for all tones are displayed as per the last country selected.
- **Frequency1:** Program frequency1 for each tone. Range of frequency 1 is 300-1400 Hz for all tones.

- **Frequency2:** Program frequency2 for each tone. Range of frequency 2 is 20-1400 Hz for all tones.
- Operator parameter has three options:
 1. **No:** If 'No' is programmed then Frequency 2 is not applicable.
 2. ***(Modulation):** If '*' (Modulation) is programmed then Frequency 1 and Frequency 2 is used as modulation i.e. $F1 * F2$.
 3. **+(Addition):** If Addition (+) is programmed then Frequency 1 and Frequency 2 is used as addition i.e. $F1 + F2$.
- **Cadence:** Program Cadence ON time and OFF time.
 1. **ON time (msec):** Range of Cadence ON Time is from 0000 to 9999 msec for all tones.
 2. **OFF time (msec):** Range of Cadence OFF Time is from 0000 to 9999 msec for all tones.

Default Cadence for all the tones for INDIA is shown below:

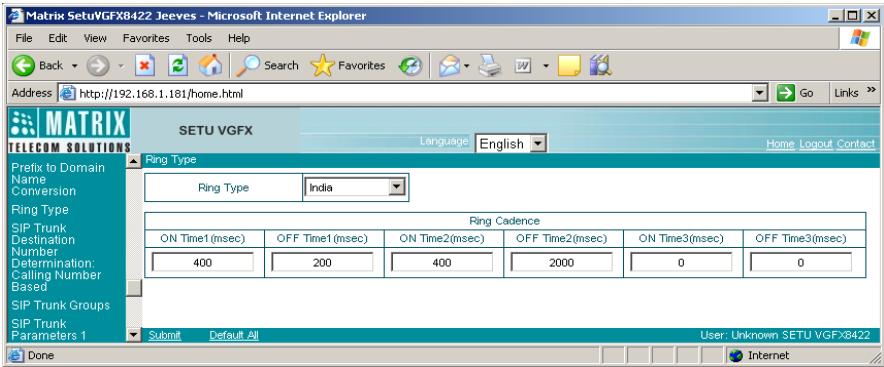
Tone Type	Freq. 1 (Hz)	Operator	Freq. 2 (Hz)	Cadence (msec)					
				ON Time1	OFF Time1	ON Time2	OFF Time2	ON Time3	OFF Time3
Dial Tone	400	*	25	9999	0	0	0	0	0
Ring Back Tone	400	*	25	400	200	400	2000	0	0
Error Tone 1	400	No	0	250	250	0	0	0	0
Error Tone 2	400	No	0	1000	1000	0	0	0	0
Busy Tone	400	No	0	750	750	0	0	0	0
Confirmation Tone	400	No	0	100	100	0	0	0	0
Feature Tone/ Programming Tone	400	No	0	100	900	0	0	0	0
Prompt Tone	400	No	0	100	100	100	2000	0	0
Routing Tone	400	No	0	100	1900	0	0	0	0
Intrusion Tone	400	No	0	200	100	200	7500	0	0

i Call Progress Tones and the country selected will not be defaulted when you default the VGFX.

(Refer 'Call Progress Tones' feature in System Manual for details)

Step4: Ring Type

Click on 'Ring Type' link and program the following parameters:

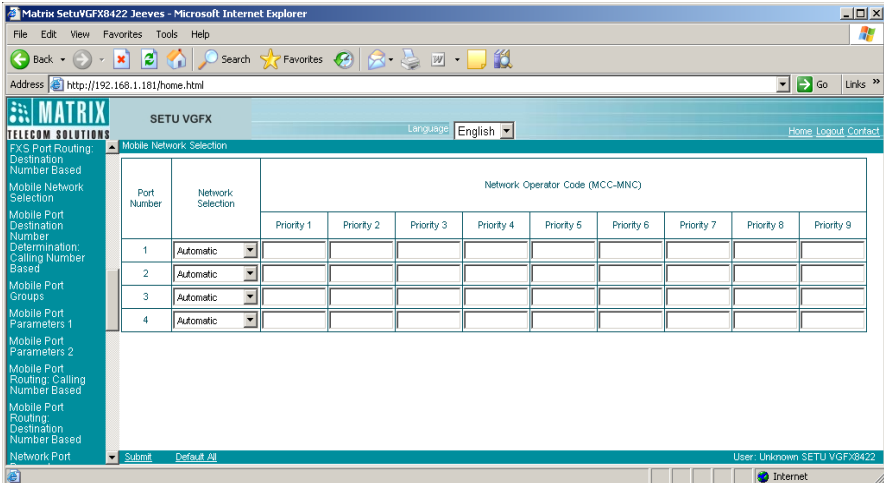


- In 'Ring Type' field, select the country in which SETU VGFX is installed.
- Ring cadence value will change in Ring Cadence table automatically as per the country programmed in Ring Type field. Ring Cadence table is un-editable.

(Refer 'Ring Type' feature in System Manual for details)

Step5: Mobile Network Selection

Click on 'Mobile Network Selection' link and program the following parameters:



- **Network Selection Mode:** Select one of the following two network selection modes:

- 1 Automatic
- 2 Manual

Default = Automatic

- **Network Operator Code:** If mode programmed for network selection is 'Manual' then program network operator code and set the priority for network operators with which the SIM can get registered.

Maximum Length = 8 digits

Default = Blank.

i In Manual mode for network selection, SIM Card will be registered only with the network that is supported by the network operator of the SIM Card used in the system.

(Refer 'Mobile Network Selection' in System Manual for more details).

Step6: SIP Trunk Parameters

Click on 'SIP Trunk Parameters 1' link and program the following parameters.

The screenshot shows the Matrix Setu VGFX web interface in Microsoft Internet Explorer. The browser address bar shows 'http://192.168.1.181/home.html'. The page title is 'SETU VGFX' and the language is set to 'English'. The main content area displays a table for 'SIP Trunk Parameters 1'.

SIP Trunk Number	Enable SIP Trunk ?	Name	SIP User ID	Registrar Server Address	Registrar Server Port	Re-Registration Timer (Seconds)	Registration Retry Timer (Seconds)	Authentication User ID
1	No		*		5060	3600	10	
2	No		*		5060	3600	10	
3	No		*		5060	3600	10	
4	No		*		5060	3600	10	
5	No		*		5060	3600	10	
6	No		*		5060	3600	10	
7	No		*		5060	3600	10	
8	No		*		5060	3600	10	
9	No		*		5060	3600	10	

The interface also includes a left-hand navigation menu with options like 'SIP Trunk Destination Number Determination', 'SIP Trunk Parameters 1', and 'SIP Trunk Parameters 2'. At the bottom, there are buttons for 'Upload/Download', 'Submit', and 'Default All', along with a user status indicator 'User: Unknown SETU VGFX422'.

MATRIX TELECOM SOLUTIONS SETU VGFX

SIP Trunk Parameters 1

SIP Trunk Number	Authentication User Password	Outbound Proxy			Source Port IP Address	Preference	
		Enable Outbound Proxy?	Server Address	Server Port		1st Preference	2nd Preference
1		No		5060	Use Network Port IP Address	G.729	G.723.1
2		No		5060	Use Network Port IP Address	G.729	G.723.1
3		No		5060	Use Network Port IP Address	G.729	G.723.1
4		No		5060	Use Network Port IP Address	G.729	G.723.1
5		No		5060	Use Network Port IP Address	G.729	G.723.1
6		No		5060	Use Network Port IP Address	G.729	G.723.1
7		No		5060	Use Network Port IP Address	G.729	G.723.1
8		No		5060	Use Network Port IP Address	G.729	G.723.1
9		No		5060	Use Network Port IP Address	G.729	G.723.1

User: Unknown SETU VGFX:8422

MATRIX TELECOM SOLUTIONS SETU VGFX

SIP Trunk Parameters 1

SIP Trunk Number	1st Preference	O/G Vocoder				DTMF Dialing	Flash Dialing	FAX Option	Use Symmetric RTP?
		2nd Preference	3rd Preference	4th Preference	5th Preference				
1	G.723.1	GSM FR	G.711 (u-law)	G.711 (A-law)	RTP (RFC 2833)	RTP (RFC 2833)	T.38(UDPTL)	No	
2	G.723.1	GSM FR	G.711 (u-law)	G.711 (A-law)	RTP (RFC 2833)	RTP (RFC 2833)	T.38(UDPTL)	No	
3	G.723.1	GSM FR	G.711 (u-law)	G.711 (A-law)	RTP (RFC 2833)	RTP (RFC 2833)	T.38(UDPTL)	No	
4	G.723.1	GSM FR	G.711 (u-law)	G.711 (A-law)	RTP (RFC 2833)	RTP (RFC 2833)	T.38(UDPTL)	No	
5	G.723.1	GSM FR	G.711 (u-law)	G.711 (A-law)	RTP (RFC 2833)	RTP (RFC 2833)	T.38(UDPTL)	No	
6	G.723.1	GSM FR	G.711 (u-law)	G.711 (A-law)	RTP (RFC 2833)	RTP (RFC 2833)	T.38(UDPTL)	No	
7	G.723.1	GSM FR	G.711 (u-law)	G.711 (A-law)	RTP (RFC 2833)	RTP (RFC 2833)	T.38(UDPTL)	No	
8	G.723.1	GSM FR	G.711 (u-law)	G.711 (A-law)	RTP (RFC 2833)	RTP (RFC 2833)	T.38(UDPTL)	No	
9	G.723.1	GSM FR	G.711 (u-law)	G.711 (A-law)	RTP (RFC 2833)	RTP (RFC 2833)	T.38(UDPTL)	No	

User: Unknown SETU VGFX:8422

- Port Enable?:** Enable the status of the SIP Trunk. You will be able to receive incoming calls and make outgoing calls only if the SIP Trunk is enabled.
 - Valid options: Yes/No
 - Default = No**
- SIP ID:** Enter the SIP ID provided by the ITSP in this field.
 - Maximum Length = 40 characters
 - All ASCII characters allowed
 - Default = ***

i In case of Peer to Peer calls, the first SIP Trunk with SIP ID programmed as '*' will always be used for routing the incoming call.

- **Registrar Servers' Address:** Enter SIP registrar server address provided by ITSP in this field. It can be an IP address or domain.
 - Maximum Length = 40 characters
 - All ASCII characters allowed

Default = Blank

- **Registrar Servers' Port:** Enter registrar server listening port provided by ITSP in this field.
 - Valid range = 1024 to 65535

Default = 5060

- **Authentication User ID:** Enter User Id provided by ITSP for registering the SIP Trunk with the SIP server.
 - Maximum Length = 40 characters
 - All ASCII characters allowed

Default = Blank

- **Authentication Password:** Enter the authentication password provided by ITSP.
 - Maximum Length = 24 characters

Default = Blank

- **Outbound Proxy Server:** Enable outbound proxy, if your ITSP have a SIP outbound server to handle voice calls.
 - Valid options: Yes/No

Default = No

- **Outbound Proxy Server's Address:** Enter the outbound proxy server address provided by ITSP if outbound proxy is enabled. It can be IP address or domain.
 - Maximum Length = 40 character
 - All ASCII characters allowed

Default = Blank

- **Outbound Proxy Server's Port:** Enter the outbound proxy server's listening port provided by ITSP.
 - Valid range = 1024 to 65535

Default = 5060

- **Source Port IP Address:** Select one of the following options as Source Port IP Address.
 1. Use Network Port IP Address
 2. Use IP Address fetched using STUN
 3. Use Router's Public IP Address

By default, Source Port IP Address is 'Use Network Port IP Address'.

- **Use Symmetric RTP?:** This parameter is applicable only for peer to peer calls. Select 'Yes' if SETU VGFX is located on public IP and calls are made and received from the SIP client located behind the NAT router.

- Valid options: Yes/No

Default = No

(Refer 'Port Parameter-SIP' in System Manual for more details).

Step7: Routing Groups

Create Routing Groups for all the port types. To program Routing Groups for Mobile Ports, click on 'Mobile Port Groups' link and program the following parameters:

Mobile Port Group Number	Member Selection Method	Member 1	Member 2	Member 3	Member 4
1	Rotation	1	2	3	4
2	Rotation	1	None	None	None
3	Rotation	2	None	None	None
4	Rotation	3	None	None	None
5	Rotation	4	None	None	None
6	Rotation	1	2	3	4
7	Rotation	1	2	3	4
8	Rotation	1	2	3	4

- **Member Selection Method:** In this field, select the method for selecting member from a group for placing the call on Mobile Port.

- Valid options: First Free/Rotation

Default = Rotation

- **Members:** Program desired Mobile Port number in each of the member field. VGFX shall place the call on any of these members as per member selection method programmed for the group.

Similarly create Routing Groups for FXS Ports, FXO Ports and SIP Trunks also.

(Refer 'Routing Group' feature in System Manual for more details)

Step8: Destination Number Determination Method:

Routing mechanism in VGFX involves two things: Destination Number Determination Method and Destination Port Determination Method. VGFX supports following method for Destination Number Determination Method:

1. Number Not Required

In this method, destination number would be blank. Call will not be answered till the destination port is answered. This method is applicable for FXO Ports, Mobile Ports and SIP Trunks. Generally this option is used when incoming call is to be routed on FXS Port.

2. Fixed Destination Number

In this method, call is routed to a fix destination number programmed. To use this method, program destination number in 'Fixed Destination Number' field of the respective port. Call will not be answered till the destination port is answered. This method is applicable for FXO Ports, Mobile Ports and SIP Trunks.

3. Based on Calling Number


In this method, call is routed to a specific number depending upon the calling party's number. To use this method, 'Destination Number Determination: Calling Number Based' table should be programmed. Call will not be answered till the destination port is answered. This method is applicable for FXO Ports, Mobile Ports and SIP Trunks.

4. Based on Called Number

In this method, call is routed to a number received on the SIP Trunk. Call will not be answered till the destination port is answered. This method is applicable for SIP Trunks only.

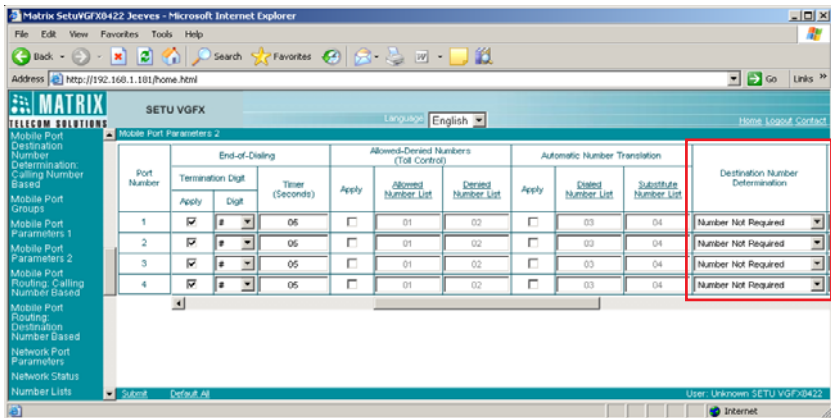
5. Manual Dial

In this method, incoming call will be answered and VGFX will feed dial tone to the caller. Call is routed to the number dialed manually by the caller. This method is applicable for all port types.

 *For SIP Trunks, only four calls can be answered simultaneously.*

Programming Destination Number Determination Method:

- Click on 'Mobile Port Parameters2' link and select Destination Number Determination Method.



Similarly, open 'FXS Port Parameters 2', 'FXO Port Parameters 2' and 'SIP Trunk Parameters 2' and select Destination Number Determination Method for FXS Ports, FXO Ports and SIP Trunks respectively.

Step9: Destination Port Determination Method:

Routing mechanism in VGFX involves two things: Destination Number Determination Method and Destination Port Determination Method. VGFX supports following method for Destination Port Determination Method:

1. Fixed

In this method, call is routed using 'Routing Groups' programmed for the respective port. This method is applicable for all port types.

2. Destination Number Based

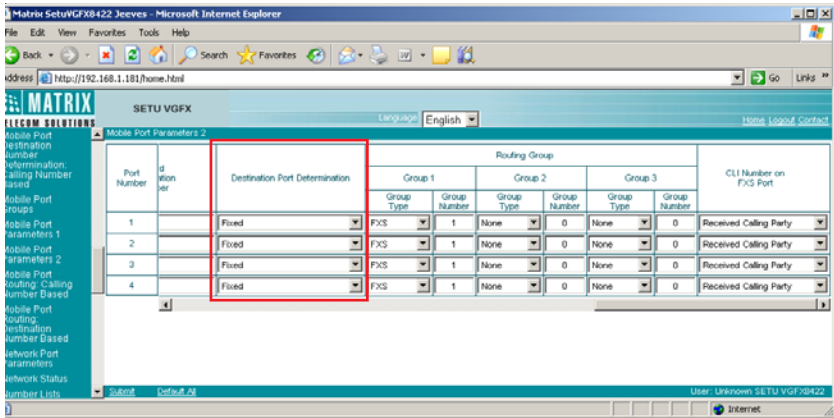
In this method, calls originated on the source port are routed through a port group based on the destination number dialed by the caller. To use this method, program 'Port Routing: Destination Number Based' table. This method is applicable for all port types.

3. Calling Number Based

In this method, calls received on the source port are routed through a port group based on the calling party's number. To use this method, program 'Port Routing: Calling Number Based' table. This method is applicable for FXO Ports, Mobile Ports and SIP Trunks.

Programming Destination Port Determination Method:

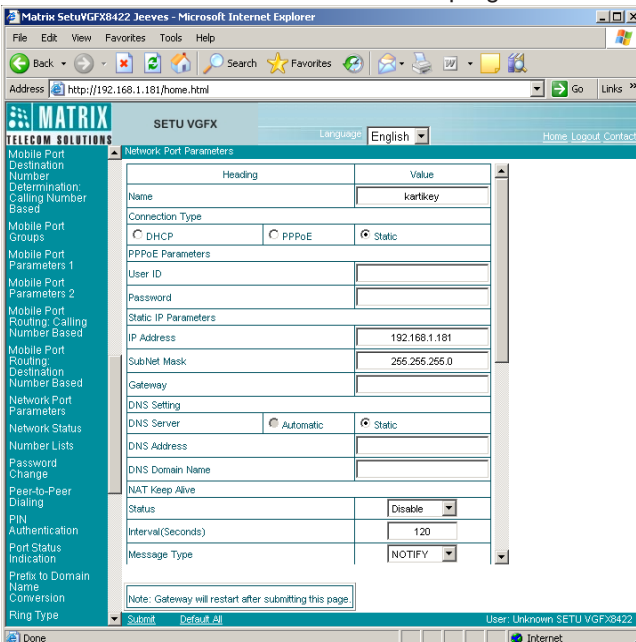
- Click on 'Mobile Port Parameters2' link and select Destination Port Determination Method.



Similarly, open 'FXS Port Parameters 2', 'FXO Port Parameters 2' and 'SIP Trunk Parameters 2' and program Destination Port Determination Method for FXS Ports, FXO Ports and SIP Trunks respectively.

Step10: Network Port Parameters

Click on 'Network Port Parameters' and program following parameters:



The screenshot shows the 'Network Port Parameters' configuration page in the Matrix Setu VGFx web interface. The page is displayed in a Microsoft Internet Explorer browser window. The interface includes a navigation menu on the left with options like 'Mobile Port Destination Number', 'Mobile Port Groups', and 'Network Port Parameters'. The main content area contains a form with various input fields and dropdown menus for configuring network parameters. At the bottom, there are 'Submit' and 'Default All' buttons, and a user status indicator 'User: Unknown SETU VGFx8422'.

- **Connection Type:** Select the type of connection provided by service provider in this field.
 - Valid options: Static/DHCP/PPPoE

Default = Static

ⓘ When DHCP is selected as the connection type then PPPoE parameters, IP parameters and DNS Settings parameters would become uneditable.

- **PPPoE Parameters:** Program following parameters when connection type selected is PPPoE.

User ID: Enter PPPoE user id given by service provider manually in this field.

- Maximum Length: 16 characters
- All ASCII characters allowed

Default = Blank

Password: Enter password of PPPoE user id provided by service provider manually in this field.

- Maximum Length = 16 characters
- All ASCII characters allowed

Default = Blank

- **Static IP Parameters:** Program IP address, Subnet Mask and Gateway Address manually in the following fields if connection type selected is Static.

IP Address: Enter IP Address in this field.

- Maximum Length = 15 characters
- Valid Range = 000 to 255 for first three octets and 000 to 254 for last octet

Default = 192.168.001.176

Subnet Mask: Enter Subnet Mask Address in this field.

- Maximum Length = 15 characters
- Valid range of octets = 000, 128, 192, 224, 240, 248, 252, 254 and 255

Default = 255.255.255.000

Gateway: Enter Gateway Address in this field.

- Maximum Length = 15 characters
- Valid range of octets = 000 to 255

Default = Blank.

- **DNS Setting:** Select either Static DNS or Automatic DNS. **By default, Static DNS is selected.**

Automatic DNS: If Automatic DNS is selected then DNS Address and DNS Domain Name shall be assigned automatically by the server.

Static DNS: If Static DNS is selected then program the following parameters manually:

- **DNS Address:** Program DNS address provided by the service provided manually in this field.
 1. Maximum Length = 15 characters
 2. Valid range of octets = 000 to 255.
- **DNS Domain Name:** Program DNS Domain Name in this field.
 1. Maximum Length = 40 characters
 2. All ASCII characters allowed

- **Router's Public IP Address:** Program public IP address of the router in this field if 'Source Port IP Address' is set to 'Use Router's Public IP Address' in SIP parameters.
 - Maximum Length = 15 characters
 - Valid range = 000 to 255

Default = Blank.

(Refer 'Port Parameters-SIP' in system manual for more details)

- **STUN:** Program STUN parameters if SETU VGFX is located behind the NAT router.

Server Address: Enter STUN server address in this field.

- Maximum Length = 40 characters
- All ASCII characters allowed

Default = Blank

Server Port: Enter STUN Server's listening port in this field.

- Valid range = From 1024 to 65535

Default = 3478

Use SIP Port fetched using STUN? This parameter is applicable only when 'Source Port IP Address' is set to 'Use IP Address fetched using STUN'.

- Valid options = Yes/No

Default = No

- **Listening Port**

SIP Listening Port: SIP Listening port defines the port on which SETU VGFX listens for SIP messages.

- Valid range = From 1024 to 65535

Default = 5060

RTP Listening Port: RTP Listening port defines the port on which SETU VGFX listens for RTP packets.

- Valid range = From 1024 to 65526

Default = 8000

i *SETU VGFX will reboot as soon as you submit the page after changing any of the Network Port parameters and you will logout of the Web JEEVES.*

- If SETU VGFX is connected directly to the Computer for configuring the system then remove the Ethernet Cable from the Computer and connect it to the Broadband Modem switch.
- To know IP Address of your SETU VGFX, follow the steps given below:
 - Enter programming mode by dialing **#19-1234** (Default SE Password) through FXS Port.
 - Dial **21-#*** and go On-Hook during confirmation tone.
 - VGFX will display its IP Address as CLI on FXS Port.
 - Note down the IP Address and exit programming mode.
 - Access Web JEEVES using the displayed IP Address through one of the Computers connected to the LAN Switch or through Internet ready access Computer (if IP Address of VGFX is Public IP).

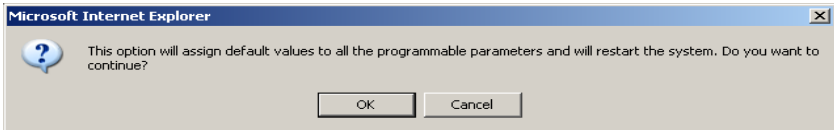
Step 11: Reinstate the Default Settings

SETU VGFX enables the user to default VGFX and assign default values to all programmable parameters by using 'System Default' feature. This feature will set all parameters to factory set values except the following features:

1. Call Detail Records
2. Date and Time
3. Call Progress Tones
4. Ring Type
5. SIM PIN (in Mobile Port Parameters)

Click on 'Default SETU VGFX' link. An alert message window will appear stating:

- This option shall assign default values to all the programmable parameters of the SETU VGFX and will restart. Do you want to continue?" OK/Cancel.



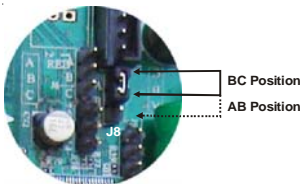
Click on 'OK' button. All the programmable parameters shall be defaulted except those mentioned above, followed by system restart.

Step12: Restore SE Password

To program VGFX, you must login in the Jeeves or enter programming command using SE password. However, if you forget SE Password it is possible to reset the same by changing the jumper position.

To default SE password, follow the steps given below:

- Switch Off VGFX.
- Locate a mini jumper J8 on the card. In normal condition, it is in BC position.



- Change the jumper position from BC to AB.
- Switch On the system and wait till it gets initialize.
- Switch Off VGFX and restore the jumper in its original position.
- Switch On the system again.
- SE password gets default to 1234.

Step13: Checking the Status

SIP Trunk Status:

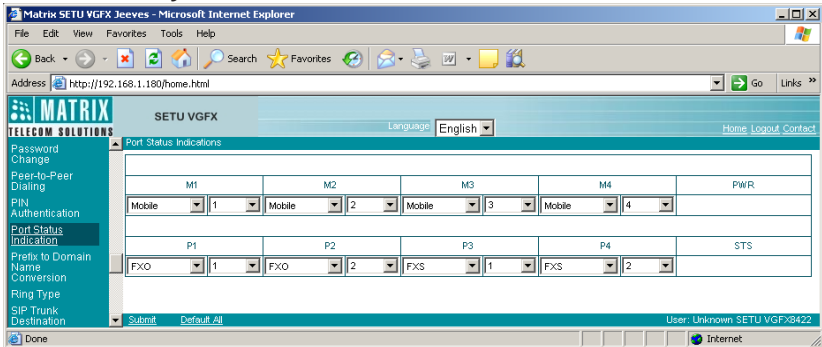
You can check SIP Trunk Status in two ways:

1. Through LED Indication
2. Through Web JEEVES

Through LED Indication:

Port LEDs can be programmed for showing the status of SIP Trunks also. You can program LEDs for showing status of maximum 8 SIP Trunks simultaneously. Programming of LEDs is done using Web JEEVES as shown below:

- Open Web JEEVES of SETU VGFX. (Refer 'Accessing Web JEEVES' topic)
- Click on '**System Port LED**' link.



- Program LEDs as per your requirement. Once the LEDs are programmed for showing status of the SIP Trunks, it will display the status of SIP Trunks.

If LED is programmed for SIP Trunk, it will display following error/event/status:

Event/State/Status	Color	Cadence (1 cadence is of 5000msec)			
		ON	OFF	ON	OFF
SIP Disable	-	OFF			
SIP Registered	Green	Continuous			
SIP Registration Failed	Red	Continuous			
SIP Authentication Failed	Red	200	200	200	3400

- ❗ *When all LEDs are programmed for showing status of SIP Trunks then status of FXS, FXO and Mobile Port will not be displayed.*

Through Web JEEVES:

Open Web JEEVES of SETU VGFX and click on the 'SIP Trunk Status' link to check status of SIP Trunks. Following page will be displayed:

The screenshot shows a web browser window titled "Matrix SetuVGFX8422 Jeeves - Microsoft Internet Explorer". The address bar shows "http://192.168.1.181/home.html". The page header includes the "MATRIX TELECOM SOLUTIONS" logo, "SETU VGFX", a language dropdown set to "English", and links for "Home", "Logout", and "Contact".

The main content area is titled "SIP Trunk Status" and contains a table with the following data:

SIP Trunk Number	Status	Registration Time	Registration Retry Count	Failed Reason
1	Disable	0	0	
2	Disable	0	0	
3	Disable	0	0	
4	Disable	0	0	
5	Disable	0	0	
6	Disable	0	0	
7	Disable	0	0	
8	Disable	0	0	
9	Disable	0	0	

The left sidebar contains a navigation menu with items such as "Port Status Indication", "Prefix to Domain Name Conversion", "Ring Type", "SIP Trunk Destination Number Determination: Calling Number Based", "SIP Trunk Groups", "SIP Trunk Parameters 1", "SIP Trunk Parameters 2", "SIP Trunk Routing: Calling Number Based", "SIP Trunk Routing: Destination Number Based", "SIP Trunks Status", "Soft Restart", and "Supplementary Services". The bottom status bar shows "User: Unknown SETU VGFX8422".

Following is a brief description of the parameters displayed on the 'SIP Trunk Status' page.

1. **SIP Trunk Number:** This field displays the SIP Trunk number.
2. **Status:** This field displays the status of SIP Trunk. Different status option which can appear in this field is explained below:

Status	Description
Disable	Shows that SIP Trunk is disable
Registering	Shows that SIP Trunk is enable and waiting for response from the SIP server
Registered	Shows that SIP Trunk is registered with the SIP server.
Failed	Shows that some error has occurred in the SIP Trunk and no calls can be made using it (applicable only in case of Proxy Account).
Peer to Peer	Shows that SIP Trunk is configured for Peer to Peer calling

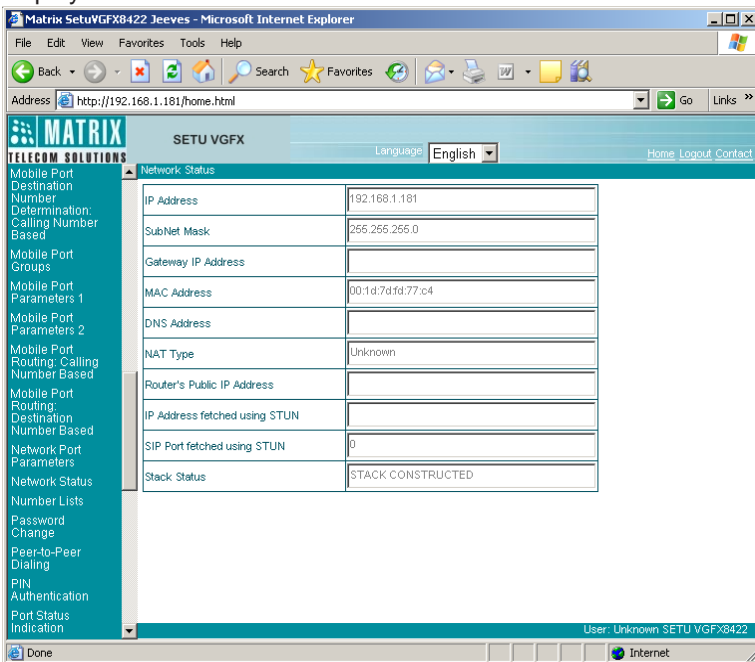
3. **Registration Time:** This field displays the time left to re-register the SIP Trunk after it gets registered successfully. This time is provided by

the registrar server. When the registration period gets over, SIP Trunk is to be registered again.

4. **Registration Retry Count:** This field displays the total number of register message which is sent to the registrar server for registering SIP Trunk.
5. **Failed Reason:** This field displays the reason for registration failure, if registration of SIP Trunk fails with the registrar server. Registration failure occurs because of various reasons such as: Message send fail, Failed to create register client, Failed to send request, Error response-4xx to 6xx etc.

Network Status:

You can check Network Status through Web JEEVES only. Open Web JEEVES of SETU VGFX and click on the 'Network Status' link. Following page will be displayed:



The screenshot shows a web browser window titled "Matrix SetuVGFX8422 Jeeves - Microsoft Internet Explorer". The address bar shows "http://192.168.1.181/home.html". The page content includes a navigation menu on the left with items like "Mobile Port Destination Number", "Determination: Calling Number Based", "Mobile Port Groups", "Mobile Port Parameters 1", "Mobile Port Parameters 2", "Mobile Port Routing: Calling Number Based", "Mobile Port Routing: Destination Number Based", "Network Port Parameters", "Network Status", "Number Lists", "Password Change", "Peer-to-Peer Dialing", "PIN Authentication", and "Port Status Indication". The main content area is titled "Network Status" and contains a table with the following data:

IP Address	192.168.1.181
SubNet Mask	255.255.255.0
Gateway IP Address	
MAC Address	00:1d:7d:fd:77:c4
DNS Address	
NAT Type	Unknown
Router's Public IP Address	
IP Address fetched using STUN	
SIP Port fetched using STUN	0
Stack Status	STACK CONSTRUCTED

The status bar at the bottom of the browser window shows "User: Unknown SETU VGFX8422" and "Internet".

Brief description of the parameters displayed on the 'Network Status' page is as follows:

1. **IP Address:** This field displays IP address currently assigned to VGFX.
2. **Subnet Mask:** This field displays Subnet Mask currently assigned to VGFX.
3. **Gateway Address:** This field displays Gateway Address assigned to VGFX.

4. **MAC Address:** This field displays MAC Address assigned to VGFX.
5. **DNS Address:** This field displays the DNS address of VGFX.
6. **NAT Type:** This field displays NAT Type, if STUN is enabled in VGFX. The NAT Types Supported by VGFX are:
 - Unknown
 - Open
 - Conenat
 - Restrictednat
 - Portrestrictednat
 - Symmetricnat
 - Symmetricfirewall
 - Blocked
7. **Router's Public IP Address:** This field displays Router's Public IP address programmed in the Network Port Parameters.
8. **IP Address fetched using STUN:** This field displays the IP address fetched using STUN if STUN server address is programmed.
9. **SIP Port fetched using STUN:** This field displays the SIP port fetched using STUN if STUN server address is programmed.
10. **Stack Status:** In this field, strings such as Idle, DHCP Response wait, PPPoE response wait, NAT checking response wait, construct and error is displayed.

Test Call

Now you can make and receive calls either from a cell phone or from analog phone connected to VGFX follow the steps given below to make a test call:

Making a Call

- Pick up the handset of telephone instrument connected to SETU VGFX. You will get dial tone.
- Dial the desired number.
- Talk after the called party replies the call.
- Dial 'Call Disconnect' access code or replace the handset to disconnect the call.

Receiving a Call

- Ring on telephone instrument connected to SETU VGFX.
- Lift the handset to talk.
- You will be in speech with the calling party.
- Replace the handset to disconnect the call.

Appendices

Features at Glance

Feature Description	Feature Code
To Enter Programming Mode	#19-User Password (Default Password = 1234)
To Exit Programming Mode	00#*
To Set Hotline	#151-1
To Cancel Hotline	#151-0
To Enable Call Waiting	#16-1
To Disable Call Waiting	#16-0
To Set DND	#18-1
To Cancel DND	#18-0
To Set Call Forward Unconditional	#131-1
To Cancel Call Forward Unconditional	#131-0
To Set Call Forward Busy	#132-1
To Cancel Call Forward Busy	#132-0
To Set Call Forward No Reply	#133-1
To Cancel Call Forward No Reply	#133-0
To Program Hotline Number	#152-Destination Number-End-of-Dialing[@]
To Program Hotline Timer	#153-X (X is the timer value)
To Program Call Forward Unconditional Number	#135-Destination number-End-of-Dialing[@]
To Program Call Forward Busy Number	#136-Destination Number-End-of-Dialing[@]
To Program Call Forward No Reply Number	#137-Destination Number-End-of-Dialing[@]
To Program No-Reply Timer	#139-XX (XX is time in seconds)
For Call Hold	Flash
To Retrieve Held Call	Flash
For Call Toggle (Call Split)	#2
To Reject the Waiting Call and Speech with Current Call	#31
To Ignore the Waiting Call and Speech with Current Call	#32
To Accept the Waiting Call and Hold Current Call	#33
To Accept the Waiting Call and Release Current Call	#34
For Blind Transfer	#6
For Conference	#8
For Using Supplementary Services of Service Provider	#4
For Attended Transfer	^ (On-Hook)
For Making a New Call	#91
To Disconnect Call	#92

@ Dial # as end of dialing if end of dialing digit is programmed or wait till expiry of inter digit wait timer.

System Commands

Description	System Commands
To Program Network IP Address	11-IP Address-#*
To Program Network Subnet Mask	12-Subnet Mask-#*
To Program the Connection Type	10-Code-#*
To Enable/Disable VLAN tag	31-Code-#*
To Display the Connection Type	20-#*-Go On-Hook
To Display the Network IP Address	21-#*-Go On-Hook
To Display the Network Subnet Mask	22-#*-Go On-Hook
To Display the Network Gateway Address	23-#*-Go On-Hook
To Display the DNS Address	24-#*-Go On-Hook
To Display the Signal Strength of the GSM Network	26-Mobile Port-#*
To Display the Status of SIP Accounts	27-SIP Accounts-#*



MATRIX TELECOM PVT. LTD.

Corporate Office:

394-GIDC, Makarpura, Vadodara - 390010, India.
Tel.: +91 265 2630555, Fax: +91 265 2636598
E-mail: Info@MatrixTeleSol.com

Factory:

39-GIDC, Waghodia - 391760, Dist. Vadodara, India.
Tel.: +91 2668 262056/57

Technical Support:

Tel.: +91 2668 263172/73, Fax: +91 2668 262631
E-mail: Support@MatrixTeleSol.com

www.MatrixTeleSol.com