

Initial configuration

Vega 400 E1/T1 (SIP)

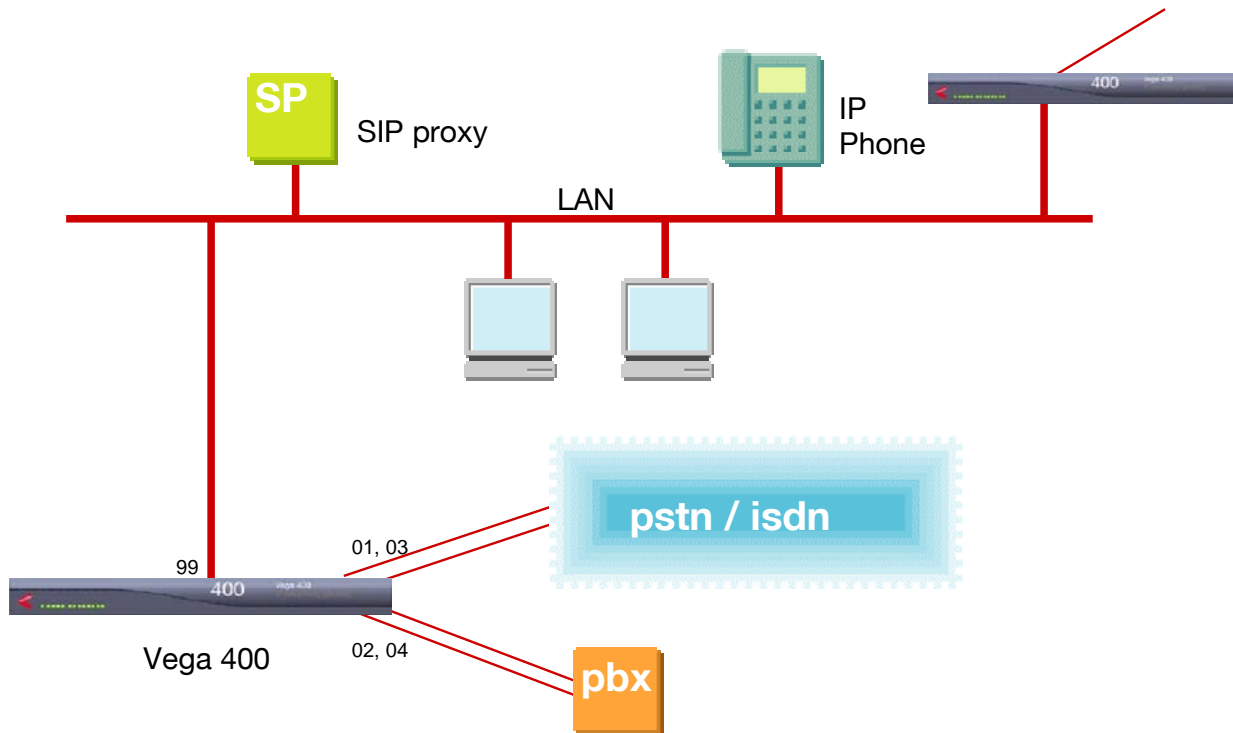
- R7



This document describes how to configure the Vega 400 E1/T1 SIP unit using the web browser interface. The configuration described will allow the Vega to be rapidly installed and tested.

The instructions below will configure the Vega 400 to be a transparent gateway for a SIP Proxy.

- Calls made from the PBX or PSTN to the Vega will be forwarded to the SIP Proxy. The dialed number passed to the Vega will be forwarded unchanged to the SIP Proxy.
- Calls made from the SIP Proxy to the Vega will be forwarded to the PSTN or to the PBX based on the leading two digits of the telephone number passed by the proxy. A leading 01 will cause the call to be routed to the PSTN, and a leading 02 will cause the call to be routed to the PBX. The digits following the 01 or 02 will be passed as the dialed digits.



Although the Vega 400 supports two LAN interfaces, in this example configuration, only one will be used.

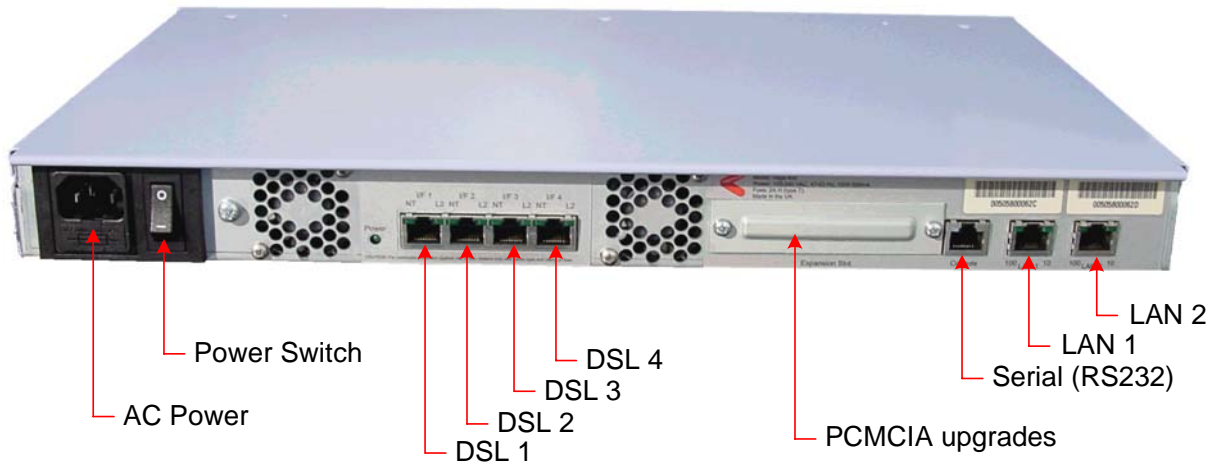
The configuration process is broken down into 11 stages as follows:

- 1 Connect your Vega to LAN, Telephone and Power
- 2 Configure the basic LAN parameters
- 3 Configure password and login timeout
- 4 Check and configure LAN settings and Host name
- 5 Configure the Dial Plan
- 6 Configure SIP and audio parameters
- 7 Configure Authentication
- 8 Configure Registration
- 9 Configure DSLs
- 10 Save Changes
- 11 Archive Vega Configuration

Please also see:

- 12 Technical Support
- 13 Advanced configuration

1. Connect your Vega to LAN, Telephone and Power



Before installing your Vega, ensure that you read the VegaStream VoIP Gateways Safety and Compliance Information document.

LAN:

Using the yellow booting cable connect the LAN port(s) on the Vega to a standard or fast Ethernet hub or switch (10 baseT or 100 baseTx). The connector nearest the ferrite core should be plugged into the Vega.

For this configuration just connect the LAN 2 port to a hub or switch.

Telephony:

Use the red booting cables to connect the Vega DSL ports to a PBX or the PSTN (ISDN).

For this configuration connect DSLs 1 and 3 to the PSTN, and connect DSLs 2 and 4 to the PBX.

Power:

Insert the power cable into the AC power inlet on the Vega and switch on. The power LED on the front panel will illuminate.

LAN LEDs will also illuminate indicating 10 (baseT) or 100 (base TX) connection. The LAN LEDs are duplicated on the front and rear of the Vega. The LEDs blink off to indicate LAN activity.

2. Configure the basic LAN parameters

If a DHCP server is available, by default, the Vega will automatically pick up an IP address. If you know the IP address served to the Vega, skip this section and start at section [3](#).

If DHCP is not to be used to provide the Vega with an IP address, or you need to check the IP address provided to the Vega, connect the serial interface of the Vega to a PC serial interface using the supplied RJ45 to 9 way female D-Type connector cable.

Configure a terminal emulator program (such as Microsoft's HyperTerminal) for:

- Speed = 115200 baud
- Data bits = 8
- Parity = none
- Stop bits = 1
- Flow Control = none

Press <Enter> to get the Username: prompt

At the prompts enter the default user name and password

```
Username: admin
Password: admin
```

If this is your first login you will be presented with the opportunity to select the firmware to run (SIP or H.323):

```
=====
CHANGE ACTIVE PARTITION:

Partition 1: SIP Firmware (ACTIVE)
              Version: 10.02.07.1
              Image: VEGA400_R071S009 Aug 6 2004 10:27:36

Partition 2: H.323 Firmware
              Version: 10.01.07.1
              Image: VEGA400_R071H009 Aug 6 2004 10:23:54

Type PART2 to activate partition 2, or EXIT to leave unchanged.
=====
```

- Ensure that the partition marked as ACTIVE is the SIP partition, if it is not, then select the other partition as instructed and reboot the Vega¹.
- If the SIP partition is already marked as ACTIVE, then type EXIT

Once the firmware has been selected and activated, from the command prompt, display the current IP address by typing:

- `show lan.if.2.ip`

¹ If the partition is changed, after the reboot perform a 'factory reset' before continuing configuration.

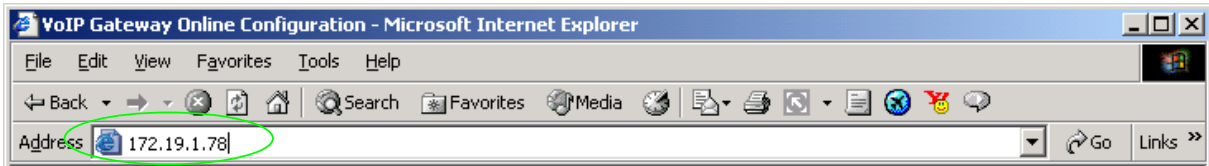
If this is not the IP address required, it can be overridden, together with other LAN parameters by typing:

- set lan.if.2.use_dhcp=0
- set lan.if.2.ip=aaa.bbb.ccc.ddd
- set lan.if.2.subnet=eee.fff.ggg.hhh
- set lan.gateway.ip=iii.jjj.kkk.lll
- save
- reboot system

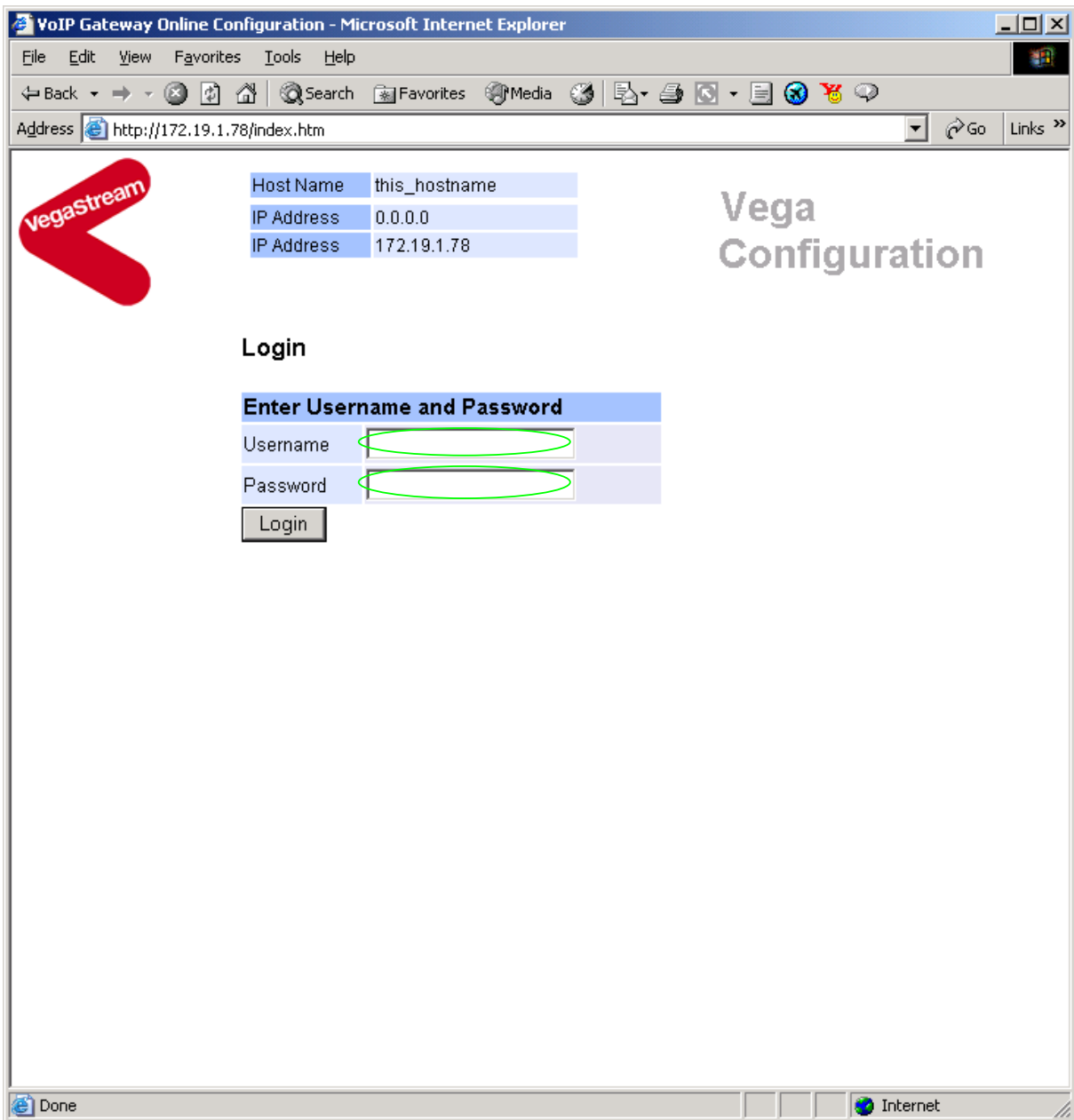
3. Configure password and login timeout

Now configuration will be carried out using a web browser.

- Enter the IP address of the Vega into the “Address” field of your web browser.



You will then be presented with the login page:



Enter the default Username and Password

- Username: admin
- Password: admin
- Select

If you have not already selected the firmware to run (SIP or H.323) the boot manager will automatically be displayed allowing you to select the code to run, SIP or H.323.

Boot Manager

Please check the current active firmware version below, and select a different partition if required. If a new partition is selected then a reboot system will be needed to activate that version.

Change Active Partition

<input checked="" type="radio"/>	Partition 1	SIP Version: 10.02.07.1 Image: VEGA400_R071S009 Aug 6 2004 10:27:36
<input type="radio"/>	Partition 2	H.323 Version: 10.01.07.1 Image: VEGA400_R071H009 Aug 6 2004 10:23:54

- Ensure that the partition selected is the SIP partition, if it is not, then select it
- Press

If the partition is changed then the Vega will automatically reboot; in this case you will need to log in again once the reboot is complete².

If the partition is not changed then the management page will be displayed.

² If the partition is changed, after the reboot perform a 'factory reset' before continuing configuration.

VegaStream

Host Name	this_hostname
IP Address	0.0.0.0
IP Address	172.19.1.78
User Name	admin

Vega Configuration

Management **System Management**

[Logging](#)

[Maintenance](#)

[LAN](#)

[DSL](#)

[Dial Plan](#)

[DSP](#)

[Media](#)

[Tones](#)

[SIP](#)

[Users](#)

[QoS](#)

[Advanced](#)

Save

Log off

Help

Reboot System

Tip: Place the cursor of the mouse on name or input fields to get concise help.

Quick Configuration Wizard

Quick step by step essential configuration

System Time

Set Time (hh:mm:ss) : :

Set Date (dd/mm/yyyy) / /

Synchronise Time and Date With PC With NTP server

Call Reports

Report call progress summary [Show Calls](#)

Report on all call progress statistics [Show Trace](#)

System Logs

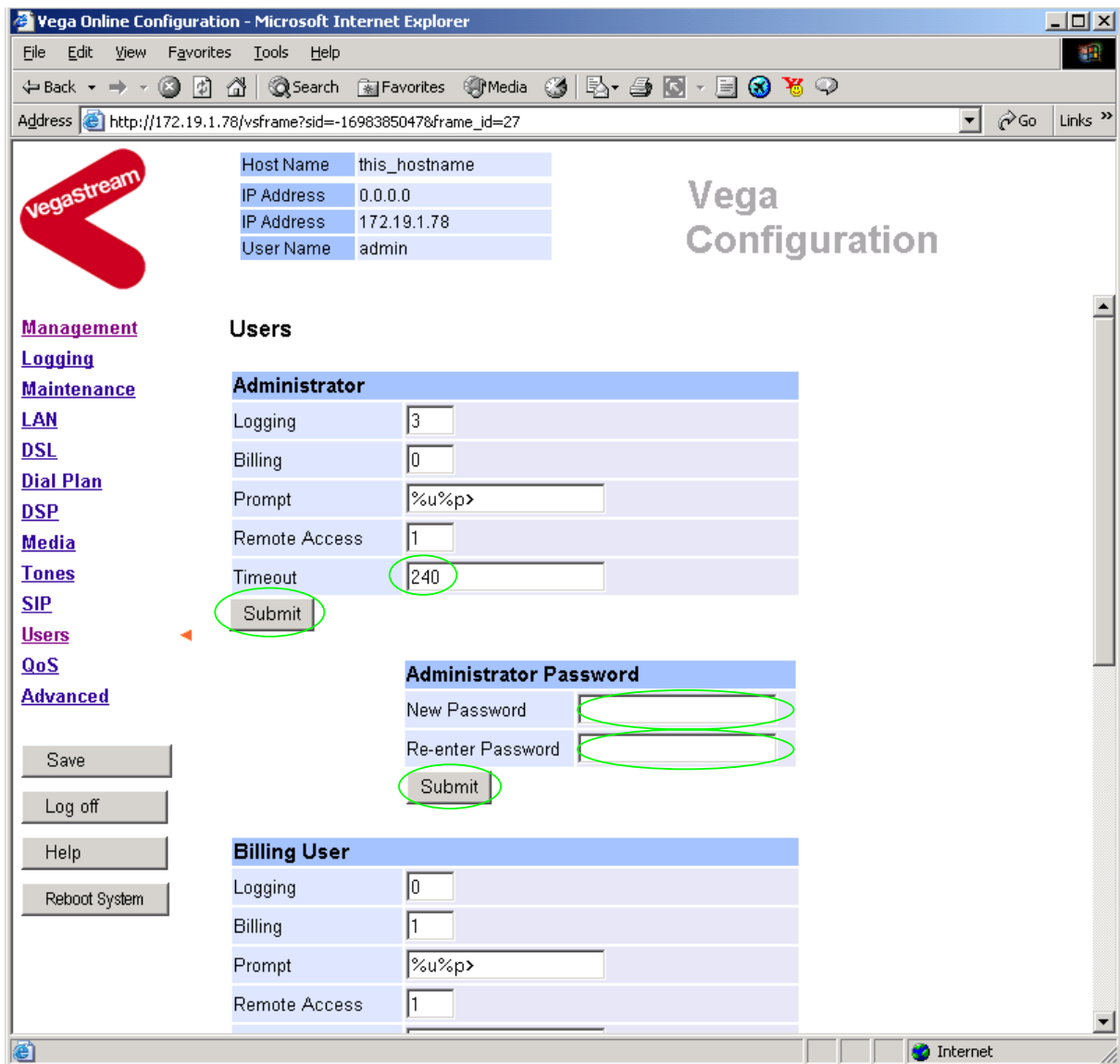
Show the Event Log [Show Event Log](#)

Show the Billing Log [Show Billing Log](#)

Call Control

All further calls are

- On the left hand side menu select [Users](#)



Recommended: Change the password

- enter New Password and Re-enter Password then
- select and then click "[here](#)" to return

Optional: Change the timeout³ – default is 240 seconds; can extend to 7200 seconds (2hrs)

- select and then click "[here](#)" to return

³ If the web browser interface is not used for this length of time the Vega will automatically log off the session. This change is only activated by logging out and back into the web browser session.

4. Check and configure LAN settings and Host name

- On the left hand side menu select [LAN](#)

Host Name this_hostname
IP Address 0.0.0.0
IP Address 172.19.1.78
User Name admin

Unsaved Configuration Changes

Local Area Network (changed)

Warning: Changing these parameters may prevent remote access.

LAN Configuration

Name
LAN Profile
LAN Gateway
Use DHCP Settings From Interface
Default File Transfer Method FTP TFTP

LAN Profiles

Del?	LAN Profiles	Name	LAN Interface	Qos Profile	Chg?
<input type="checkbox"/>	1	Management	1	1	Modify
<input type="checkbox"/>	2	Calls	2	2	Modify
<input type="checkbox"/>	3	All	all	1	Modify

LAN Interfaces

LAN Interfaces	IP Address	other LAN interface parameters	Chg?
----------------	------------	--------------------------------	------

In this configuration scenario we are just going to use LAN port 2, so in the next steps we will configure both calls and management traffic to be routed via LAN 2 and we will configure the parameters required on LAN port 2.

- If the Vega has a DNS name associated with its IP address, set Name = the DNS name
- select and then click "[here](#)" to return

In the **LAN Profiles** section, LAN Profile 1

- Select

LAN Profile 1

LAN Profiles 1

Name	Management
LAN Interface	1
Qos Profile	1
<input type="button" value="Submit"/>	

- Set LAN Interface = 2
- select and then click "[here](#)" to return

- Scroll down to the **LAN Interfaces** section

Host Name: this_hostname
IP Address: 0.0.0.0
IP Address: 172.19.1.78
User Name: admin

Unsaved & Unapplied Changes

LAN Interfaces	IP Address	other LAN interface parameters	Chg?
1	0.0.0.0	===>	Modify
2	172.19.1.78	===>	Modify

FTP Parameters

Server IP: 0.0.0.0
FTP Ping Test:
FTP Timeout: 20
Anonymous Login:
FTP Username: whatever
LAN Profile: 1
Abort Socket Before Closing:
Use DHCP Settings From Interface: 1

TFTP Parameters

Server IP: tftp.vegastream.lab
TFTP Ping Test:
TFTP Timeout: 1

In the **LAN Interfaces** section, LAN Interface 2

- Select [Modify](#)

- Ensure that the IP address and subnet mask are configured correctly.
- If changed select [Submit](#) and then click ["here"](#) to return; return to LAN Interface 2 configuration page.
- If any items are not to be configured using DHCP, deselect them now. Deselecting 'Enable' disables all DHCP activity.

N.B. if items are deselected from being obtained by DHCP, static values will need to be set up in the LAN pages as we progress through the LAN Page configuration.

- If changed select [Submit](#) and then click ["here"](#) to return; return to LAN Interface 2 configuration page.

- Scroll down to the **Physical Layer** section

Physical Layer	
Full Duplex	<input type="checkbox"/>
Enable 10baseT	<input checked="" type="checkbox"/>
Enable 100baseTX	<input checked="" type="checkbox"/>
<input type="button" value="Submit"/>	

Recommended: In the **Physical Layer** section, leave ticked only 100baseTx or 10 baseT (not both) – whichever is appropriate

Optional: In the **Physical Layer** section, ticked 'Full Duplex' to allow the Vega to attempt to negotiate a full duplex LAN connection (this gives increased bandwidth on the LAN link)

- select and then click "here" to return

If you are planning to use LAN interface 1 – check its configuration now.

- On the left hand side menu select [LAN](#)

LAN Configuration	
Name	this_hostname
LAN Profile	1
LAN Gateway	172.19.1.10
Use DHCP Settings From Interface	1
Default File Transfer Method	<input type="radio"/> FTP <input checked="" type="radio"/> TFTP
<input type="button" value="Submit"/>	

- If the 'DHCP to get Default Gateway' is not ticked in the appropriate LAN Interface, set up the LAN Gateway IP address, either as a DNS name, or a dotted decimal IP address.
- Set Use DHCP Settings From Interface = 2
- Select and then click "[here](#)" to return
- Scroll to the **TFTP Parameters** section

TFTP Parameters	
Server IP	ftp.vegastream.lab
TFTP Ping Test	<input checked="" type="checkbox"/>
TFTP Timeout	4
LAN Profile	1
Use DHCP Settings From Interface	1
<input type="button" value="Submit"/>	

- If the 'DHCP to get TFTP Server' is not ticked in the appropriate LAN Interface, set up the TFTP server IP address, either as a DNS name, or a dotted decimal IP address.
- Set Use DHCP Settings From Interface = 2
- Select and then click "[here](#)" to return

- Scroll to the **NTP Parameters** section

NTP Parameters	
Server IP	<input type="text" value="200.100.50.100"/>
LAN Profile	<input type="text" value="1"/>
Poll Interval	<input type="text" value="0"/>
Local Offset	<input type="text" value="0000"/>
Use DHCP Settings From Interface	<input type="text" value="1"/>
<input type="button" value="Submit"/>	

Set up NTP to get time updates for the real time clock – this keeps the clock accurate over long periods of time.

Option: If the 'DHCP to get NTP Server' is not ticked in the appropriate LAN Interface, set up the NTP server IP address, either as a DNS name, or a dotted decimal IP address.

- To update the time once per day, set Poll interval = 2400
- Also configure Local offset as required –HHMM or HHMM (time difference from UTC)
- Set Use DHCP Settings From Interface = 2
- If changed select and then click "[here](#)" to return

- Scroll to the **DNS Servers** section

DNS Servers			
DNS Parameters			
Use DHCP Settings From Interface	<input type="text" value="1"/>		
<input type="button" value="Submit"/>			
DNS Servers			
DNS Server	Domain Name Server	LAN Profile	Chg?
1	0.0.0.0		Modify
2	0.0.0.0		Modify
3	0.0.0.0		Modify
<input type="button" value="Add"/>		<input type="button" value="Delete"/>	

DNS servers will be set up using both DHCP served DNS servers (if enabled in the LAN Interface specified by the 'Use DHCP Settings From Interface') and also static DNS Servers specified here.

- Set Use DHCP Settings From Interface = 2
- select and then click "[here](#)" to return
- If static DNS servers are to be defined, configure here by selecting

DNS Server 1	
Domain Name Server	<input type="text" value="0.0.0.0"/>
<input type="button" value="Submit"/>	

- Now set up Domain Name Server IP address
- Set LAN Profile = 1 (Management)
- Select and then click "[here](#)" to return
- Repeat for all static DNS servers required

- Scroll to the **Telnet parameters** section

Telnet Parameters	
Local Port	<input type="text" value="23"/>
LAN Profile	<input type="text" value="3"/>
<input type="button" value="Submit"/>	

- Set LAN Profile = 1 (Management)
- Select and then click "[here](#)" to return

- Scroll to the **WebServer parameters** section

WebServer Parameters	
Local Port	<input type="text" value="80"/>
LAN Profile	<input type="text" value="3"/>
<input type="button" value="Submit"/>	

- Set LAN Profile = 1 (Management)
- Select and then click "[here](#)" to return

5. Configure the Dial Plan

➤ On the left hand side menu select [Dial Plan](#)

Host Name this_hostname
IP Address 0.0.0.0
IP Address 172.19.1.78
User Name admin

Unsaved & Unapplied Changes

Dial Planner

Profiles

Del?	Profile ID	Enabled	Name	Plans	Chg?
<input type="checkbox"/>	1	1	T1E1_default	====>	Modify

Delete Add

Planner Groups

Del?	ID	Name	Cause	Lan	Gatekeeper	Active times	Priority	Chg?
<input type="checkbox"/>	1	Default	0	off		0000-2359	0	Modify

Delete Add

Planner Whitelist Enable

Use Whitelist

Submit

Planner Whitelists

Del?	ID	Name	Number	Chg?
<input type="checkbox"/>	1	default	IF:.*	Modify

Delete Add

Save
Log off
Help
Reboot System
Apply Changes

Firstly, turn off the default profile:

In the **Profiles** section, Profile ID 1

➤ Select [Modify](#)

Modify Profile	
Profile ID	1
Enabled	<input checked="" type="checkbox"/>
Name	T1E1_default
Submit	

- disable (un-tick) Enabled, then
- select **Submit** and then click "[here](#)" to return

Now create a new profile and in it create a dial plan entry to handle calls being sent from ISDN to the LAN:

Dial Planner

Profiles						
Del?	Profile ID	Enabled	Name	Plans	Chg?	
<input type="checkbox"/>	1	0	T1E1_default	===>	Modify	
Delete Add						

In the **Profiles** section

- Select **Add**

Dial Planner

Profiles						
Del?	Profile ID	Enabled	Name	Plans	Chg?	
<input type="checkbox"/>	1	0	Vega100T1E1_default	===>	Modify	
<input type="checkbox"/>	2	1	new_profile	===>	Modify	
Delete Add						

In the **Profiles** section, on Profile 2 (the new profile):

- Select [Modify](#)

[Dial Planner](#) > Profile 2

Modify Profile	
Profile ID	2
Enabled	<input checked="" type="checkbox"/>
Name	<input type="text" value="new_profile"/>
Submit	

- Set Name = ISDN_To_LAN
- select **Submit** and then click "[here](#)" to return

Dial Planner

Profiles						
Del?	Profile ID	Enabled	Name	Plans	Chg?	
<input type="checkbox"/>	1	0	Vega100T1E1_default	===>	Modify	
<input type="checkbox"/>	2	1	ISDN_To_LAN	===>	Modify	
Delete Add						

In the **Profiles** section, on Profile 2 (the ISDN_To_LAN profile):

- Select [Modify](#)

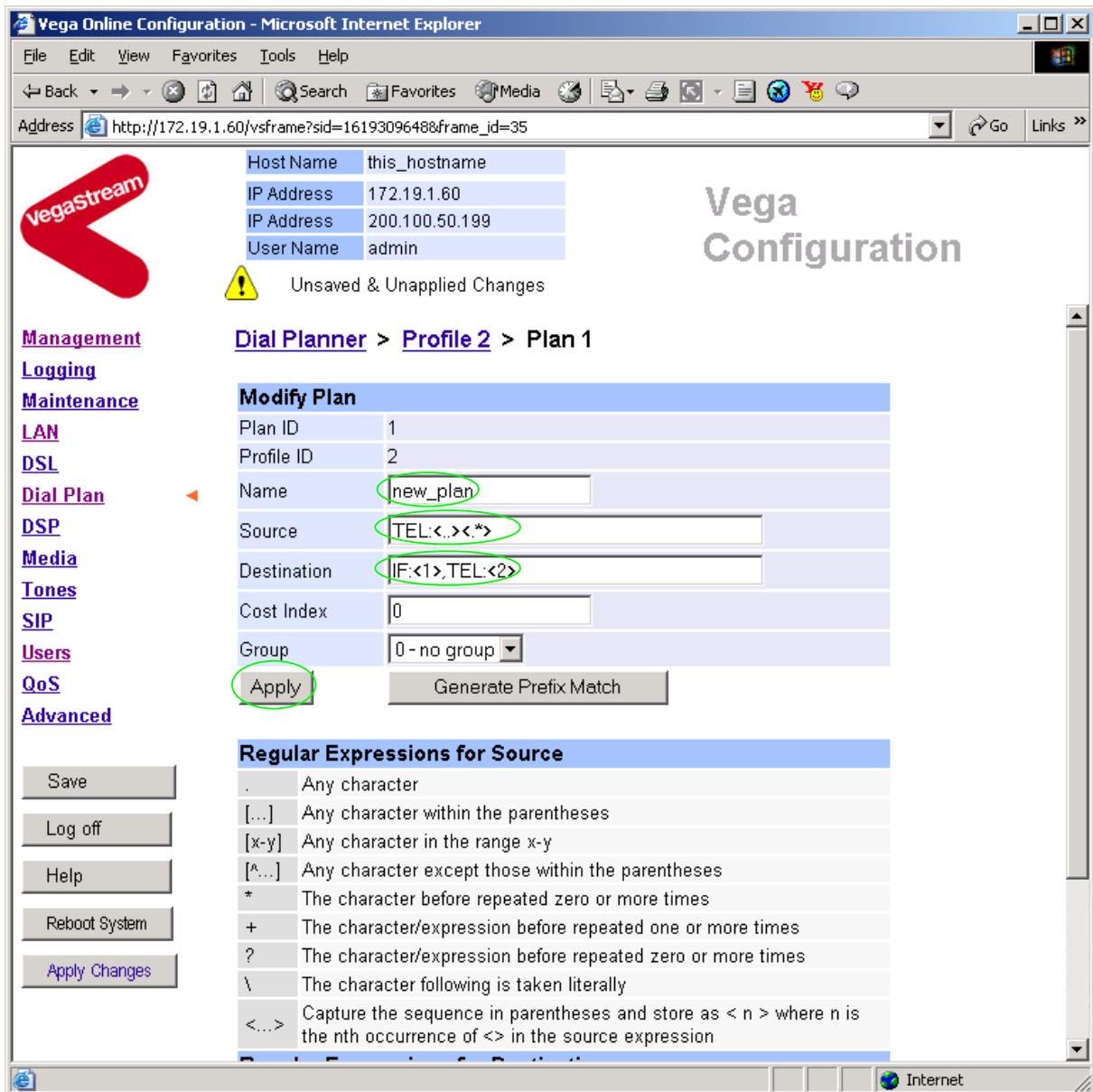
[Dial Planner](#) > Profile 2

Modify Profile	
Profile ID	2
Enabled	<input checked="" type="checkbox"/>
Name	<input type="text" value="ISDN_To_LAN"/>
<input type="button" value="Submit"/>	

Plans in this Profile							
Del?	Plan ID	Name	Src	Dest	Cost	Group	Chg?
<input type="checkbox"/>	1	new_plan	TEL:<.><.*>	IF:<1>,TEL:<2>	0	0	Modify
<input type="button" value="Delete"/>		<input type="button" value="Add"/>					

In the **Plans in this Profile** section:

- Select [Modify](#)



- Set Name = From_ISDN_or_PBX
- Set Source = IF: [^9] . , TEL: < . * > *(This takes a call from any of the ISDN interfaces and stores the telephone number presented in store <1>)*
- Set Destination = IF: 99 , TEL: < 1 > *(This routes the call to IF:99 (the LAN) and passes the received telephone number on as the destination telephone number)*
- select **Apply** and then click **here** to return

Host Name: this_hostname
 IP Address: 172.19.1.60
 IP Address: 200.100.50.199
 User Name: admin

Unsaved Configuration Changes

Dial Planner > Profile 2

Modify Profile

Profile ID: 2
 Enabled:
 Name: ISDN_To_LAN
 Submit

Plans in this Profile

Del?	Plan ID	Name	Src	Dest	Cost	Group	Chg?
<input type="checkbox"/>	1	From_ISDN_or_PBX	IF:[*9].,TEL:<.*>	IF:99,TEL:<1>	0	0	Modify

Delete Add

Save
 Log off
 Help
 Reboot System

➤ On the left hand side menu select [Dial Plan](#)

Now create a new profile and in it create a dial plan entry to handle calls being received inbound from the LAN:

In a similar manner to adding profile 2 add another profile, profile 3,

- set Name = LAN_to_ISDN_or_PBX

Modify the first plan for Profile 3:

- set Name = From_LAN
- set Source = IF:99, TEL:<...>. * >

(For calls from IF:99 (LAN), take the first two digits presented and store them in store <1>; take any further digits and store them in store <2>)

- set Destination = IF:<1>, TEL:<2>

(The first two digits presented define the interface – 01 or 02 – and the remainder of the digits are passed on as the telephone number)

- select and then click "[here](#)" to return

Note: The SIP Proxy must choose the appropriate interface on the Vega to dial out from; when the Proxy presents a call to the Vega, the INVITE message starts something like:

```
INVITE sip:021344784900@172.20.11.2 SIP/2.0
```

The digits preceding the @ (the telephone number field) must contain $ii\ ttt\dots t$, where ii is the interface number (01, 02, 03 or 04) and $ttt\dots t$ is the telephone number to dial.

For more details on the operation of the dial planner, including the various tokens that may be used, see the section "The Dial Planner" in the Vega Primer.

6. Configure SIP and audio parameters

➤ On the left hand side menu select [SIP](#)

Host Name this_hostname
IP Address 0.0.0.0
IP Address 172.19.1.88
User Name admin

Vega 400 Configuration

Management
[Logging](#)
[Maintenance](#)
[LAN](#)
[DSL](#)
[Dial Plan](#)
[DSP](#)
[Media](#)
[SIP](#)
[Users](#)
[QoS](#)
[Advanced](#)

Save
Log off
Help
Reboot System

SIP Configuration

General

Local Domain
Local SIP Port
Request URI Port
Accept Non-Proxy Invites
LAN profile

Proxy Configuration

Mode normal cyclic
 dnssrv
Minimum Valid Response
Timeout (ms)

SIP Proxy	Enable	IP/DNS Name	Port	Chg?
1	1	0.0.0.0	5060	Modify
2	1	0.0.0.0	5060	Modify

In the **General** section:

➤ set Local Domain = `Public_name_of_proxy_used_by_other_devices_to_send_their_INVITES_to`
(this value is the "outside world's" name or IP address for the proxy)

Optional: To allow devices other than the proxy to make calls directly through the Vega

➤ tick Accept Non-Proxy Invites

If only the proxy is allowed to route the calls to the Vega ensure that this tick box is clear.

➤ select and then click "[here](#)" to return

In the **Proxy Configuration** section:

- Select [Modify](#)

[SIP](#) > **SIP Proxy 1**

SIP Proxy 1	
Enable	<input checked="" type="checkbox"/>
IP/DNS Name	<input type="text" value="0.0.0.0"/>
Port	<input type="text" value="5060"/>
<input type="button" value="Submit"/>	

In the **SIP Proxy 1** section:

- set IP/DNS Name = `IP_address_of_SIP_proxy, or DNS_hostname_of_the_SIP_Proxy`
- select and then click ["here"](#) to return

In some older versions of code the **Proxy Configuration** section is called **Multiple Proxy Support**. In this case, set up the Proxy IP address / Host name in the general section:

SIP Configuration

General	
Default Proxy Host Name/IP	<input type="text" value="0.0.0.0"/>
Local Domain	<input type="text" value="abcdefghijklwhatever.com"/>
Local SIP Port	<input type="text" value="5060"/>
Remote SIP Port	<input type="text" value="5060"/>
Accept Non-Proxy Invites	<input type="checkbox"/>
LAN profile	<input type="text" value="1"/>
<input type="button" value="Submit"/>	

In the **General** section:

- set Default Proxy Host Name/IP = `IP_address_of_SIP_proxy, or DNS_hostname_of_the_SIP_Proxy`
- select and then click ["here"](#) to return

- Scroll down to the **Audio** section

In the **Audio** section

- Select the audio codecs desired using the drop down menus

Unless there is a specific reason not to allow a specific codec to be used, it is recommended that all codecs should be enabled as follows:

Audio	
Audio Profile 1	G723
Audio Profile 2	G729
Audio Profile 3	G711 Alaw
Audio Profile 4	G711 Ulaw

- select and then click ["here"](#) to return

7. Configure Authentication

In some systems – to ensure that only authorised devices are allowed to set up and clear calls – SIP authentication is used. If authentication is used, it is typically required on the SIP REGISTRATION, INVITE, ACK and BYE messages.

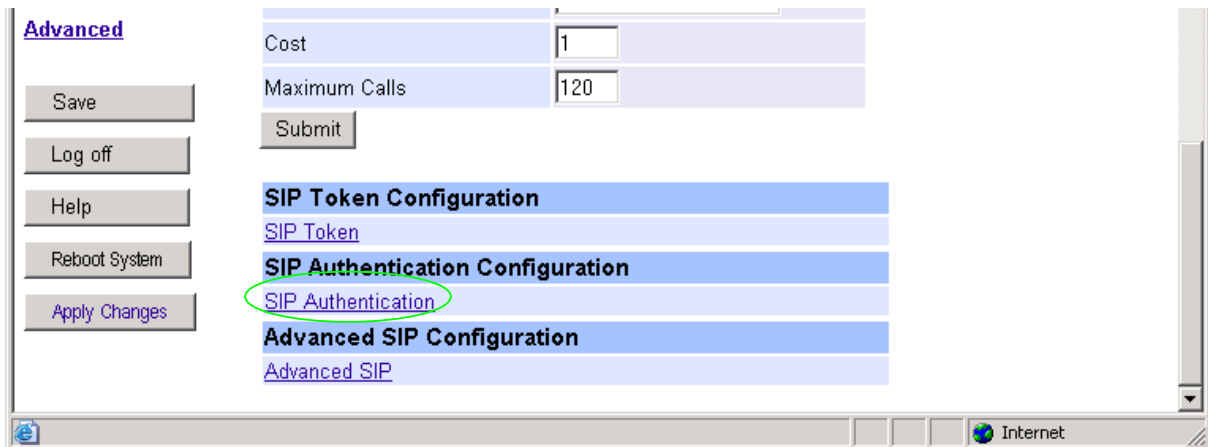
For authentication, a user-name, and a password can be configured. The user-name is constructed from three parts

Username Prefix, Username and Username Suffix

For example, to set up authentication for all calls, with

- a username of: VegaGateway123 and
- a password of: LetMeIn

- On the left hand side menu select [SIP](#)
- Scroll down to the bottom to the **SIP Authentication Configuration** section



- Select [SIP Authentication](#)

Host Name this_hostname
 IP Address 172.19.1.60
 IP Address 200.100.50.199
 User Name admin

Unsaved & Unapplied Changes

SIP > Authentication

SIP Authentication Users

Del?	User	Enable	Username Prefix	Username Suffix	Username	Built Username	Password	Source	Chg?
<input type="checkbox"/>	1	0	no prefix	unit1	authuser1	authuser1unit1	pass1	IF:00	Modify

Add Delete

Save
 Log off
 Help
 Reboot System
 Apply Changes

➤ Select [Modify](#)

[SIP](#) > [Authentication](#) > [User](#)

SIP Tokens	
Token	Value
1	unit1
2	01

Modify SIP Authentication User

SIP Authentication User 1	
Enable	<input type="checkbox"/>
Username Prefix	none
Username Suffix	unit1
Username	authuser1
Password	pass1
Source	IF:00
<input type="button" value="Submit"/>	

- Set Username Suffix = none
- Set Username = VegaGateway123
- Set Password = LetMeIn
- Set Source = IF:.*

- select and then click "[here](#)" to return

- On the left hand side menu select [SIP](#)
- Scroll down to the bottom to the **Advanced SIP Configuration** section

VegaStream

Host Name: this_hostname
 IP Address: 172.19.1.60
 IP Address: 200.100.50.199
 User Name: admin

Vega Configuration

Unsaved & Unapplied Changes

Enable T38	<input checked="" type="checkbox"/>
Enable Fax	<input checked="" type="checkbox"/>
Fax Detect	<input type="radio"/> always <input checked="" type="radio"/> terminating <input type="radio"/> never
Enable Modem	<input checked="" type="checkbox"/>
Modem Detect	<input type="radio"/> always <input checked="" type="radio"/> terminating <input type="radio"/> never
Signalling Application ID	none
T1 Retry Timer Increment (ms)	2000
T2 Retry Timer Limit (ms)	4000
Interface ID	99
Cost	1
Maximum Calls	120

Save
Log off
Help
Reboot System
Apply Changes

SIP Token Configuration
[SIP Token](#)

SIP Authentication Configuration
[SIP Authentication](#)

Advanced SIP Configuration
[Advanced SIP](#)

➤ Select [Advanced SIP](#)

Host Name this_hostname
 IP Address 172.19.1.60
 IP Address 200.100.50.199
 User Name admin

Unsaved & Unapplied Changes

SIP > Advanced

Advanced SIP parameters

BYE-Also INVITE to proxy	<input type="checkbox"/>
REFER INVITE to proxy	<input type="checkbox"/>
Send CANCEL to all forks	<input checked="" type="checkbox"/>
User-Agent header	<input checked="" type="checkbox"/>
Use 'local domain' in To header	<input checked="" type="checkbox"/>
Use 'local domain' in From header	<input checked="" type="checkbox"/>
Use Request-URI in call dialog matching	<input type="checkbox"/>
183 Session Progress if media present	<input type="checkbox"/>
early OK timer (0=off)	<input type="text" value="0"/>
Use authentication users	<input checked="" type="checkbox"/>
Parse Remote Party-ID header	<input type="checkbox"/>
National Prefix	<input type="text" value="off"/>
International Prefix	<input type="text" value="off"/>

SDP control

Single media description in T38 INVITE	<input type="checkbox"/>
Connection information in session description only	<input type="checkbox"/>
Packet Time Mode Selection	<input type="text" value="off"/>

Save
 Log off
 Help
 Reboot System
 Apply Changes

➤ Tick Use Authentication Users

8. Configure Registration

Typically trunking gateways (like the Vega 400) do not need to register with a SIP proxy. SIP registration was designed for end users to register themselves with the SIP proxy. Trunking gateways potentially support millions of end users and so typically the presence and capabilities of the gateways are manually configured into the SIP proxy.

For telephony to SIP calls, the SIP proxy is usually manually configured to accept calls from the Vega 400

- the dialled number of the call is placed in the request URI by the Vega

For SIP to telephony calls the Proxy must send the call to the Vega 400 with a request URI of the format `ii...t@contact_address`

- where `ii` is the interface number through which to make the call (Vega interface 01, 02, 03 or 04), and
- where `ttt...t` is the telephone number for the Vega to dial

In some circumstances the SIP proxy does demand that the Vega registers with it. If registration is required, see [13.1 “Configure Vega 400 registration”](#)

9. Configure DSLs

The Vega 400 may be configured for E1 or T1 operation. Choose the relevant section below for configuring as [E1](#) or as [T1](#):

9.1 E1 configuration

- On the left hand side menu select [DSL](#)

Host Name this_hostname
IP Address 172.19.1.60
IP Address 200.100.50.199
User Name admin

Unsaved & Unapplied Changes

DSL Configuration

Network Type: ETSI
Network Topology: E1
Line Encoding: HDB3
Framing: CRC4

Submit

PORT Configuration

PORT ID	Enabled	NT	Clock Master	Bus Master Priority	Layer 1	E1 rx Short Haul	T1 tx equalization	ISDN	CAS	Groups	Chg?
1	1	0	0	1	g711Alaw64k	1	sh220_330	====>	====>	====>	Modify
2	1	1	1	0	g711Alaw64k	1	sh220_330	====>	====>	====>	Modify
3	1	0	0	2	g711Alaw64k	1	sh220_330	====>	====>	====>	Modify
4	1	1	1	0	g711Alaw64k	1	sh220_330	====>	====>	====>	Modify

Delete Add

Save
Log off
Help
Reboot System
Apply Changes

➤ In the **DSL Configuration** section check that the Network Type = ETSI.
If required QSIG is also an acceptable Network Type for E1 Vega 400s.

- In the DSL Configuration section check that the Network Topology = E1

➤ In the **DSL Configuration** section check that the Line Encoding = HDB3
(Note, the other available options: AMI, and B8ZS are not supported on the E1 interface)

➤ In the **DSL Configuration** section select the Framing Method as required:

DSL

DSL Configuration	
Network Type	ETSI
Network Topology	E1
Line Encoding	AUTO
Framing	CRC4
<input type="button" value="Submit"/>	
PORT Configuration	
	Bus

ESF
SF
CRC4
PCM30
AUTO

- CRC4 = CRC4 supported (usual ISDN configuration)
- PCM30 = no CRC4
- AUTO = CRC4

Note, ESF and SF are not supported on the E1 interface

➤ select and then click "[here](#)" to return

Host Name: this_hostname
 IP Address: 172.19.1.60
 IP Address: 200.100.50.199
 User Name: admin

Unsaved & Unapplied Changes

DSL

DSL Configuration

Network Type: ETSI
 Network Topology: E1
 Line Encoding: AUTO
 Framing: CRC4

Submit

PORT Configuration

PORT ID	Enabled	NT	Clock Master	Bus Master Priority	Layer 1	E1 rx Short Haul	T1 tx equalization	ISDN	CAS	Groups	Chg?
1	1	0	0	1	g711Alaw64k	1	sh220_330	==>	==>	==>	Modify
2	1	1	1	0	g711Alaw64k	1	sh220_330	==>	==>	==>	Modify
3	1	0	0	2	g711Alaw64k	1	sh220_330	==>	==>	==>	Modify
4	1	1	1	0	g711Alaw64k	1	sh220_330	==>	==>	==>	Modify

Delete Add

Save
 Log off
 Help
 Reboot System
 Apply Changes

For the configuration indicated in the initial diagram DSL1 and DSL 3 connect to the PSTN and DSL 2 and DSL 4 connect to the PBX. The Vega therefore needs DSL 1 and 3 configured as TE, and DSL 2 and 4 configured as NT.

Bus Master needs to be configured to collect the master clock from one of the TE DSLs.

These are the default settings of the Vega and so no changes are required to the Network Terminator, Clock_Master, or Bus_Master settings.

In the **Port Configuration** section, for PORT ID 1:

➤ Select **Modify**

The screenshot shows the Vega Online Configuration web interface in Microsoft Internet Explorer. The browser address bar shows `http://172.19.1.60/vsframe?sid=1619309648&frame_id=7`. The interface includes a navigation menu on the left with links for Management, Logging, Maintenance, LAN, DSL, Dial Plan, DSP, Media, Tones, SIP, Users, QoS, and Advanced. The main content area is titled "Vega Configuration" and displays a "Port 1" configuration section. This section includes a "Port Configuration" table with fields for Port ID (1), Enabled (checked), Network Terminator (unchecked), Clock Master (unchecked), Bus Master Priority (1), Layer 1 (g711Alaw64k), Set E1 RX short haul (checked), and T1 TX equalization (sh220_330). Below this table is a "Submit" button. The "ISDN Configuration" section below it includes fields for DTMF Termination Char (*), DTMF Dial Timeout (2), Setup Mapping (0), and Cause Mapping (0), with a "Submit" button. A "CAS Configuration" section is partially visible at the bottom. A red arrow points to the "DSL" link in the navigation menu. A yellow warning icon indicates "Unsaved & Unapplied Changes". The browser status bar at the bottom shows "Done" and "Internet".

➤ Ensure Layer 1 = g711Alaw64k

➤ If not, change it and select **Submit** and then click "[here](#)" to return

Note: 1. If a configuration is to be used that requires the Network Terminator value to be changed, this can be altered as well. Typically if NT is ticked then Clock Master should also be ticked. If NT is un-ticked (TE mode) then typically Clock Master should also be un-ticked.
2. Bus Master priority should be set to 0 for NT DSLs, and 1, 2, ... for successive TE DSLs

Return to this page:

➤ Set DTMF Dial Timeout = 5

➤ select **Submit** and then click "[here](#)" to return

- On the left hand side menu select [DSL](#)

In the **Port Configuration** section, for PORT ID 1:

- Again select [Modify](#)
- Scroll down to the Groups section

In the **Groups** section, check that Last Channel value is correctly configured, and if not, then correct it; it should be `auto` or `30` (or, if this is a fractional E1, it should be the number of channels supported on this link).

If changes are made

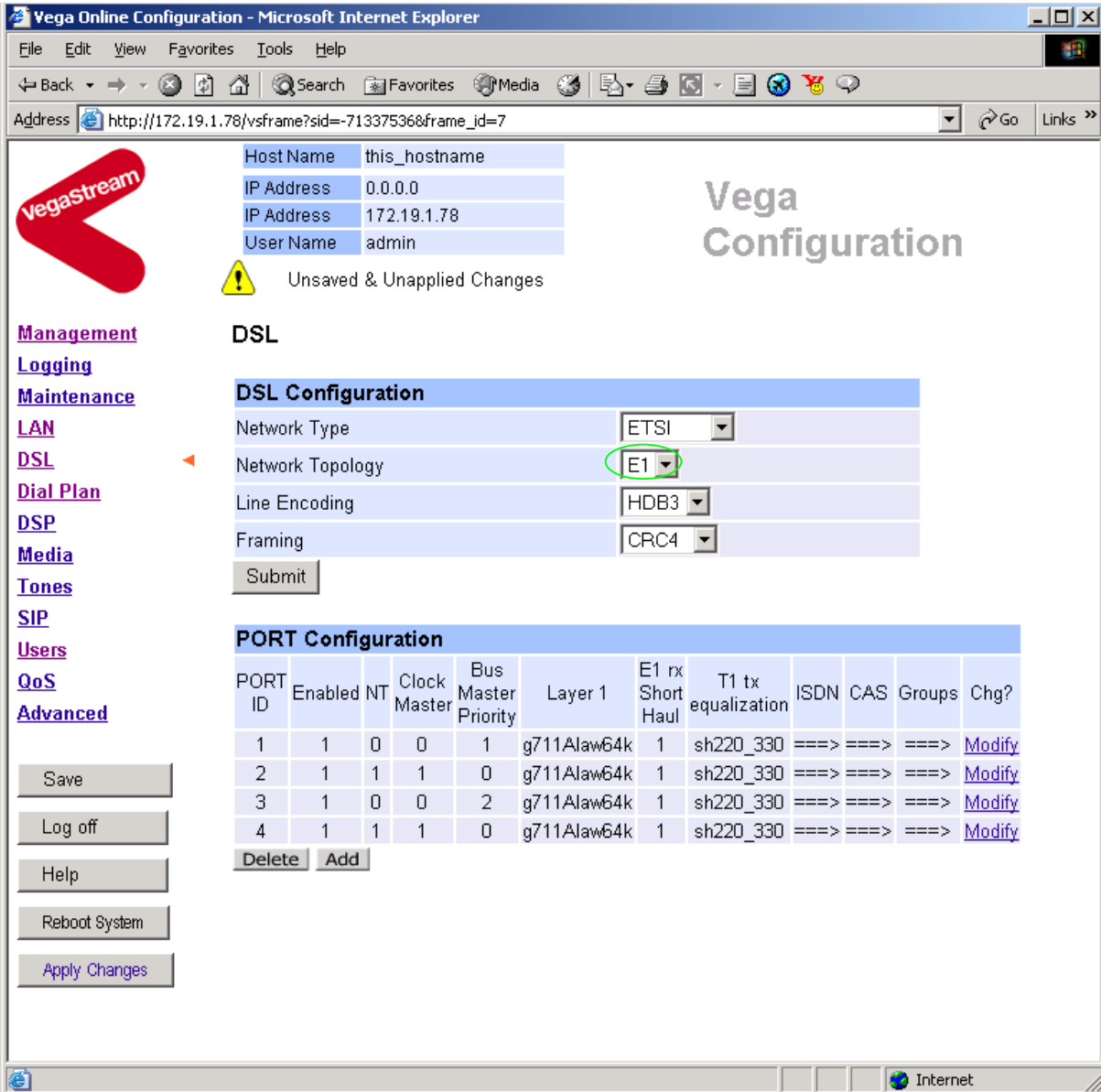
- select [Submit](#) and then click ["here"](#) to return

➤ select 

➤ Repeat for the other Ports (PORT IDs 2, 3, 4).

9.2 T1 configuration

➤ On the left hand side menu select [DSL](#)



The screenshot shows the Vega Online Configuration web interface in Microsoft Internet Explorer. The browser address bar shows `http://172.19.1.78/vsframe?sid=-713375368&frame_id=7`. The interface includes a left-hand navigation menu with options like Management, Logging, Maintenance, LAN, DSL, Dial Plan, DSP, Media, Tones, SIP, Users, QoS, and Advanced. The main content area is titled "Vega Configuration" and displays a "DSL Configuration" section with a "Submit" button. Below it is a "PORT Configuration" table with columns for PORT ID, Enabled, NT, Clock Master, Bus Master Priority, Layer 1, E1 rx Short Haul, T1 tx equalization, ISDN, CAS, Groups, and Chg?. The "DSL Configuration" section shows Network Type set to "ETSI", Network Topology set to "E1" (circled in red), Line Encoding set to "HDB3", and Framing set to "CRC4".

DSL Configuration

Network Type	ETSI
Network Topology	E1
Line Encoding	HDB3
Framing	CRC4

PORT Configuration

PORT ID	Enabled	NT	Clock Master	Bus Master Priority	Layer 1	E1 rx Short Haul	T1 tx equalization	ISDN	CAS	Groups	Chg?
1	1	0	0	1	g711Alaw64k	1	sh220_330	====>	====>	====>	Modify
2	1	1	1	0	g711Alaw64k	1	sh220_330	====>	====>	====>	Modify
3	1	0	0	2	g711Alaw64k	1	sh220_330	====>	====>	====>	Modify
4	1	1	1	0	g711Alaw64k	1	sh220_330	====>	====>	====>	Modify

➤ In the **DSL Configuration** section select the required Network Topology = T1

In the **DSL Configuration** section select the Network Type as required:

DSL

DSL Configuration

Network Type	ETSI
Network Topology	ETSI
Line Encoding	
Framing	

Submit

- ATT = 4ESS / 5ESS
- DMS = DMS 100
- DMS_M1 = Meridian specific DMS signalling
- NI = National ISDN NI1 / NI2
- QSIG = QSIG signalling
- RBS = Robbed bit CAS signaling
- AUTO – this selects DMS signaling

Note: ETSI is not supported on the T1 interface.

In the **DSL Configuration** section select the Line Encoding as required:

DSL

DSL Configuration

Network Type	ETSI
Network Topology	E1
Line Encoding	HDB3
Framing	

Submit

- B8ZS = Bipolar with 8 zero substitution (forces line reversals regularly)
- AMI = Alternate Mark Inversion
- AUTO – selects B8ZS

Note: HDB3 is not supported on the T1 interface.

In the **DSL Configuration** section select the Framing Method as required:

DSL

DSL Configuration	
Network Type	ETSI
Network Topology	E1
Line Encoding	HDB3
Framing	CRC4
<input type="button" value="Submit"/>	<ul style="list-style-type: none">ESFSFCRC4PCM30AUTO
PORT Configuration	
-----	Bus

- ESF = Extended Super-Frame – 16 state signalling
- SF = Super-Frame (also known as D4)
- AUTO – selects ESF

Note: CRC4 and PCM30 are not supported on the T1 interface

- select and then click "[here](#)" to return

Host Name this_hostname
 IP Address 0.0.0.0
 IP Address 172.19.1.78
 User Name admin

Unsaved & Unapplied Changes

DSL

DSL Configuration

Network Type: AUTO
 Network Topology: T1
 Line Encoding: B8ZS
 Framing: ESF

Submit

PORT Configuration

PORT ID	Enabled	NT	Clock Master	Bus Master Priority	Layer 1	E1 rx Short Haul	T1 tx equalization	ISDN	CAS	Groups	Chg?
1	1	0	0	1	g711Alaw64k	1	sh220_330	====>	====>	====>	Modify
2	1	1	1	0	g711Alaw64k	1	sh220_330	====>	====>	====>	Modify
3	1	0	0	2	g711Alaw64k	1	sh220_330	====>	====>	====>	Modify
4	1	1	1	0	g711Alaw64k	1	sh220_330	====>	====>	====>	Modify

Delete Add

Save
 Log off
 Help
 Reboot System
 Apply Changes

For the configuration indicated in the initial diagram DSL1 and DSL3 connect to the PSTN and DSL 2 and DSL 4 connect to the PBX. The Vega therefore needs DSL 1 and 3 configured as TE and DSL 2 and 4 configured as NT.

Bus Master needs to be configured to collect the master clock from one of the TE DSLs.

These are the default settings of the Vega and so no changes are required to the Network Terminator, Clock_Master, or Bus_Master settings.

In the **Port Configuration** section, for PORT ID 1:

➤ Select **Modify**

➤ Set Layer 1 = g711Ulaw64k

Note: 1. If a configuration is to be used that requires the Network Terminator value to be changed, this can be altered as well. Typically if NT is ticked then Clock Master should also be ticked. If NT is un-ticked (TE mode) then typically Clock Master should also be un-ticked.
2. Bus Master priority should be set to 0 for NT DSLs, and 1, 2, ... for successive TE DSLs

➤ select **Submit** and then click "[here](#)" to return

Return to this page:

In the **ISDN Configuration** section:

➤ Set DTMF Dial Timeout = 5

- select and then click "[here](#)" to return

If you selected RBS as the signalling type, also configure the CAS parameters.

In the **CAS Configuration** section:

CAS Configuration	
RX Dial Format String	<input type="text" value="."/>
TX Dial Format String	<input type="text" value="."/>
Digit Dial Timeout	<input type="text" value="6"/>
Info	<input type="text" value="dtmf"/>
Signal	<input type="text" value="em_wink"/>
Tone Delay	<input type="text" value=""/>
<input type="button" value="Submit"/>	

- Select the type of RBS CAS signalling
- em_wink = E & M wink start signalling
 - loopstart = loop start signalling
 - gndstart = ground start signalling
 - fgd = E & M wink start signalling supporting feature group D (for caller ID)

CAS Configuration	
RX Dial Format String	<input type="text" value="."/>
TX Dial Format String	<input type="text" value="."/>
Digit Dial Timeout	<input type="text" value="6"/>
Info	<input type="text" value="dtmf"/>
Signal	<input type="text" value="em_wink"/>
Tone Delay	<input type="text" value="50"/>
<input type="button" value="Submit"/>	

TX Dial Format String and RX Dial Format String – these fields specify the format of the dialled number DNIS and calling party number ANI for transmitted calls and received calls respectively. See *the Vega Primer for more details*.

Info – this selects whether the tones used to communicate on the CAS link are MF tones or DTMF tones.

Select Signal, Dial Format String and Info to match the device to which the Vega is going to be connected.

- select and then click "[here](#)" to return

For all signalling types, continue here:

- Scroll down to the bottom of the page

Host Name this_hostname
IP Address 0.0.0.0
IP Address 172.19.1.78
User Name admin

Unsaved & Unapplied Changes

DTMF Dial Timeout 2
Setup Mapping 0
Cause Mapping 0

Submit

CAS Configuration

RX Dial Format String
TX Dial Format String
Digit Dial Timeout 6
Info dtmf
Signal em_wink
Tone Delay 50

Submit

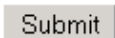

Groups

Group ID	Interface ID	Cost Index	DN	First Channel	Last Channel	Alloc Channel	Tunnel Mode	Chg?
1	01	1	*	1	auto	default	off	Modify

Delete Add

In the **Groups** section, check that Last Channel value is correctly configured, and if it is not, then correct it; it should be *auto*, or 23 for PRI signalling schemes, or 24 for RBS CAS (or, if this is a fractional T1, it should be the number of channels supported on this link).

If changes are made

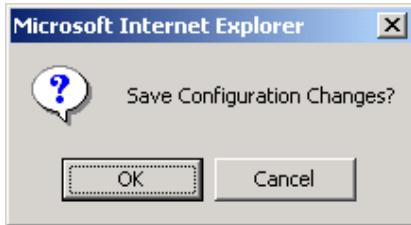
- select  and then click "[here](#)" to return
- select 

- Repeat the other Ports (PORT IDs 2, 3, 4).

10. Save Changes

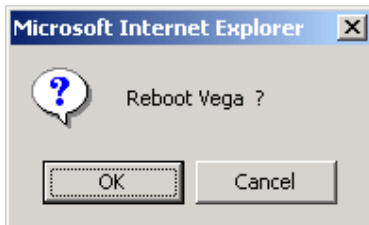
The changes to the configuration must be saved and activated. This is carried out as follows:

- On the left hand side menu select [Save](#)



- Select  and after the configuration has been saved click "[here](#)" to return

- On the left hand side menu select 



- Select 

The Vega will reboot and once back on-line, it will be ready to take its first call.

11. Archive Vega Configuration

Once configured it is recommended that the configuration is archived to an external server.

To do this check that the tftp address is configured to point to a tftp server (in the [LAN](#) page), then on the left hand side menu select [Advanced](#), and scroll to the CLI Command section:

CLI Command	
<input type="text"/>	<input type="button" value="Submit"/>

- in the text entry box type "PUT tftp:initial_cfg.txt". Select .

This will send all the configuration parameters to the tftp server and save them as the file "initial_cfg.txt". (Note: you may want to choose a unique name rather than "initial_cfg.txt", especially if you are configuring more than 1 unit).

The Vega configuration can be archived to an ftp server instead of a tftp server by configuring the ftp server address in the [LAN](#) page and then typing the CLI command "PUT FTP:initial_cfg.txt". (Again a unique name can be used in place of "initial_cfg.txt")

If the ftp server requires a login username and password:

- On the left hand side menu select [LAN](#)
- Scroll down to the **FTP Parameters** section

FTP Parameters	
Server IP	<input type="text" value="0.0.0.0"/>
FTP Ping Test	<input checked="" type="checkbox"/>
FTP Timeout	<input type="text" value="20"/>
Anonymous Login	<input checked="" type="checkbox"/>
FTP Username	<input type="text" value="whatever"/>
LAN Profile	<input type="text" value="1"/>
Abort Socket Before Closing	<input type="checkbox"/>
Use DHCP Settings From Interface	<input type="text" value="1"/>
<input type="button" value="Submit"/>	

- Un-tick Anonymous Login
- Set FTP Username = <ftp username>
- Set Use DHCP Settings From Interface = 2
- select and then click "[here](#)" to return

In the **CLI Command** section of the [Advanced](#) page, or on a Telnet or Serial interface

- set _advanced.lan.ftp._password=<ftp password>

12. Technical Support

Support information can be found on the VegaStream Support web site www.VegaAssist.com

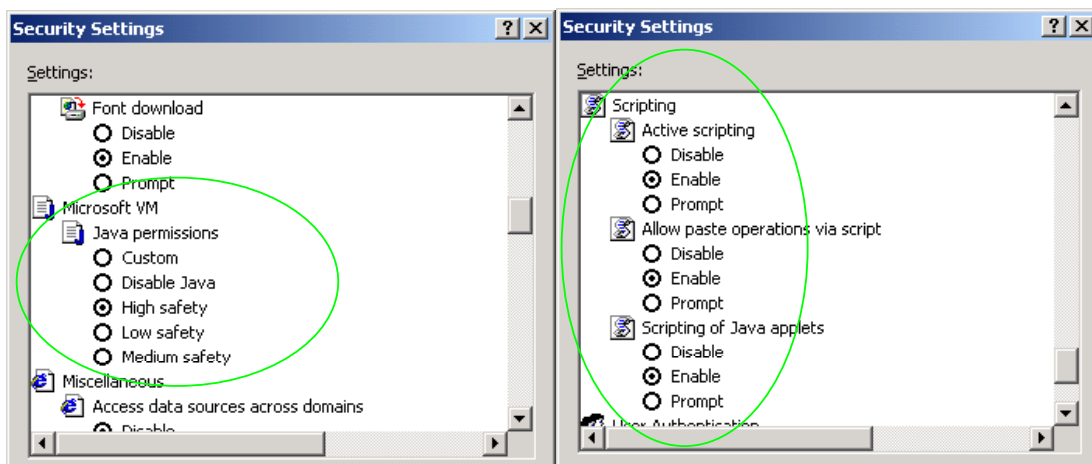
If you require help from VegaStream support personnel, please use the serial interface or telnet into the unit, log in and then type:

- show support
- sip monitor on
- log display on

Carry out the interaction you want explained, then copy the information provided by the Vega and e-mail it to support@VegaStream.com together with your question.

Notes:

1. If the screens do not appear as indicated, check that Java is enabled on your web browser (Tools>internet options>Security, select internet and custom level and configure Microsoft VM Java permissions and Scripting parameters as indicated below.



2. Where there are multiple sections – each with a **Submit** button – entries must be made to one section at a time, and those entries confirmed by the **Submit** button before the next section is altered. Each **Submit** button only confirms entries for its own section. Any changes in other sections will be discarded when the **Submit** is pressed.
3. Loss of audio mid call – consider reducing the selection of available codecs (see section 6). Some equipment, when presented with multiple codecs, may try and switch codec mid-call. Vegas do not support changing codec type mid-call.
4. Mismatched audio codecs. Use SIP monitor on to identify this. If the codecs of the endpoints are mismatched this will be reported as error 606 “No matching media”. To rectify, enable the appropriate audio codec (see section 6).
5. Outbound calls from the Vega send the INVITE to “Default Proxy Host Name/IP” with the request line: “INVITE sip: <dest TEL:>@Default Proxy Host Name/IP”.

13. Advanced configuration

Vega 400 units have further configurable parameters that may be desirable to configure in order to fully integrate into the attached infrastructure.

13.1 Configure Vega 400 registration

For trunking gateways, registration, if used, is typically used to tell the Proxy that the Vega exists and is available to take calls. The number of users that need to be registered by the gateway on the SIP Proxy will depend on the Proxy's requirements, typically however, only a single registration is required.

For example, to register with a username "Vega400Gateway123"

- On the left hand side menu select [SIP](#)
- Scroll down to the **Registration** section

Vega 400 Online Configuration - Microsoft Internet Explorer

Address: http://172.19.1.88/vsframe?sid=-1479146490&frame_id=52

Vega 400 Configuration

Host Name: this_hostname
 IP Address: 0.0.0.0
 IP Address: 172.19.1.88
 User Name: admin

⚠ Unsaved & Unapplied Changes

Management
[Logging](#)
[Maintenance](#)
[LAN](#)
[DSL](#)
[Dial Plan](#)
[DSP](#)
[Media](#)
[Tones](#)
[SIP](#)
[Users](#)
[QoS](#)
[Advanced](#)

Registration

Show SIP Registration: [Show Registration](#)
 Enable Registration:
 Register on Start-up:
 Register Message Request URI Port: 5060
 Expiry Time (seconds): 600
 Mode: normal dnssrv
 Maximum Number of Registrars: 3
 Minimum Valid Response: 200
 Timeout (ms): 5000

SIP Registrar	Enable	IP/DNS Name	Port	Chg?
1	1	0.0.0.0	5060	Modify
2	1	0.0.0.0	5060	Modify

[Add](#) [Delete](#)

[Submit](#)

SIP Registration Users Configuration
[SIP Registration Users](#)

Miscellaneous
 SIP Signalling: udp tcp

Save
 Log off
 Help
 Reboot System
 Apply Changes

- Tick Register on Start-up
- select **Submit** and then click "[here](#)" to return

Return to the **Registration** section. For SIP Registrar 1:

- Select **Modify**

[SIP](#) > SIP Registrar 1

SIP Registrar 1	
Enable	<input checked="" type="checkbox"/>
IP/DNS Name	<input type="text" value="0.0.0.0"/>
Port	<input type="text" value="5060"/>
<input type="button" value="Submit"/>	

- Set IP/DNS Name = `IP_or_DNS_name_of_SIP_registrar_or_machine proxying_for_the_registrar`
- select and then click "[here](#)" to return

In some older versions of code the Registrar Host Name/IP is set up directly in the **Registration** section. In this case, set up the Registrar Host Name/IP directly in this section:

Registration	
Enable Registration	<input checked="" type="checkbox"/>
Register on Start-up	<input type="checkbox"/>
Registrar Host Name/IP	<input type="text" value="0.0.0.0"/>
Registrar Remote Port	<input type="text" value="5060"/>
Expiry Time (seconds)	<input type="text" value="600"/>
Show SIP Registration	Show Registration
<input type="button" value="Submit"/>	

- Set Registrar Host Name/IP = `IP_or_DNS_name_of_SIP_registrar_or_machine proxying_for_the_registrar`
- select and then click "[here](#)" to return

In the **SIP Registration Users Configuration** section

- Select SIP Registration Users

[SIP](#) > Registration

SIP Registration Users									
Del?	User	Enable	Dn	Username Prefix	Username Suffix	Username	Built Username	Authentication User Index	Chg?
<input type="checkbox"/>	1	0	100	no prefix	unit1	reguser1	reguser1unit1	1 - VegaGateway123	Modify
<input type="button" value="Add"/>		<input type="button" value="Delete"/>							

- Select [Modify](#)

Host Name this_hostname
 IP Address 172.19.1.60
 IP Address 200.100.50.199
 User Name admin

Unsaved & Unapplied Changes

SIP > Registration > User

SIP Tokens	
Token	Value
1	unit1
2	01

SIP Authentication Users							
User	Enable	Username Prefix	Username Suffix	Username	Built Username	Password	Source
1	0	no prefix	no suffix	VegaGateway123	VegaGateway123	LetMeIn	IF:*

Modify SIP Registration User

SIP Registration User 1

Enable

Dn 100

Username Prefix none

Username Suffix unit1

Username requester1

Authentication User Index 1 - VegaGateway123

Submit

Save
 Log off
 Help
 Reboot System
 Apply Changes

In Modify SIP Registration User, SIP Registration User 1

- Tick Enable
- Set Username Suffix = none
- Set Username = Vega400Gateway123

If Authentication will be needed for REGISTRATION

- Set Authentication User Index = Required Authentication User

Modify SIP Registration User

SIP Registration User 1	
Enable	<input checked="" type="checkbox"/>
Dn	<input type="text" value="100"/>
Username Prefix	<input type="text" value="none"/>
Username Suffix	<input type="text" value="none"/>
Username	<input type="text" value="Vega400Gateway123"/>
Authentication User Index	<input type="text" value="1 - VegaGateway123"/>
<input type="button" value="Submit"/>	

- Select and then click "[here](#)" to return

Recommended: Configure the Vega to reject calls with cause code 38 if registration fails (this allows calls to be re-presented in the dial plan immediately, rather than having to wait for the SIP timeouts to find that the SIP proxy is not available to handle the INVITE)

On the left hand side menu select [Advanced](#), and scroll to the CLI Command section:

CLI Command	
<input type="text"/>	<input type="button" value="Submit"/>

Enter

- set _advanced.sip.invite.registered=1
- Select and then close the CLI command window
- Save and reboot to activate

13.2 Line impedance matching

13.2.1 E1 Line impedance matching

The Vega E1 receiver sensitivity can be configured based on the line attenuation between the Vega and the closest repeater or other ISDN endpoint.

The configuration is made on the web browser interface, in the **Port Configuration** section off the DSL page:

Port 1

Port Configuration	
Port ID	1
Enabled	<input checked="" type="checkbox"/>
Network Terminator	<input type="checkbox"/>
Clock Master	<input type="checkbox"/>
Bus Master Priority	1
Layer 1	g711Alaw64k
Set E1 RX short haul	<input checked="" type="checkbox"/>
T1 TX equalization	sh220_330
<input type="button" value="Submit"/>	

Short haul should be selected when the cable between the Vega and the closest repeater or other ISDN endpoint introduces less than or equal to 6dB attenuation.

Long haul (short haul unticked) should be selected when the cable between the Vega and the closest repeater or other ISDN endpoint introduces more that 6dB attenuation.

This can be selected for each of the four DSL ports independently.

13.2.2 T1 Line impedance matching

In order to match the signal shapes produced by the Vega to the T1 line it is working into, there is a parameter that can be configured.

The configuration is made on the web browser interface, in the **Port Configuration** section off the DSL page:

Port 1

Port Configuration	
Port ID	1
Enabled	<input checked="" type="checkbox"/>
Network Terminator	<input type="checkbox"/>
Clock Master	<input type="checkbox"/>
Bus Master Priority	1
Layer 1	g711Alaw64k
Set E1 RX short haul	<input checked="" type="checkbox"/>
T1 TX equalization	sh220_330
<input type="button" value="Submit"/>	
ISDN Configuration	
DTMF Termination Char	sh0_110
DTMF Dial Timeout	sh220_330
Setup Mapping	
Group Mapping	

T1 TX equalization can take the following values:

1h1bo0	(long haul line break out 0 dB)	
1h1bo7_5	(long haul line break out -7.5 dB)	
1h1bo15	(long haul line break out -15 dB)	
1h1bo22_5	(long haul line break out -22.5 dB)	
sh0_110	(short haul 0-110 ft.)	
sh110_220	(short haul 110-220 ft.)	
sh220_330	(short haul 220-330 ft.)	- default setting
sh330_440	(short haul 330-440 ft.)	
sh440_550	(short haul 440-550 ft.)	
sh550_660	(short haul 550-660 ft.)	

Long haul values are used where the distance between the Vega and the closest repeater or other ISDN endpoint is greater than 660 feet. Short haul value lengths are the distance between the Vega and the closest repeater or other ISDN endpoint.

If the appropriate test and measurement equipment is not available to check the required setting, for long haul try **1h1bo0** and for short haul try **sh220_330**.

13.3 Channel Allocation Strategies

The Vega allows configuration of the channel allocation strategy to be used for each DSL on outgoing calls. Four options are available,

- i) *Linear_down* – where the Vega will use the highest available free channel to make the outbound call ... use this mode when the attached device is configured to make outbound calls using *Linear up*.
- ii) *Linear_up* – where the Vega will use the lowest available free channel to make the outbound call ... use this mode when the attached device is configured to make outbound calls using *Linear down*.
- iii) *Round_robin* – in this mode the Vega remembers the last allocated channel and then tries to use the next channel up from this for the next outbound call. (After reaching the highest channel ID it restarts at the lowest channel again.) ... use this mode when the attached device is configured to make outbound calls using *Round_robin* mode.
- iv) *Default* – if the DSL is configured as NT then the Vega will use the *Linear_up* scheme, and if the DSL is configured as TE then the Vega will use *Linear_down*.

By default the Vega has `chan_alloc set=Default`

Using the web browser interface:

- On the left hand side menu select [DSL](#)
- Then select the PORT ID to alter, select [Modify](#)
- Scroll to the bottom of the page to the **Groups** section

Groups								
Group ID	Interface ID	Cost Index	DN	First Channel	Last Channel	Alloc Channel	Tunnel Mode	Chg?
1	01	1	*	1	auto	default	off	Modify

[Delete](#) [Add](#)

In the **Groups** section:

- Select [Modify](#)

[DSL](#) > [Port 1](#) > **Group 1**

Modify Port Group	
Group ID	1
Port ID	1
Interface ID	<input type="text" value="01"/>
Cost Index	<input type="text" value="1"/>
DN	<input type="text" value="*"/>
First Channel	<input type="text" value="1"/>
Last Channel	<input type="text" value="auto"/>
Alloc Channel	<input type="text" value="Default"/>
Submit	<ul style="list-style-type: none">DefaultLinear UpLinear DownRound Robin

- Select the desired channel allocation strategy from the Alloc Channel pull down.

- select and then click "[here](#)" to return
- Save and reboot system to activate the change

Idea: Use the channel usage display displayed using the show ports command to see which ports that Incoming and Outgoing calls are using. I represents an incoming call and O an outgoing call (X represents signalling channels).

13.4 User progress tones – towards ISDN interface

For ISDN to SIP calls, by default if the Vega DSL is configured as TE it will connect media through before or at alerting so that progress tones are passed through from end to end (i.e. for the ISDN caller to hear ringback and other progress tones the audio must be received over the SIP interface).

If it is required that the Vega generates these progress tones on the TE ISDN interface, then at the CLI prompt type:

- Set `_advanced.isdn.user_progress=1`
- Save and reboot system to activate the change

Notes: 1. If the Vega DSL is configured as NT it will always generate the call progress tones. E.g. ringback and disconnect⁴ tones.
2. Typically `wait_for_connect` and `user_progress` configuration parameters should either both set to 1 or both set to 0.

13.5 User progress tones – towards SIP interface

For SIP to ISDN calls, by default the Vega will act upon the in-band audio indicator in the alerting message and if present will connect the media path.

If it is required that the Vega should ignore the in-band audio indicator, and so not pass on the in-band tone, then at the CLI prompt type:

- Set `_advanced.isdn.alert_with_progress=0`
- Save and reboot system to activate the change

If it is required that the Vega should always cut through the audio whatever the value of the in-band audio indicator, then at the CLI prompt type:

- Set `_advanced.isdn.alert_with_progress=2`

⁴ The duration disconnect tones are played for is determined by the value of `_advanced.isdn.force_disconnect_progress` – its default value is zero, set it to a non zero value to hear the disconnect tone at the end of a call.

- Save and reboot system to activate the change

Further details on this and other parameters may be found in the Vega Primer.

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