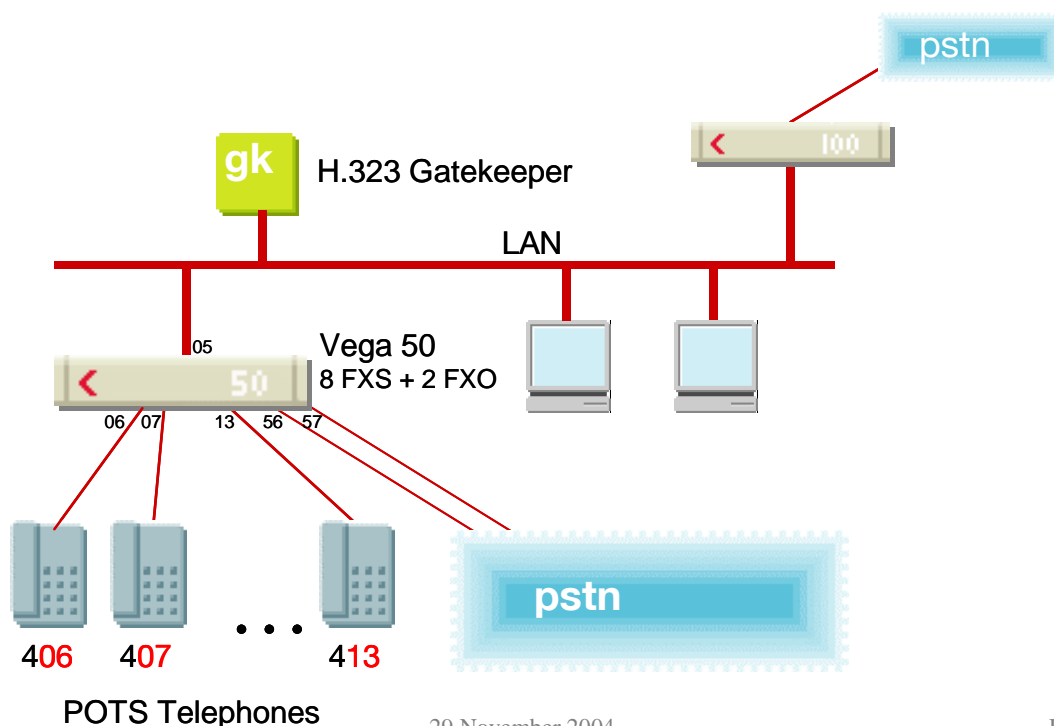# Initial configuration
Vega 50 8 FXS + 2 FXO (H.323) – R5.2

This document describes how to configure the Vega 50 8 FXS + 2 FXO H.323 gateway 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 8 FXS + 2 FXO to operate as follows:

- Each of the 8 FXS ports (connected to analogue telephones) will be configured with a 3-digit extension number 406 to 413. Calls made by any of the attached analogue phones will be routed using the H.323 gatekeeper; the telephone number presented to the gatekeeper will be the digits dialled on the phone
- Calls received from the PBX (on the FXO ports) will be routed using the H.323 gatekeeper; the DN (directory number) for the port on which the call was received will be passed as the dialled digits
- Calls received on the H.323 interface with a leading 9 in the dialled number will be routed out of the first FXO port

For use with Vega 50 8 FXS + 2 FXO – H.323 version 09.01.05.2 T003 or greater.   © 2004 VegaStream Ltd.

- Calls received on the H.323 interface with a leading 8 in the dialled number will be routed out of the second FXO port
- Calls received on the H.323 interface destined for the attached telephones must have a 3-digit "dialled number", 406 to 413, to identify which of the 8 telephones to ring. (Any translation of the actual telephone number dialled by the caller to the 3-digit extension number must be carried out in the gatekeeper)

The configuration process is broken down into 11 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 for Gatekeeper operation
7 Configure audio parameters
8 Configure POTS parameters
9 Configure pointer to CD ROM documentation
10 Save Changes
11 Archive Vega Configuration

Please also see:
12 Technical Support

AC Power
Power Switch
CH 10, FXO 2
CH 9, FXO 1
CH 8, FXS 8
CH 1, FXS 1
LAN
Serial (RS232)
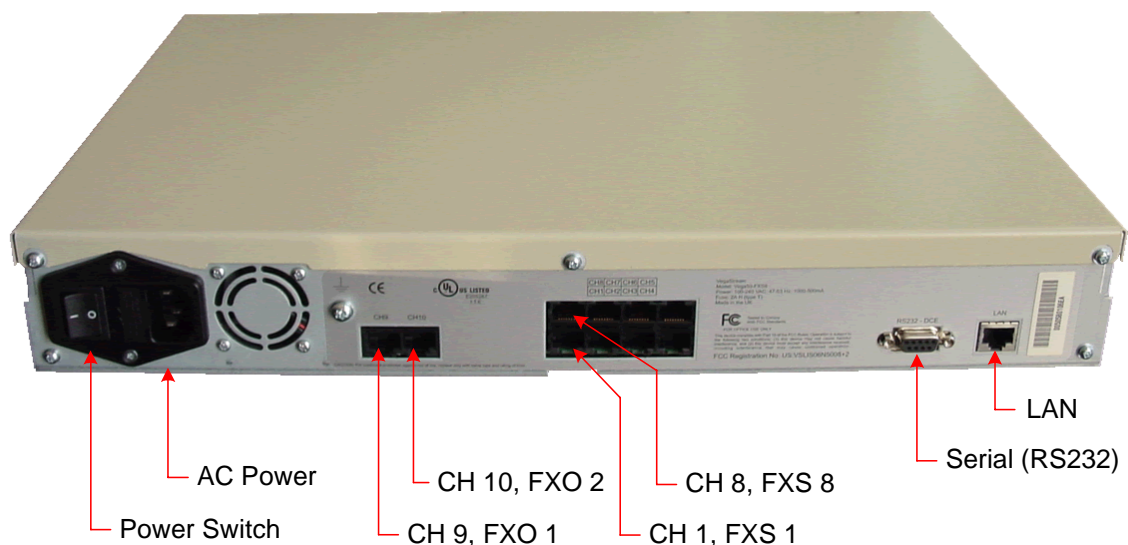
Before installing your Vega, ensure that you read the VegaStream VoIP Gateways Safety and Compliance Information document.

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

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

FXO 1 IF: 56	FXO 2 IF: 57

Telephone lines can be connected to the two FXO ports.

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.
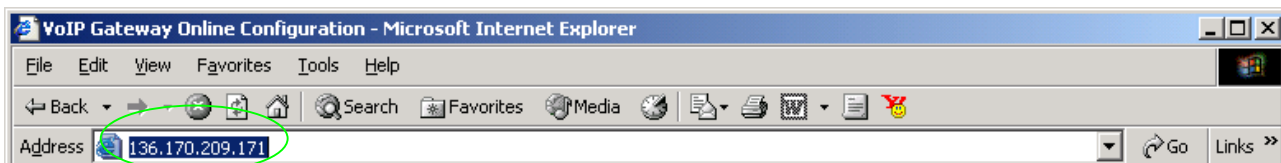
You will then be presented with the login page:
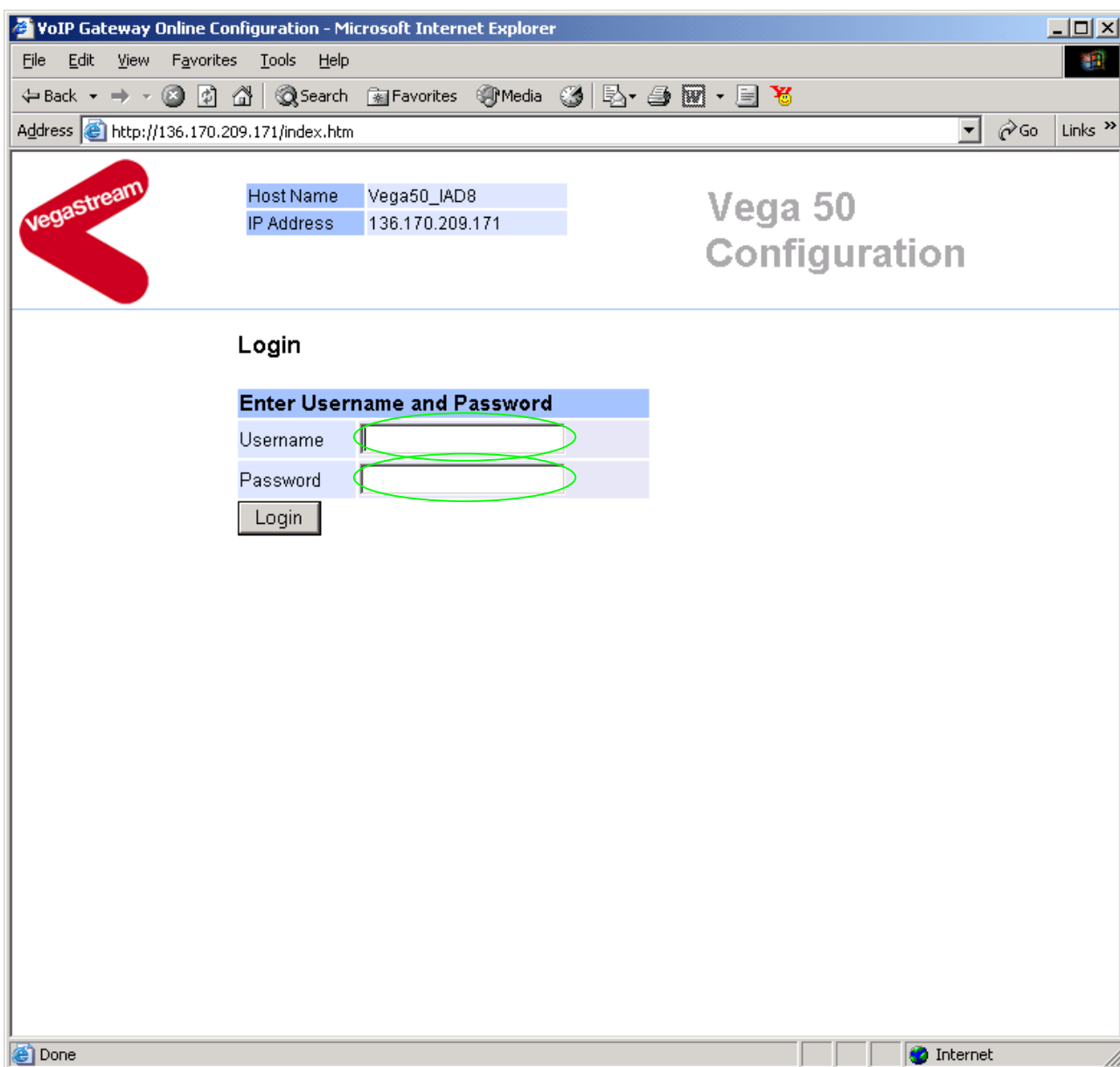
Enter the default Username and Password

➢ Username: `admin`

➢ Password: `admin`

➢ Select [Login]

➢ On the left hand side menu select 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[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
➢ Scroll down to see both **LAN Configuration** and **Physical layer Configuration** sections

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

➢ 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_IAD-8

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_IAD-8	===>	Modify

Delete   Add

In the **Profiles** section

> ➢ Select Add

Dial Planner

Profiles

Del?	Profile ID	Enabled	Name	Plans	Chg?
☐	1	0	Vega50_IAD-8	===>	Modify
☐	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	☑
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

Del?	Profile ID	Enabled	Name	Plans	Chg?
☐	1	0	Vega50_IAD-8	===>	Modify
☐	2	1	Outbound_To_LAN	===>	Modify

` Delete ` ` Add `

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

> 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

- ➢ Set Name = `Any_Tel_Port`
- ➢ Set Source = `IF:.[^5],TEL:<.*>`   *(This takes a call from any of the telephony ports; FXS ports store the number dialled in store <1>, FXO ports store their "DN" in store <1>)*
- ➢ Set Destination = `IF:05,TEL:<1>`   *(This routes the call to IF:05 (the LAN via the gatekeeper) and passes on the dialled number (FXS) or "DN" (FXO) 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 = `To_FXS_Tel_Ports`
> ➢ Set Source = `IF:05,TEL:4<..>` *(For calls from IF:05 (H.323), this takes the three digit extension number (4xx) and stores the latter two digits in store <1>)*

> ➢ Set Destination = `IF:<1>` *(Use the 2 digits in store <1> as the interface ID (telephone) to ring)*

> ➢ Select Apply and then click "here" to return

Del?	Plan ID	Name	Srce	Dest	Cost	Group	Chg?
☐	1	To_FXS_Tel_ports	IF:05,TEL:4<..>	IF:<1>	0	0	Modify

Delete Add

Add a new plan to Profile 3:

> ➢ Set Name = `To_FXO_Port_1`
> ➢ Set Source = `IF:05,TEL:9<.*>` *(For calls from IF:99 (SIP),where the leading digit is a 9, take any following digits presented as the telephone number and store them in store <1>)*

> ➢ Set Destination = `IF:56,TEL:<1>` *(Route the call to the first FXO port, and DTMF outdial any digits that were received after the 9)*

> ➢ Select Apply and then click "here" to return

Add a third plan to Profile 3:

> ➢ Set Name = `To_FXO_Port_2`
> ➢ Set Source = `IF:05,TEL:8<.*>` *(For calls from IF:99 (SIP),where the leading digit is an 8, take any following digits presented as the telephone number and store them in store <1>)*

> ➢ Set Destination = `IF:57,TEL:<1>` *(Route the call to the second FXO port, and DTMF outdial any digits that were received after the 8)*

> ➢ Select Apply and then click "here" to return

The profile 3 plans should look as follows:

Modify Profile

Profile ID	3
Enabled	☑
Name	Inbound_from_LAN

Submit

Plans in this Profile

Del?	Plan ID	Name	Srce	Dest	Cost	Group	Chg?
☐	1	To_FXS_Tel_ports	IF:05,TEL:4<..>	IF:<1>	0	0	Modify
☐	2	T0_FXO_port_1	IF:05,TEL:9<.*>	IF:56,TEL:<1>	0	0	Modify
☐	3	To_FXO_Port_2	IF:05,TEL:8<.*>	IF:57,TEL:<1>	0	0	Modify

Delete   Add

Note 1: *The Relationship between physical ports and Interface Ids is as follows:*
FXS 1 = IF:06
FXS 2 = IF:07
…
FXS 8 = IF:13

FXO 1 = IF:56
FXO 2 = IF:57

H.323 LAN = IF:05

Note 2: *For calls from H.323 to the telephones, the H.323 gatekeeper must present a 3-digit extension number, whether the caller dialled just the extension number, or whether the caller dialled the full telephone number (including area code).*

For the call to be accepted, the last two digits of the extension number must be 06 to 13 to be a valid Vega FXS interface ID.

For calls from H.323 to the FXO lines, the gatekeeper must choose the appropriate interface on the Vega to dial out from; when the gatekeeper presents a call to the Vega the telephone number field must contain $ppttt…t$ where pp = port number (56 or 57) and $ttt…t$ is the telephone number to onward 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 for Gatekeeper operation

➢ On the left hand side menu select H.323

➢ Select [Gatekeeper Mode]

➢ Select [OK]

> ➢ Scroll to the bottom of the page

> ➢ Either configure the H.323 Gatekeeper "Default Gatekeeper" with the IP address of the Gatekeeper, or tick Auto Discover.

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

Set up the gatekeeper Terminal alias – this needs to match the gatekeeper's expectations. By default it is turned off (`Name=NULL`), set it to, for example, alias `Type=H.323`, `Name=Vega50_8plus2`.

In the H.323 **Gatekeeper Terminal Alias** section

> ➢ select ⬛Modify⬛ and make the changes

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

If more than one alias is required then select ⬛Add⬛ and configure as required.

7. Configure audio parameters

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

Add more codecs so that by default the Vega will handle calls with any of the codecs it supports.

In H.245 Capabilities

> ➢ Select [Add]

In H.245 Capabilities

> Select **Add** again

> Select **Modify** on H245 Cap ID 1

Media Channels > **H.245 Capability 1**

> Select required codec type – in this case g7231
> select **Submit** and then click "here" to return

Modify all H245 Cap ID entries until the list looks as follows:

H.245 Capabilities

Del?	H245 Cap ID	Name	Chg?
☐	1	g7231	Modify
☐	2	g729AnnexA	Modify
☐	3	g729	Modify
☐	4	g711Alaw64k	Modify
☐	5	g711Ulaw64k	Modify
☐	6	t38tcp	Modify
☐	7	t38udp	Modify

Delete   Add

Now update the Capability Description list that tells the Vega which of the codecs it can use.

H.245 Capability Descriptors

Del?	ID	Description	Caps	Chg?
☐	1	voice	1,2,3	Modify
☐	2	t38Tcp	4	Modify
☐	3	t38Udp	5	Modify

Delete   Add

Update entry 1 to select all voice codecs, and the other entries to configure them for the correct capability Ids.

For each capability:

➢ Select   Modify

➢ Adjust them so that they have the capabilities as indicated below:

H.245 Capability Descriptors

Del?	ID	Description	Caps	Chg?
☐	1	voice	1,2,3,4,5	Modify
☐	2	t38Tcp	6	Modify
☐	3	t38Udp	7	Modify

Delete   Add

➢ Scroll to the bottom of the Media Channels page

In the **H.245 Preferred Index** section:

> ➢ Set Voice Capdesc Index to: 1-voice

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

This has selected all voice codecs to be offered for calls.

With Fax Capdesc Index set to "2-t38Tcp" it has selected this codec for fax transfers. Note, it is recommended that only a single T.38 codec is offered (as configured here), because if both are offered negotiations do not always complete correctly.

8. Configure POTS parameters

No specific configuration is required for the FXS ports.

For the FXO ports it is necessary to configure the Vega to recognise the cadence of the ring tone that it will receive to indicate that there is a new call for it, also the impedance of the FXO interface.

Configuring Ring Cadence Detection for FXO ports
The Vega FXOports are alerted to new telephony calls arriving by the PBX or CO switch presenting ringing voltage to the Vega. The Vega needs to have parameters adjusted to configure the detector for the ring tone(s) it is going to be presented with.

Now configure the FXO ring cadence detector so that it detects incoming ring cadences correctly:

> ➢ On the left hand side menu select POTS

> Select Advanced POTS
> Scroll down to the **FXO Configuration** section

➢ In the FXO Configuration **Hardware Profile Configuration** section select [Modify]

➢ Scroll down to the **FXO ring-detection parameters** section

> ➢ Select [Configure Ring Detect Values]
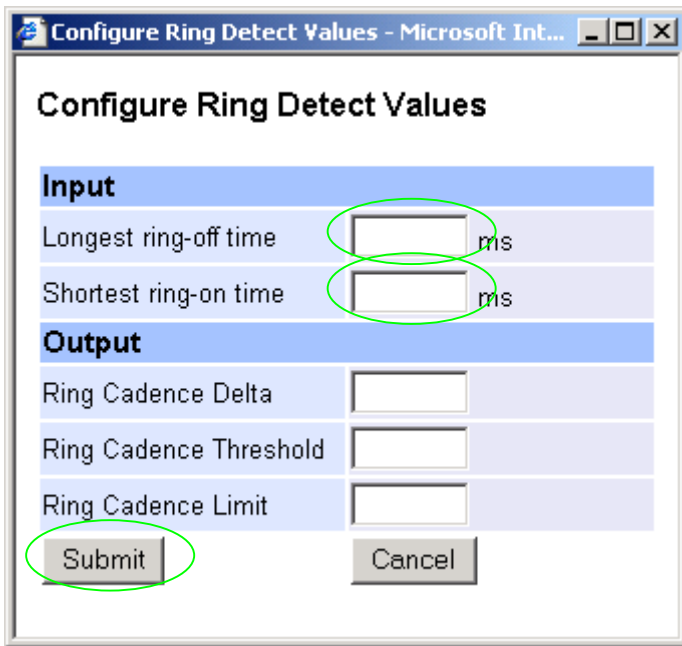
> Set Longest ring-off time = length of longest silence in the incoming ringing voltage cadence
> Set Shortest ring-on time = length of shortest ring in the incoming ringing voltage cadence
> select Submit

Table 1 lists the standard values to use in the UK and USA.

Table 1.   Ring tones parameters

Ring tone values

Country	UK	USA
Longest silence	2000ms	4000ms
Shortest ring	400ms	2000ms

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

Now configure the interface impedance

Ring Generation Parameters

Del?	ID	Name	Fre-quency	Repeat	Ring1 On	Ring1 Off	Ring2 On	Ring2 Off	Ring3 On	Ring3 Off	Chg?
☐	1	External	50	1	400	200	400	2000	0	500	Modify
☐	2	Internal	50	0	2000	4000	2000	4000	0	500	Modify
☐	3	bellcore-r1	20	1	400	400	900	400	400	3500	Modify

Delete Add

FXS Configuration

Hardware Profile Configuration

Profile ID	Hookflash Debounce Time	Loop Current Break	Loop Current Delay	Loop Current Time	Hookflash Time	Line Reversal	Impedance	Chg?
1	70	off	9000	300	200	0	default	Modify

Delete Add

FXO Configuration

Hardware Profile Configuration

Profile ID	Loop Current Detect	Loop Current Time	Hookflash Time	Early Line Seize	Early Line Seize Time	Line Reversal Detect	Force Disconnects	DTMF Holdoff Time	Ringback Present	Impedance	Port Release Delay	Port Not Released Cause	More	Chg?
1	0	300	200	0	30	0	1	200	1	CTR21	0	34	===>	Modify

Delete Add

➢ In the FXO Configuration **Hardware Profile Configuration** section select Modify

> In the **FXO parameters** section, select the appropriate Impedance for the lines that the Vega FXO ports are to be connected to:
> - CTR21 (typically Europe)
> - 600R (typically US)
> - 900R
> - default

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

9. 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/v50_8fxs_2fxo_h_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

10. Save Changes

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

> Select [Save]
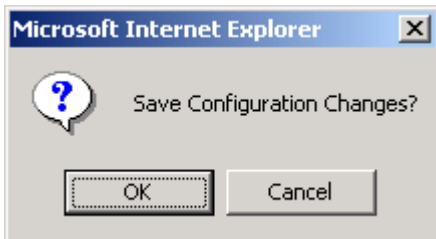
> Select [OK] and after the configuration has been saved click "here" to return

> Select [Reboot System]

> Select [OK]

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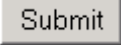
11. Archive Vega Configuration

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

	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).

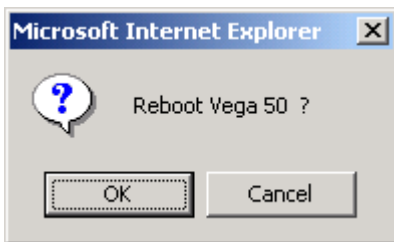The Vega configuration can be archived to an ftp server instead of a tftp server by configuring the ftp server address in the LAN page and then typing the CLI command "`PUT FTP:initial_cfg.txt`". (Again a unique name can be used in place of "`initial_cfg.txt`")

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>`

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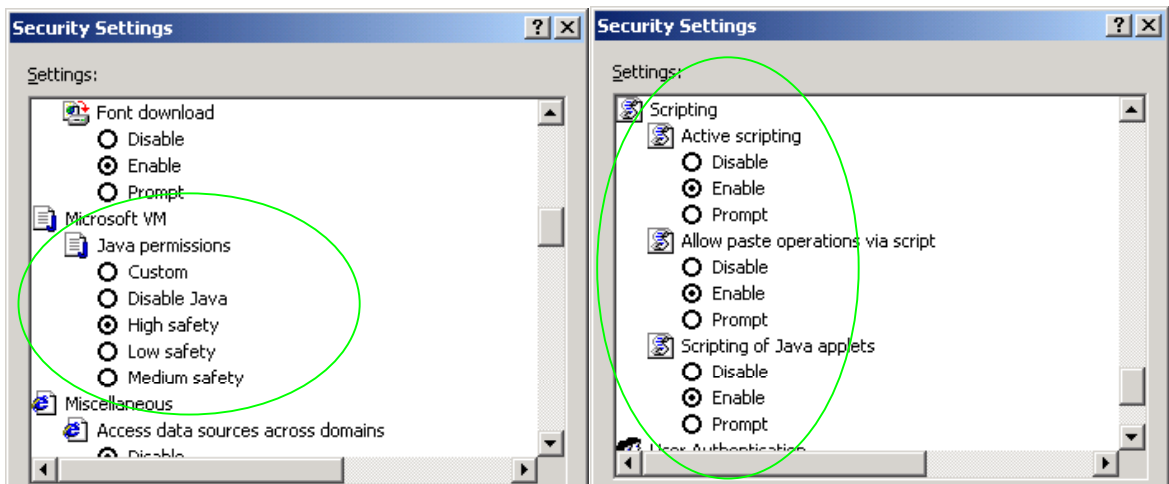
2. Where there are multiple sections – each with a [Submit] button – entries must be made to one section at a time, and those entries confirmed by the [Submit] button before the next section is altered. Each [Submit] button only confirms entries for its own section. Any changes in other sections will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

3. Loss of audio mid call – consider reducing the selection of available codecs (see section 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
         www.vegaassist.com

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For use with Vega 50 8 FXS + 2 FXO – H.323 version 09.01.05.2 T003 or greater.