# Initial configuration
Vega 50 6x4 BRI
(SIP) – R7.5

This document describes how to configure the BRI ports on a Vega 50 6x4 BRI gateway 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 50 6x4 BRI 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 (or if no SIP proxy to a specific IP address); the Vega will pass on any dialled digits.
- Calls made from the SIP Proxy (or if no SIP proxy, from a VoIP device) 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 or 03 will cause the call to be routed to the PSTN, and a leading 02 or 04 will cause the call to be routed to the PBX. The digits following the first two digits (01 / 02 / 03 / 04) will be forwarded through the telephony interface as the dialled digits.
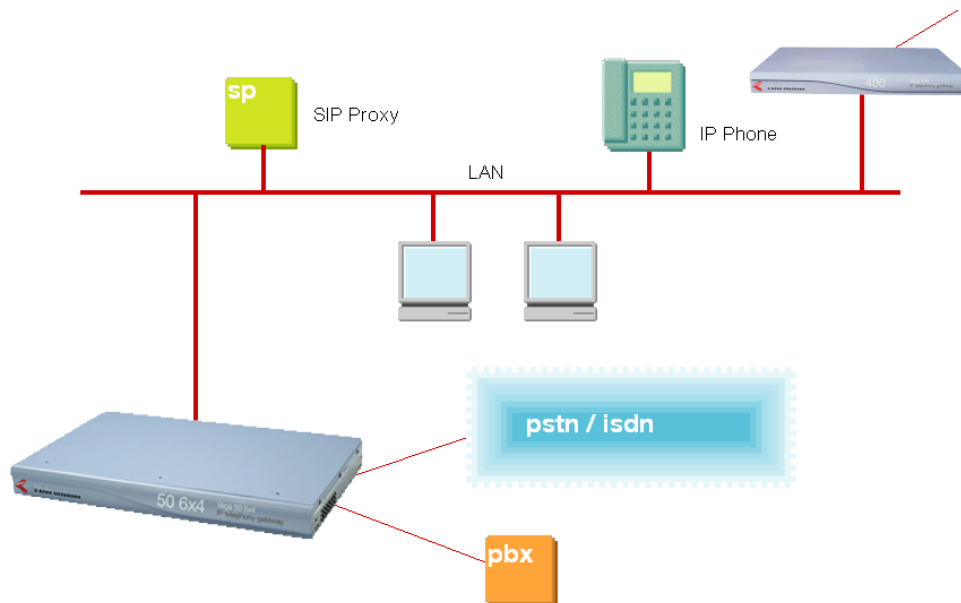
Although the Vega 50 6x4 supports two LAN interfaces, in this example configuration, only one LAN interface, LAN 1 will be used.

Version 0.11
For use with Vega 50 6x4 BRI – SIP version 11.02.07.5_S009 or greater.

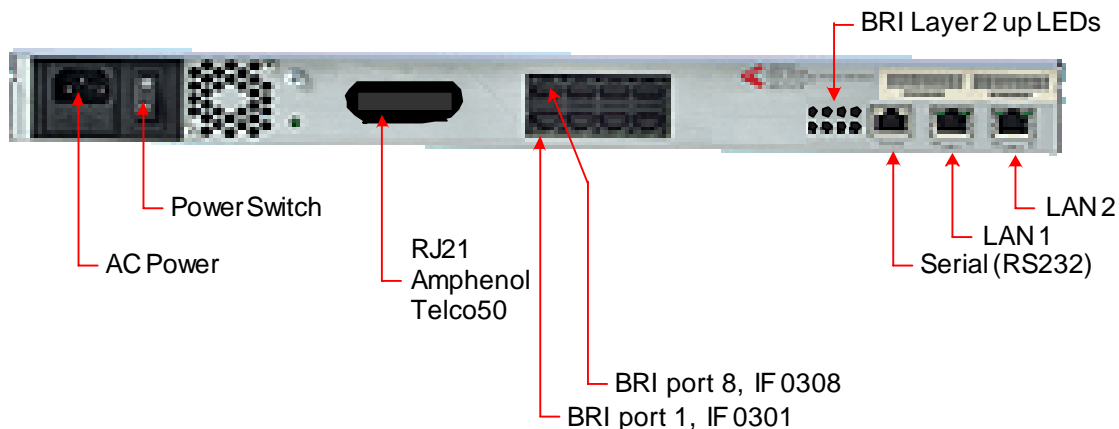16 November 2006

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Notes are included describing the changes required if there is no SIP proxy in the installation and calls are to be routed to a specific destination device.

The configuration process is broken down into 12 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 parameters
7   Configure audio parameters
8   Configure Authentication
9   Configure Registration
10   Configure DSLs
11   Save Changes
12   Archive Vega Configuration

Please also see:
13   Technical Support
14   Advanced configuration

Labels: BRI Layer 2 up LEDs, Power Switch, AC Power, RJ21 Amphenol Telco50, LAN 2, LAN 1, Serial (RS232), BRI port 8, IF 0308, BRI port 1, IF 0301

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

LAN:
Using the yellow booted cable(s) 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 1 interface to the hub or switch.

⚠ **WARNING!**	If both LAN interfaces, LAN 1 and LAN 2 are to be used, the interfaces must be on separate subnets.

Telephony:
Use the supplied blue booted cables to connect the appropriate Vega DSL (RJ45) sockets (labelled IF 1 to IF 8) to the other ISDN device(s). Note the port numbers increase in an anticlockwise direction from the bottom left corner.

IF 8	IF 7	IF 6	IF 5
IF:0308	IF:0307	IF:0306	IF:0305
IF 1	IF 2	IF 3	IF 4
IF:0301	IF:0302	IF:0303	IF:0304

⚠ **WARNING!**	When BRI ports are fitted, two of the four BRI signals are brought out to the associated RJ21 / Amphenol / Telco 50 connector pins. In this situation DO NOT connect anything to these pins on the RJ21 / Amphenol / Telco 50 connector.

See the 'Vega 50 6x4 product details' document for pinouts and cabling.

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.

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

After a short while the Vega Ready LED will illuminate – the Vega is ready to be configured.

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 <u>not</u> 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: H.323 Firmware
             Version: 11.01.07.5
             Image: VEGA56x4_R075H001a Sep 16 2005 10:42:57

Partition 2: SIP   Firmware            (ACTIVE)
             Version: 11.02.07.5
             Image: VEGA-6x4_R075S001 Nov 25 2005 11:38:45

Type PART1 to activate partition 1, 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 Vega[1].
> 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.1.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.1.use_dhcp=0`
- ➢ `set lan.if.1.ip=aaa.bbb.ccc.ddd`
- ➢ `set lan.if.1.subnet=eee.fff.ggg.hhh`
- ➢ `set lan.gateway.ip=iii.jjj.kkk.lll`
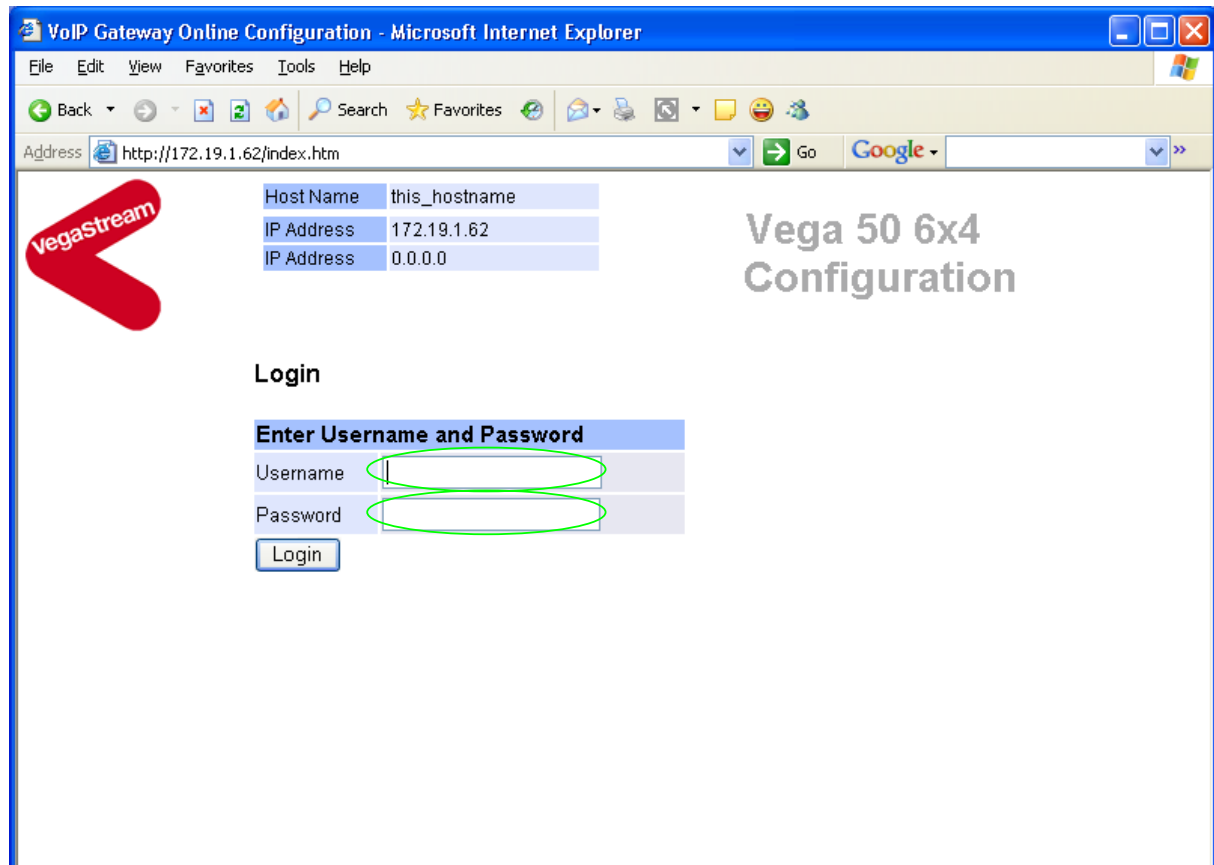- ➢ `set sip.lan_profile=1`
- ➢ `save`
- ➢ `reboot system`

3. Configure password and login timeout

Now configuration will be carried out via a web browser.

➢ Enter the IP address of the Vega into the "Address" field of your web browser.
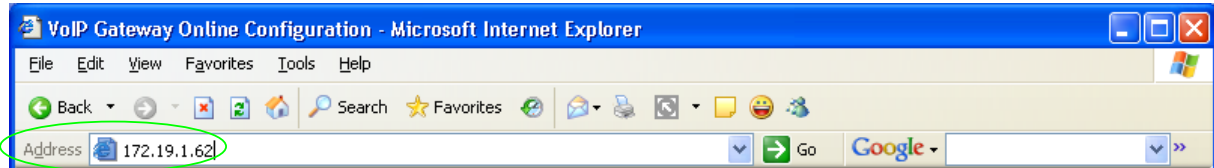
You will then be presented with the login page:

Enter the default Username and Password

➢Username: `admin`
➢Password: `admin`
➢Select Login

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

○ Partition 1   H.323 Version: 11.01.07.5
                 Image: VEGA56x4_R075H001a Sep 16 2005 10:42:57

◉ Partition 2   SIP Version: 11.02.07.5
                 Image: VEGA-6x4_R075S001 Nov 25 2005 11:38:45

[Continue ...]

> ➢ Ensure that the partition selected is the SIP partition, if it is not, then select it
> ➢ Press [Continue ...]

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 complete[2].

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.

> ➢ On the left hand side menu select Users

Recommended: Change the password
  ➢ enter New Password and Re-enter Password then
  ➢ select [Submit] and then click "here" to return

Optional: Change the timeout[3] – default is 240 seconds; can extend to 7200 seconds (2hrs)
  ➢ select [Submit] and then click "here" to return

---

[3] If the web 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 browser session.

4. Check and configure LAN settings and Host name

➢ On the left hand side menu select LAN

In this configuration scenario we are just going to use LAN interface 1, so in the next steps we will configure the parameters required for LAN interface 1, configuring both calls and management traffic to be routed via this LAN interface.

➢ Ensure that the IP address and subnet mask are configured correctly.
With DHCP enabled the current values collected by DHCP are shown 'greyed out'

➢ If static configuration of the IP information is required select 'Static IP Address' and configure the values as required.

➢ If changed select [Submit] and then click "here" to return; return to LAN Interface 1 configuration page.

LAN Configuration

LAN 1	172.19.1.99	LAN 2	0.0.0.0
◉ DHCP		◉ DHCP	
○ Static IP Address	172.19.1.99	○ Static IP Address	0.0.0.0
~~Subnet Mask~~	255.255.255.0	Subnet Mask	255.255.255.0
Configure LAN Interfaces			
QoS	TOS/DiffServ ▼	QoS	TOS/DiffServ ▼
Accept non 8021q tagged frames	☑	Accept non 8021q tagged frames	☑
Configure QOS Profiles			

Submit

In the **LAN configuration** section
> ➢ Select Configure LAN Interfaces

LAN Configuration

LAN 1	172.19.1.99	LAN 2	0.0.0.0
Physical Layer		**Physical Layer**	
Enable Full Duplex	☐	Enable Full Duplex	☐
Enable 10baseT	☑	Enable 10baseT	☑
Enable 100baseTX	☑	Enable 100baseTX	☑

Submit

Recommended: In the **Physical Layer** section for **LAN 1**, leave ticked only 100baseTx or 10 baseT (not both) – whichever is appropriate *(this ensures that any re-negotiation of the LAN connection bandwidth will always result in the same connection rate)*
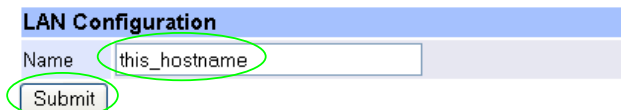
Optional: In the **Physical Layer** section for **LAN 1**, tick 'Full Duplex' to allow the Vega to attempt to negotiate a full duplex LAN connection *(this gives increased bandwidth on the LAN link)*

> ➢ select Submit and then click "here" to return

If you are planning to use LAN interface 2 – check its configuration too.

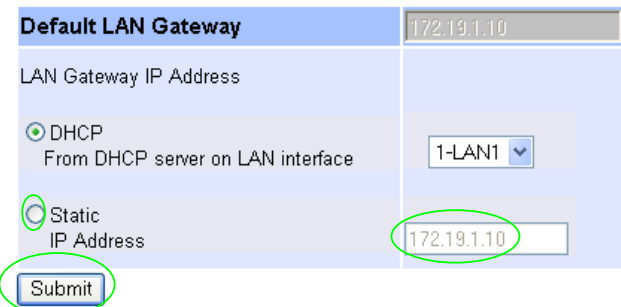| ⚠ **WARNING!**	If both LAN interfaces, LAN 1 and LAN 2 are to be used, the interfaces must be on separate subnets.

Now continue configuring the other LAN parameters:

LAN Configuration
Name   this_hostname
[Submit]

If the Vega has a DNS name associated with its IP address, in the **LAN Configuration** section
  ➢ set Name = the DNS name
  ➢ select [Submit] and then click "<u>here</u>" to return

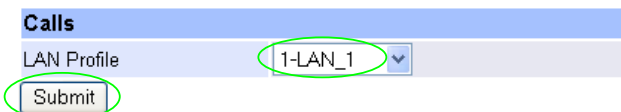 ➢ Scroll down to the **Default LAN Gateway** section

Default LAN Gateway   172.19.1.10

LAN Gateway IP Address

⊙ DHCP
    From DHCP server on LAN interface   [1-LAN1 ▾]

◯ Static
    IP Address   172.19.1.10
[Submit]

Optional: If Static addressing is to be used to define the LAN gateway

  ➢ Select Static IP Address
  ➢ Set up the LAN Gateway IP address either as a DNS name or as a dotted decimal IP address.
  ➢ Select [Submit] and then click "<u>here</u>" to return

  ➢ Scroll down to the **Calls** section

Calls
LAN Profile   [1-LAN_1 ▾]
[Submit]

  ➢ Ensure that the LAN profile is 1-LAN_1
  ➢ If it needs changing, change it, then select [Submit] and then click "<u>here</u>" to return

> Scroll to the **TFTP Parameters** section

Optional: If Static addressing is to be used to define the TFTP Server

> Select Static TFTP Server IP Address
> Set up the TFTP Server IP address either as a DNS name or as a dotted decimal IP address.
> Ensure that the LAN profile is 1-LAN_1
> Select [Submit] and then click "here" to return

> Scroll to the **NTP Parameters** section

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

Optional: If Static addressing is to be used to define the NTP Server

> Select Static NTP Server IP Address
> Set up the NTP Server IP address either as a DNS name or as a dotted decimal IP address.
> Ensure that the LAN profile is 1-LAN_1
> Select [Submit] and then click "here" to return

> ➢ Scroll to the **Ping, SNMP, Radius etc** section

Ping, SNMP, Radius etc
LAN Profile   1-LAN_1
Submit

> ➢ Ensure that the LAN profile is 1-LAN_1
> ➢ If it needs changing, change it, then select Submit and then click "here" to return

> ➢ Scroll to the **DNS Servers** section

DNS
| DNS Server List | 172.19.1.1 |
| Use DNS Server defined by DHCP on Lan Interface | 1-LAN 1 |

Submit

Static DNS Servers
DNS Server	Domain Name Server
1	0.0.0.0
2	0.0.0.0
3	0.0.0.0

Submit   Add   Delete

DNS servers will be set up using both DHCP served DNS servers and also static DNS Servers specified here.

> ➢ Ensure Use DNS Server defined by DHCP on LAN Interface = 1-LAN 1
> ➢ If it needs changing, change it, then select Submit and then click "here" to return

Optional: If static DNS servers are to be defined, in the **Static DNS Servers** section

> ➢ Set up Domain Name Server IP address(es) (Press Add if more than 3 static entries are required)
> ➢ Select Submit and then click "here" to return

(Note, the DHCP supplied DNS server will be used in preference to statically defined servers, unless the DHCP defined server is also statically defined, when the static order will be used.)

➢ Scroll to the **Management Access** section

Management Access		
	LAN Profile	LAN Port
Telnet	3-LAN_1&2 ▾	23
Web Server	3-LAN_1&2 ▾	80

Submit

➢ Set Telnet LAN Profile = 1-LAN_1
➢ Set Web Server LAN Profile = 1-LAN_1
➢ Select Submit and then click "here" to return

5. Configure the Dial Plan

➢ On the left hand side menu select Dial Plan

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

➢ Select Modify

Dial Planner > Profile 1

Modify Profile

Profile ID	1
Enabled	☑
Name	default

Submit

Plans in this Profile

Del?	Plan ID	Name	Srce	Dest	Cost	Group	Chg?
☐	1	outgoing_lan	IF:0[1-4]..,TEL:<.*>	IF:9901,TEL:<1>	0	1	Modify
☐	2	incoming_lan	IF:9901,TEL:<...><.*>	IF:<1>,TEL:<2>	0	1	Modify

Delete   Add

> ➢ Set Name = ISDN_to_LAN
> ➢ select Submit and then click "here" to return

Dial Planner

Profiles

Del?	Profile ID	Enabled	Name	Plans	Chg?
☐	1	1	ISDN_to_LAN	===>	Modify

Delete   Add

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

> ➢ Select Modify

Dial Planner > Profile 1

Modify Profile

Profile ID	1
Enabled	☑
Name	ISDN_to_LAN

Submit

Plans in this Profile

Del?	Plan ID	Name	Srce	Dest	Cost	Group	Chg?
☐	1	outgoing_lan	IF:0[1-4]..,TEL:<.*>	IF:9901,TEL:<1>	0	1	Modify
☐	2	incoming_lan	IF:9901,TEL:<...><.*>	IF:<1>,TEL:<2>	0	1	Modify

Delete   Add

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

> ➢ Tick the Del? Tick box against Plan ID 2
> ➢ Select Delete

> ➢ Select [OK]

Dial Planner > Profile 1

Modify Profile

Profile ID	1
Enabled	☑
Name	ISDN_to_LAN

[Submit]

Plans in this Profile

Del?	Plan ID	Name	Srce	Dest	Cost	Group	Chg?
☐	1	outgoing_lan	IF:0[1-4]..,TEL:<.*>	IF:9901,TEL:<1>	0	1	Modify

[Delete] [Add]

In the **Plans in this Profile** section, Plan ID 1:

> ➢ Select Modify

- ➤ Set Name = `From_ISDN_or_PBX`
- ➤ Set Source = `IF:030[1234],TEL:<.*>` *(This takes a call from any of the ISDN interfaces, 0301 to 0304, and stores the telephone number presented in store <1>)*

- ➤ Set Destination = `IF:9901,TEL:<1>` *(This routes the call to IF:9901 (the LAN) and passes the received telephone number on as the destination telephone number)*

- ➤ Set Group = `0 – no group`
- ➤ select Apply and then click "here" to return

> ➤ 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 the **Profiles** section
  ➢ Select `Add`

In a similar manner to configuring profile 1, configure profile 2

In the **Modify Profile** section
  ➢ Set Name = `LAN_to_ISDN_or_PBX`
  ➢ select `Submit` and then click "here" to return

Modify the first plan for Profile 2:
  ➢ Set Name = `From_LAN`
  ➢ Set Source = `IF:99..,TEL:<..><.*>`   *(For calls from IF:99xx (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:03<1>,TEL:<2>`   *(Precede the 2 digits from store 1 with 03 to make them into a BRI interface number – 0301 to 0304 – and the remainder of the digits (those in store 2) are passed on as the telephone number)*

> select `Apply` 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 either 01ttt…t, 02ttt…t, 03ttt…t, or 04ttt…t, where ttt…t is the telephone number to dial and 01 to 04 is the interface number of the BRI interface from which to make the call.

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.

Standalone / non-proxy installations: Where a proxy is not used add a TA: token to dial plans that send calls to VoIP (i.e. to IF:9901), e.g. if the destination device is at IP address 192.168.1.54 then the dial plans above become:

Profile 1 plan 1 (change to 'Destination'):
> Set Name = `From_ISDN_or_PBX`
> Set Source = `IF:030[1234],TEL:<.*>`
> Set Destination = `IF:9901,TEL:<1>`***,TA:192.168.1.54***
> Set Group = `0 – no group`

Profile 2 plan 1 (no differences from above):
> Set Name = `From_LAN`
> Set Source = `IF:99..,TEL:<..><.*>`
> Set Destination = `IF:03<1>,TEL:<2>`

6. Configure SIP parameters

Note: everything in this section, except the configuration of 'accept non proxy invites' should be skipped for __Standalone / non-proxy installations__

> On the left hand side menu select SIP

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)

> set LAN Profile = 1

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 SIP calls through the Vega ensure that this tick box is clear.

> select [Submit] and then click "here" to return

In the **Proxy Configuration** section, for SIP Proxy 1:

> Select Modify

SIP > SIP Proxy 1

SIP Proxy 1	
Enable	☑
IP/DNS Name	0.0.0.0
Port	5060

[Submit]

In the **SIP Proxy 1** section:

> set IP/DNS Name =   IP_address_of_SIP_proxy, or
>   DNS_hostname_of_the_SIP_Proxy

select [Submit] and then click "here" to return

7. Configure audio parameters

The availability and priority of codecs offered and accepted by the Vega 50 6x4 is defined by Media Capability Sets.

> ➢ On the left hand side menu select <u>Media</u>

*The different codecs and their indices are specified in the **Media Capability** section.*

Check that either capability set 1 or capability set 2 has the correct codecs defined and that they are defined in the preferred order of use. (The Vega will use the first codec in the list that it can negotiate.)

If not, in the **Media Capability Sets** section, in Capability Set 2:

> ➢ Select <u>Modify</u>

Modify Capability Set 2

Capability Set 2	
Name	voice+t38Udp
Capability Indices	1,6,2,3,5,8,9

Submit

In the **Capability Set 2** section, in Capability Indices

➤ List the codec indices in the required order (comma separated)

➤ select Submit and then click "here" to return

On the left hand side menu select SIP and scroll down to the **Media** section

➢ Set Capability Set = 2 (if capability set 2 contains the preferred list, or 1 if capability set 1 contains the preferred list)

8. Configure Authentication

*Note: everything in this section should be skipped for **Standalone / non-proxy installations***

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. In the Vega, the user-name is constructed from three parts

        `Username Prefix, Username and Username Suffix`

each of which may be configured with alphanumeric values.

The values for user-name and password entered here must match the values that have been configured as the authorisation user and password in the proxy.

For example, to set up a single authentication username 'VegaGateway' and password 'VegaPass':

> ➢ On the left hand side menu select <u>SIP</u>
> ➢ Scroll down to the bottom to the **SIP Authentication Configuration** section
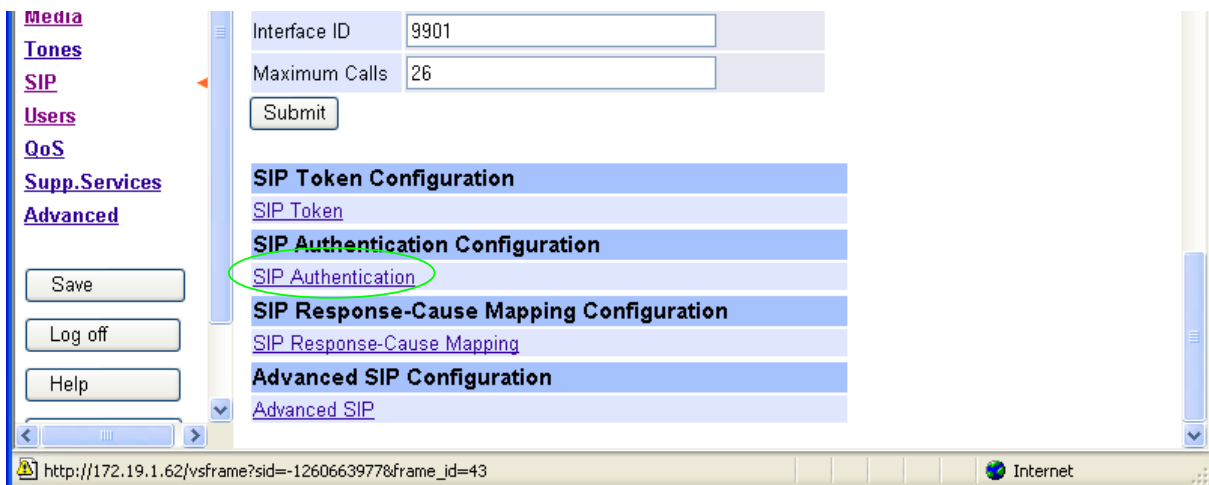
> ➢ Select <u>SIP_Authentication</u>

> Select Modify

SIP > Authentication > User

SIP Tokens

Token	Value
1	unit1
2	01

Modify SIP Authentication User

SIP Authentication User 1

Enable	☐
Username Prefix	none
Username Suffix	unit1
Username	01
Password	user01
Source	IF:0301

Submit

- ➢ Tick Enable
- ➢ Set Username Suffix = none
- ➢ Set Username = VegaGateway
- ➢ Set Password = VegaPass
- ➢ Set Source = IF:.*

- ➢ select Submit and then click "here" to return

SIP > Authentication

SIP Authentication Users

Del?	User	Enable	Username Prefix	Username Suffix	Username	Built Username	Password	Source	Chg?
☐	1	1	no prefix	no suffix	VegaGateway	VegaGateway	VegaPass	IF:.*	Modify
☐	2	0	no prefix	unit1	02	02unit1	user02	IF:0302	Modify
☐	3	0	no prefix	unit1	03	03unit1	user03	IF:0303	Modify
☐	4	0	no prefix	unit1	04	04unit1	user04	IF:0304	Modify

Add Delete

9. Configure Registration

*Note: everything in this section should be skipped for **Standalone / non-proxy installations***

Typically trunking interfaces do not need to register with a SIP proxy. SIP registration was designed for <u>end users</u> 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
- 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 with a request URI of the format `iittt…t@Host_Name_or_IP_address_of_Vega`
- where `ii` defines the interface number through which the call is to be made (01 = interface 0301, 02 = interface 0302, 03 = interface 0303 or 04 = interface 0304), 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 14.1 "Configure Vega BRI registration"

10. Configure DSLs

> ➢ On the left hand side menu select DSL

In **Port Configuration**

> ➢Select _Modify_ for PORT ID 1
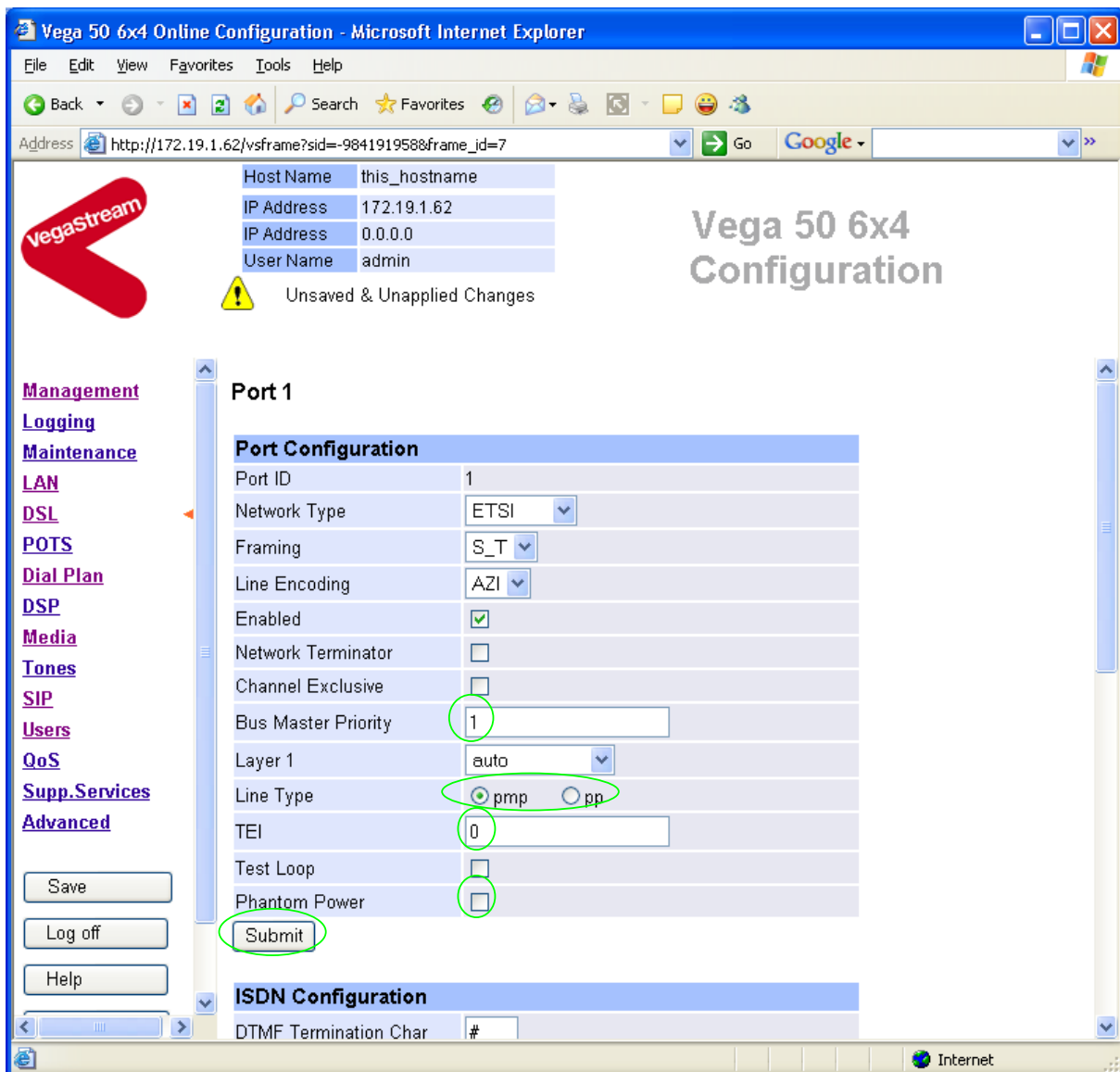
Bus Master Priority needs to be configured so that the Vega chooses and appropriate TE trunk to synchronise its internal clock from. The priority set up will be trunk 1 is preferred clock source and trunk 3 is secondary clock synchronisation source.

> ➢ For DSL 1 set `Bus Master Priority = 1`

> ➢ Select pp (point-to-point) or pmp (point-to-multipoint) mode to match the far end device that this Vega DSL is connected to.
> ➢ If pp is selected, set TEI = same value as far end device TEI value
> *(pmp mode auto-negotiates TEI, and so in pmp mode the TEI value is ignored)*

For the configuration indicated in the initial diagram DSL1 and DSL3 are connected to the PSTN and DSL 2 and DSL 4 are connected to a PBX. So the Vega needs DSL 1 and 3 configured as TE, and DSL 2 and 4 configured as NT.

These are the default settings of the Vega and so no changes are required to the Network Terminator (NT) setting. If the values for NT are changed on any of the DSLs, then 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.

Optional: Tick Phantom Power if the device attached wants the Vega to provide power to the line. *(This is useful for powering ISDN handsets, but is also used by some PBXs to indicate that there is a valid connection to their signalling interface)*

> ➢ Select ⬚Submit⬚ and then click "here" to return

Return to this page:

> ➢ Scroll down to the **ISDN Configuration** section:

ISDN Configuration	
DTMF Termination Char	#
DTMF Dial Timeout	2
Setup Mapping	0
Incoming Cause Mapping	0
Spid1	1001
Spid2	1002
Registered dn	5551000
Call Appearance	1
Outgoing Cause Mapping	0
Spid1	1001
Spid2	1002
Registered dn	5551000
Call Appearance	1

Submit

> ➢ Set `DTMF Dial Timeout = 5`
> ➢ Select ⬚Submit⬚ and then click "here" to return

Repeat the configuration for the other DSLs
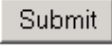
DSL	Bus Master Priority	pp / pmp	TEI	DTMF Dial Timeout
2	0	As required	As required	5
3	2	As required	As required	5
4	0	As required	As required	5

Recommended: Configure the Vega to allow the attached device to take down layer 2 between calls. Many BRI devices do this and if not configured in the Vega, the Vega will try and bring back layer 2 immediately after it is taken down. This may be observed using a log display on, seing repeated 'layer-1 active' and 'Link up' messages when the link is supposed to be idle. (If layer 2 is taken down between calls it is brought back up as the new call SETUP is presented).

On the left hand side menu select Advanced, and scroll to the CLI Command section:

CLI Command

[   ] Submit

> set _advanced.sip.invite.registered=1

> Select Submit and then close the CLI command window
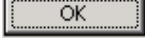
NOTE
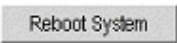
If layer 2 is taken down between calls the DSL L2 (layer 2) LEDs will flash when there is no call in progress (indicating no layer 2 connection). As a call starts the flashing led will turn on solidly indicating that layer 2 has been brought up.

11. 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 <u>Save</u>
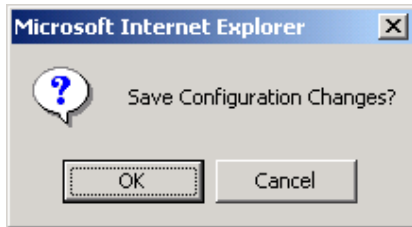
> ➤ Select [OK] and after the configuration has been saved click "<u>here</u>" to return

> ➤ On the left hand side menu select [Reboot System]

Reboot

> ➤ select [Reboot]

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

12. Archive Vega Configuration

Once configured it is recommended that the configuration is archived to an external server.
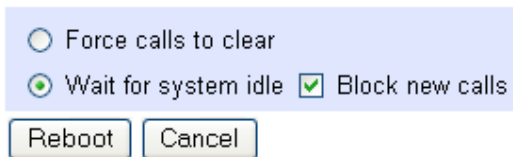
To do this check that the tftp address is configured to point to a tftp server (in the LAN page), then on the left hand side menu select Advanced, and scroll to the CLI Command section:

CLI Command

	Submit

> ➢ in the text entry box type "PUT tftp:initial_cfg.txt".
> ➢ Select Submit.

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	0.0.0.0
FTP Port	21
FTP Ping Test	☑
FTP Timeout	20
Anonymous Login	☑
FTP Username	whatever
FTP Password	●●●●●●●●
LAN Profile	1
Abort Socket Before Closing	☐
Use DHCP Settings From Interface	1

Submit

> ➢ Un-tick Anonymous Login
> ➢ Set FTP Username = <ftp username>
> ➢ Set FTP Password = <ftp password>
> ➢ Check Use DHCP Settings From Interface = 1
> ➢ select Submit and then click "here" to return

13. 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.
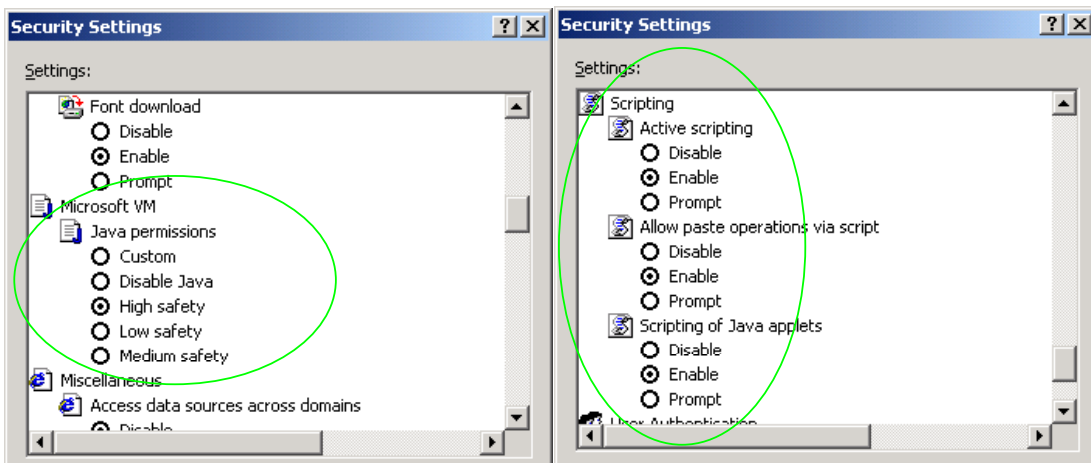
2. Where there are multiple sections – each with a [Submit] button – entries must be made to one section at a time, and those entries confirmed by the [Submit] button before the next section is altered. Each [Submit] button only confirms entries for its own section. Any changes in other sections will 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".

14. Advanced configuration

ISDN units have further configurable parameters that may be desirable to configure in order to fully integrate into the attached ISDN infrastructure. Some are configurable through the web browser; others must be configured through the Command Line Interface.

14.1 Configure Vega BRI registration

*Note: everything in this section should be skipped for **Standalone / non-proxy installations***

For trunking gateways, registration may be 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 Vega gateway on the SIP Proxy will depend on the Proxy's requirements, typically however, only a single registration is required.

For example, to register a single user with a username "VegaGateway123"

> ➢ On the left hand side menu select SIP
> ➢ Scroll down to the **Registration** section
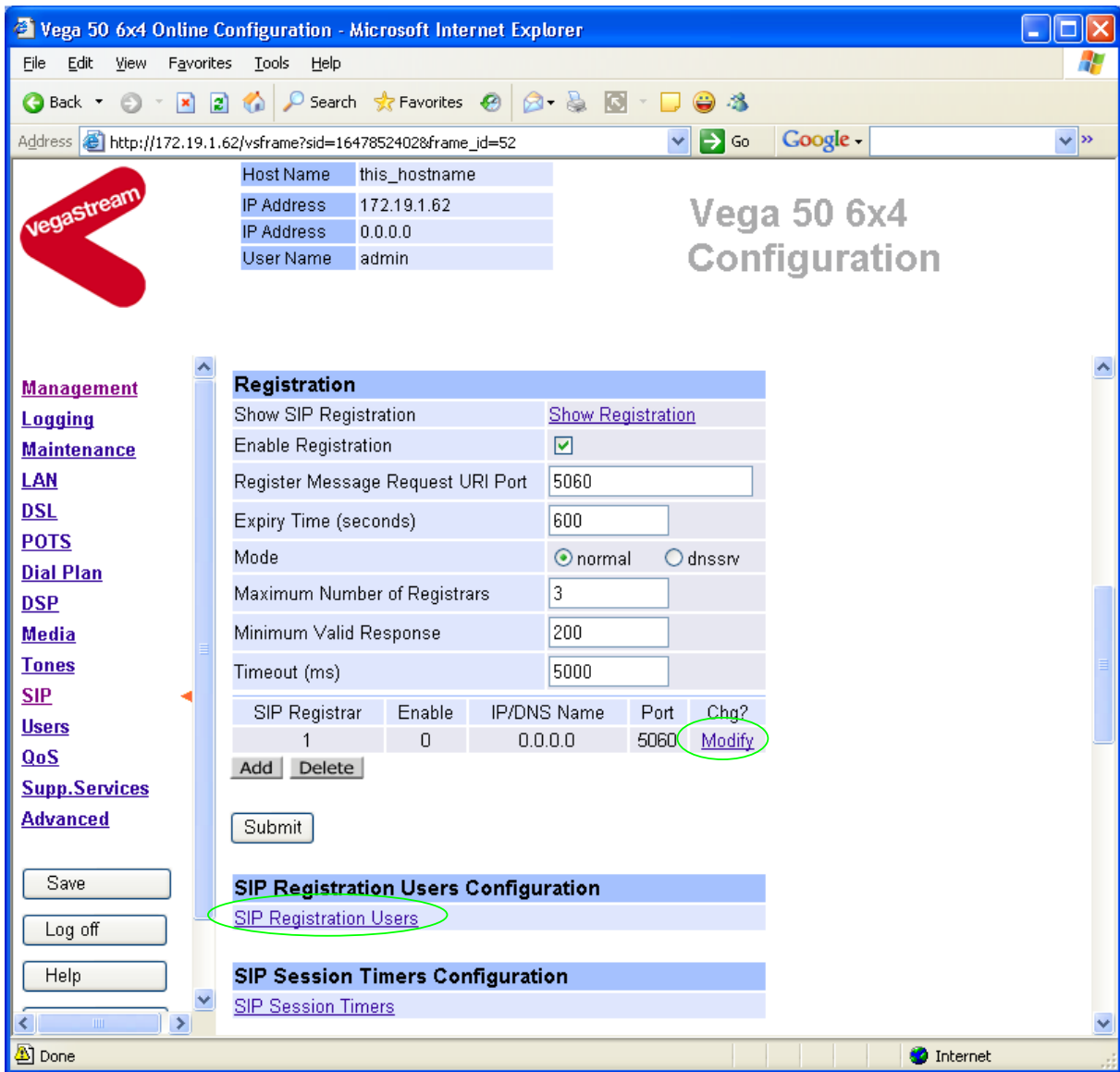
For SIP Registrar 1:

> ➢ Select **Modify**

SIP > **SIP Registrar 1**

SIP Registrar 1	
Enable	☑
IP/DNS Name	0.0.0.0
Port	5060

Submit

> ➢ Set IP/DNS Name =   `IP_or_DNS_name_of_SIP_registrar_or_machine`
> `proxying_for_the_registrar`

➢ select [Submit] 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?
☐	1	0	01	no prefix	unit1	01	01unit1	1 - VegaGateway	Modify
☐	2	0	02	no prefix	unit1	02	02unit1	2 - 02	Modify
☐	3	0	03	no prefix	unit1	03	03unit1	3 - 03	Modify
☐	4	0	04	no prefix	unit1	04	04unit1	4 - 04	Modify

[Add] [Delete]

For registration user 1:
➢ Select [Modify]
➢ Scroll down to the **SIP Registration User 1** section

In the **SIP Registration User 1** section
  - ➢ Tick `Enable`
  - ➢ Set `Username Suffix = none`
  - ➢ Set `Username = VegaGateway123`

If Authentication will be needed for REGISTRATION
  - ➢ Set Authentication User Index = required Authentication User

Modify SIP Registration User

SIP Registration User 1	
Enable	☑
Dn	01
Username Prefix	none ▾
Username Suffix	none ▾
Username	VegaGateway123
Authentication User Index	1 - VegaGateway ▾

Submit

> Select **Submit** and then click "here" to return

> Save and reboot to activate

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

Submit

Enter
> set _advanced.sip.invite.registered=1

> Select **Submit** and then close the CLI command window

See the 'Introduction to Vega dial plans' document on the step by step configuration page of the www.VegaAssist.com web site to learn how to create a redundant dial plan to handle calls when the Vega is not registered.

14.2 ISDN 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

In the **Groups** section:

> ➤ Select Modify

DSL > Port 1 > Group 1

Modify Port Group	
Group ID	1
Port ID	1
Interface ID	0301
DN	*
First Channel	1
Last Channel	2
Alloc Channel	Default
Tunnel Mode	Default / Linear Up / Linear Down / Round Robin
Tunnel IEs Only	

Submit

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

> select [Submit] and then click "here" to return

> Save and reboot system to activate the change

14.3 User progress tones on TE 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 disconnect[4] tones.
2. Typically wait_for_connect and user_progress configuration parameters should either both set to 1 or both set to 0.

---

[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.

14.4 In-band audio indication for alerting

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`

> ➢ Save and reboot system to activate the change

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

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