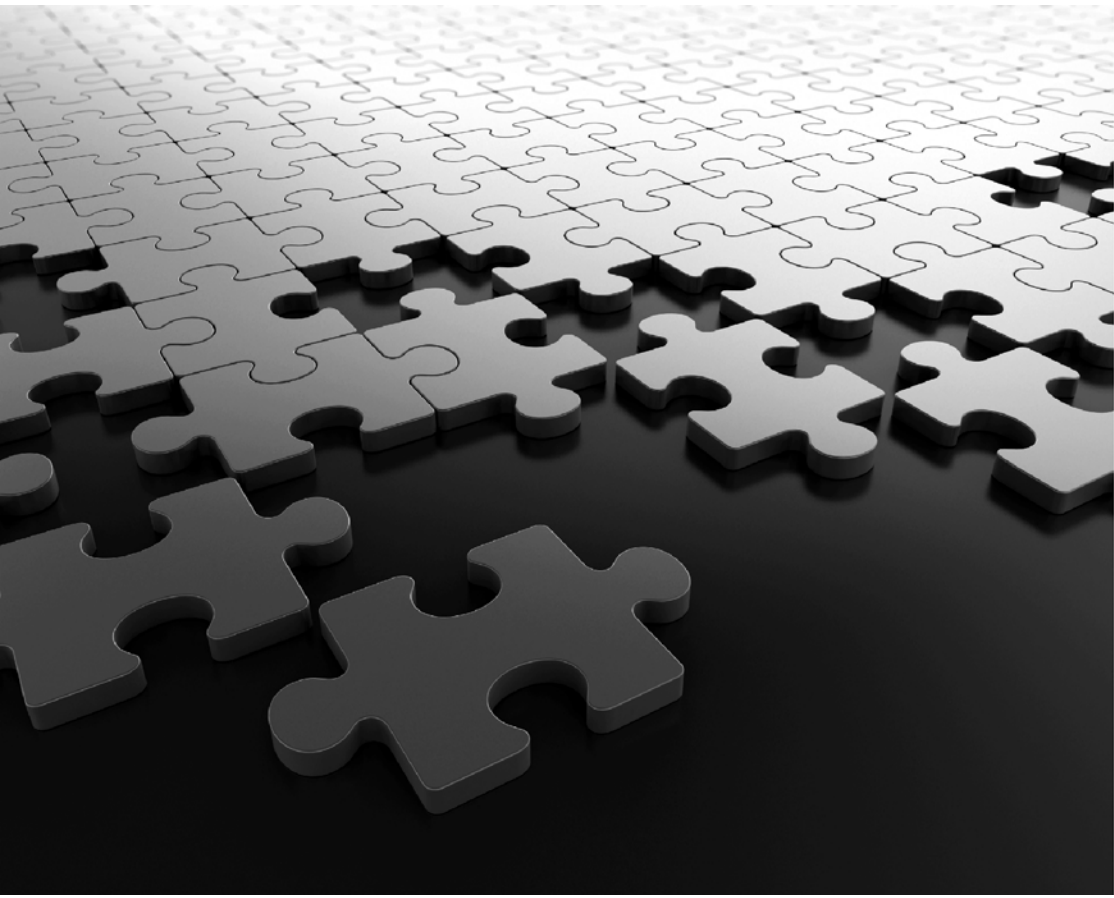
SARVAM UCS
Quick Start



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SARVAM UCS

The Unified Communication Server

Quick Start

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Contents

Overview

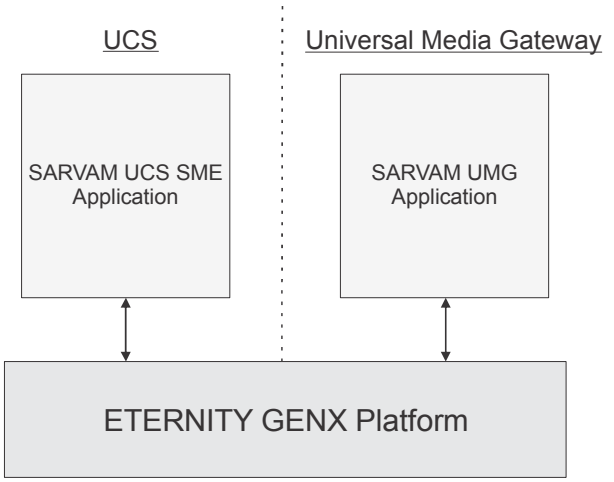
About the Product

The ETERNITY GENX is the common platform for SARVAM UCS and SARVAM UMG Application. The ETERNITY GENX Platform refers to an entity that includes the entire assembly of cards and the hardware enclosure.

You can use the ETERNITY GENX as the Unified Communication Server or the Universal Media Gateway depending upon the Application License you purchase.

The supported Application Licenses are as follows:

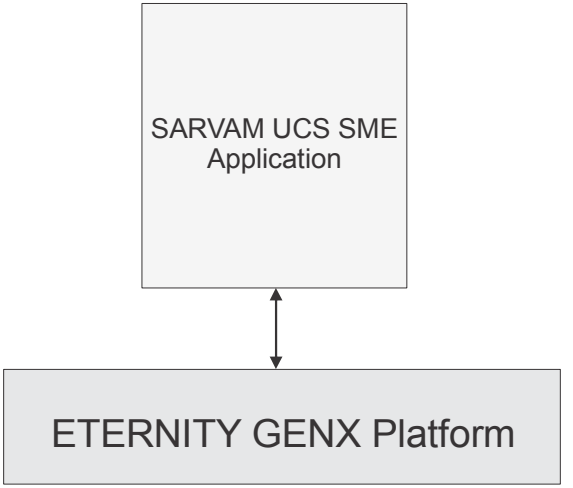
- **SARVAM UCS SME** Application license to run ETERNITY GENX as the Unified Communication Server.
- **SARVAM UMG SME** Application license to run ETERNITY GENX as the Universal Media Gateway.



To download the SARVAM UMG documents — System Manual, Quick Start and User Card, click http://www.matrixtelesol.com/technical-document.html

ETERNITY GENX as the Unified Communication Server acts as a fully hosted and managed Unified Communication system. It delivers the convergence of voice, data, wired communications

for small and medium sized businesses. It also offers UC features, Voice over IP Integration, Voice Mail, Computer Telephony Integration and Switching functions. The system provides reliable, efficient and unrestricted simultaneous communication (incoming and outgoing) by all users.



The document henceforth will describe — the installation and configuration of SARVAM UCS.

Introduction

Thank you for choosing the Matrix SARVAM UCS. This Quick Start is meant to help you setup the SARVAM UCS and use the basic features.

For detailed description of the installation, advanced configuration and feature description, please refer to the SARVAM UCS System Manual. To download, click http://www.matrixtelesol.com/technical-document.html

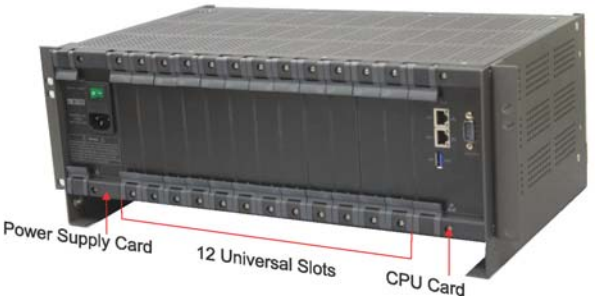
Hardware Overview

The Enclosure

The enclosure of ETERNITY GENX has fixed and universal slots. The fixed slots are occupied by specific factory fitted cards.

Inside the enclosure of ETERNITY GENX are slot connectors located on the motherboard on the backplane of the enclosure. Each slot has guide rails for inserting the cards.

Illustrated below is the design of the enclosure and the position of the slots in ETERNITY GENX.



Universal Slots

The fixed slots are occupied by specific cards — Power Supply Card and the CPU Card — and cannot be changed, whereas in the universal slots you can install any of the various cards.

The following card types are supported by SARVAM UCS in the universal slots:

Card Type	Description
CO	To connect Two-wire analog trunk lines.
SLT	To connect any standard, two-wire, analog single line telephone instrument - rotary, pulse-tone, cordless, feature phones with or without Calling Line Identification.
DKP	To connect digital key phones. The Matrix EON series, that is, Matrix proprietary digital key phones.
BRI	To connect the ISDN BRI lines.
T1E1PRI	To connect T1/ E1 lines.
E1FO	To connect ISDN T1/E1 line on the copper interface or E1 line on the Fiber Optic (FO) interface.
Mobile	To connect to the GSM networks.
Data	To extend the local LAN connectivity to the remote locations over T1/E1 line.
ILC	To connect any standard, two-wire, analog single line telephone instrument - rotary, pulse-tone, cordless, feature phones with or without Calling Line Identification. Used for Building Intercom application.
E&M	To connect to another PBX/ Tie Line equipment.
Radio	To connect Radio devices.
Magneto	To connect Magneto field telephones.

Installing the ETERNITY GENX

Before you Start

Before you begin the installation of the ETERNITY GENX, make sure that the required telecom wiring has been done and you have the following items ready:

- SARVAM UCS SME Application License
- A Main Distribution Frame (MDF)
- A suitable location to install the Main Distribution Frame and the ETERNITY GENX platform. If you want to install the mobile card, make sure the place you select has sufficient signal strength.
- Cables for trunk lines and extensions.

  Terminate the trunk lines from the service provider network and the extension lines from the phones into the Main Distribution Frame.
- The Cards of ETERNITY GENX, as required.
- One or more Single Line Telephone for testing.
- Power supply.

  The ETERNITY GENX works with input voltages ranging between 100-240VAC or with 48VDC. Arrange for a separate power point and switch, close to the system. Power supply for the system must be separate from other heavy electrical loads like Air-conditioners, heaters, welding machines, electrical motors, etc.
- One or more active Two-wire Trunk lines (CO lines) for test calls.
- A modem for the ISDN T1E1PRI line.
- An NT1 termination device for the ISDN BRI line.
- Appropriate cables and connectors to set up and test the WAN interface of the ETERNITY GENX and the LAN connection.

- A standalone PC or a PC connected in LAN.
- A SIM card to test mobile network connectivity.
- A SIP Account to test VoIP connectivity.

- Make sure you have separate electrical earth and telecom earth for the safety of the product and the people handling it.
- Always wear a properly earthed (grounded) electrostatic discharge preventive belt or wrist strap while handling the cards of the System.
- Use Primary Protection on trunk and long distance extension lines to protect the system from lightning and electrical surges.
- Do not install the system near any source of water, corrosive fumes, and electromagnetic noise such as radio equipment, heavy transformers, faulty electric chokes of tube-lights, device having a faulty coil, to avoid electromagnetic effect.

  For detailed instructions, refer to the System Manual.

- Unpack the system.
- Make sure that your package contains all the below items. If any item is missing or damaged, please contact the source from where you have purchased the system.

  - ETERNITY GENX 12S[1]
  - Two cables with RJ45 connectors on both the ends
  - 3-pin Power Cord, MC-4 Black[2]
  - 3-pin DC Input Cable[3]
  - Two Screws M 7/30 for Wall Mounting
  - Two Screw Grips for Wall Mounting
  - Two Side Clamps
  - Four Screw M4X12 CSK for the Side Clamp
  - Warranty Cards
  - Quick Start (Printed)
  - Mounting Templates

1. *ETERNITY GENX AC with factory fitted AC Power Supply and CPU cards.*
   ETERNITY GENX DC with factory fitted DC Power Supply and CPU cards.
2. *Supplied with ETERNITY GENX AC.*
3. *Supplied with ETERNITY GENX DC.*

- Place the system at the location you have selected.
- To install the ETERNITY GENX Cards,
    - unscrew and remove the filler bracket of the slots you want to insert the cards.
    - insert the cards into the Universal Slots. Make sure the connectors on the card and those on the motherboard on the backplane make perfect contact.
    - press down the levers of the card mounting brackets and secure the card in its slot with the screws provided.

      Refer "Hardware Overview" to know more about the Universal Slots.

Installing the VOCODER Module

ETERNITY GENX supports two NX BDM VOCODER64 modules. You must purchase the modules separately. The system supports a maximum of 128 VOCODER channels out of which 4 channels are provided by default. If you require more channels, you can purchase the licenses accordingly. Matrix provides two licenses — SARVAM VOCODER CHNL4 and SARVAM VOCODER CHNL16.

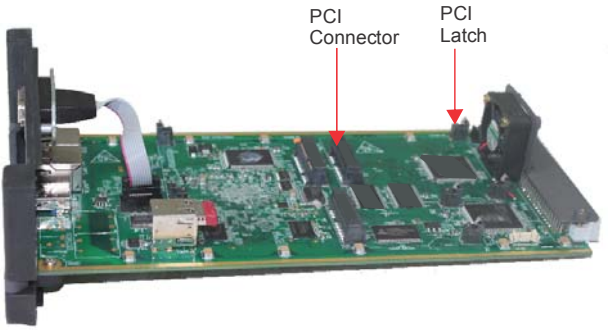
If you require more than 64 VOCODER channels, you can install another NX BDM VOCODER64 module.

To do so,

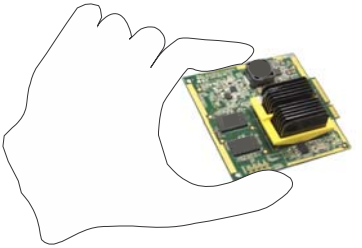
- Unpack the NX BDM VOCODER64 module.

- If the CPU Card is already installed, switch off power supply, unplug the power cord. Remove the screws securing the card. Lift the levers on the mounting bracket to release the card. As the card emerges from the slot, ease it out of the slot.
- Place the card carefully on a table with some packing underneath it. Avoid any physical contact with the PCB part of the card as this could cause Electrostatic Discharge (ESD) and may damage the hardware.

- The NX BDM VOCODER64 module is to be mounted adjacent to the fan on the CPU board.



- Locate the PCI Connector and PCI Latch on the mainboard.



- Carefully hold the NX BDM VOCODER64 module from the edges. Make sure you do not touch the PCB area.

- Insert the NX BDM VOCODER64 module into the PCI Connector socket.

- Press the module with a finger to fix the latches perfectly into the mounting holes. Make sure you do not touch the PCB area of the module except the yellow line provided for grounding at the front end of the module.

  Do not apply excessive pressure. Follow the same steps to install another module.

Removing the VOCODER Module

- Locate the VOCODER Module you want to remove from the CPU Card.

- Press both the latches together.

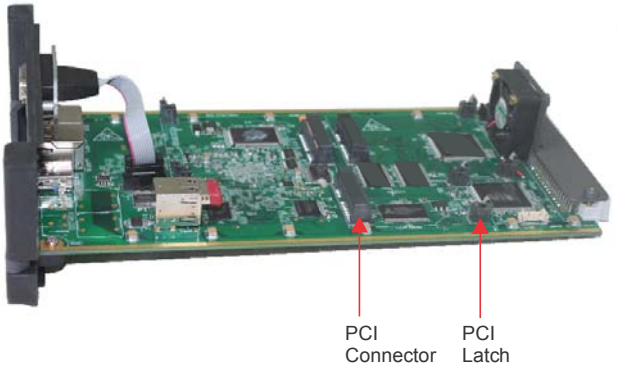
Make sure you support the base of the latches from behind with your thumbs.

- Firmly hold the module and ease it out of the PCI connector carefully.

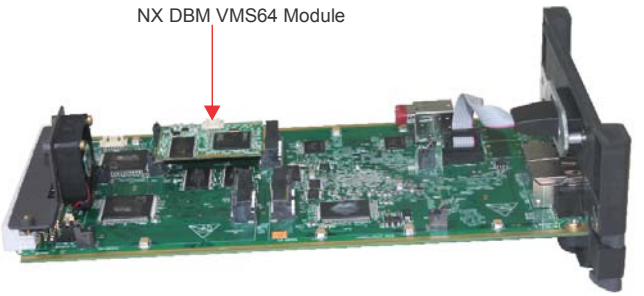
Installing the VMS Module

The VMS in the ETERNITY GENX is an optional module. If required, you may purchase it separately. The system supports a maximum of 64 channels out of which 4 channels are provided by default. If you require more channels, you can purchase the licenses accordingly. Matrix provides two licenses — SARVAM VMS CHNL4 and SARVAM VMS CHNL16.

- Locate the PCI connector for NX DBM VMS64 module on the CPU card.



- Follow the same steps as described in installing the NX BDM VOCODER64 module. See “Installing the VOCODER Module”.



- The factory fitted pendrive which is inserted into the Internal USB Port of the CPU Card contains VMS data and VMS firmware. You will be able to use the VMS features once you activate the VMS License.

  If you want to store more voice mail messages or greetings then you will need more space to store the same. You can replace this default pendrive with a new one having more space.

  To do so, you need to format your new pendrive with FAT32 file format and then copy all the contents of the factory fitted pendrive into the new pendrive.

Make sure you do not replace the pendrive with power ON. The system will not detect the new pendrive if you do not restart the system after replacement.

- After installing the modules, insert the card back into the ETERNITY GENX.

- Connect a computer to the LAN/WAN Port of ETERNITY GENX with the ethernet cable supplied for the port.
- Open a Web browser on the computer to access the embedded Web server, Jeeves.
- Activate the Key provided in the License Voucher for the VMS. For instructions, see *"Activating License Key"*.
- To know more about Configuring VMS, see *Configuring Voice Mail System* in System Manual.

For removing the VMS module, follow the same steps as described in removing the VoIP module. See "Removing the VOCODER Module".

Installing SLT, DKP and CO Cards

- Unpack the SLT, DKP and/or CO cards. Remove the filler brackets of the universal slots and insert the cards.
- Plug the MDF cables provided with each card into the connectors of the cards.
- Terminate the free ends of the MDF cables from the card connectors into the Krone modules of the Main Distribution Frame. Refer the cable connections given in the "Appendix" for terminating the cables into the Main Distribution Frame.
- Connect Single Line Analog Telephone instruments to the SLT ports over the MDF.
- Connect Digital Key phones and their console DSS64 to the DKP Ports over the MDF.
- Connect Two Wire Trunk (Analog Trunk) lines to the CO ports over the MDF.

The CO Card supports Power Fail Transfer (PFT). Refer to the topic Power Fail Transfer in the SARVAM UCS System Manual for details.

Installing the BRI Card

- Unpack the BRI Card.
- A BRI Port can be configured in the TE/NT mode.

  You must set the Orientation Type of the BRI Ports as **Terminal (TE)** or **Network (NT)** mode as per your installation requirement. By default, BRI Ports are configured in the NT mode.

  To set Orientation Type of the BRI Port, you must access the Web-based configuration tool, Jeeves.

  Under **Configuration**, click **BRI Configuration**. Click **BRI Parameters** and set the **Orientation Type**.

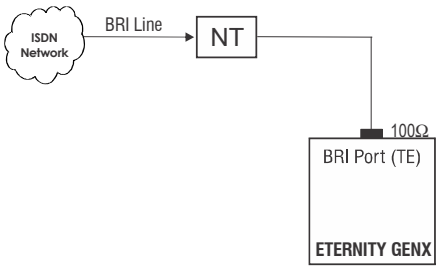
- Depending on the installation and configuration scenario, Termination Resistance of 100Ω should be inserted.

Inserting Termination Resistance on the BRI Port

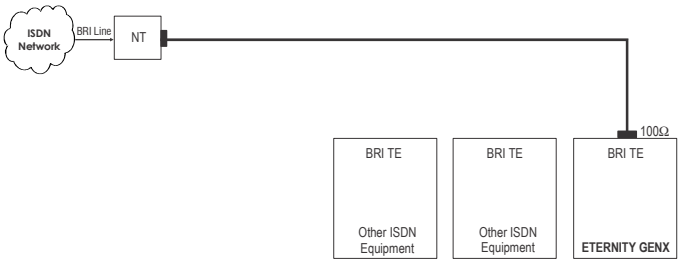
- Termination Resistance should be inserted in the following cases:

1. When the BRI Port is configured in **NT** mode.
2. When the BRI Port is configured in **TE** mode and connected in a **Point-to-Point** configuration as shown in figure 1.

   Figure 1:



3. When the BRI Port is configured in **TE mode** and connected as the **last terminal on the S0 bus** (Multi-point configuration) as shown in the figure below.



- Termination need not be inserted in case 2 and 3 above, if the S0 bus itself supports Termination resistors.

- Termination need not be inserted if the BRI Port of ETERNITY GENX (configured in TE mode) is connected as any terminal other than the last terminal on the S0 bus (in a Multi-point configuration).

4. To set the 100Ω termination on the BRI Port set the Jumpers on the BRI Module (daughter board) to the position described below.

   By default the Jumpers are set in AB position.

Function	Module 1 (M1)				Module 2 (M2)			
	BRI Port 1 Jumper Position		BRI Port 2 Jumper Position		BRI Port 3 Jumper Position		BRI Port 4 Jumper Position	
	J6	J8	J7	J9	J6	J8	J7	J9
To insert 100Ω termination	AB	AB	AB	AB	AB	AB	AB	AB
To remove 100Ω termination	BC	BC	BC	BC	BC	BC	BC	BC

Feeding Power to Terminal Equipment

- When the BRI Port of the ETERNITY GENX is used as BRI-NT, you can feed power to the terminal equipment connected to the BRI-NT Port from the ETERNITY GENX. Power can be fed through Tx and Rx wires or through a separate pair of wires.

  To Feed Power, you must access the Web-based configuration tool, Jeeves.

  Under **Configuration**, click **BRI Configuration**. Click **BRI Parameters** and select the **Feed Power** check box.

- By default, the Jumpers are set in AB position to feed power through Tx and Rx wires (Phantom Power).

  If you want to feed power through a separate pair of wires, you may change the position of the Jumpers on the BRI module as mentioned in the table below.

Function	Module 1 (M1)				Module 2 (M2)			
	BRI Port 1		BRI Port 2		BRI Port 3		BRI Port 4	
	Jumper Position		Jumper Position		Jumper Position		Jumper Position	
	J4	J5	J2	J3	J4	J5	J2	J3
To feed power on Tx and Rx wires (Phantom Power)	AB	AB	AB	AB	AB	AB	AB	AB
To feed power on separate pair of wires	BC	BC	BC	BC	BC	BC	BC	BC

The number of ISDN Terminals that can be connected on the BRI Port configured in the NT mode depends on the power consumed by the ISDN terminals.

From signaling point of view, up to 8 terminal equipment can be connected on the BRI Port configured in the NT mode. But the maximum power that can be fed to a single BRI Port is 50mA. So, connect ISDN Terminals to the BRI Port according to the power consumed by them, which together do not exceed 50mA.

- Insert the BRI card in any free Universal Slot and secure the card.

- Use the cable supplied for each connector on the BRI card to connect the BRI Ports to the NT1 device supplied by your ISDN service provider. See the tables below for configuration and pinout details.

Configuration of the U interface (RJ-45) on NT1

Pin Number	Pin Details
4	Tx
5	Rx

Configuration of the S/T interface (RJ-45) on NT1

Pin Number	Pin Details
3	Rx1
4	Tx1
5	Tx2
6	Rx2

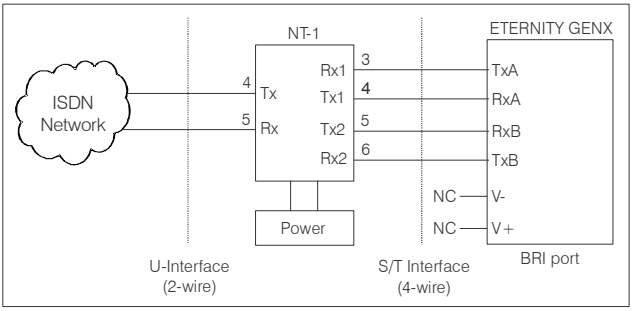
Pin details of BRI Port in TE mode

Pin Number	Signal	Color
1	--	Orange-White
2	--	Orange
3	TX-A	Green-White
4	RX_A	Blue
5	RX_B	Blue-White
6	TX_B	Green
7	VOUT-	Brown-White
8	VOUT+	Brown

Pin details of BRI Port in NT Mode

Pin Number	Signal	Color
1	--	Orange-White
2	--	Orange
3	RX-A	Green-White
4	TX_A	Blue
5	TX_B	Blue-White
6	RX_B	Green
7	VOUT-	Brown-White
8	VOUT+	Brown

This is a typical connection of a BRI Line to the BRI Port in the TE mode:



LED Pattern of the BRI Ports

The BRI4 Card has an LED for each port: L1, L2, L3, L4.

The LEDs show the Status of the Ports as summarized in the table below:

Port Status	LED Color	LED Cadence
Port is not Active	Red	Continuously ON
Port is Active	Green	Continuously ON

- Unpack T1E1PRI Card/E1FO Card.
- Termination resistance can be changed, using Jumper J5.
- To set the Line Termination Resistor to T1 or E1 Connectivity, you must change the position of the jumper J5. Refer to the table below:

Function	Jumper	Position
To set termination resistance of 120Ω E1 connectivity	J5	BC
To set termination resistance of 100Ω T1 connectivity	J5	AB

- If you want to use the T1E1 Card, connect one end of the RJ45 cable provided with the T1E1PRI Card to the T1E1 Port, over the Copper interface. Connect the other end to the modem provided by the ISDN Service Provider.
- If you want to use the E1FO Card, you may:
  - Connect one end of the RJ45 cable provided with the E1FO Card to the T1E1 Port, over the Copper interface (for T1 connectivity) and the other end to the modem provided by the ISDN Service Provider.
    or
  - Connect the Mono mode FO cable with the E1FO Card to the T1E1 Port, over the FO interface (for E1 connectivity) if you have an existing Fiber Optic infrastructure.


For E1FO Card, the T1 connectivity is supported over the Copper interface only.

LED Patterns

- The card has 2 LEDs: LED1 and LED2.

LED patterns are defined as shown below for different state and signaling as shown below:

1. **Port Active Mode**

   Signaling Type: E1-PRI

   LED1 Pattern:

Port Status	Color	Cadence
Layer 1 established successfully	Green	Continuous On
CRC4 Alarm	Green	100 ms On - 100 ms Off

Port Status	Color	Cadence
BFA Alarm	Red	500 ms On - 500 ms Off
LOS Alarm	Red	Continuous On

LED2 Pattern:

Port Status	Color	Cadence
Layer 1 established successfully	Green	Continuous On
RAI Alarm	Red	500 ms On - 500 ms Off
AIS or LOS Alarm	Red	Continuous On

Signaling Type: E1-CAS

LED1 Pattern:

Port Status	Color	Cadence
Layer 1 established successfully	Green	Continuous On
CRC4 Alarm	Green	100 ms On - 100 ms Off
MFA Alarm	Red	100 ms On - 100 ms Off
BFA Alarm	Red	500 ms On - 500 ms Off
LOS Alarm	Red	Continuous On

LED2 Pattern:

Port Status	Color	Cadence
Layer 1 established successfully	Green	Continuous On
Y-Bit Alarm	Green	100 ms On - 100 ms Off
AIS16 Alarm	Red	100 ms On - 100 ms Off
RAI Alarm	Red	500 ms On - 500 ms Off
AIS or LOS Alarm	Red	Continuous On

Signaling Type: T1-RBS or T1-PRI

LED1 Pattern:

Port Status	Color	Cadence
No Alarm	Green	Continuous On
BFA Alarm or MFA Alarm	Red	500 ms On - 500 ms Off
AIS Alarm	Red	100 ms On - 100 ms Off
LOS Alarm	Red	Continuous On

LED2 Pattern:

Port Status	Color	Cadence
Layer 1 established successfully	Green	Continuous On
RAI or LOS Alarm	Red	Continuous On

2. Port Disable Mode

LED1 Pattern:

Port Status	Color	Cadence
Port Disable	Red	Continuous On

LED2 Pattern:

Port Status	Color	Cadence
Port Disable	Off	Off

Installing E&M Card

- Unpack the E&M card.
- The E&M Card supports **E&M Interface Type IV** and **Type V** connection.
- To select the **Interface Type** change the position of the jumpers on the E&M module. See the table below for jumper position to set Interface Type.

Function	Jumper Position	
	J1	**J2**
Type IV E&M Interface (default position)	AB	AB
Type V E&M Interface	BC	BC

- Select the **Speech Interface** — 2-wire speech or 4-wire speech — as required, by changing the jumper position on the E&M module. See the table below for jumper positions.

Function	Jumper Position	
	J3	**J4**
4-wire speech interface	AB	AB
2-wire speech interface (default position)	BC	BC

- Select a universal slot for the E&M card and insert the card in the slot and secure it.
- Connect the cables supplied with the E&M card into the connectors on the E&M Card.
- Connect the free end of the cable into the E&M Ports of the other PBX/Router/Tie Line equipment with appropriate crossing of the wires.
- For connecting the wires, refer the pinout details for each E&M Card Type and for each E&M Type and Speech Interface Type given in the "Appendix".

LED indication for E&M Ports

Stage	LED Color	LED Cadence
At Power ON		LED OFF
After 30-60 seconds		LED OFF
After 60-90 seconds	RED	L1, L2, L3, L4 ON 500ms - L1, L2, L3, L4 OFF
	GREEN	L1, L2, L3, L4 ON 500ms - L1, L2, L3, L4 OFF
After 65-95 seconds	RED	L1, L2 L3, L4 ON 500ms - L1, L2, L3, L4 OFF
	GREEN	L1, L2 L3, L4 ON 500ms - L1, L2, L3, L4 OFF
Normal (Port Event)		
M-Wire High	Green	LED of the Port continuously ON

Stage	LED Color	LED Cadence
M-Wire Low		LED of the Port continuously OFF
E-Wire High	Red	LED of the Port continuously ON
E-Wire Low		LED of the Port continuously OFF
E-Wire and M-Wire High	Orange	LED of the Port continuously ON

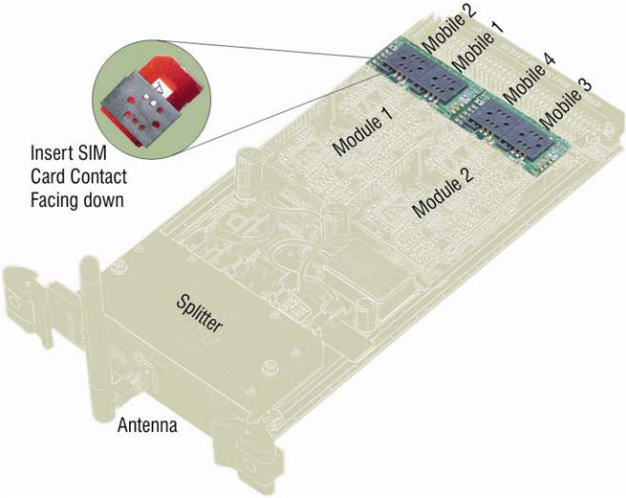
Installing Mobile Card

- Unpack the Mobile Card.
- Connect the antenna (provided with the Mobile card) to the connector on the Mobile card.
- You may enable PIN Protection on your SIM card before inserting it into the Mobile Port to protect it form unauthorized use.
- *If you want to use PIN Protection*,
    - First, insert the SIM card in a Mobile handset.
    - From the Mobile handset change the PIN to *1234*.
    - Remove the SIM from the Mobile handset and insert in the Mobile Port of the ETERNITY.
    - Installing the SIM with PIN value 1234, allows you to change the SIM PIN from the ETERNITY later.

Failure to follow the instructions on PIN protection may cause your SIM Card to be blocked and you will require Personal Unblocking Number (PUK) to reactivate it again.

To insert the SIM cards into the SIM holders, refer the illustrations of the Mobile cards.

ETERNITY GE GSM4 Card



- Now, insert the Mobile card in any of the free Universal slots and secure it.
- Make sure you configure this value in SIM PIN for the Mobile Port using Jeeves. For detailed instructions, see *Mobile Port* in the System Manual.

If the wrong SIM PIN is entered thrice in a row, by a user, the SIM Card suspects the user and asks for the Personal Unlock Keyword (PUK).

- *If you don't want to use PIN Protection*,
  - Insert the SIM in the Mobile handset and disable PIN Protection.
  - Remove the SIM Card from the Mobile handset.
  - Insert the SIM Card (PIN changed to 1234), with its contact side facing down into the SIM Holder on the Mobile card.
  - Now, insert the Mobile card in any of the free Universal slots.

LED indication for Mobile Ports

Event	LED Color	Cadence in msec (1 cadence is of 3000msec)
Port Idle	--	LED Off

Event	LED Color	Cadence in msec (1 cadence is of 3000msec)
Port Active (All states other than Ring and Speech)	Red	Continuous On
Ring Event	Green	400ms On-200 ms Off- 400ms On-200 ms Off
Speech	Green	Continuous On
Module Initialization	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
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 Link Down (absence of GSM Network)	Orange	200 ms On-2800 ms Off (1 Blink)

Connecting SIP Extensions

The SIP Extensions function like DKP/SLT Extensions of the SARVAM UCS. You can register any SIP-enabled device, like an IP-phone, a Soft phone, Analog Phone Adapter, as the SIP Extension of the SARVAM UCS.

999 SIP Extensions are supported by SARVAM UCS. To register SIP Extensions, VOCODER Module must be installed on the CPU Card of ETERNITY GENX.

By default, five SIP Extensions are provided. If you want to use additional SIP Extensions, you need to purchase the license. The following licenses are available — SARVAM IPSUB5, SARVAM IPSUB10, SARVAM IPSUB50, SARVAM IPSUB100 and SARVAM IPSUB500.

For more information on Licensing, see the topic *License Management* in the System Manual.

You may also connect/register the following as SIP Extensions of SARVAM UCS:

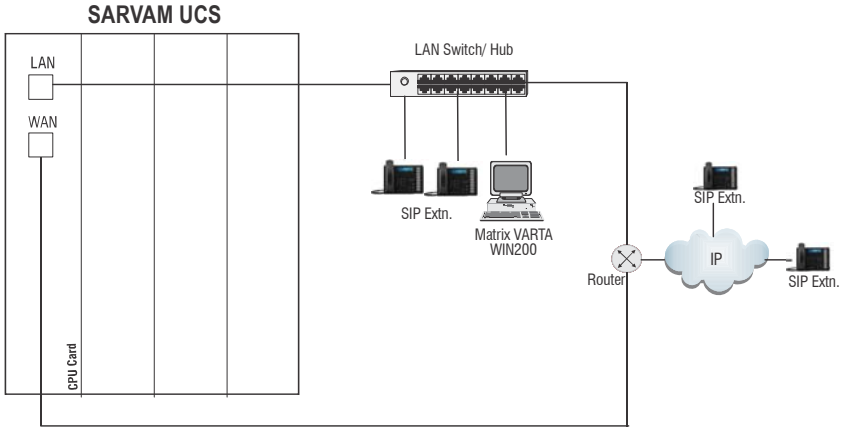
- SPARSH VP248, the Extended IP Phone. For instructions, see "Connecting SPARSH VP248 as Extended SIP Extension".
- SPARSH VP310, the Executive IP Phone. For instructions, see "Connecting SPARSH VP310 as Extended SIP Extension".
- Connect SPARSH VP330, the Touch Screen Extended IP Phone. For instruction, refer to the Matrix SPARSH VP330 User Guide.
- Connect SPARSH VP510, the Premium IP Phone. For instruction, refer to the EON510_SPARSH VP510 User Guide.
- Matrix VARTA WIN200, Unified Communication Client for Windows. For instruction, refer to the MATRIX VARTA WIN200 User Guide.
- Matrix Mobile UC Clients, as given below:
    - Matrix VARTA iOS100, the Mobile UC Client for iPhones. For instruction, refer to the Matrix VARTA iOS100 User Guide.
    - Matrix VARTA ADR100, the Mobile UC Client for Android Smartphones/Tablets. For instruction, refer to the Matrix VARTA ADR100 User Guide.

The SIP Extensions may be registered over *WAN* or *LAN* according to your preference and your IP network installation scenario. Extended SIP Clients can be registered with SARVAM UCS using IPv4 Addresses only.

You can register the same SIP Extension from three different locations.

If you register the Extended IP Phone outside the Region/Country selected for SARVAM UCS, the time and Time Zone dependant features, such as Alarms, Reminders, Time Zone Display, of the phone at each location will operate according to the Real Time Clock of SARVAM UCS. Also, Access Codes and Emergency Numbers will work according to the Region/Country selected for SARVAM UCS.

Consider the following Installation Scenario:



- Connect the Matrix VARTA WIN200, Extended IP Phone, or any Open IP Phone to the LAN Switch.

- Register any SIP device (Matrix VARTA UC Clients, Extended IP phone/ Soft clients or Open IP phone) on the public network as SIP Extension.

- When you register the Matrix Extended IP Phone and Open IP Phones with SARVAM UCS, the WAN/LAN port is used for Auto Configuration as well for Registration of the Extended IP Phones.

For Auto Configuration, make sure you configure the Open SIP phones at Location1 only.

- When you register a SIP device other than the Matrix Extended IP Phone on the public network as SIP Extension, do the following:

- In this SIP device configure the following:
  - the Registrar Server Address of SARVAM UCS
  - the Registrar Server Port
  - the SIP ID
  - Authentication ID and Password.

- Configure **Port Forwarding** for the **WAN Port** of SARVAM UCS on the Router.

Connecting SPARSH VP248 as Extended SIP Extension

You are recommended to complete the following steps before connecting the Matrix Extended IP Phone to SARVAM UCS:

- Decide the location of the Extended IP Phone, whether within the same network or outside, according to your installation scenario.

- If you want to use the **DHCP Server** for assigning IP Address to the Extended IP Phone, do the following:

  - select **DHCP option 224** and **Data Type** as **'String'** to provide Server Address to the Extended IP Phones.

  - configure the **WAN or LAN IP Address/Dynamic DNS Domain Name** and SPARSH Port in the format "**IP_Address:Port**" in your DHCP Server as per your installation scenario. Make sure you configure an IPv4 Address, as SARVAM UCS supports only IPv4 Addresses for registering SPARSH VP248.

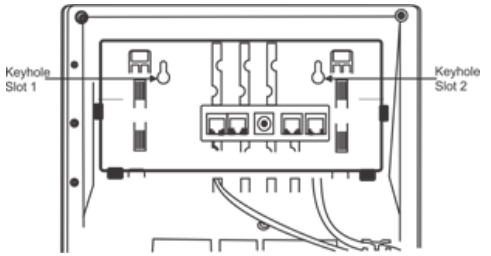
- Log in to *Jeeves*. For instructions, read the topic "Configuring ETERNITY GENX".

- Assign an extension number (**SIP ID**) to the Extended IP Phone. For instructions on assigning SIP ID, see the topic *Configuring SIP Extensions*, in the System Manual.

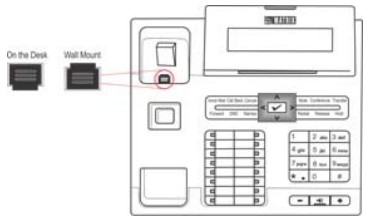
- For the SIP Extension number you assigned to the Extended IP Phone, go to the **Location** settings of the extension and configure the necessary parameters in SARVAM UCS so that the Extended IP Phone can register as a SIP Extension. For instructions, see the topic *Configuring SPARSH VP248* under *Configuring SIP Extensions*.

Now, follow the steps described below to install the Extended IP Phone. The instructions are common for all models of the SPARSH VP248. For the purpose of illustration, the premium model, SPARSH VP248P, has been used.

- Unpack the SPARSH VP248 box and verify package contents.
- Mount the phone on a desk or wall at a location convenient to you.
    - When mounting the phone on the wall,
        - Use the mounting template to drill holes of appropriate size and distance. Fix the screw grips in the holes you drilled.
        - Fix two screws in the holes on the wall, ensuring that they are aligned with the Keyhole Slots 1 and 2.
        - Use wall plugs, if required, to fix the screws. Leave the screw heads protruding from the wall to fit into the Keyholes.



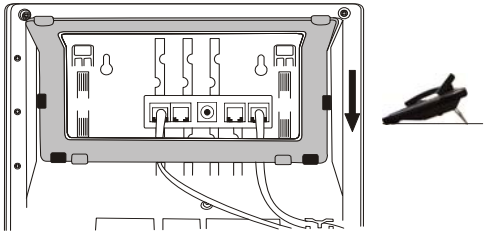
        - Now, mount the phone on the wall, with the screws fitting into the Keyhole slots.
        - Reverse the handset wall mount tab to make sure the handset remains intact when you mount the phone. Push the handset wall mount tab upwards to remove it from the slot. Rotate it 180 degrees clockwise and push it downwards into the slot.



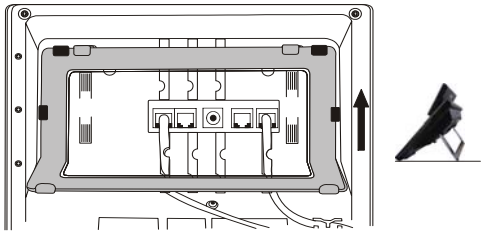
- When you mount the phone on a desk,

- You can attach the Foot Stand in two ways as illustrated in the following.

  Foot Stand attached at 30^0 Angle



  Foot Stand attached at 50^0 Angle



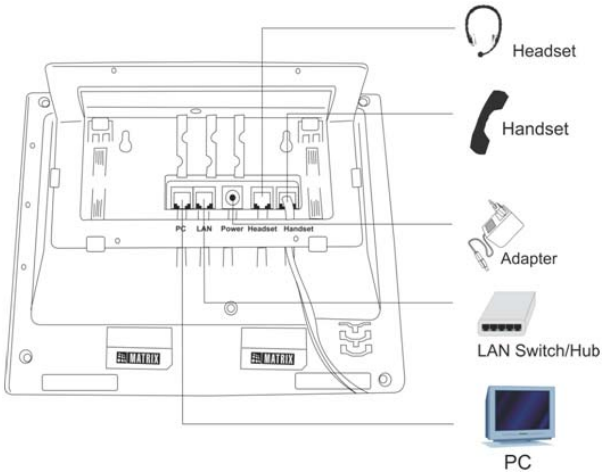
  If you attach the Foot Stand at 50°, the phone will be placed in an almost upright position on your desk.

  - Decide which of these positions would work for you best and accordingly attach the Foot Stand.

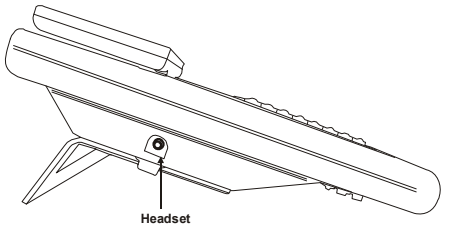
- Connect the Handset to the Phone body.

  - Plug the long straightened end of the spring cord into the handset jack at the bottom of the phone, marked with the symbol .

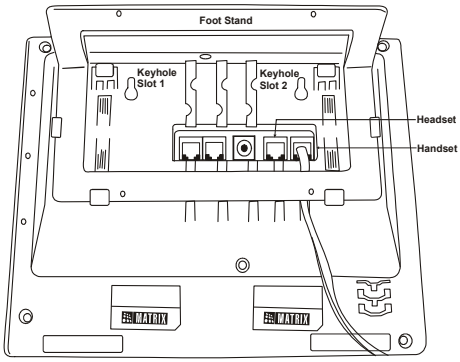
- Plug the other (short straight) end of the phone cord into the jack at the bottom of the handset.



- Connect the Headset (not supplied with the phone) to the phone body.
  - Plug any standard stereo headset with 2.5mm single connector into the headset jack on the left side panel of the phone, marked with the symbol , as illustrated in the figure below.



  - You may also plug in a headset with an RJ9 connector into the headset port at the bottom of the phone, marked with the symbol , as illustrated in the figure below:



- Connect the LAN Port of SPARSH VP248 to the LAN Switch/Hub or a Router, according to your installation scenario.

- To connect your phone to a computer on your desk, use an Ethernet cable (not supplied with this phone) to connect the PC Port of the phone to the LAN Port of the computer.

- Plug the connector of the Power Adapter into the power jack at the bottom of the phone. Use only the adapter provided with the phone to prevent any damages that may arise from the use of other adapters.

  If your phone supports Power over Ethernet (PoE), and you want to use PoE, make sure that your LAN supports PoE. Supply power through an 802.3af connection on the LAN Port of the phone. Do not connect the Adapter!

- Plug the Power Adapter into a power outlet.

- Switch ON power supply.

- When you power the phone, the boot process will be initiated in the following sequence.

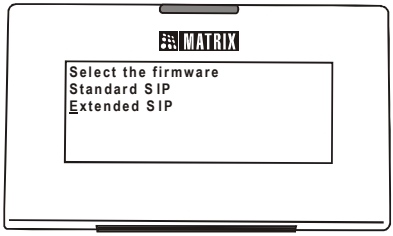
  - All keys with LED, including the Speaker key, and the Ringer LED, will glow.

  - The LCD display will light up and the booting message appears.

  - As soon as the 'Loading...' message appears on the phone display, press **#** key.

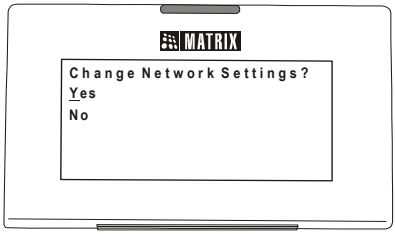
  - Select the firmware **Extended - IP Phone**. Move the cursor by pressing the DOWN navigation key **V**.

- When the cursor is placed under the Extended IP Phone, press Enter key.



- The phone will start loading the Extended IP Phone Firmware. It will display current firmware that is being loaded.

- After loading the firmware, the phone will prompt you to change Network settings.



- Wait for a few seconds.

If you want to change the Network Settings or Server Settings, press the Enter key. Refer to SIP Extensions topic in the System Manual for detailed instructions.

- The phone makes DHCP Discovery and fetches its IP Address and Server Address from the DHCP Server.

- On getting the IP Address and Server Address, the phone initiates Auto Configuration to download the configuration files from SARVAM UCS.

- As the phone downloads the configuration files, the file names will appear one by one.

- On successful download of all configuration files, the phone attempts to register with SARVAM UCS.

- On successful registration, the phone will display the current day, date and time, the extension number and name assigned to the Extended IP Phone.

Connecting SPARSH VP310 as Extended SIP Extension

- Decide the location of the Extended IP Phone, whether within the same network or outside, according to your installation scenario.

- If you want to use the **DHCP Server** for assigning IP Address to the Extended IP Phone, do the following:

    - select **DHCP option 224** and **Data Type** as '**String**' to provide Server Address to the Extended IP Phones.

    - configure the **WAN or LAN IP Address/Dynamic DNS Domain Name** and SPARSH Port in the format "**IP_Address:Port**" in your DHCP Server as per your installation scenario. Make sure you configure an IPv4 Address, as SARVAM UCS supports only IPv4 Addresses for registering SPARSH VP310.

- Log in to *Jeeves*. For instructions, read the topic "Configuring ETERNITY GENX".

- Assign an extension number (**SIP ID**) to the Extended IP Phone. For instructions on assigning SIP ID, see the topic *Configuring SIP Extensions*, in the System Manual.

- For the SIP Extension number you assigned to the Extended IP Phone, go to the **Location** settings of the extension and configure the necessary parameters in SARVAM UCS so that the Extended IP Phone can register as a SIP Extension. For instructions, see the topic *Configuring SPARSH VP310* under *Configuring SIP Extensions*.

Now, follow the steps described below to install the Extended IP Phone.

- Unpack the SPARSH VP310 box and verify package contents.

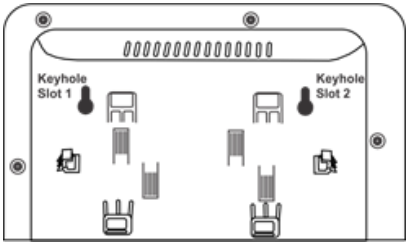
- You can mount the phone on a wall or on the desk.

    - When you mount SPARSH VP310 on a wall,

        - Use the mounting template to drill holes of appropriate size and distance.

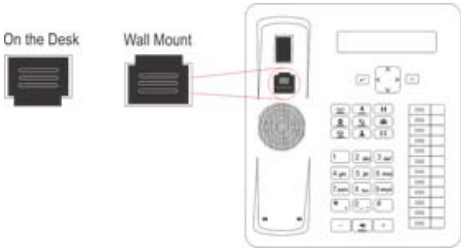
        - Fix the screw grips in the holes you drilled.

- Fix two screws in the holes on the wall, ensuring that they are aligned with the Keyhole Slots 1 and 2 of SPARSH VP310. The screws should protrude from the wall to fit into the Keyhole Slots.



- Now, mount the phone with the screws fitting into the Keyhole Slot.

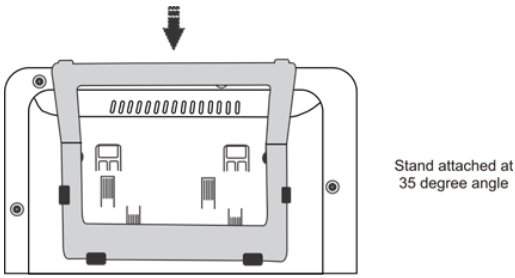
- Reverse the handset wall mount tab to make sure the handset remains intact when you mount the phone. Push the handset wall mount tab upwards to remove it from the slot. Rotate it 180 degrees clockwise and push it downwards into the slot.



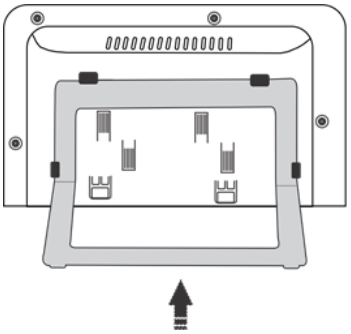
- When you mount the phone on a desk,

  - You can attach the Foot Stand in two ways as illustrated in the following.

    Foot Stand attached at 35° Angle

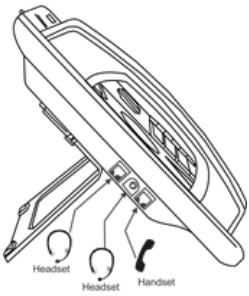


Foot Stand attached at 50° Angle



If you attach the Foot Stand at 50°, the phone will be placed in an almost upright position on your desk.

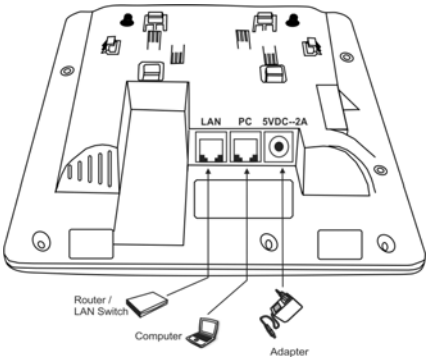
- Decide which of these positions would work for you best and accordingly attach the Foot Stand.



- Connect the Handset to the Phone body.
  - Plug the long straightened end of the phone cord into the handset jack on the left side panel of the phone, marked with the handset symbol .
  - Plug the other (short straight) end of the phone cord into the jack at the bottom of the handset.
- If you want to use a Headset (not supplied) with your phone, you may plug a headset with a 3.5 mm single connector into the headset jack headset jack on the left side panel of the phone, marked with the symbol as illustrated in the figure above.

  OR

You may also plug in a headset with RJ9 connector into the headset port on the left side panel of the phone, marked with the symbol .



- Connect the LAN Port of SPARSH VP310 to the LAN Switch/Hub or a Router, according to your installation scenario.
- To connect your phone to a computer on your desk, use an Ethernet cable (not supplied with this phone) to connect the PC Port of the phone to the LAN Port of the computer.
- Plug the connector of the Power Adapter in to the power jack at the back of the phone. Use only the adapter provided with the phone to prevent any damages that may arise from the use of other adapters.

  If you want to use Power over Ethernet (PoE), ensure that your LAN supports PoE. Supply power through an 802.3af connection on the LAN Port of the phone. In this case you need not connect the Power Adapter.
- Plug the Power Adapter into a power outlet.

  If both the power options, that is, PoE as well as Power Adapter are available to the phone, then the phone will derive power from the PoE enabled LAN Switch.
- Switch ON power supply.
- When you power the phone, the boot process will be initiated in the following sequence.
  - All keys with LED, including the Speaker key, and the Ringer LED, will glow.
  - The LCD display will light up and the booting message appears.

- Then the 'Loading...' message appears on the phone display.
- The phone will start loading the Extended IP Phone Firmware. It will display current firmware that is being loaded.
- After loading the firmware, the phone will prompt you to change Network settings.

- Wait for a few seconds.

If you want to change the Network Settings or Server Settings, press the Enter key. Refer to SIP Extensions in the System Manual for detailed instructions.

- The phone makes DHCP Discovery and fetches its IP Address and Server Address from the DHCP Server.

  On getting the IP Address and Server Address, the phone initiates Auto Configuration to download the configuration files from SARVAM UCS.

- As the phone downloads the configuration files, the file names will appear one by one.
- On successful download of all configuration files, the phone attempts to register with SARVAM UCS.
- On successful registration, the phone will display the current day, date and time, the extension number and name assigned to the Extended IP Phone.

- Switch ON the system.
- It takes 2 to 3 minutes for initiation.

Reset Cycle on ETERNITY GENX

- On completion of the initialization, LED L1 of the CPU card will be turned ON Green continuously and LED L2 of the CPU card will be turned ON Green for 1 sec and OFF for 1 sec.

Configuring ETERNITY GENX

ETERNITY GENX Platform provides a Graphic User Interface (GUI), Jeeves, the proprietary web-based configuration software of Matrix. Using Jeeves, you can select the application you want to run on the ETERNITY GENX platform.

The accessibility to the web-based GUI is secured by a password. This password cannot be used to configure the system using commands.

To be able to access Jeeves,

- the LAN/WAN Port of ETERNITY GENX must be connected with a stand-alone PC or in a LAN.
- a web-browser, either Internet Explorer 7 or later or Mozilla Firefox 3.5.1 or later, must be installed on the PC.

If the computer for accessing Jeeves is connected in a LAN Switch and the WAN Port of ETERNITY GENX is connected behind a NAT router, make sure that both the LAN and WAN connections are in different Subnet Masks.

To login,

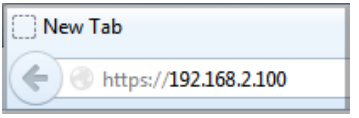
- Open the browser (Internet Explorer/Mozilla Firefox) on the PC (Standalone or LAN PC) to which the ETERNITY GENX is connected.
- Make sure the IP Address of the computer and the LAN Port of ETERNITY GENX do not conflict, and that both are in the same Subnet.

  The default IP Address of the LAN Port is: **192.168.2.100**

  The default Subnet Mask of the LAN Port is: **255.255.255.000**

  Change the Subnet of the computer, if necessary.

- In the address bar of the browser, enter **https://192.168.2.100**.

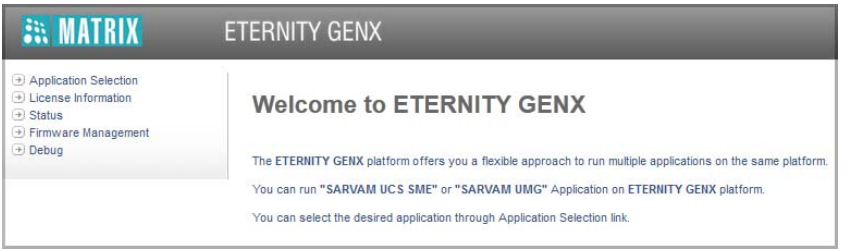


If you enter the IP Address **192.168.2.100** directly, you will be redirected to the HTTPS protocol for secure access. Click the **https://192.168.2.100** link on the page.

- The **Login** page will open.
- In **Login Password**, enter *1234*, the default Password.

- Click the **Login** button.
- On successful login, the **Home** page of Jeeves opens.

  The left navigation bar displays the links — **Application Selection, License Information, Status, Firmware Management** and **Debug**.



Application Selection enables you to select the application you wish to run on the ETERNITY GENX platform. Select SARVAM UCS SME option.

License Information displays the License key along with the License details of the applications.

Status displays the system details and the status of all the ports.

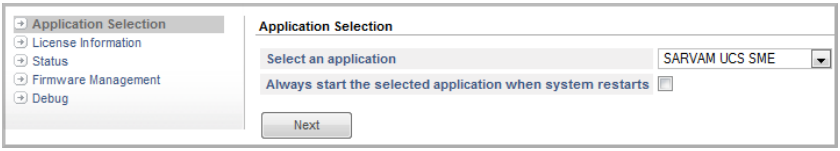
Firmware Management enables you to upgrade the system software with a click of a button.

Debug allows you to enable and configure the debug settings.

Application Selection

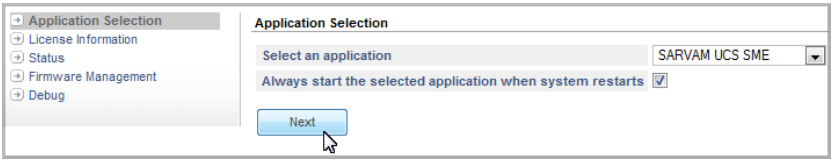
Through **Application Selection**, you can select the application you wish to run on the ETERNITY GENX Platform.

- In **Select an Application**, you must select the SARVAM UCS SME option.



- Select the **Always start the selected application when system restarts** check box, if you want SARVAM UCS application to start whenever the system restarts.

- Keep the check box disabled only if you want to select the application to be run on the ETERNITY GENX platform everytime the system restarts. Default: Disabled.



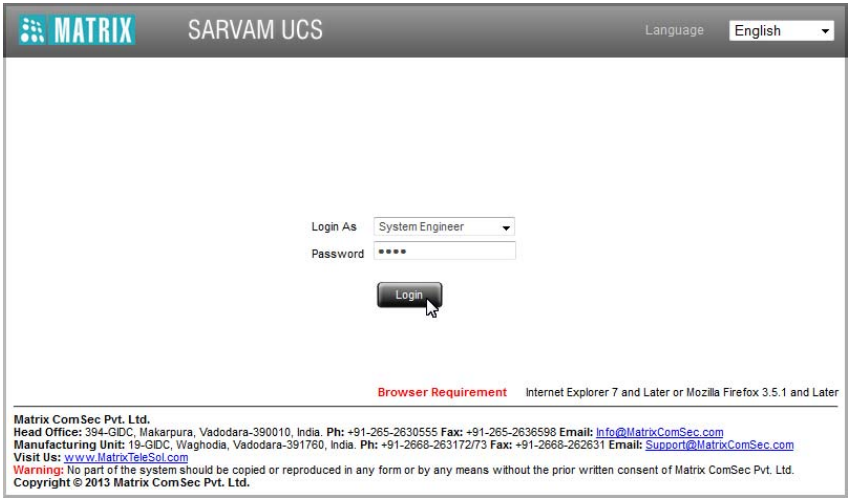
- Now, click on the **Next** button, you will be redirected to the SARVAM UCS SME Application.

Configuring SARVAM UCS

SARVAM UCS Application provides an embedded web server with a Graphic User Interface (GUI), *Jeeves*, for configuration.

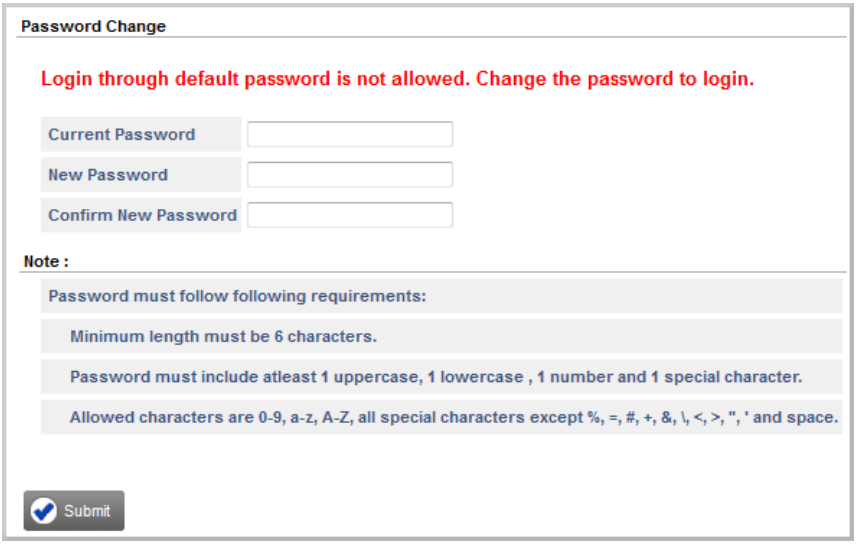
To access SARVAM UCS Jeeves,

- In **Login Password**, enter *1234*, the default Password.



- Click the **Login** button.

- You are prompted to change the default password.



- In **Current Password**, enter the default SE Password.

- Enter the **New Password**. All ASCII characters (except Percentage **%**, Hash **#**, Equal to **=**, Plus **+**, And **&**, Backslash ****, Less than **<**, Greater than **>**, Apostrophe **'** , Double Quote **"** and **Space**) and digits 0 to 9 are allowed.

  The new password must be:
  - a minimum of 6 characters to a maximum of 12 characters.
  - include atleast one upper-case, one lower-case, one number and one special character.

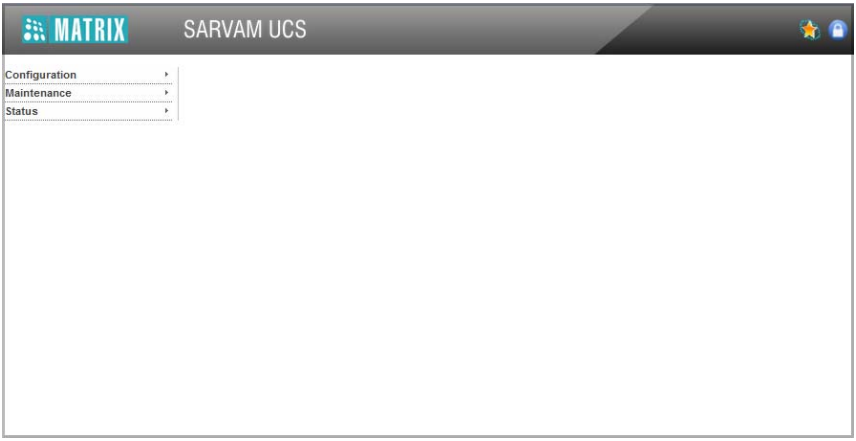
- In **Confirm New Password**, re-enter the new password to confirm.

- Click **Submit**. You will be re-directed to the Login page again.

- In **Login Password**, enter the new password.

As this password is meant for restricting access to the SE mode, we strongly recommend you to:
- Keep the password secret.
- Select a complex password that cannot be easily guessed.
- Change the password regularly. For instructions, see the topic 'Login Password' in the System Manual.

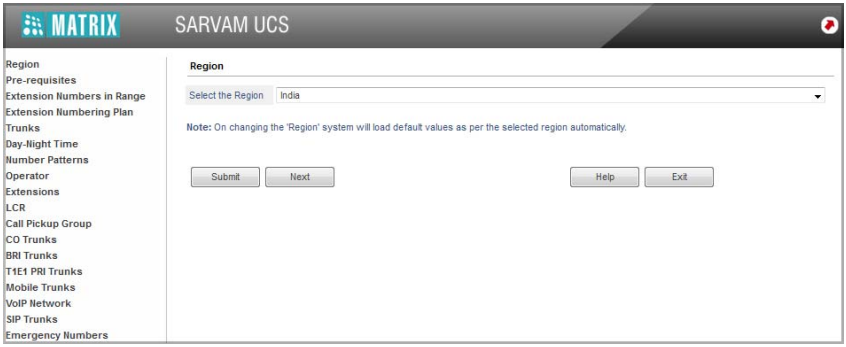
On successful login, the **Home** page of Jeeves opens.



- The following links will appear on the left navigation bar:
    - **Configuration:** The links to all configurable parameters of SARVAM UCS and its extensions appear under this link.
    - **Maintenance:** Provides instructions for back-up, generating reports and debugging.
    - **Status:** Displays the status of the System, Network, SIP Trunks, Mobile Ports, BRI Ports, T1E1 Ports, CO Trunks, SIP Extensions and the Voice Mail System.
- SARVAM UCS offers a Wizard for quick and easy configuration of its Basic Settings.
- To use the wizard, click the **Wizard icon** .

- The Welcome page of the Wizard will open.

- To configure Basic Settings of SARVAM UCS for its Enterprise Application, click the **Use Quick Installation Wizard-Standard PBX** link.



- To configure the Basic Settings of SARVAM UCS for its Hospitality Application, click the **Use Quick Installation Wizard - Hotel** link.

- The Wizard will open. You may navigate the Wizard screens by clicking the **Next** button, or click the desired parameter link on the left navigation bar and configure its settings.

- To save the changes you make on each page, clicking the **Submit** button at the bottom of each page.

For more information and instructions on using the Wizard, see the topic *Using the Quick Installation Wizard - Standard PBX* in the SARVAM UCS System Manual.

Activating License Key

You must activate the **SARVAM UCS SME** Application License to run ETERNITY GENX as an Unified Communication Server.

For the following functional modules and features, you would need to activate a valid License Key.

- IP Subscribers (For SIP Extensions)
- Matrix VARTA User Licenses
- VOCODER Channels
- VMS Channels
- Computer Telephony Integration (CTI)
- Q-Sig
- Hospitality Management System
- Property Management System(PMS)
- Gateway
- PLCC
- SMS Server
- SMS Gateway

For more information see the topic *License Management* in the SARVAM UCS System Manual.

Instructions for Matrix Channel Partners

Your license voucher may be a paper or a PDF (protected) file.

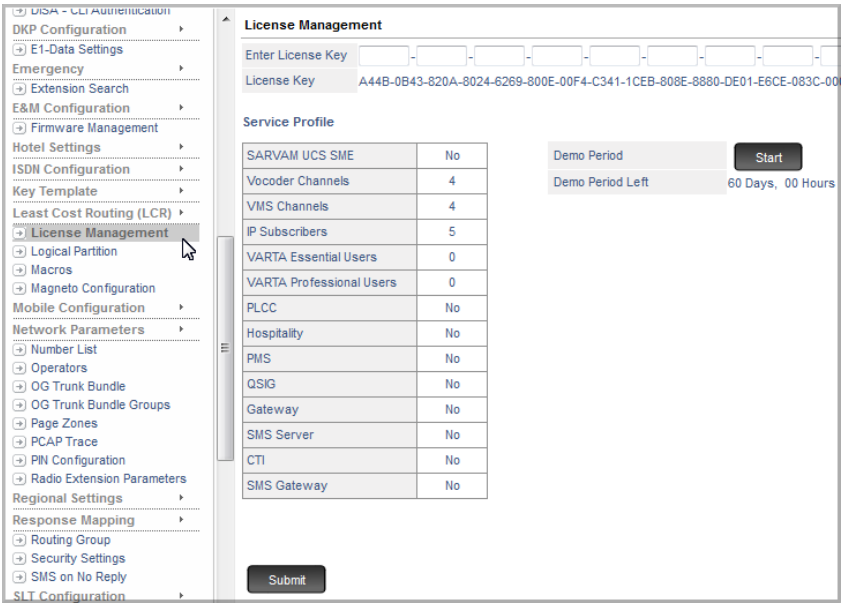
You may activate your License Online. For this, keep the following items ready:

- The SARVAM UCS SME License Voucher containing the 16-digit PIN.
- A valid, unique User ID and Password from the Matrix License Support Centre.
- Access to Internet.
- Current License Key of the system.

To activate License key,

- Open Jeeves.
- Log in as System Engineer.
- Under **Configuration**, click **License Management** link.

The **License Management** page opens.



- Note down or copy the current **License Key** on this page.
  The features and functions that are currently available on your system appear under **Service Profile**.

- Keep your Current License Key and the License Voucher ready.

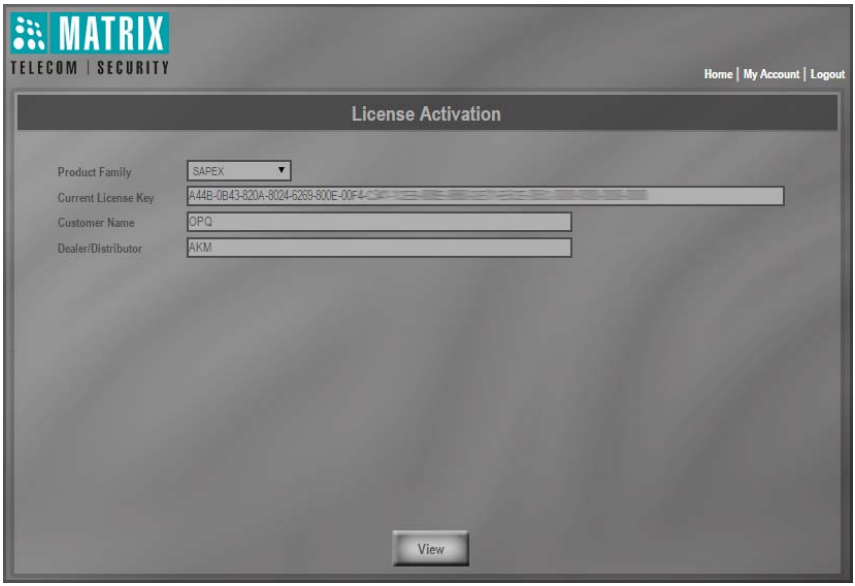
- Open a new window on your browser. Enter **http://www.matrixcomsec.com/MatrixLicense** in the address bar.

- Click **Login to Access**.

- The **Login to Access** page will open.

- Enter your **User Name** and **Password** provided by Matrix and click the **Login** button.

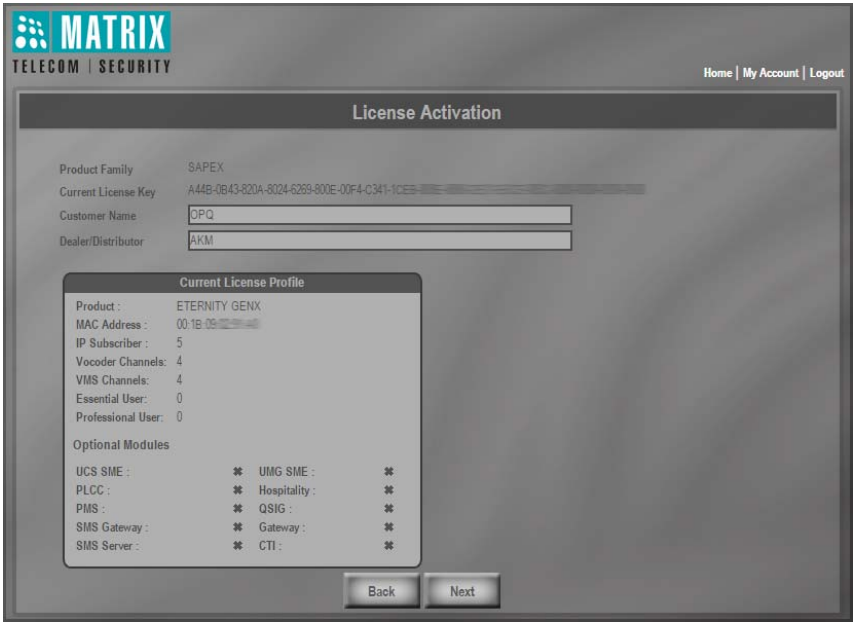
On successful login, the **License Activation** page will open.



- As **Product Family**, select the option **SAPEX**.

- In the field **Current License Key**, paste or type the current product license key you noted from the *License Management* page of Jeeves.

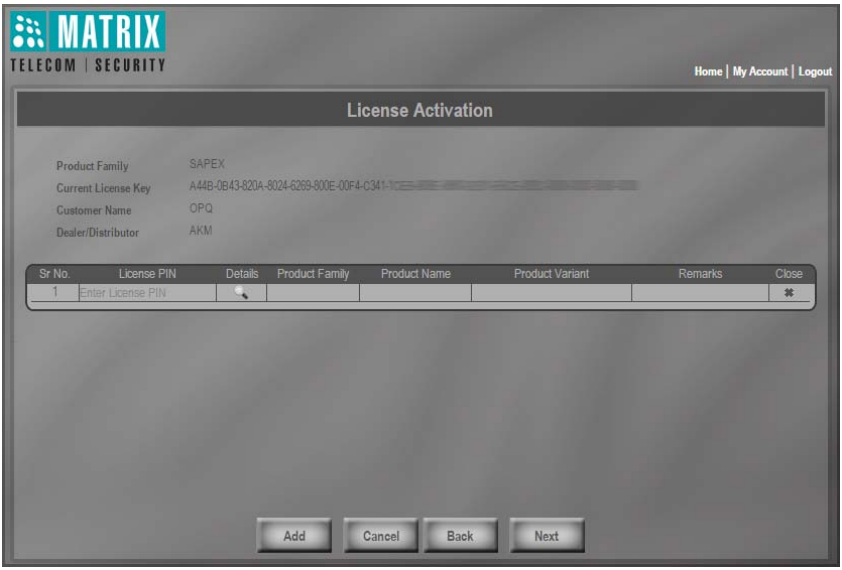
- Click **View** button.



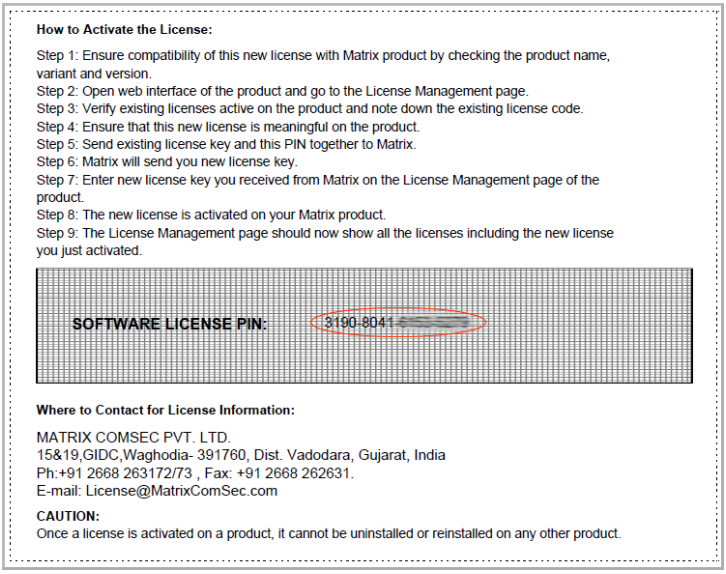
- The page will show the current License Profile on ETERNITY GENX. Click the **Next** button to continue.

When ETERNITY GENX is used as the Unified Communication Server, all the licenses except UMG are applicable. UMG License is applicable when you run the ETERNITY GENX as the Universal Media Gateway.

The **License Activation** page opens.



- In the **License PIN** field on this page, enter the License PIN from the Voucher.



How to Activate the License:

Step 1: Ensure compatibility of this new license with Matrix product by checking the product name, variant and version.
Step 2: Open web interface of the product and go to the License Management page.
Step 3: Verify existing licenses active on the product and note down the existing license code.
Step 4: Ensure that this new license is meaningful on the product.
Step 5: Send existing license key and this PIN together to Matrix.
Step 6: Matrix will send you new license key.
Step 7: Enter new license key you received from Matrix on the License Management page of the product.
Step 8: The new license is activated on your Matrix product.
Step 9: The License Management page should now show all the licenses including the new license you just activated.

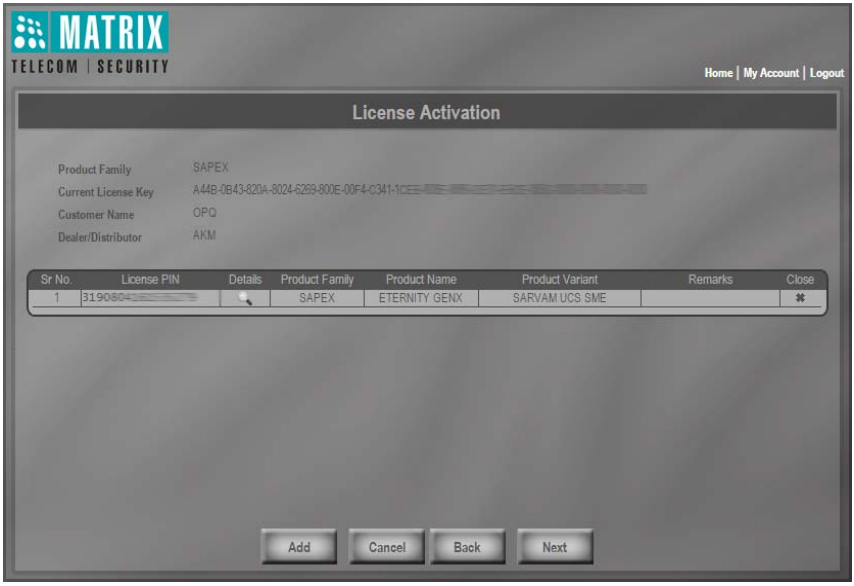
SOFTWARE LICENSE PIN: 3190-8041-[redacted]

Where to Contact for License Information:

MATRIX COMSEC PVT. LTD.
15&19,GIDC,Waghodia- 391760, Dist. Vadodara, Gujarat, India
Ph:+91 2668 263172/73 , Fax: +91 2668 262631.
E-mail: License@MatrixComSec.com

CAUTION:
Once a license is activated on a product, it cannot be uninstalled or reinstalled on any other product.

- Click **Details**. The details appear in the fields **Product Family, Product Name, Product Variant**.



- Click the **Next** button. Your **Current License Profile** and your **New License Profile** will appear on this page.

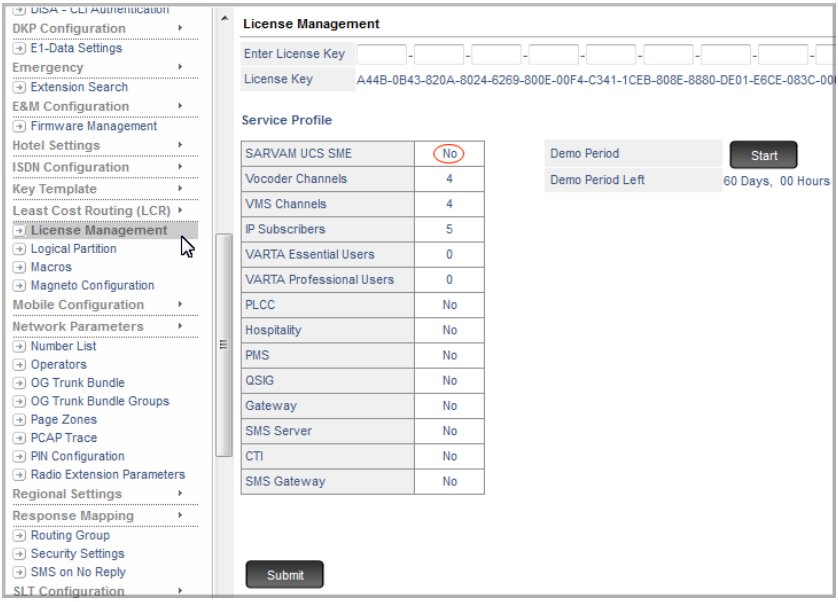
- Click the **Activate** button and wait for a few seconds, as the activation is initiated.
  On successful activation, the confirmation message will appear on your screen along with the activation date and time.

You will also be sent a confirmation mail to your e-mail ID (registered with Matrix).

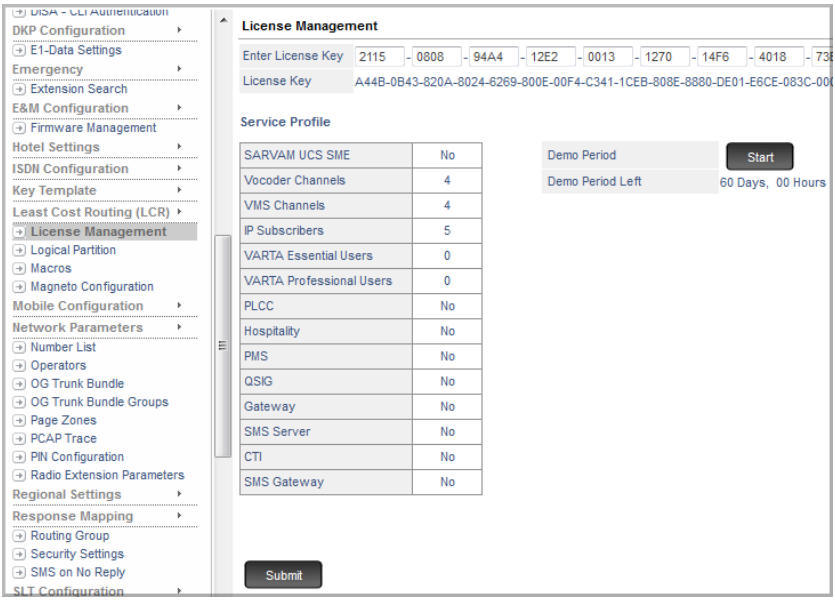
You may **Save**, **Print**, or **Email** this information for your records, by clicking the relevant button on the bottom of the page.

- Note down or copy the New License Key generated on this page.
- Go back to the Jeeves window (or log in as System Engineer again, if your session has ended).

- Under **Configuration**, click **License Management**.

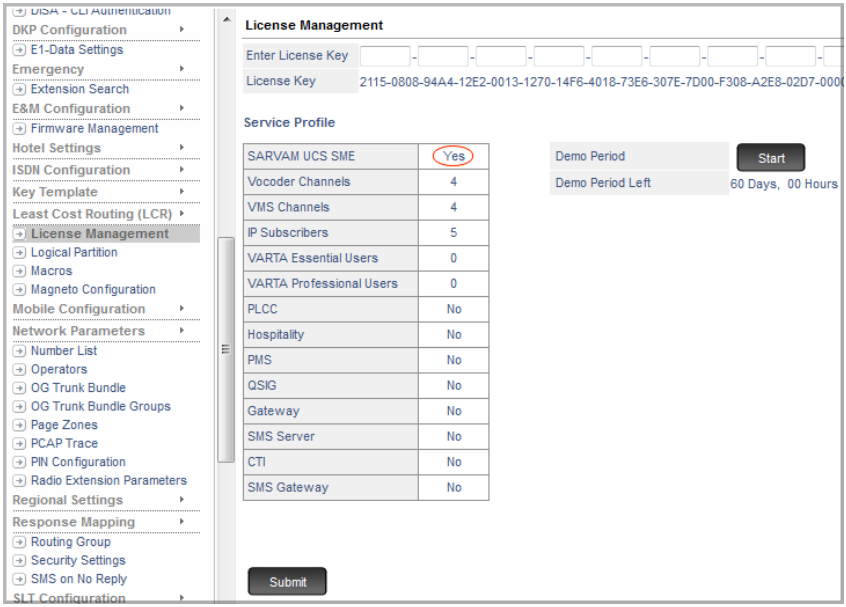


- Paste or enter the new License Key generated in the field **Enter License Key**.



- Click **Submit** button.

The **Service Profile** on this page will be updated according to the license.



- To log off, click **Logout**.

If you are unable to use Online Activation of the License Key or have no internet access, contact the Matrix License Support Centre for assistance in generating the new License key.

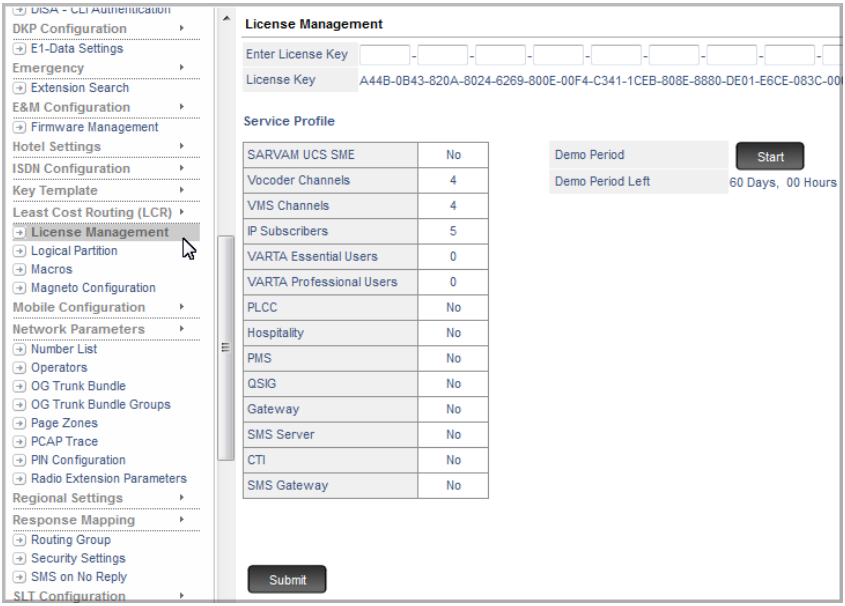
Instructions for Customers

To activate your License, you would need the License Voucher containing the 16-digit License PIN. Contact your Dealer/Distributor in this regard. Your License Voucher may be a paper or a protected PDF file.

- Open Jeeves.

- Log in as System Engineer.

- Under **Configuration**, click **License Management**. The License Management page opens.



- Note down the current **License Key** on this page.

  You may view the features and functions that are currently available to you under **Service Profile**.

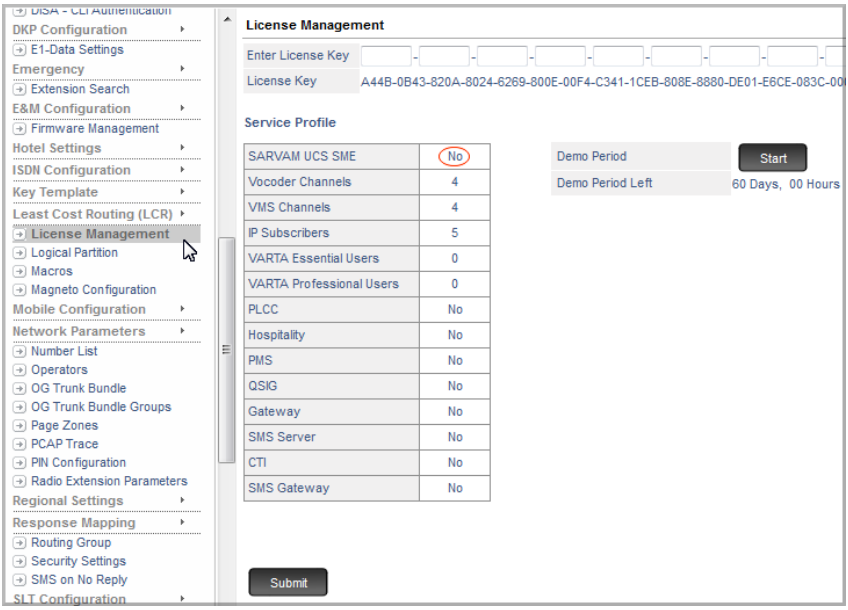
- Send your Current License Key and the License PIN (on the Voucher) to the Matrix License Support Centre.

- You will receive a new License Key.

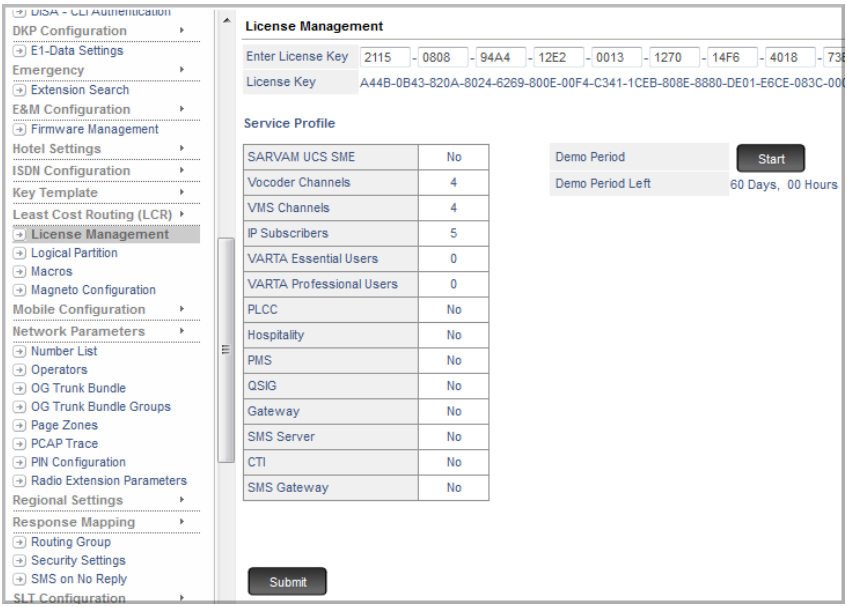
- Open Jeeves again.

- Log in as System Engineer.

- Under **Configuration**, click **License Management**.

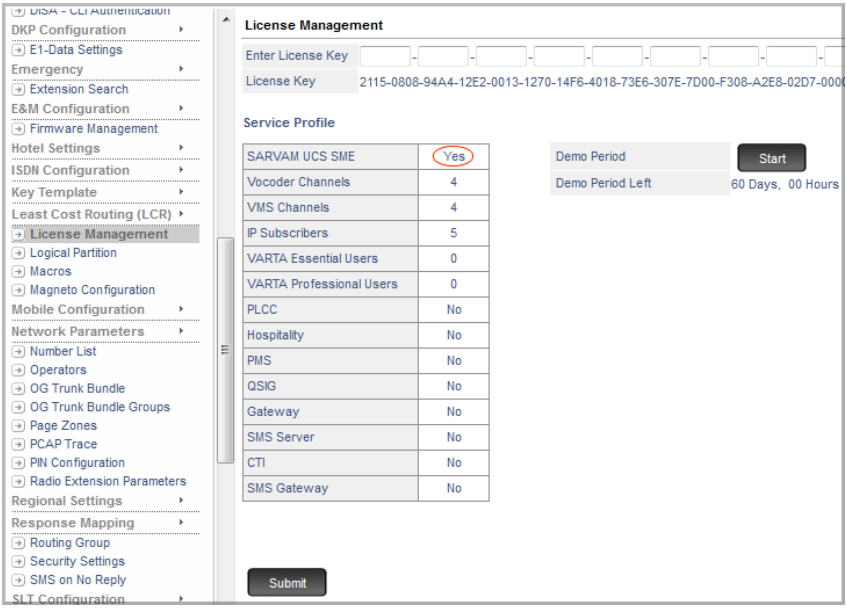


- Enter the New License Key you obtained from Matrix in the field **Enter License Key.**



- Click the **Submit** button.

  The **Service Profile** on this page will be updated accordingly.



- To log off, click **Logout**.

The current License Key and Service Profile will remain unchanged when the system is set to default or the firmware is upgraded.

If you have not purchased the license and you wish to use the features on trial basis, you can use the Demo Provision. Demo Provision enables you to use the SARVAM UCS application, free of cost for a period of 60 days.

During the Demo Provision you can access and use all the features and functionalities supported by the application.

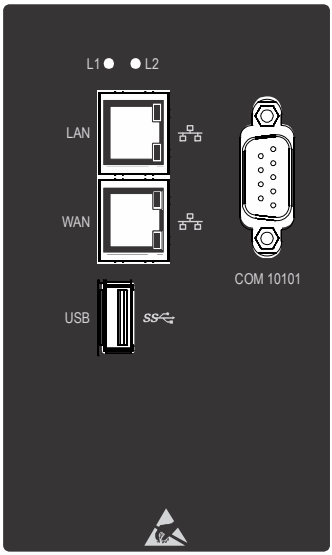
If you do not have the license for the SARVAM UCS SME Application and you do not start the Demo Period, the system will allow the configuration and making calls but the connected calls from any port will be disconnected after 60 seconds.

You may now configure the parameters of SARVAM UCS as per your requirement.

Appendix

Cable Diagram for ETERNITY GENX Cards

ETERNITY GENX CPU Card



Ports and Connectors

Port	Connector	Description
LAN	RJ45	Used for connecting the Ethernet cable into LAN Port to connect to a PC or a LAN Switch.
WAN	RJ45	Used for connecting the Ethernet cable into WAN Port to connect to a Broadband Router/Modem.
USB	-	For future use

Port	Connector	Description
COM	DB-9	Used to: • set up and run software applications — PMS and CAS. • capture System Activity Log, System Fault log and Hotel Motel Activity logs. • generate SMDR reports.

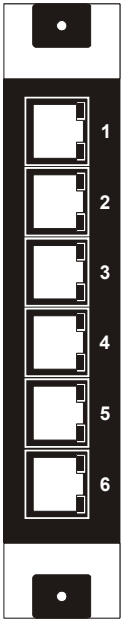
ETERNITY GE SLT8

Connector	Color	Connection	H/w Port Offset
RJ45-1	Blue - (Blue & White) Orange - (Orange & White) Green - (Green & White) Brown - (Brown & White)	SLT SLT SLT SLT	01 02 03 04
RJ45-1	Blue - (Blue & White) Orange - (Orange & White) Green - (Green & White) Brown - (Brown & White)	SLT SLT SLT SLT	05 06 07 08

ETERNITY GE SLT16

Connector	Color	Connection	H/w Port Offset
RJ45-1	Blue - (Blue & White)	SLT	01
	Orange - (Orange & White)	SLT	02
	Green - (Green & White)	SLT	03
	Brown - (Brown & White)	SLT	04
RJ45-2	Blue - (Blue & White)	SLT	05
	Orange - (Orange & White)	SLT	06
	Green - (Green & White)	SLT	07
	Brown - (Brown & White)	SLT	08
RJ45-3	Blue - (Blue & White)	SLT	09
	Orange - (Orange & White)	SLT	10
	Green - (Green & White)	SLT	11
	Brown - (Brown & White)	SLT	12
RJ45-4	Blue - (Blue & White)	SLT	13
	Orange - (Orange & White)	SLT	14
	Green - (Green & White)	SLT	15
	Brown - (Brown & White)	SLT	16

ETERNITY GE SLT20 / ETERNITY GE ILC20

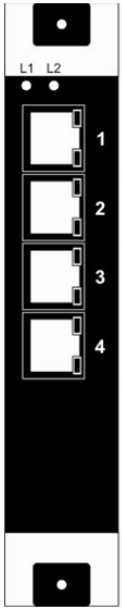


Connector	Color	Connection	H/w Port Offset
RJ45-1	Blue - (Blue & White)	SLT	01
	Orange - (Orange & White)	SLT	02
	Green - (Green & White)	SLT	03
	Brown - (Brown & White)	SLT	04
RJ45-2	Blue - (Blue & White)	SLT	05
	Orange - (Orange & White)	SLT	06
	Green - (Green & White)	SLT	07
	Brown - (Brown & White)	SLT	08
RJ45-3	Blue - (Blue & White)	SLT	09
	Orange - (Orange & White)	SLT	10
	Green - (Green & White)	SLT	11
	Brown - (Brown & White)	SLT	12
RJ45-4	Blue - (Blue & White)	SLT	13
	Orange - (Orange & White)	SLT	14
	Green - (Green & White)	SLT	15
	Brown - (Brown & White)	SLT	16
RJ45-5	Blue - (Blue & White)	SLT	17
	Orange - (Orange & White)	SLT	18
	Green - (Green & White)	-	-
	Brown - (Brown & White)	-	-
RJ45-6	Blue - (Blue & White)	SLT	19
	Orange - (Orange & White)	SLT	20
	Green - (Green & White)	-	-
	Brown - (Brown & White)	-	-

ETERNITY GE DKP8

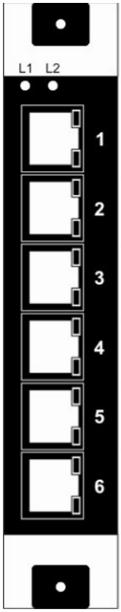
Connector	Color	Connection	H/w Port Offset
RJ45-1	Blue - (Blue & White)	DKP	01
	Orange - (Orange & White)	DKP	02
	Green - (Green & White)	DKP	03
	Brown - (Brown & White)	DKP	04
RJ45-2	Blue - (Blue & White)	DKP	05
	Orange - (Orange & White)	DKP	06
	Green - (Green & White)	DKP	07
	Brown - (Brown & White)	DKP	08

ETERNITY GE DKP16



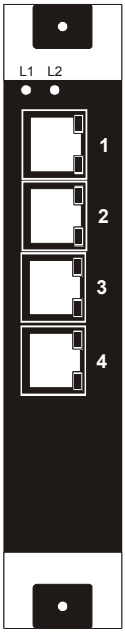
Connector	Color	Connection	H/w Port Offset
RJ45-1	Blue - (Blue & White)	DKP	01
	Orange - (Orange & White)	DKP	02
	Green - (Green & White)	DKP	03
	Brown - (Brown & White)	DKP	04
RJ45-2	Blue - (Blue & White)	DKP	05
	Orange - (Orange & White)	DKP	06
	Green - (Green & White)	DKP	07
	Brown - (Brown & White)	DKP	08
RJ45-3	Blue - (Blue & White)	DKP	09
	Orange - (Orange & White)	DKP	10
	Green - (Green & White)	DKP	11
	Brown - (Brown & White)	DKP	12
RJ45-4	Blue - (Blue & White)	DKP	13
	Orange - (Orange & White)	DKP	14
	Green - (Green & White)	DKP	15
	Brown - (Brown & White)	DKP	16

ETERNITY GE DKP4+SLT16



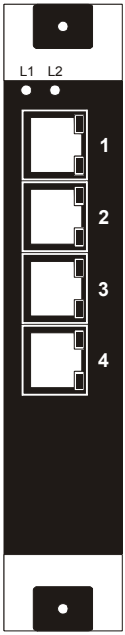
Connector	Color	Connection	H/w Port Offset
RJ45-1	Blue - (Blue & White) Orange - (Orange & White) Green - (Green & White) Brown - (Brown & White)	SLT SLT SLT SLT	01 02 03 04
RJ45-2	Blue - (Blue & White) Orange - (Orange & White) Green - (Green & White) Brown - (Brown & White)	SLT SLT SLT SLT	05 06 07 08
RJ45-3	Blue - (Blue & White) Orange - (Orange & White) Green - (Green & White) Brown - (Brown & White)	SLT SLT SLT SLT	09 10 11 12
RJ45-4	Blue - (Blue & White) Orange - (Orange & White) Green - (Green & White) Brown - (Brown & White)	SLT SLT SLT SLT	13 14 15 16
RJ45-5	Blue - (Blue & White) Orange - (Orange & White)	DKP DKP	01 02
RJ45-6	Blue - (Blue & White) Orange - (Orange & White)	DKP DKP	03 04

ETERNITY GE CO8



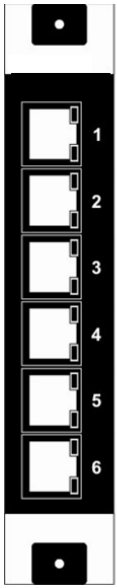
Connector	Color	Connection	H/w Port Offset
RJ45-1	Blue - (Blue & White) Orange - (Orange & White) Green - (Green & White) Brown - (Brown & White)	CO CO CO CO	01 02 03 04
RJ45-2	Blue - (Blue & White) Orange - (Orange & White) Green - (Green & White) Brown - (Brown & White)	CO CO CO CO	05 06 07 08
RJ45-3	Unused		
RJ45-4	Unused		

ETERNITY GE CO16



Connector	Color	Connection	H/w Port Offset
RJ45-1	Blue - (Blue & White) Orange - (Orange & White) Green - (Green & White) Brown - (Brown & White)	CO CO CO CO	01 02 03 04
RJ45-2	Blue - (Blue & White) Orange - (Orange & White) Green - (Green & White) Brown - (Brown & White)	CO CO CO CO	05 06 07 08
RJ45-3	Blue - (Blue & White) Orange - (Orange & White) Green - (Green & White) Brown - (Brown & White)	CO CO CO CO	09 10 11 12
RJ45-4	Blue - (Blue & White) Orange - (Orange & White) Green - (Green & White) Brown - (Brown & White)	CO CO CO CO	13 14 15 16

ETERNITY GE CO2+DKP2+SLT16

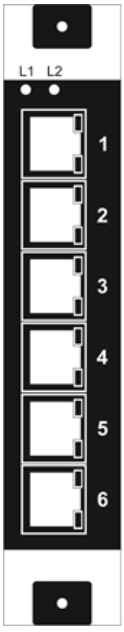


Connector	Color	Connection	H/w Port Offset
RJ45-1	Blue - (Blue & White) Orange - (Orange & White) Green - (Green & White) Brown - (Brown & White)	SLT SLT SLT SLT	01 02 03 04
RJ45-2	Blue - (Blue & White) Orange - (Orange & White) Green - (Green & White) Brown - (Brown & White)	SLT SLT SLT SLT	05 06 07 08
RJ45-3	Blue - (Blue & White) Orange - (Orange & White) Green - (Green & White) Brown - (Brown & White)	SLT SLT SLT SLT	09 10 11 12
RJ45-4	Blue - (Blue & White) Orange - (Orange & White) Green - (Green & White) Brown - (Brown & White)	SLT SLT SLT SLT	13 14 15 16
RJ45-5	Blue - (Blue & White) Orange - (Orange & White)	DKP DKP	01 02
RJ45-6	Blue - (Blue & White) Orange - (Orange & White)	CO CO	01 02

ETERNITY GE CO4+DKP2+SLT12 (with and without PFT)

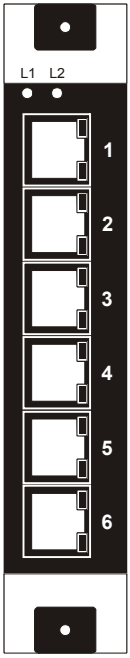
Connector	Color	Connection	H/w Port Offset
RJ45-1	Blue - (Blue & White) Orange - (Orange & White) Green - (Green & White) Brown - (Brown & White)	SLT SLT SLT SLT	01 02 03 04
RJ45-2	Blue - (Blue & White) Orange - (Orange & White) Green - (Green & White) Brown - (Brown & White)	SLT SLT SLT SLT	05 06 07 08
RJ45-3	Blue - (Blue & White) Orange - (Orange & White) Green - (Green & White) Brown - (Brown & White)	SLT SLT SLT SLT	09 10 11 12
RJ45-4	Blue - (Blue & White) Orange - (Orange & White) Green - (Green & White) Brown - (Brown & White)	CO CO CO CO	01 02 03 04
RJ45-5	Blue - (Blue & White) Orange - (Orange & White)	DKP DKP	01 02
RJ45-6	Unused		

ETERNITY GE CO4+DKP2+SLT8 (with PFT)



Connector	Color	Connection	H/w Port Offset
RJ45-1	Blue - (Blue & White) Orange - (Orange & White) Green - (Green & White) Brown - (Brown & White)	SLT SLT SLT SLT	01 02 03 04
RJ45-2	Blue - (Blue & White) Orange - (Orange & White) Green - (Green & White) Brown - (Brown & White)	SLT SLT SLT SLT	05 06 07 08
RJ45-3	Unused		
RJ45-4	Blue - (Blue & White) Orange - (Orange & White) Green - (Green & White) Brown - (Brown & White)	CO CO CO CO	01 02 03 04
RJ45-5	Blue - (Blue & White) Orange - (Orange & White)	DKP DKP	01 02
RJ45-6	Unused		

ETERNITY GE CO4+SLT16

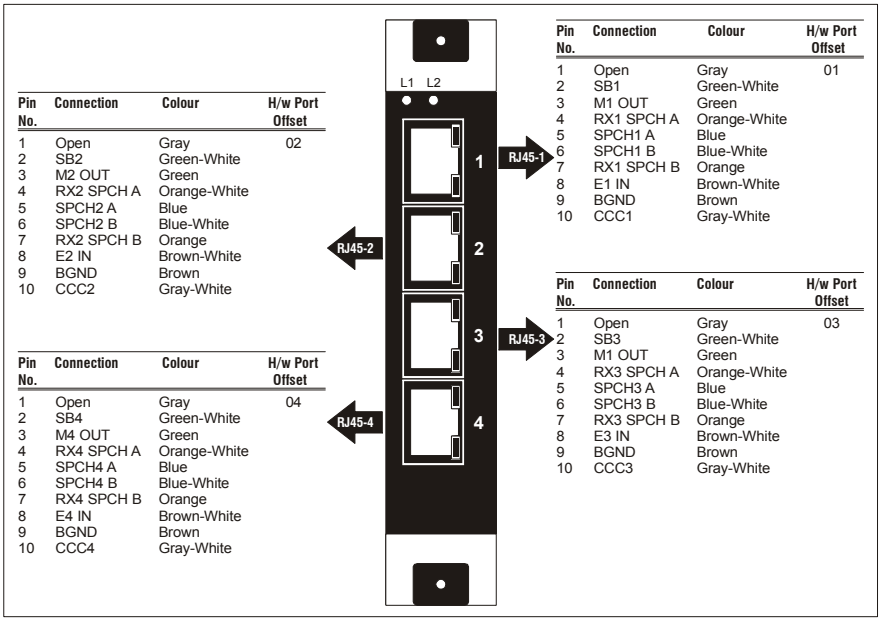


Connector	Color	Connection	H/w Port Offset
RJ45-1	Blue - (Blue & White) Orange - (Orange & White) Green - (Green & White) Brown - (Brown & White)	SLT SLT SLT SLT	01 02 03 04
RJ45-2	Blue - (Blue & White) Orange - (Orange & White) Green - (Green & White) Brown - (Brown & White)	SLT SLT SLT SLT	05 06 07 08
RJ45-3	Blue - (Blue & White) Orange - (Orange & White) Green - (Green & White) Brown - (Brown & White)	SLT SLT SLT SLT	09 10 11 12
RJ45-4	Blue - (Blue & White) Orange - (Orange & White) Green - (Green & White) Brown - (Brown & White)	SLT SLT SLT SLT	13 14 15 16
RJ45-5	Blue - (Blue & White) Orange - (Orange & White)	CO CO	01 02
RJ45-6	Blue - (Blue & White) Orange - (Orange & White)	CO CO	03 04

ETERNITY GE BRI4

BRI Port in TE Mode			BRI Port in NT Mode		
Pin	Color	Connection	Pin	Color	Connection
1	Orange-White	Not connected	1	Orange-White	Not connected
2	Orange	Not connected	2	Orange	Not connected
3	Green-White	TxA	3	Green-White	RxA
4	Blue	RxA	4	Blue	TxA
5	Blue-White	RxB	5	Blue-White	TxB
6	Green	TxB	6	Green	RxB
7	Brown-White	V-	7	Brown-White	V-
8	Brown	V+	8	Brown	V+

ETERNITY GE E&M4



Pin No.	Connection	Colour	H/w Port Offset
1	Open	Gray	02
2	SB2	Green-White	
3	M2 OUT	Green	
4	RX2 SPCH A	Orange-White	
5	SPCH2 A	Blue	
6	SPCH2 B	Blue-White	
7	RX2 SPCH B	Orange	
8	E2 IN	Brown-White	
9	BGND	Brown	
10	CCC2	Gray-White	

Pin No.	Connection	Colour	H/w Port Offset
1	Open	Gray	04
2	SB4	Green-White	
3	M4 OUT	Green	
4	RX4 SPCH A	Orange-White	
5	SPCH4 A	Blue	
6	SPCH4 B	Blue-White	
7	RX4 SPCH B	Orange	
8	E4 IN	Brown-White	
9	BGND	Brown	
10	CCC4	Gray-White	

Pin No.	Connection	Colour	H/w Port Offset
1	Open	Gray	01
2	SB1	Green-White	
3	M1 OUT	Green	
4	RX1 SPCH A	Orange-White	
5	SPCH1 A	Blue	
6	SPCH1 B	Blue-White	
7	RX1 SPCH B	Orange	
8	E1 IN	Brown-White	
9	BGND	Brown	
10	CCC1	Gray-White	

Pin No.	Connection	Colour	H/w Port Offset
1	Open	Gray	03
2	SB3	Green-White	
3	M1 OUT	Green	
4	RX3 SPCH A	Orange-White	
5	SPCH3 A	Blue	
6	SPCH3 B	Blue-White	
7	RX3 SPCH B	Orange	
8	E3 IN	Brown-White	
9	BGND	Brown	
10	CCC3	Gray-White	

ETERNITY GE Magneto4

Connector	Color	Connection	H/w Port Offset
RJ45-1	Blue - (Blue & White) Orange - (Orange & White) Green - (Green & White) Brown - (Brown & White)	Magneto - - -	01 - - -
RJ45-2	Blue - (Blue & White) Orange - (Orange & White) Green - (Green & White) Brown - (Brown & White)	Magneto - - -	02 - - -
RJ45-3	Blue - (Blue & White) Orange - (Orange & White) Green - (Green & White) Brown - (Brown & White)	Magneto - - -	03 - - -
RJ45- 4	Blue - (Blue & White) Orange - (Orange & White) Green - (Green & White) Brown - (Brown & White)	Magneto - - -	04 - - -

ETERNITY GE Radio4

Connector	Color	Pin Number	Signaling	H/w Port Offset
RJ45-1 to RJ45-4	Orange & White	1	PTT	01 to 04
	Orange	2	PTT_RTN	
	Green & White	3	Rx-	
	Blue	4	Tx+	
	Blue & White	5	Tx-	
	Green	6	Rx+	
	Brown & White	7	Unused	
	Brown	8	Unused	

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