Initial configuration
Vega 50 FXS (SIP) – R5.1

This document describes how to configure the Vega 50 FXS SIP unit using the web browser interface. The configuration described here will allow the Vega to be rapidly installed and tested.

The instructions below will configure the Vega 50 FXS to operate as follows:

- Calls made by any of the attached analogue phones will be routed to the SIP proxy; the Vega will pass on any dialled digits
- Calls received from the SIP proxy must have a 2-digit "dialled number", 06 to 13, to identify which of the 8 telephones to ring. (The translation of the telephone number to the 2-digit dialled number is carried out in the SIP proxy as the Vega registers the 2-digit dialled numbers against the user access numbers (registered addresses).)

SIP Proxy

LAN

Vega 50 FXS

POTS Telephones

55501	55502	55508
Unit1Port1Vega50	Unit1Port2Vega50	Unit1Port8Vega50
Contact: 06	Contact: 07	Contact: 13
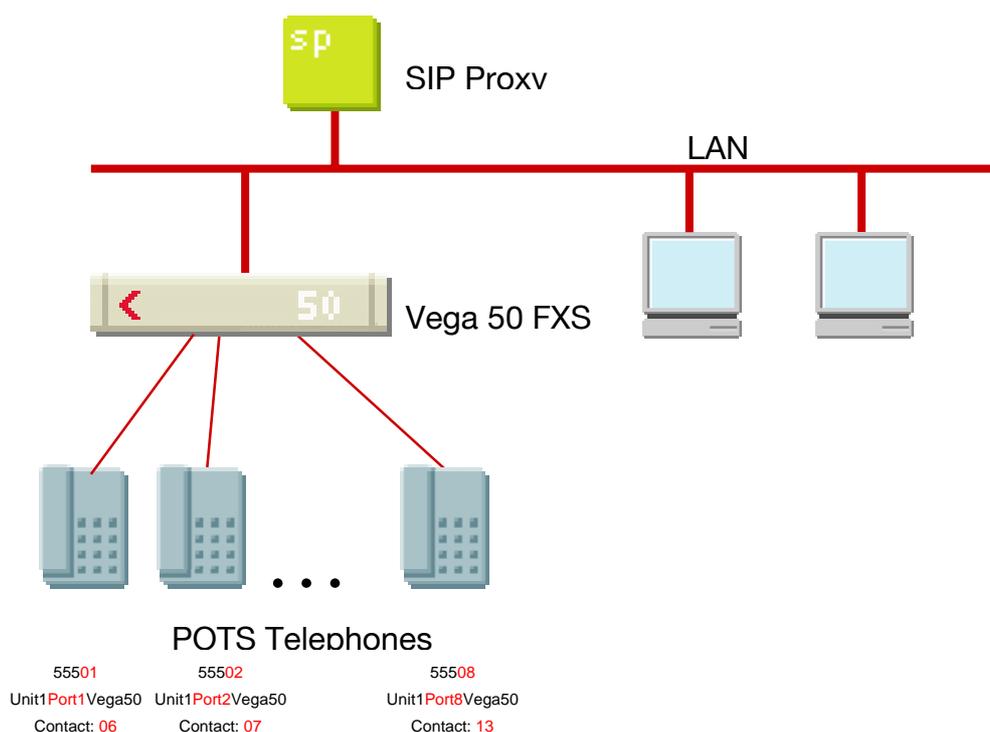
The configuration process is broken down into 12 stages as follows:

1   Connect your Vega to LAN, telephones 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 POTS parameters
10 Configure pointer to CD ROM documentation
11 Save Changes
12 Archive Vega Configuration

Please also see:
13 Technical Support

1. Connect your Vega to LAN, telephones and Power

AC Power

Power Switch

POTS port 8

POTS port 1

Serial (RS232)

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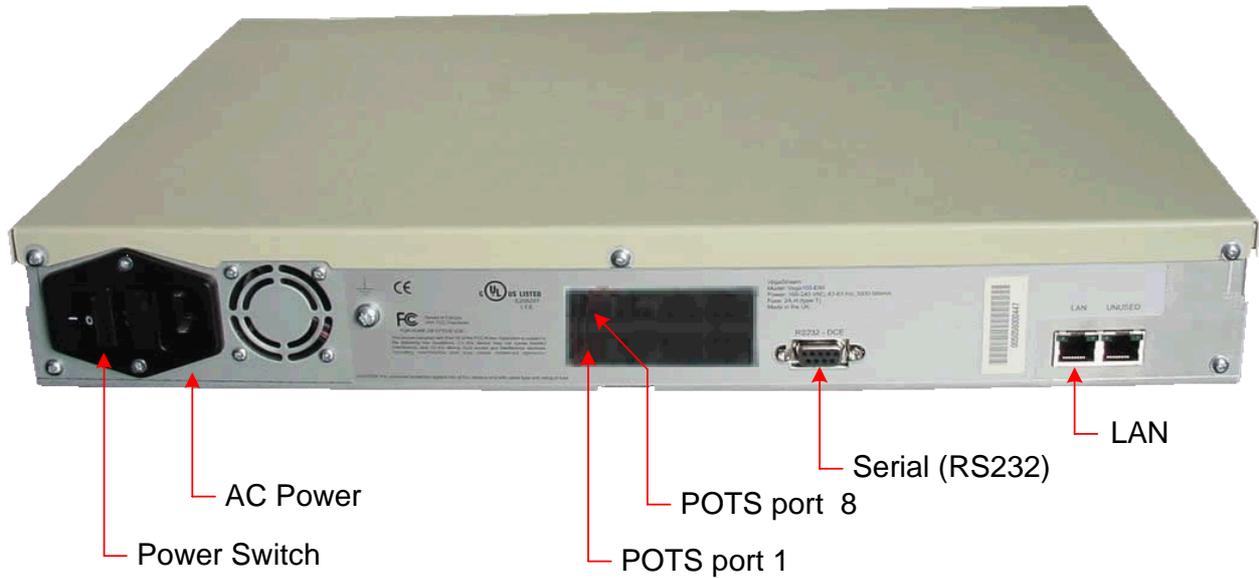
Before installing your Vega, ensure that you read the VegaStream VoIP Gateways Safety and Compliance Information document.

LAN:

Using the yellow booted cable connect the LAN port 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.

Telephony:

Connect telephones to POTS ports 1 to 8. Note the port numbers increase in an anticlockwise direction from the bottom left corner.

Port 8 IF:13	Port 7 IF:12	Port 6 IF:11	Port 5 IF:10
Port 1 IF:06	Port 2 IF:07	Port 3 IF:08	Port 4 IF:09

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, and the FDX LED will illuminate if Full Duplex mode has been negotiated.

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 a 9 way male to female straight through 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`

To display the current IP address, type:

➢ `show lan.ip`

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

➢ `set lan.use_dhcp=0`
➢ `set lan.ip=aaa.bbb.ccc.ddd`
➢ `set lan.subnet=eee.fff.ggg.hhh`
➢ `set lan.gateway=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:
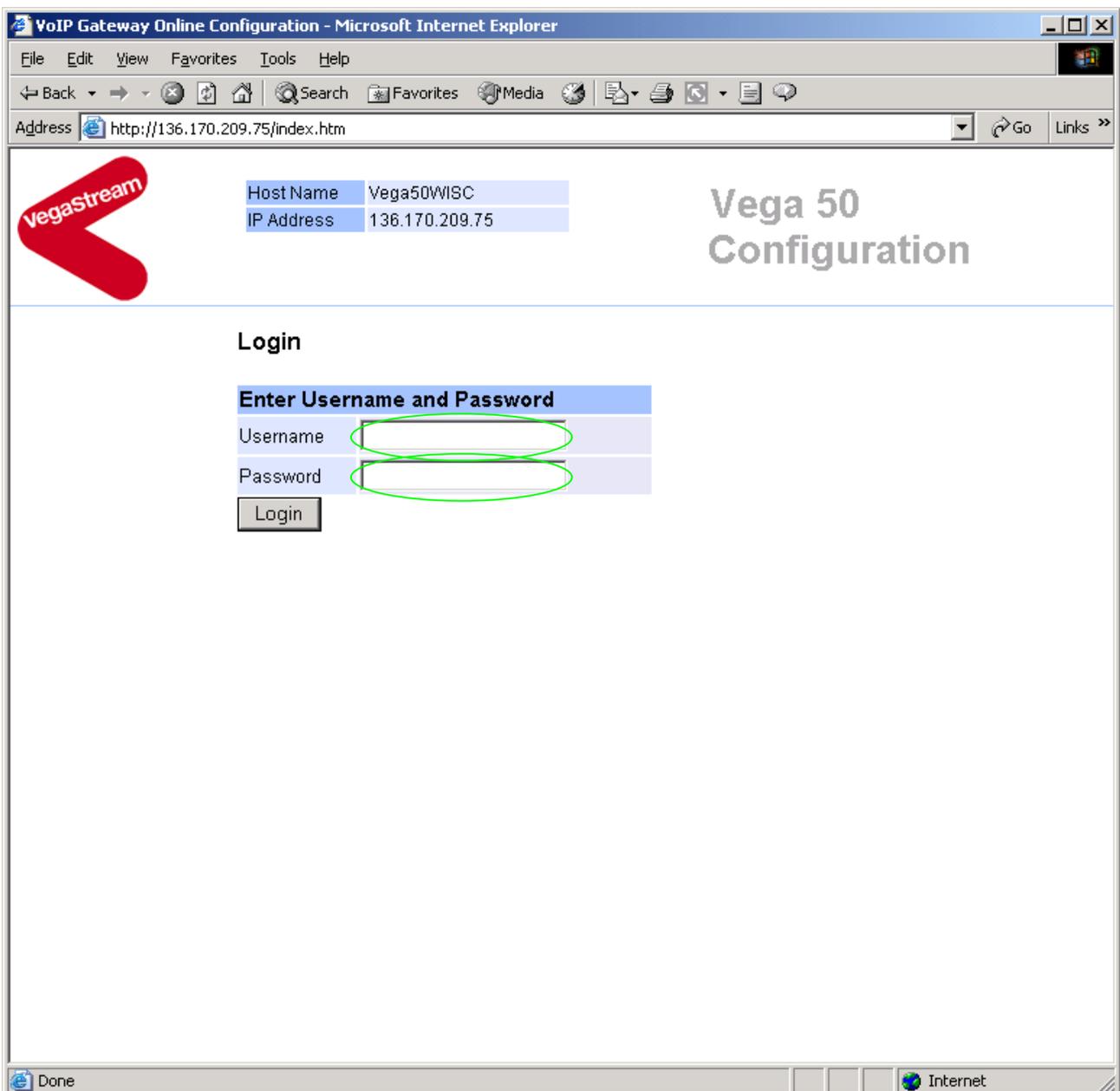
Enter the default Username and Password

➤Username: `admin`

➤Password: `admin`

➤Select [Login]

➤ On the left hand side menu select <u>Users</u>
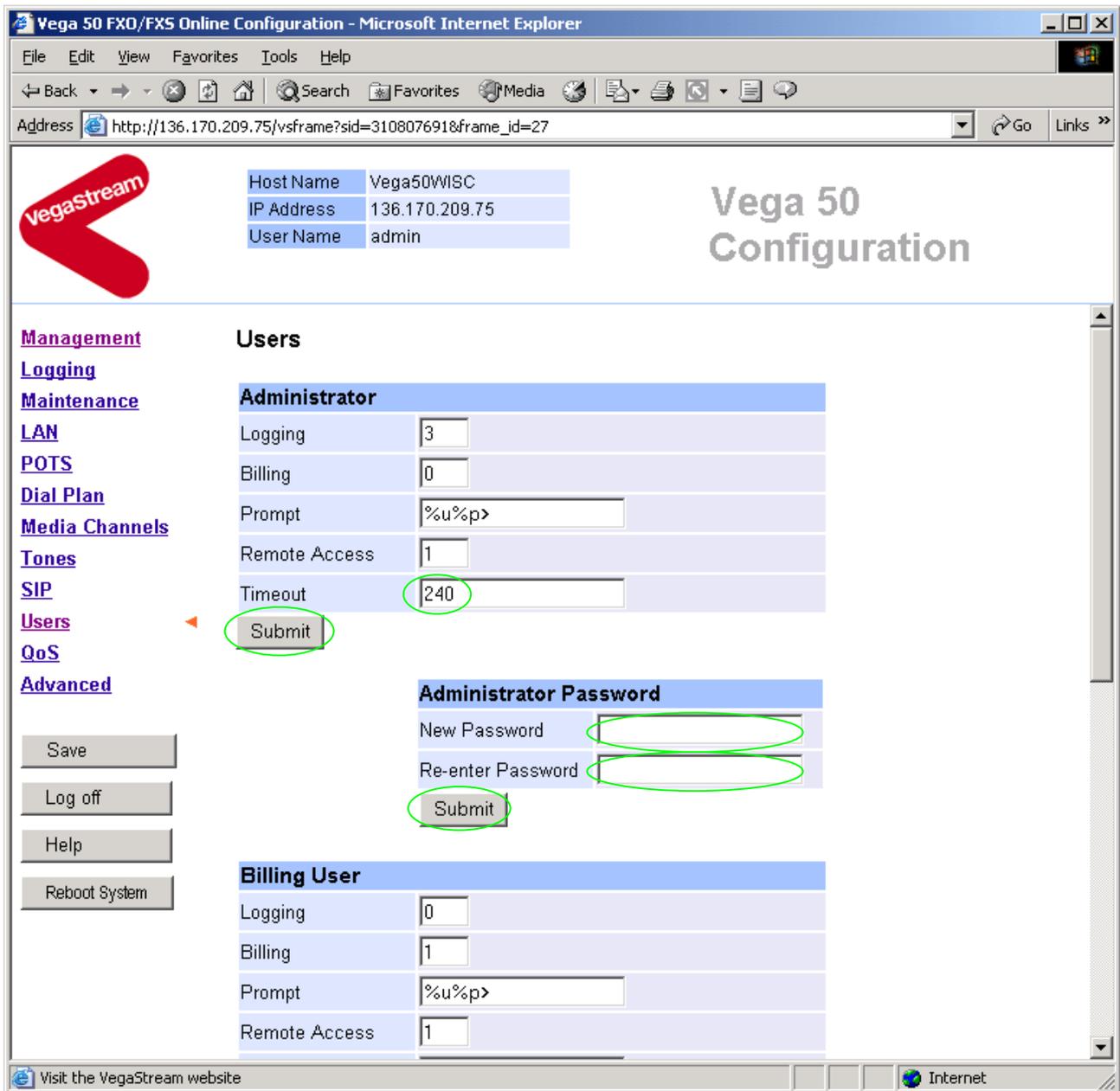
Recommended: Change the password

> ➢ enter New Password and Re-enter Password then

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

Optional: Change the timeout[1] – default is 240 seconds; can extend to 7200 seconds (2hrs)

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

---

[1] 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 web browser session.

4. Check and configure LAN settings and Host name

➤ On the left hand side menu select LAN

Recommended: In the **Physical Layer Configuration** section statically select the Ethernet Type as either 100baseTx or 10 baseT (not 10baseT & 100baseTx) – whichever is appropriate

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

Optional: If there are any LAN values that need to be set up manually set them up now (e.g. tftp and ftp addresses), then

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

5. Configure the Dial Plan

➢On the left hand side menu select Dial Plan

Firstly, turn off the default profile:

In the **Profiles** section

➢Select Modify

Dial Planner > Profile 1

Modify Profile	
Profile ID	1
Enabled	☑
Name	Vega50_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 outbound on the LAN:

Dial Planner

Profiles					
Del?	Profile ID	Enabled	Name	Plans	Chg?
☐	1	0	Vega50_default	===>	Modify

Delete Add

In the **Profiles** section
> ➢ Select Add

Dial Planner

Profiles					
Del?	Profile ID	Enabled	Name	Plans	Chg?
☐	1	0	Vega50_default	===>	Modify
☐	2	1	new_profile	===>	Modify

Delete Add

In the **Profiles** section, on Profile 2 (the new profile):
> ➢ Select Modify

Modify Profile

Profile ID	2
Enabled	☑
Name	new_profile

Submit

Plans in this Profile

Del?	Plan ID	Name	Srce	Dest	Cost	Group	Chg?
☐	1	new_plan	TEL:<..><.*>	IF:<1>,TEL:<2>	0	0	Modify

Delete   Add

➢ Set Name = `Outbound_To_LAN`

➢ select Submit and then click "here" to return

Dial Planner

Profiles

Del?	Profile ID	Enabled	Name	Plans	Chg?
☐	1	0	Vega50_default	===>	Modify
☐	2	1	Outbound_To_LAN	===>	Modify

Delete   Add

In the **Profiles** section, on Profile 2:

➢ Select Modify

Plans in this Profile

Del?	Plan ID	Name	Srce	Dest	Cost	Group	Chg?
☐	1	new_plan	TEL:<..><.*>	IF:<1>,TEL:<2>	0	0	Modify

Delete   Add

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

➢ Select Modify

Version 0.9

For use with Vega 50 FXS – SIP version 04.02.05.1 T019 or greater.

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- ➢ Set Name = `Any_Tel_Port`
- ➢ Set Source = `IF:[^9].,TEL:<.*>`   *(This takes a call from any of the 8 telephony ports and stores the number dialled in store <1>)*

- ➢ Set Destination = `IF:99,TEL:<1>`   *(This routes the call to IF:99 (the SIP proxy) and passes the dialled number on as the dialled digits)*

- ➢ Select [Apply] and then click "here" to return

- ➢ Select ↵ … to return to the **Dial Planner Profiles** section

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 = `Inbound_from_LAN`

Modify the first plan for Profile 3:

> Set Name = `Any_Tel_Port`
> Set Source = `IF:99,TEL:<..>`   *(For calls from IF:99 (SIP), take the two digits presented as the telephone number and store them in store <1>)*
> Set Destination = `IF:<1>`   *(The interface ID (telephone) to ring is defined by the 2 digits passed in store <1>)*

> 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 a call is presented to the Vega, the INVITE message starts something like:*

`INVITE sip:06@172.20.11.2 SIP/2.0`

The digits preceding the @ are then provided to the dial planner as the source TEL:. Hence in the dial plan above the calls coming from the LAN (IF:99) must have a 2-digit dialled number (whose value must be 06 ... 13 for valid Vega 50 interface IDs), which is used to define which telephone to ring.

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 <u>SIP</u>

In the **General** section:

> ➢ set Default Proxy Host Name/IP = `IP_address_of_SIP_proxy`, or
> `DNS_hostname_of_the_SIP_Proxy`

> ➢ set Local Domain =
> `Public_name_of_proxy_used_by_other_devic`
> `es_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 Submit and then click "here" to return

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 Ulaw	▼
Audio Profile 4	G711 Alaw	▼

Submit

➢select Submit 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 userID and a password can be configured. The userID is constructed from three parts

`auth_usernumber_prefix, auth_usernumber and auth_usernumber_suffix`

each of which may be configured with alphanumeric values.

The prefix and suffix entries are defined per POTS port profile and the `auth_usernumber` is configured per POTS port. Setting parameters to NULL tells the Vega to omit anything from this parameter (capitalisation of NULL is important).

The values to enter here must match the values that have been configured as the authorisation user and password in the proxy.

To configure Authentication, follow the following procedure:

> ➢   On the left hand side menu select <u>SIP</u>
> ➢   Scroll down to the bottom of the page

> ➢ Select Advanced SIP

> ➢ Select (tick) `Use authentication users`, then

> ➢ select [Submit] and then click "<u>here</u>" to return

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

> ➢ **Configure the Authentication versions of**
> `User Number Prefix and User Number Suffix, eg NULL, NULL`

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

The `User Number` and `password` are configured on a per port (group) basis.
> ➢ Scroll down to the **QSLAC Codec Configuration** section

QSLAC Codec Configuration

QSL ID	Enabled	Layer 1	Caller ID	Groups	Chg?
1	1	g711Alaw64k	on	===>	Modify
2	1	g711Alaw64k	on	===>	Modify
3	1	g711Alaw64k	on	===>	Modify
4	1	g711Alaw64k	on	===>	Modify
5	1	g711Alaw64k	on	===>	Modify
6	1	g711Alaw64k	on	===>	Modify
7	1	g711Alaw64k	on	===>	Modify
8	1	g711Alaw64k	on	===>	Modify

Delete Add

In the **QSLAC Codec Configuration** section, for QSL ID 1

> ➢ Select Modify

POTS > QSLAC 1

Modify QSL

QSL ID	1
Enabled	☑
Layer 1	g711Alaw64k ▼
Caller ID	on ▼
NT	☑

Submit

Groups in this QSL

Group ID	User Name	User Number	Authentication User Name	Authentication User Number	Password	Interface	Reg Enable	Cost	DN	Ring Index	Chg?
1	port1	01	port1	01	user1	06	1	1	06	2	Modify

Delete Add

In the **Groups in this QSL** section, for Group ID 1

> ➢ Select Modify

POTS > QSLAC 1 > Codec Group 1

Modify QSL Group

Group ID	1
QSL ID	1
User Name	port1
Enable Registration	☑
User Number	01
Authentication User Name	port1
Authentication User Number	01
Password	user1
Interface	06
Cost	1
DN	06
Ring Index	2

[Submit]

> ➢ Configure `Authentication User Number` and `Password`
> ➢ select [Submit] and then click "here" to return

> ➢ On the left hand side menu select POTS
> ➢ Scroll down to the **QSLAC Codec Configuration** section
> ➢ Repeat configuring the Authentication User Number and Password for all other QSL Ids

QSLAC Codec Configuration

QSL ID	Enabled	Layer 1	Caller ID	Groups	Chg?
1	1	g711Alaw64k	on	===>	Modify
2	1	g711Alaw64k	on	===>	Modify
3	1	g711Alaw64k	on	===>	Modify
4	1	g711Alaw64k	on	===>	Modify
5	1	g711Alaw64k	on	===>	Modify
6	1	g711Alaw64k	on	===>	Modify
7	1	g711Alaw64k	on	===>	Modify
8	1	g711Alaw64k	on	===>	Modify

[Delete] [Add]

8. Configure Registration

Registration provides the SIP proxy with two main pieces of information:

- "address" – the public address of the Vega port (the URL which other SIP endpoints will use to make calls to this port)
- "contact" – the URL which the proxy is to use to make the call on that port on the Vega

When a SIP call request is sent to the SIP proxy, it receives the call to a public address, it then performs a translation from the public address to the contact format, and uses the contact format to present the call to the Vega.

The Registration format is:

```
--- address:
        Public_Address@Registration_Domain
--- contact:
        <sip:DN@Host_Name_or_IP_address_of_Vega>
```

The Vega registers twice for each physical port – once using a numeric address, and once using an alphanumeric address. Both registrations use the same contact address, so that when a call arrives, the Vega is not aware of whether the call was made using the numeric URL, or whether the call was made using the alphanumeric URL.

For the alphanumeric registration, `Public_Address` is made up of `Username_prefix`, `Username`, and `Username_suffix`; the prefix and suffix being per unit values and the `Username` being per port values.

For the numeric registration, `Public_Address` is made up of `Usernumber_prefix`, `Usernumber`, and `Usernumber_suffix`; the prefix and suffix being per unit values and the `Usernumber` being per port values.

The registration details are configurable using the Command Line Interface or the web browser interface.

Alphanumeric registration (name registration) uses configurable entries:

- `Username_prefix`   … per unit value
- `Username`   … per port value
- `Username_suffix`   … per unit value
- `Local Domain (Registration_Domain)`   … already configured in section 6
- `DN`   … per port value
- `Host_Name_or_IP_address_of_Vega`   … set up by DHCP or in section 4

Name Registration message format:

```
--- address:
        Username_prefixUsernameUsername_suffix@Registration_Domain
--- contact:
        <sip:DN@Host_Name_or_IP_address_of_Vega>
```

Numeric registration uses configurable entries:

- `Usernumber_prefix` … per unit value
- `Usernumber` … per port value
- `Usernumber_suffix` … per unit value
- `Local Domain (Registration_Domain)` … already configured in section 6
- `DN` … per port value
- `Host_Name_or_IP_address_of_Vega` … set up by DHCP or in section 4

Number Registration message format:

--- address:
```
Usernumber_prefixUsernumberUsernumber_suffix@Registration_Domain
```
--- contact:
```
<sip:DN@Host_Name_or_IP_address_of_Vega>
```

e.g. to set up registration so that the Vega registers:

Port 1

--- address:
```
Unit1Port1Vega50@Registration_Domain
```
--- contact:
```
<sip:06@Host_Name_or_IP_address_of_Vega>
```
--- address:
```
55501@Registration_Domain
```
--- contact:
```
<sip:06@Host_Name_or_IP_address_of_Vega>
```

-
-
-

Port 8 Name

--- address:
```
Unit1Port8Vega50@Registration_Domain
```
--- contact:
```
<sip:13@Host_Name_or_IP_address_of_Vega>
```
--- address:
```
55508@Registration_Domain
```
--- contact:
```
<sip:13@Host_Name_or_IP_address_of_Vega>
```

➢ On the left hand side menu select SIP
➢ Scroll down to the **Registration** section

> ➢ Tick Register on Start-up

This will cause the Vega to register with the proxy every time it is powered on or re-booted

> ➢ set Registrar Host Name/IP =
>
>   IP_or_DNS_name_of_SIP_registrar_or_machi
>   ne_proxying_for_the_regitrar

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

➢ On the left hand side menu select POTS

➢ Set User Name Prefix = Unit1
➢ Set User Number Prefix = 555

➢ Set User Name Suffix = Vega50
➢ Set User Number Suffix = NULL   *(NULL specifies no suffix; NULL must be in capitals)*

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

*The per port entries are configured through the **QSLAC Codec Configuration** section*

➢ Scroll down to the **QSLAC Codec Configuration** section:

On QSL ID 1:

> Select Modify

POTS > QSLAC 1

Modify QSL

QSL ID	1
Enabled	☑
Layer 1	g711Alaw64k ▾
Caller ID	on ▾
NT	☑

Submit

Groups in this QSL

Group ID	User Name	User Number	Authentication User Name	Authentication User Number	Password	Interface	Reg Enable	Cost	DN	Ring Index	Chg?
1	port1	01	port1	01	user1	06	1	1	06	2	Modify

Delete Add

In **Groups in this QSL**, for Group ID 1

➢ Select Modify

POTS > QSLAC 1 > Codec Group 1

Modify QSL Group

Group ID	1
QSL ID	1
User Name	port1
Enable Registration	☑
User Number	01
Authentication User Name	port1
Authentication User Number	01
Password	user1
Interface	06
Cost	1
DN	06
Ring Index	2

Submit

➢ set User Name = Port1
➢ check User Number = 01
➢ check that DN = 06
➢ check that Enable registration is ticked

➢ select Submit and then click "here" to return

➢ select ↩ … to return to QSLAC Codec Configuration

Repeat for QSL ID 2:

> ➢ set User Name = `Port2`
>
> ➢ check User Number = `02`
>
> ➢ check that DN = `07`
>
> ➢ check that `Enable registration` is ticked

Repeat for QSL ID 3:

> ➢ set User Name = `Port3`
>
> ➢ check User Number = `03`
>
> ➢ check that DN = `08`
>
> ➢ check that `Enable registration` is ticked

Etc up to:

Repeat for QSL ID 8:

> ➢ set User Name = `Port8`
>
> ➢ check User Number = `08`
>
> ➢ check that DN = `13`
>
> ➢ check that `Enable registration` is ticked

When a remote caller attempts to contact any of the Name or Number URL addresses the SIP registrar will look up the registration information and will translate the URL, causing the Vega to be called at the appropriate contact address (DN@Host_Name_or_IP_address of_Vega).

9. Configure POTS parameters

➢ On the left hand side menu select POTS
➢ Scroll to the bottom of the page

Now configure the per port information

In the **QSLAC Codec Configuration** section

➢ Select Modify for QSL ID 1

> ➢ Enable (tick) NT, then

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

> ➢ Repeat enabling NT for QSLID 2 to QSLID 8

10. Configure pointer to CD ROM documentation

➤ On the left hand side menu select LAN

➤ Scroll to the bottom of the screen

➤ Select Advanced LAN

To configure for operation using the CD in the local PC CD-ROM drive,

> Set Path or URL = `D:/Content/help/v50fxss_R5.htm`

… N.B. use forward slashes "/" not back slashes "\".

(Substitute appropriate drive letter if D: is not the CD-ROM)

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

11. Save Changes

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

➤ Select Save
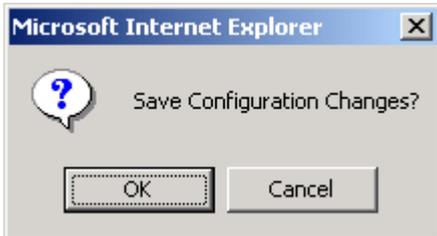
➤ Select OK and after the configuration has been saved click "here" to return

➤ Select Reboot System
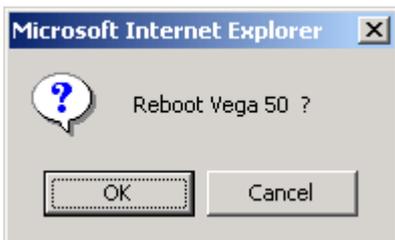
➤ Select OK

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 configure the following:

> set _advanced.lan.ftp.anonymous_login=0

> set _advanced.lan.ftp.username=<ftp username>

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

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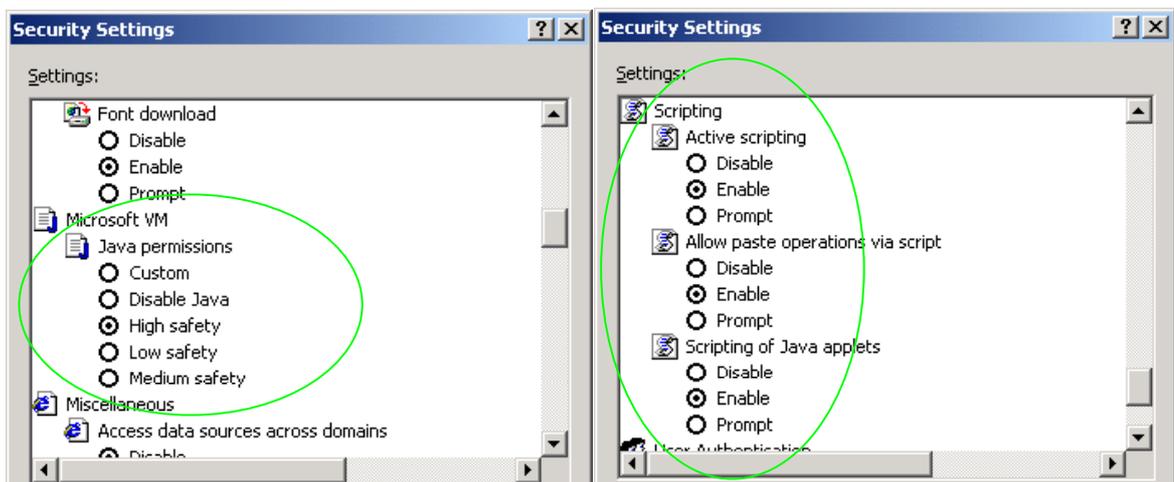
2. Where there are multiple sections – each with a [Submit] button – entries must be made to one section at a time, and those entries confirmed by the [Submit] button before the next section is altered. Each [Submit] button only confirms entries for its own section. Any changes in other sections will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

3. Loss of audio mid call – consider reducing the selection of available codecs (see section 1.5). 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 1.5).

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".

Contact Details
Email: support@vegastream.com
Web: www.vegastream.com
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