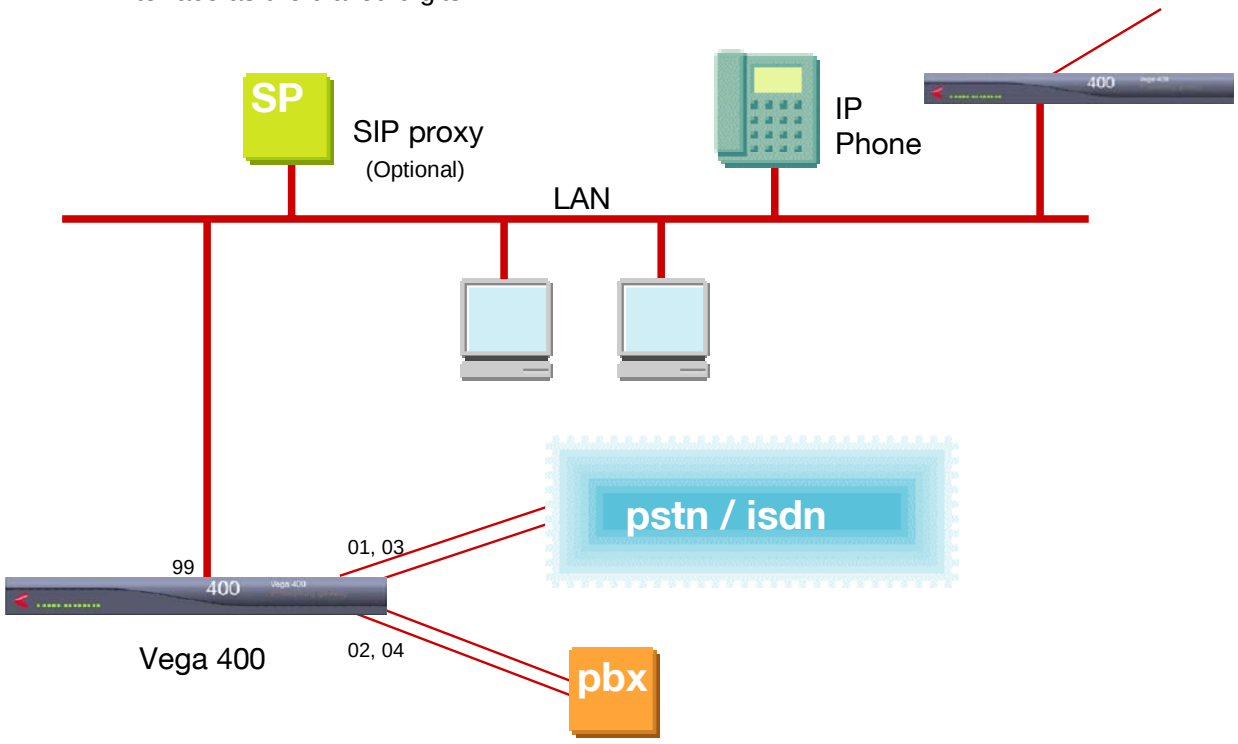
Initial configuration
Vega 400 E1/T1 (SIP)
– R8.0

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 (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.



© 2006 VegaStream Ltd.

Although the Vega 400 supports two LAN interfaces, in this example configuration, only one LAN interface, LAN 1, will be used.

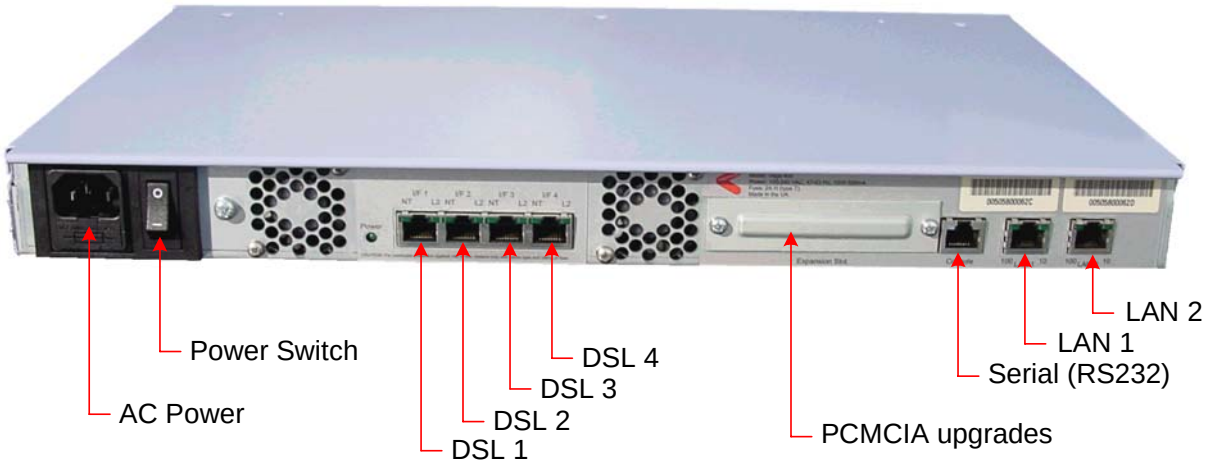
The configuration process is broken down into 12 stages as follows:

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 Proxy 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

© 2006 VegaStream Ltd.

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 booted 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 1 interface to a 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 red booted 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.

© 2006 VegaStream Ltd.

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: 08.00 for hardware type 10
             Image: VEGA400_R080S005

Partition 2: H.323 Firmware
             Version: 08.00 for hardware type 10
             Image: VEGA400_R080H005

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 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.

© 2006 VegaStream Ltd.

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

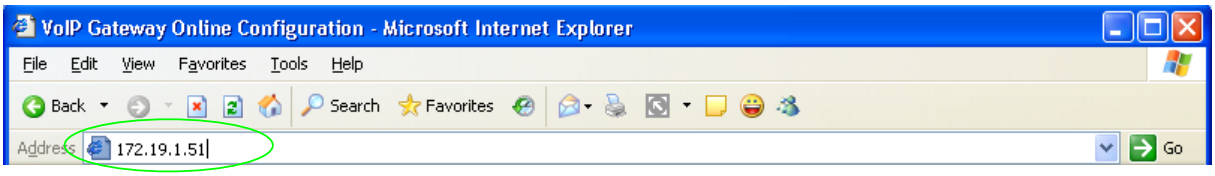
- `set lan.if.1.use_dhcp=0`
- `set lan.if.1.ip=aaa.bbb.ccc.ddd`
- `set lan.if.1.subnet=eee.fff.ggg.hhh`
- `set lan.gateway.ip=iii.jjj.kkk.lll`
- `set lan.gateway.dhcp_if=0`
- `set sip.lan_profile=1`
- `save`
- `reboot system`

© 2006 VegaStream Ltd.

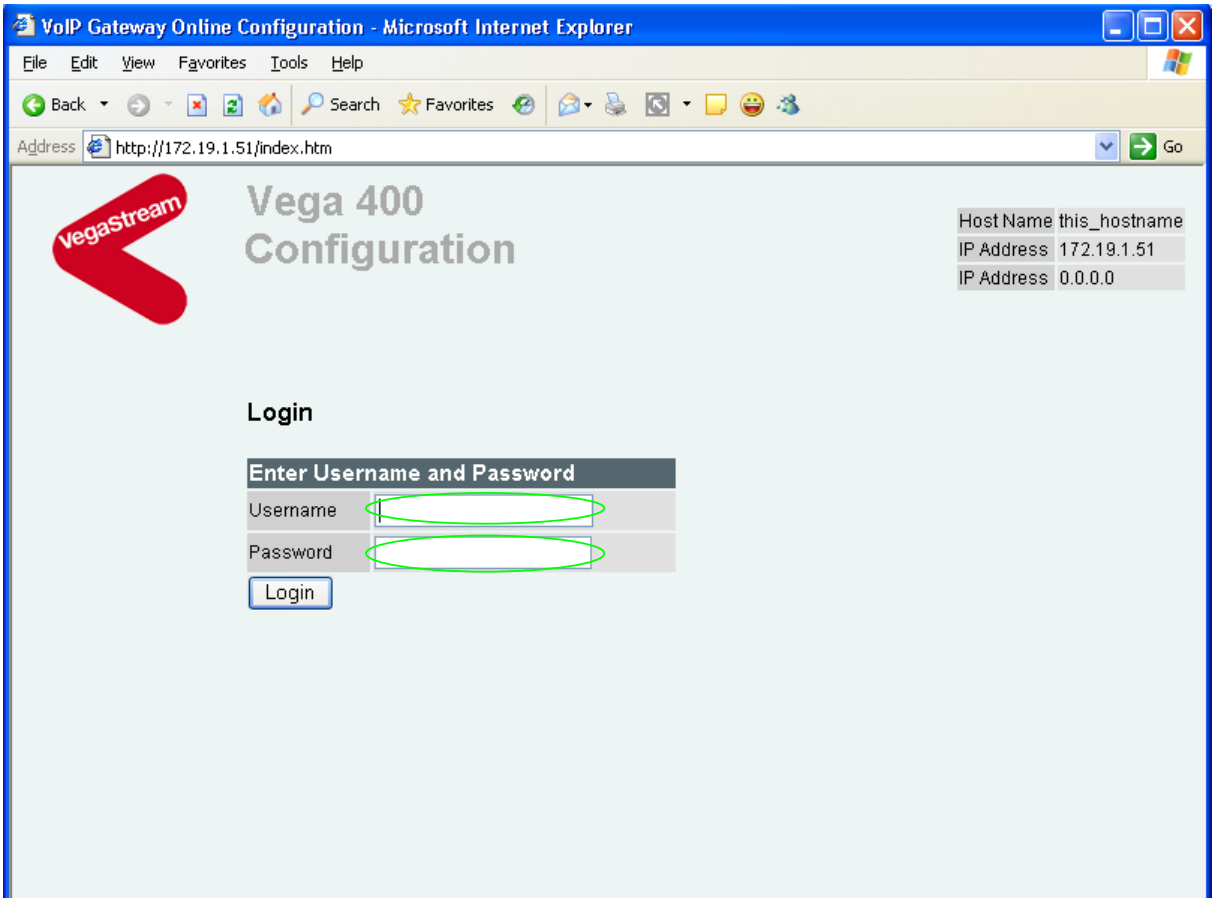
3. Configure password and login timeout

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:

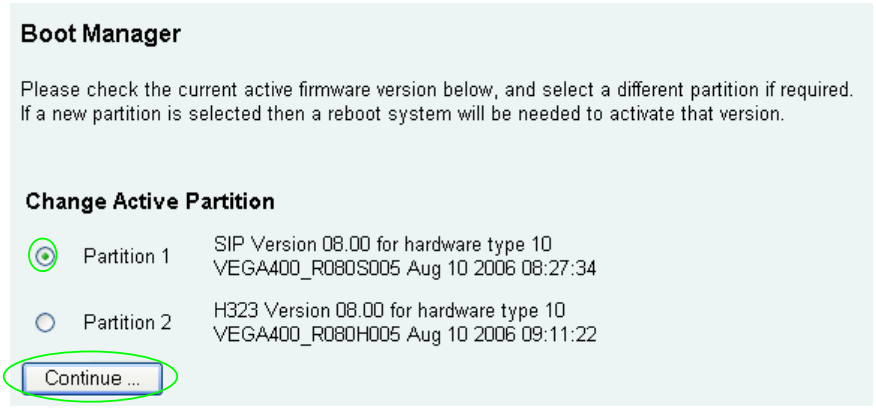


Enter the default Username and Password

- Username: `admin`
- Password: `admin`
- Select Login

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.

© 2006 VegaStream Ltd.



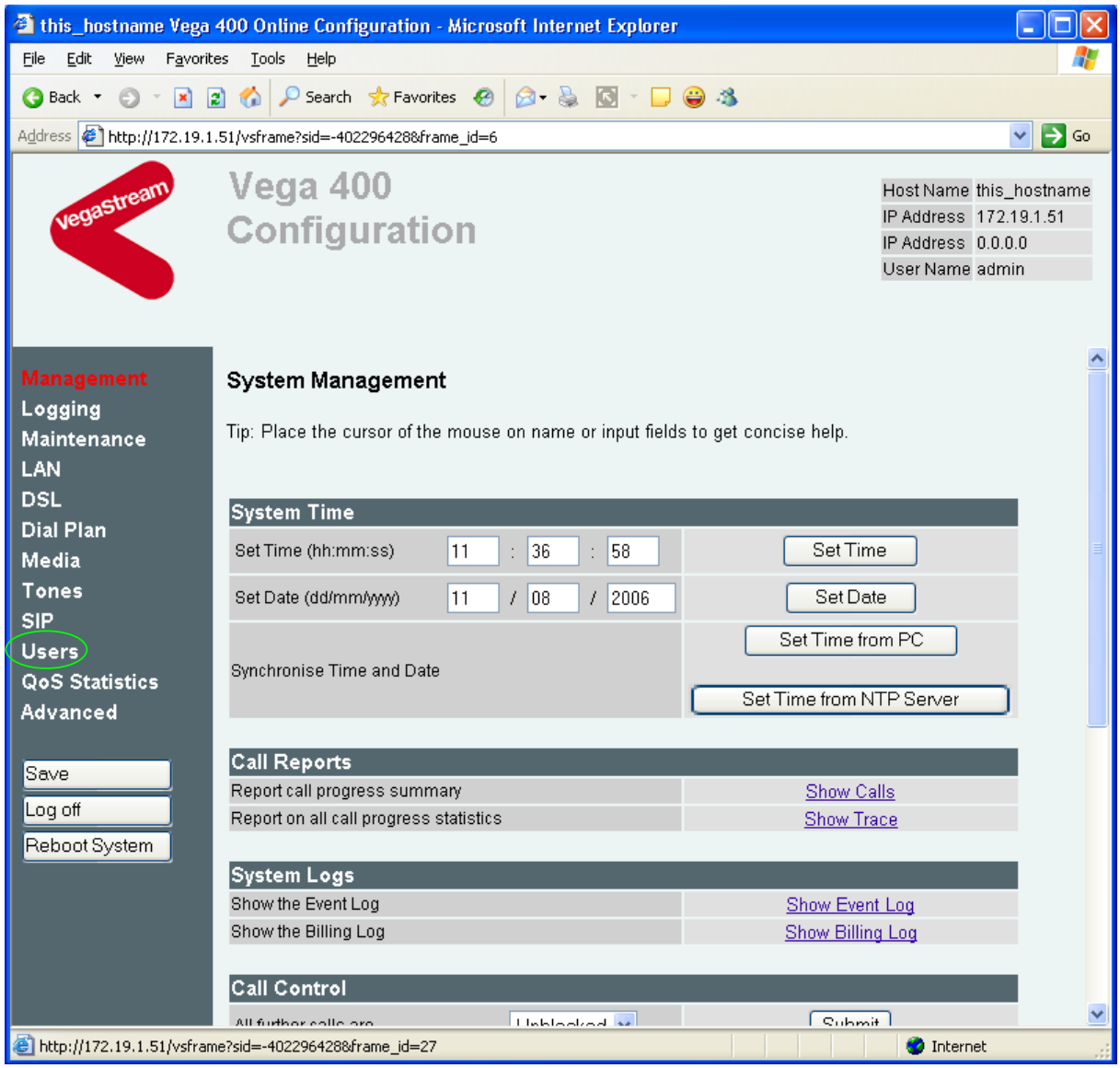
- Ensure that the partition selected is the SIP partition, if it is not, then select it
- Press

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 complete[2].

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

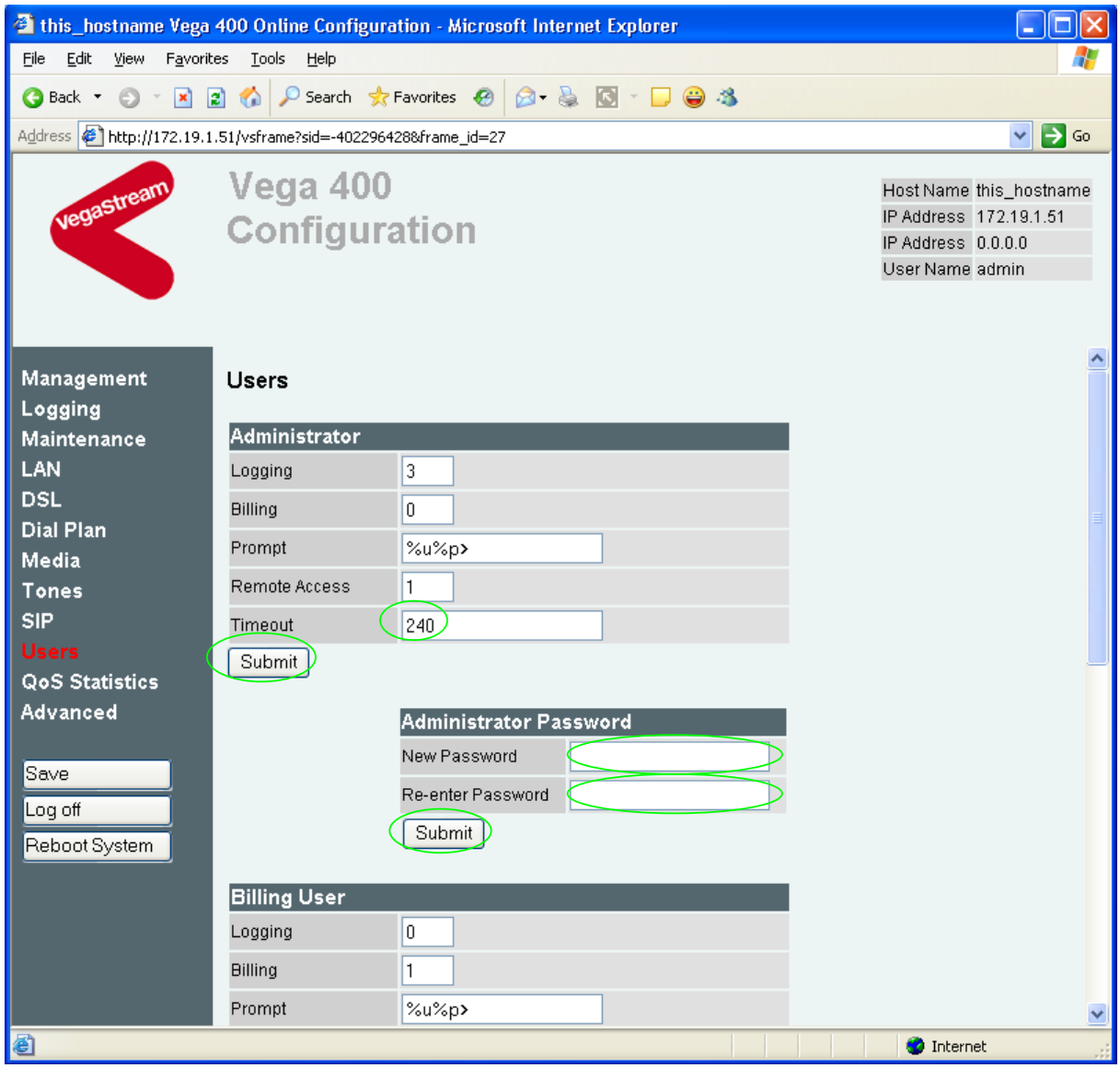
[2] If the partition is changed, after the reboot perform a 'factory reset' before continuing configuration.

© 2006 VegaStream Ltd.



- On the left hand side menu select Users

© 2006 VegaStream Ltd.



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)

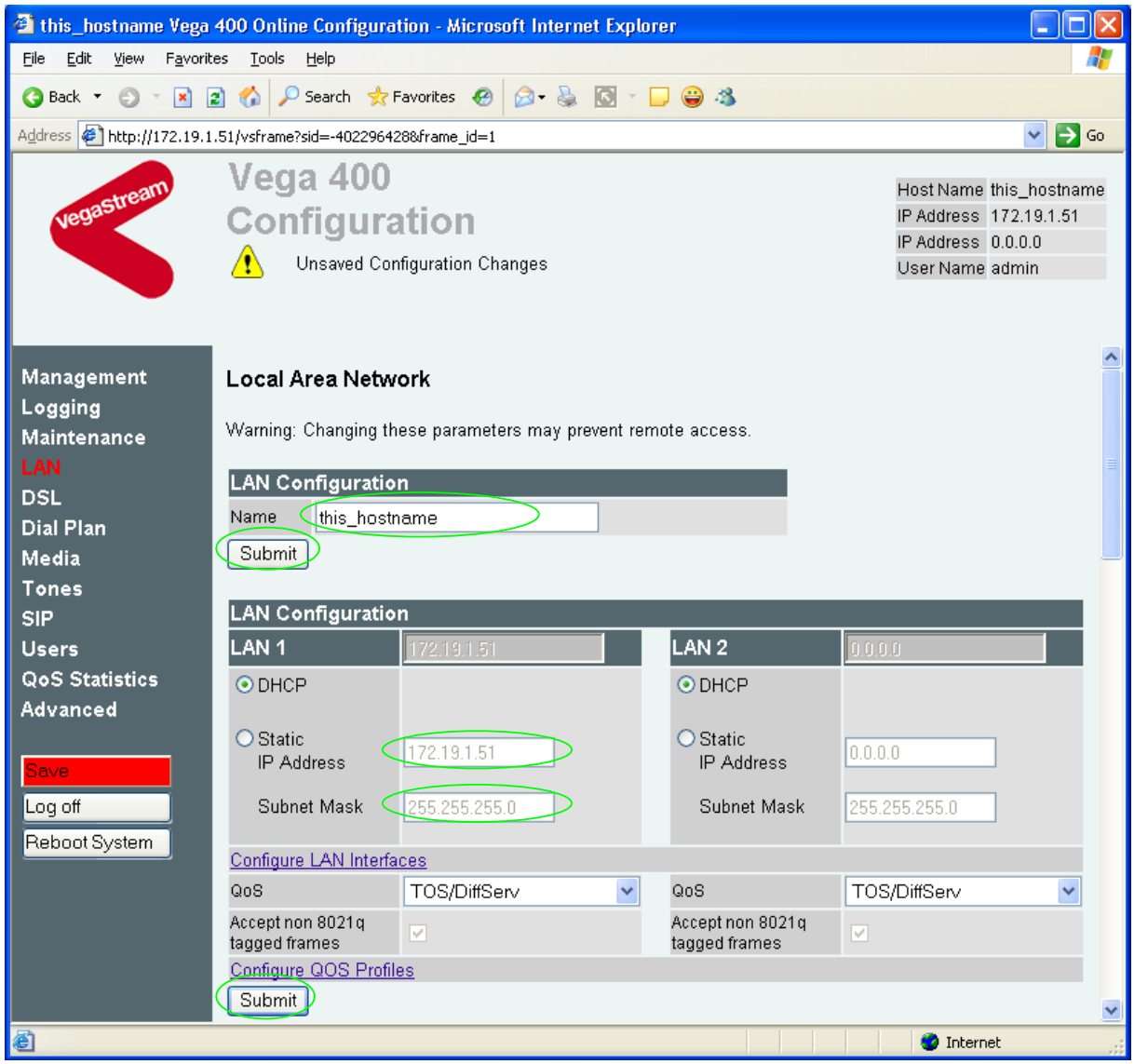
- select Submit and then click "here" to return

[3] If the web 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.

© 2006 VegaStream Ltd.

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 both calls and management traffic to be routed via LAN interface 1.

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

In the **LAN Configuration, LAN 1** section

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

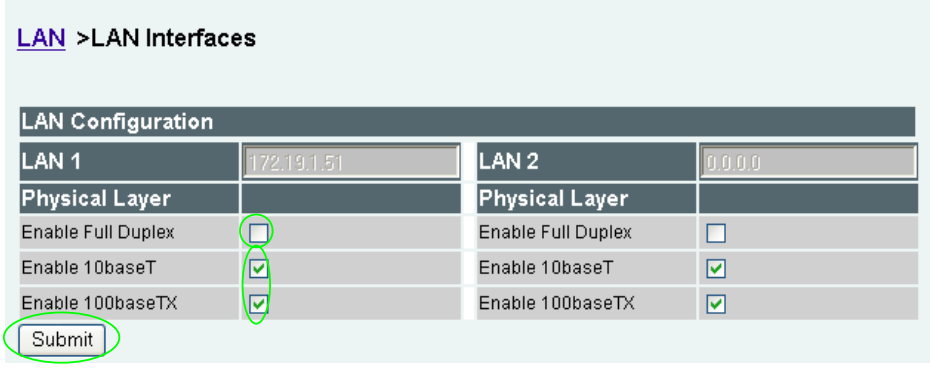
- If static configuration of the IP information is required select 'Static IP Address' and configure the values as required.

© 2006 VegaStream Ltd.

- If changed select Submit and then click "here" to return

In the **LAN Configuration, LAN 1** section

- Select Configure_LAN_Interfaces



Recommended: In the **Physical Layer** section for **LAN 1**, 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 Submit and then click "here" to return

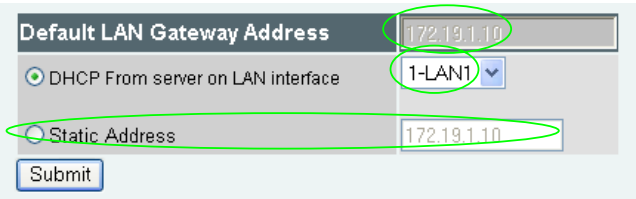
If you are planning to use LAN interface 2 – check its configuration too.

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:

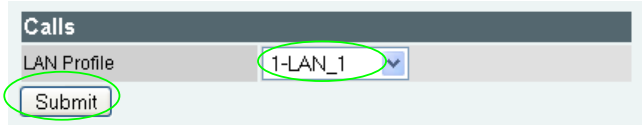
- On the left hand side menu select LAN
- Scroll down to the **Default LAN Gateway Address** section



- If DHCP is selected, the interface ID pull down defines the LAN interface (and hence the DHCP server) to get the gateway's IP address from – leave it as 1-LAN1
- If a static IP address is required configure it here, either as a DNS name, or a dotted decimal IP address.
- If changed, select Submit and then click "here" to return

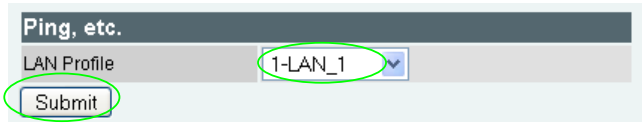
© 2006 VegaStream Ltd.

- Scroll down to the **Calls** section



- 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 down to the **Ping, etc.** section

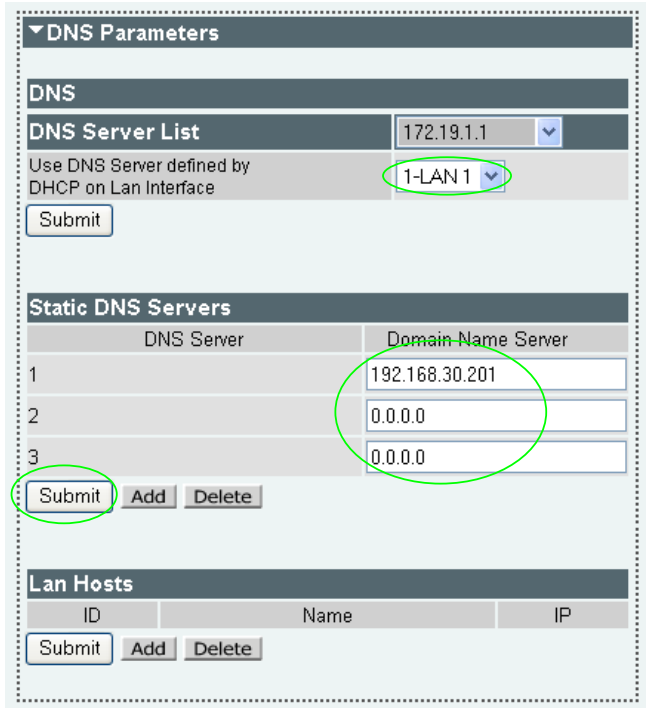


- Ensure that the LAN profile is 1-LAN_1
- If it needs changing, change it, then select Submit and then click "here" to return

Now scroll to the relevant sections on the page that need configuring:

DNS parameters

- Scroll to the **DNS Parameters** section and expand the box



DNS server IP addresses can be set up using both DHCP served DNS servers and also statically defined DNS Servers.

© 2006 VegaStream Ltd.

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

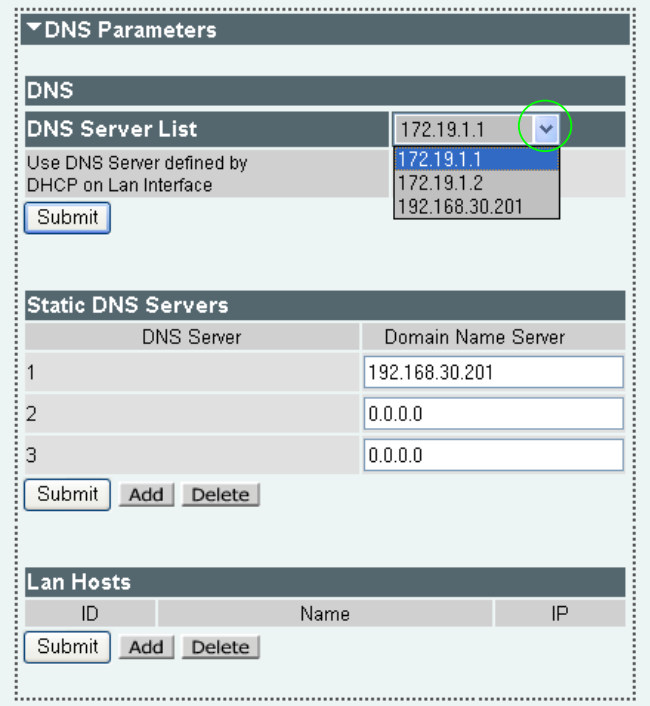
Optional: If static DNS servers are to be defined,

- configure their IP addresses in the Static DNS Servers section

(Press Add if more than 3 static entries are required)

- Select Submit and then click "here" to return

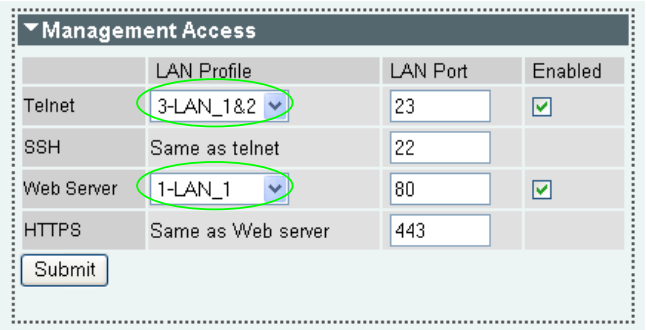
The current list of DNS Server IPs to use can be found by clicking on the pull down tab on the greyed out DNS Server list combo box.



(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.)

Telnet, ssh, Web browser, https access parameters

- Scroll to the **Management Access** section and expand the box

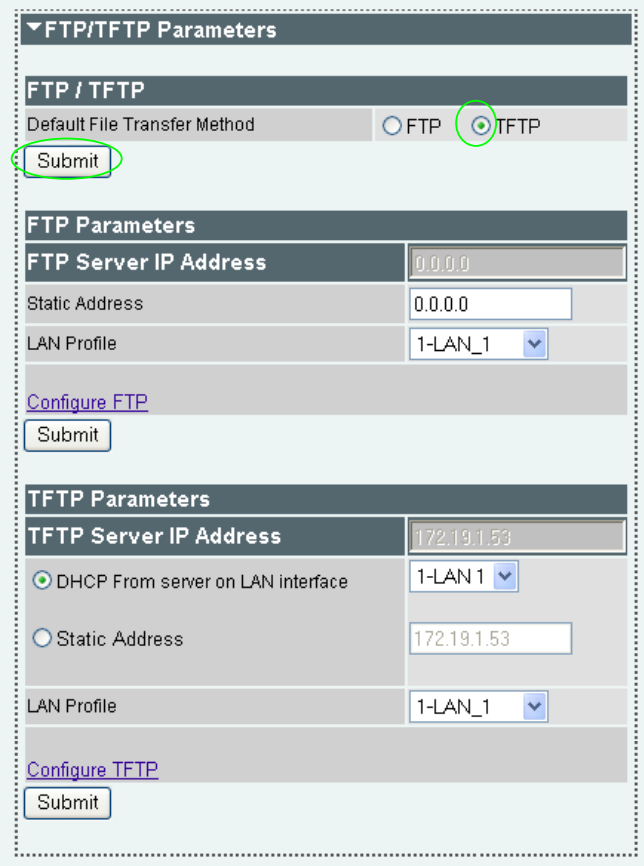


- Set Telnet LAN Profile = 1-LAN_1
- Set Web Server LAN Profile = 1-LAN_1
- Select Submit and then click "here" to return

© 2006 VegaStream Ltd.

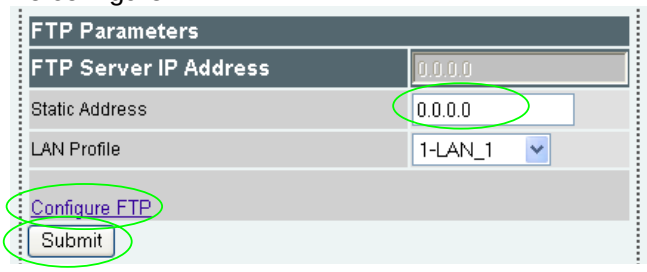
FTP and TFTP parameters

- Scroll to the **FTP/TFTP Parameters** section and expand the box



- Select the preferred (default) method for performing file transfers – typically use TFTP if you are on the same site as the Vega, or use FTP if you are of a different site
- Select Submit and then click "here" to return

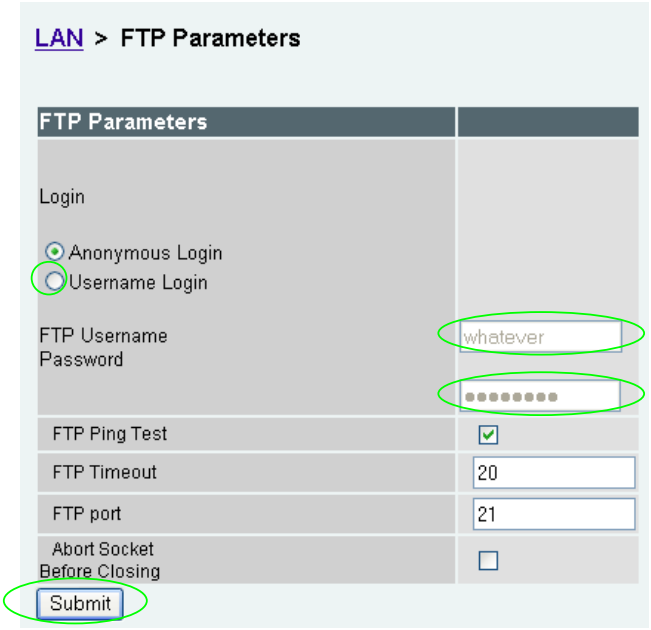
To configure FTP:



- set up Static IP Address *(either as a DNS name or as a dotted decimal IP address)*
- select Submit and then click "here" to return

© 2006 VegaStream Ltd.

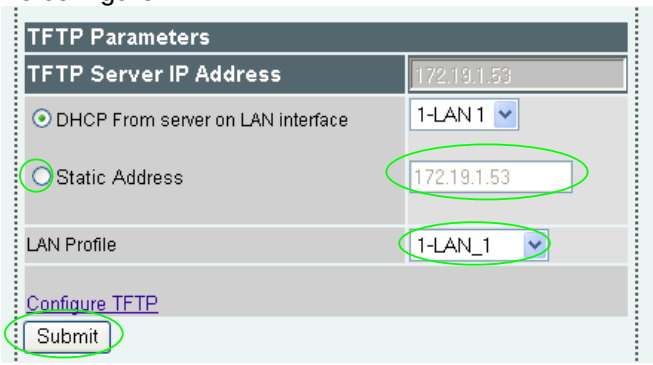
- Select Configure_FTP



Optional: If username login (rather than anonymous login) is required

- select 'Username Login'
- enter FTP username
- enter Password
- select Submit and then click "here" to return

To configure TFTP:



Optional: If a static IP address is required

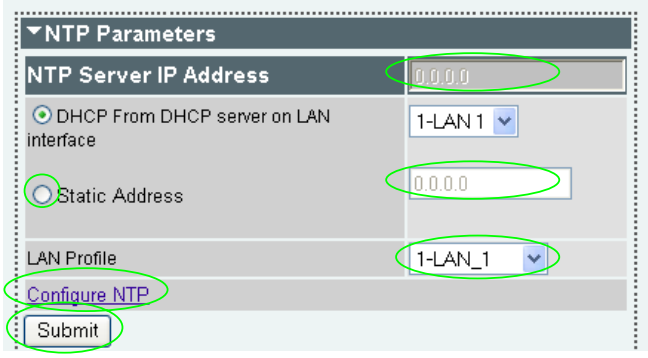
- select 'Static Address'
- set up Static IP Address *(either as a DNS name or as a dotted decimal IP address)*
- Ensure that the LAN profile is 1-LAN_1
- select Submit and then click "here" to return

© 2006 VegaStream Ltd.

NTP parameters

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

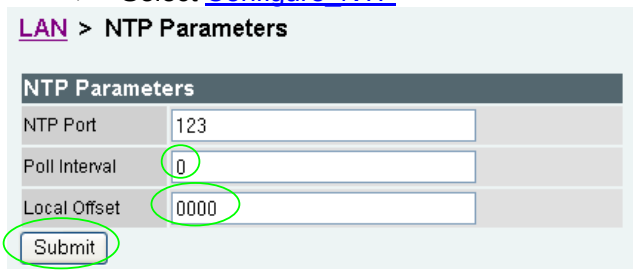
- Scroll to the **NTP Parameters** section and expand the box



Optional: If a static IP address is required

- select 'Static Address'
- set up Static 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

- Select Configure_NTP



Optional: to set Vega to update its clock once per 24 hours and to have a time zone offset of -1hr

- set Poll interval = 2400

(format is HHMM)

- set Local Offset = -0100

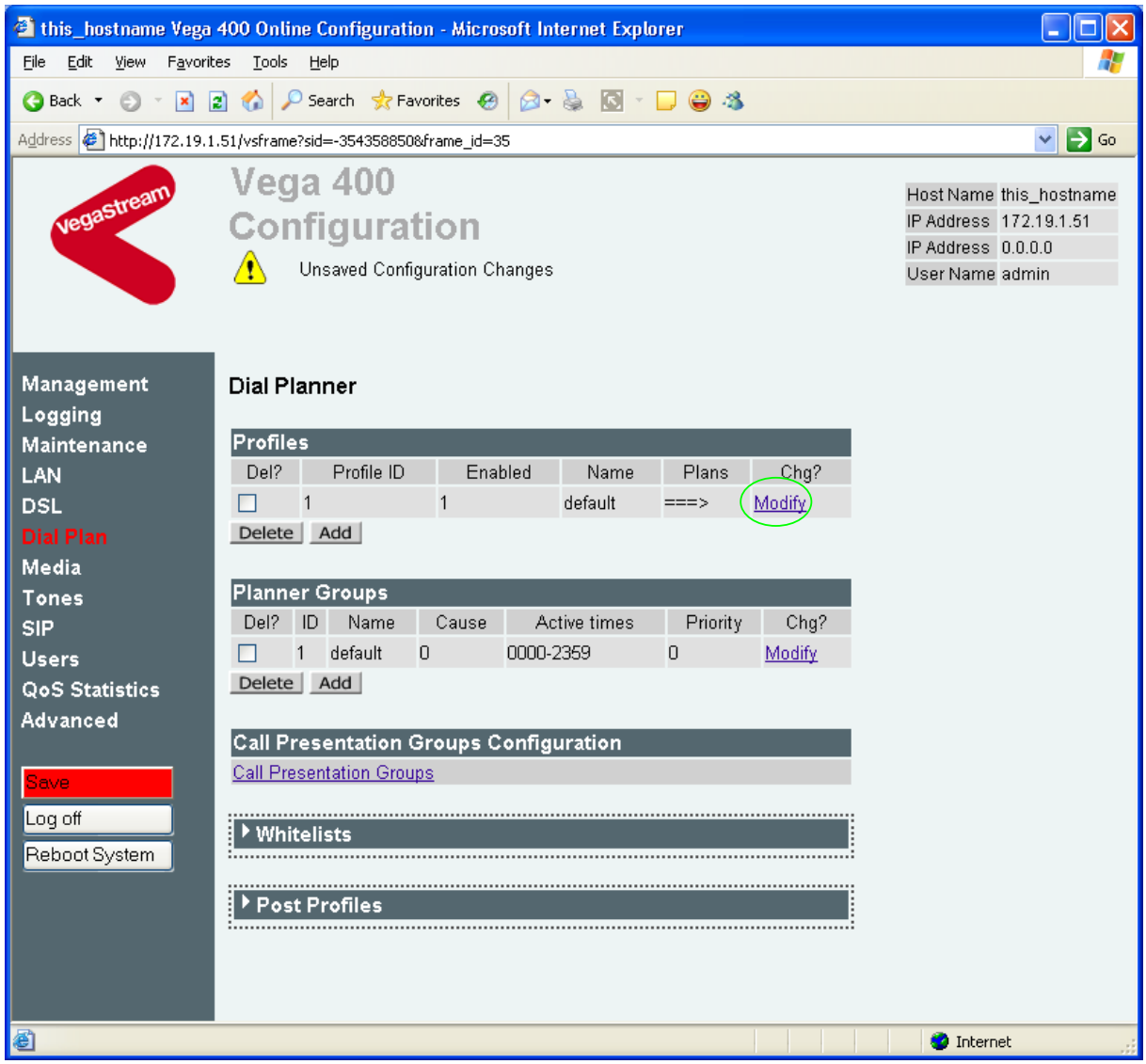
(format is -HHMM or HHMM … time difference from UTC)

- select Submit and then click "here" to return

© 2006 VegaStream Ltd.

5. Configure the Dial Plan

➢On the left hand side menu select Dial Plan

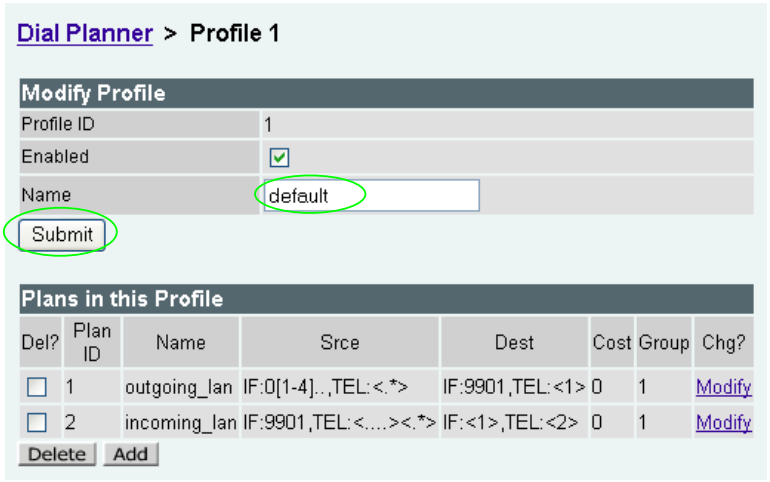


Firstly, turn off the default profile:

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

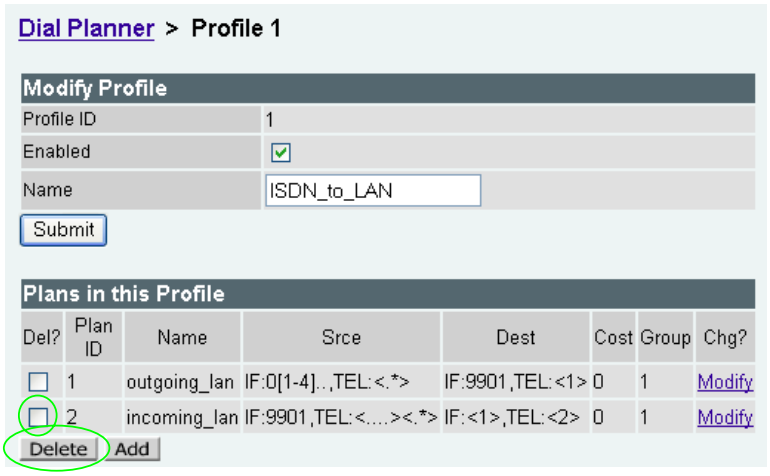
➢ Select Modify

© 2006 VegaStream Ltd.



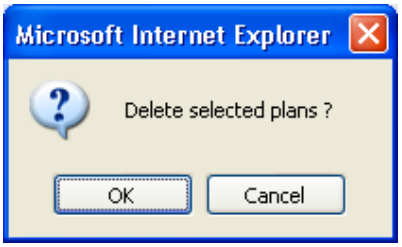
In the Modify Profile section

- Set `Name = ISDN_to_LAN`
- select Submit and then click "here" to return



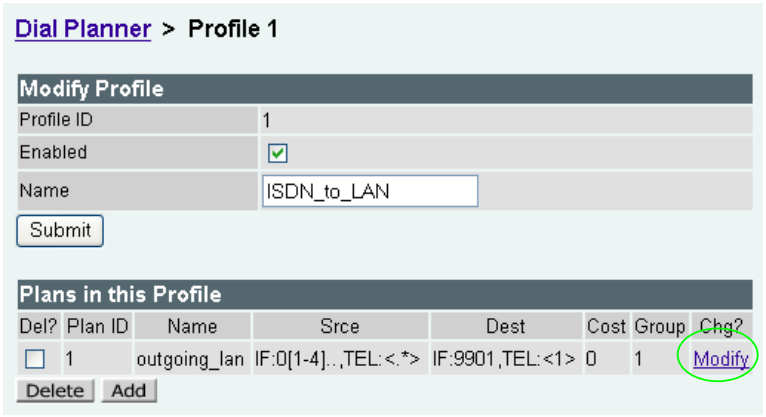
In the **Plans in this Profile** section:

- Tick the Del? Tick box against Plan ID 2
- Select Delete



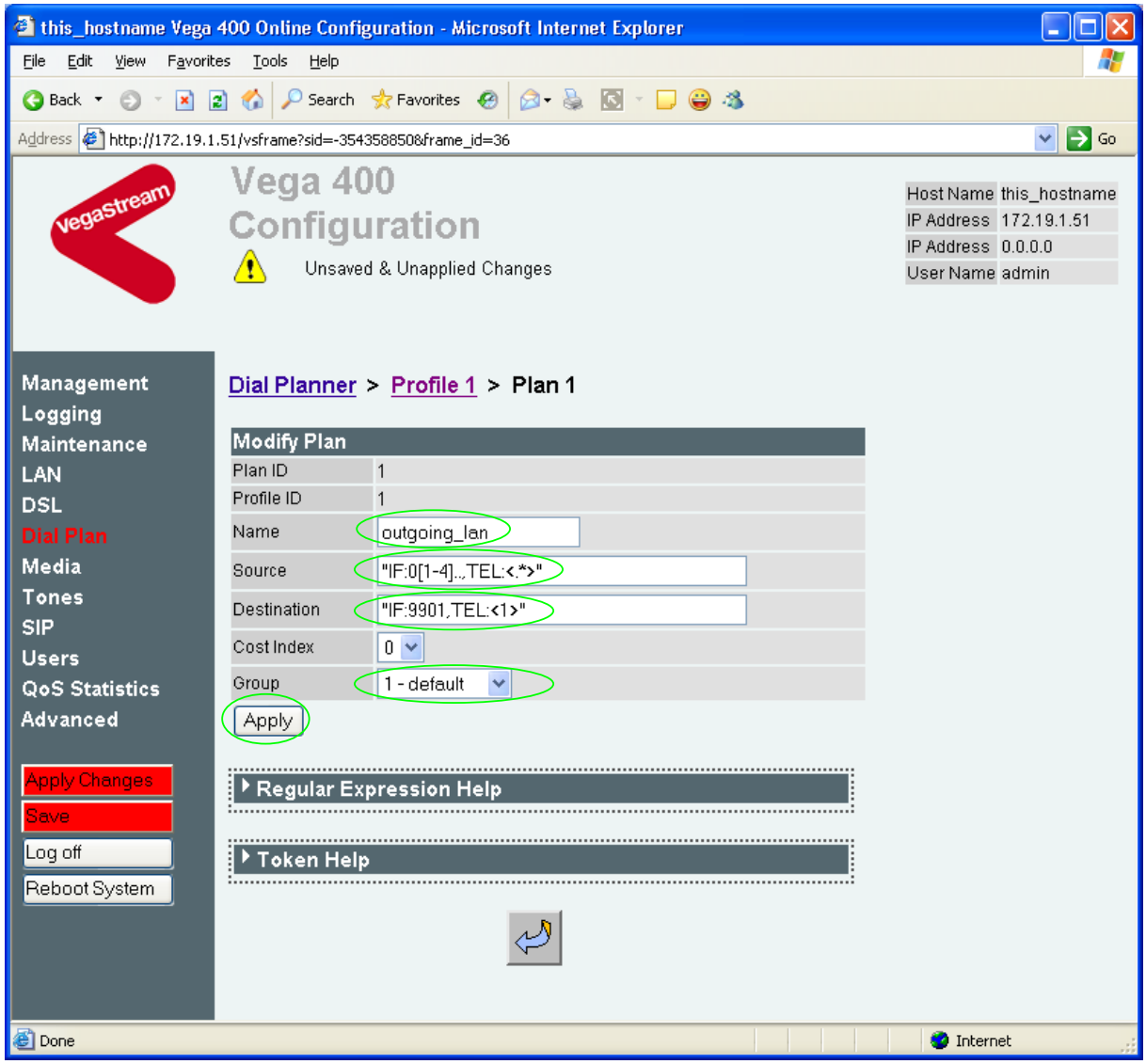
- Select OK

© 2006 VegaStream Ltd.



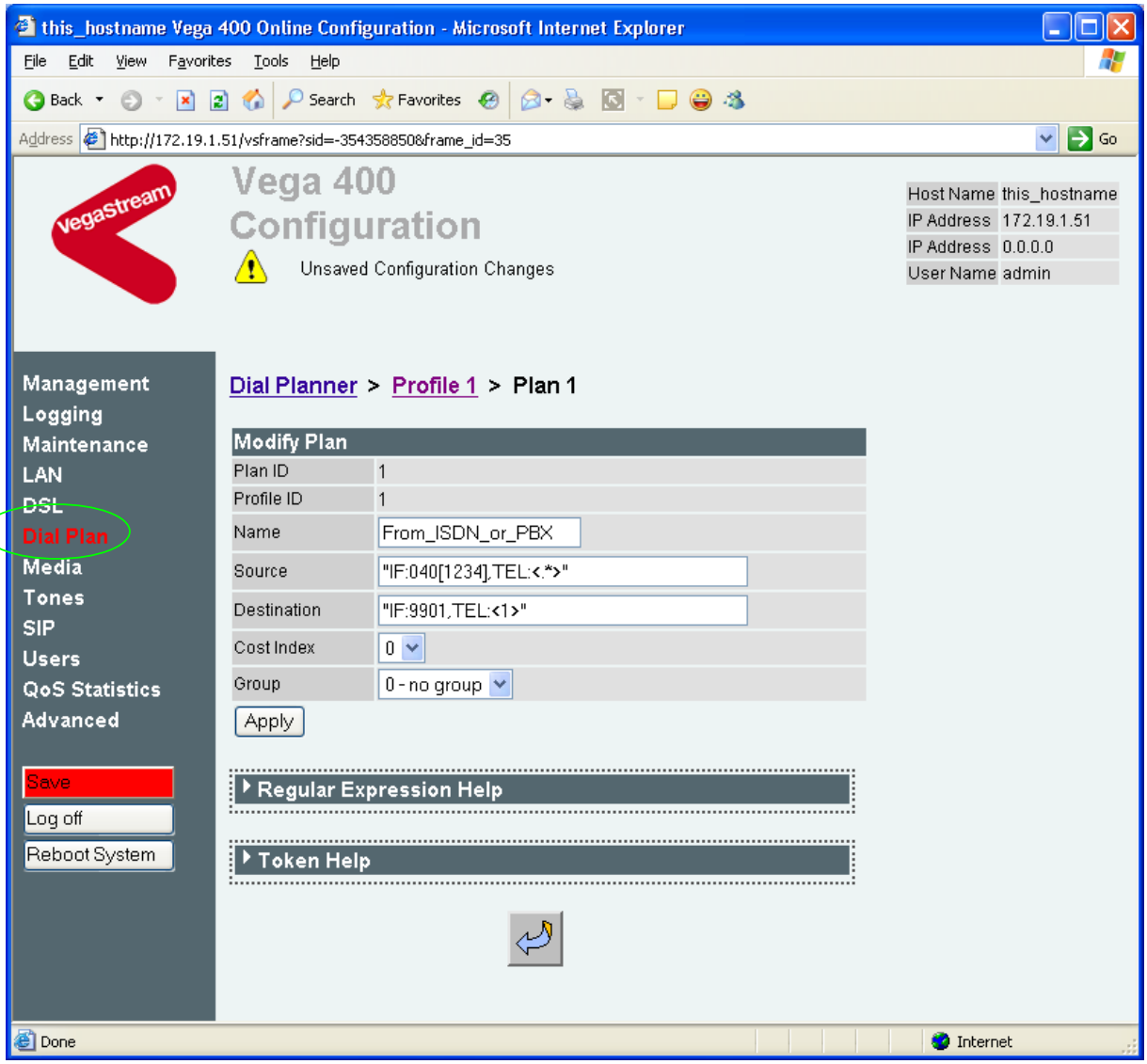
In the **Plans in this Profile** section, Plan ID 1:

- Select Modify



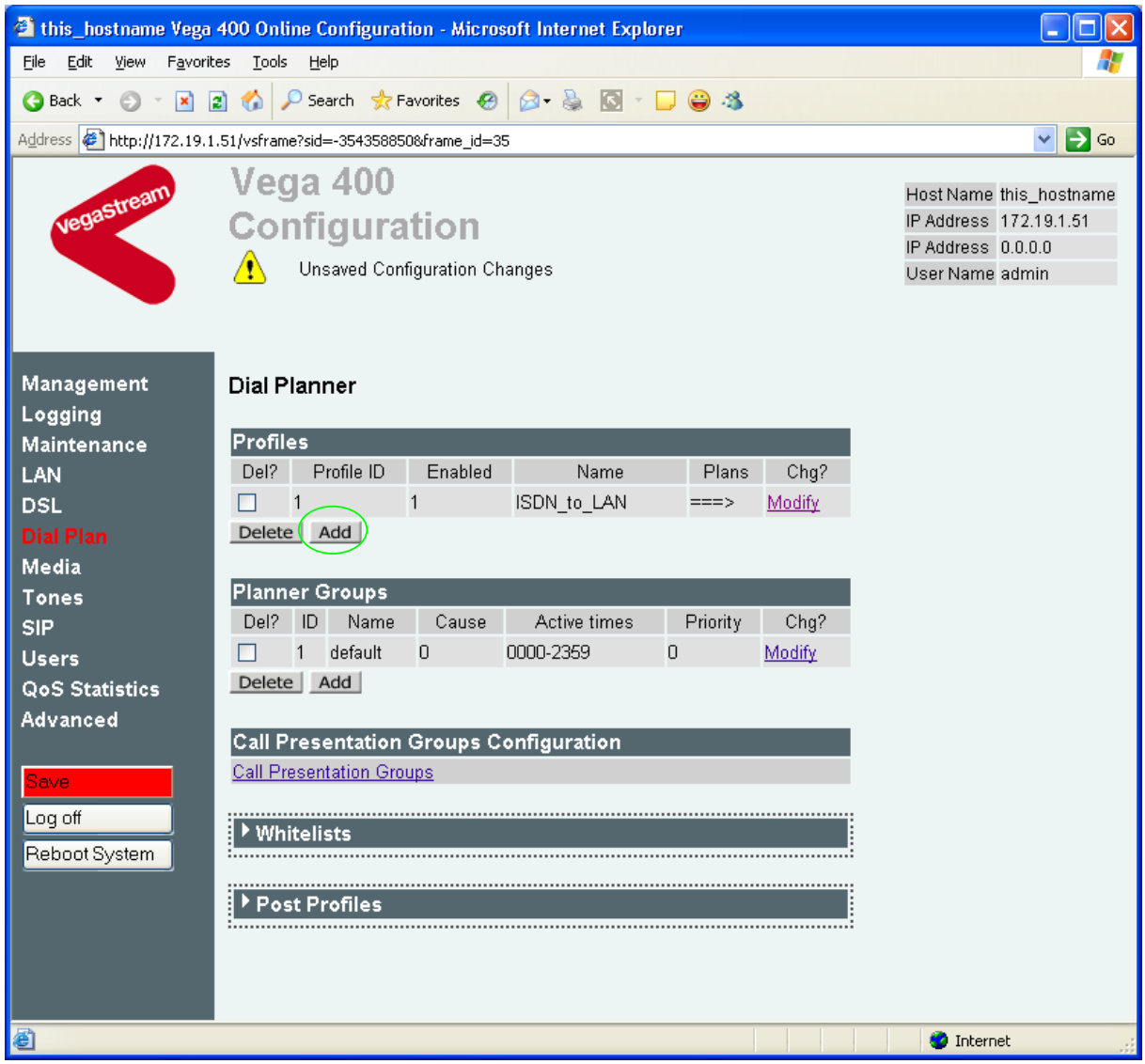
© 2006 VegaStream Ltd.

- Set Name = `From_ISDN_or_PBX`
- Set Source = `IF:040[1234],TEL:<.*>` *(This takes a call from any of the ISDN interfaces, 0401 to 0404, 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

© 2006 VegaStream Ltd.



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>)

© 2006 VegaStream Ltd.

- Set Destination = `IF:04<1>,TEL:<2>` *(Precede the 2 digits from store 1 with 04 to make them into an interface number – 0401 to 0404 – 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 offset of the Vega 400 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:040[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):

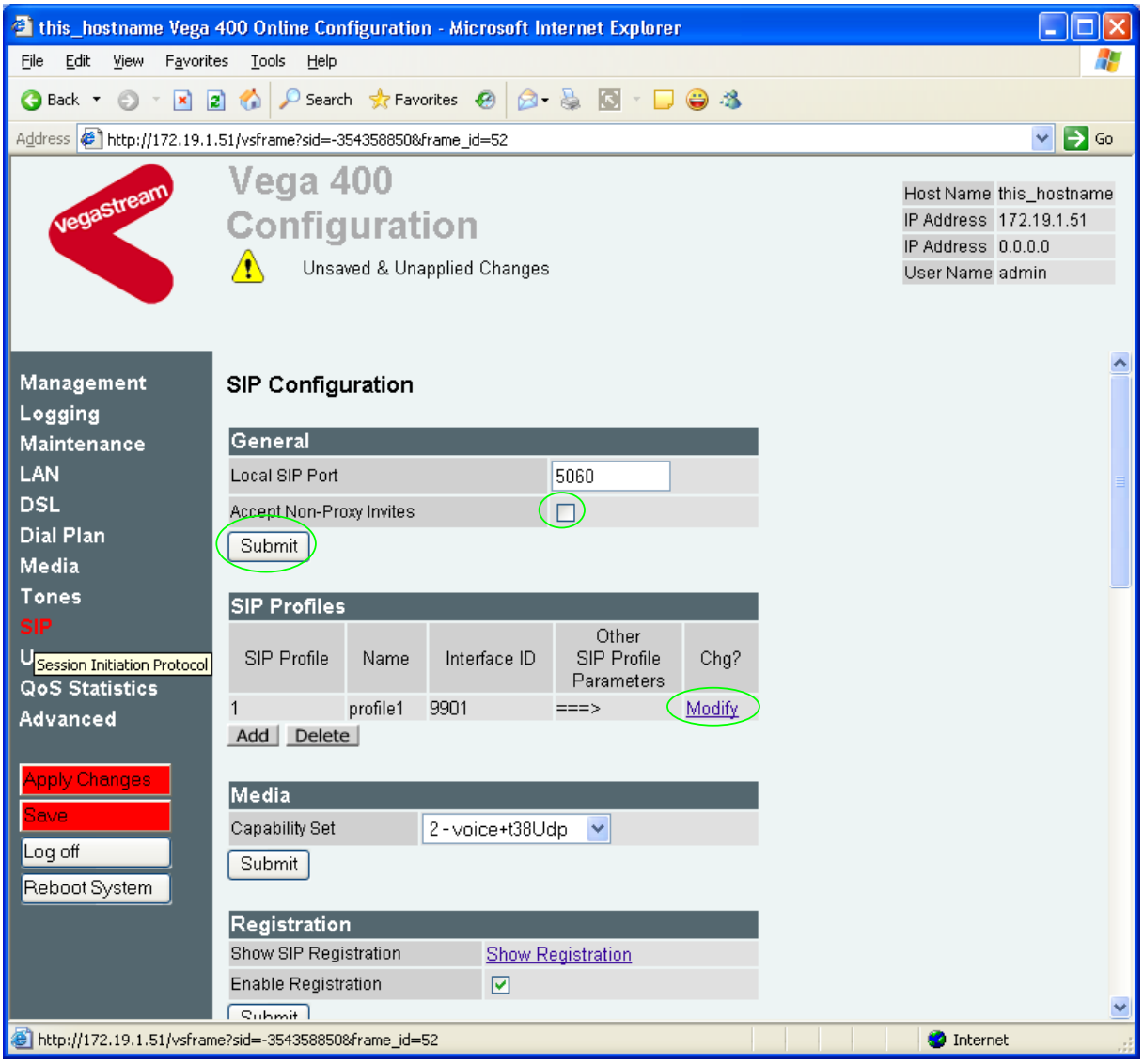
- Set Name = `From_LAN`
- Set Source = `IF:99..,TEL:<..><.*>`
- Set Destination = `IF:04<1>,TEL:<2>`

© 2006 VegaStream Ltd.

6. Configure SIP Proxy 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



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

- tick `Accept Non-Proxy Invites`

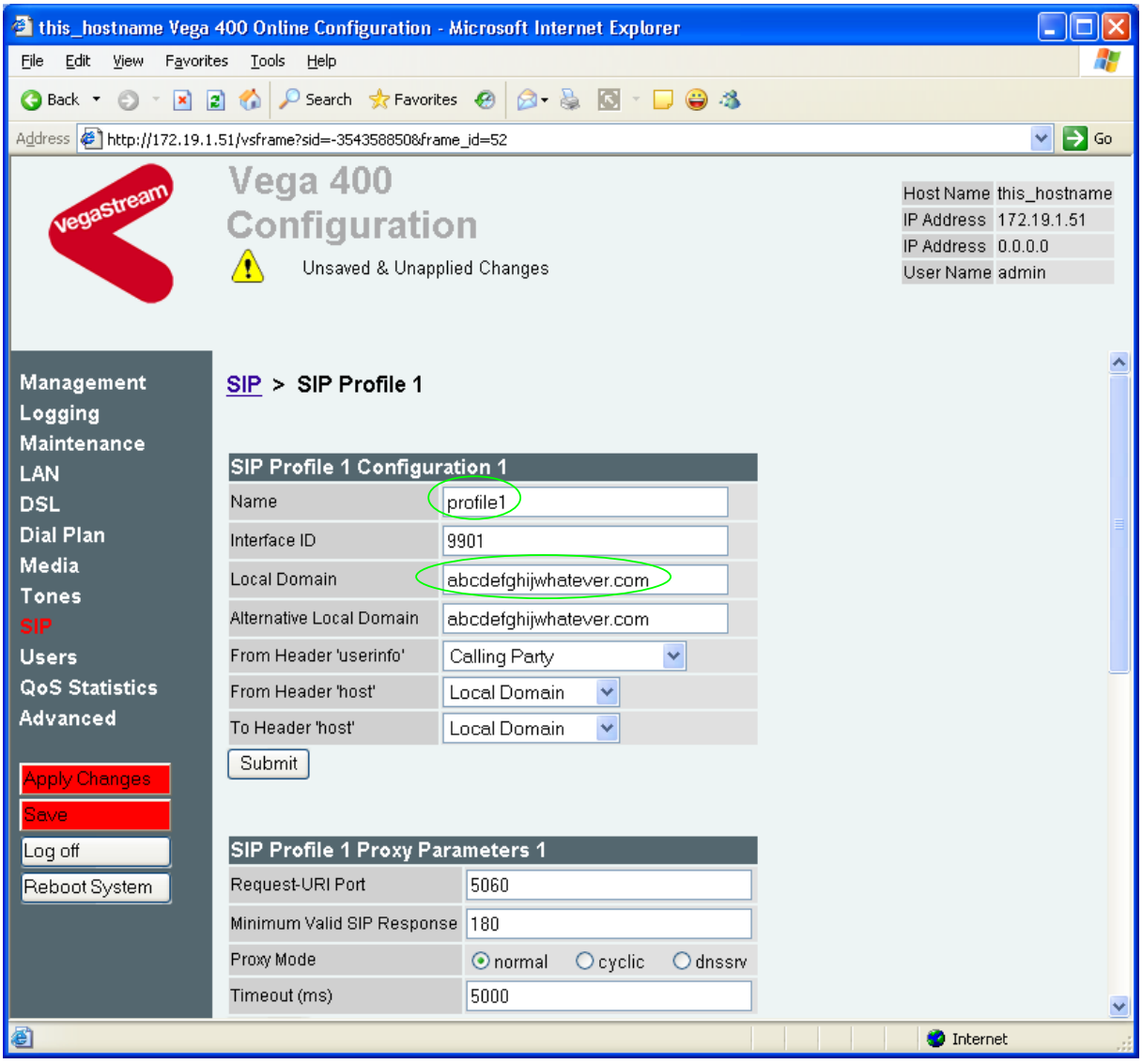
If only the proxy is allowed to route the calls to the Vega ensure that this tick box is clear.

- select Submit and then click "here" to return

© 2006 VegaStream Ltd.

In the **SIP Profiles** section

- Select Modify



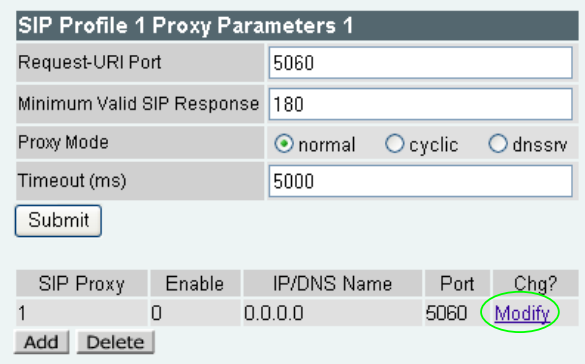
In the **SIP Profile 1 Configuration 1** section:

- set Name=MyProxy
- set Local Domain = `Public_name_of_proxy_used_by_other_devices_to_send_their_INVITEs_to`

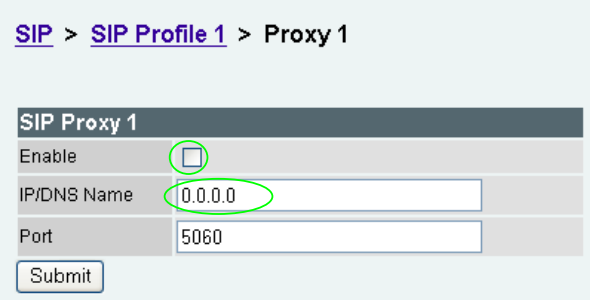
(this value is the "outside world's" name or IP address for the proxy)

- scroll down to the **SIP Profile 1 Proxy Parameters 1** section

© 2006 VegaStream Ltd.



- Select Modify



In the **SIP Proxy 1** section:

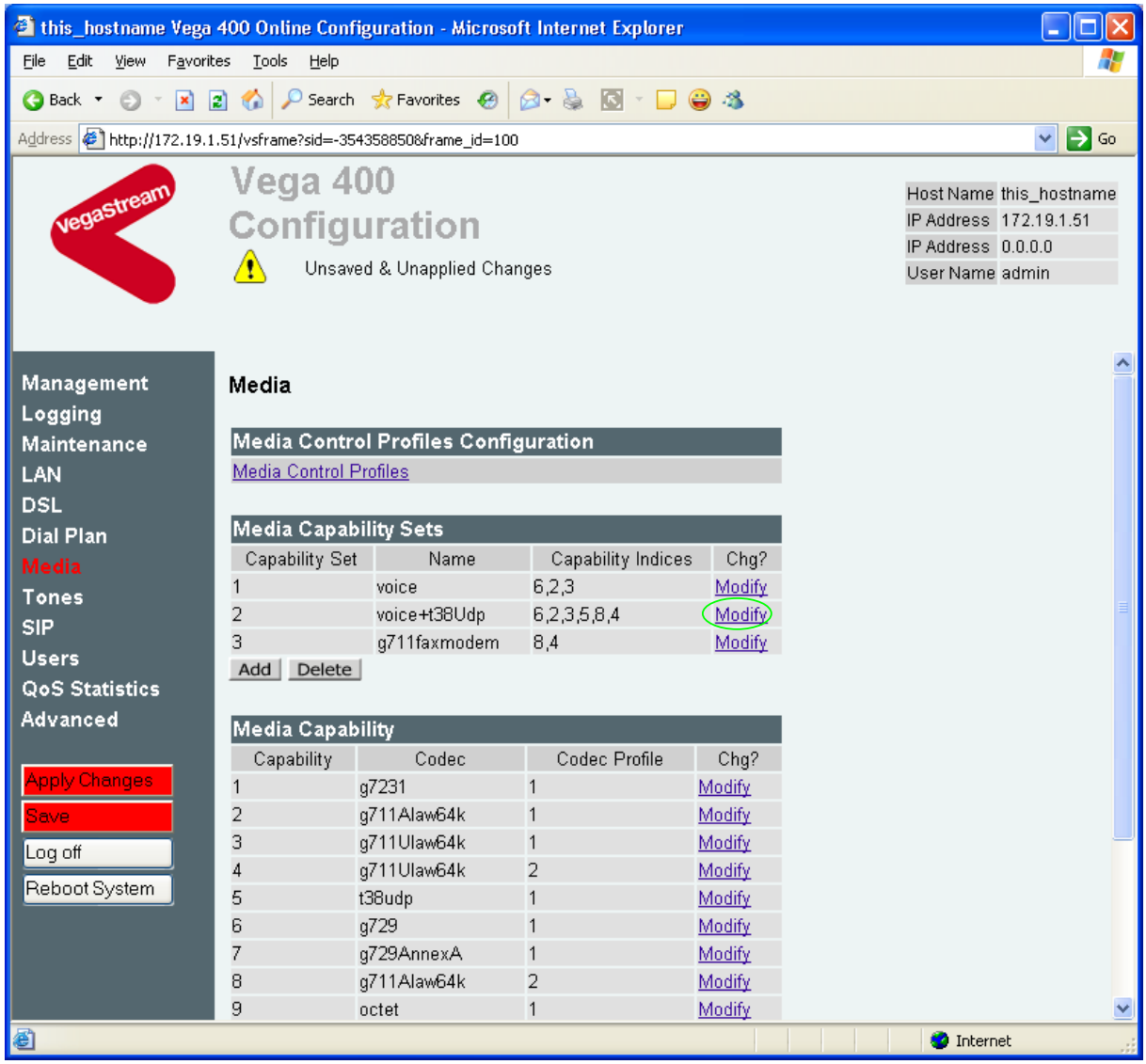
- Tick Enable
- set IP/DNS Name = `IP_address_of_SIP_proxy, or DNS_hostname_of_the_SIP_Proxy`
- select Submit and then click "here" to return

© 2006 VegaStream Ltd.

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 Media



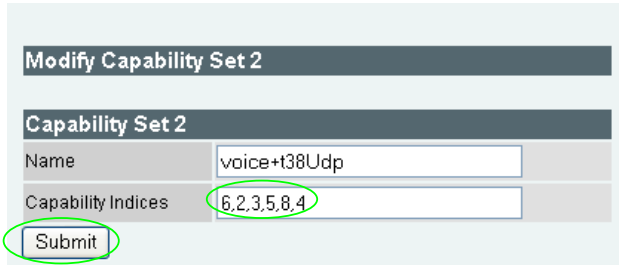
*The different codecs and their indices are specified in the **Media Capability** section.*

Check that either capability set 1 or capability set 2 has the desired 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 Modify

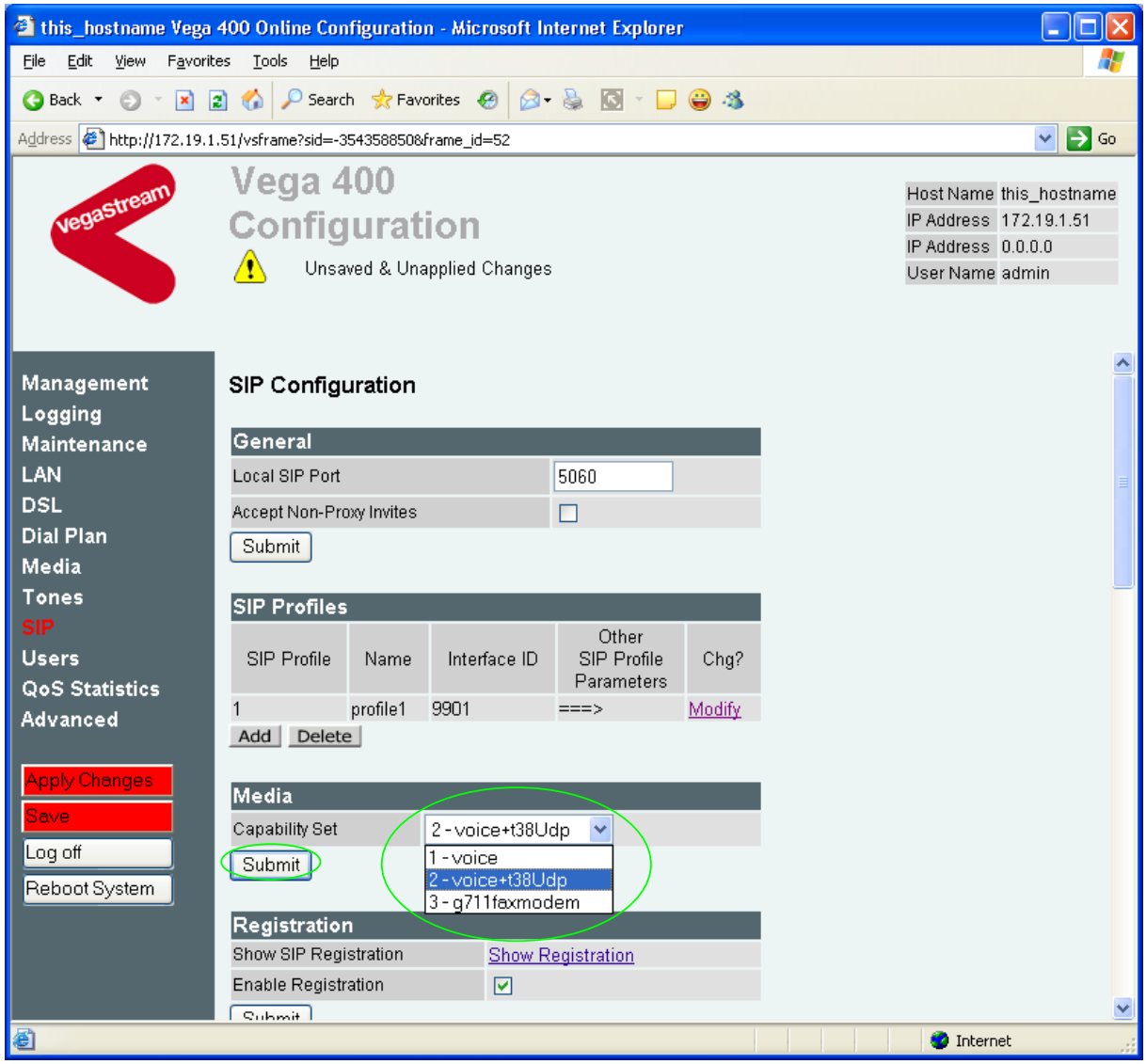
© 2006 VegaStream Ltd.



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

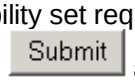
- List the codec indices in the required order (comma separated)
- select Submit and then click "here" to return

- On the left hand side menu select SIP



In the **Media** section

© 2006 VegaStream Ltd.

- Check that Capability Set = 2 (if capability set 2 contains the preferred list, or select the capability set required)
- select 

and then click “here” to return

© 2006 VegaStream Ltd.

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.

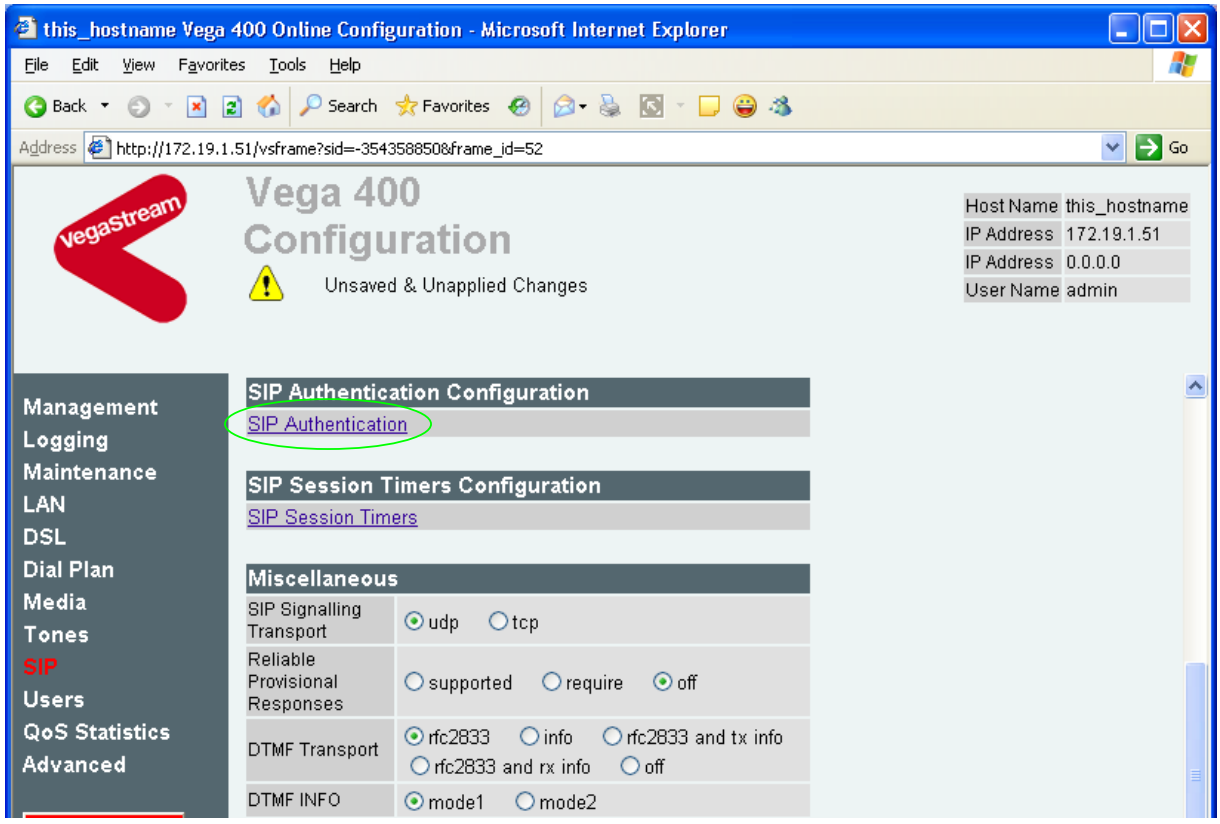
The values for user-name and password entered here must match the values that have been configured as the authorisation user and password in the proxy.

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

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

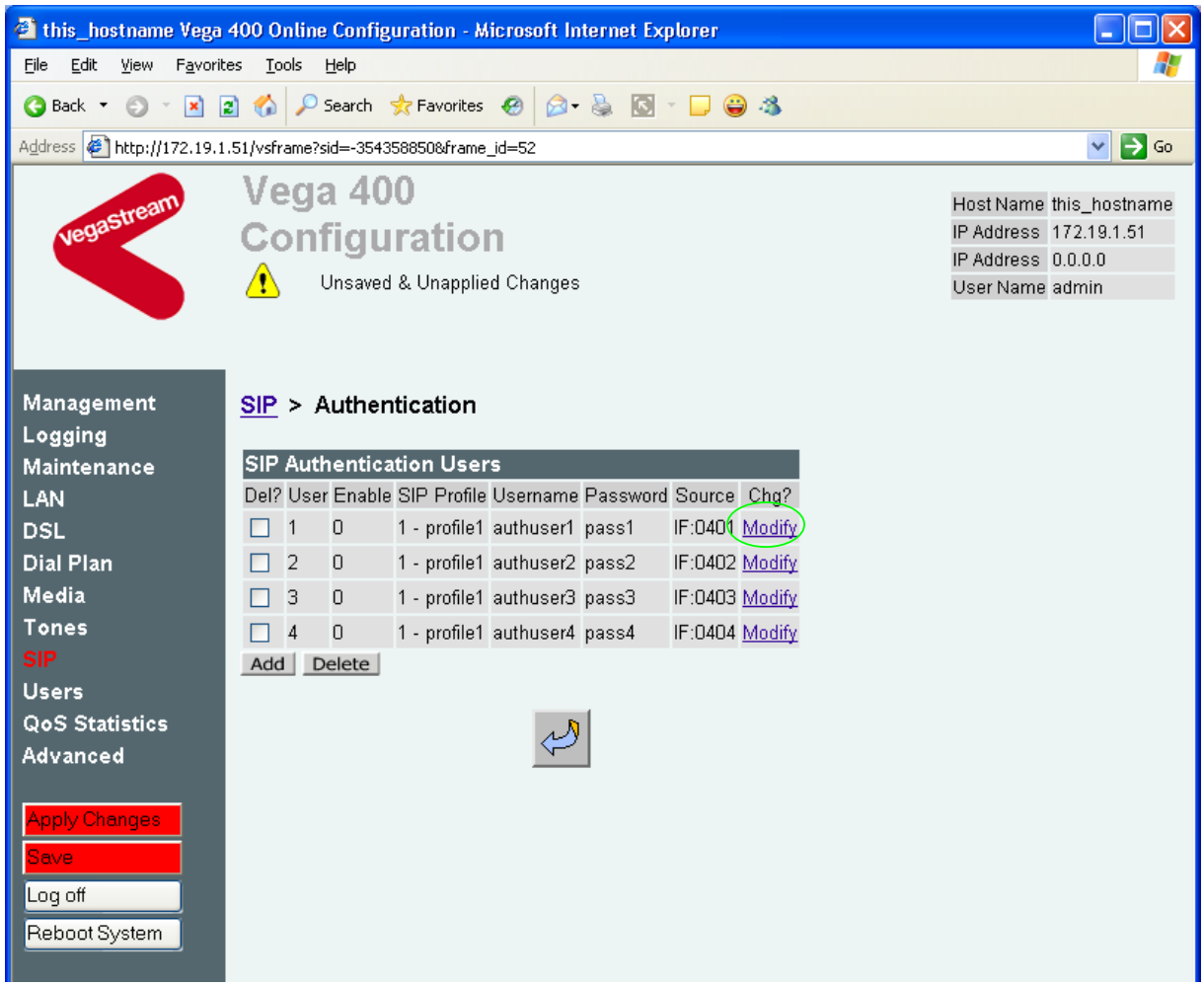
➢ On the left hand side menu select SIP

➢ Scroll down to the **SIP Authentication Configuration** section



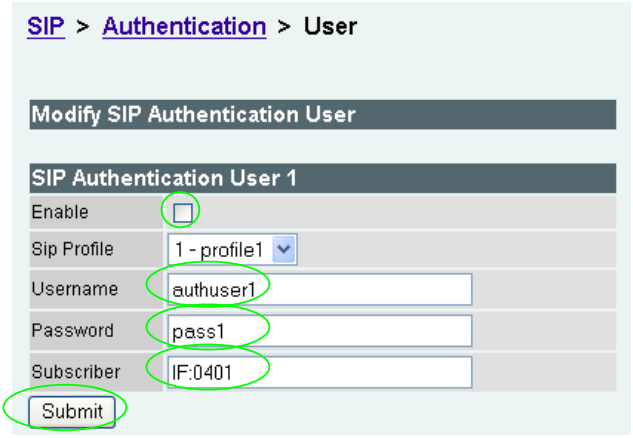
➢ Select SIP Authentication

© 2006 VegaStream Ltd.



In the **SIP Authentication Users** section, in the Authentication User 1 row

- Select Modify



- Tick `Enable`
- Set `Username = VegaGateway123`
- Set `Password = LetMeIn`
- Set `Subscriber = IF:.*`
- select Submit and then click "here" to return

© 2006 VegaStream Ltd.

© 2006 VegaStream Ltd.

9. Configure Registration

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

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 `iittt…t@contact_address`

- where `ii` defines the interface number through which to make the call (01 = interface 0401, 02 = interface 0402, 03 = interface 0403 or 04 = interface 0404), 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 400 registration”

© 2006 VegaStream Ltd.

10. 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:

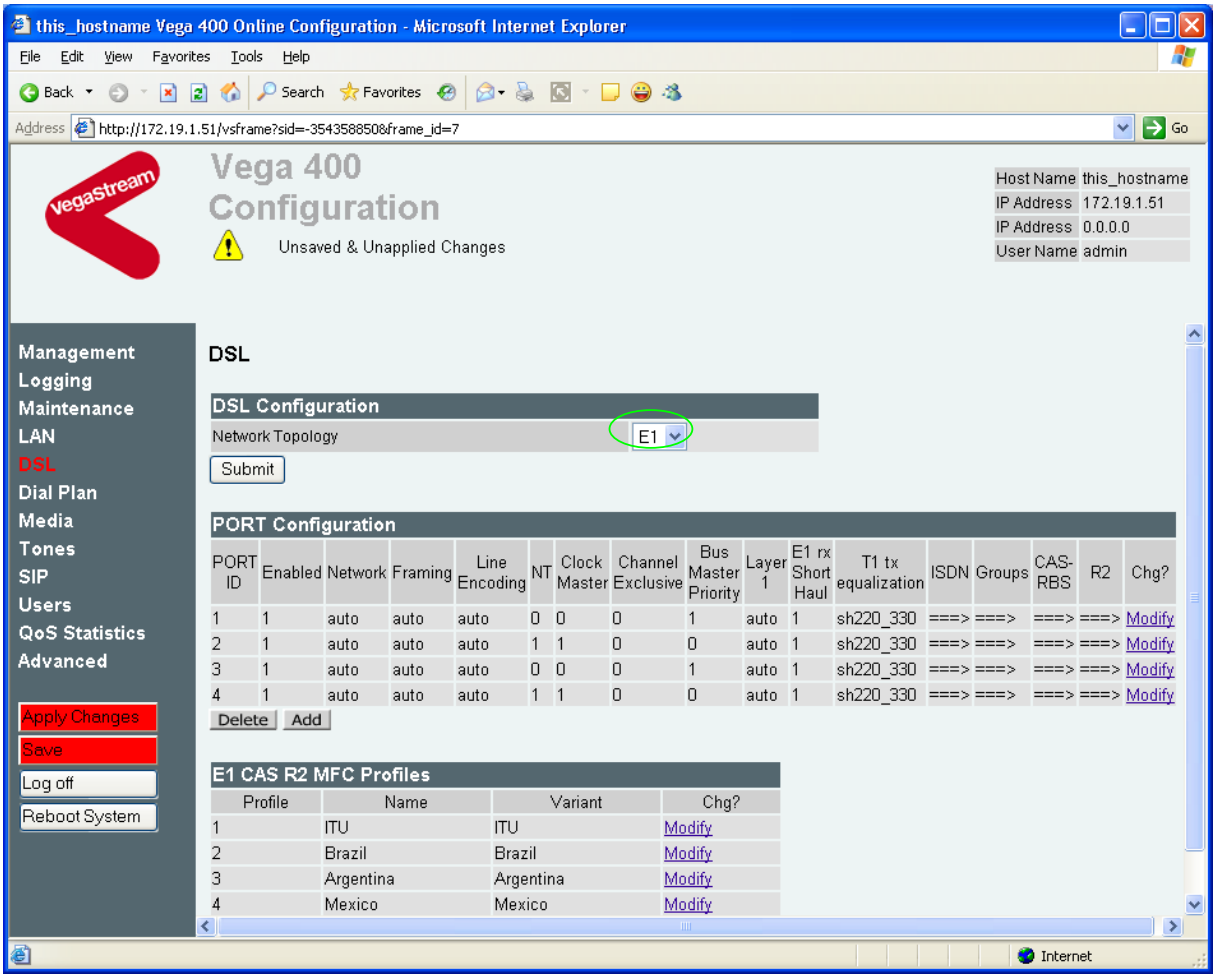
10.1 E1 configuration

10.1.1 E1 R2MFC (CAS) configuration

For details on configuring the Vega gateway to use R2MFC signalling, please see the Information Note “Configuring R2MFC” available on the www.VegaAssist.com web site.

10.1.2 E1 PRI configuration

- On the left hand side menu select DSL



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

© 2006 VegaStream Ltd.

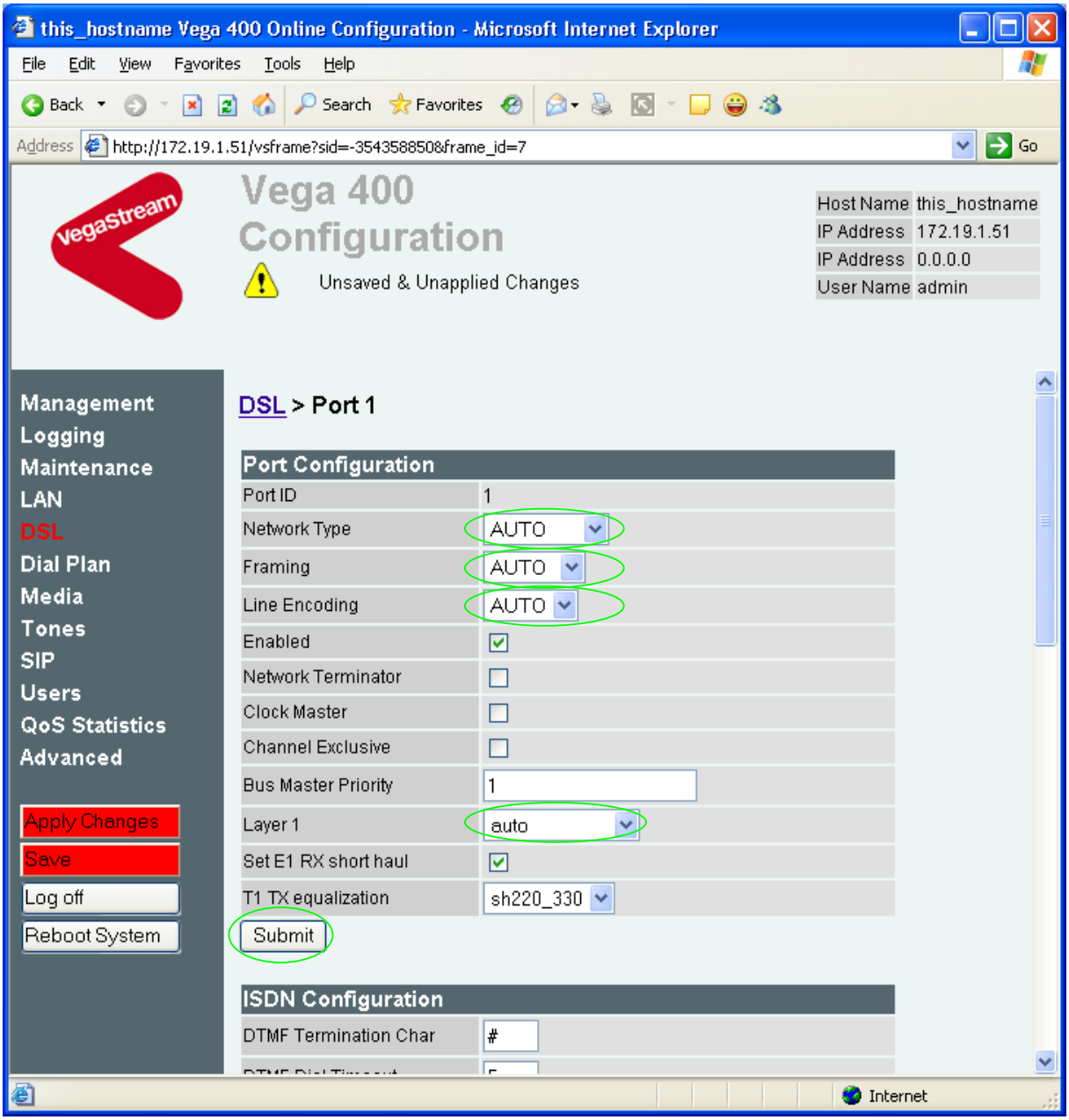
For the configuration indicated in the initial diagram DSL1and DSL 3 connect to the PSTN and DSL 2 and DSL 4 connect to the PBX. The Vega therefore needs DSL 1 and 3 configured as TE, and DSL 2 and 4 configured as NT.

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



© 2006 VegaStream Ltd.

In the **Port Configuration** section

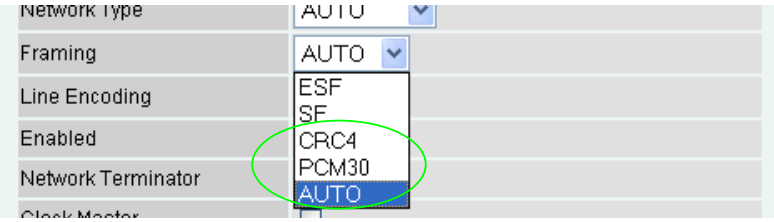
- check that the Network Type = AUTO or ETSI.

If required QSIG is also an acceptable Network Type for E1 Vega 400s.
(Note, the other available options: ATT, DMS, DMS_M1, NI, CAS-RBS, VN3/4, and CAS-R2 are not supported ISDN E1 protocols)

- check that the Line Encoding = AUTO or HDB3

(Note, the other available options: AMI, and B8ZS are not supported on the E1 interface)

- select the Framing Method as required:



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

(Note, the other available options: ESF and SF are not supported on the E1 interface)

- ensure Layer 1 = auto or `g711Alaw64k`

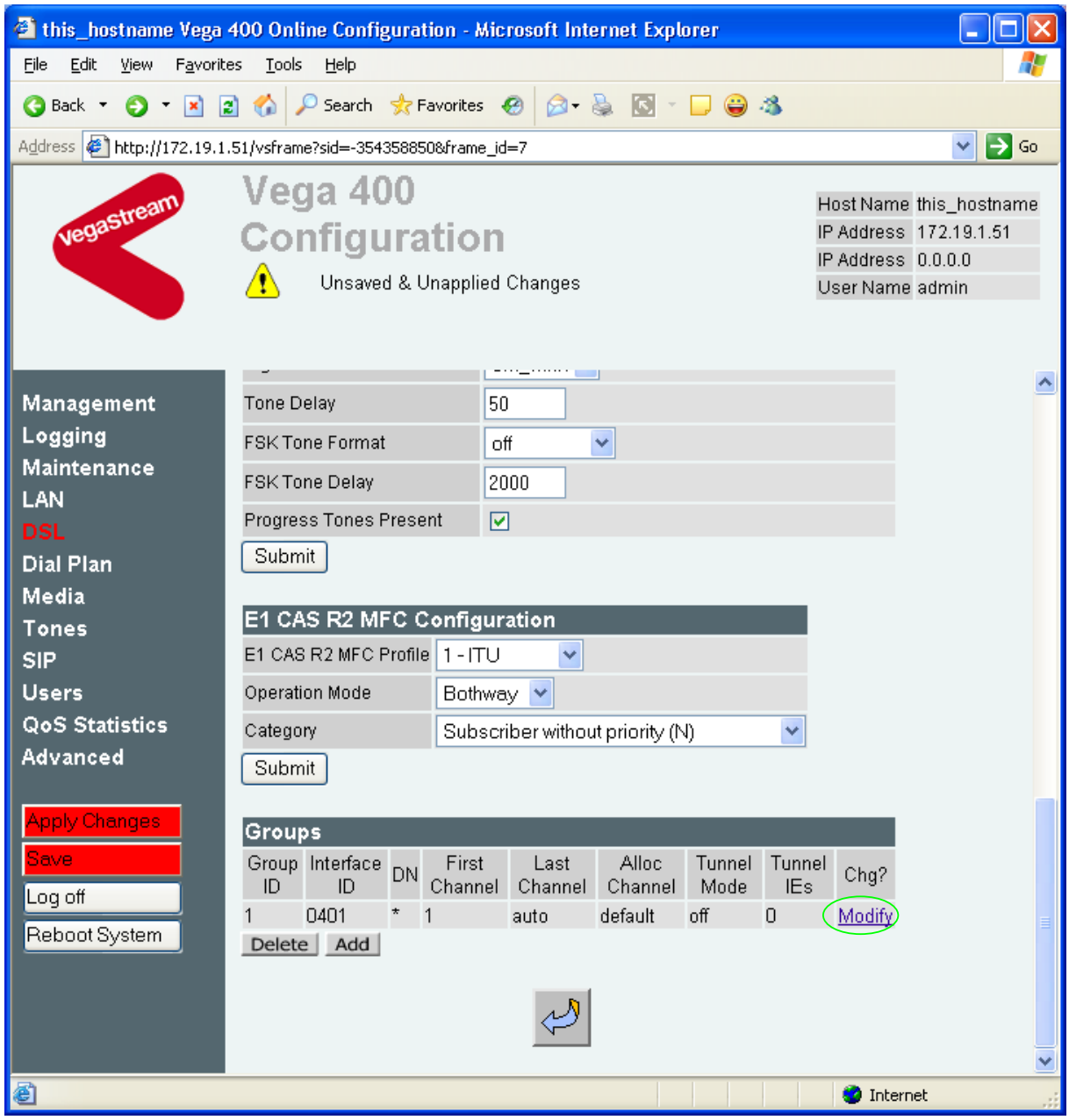
- select

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, … on successive TE DSLs*

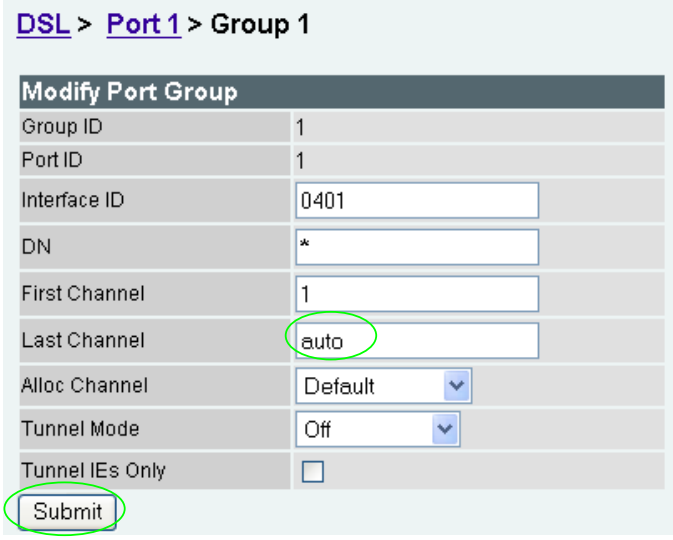
- Scroll down to the bottom of the page, to the **Groups** section

© 2006 VegaStream Ltd.



© 2006 VegaStream Ltd.

- Select Modify



In the **Modify Port Group** section

- check that Last Channel is correctly configured
  - for a full capacity E1 interface it should be auto or 30
  - for a fractional E1, it should be the number of channels supported on this interface

If changes are made

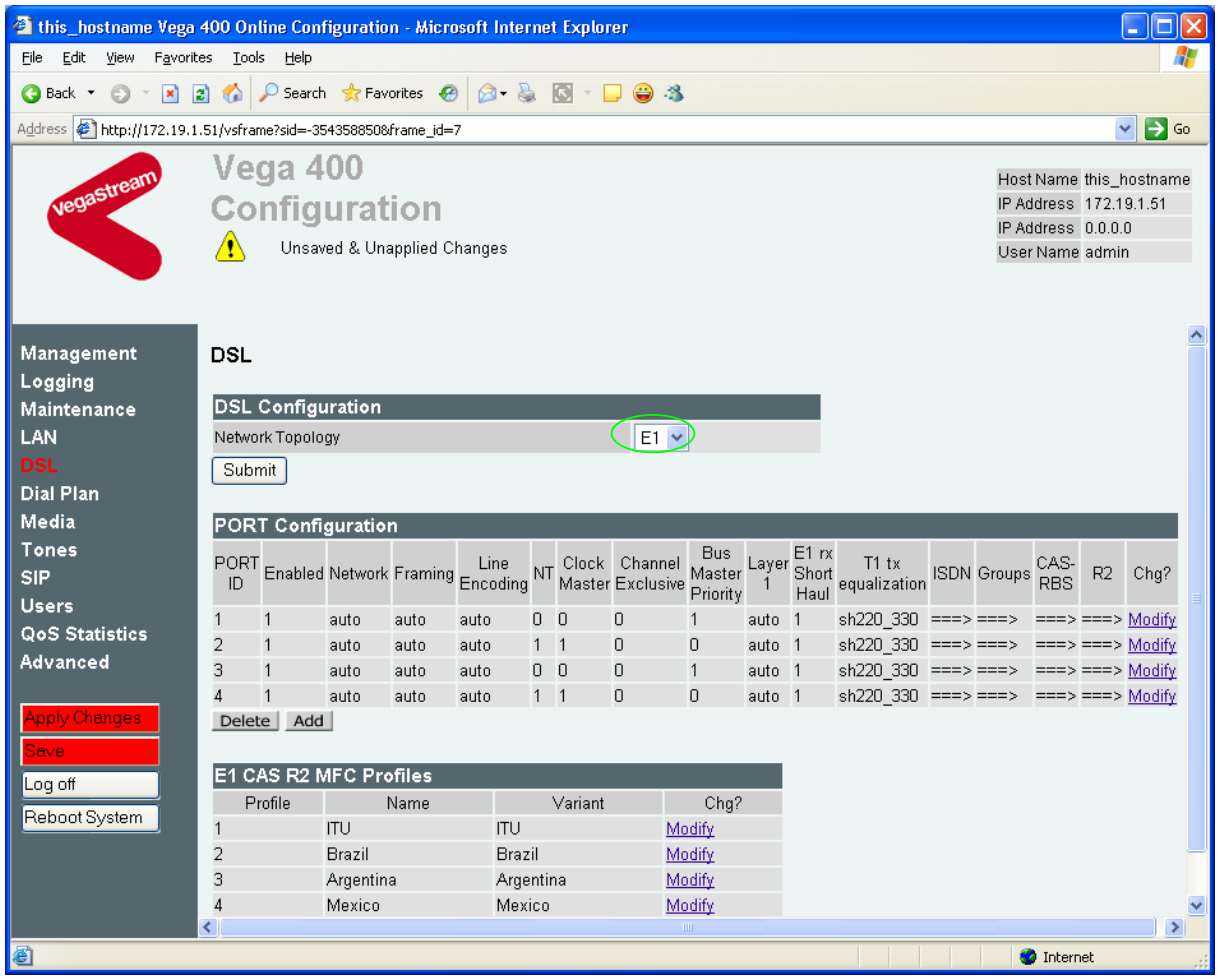
- select Submit and then click "here" to return

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

10.2 T1 configuration

- On the left hand side menu select DSL

© 2006 VegaStream Ltd.



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

For the configuration indicated in the initial diagram DSL1and 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.

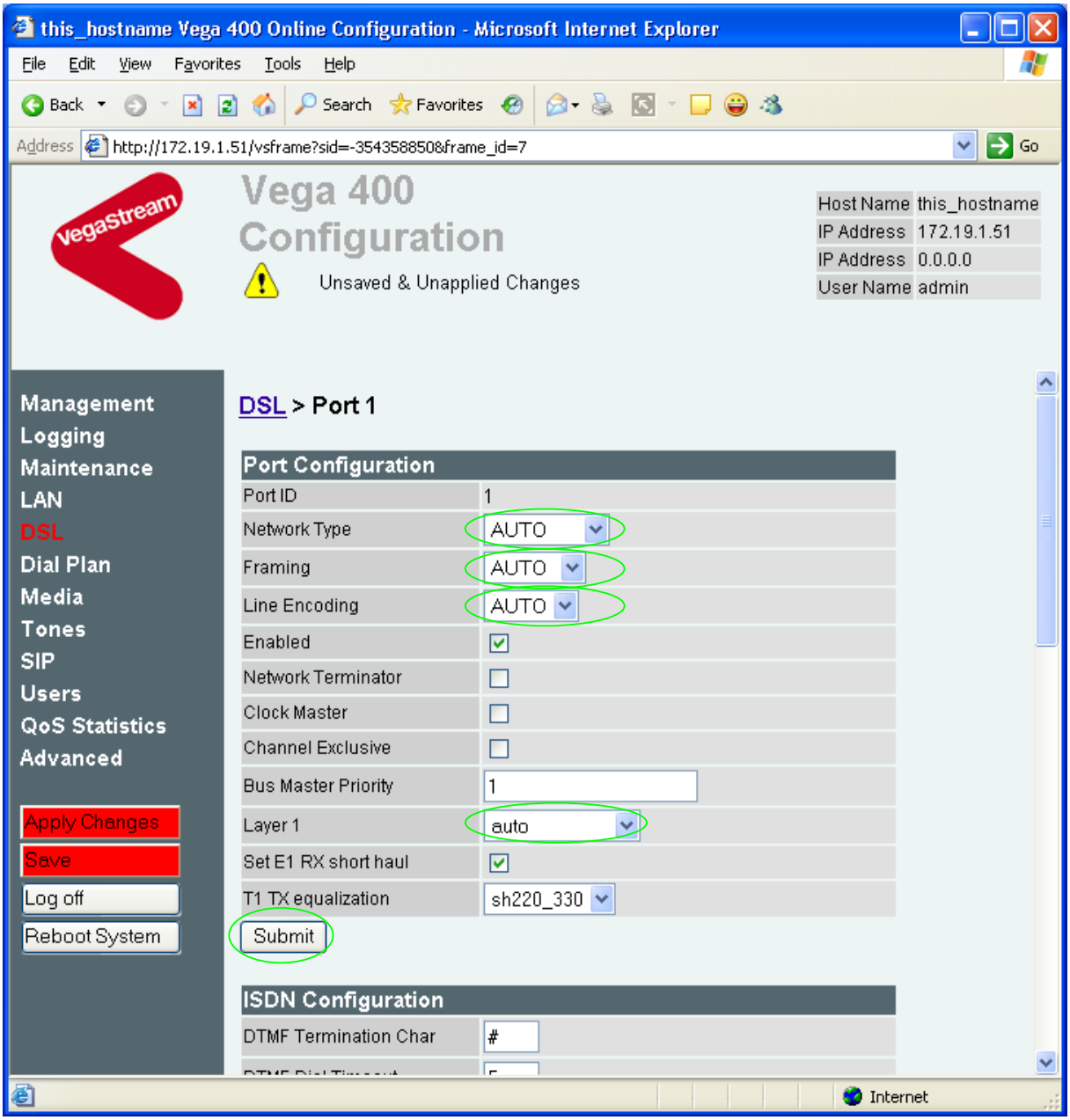
Bus Master needs to be configured to collect the master clock from one of the TE DSLs.

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

© 2006 VegaStream Ltd.

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

➢Select Modify



In the **Port Configuration** section

➢ set the Network Type = AUTO or ATT, or DMS, or DMS_M1, or NI, or CAS-RBS or QSIG

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

Note: ETSI, VN3/4 and CAS-R2 are not supported on the T1 interface.

© 2006 VegaStream Ltd.

- check that the Line Encoding is configured as required
  - AUTO – selects B8ZS
  - B8ZS = Bipolar with 8 zero substitution (forces line reversals regularly)
  - AMI = Alternate Mark Inversion

Note: HDB3 is not supported on the T1 interface.

- select the Framing Method as required:

  - 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

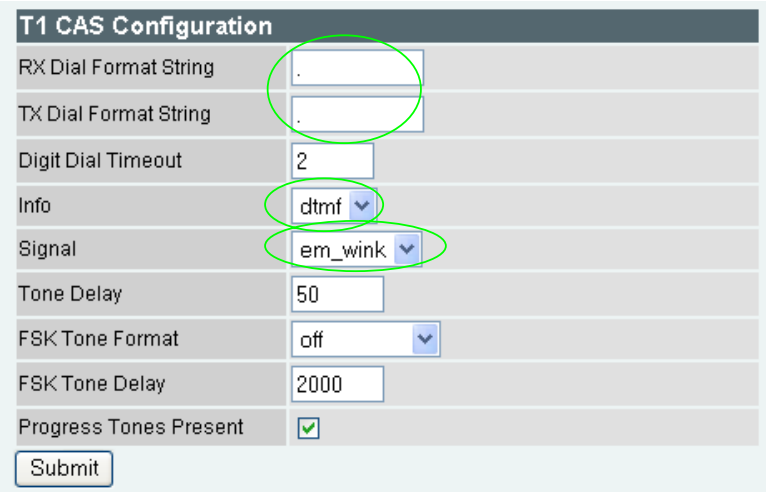
- ensure Layer 1 = auto or `g711Ulaw64k`

- 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, … on successive TE DSLs*

If you selected CAS-RBS as the signalling type, also configure the T1 CAS parameters.

- Scroll down to the **T1 CAS Configuration** section



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

© 2006 VegaStream Ltd.

In the **T1 CAS Configuration** section:

- 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)

- set up 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.*

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

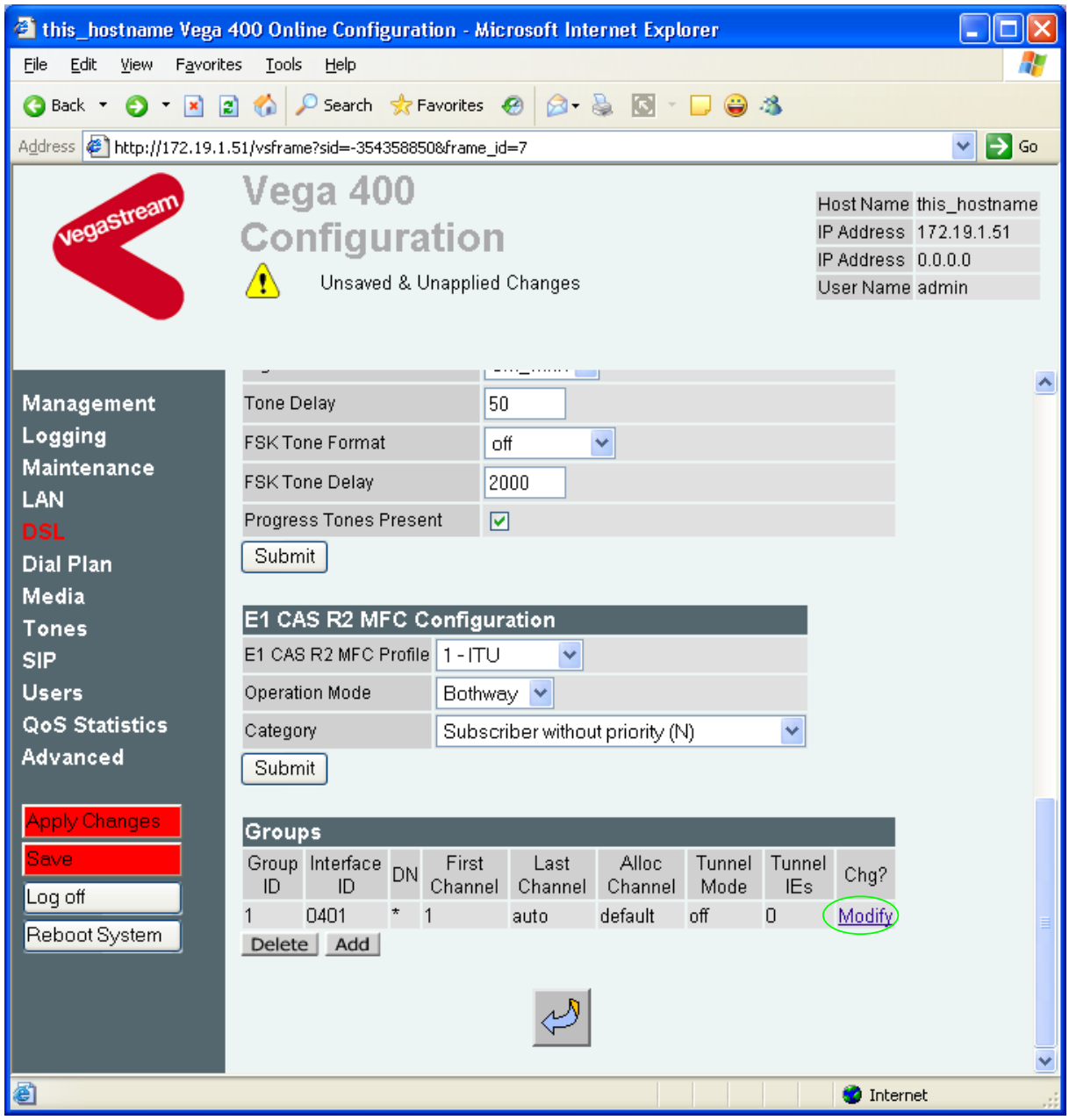
- select

and then click "here" to return

For all T1 signalling types, continue here:

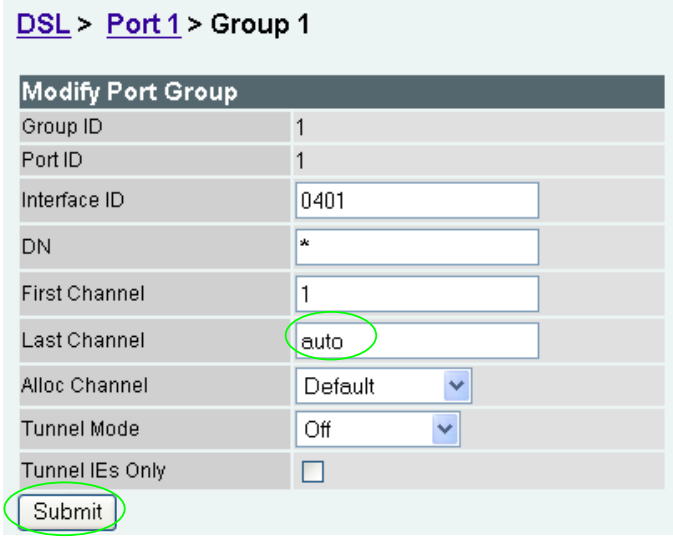
- Scroll down to the bottom of the page, to the **Groups** section

© 2006 VegaStream Ltd.



© 2006 VegaStream Ltd.

- Select Modify



In the **Modify Port Group** section

- check that Last Channel is correctly configured
  - for a full capacity PRI T1 interface it should be auto or 23
  - for a full capacity T1 (CAS) interface it should be auto or 24
  - for a fractional T1, it should be the number of channels supported on this interface

If changes are made

- select Submit and then click "here" to return

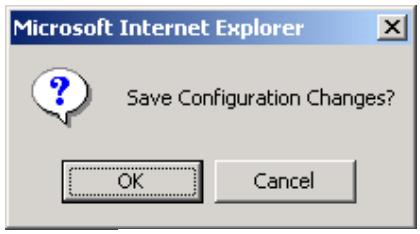
- Repeat for the other Ports (PORT IDs 2, 3, 4).

© 2006 VegaStream Ltd.

11. Save Changes

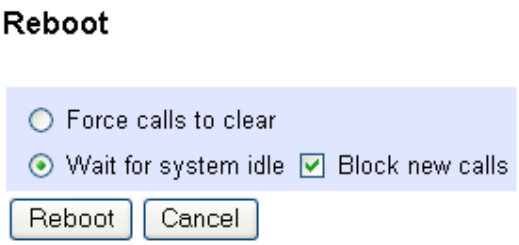
The changes to the configuration must be saved and activated. This is carried out as follows:

➢On the left hand side menu select Save



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

➢On the left hand side menu select Reboot System



➢ select Reboot

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

© 2006 VegaStream Ltd.

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:

- 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`")

© 2006 VegaStream Ltd.

13. Technical Support

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

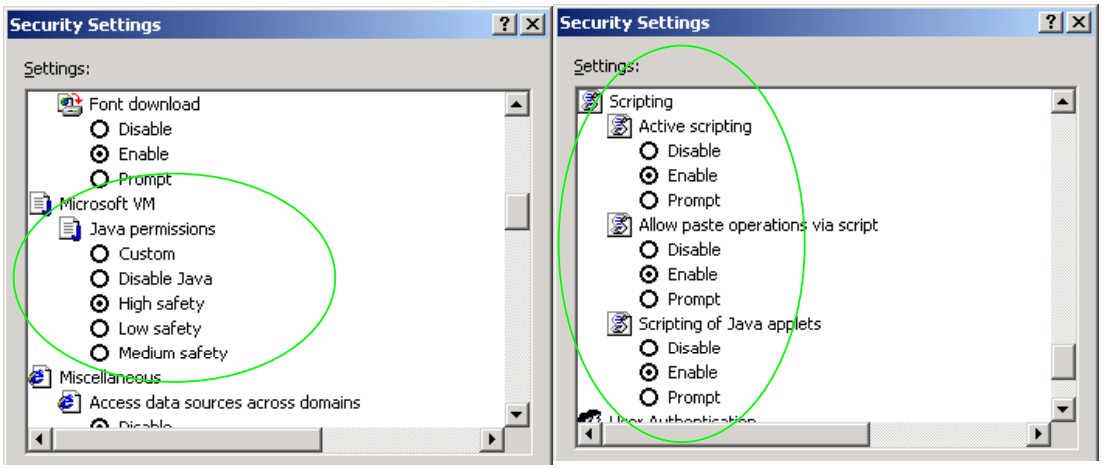
If you require help from VegaStream support personnel, please use the serial interface or telnet into the unit, log in and then type:

- `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”.

© 2006 VegaStream Ltd.

14. Advanced configuration

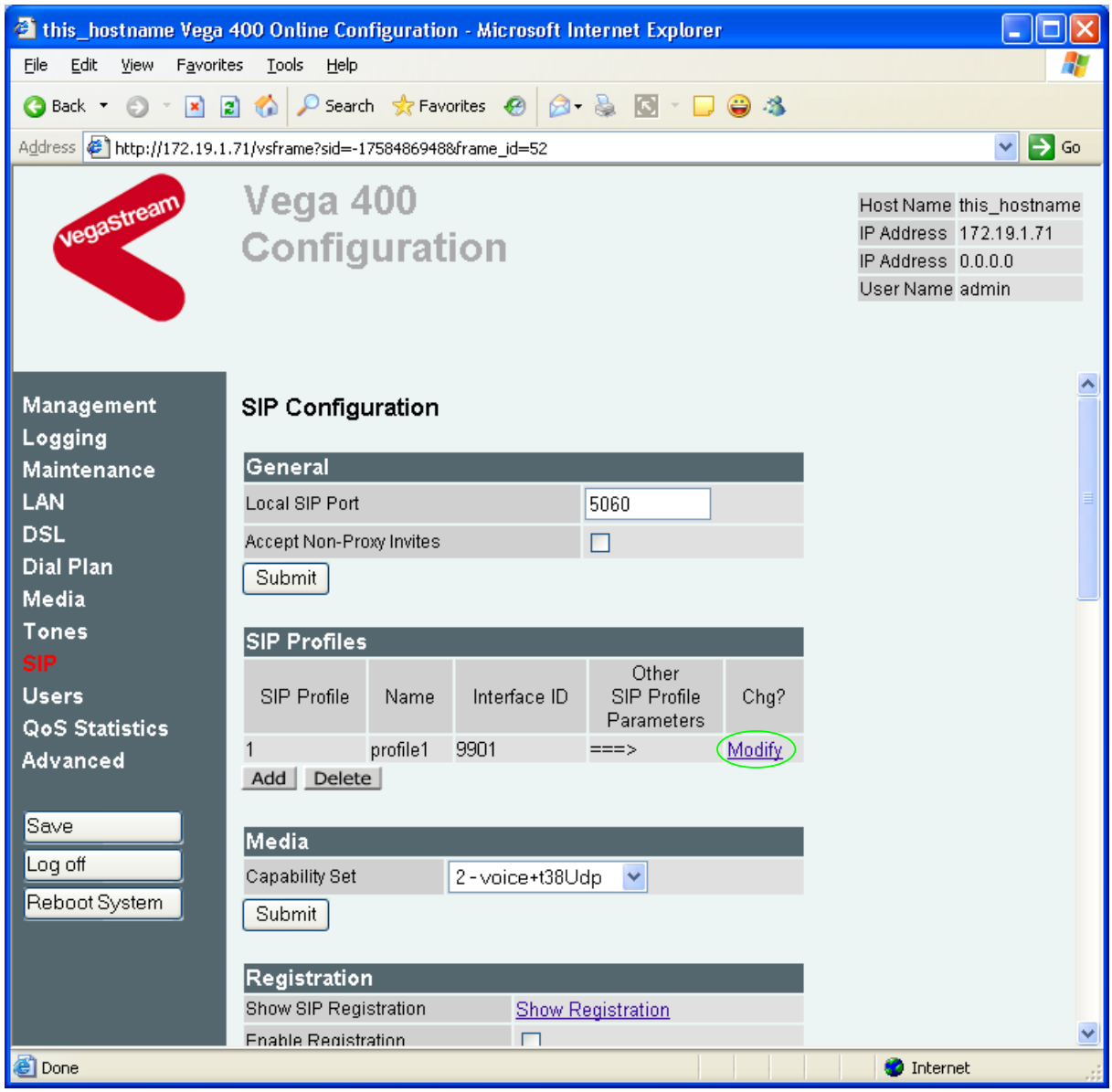
Vega 400 units have further configurable parameters that may be desirable to configure in order to fully integrate into the attached infrastructure.

14.1 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"

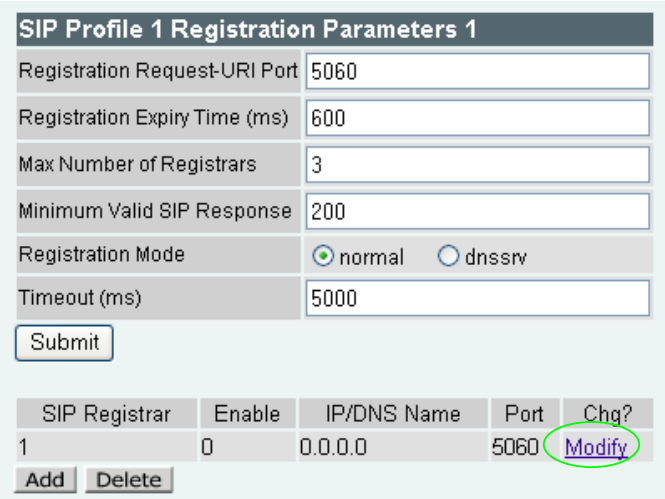
- On the left hand side menu select SIP



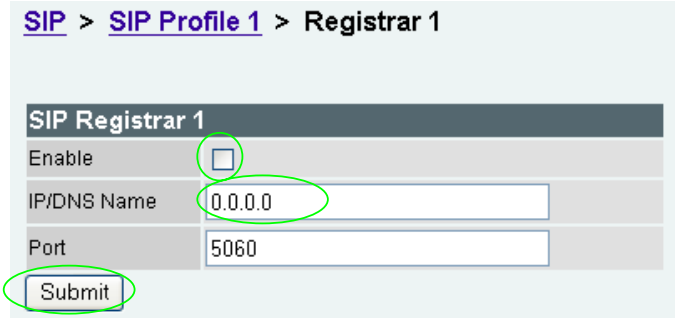
© 2006 VegaStream Ltd.

- In the **SIP Profiles** section
- Select Modify

- Scroll down to the bottom to the **SIP Profile 1 Registration Parameters 1** section



- Select Modify

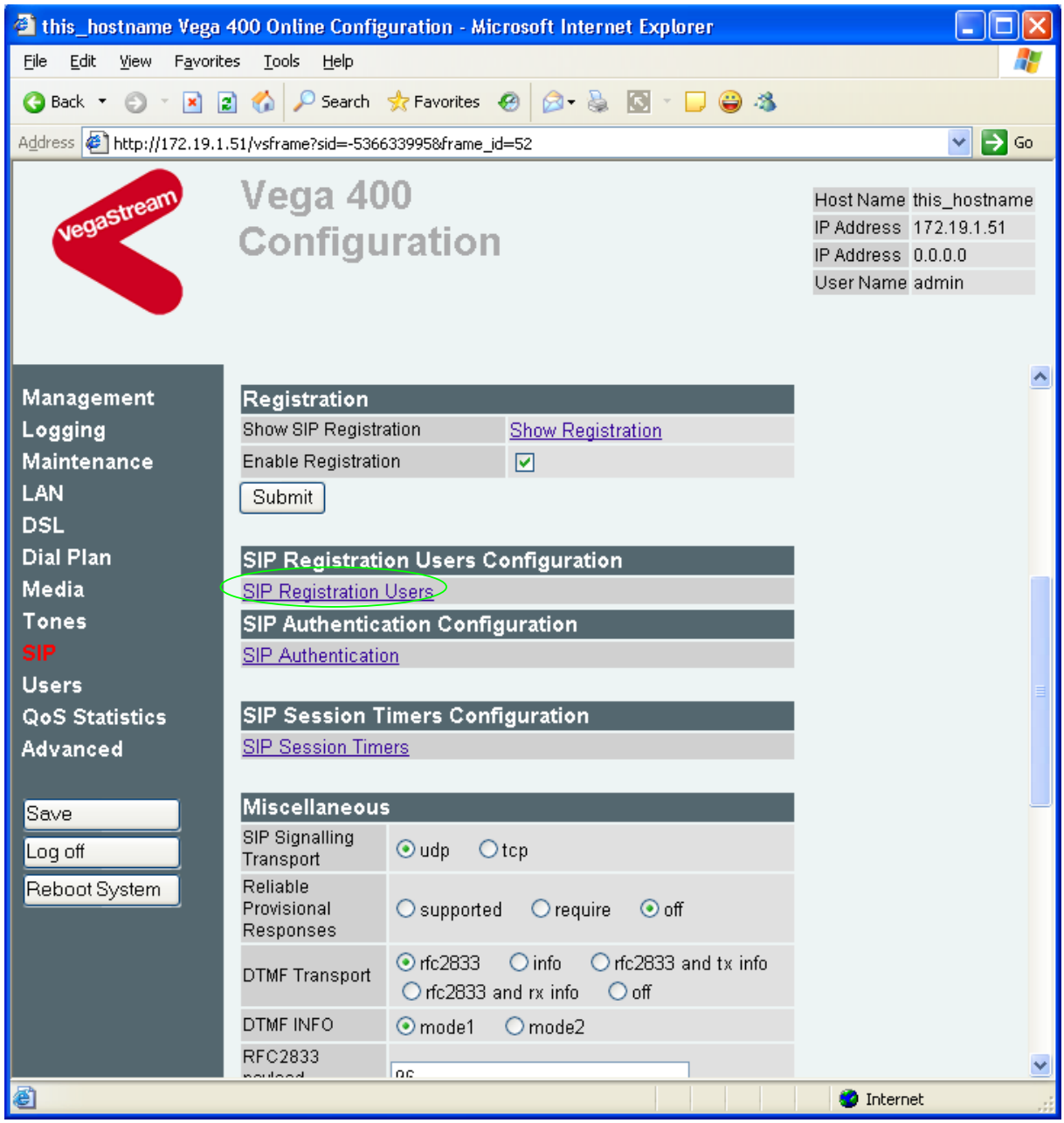


- Tick Enable
- Set IP/DNS Name = `IP_or_DNS_name_of_SIP_registrar_or_machine proxying_for_the_registrar`

- select Submit and then click "here" to return

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

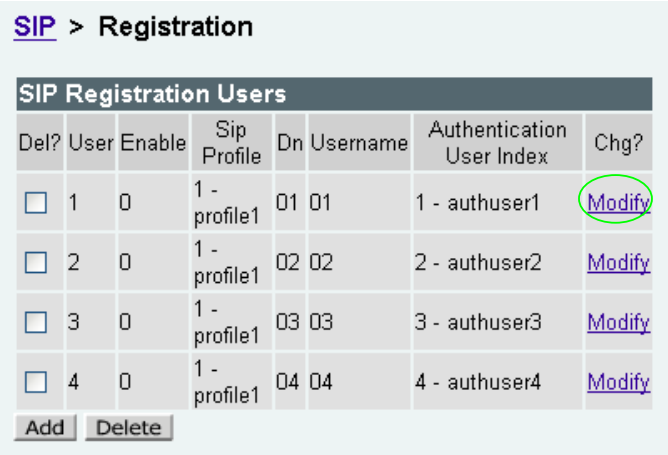
© 2006 VegaStream Ltd.



In the **SIP Registration Users Configuration** section

- Select SIP Registration Users

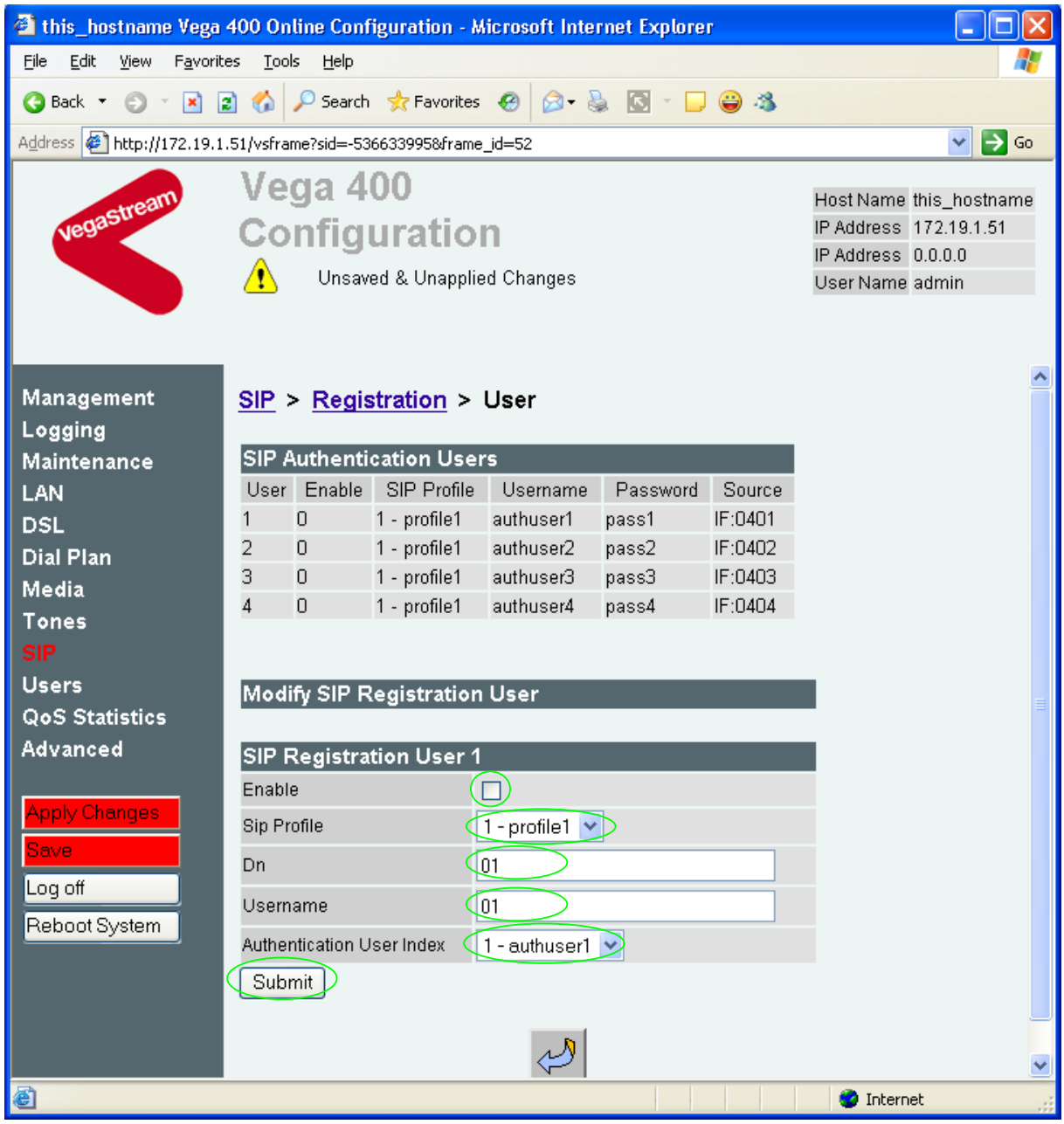
© 2006 VegaStream Ltd.



For User 1

- Select Modify

© 2006 VegaStream Ltd.



In the **Modify SIP Registration User** section, under **SIP Registration User 1**

- Tick `Enable`
- Ensure that the correct Sip Profile is selected
- Set `Username = Vega400Gateway123`

To set up the 'contact' information in the SIP Registration message

- Set Dn = required value

If Authentication will be needed for REGISTRATION

- Set Authentication User Index = Required Authentication User
- Select Submit and then click "here" to return

© 2006 VegaStream Ltd.

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:

Enter

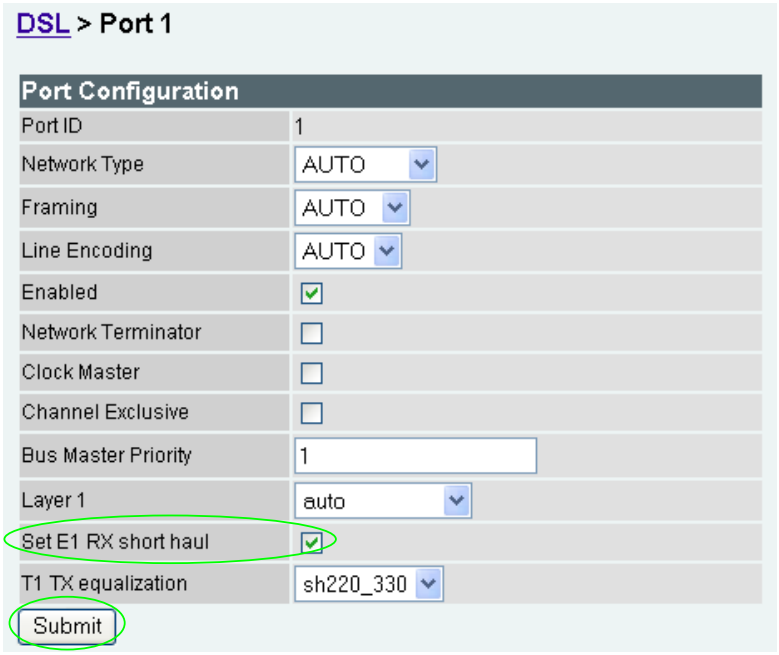
- set _advanced.sip.invite.registered=1
- Select and then close the CLI command window
- Save and reboot to activate

14.2 Line impedance matching

14.2.1 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:



© 2006 VegaStream Ltd.

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.

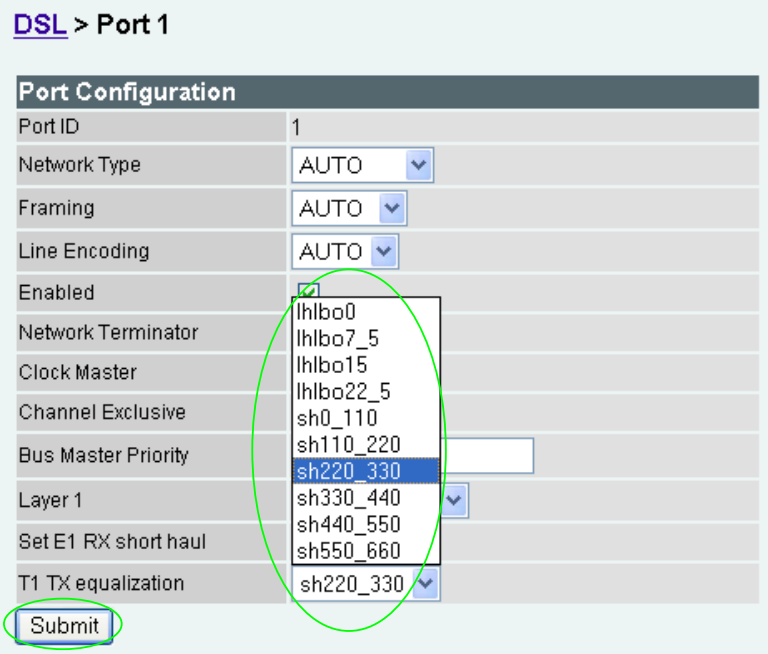
Long haul (short haul unticked) should be selected when the cable between the Vega and the closest repeater or other ISDN endpoint introduces more that 6dB attenuation.

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

14.2.2 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:



T1 TX equalization can take the following values:

`lhlbo0`	(long haul line break out 0 dB)	
`lhlbo7_5`	(long haul line break out -7.5 dB)	
`lhlbo15`	(long haul line break out -15 dB)	
`lhlbo22_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.)	

© 2006 VegaStream Ltd.

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 **`lhlbo0`** and for short haul try **`sh220_330`**.

14.3 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.*

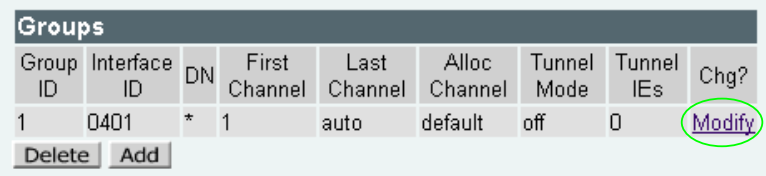
iii) *Round_robin* – in this mode the Vega remembers the last allocated channel and then tries to use the next channel up from this for the next outbound call. (After reaching the highest channel ID it restarts at the lowest channel again.) … use this mode when the attached device is configured to make 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:

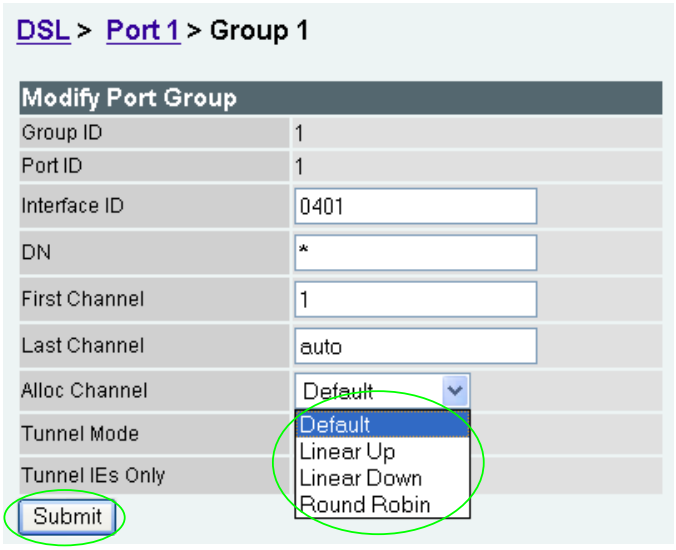
- On the left hand side menu select DSL
- Then select the PORT ID to alter, select Modify
- Scroll to the bottom of the page to the **Groups** section



In the **Groups** section:

- Select Modify

© 2006 VegaStream Ltd.



- 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

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).

14.4 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 disconnect tones.
2. Typically wait_for_connect and user_progress configuration parameters should either both set to 1 or both set to 0.

© 2006 VegaStream Ltd.

14.5 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`
- Save and reboot system to activate the change

Further details on Vega parameters and configuration may be found in the Vega Primer and other documents available on www.VegaAssist.com.

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

EMEA Office
VegaStream Limited
The Western Centre
Western Road
Bracknell
Berks RG12 1RW
UK

+44 (0) 1344 784900

USA Office
VegaStream Inc.
6200 Stoneridge Mall Road
3rd Floor
Pleasanton
California 94588
USA

+1 925 399 6428

© 2006 VegaStream Ltd.