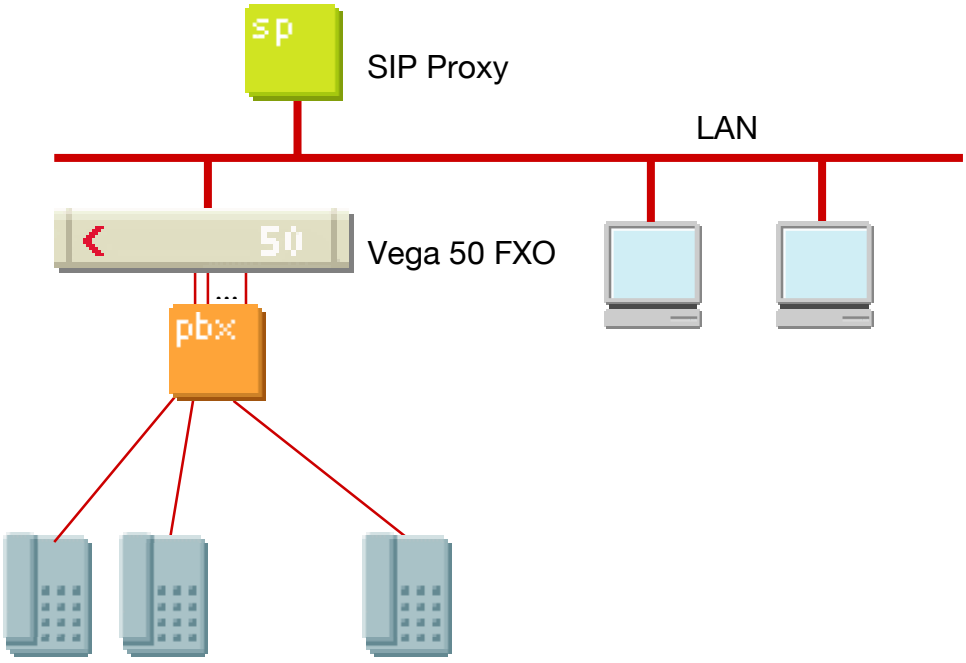
Initial configuration
Vega 50 FXO (SIP) – R5.1

This document describes how to configure a Vega 50 FXO 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 50 FXO (connected to 8 extension ports of a PBX or a CO Switch) to operate as follows:

- Calls presented to the Vega from the PBX or CO switch will be passed to the SIP proxy with the numeric telephone number part of the request URI containing the port ID on which the call was received (06 .. 13).
- Calls received by the Vega on the SIP interface will be routed to the telephony interface. The physical interface over which the call is routed will be defined by the leading two digits of the telephone number (06 .. 13). The digits following the leading two digits will be used as the digits to dial.



For use with Vega 50 FXO – SIP version 04.02.05.1 T019 or greater.
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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 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
14 Advanced configuration

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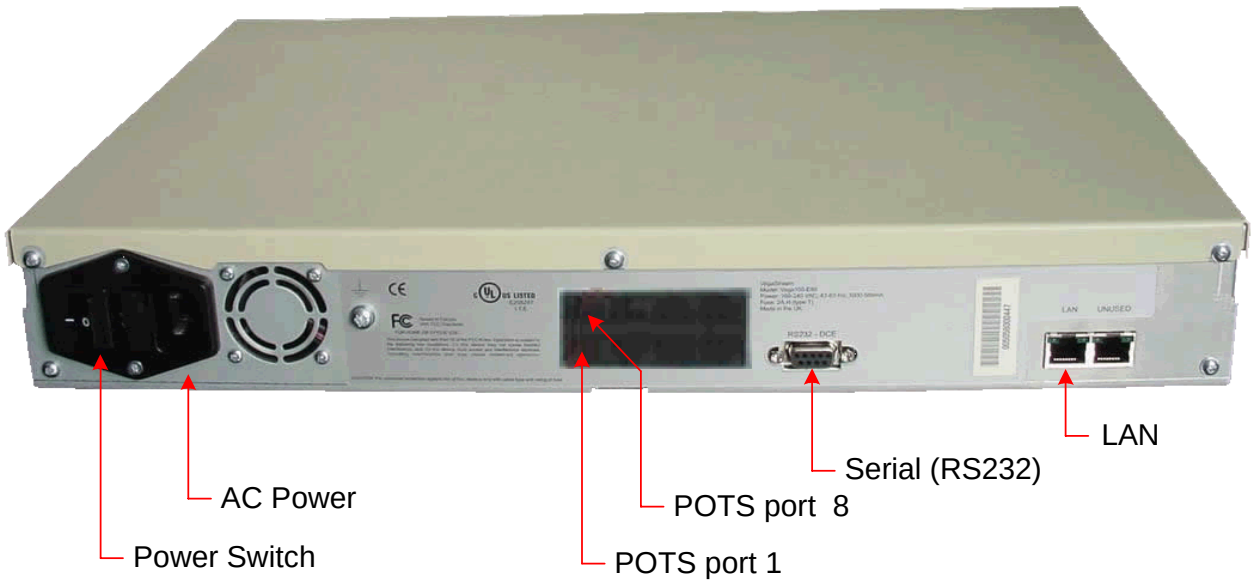
1. Connect your Vega to LAN, Telephone and Power



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 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 the PBX or CO switch to the 8 POTS ports. Note the port numbers (interface Ids) increase in an anticlockwise direction from the bottom left corner. Interface IDs are as follows:

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.

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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 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`

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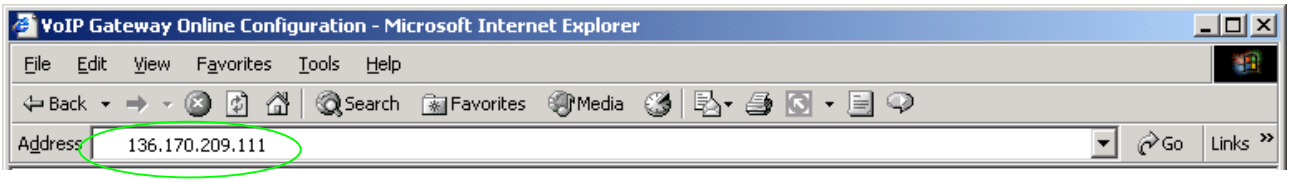
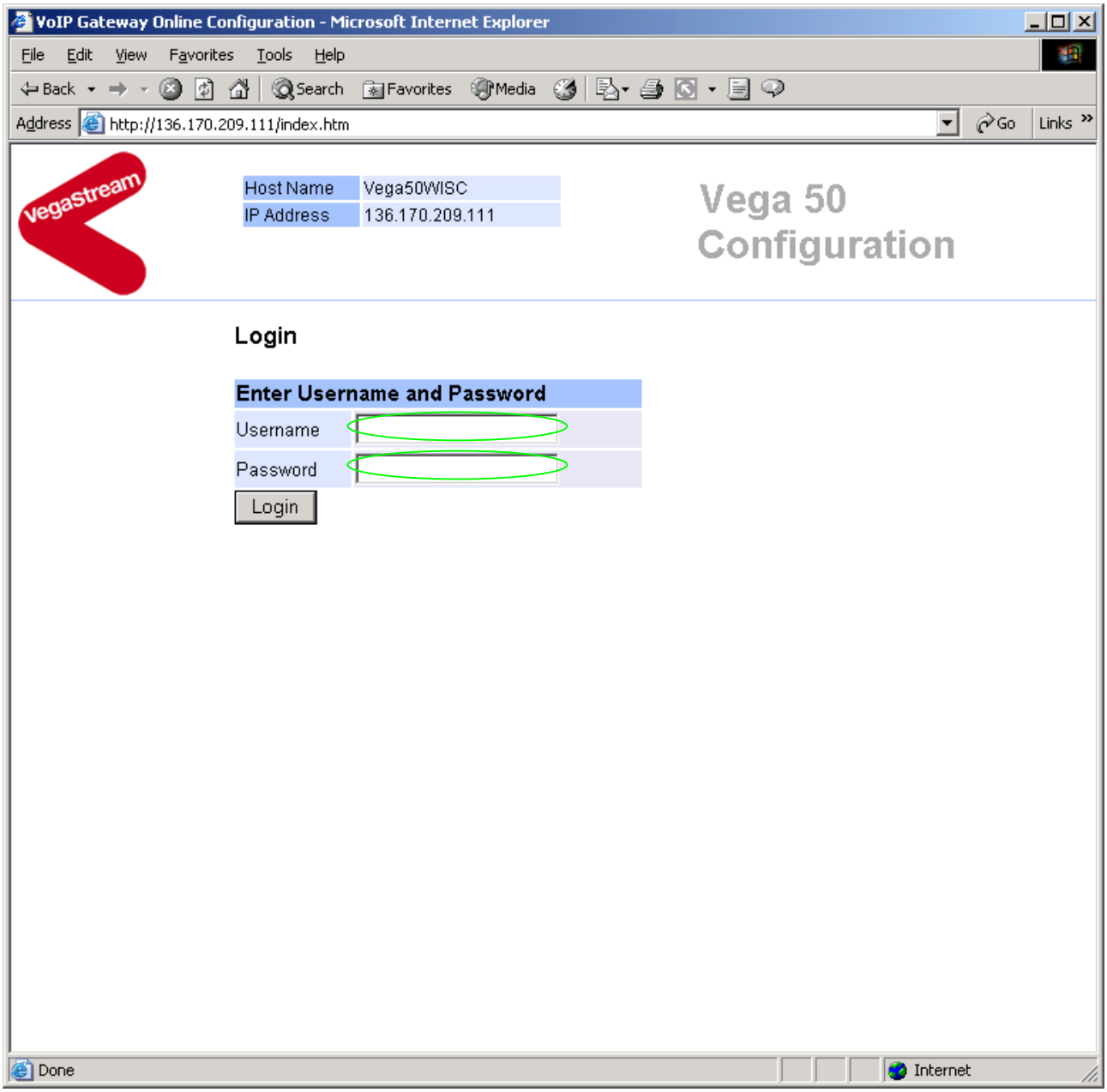
3. Configure password and login timeout

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:



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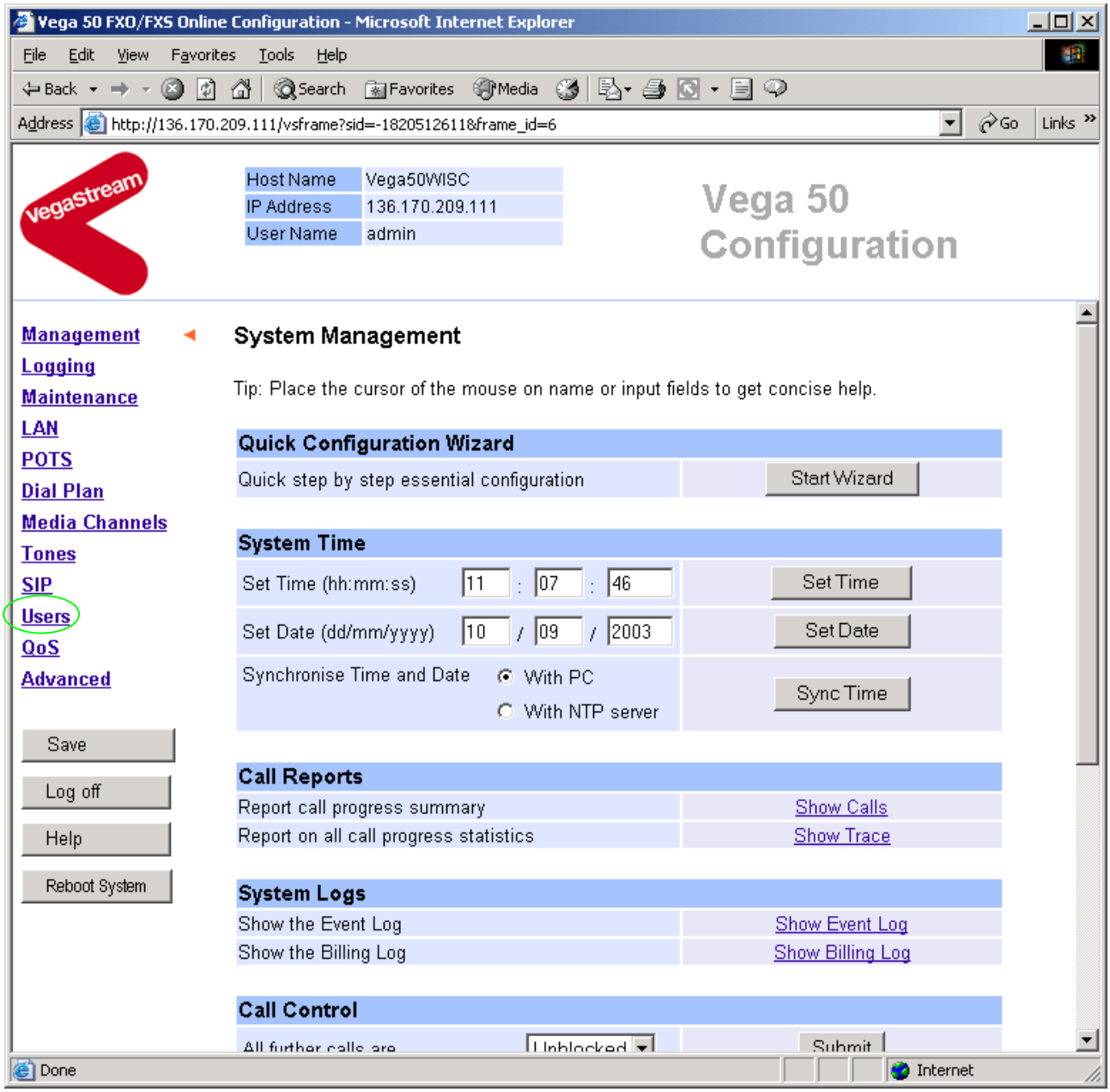
Enter the default Username and Password

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



➢On the left hand side menu select Users

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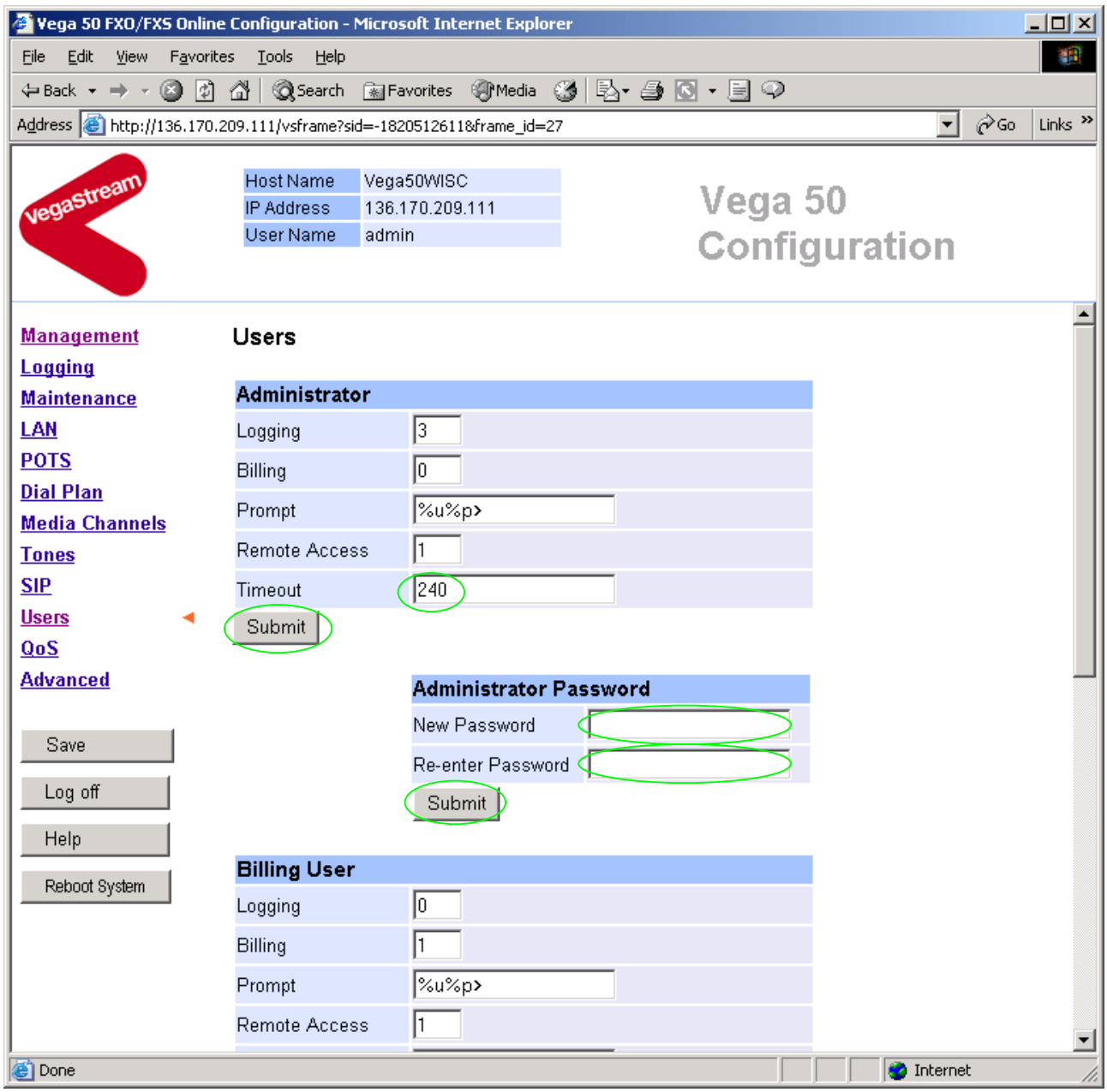

Recommended: Change the password

- 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 browser session.

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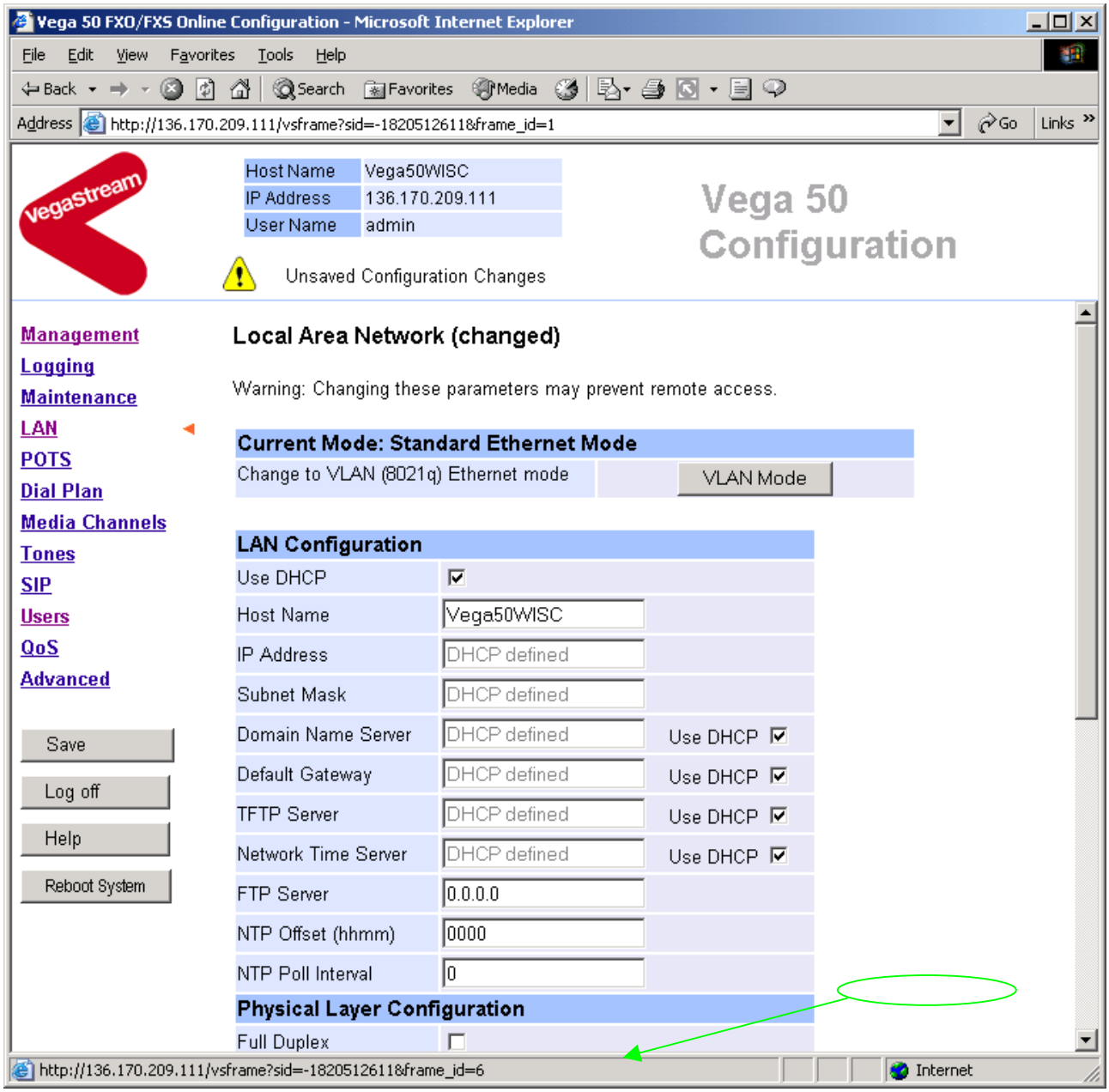
4. Check and configure LAN settings and Host name

- 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 (e.g. NTP server or tftp server) set them up now, then

- Select Submit and then click "here" to return

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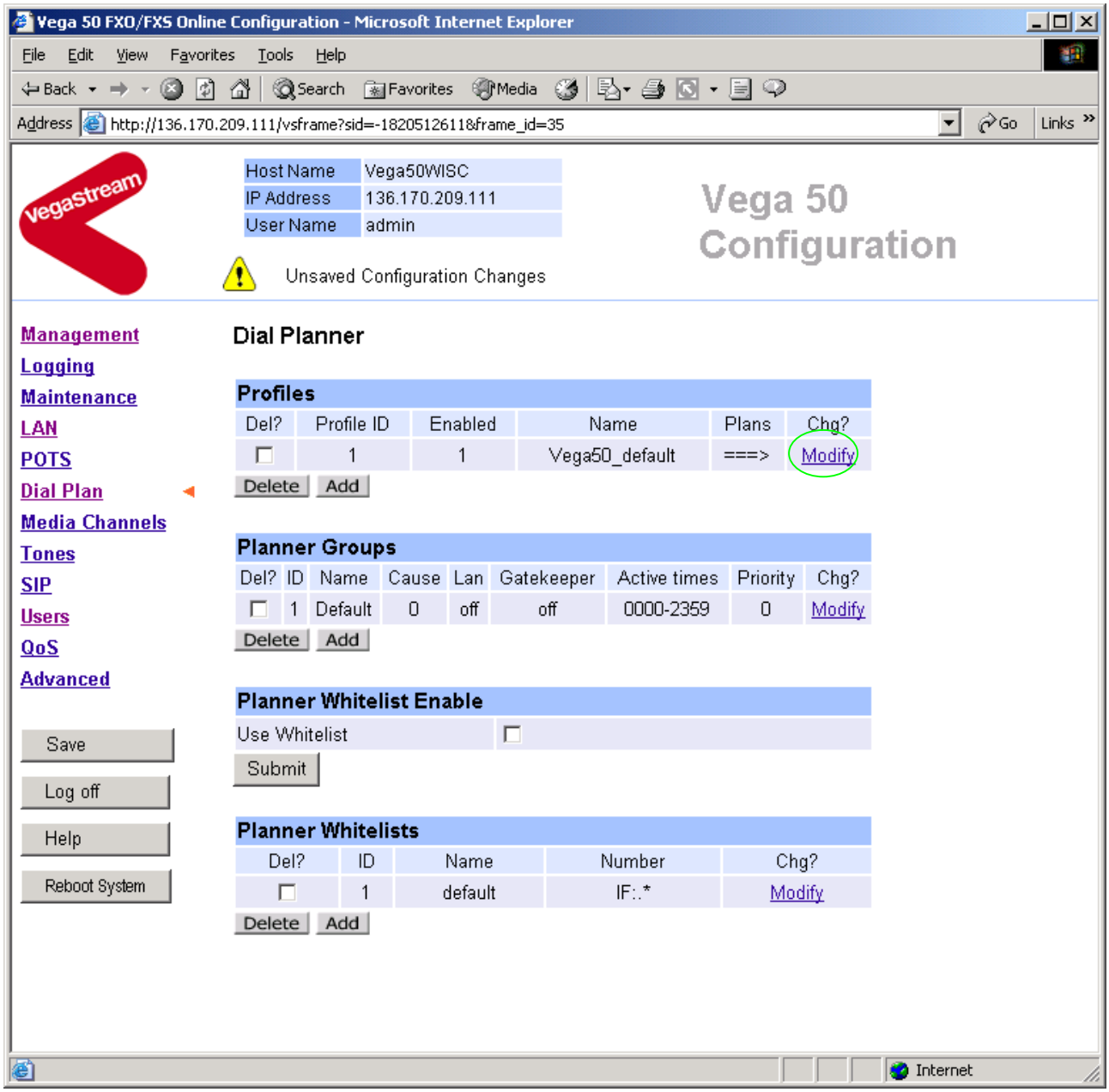
5. Configure the Dial Plan

- On the left hand side menu select Dial Plan



Firstly, turn off the default profile:

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

- Select Modify

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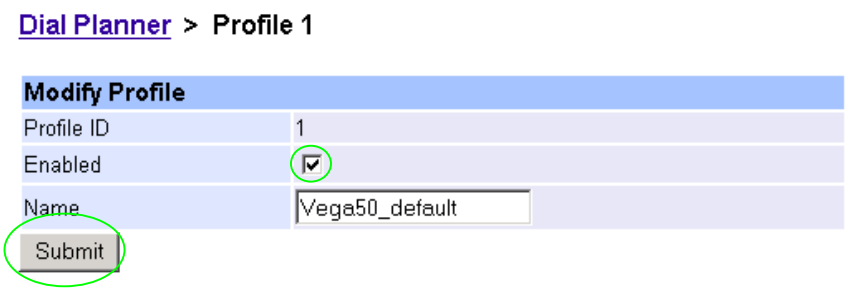
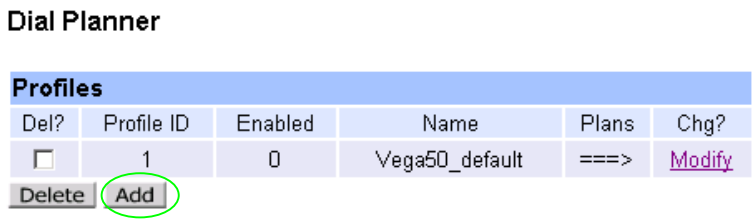


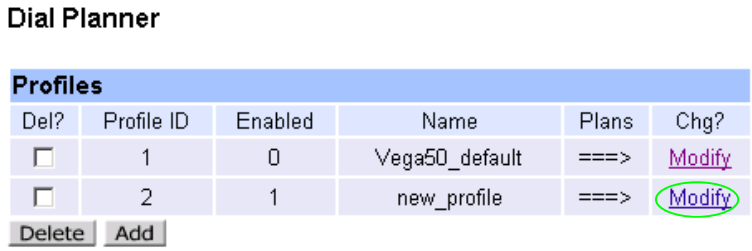
- disable (un-tick) Enabled, then
- select Submit and then click "here" to return

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



In the **Profiles** section

- Select Add



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

- Select Modify

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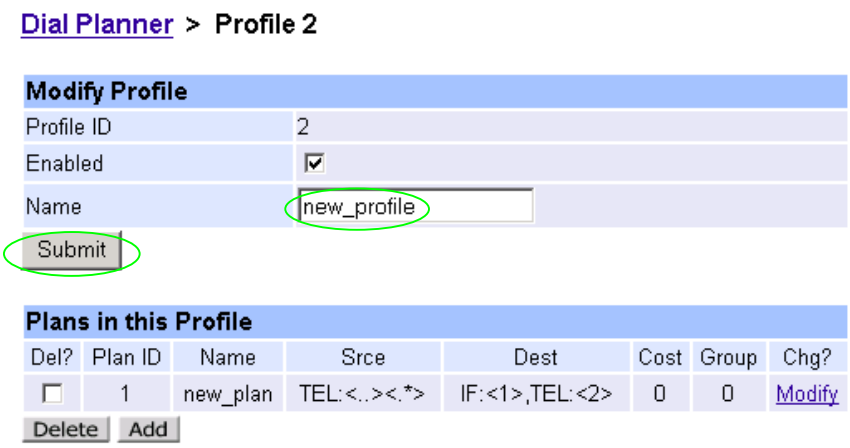
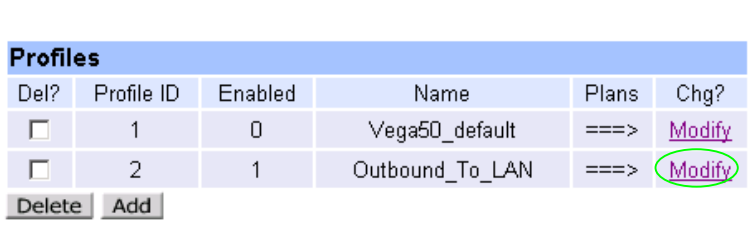
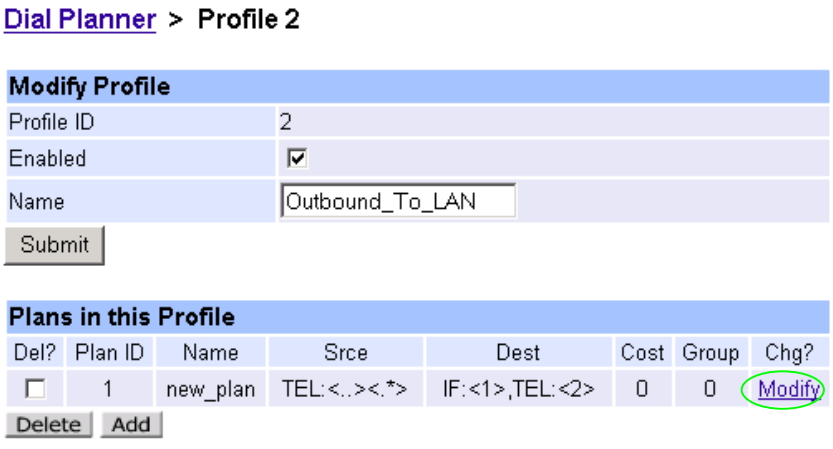


- Set Name = `Outbound_To_LAN`
- select Submit and then click "here" to return



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

- Select Modify



In Plan 1 of Profile 2:

- Select Modify

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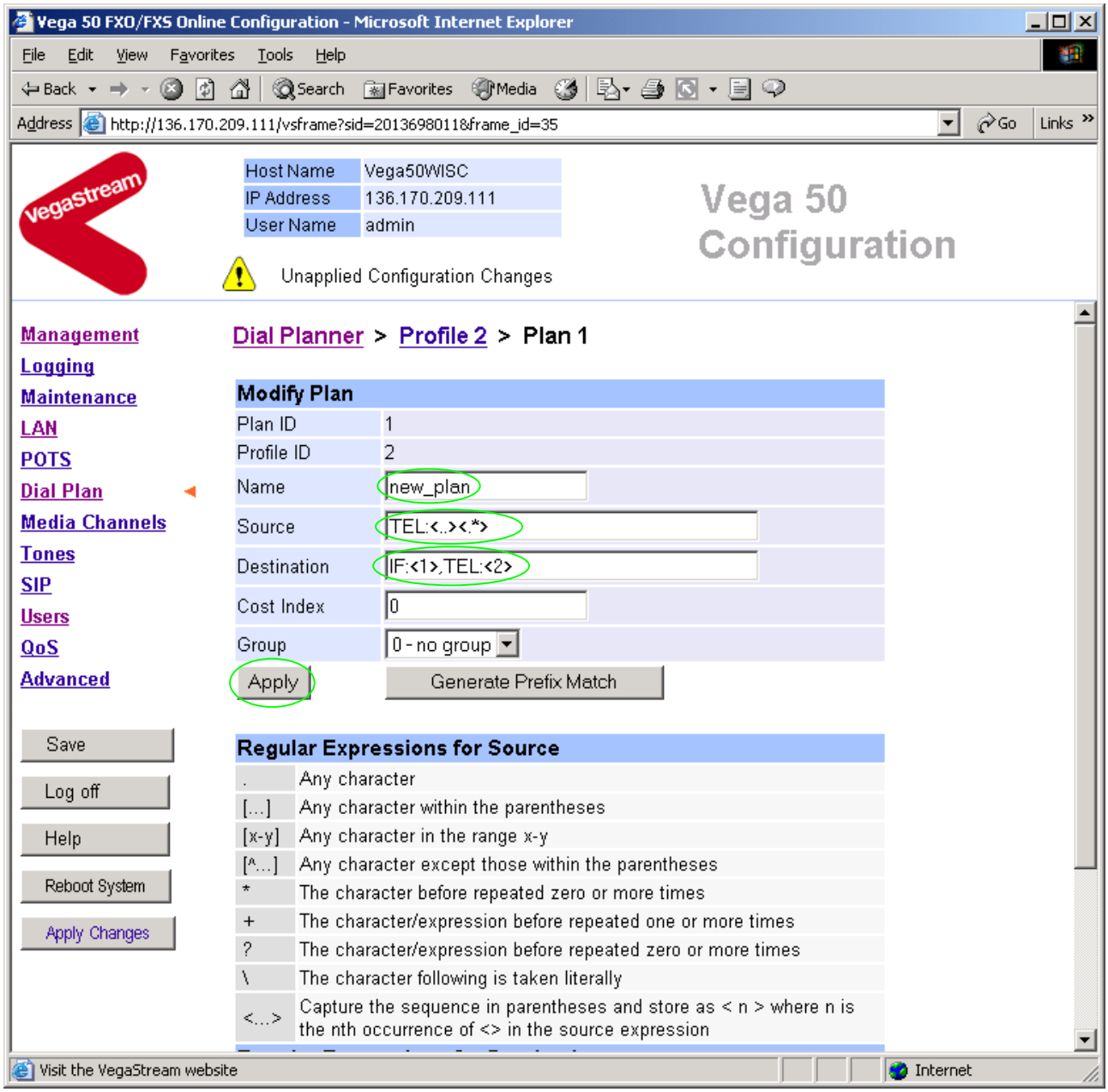

- Set Name = `To_LAN`
- Set Source = `IF:<[^9].>` *(This takes a call from any of the 8 telephony ports and stores the interface ID on which the call arrived in store <1>)*
- Set Destination = `IF:99,TEL:<1>` *(This routes the call to IF:99 (the LAN) and passes the interface ID – stored in <1> – as the destination telephone number)*
- select Apply and then click "here" to return
- click to return to main dial planner page

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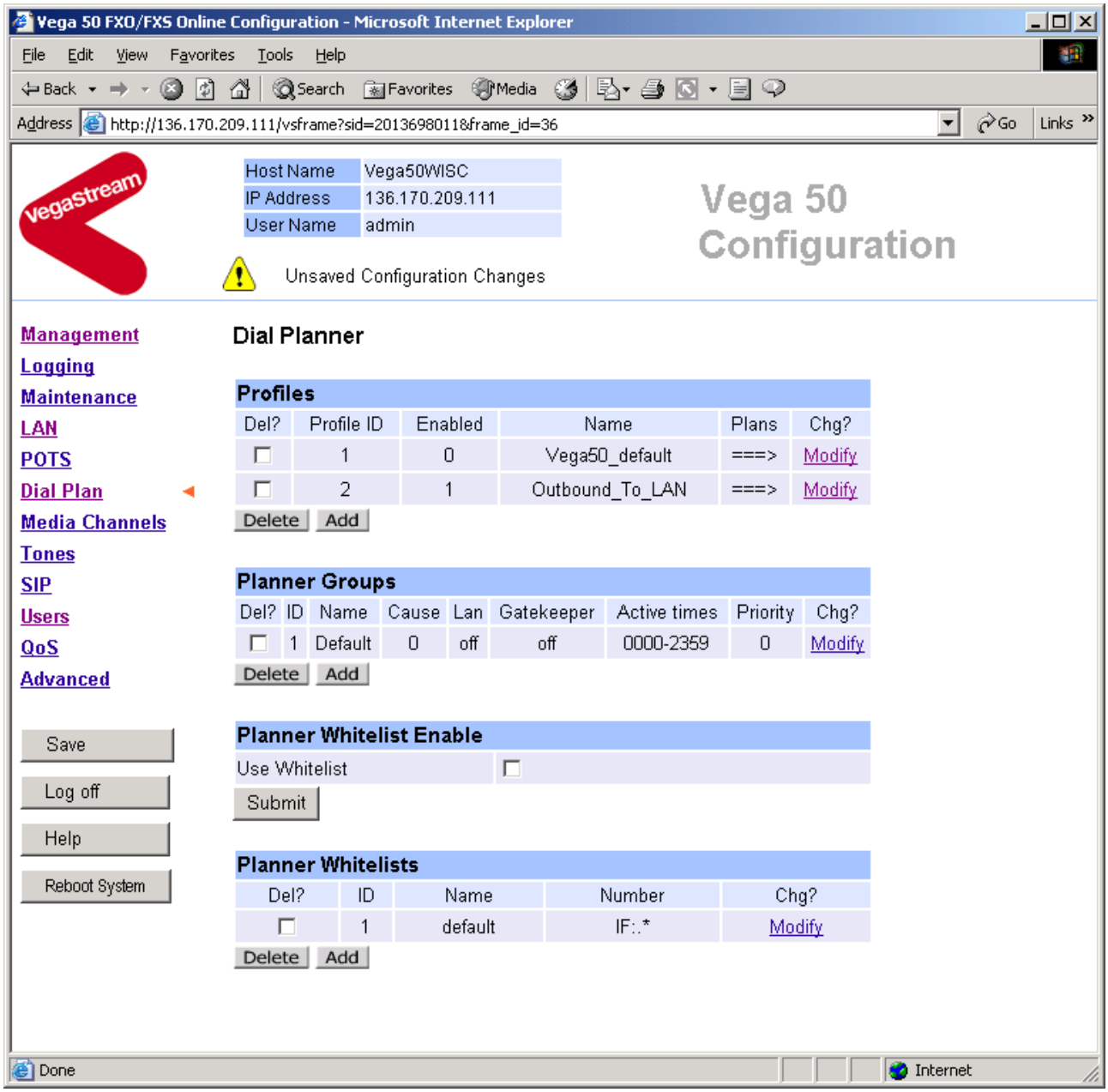

Now create a new profile and in it create a dial plan entry to handle calls being received inbound from the LAN:

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 = `From_LAN`
- Set Source = `IF:99,TEL:<..><.*>` *(This takes the two leading digits of the telephone number presented and stores them in <1>. The remainder of the dialled digits are then stored in <2>)*
- Set Destination = `IF:<1>,TEL:<2>` *(Use the 2 digits in store <1> as the interface ID to dial out from and the digits in <2> as the telephone number to dial)*

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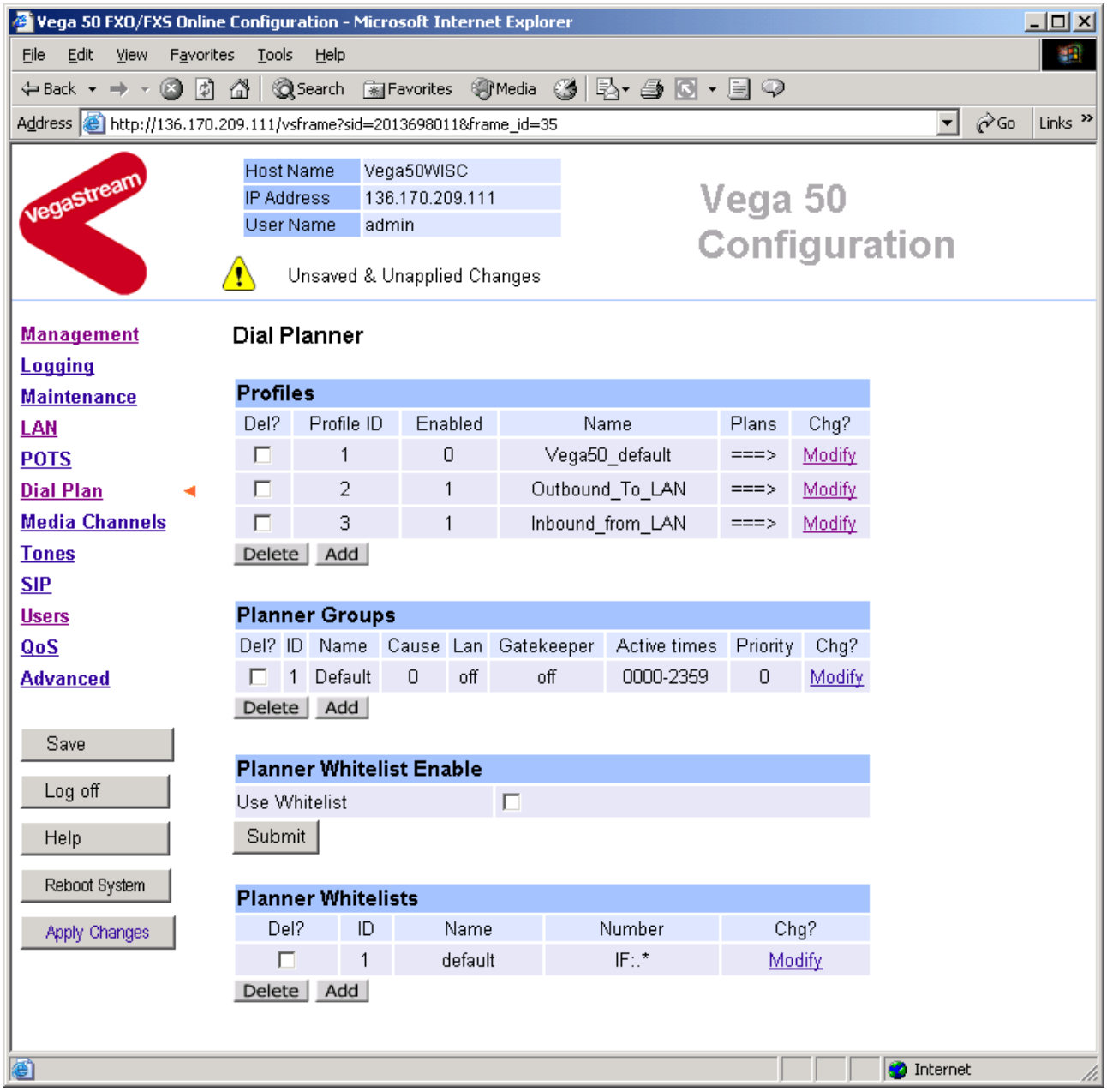
- select Apply and then click "here" to return
- select to return to main dial planner page



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:091344784900@172.20.11.2 SIP/2.0
```

The digits preceding the @ (the telephone number field) must contain a number in the format `iittt…t` *where* `ii` *is the interface ID to dial out from (06..13) and* `ttt…t` *is the telephone number to dial.*

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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.

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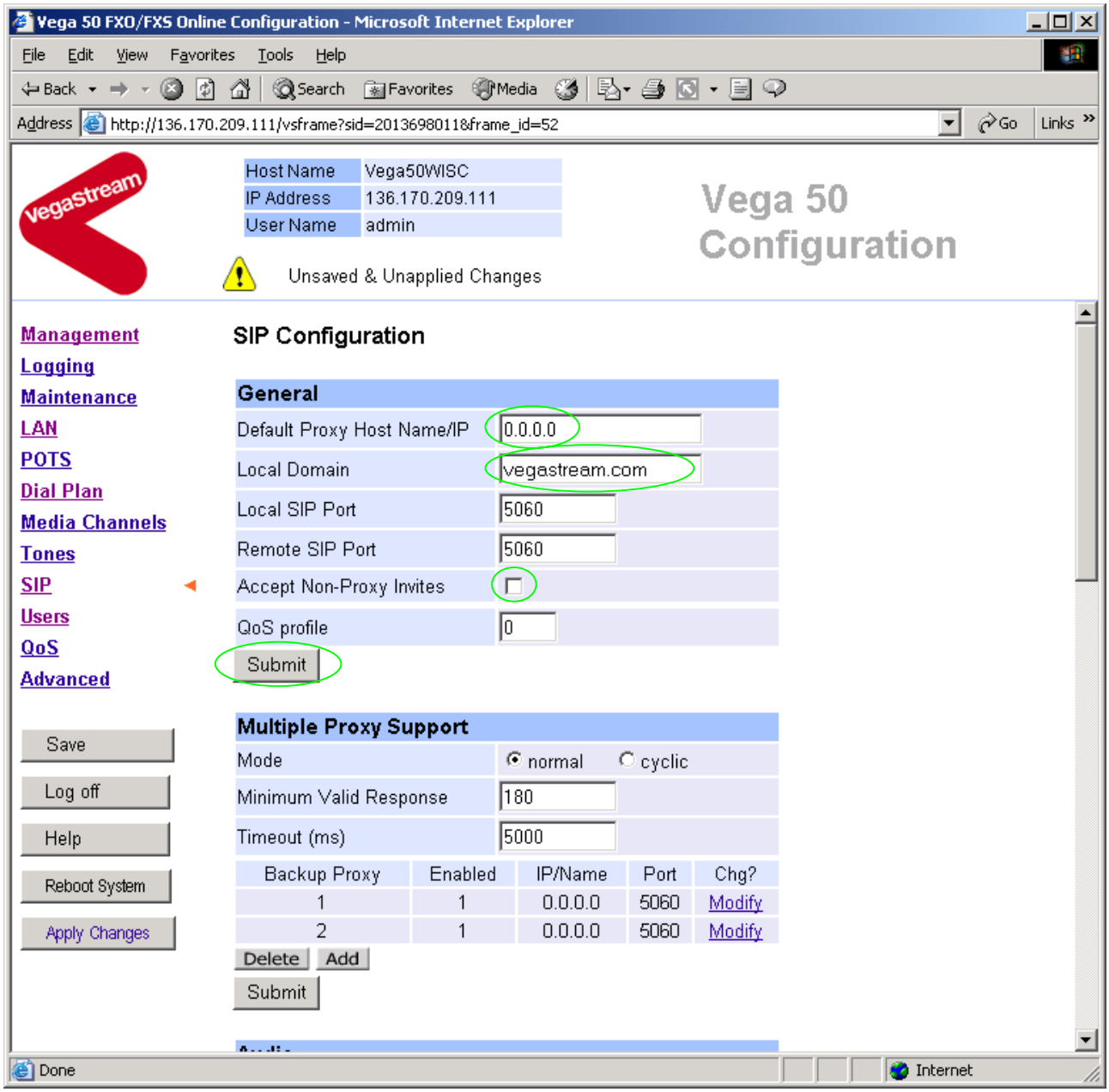
6. Configure SIP and audio parameters

➢ On the left hand side menu select SIP



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_devices_to_send_their_INVITEs_to`

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

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

➢tick Accept Non-Proxy Invites

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

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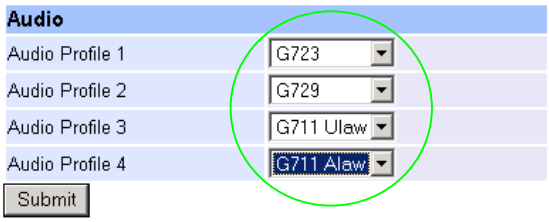
➢select Submit and then click “here” to return

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:



➢select Submit and then click “here” to return

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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 `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 SIP
- Scroll down to the bottom of the page

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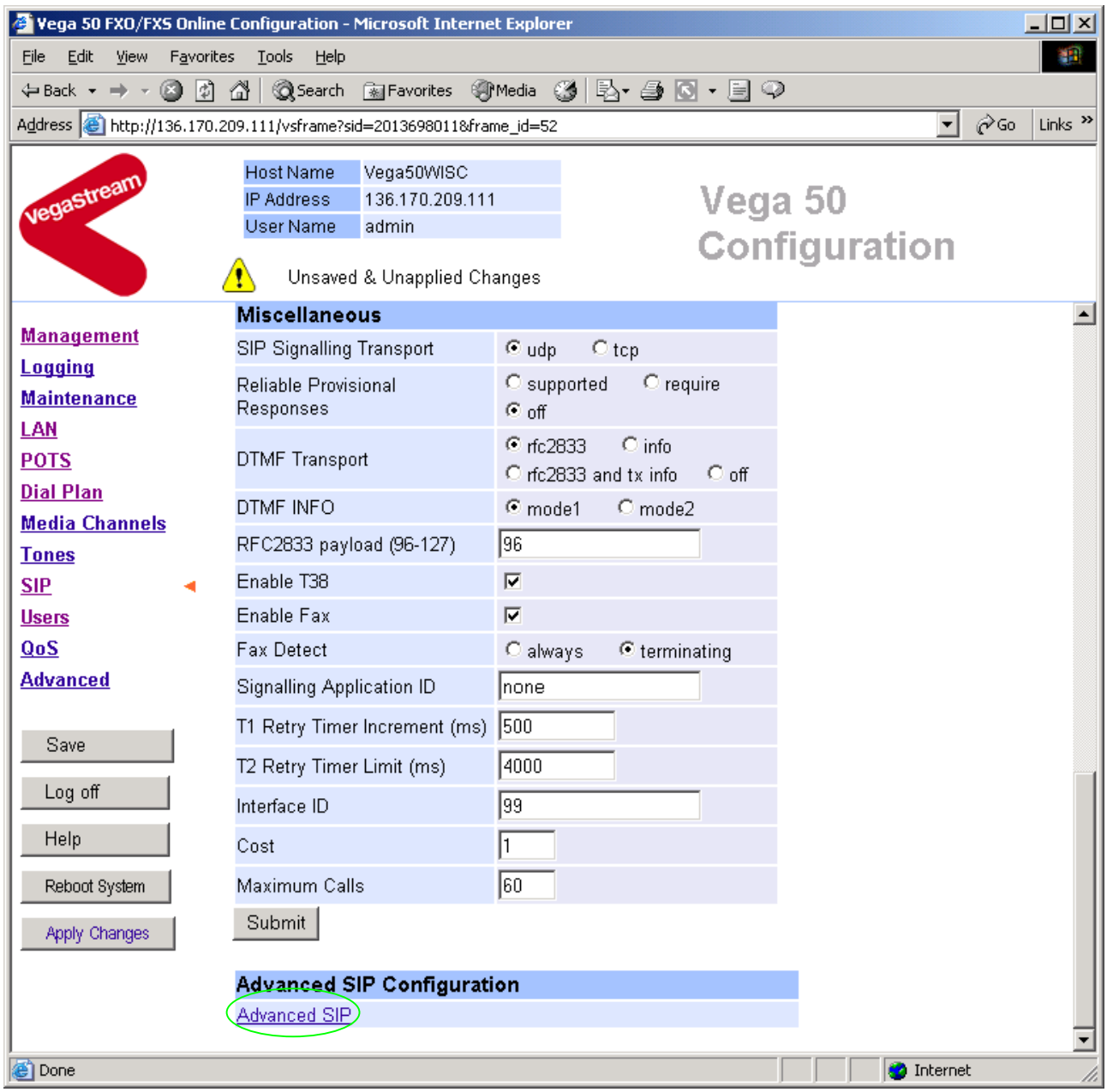

- Select Advanced SIP

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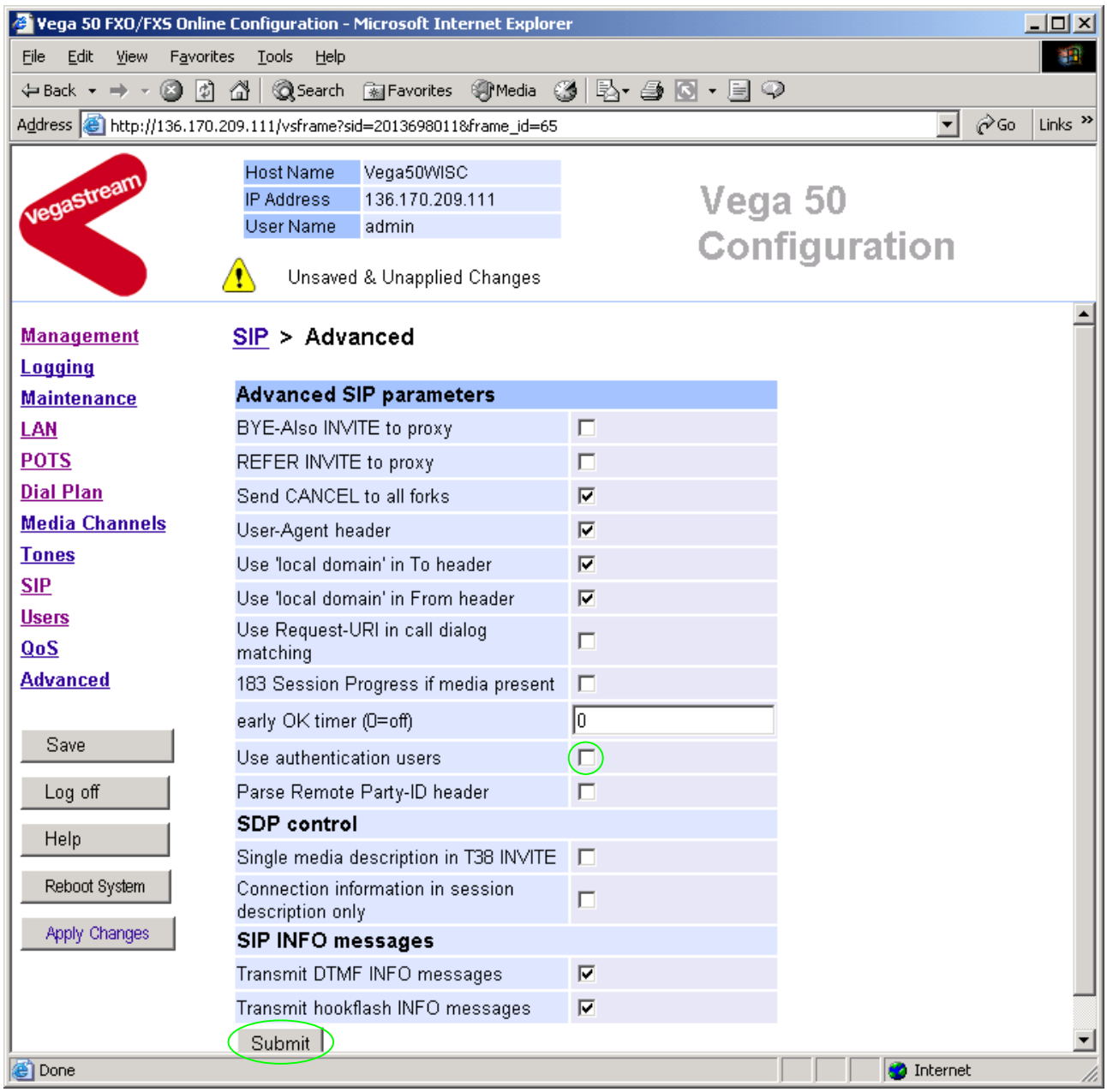

- Select (tick) Use authentication users, then
- select Submit and then click "here" to return
- On the left hand side menu select POTS

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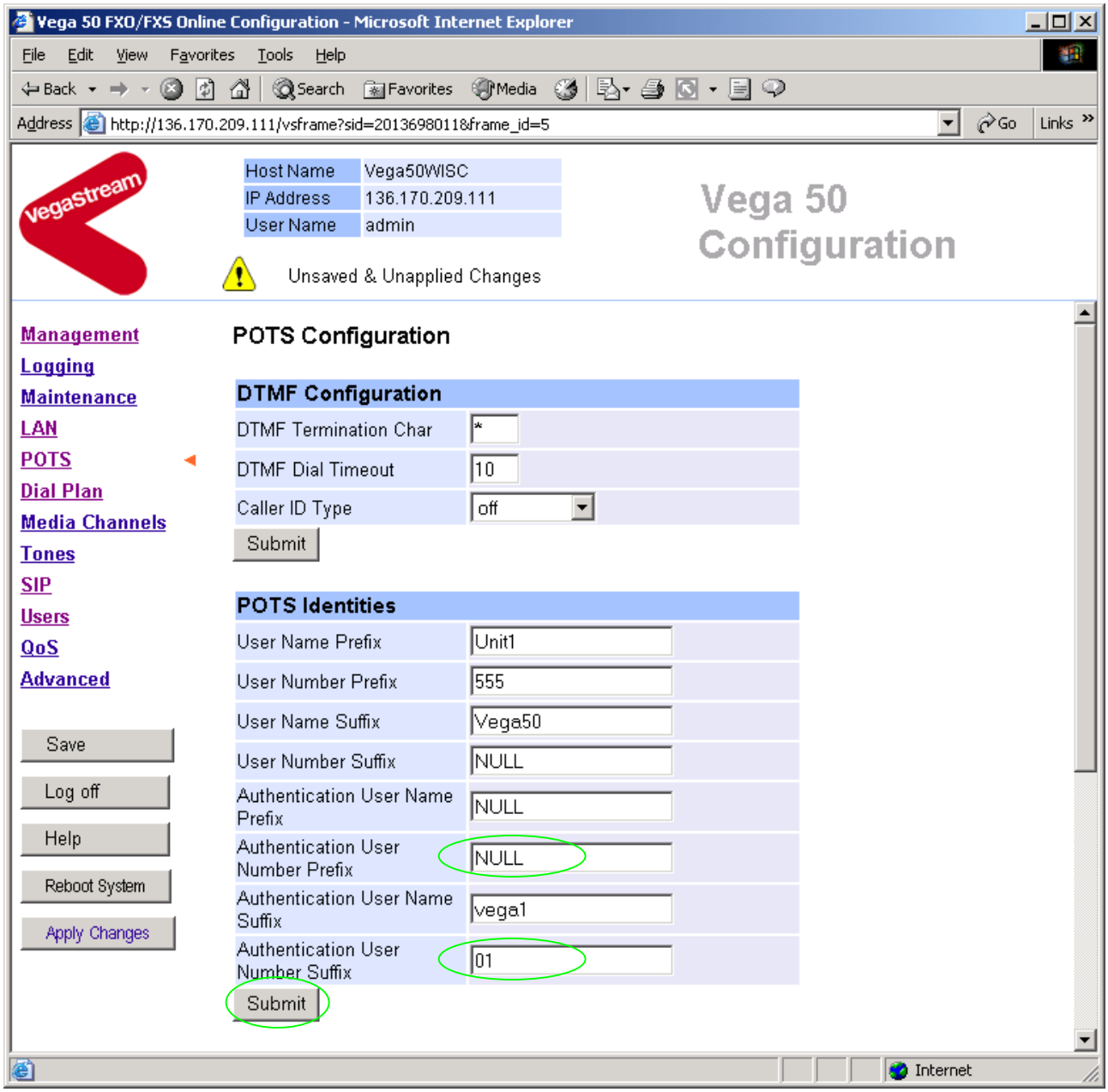

- **Configure the Authentication versions of**
  `User Number Prefix and User Number Suffix`

- 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

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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

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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

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8. Configure Registration

Typically trunking gateways (like the Vega 50 FXO) do not need to register with a SIP proxy. SIP registration was designed for end users to register themselves with the current local 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 50 FXO

- the interface ID on which the call arrived will be in the request URI
- where supported and enabled the caller ID will be provided in the SIP From: or RPID: header

For SIP to telephony calls the Proxy must send the call to the Vega 50 FXO with a request URI of the format `iittt…t@contact_address`

- where `ii` is the interface number through which to make the call (Vega interface 06 to 13), 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 Registration.

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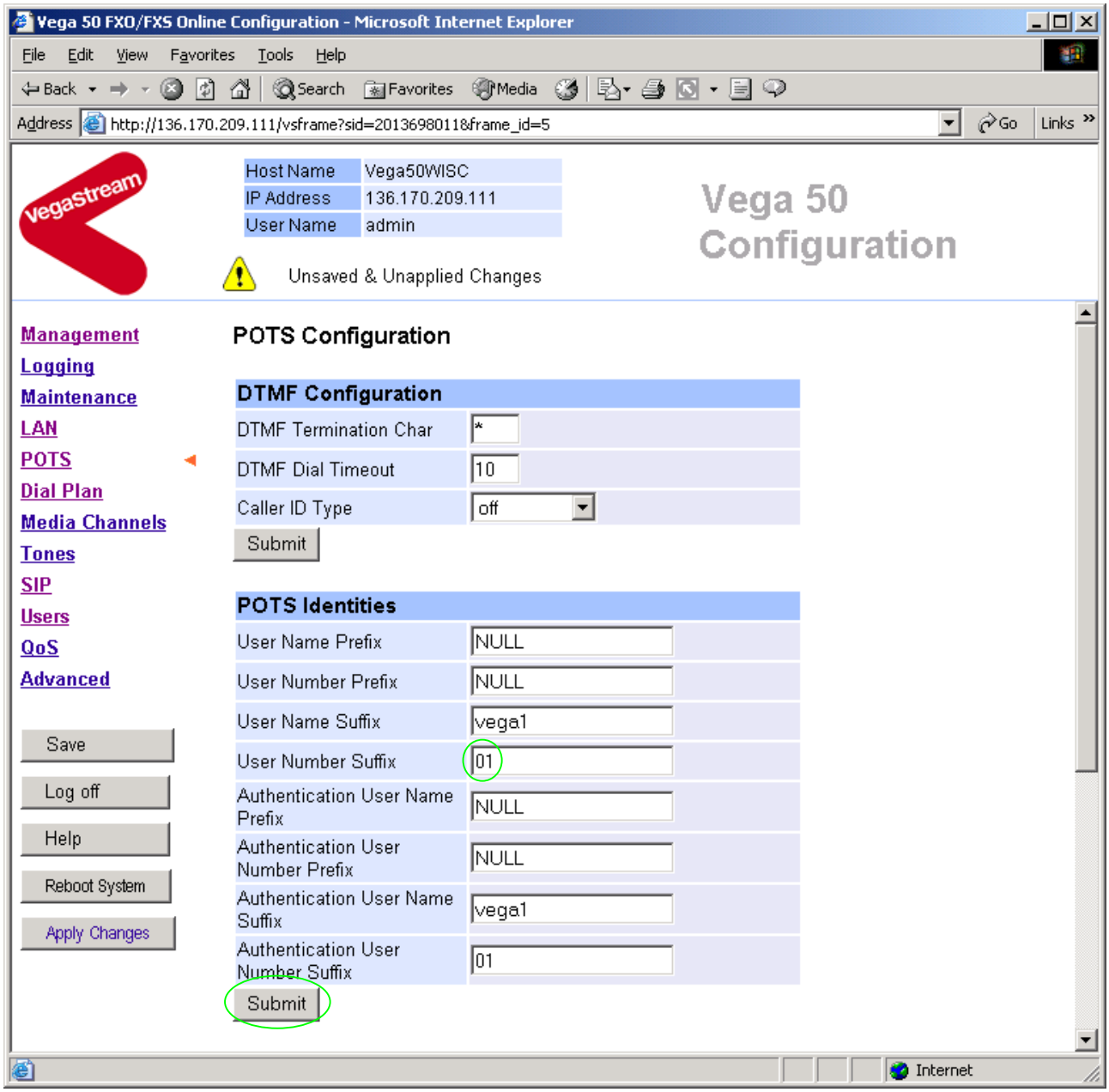
9. Configure POTS parameters

- On the left hand side menu select POTS



Unless already modified for Registration and authentication, in the **POTS Identities** section:

- Set User Number Suffix = `NULL`
  Note capitalisation is important – this will remove the numeric suffix 01 from the SIP message From: field, leaving the numeric part of the From: to be defined on a per port basis – see later.
- select Submit and then click "here" to return
- Scroll to the bottom of the page

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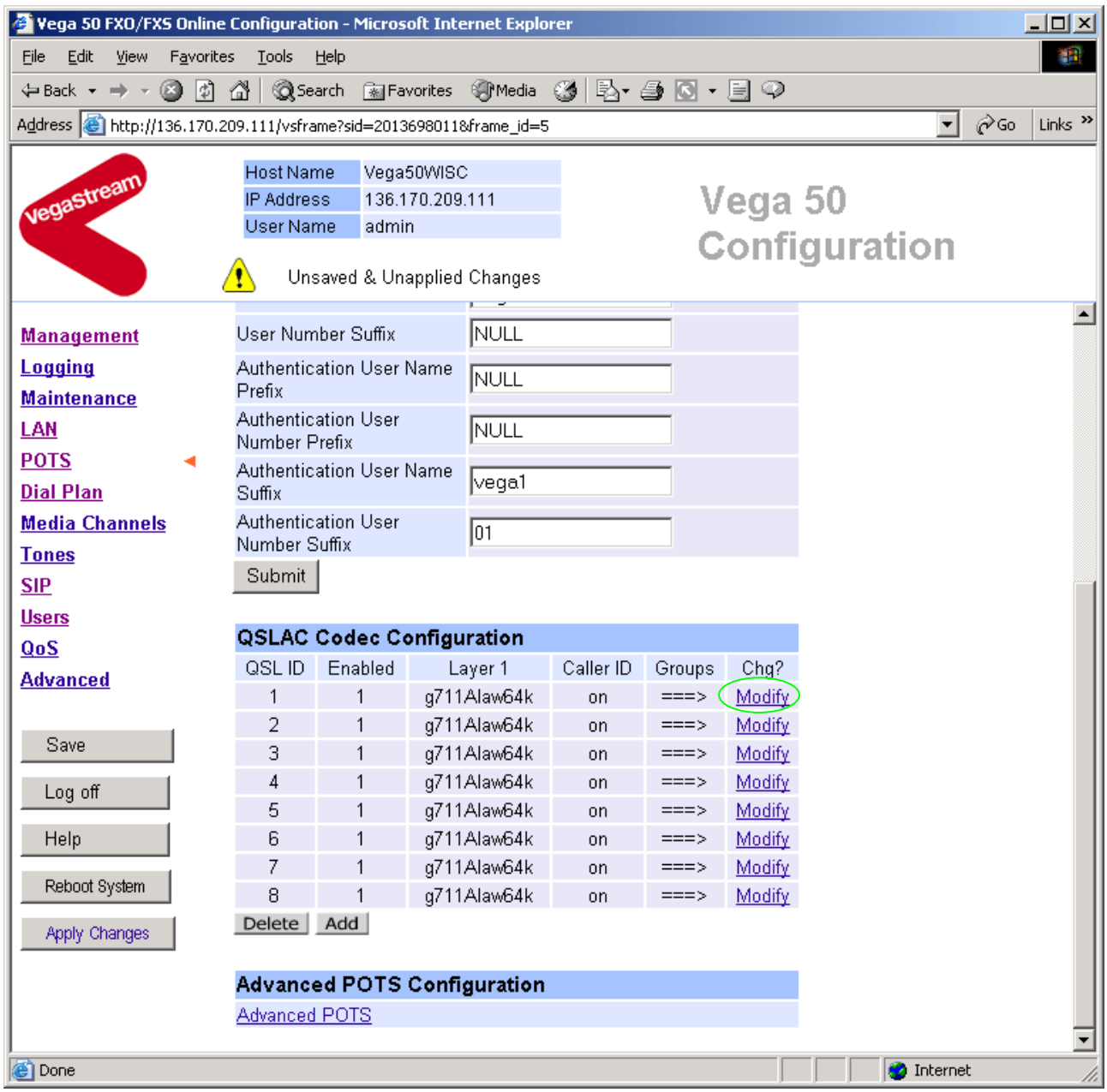

Now configure the per port information

In the **QSLAC Codec Configuration** section

- Select Modify for QSL ID 1

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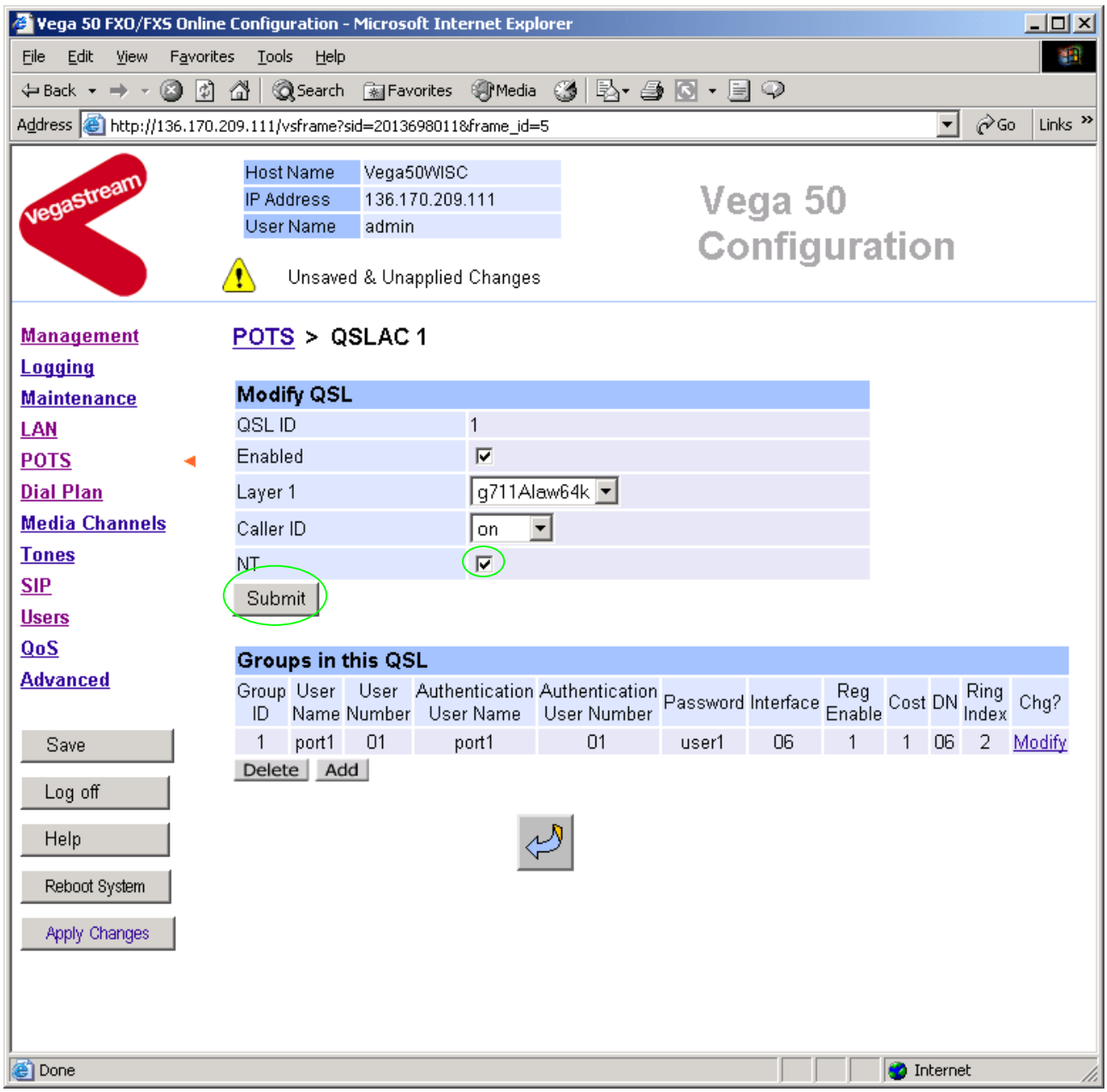

- Disable (un-tick) NT, then
- select Submit and then click "here" to return

- scroll down to the **QSLAC Codec Configuration** section and again select Modify for QSL ID 1

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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** 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

If required the DN (Directory Number field can be changed) - this is the value that will be sent in the Contact: field of SIP messages.

User Number is used in the From: field of SIP messages that the Vega initiates (User number prefix User number User number suffix@Registration domain) if no caller ID is available to populate the User number part.

- Set User Number to be the same as DN
- select Submit and then click "here" to return
- select to return to main POTs configuration page

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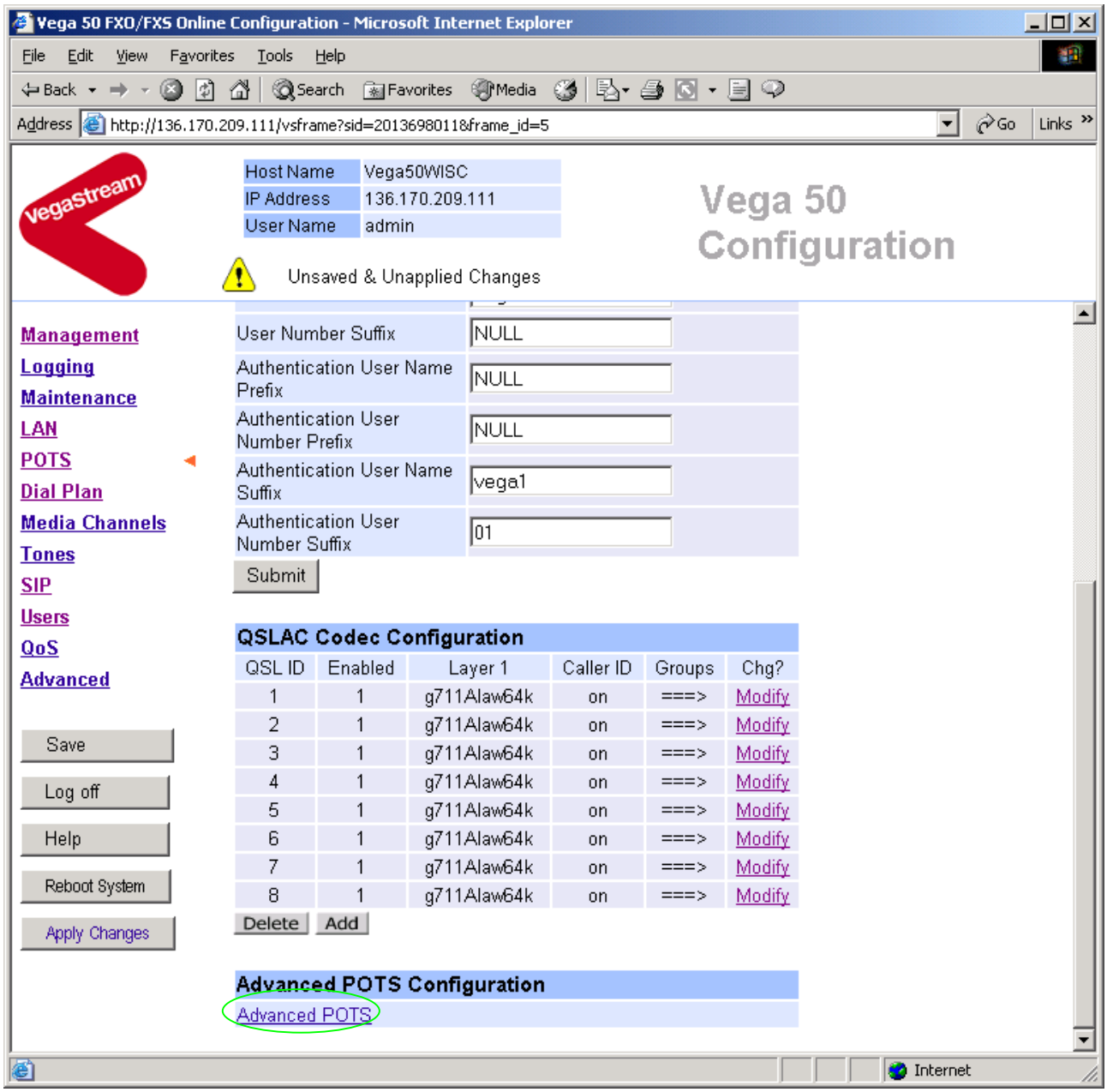
Repeat the configuration of NT, User Number (and DN) for the other QSLAC Ids 2 to 8.

Configuring Ring Cadence Detection

The Vega FXO is 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:

- Scroll to the bottom of the page



- Select Advanced POTS
- Scroll to the **FXO Parameters** section:

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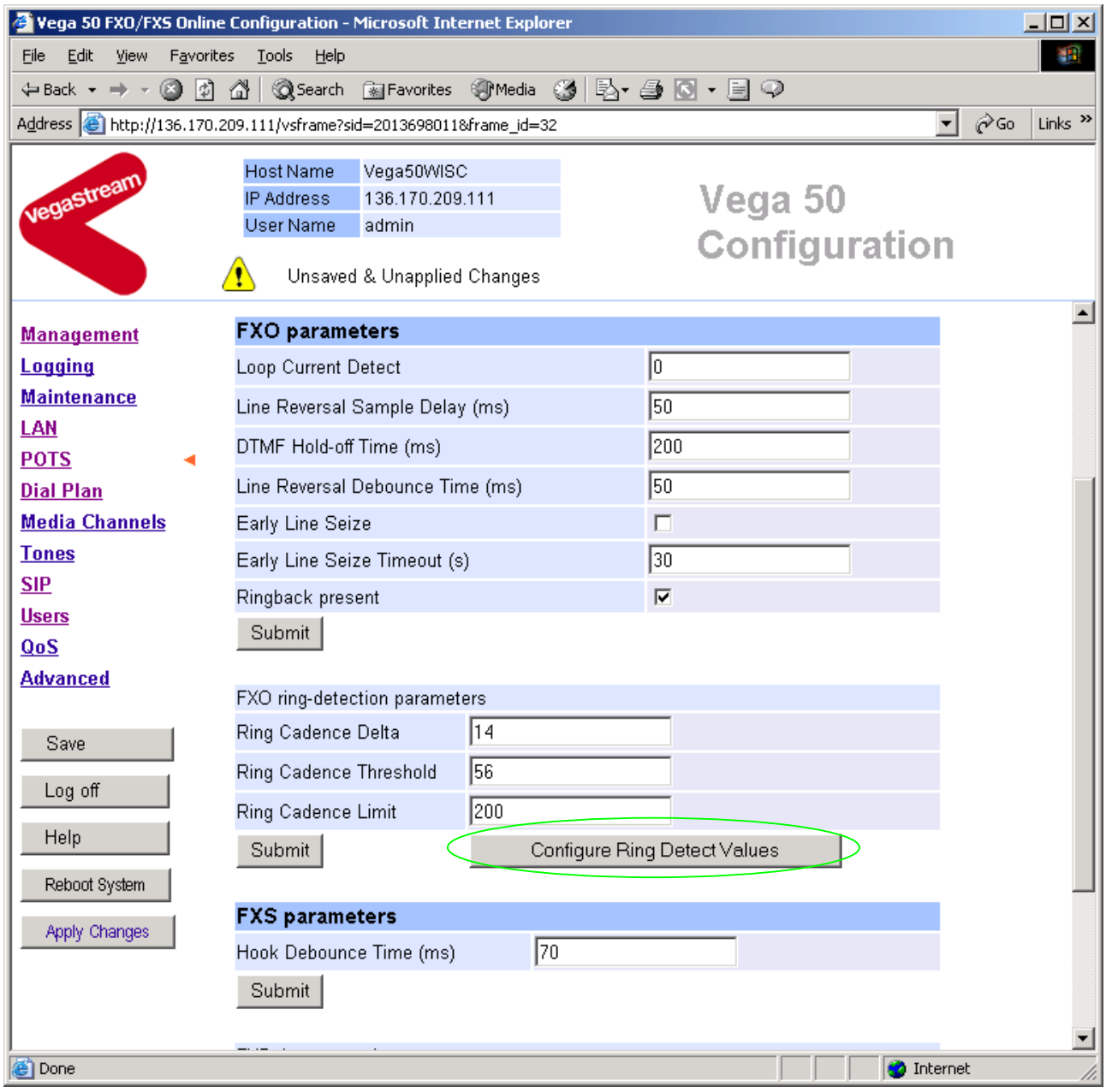

➢ Select

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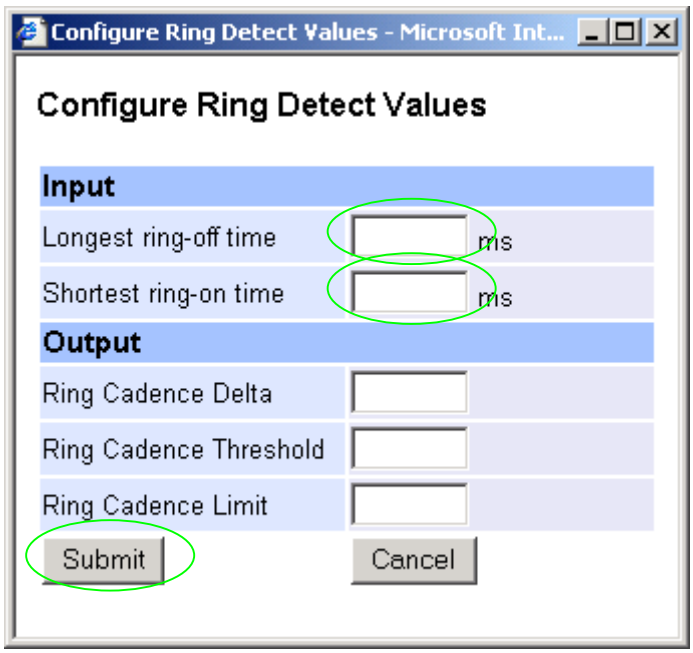

- Set Longest ring-off time = length of longest silence in the incoming ringing voltage cadence
- Set Shortest ring-on time = length of shortest ring in the incoming ringing voltage cadence
- select Submit

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

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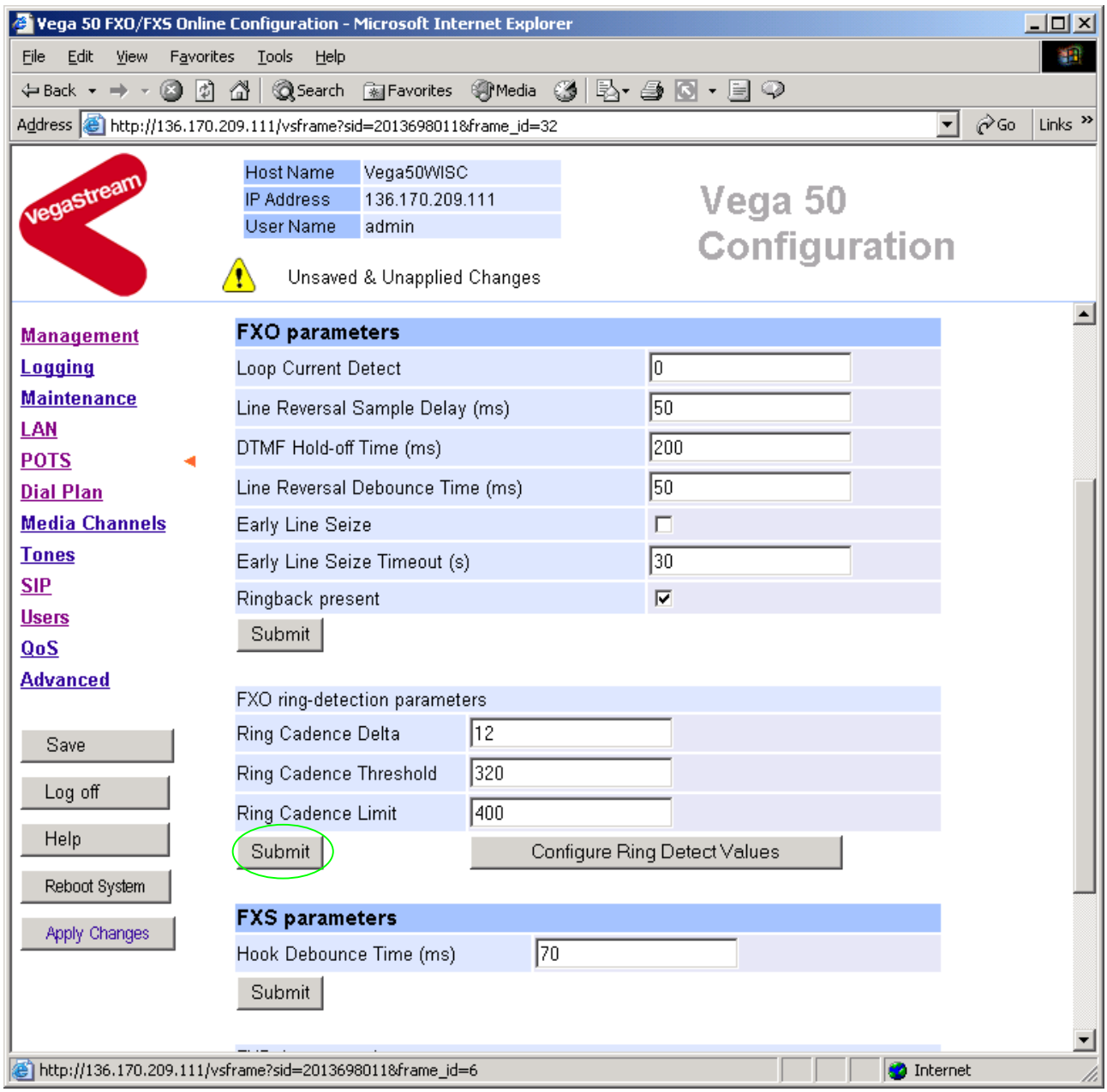

- select Submit and then click "here" to return

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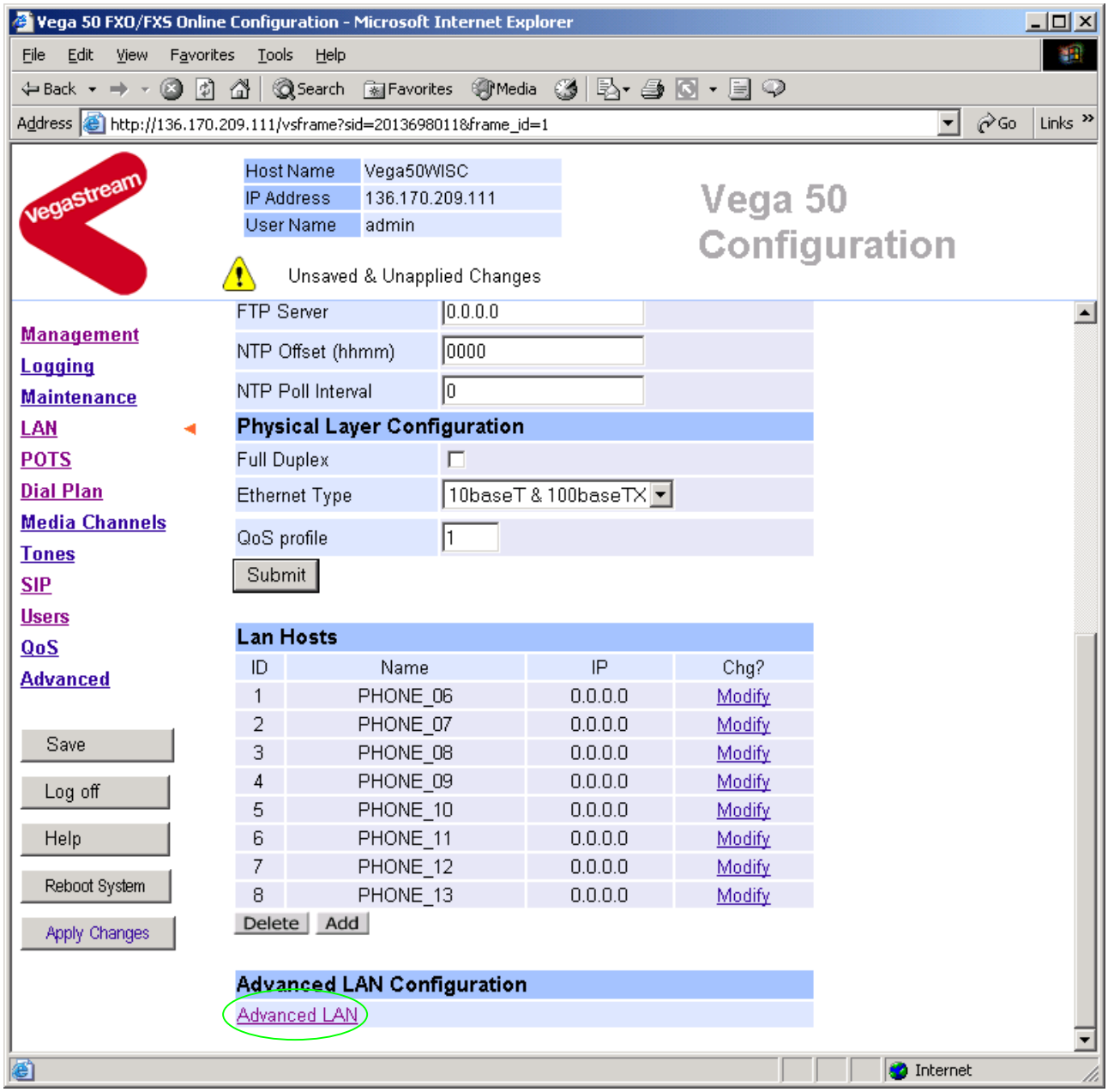
10. Configure pointer to CD ROM documentation

- On the left hand side menu select LAN
- Scroll to the bottom of the screen



- Select Advanced LAN

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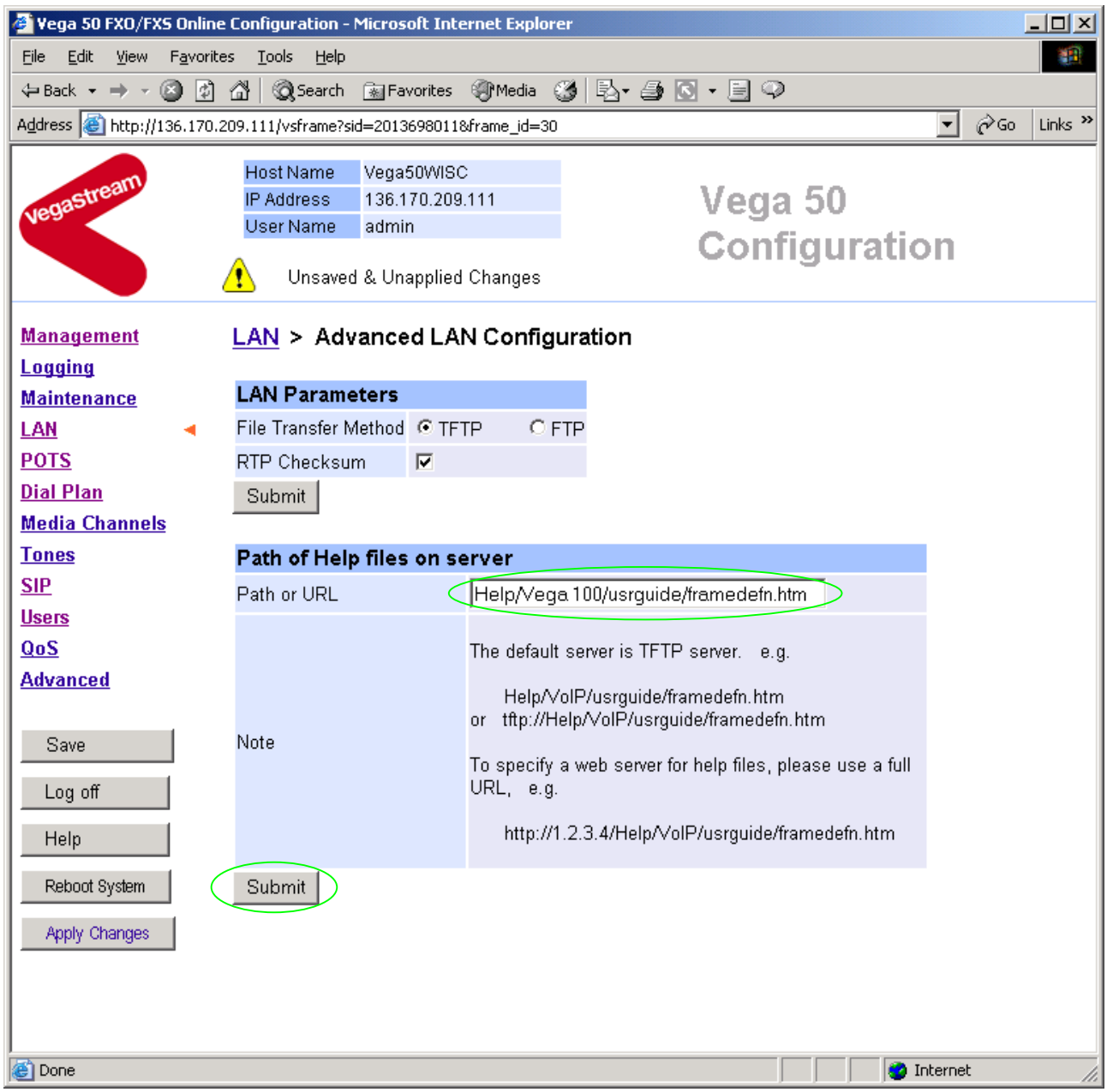

To configure for operation using the CD in the local PC CD-ROM drive,

- Set Path or URL = `D:/Content/help/v50fxos_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

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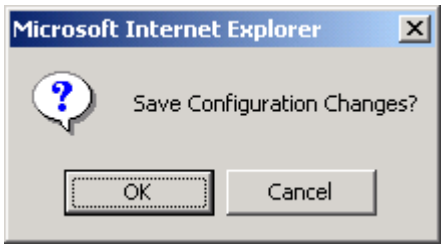
11. Save Changes

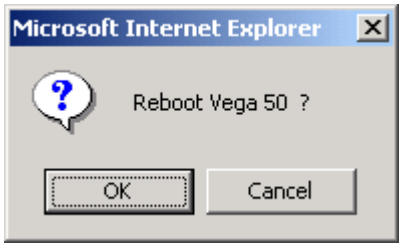
The changes to the configuration must be saved and activated. This is carried out as follows:

- 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 OK

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

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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`")

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>`

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13. Technical Support

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

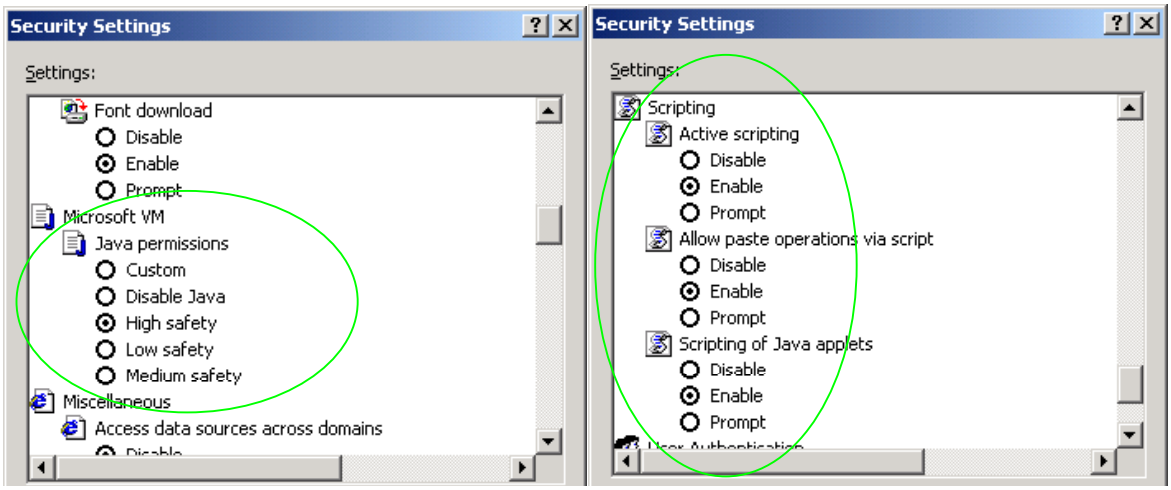
If you require help from VegaStream support personnel, please use the serial interface or telnet into the unit, log in and then type:

- `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”.

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14. Advanced configuration

Vega 50 FXO units have further configurable parameters that may be desirable to configure in order to fully integrate into the attached infrastructure.

14.1 Configure Registration

For trunking gateways, registration is typically used to tell the Proxy that the Vega exists and is available to take calls. The Vega 50 FXO registers in a similar manner to the Vega 50 FXS.

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.

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 Host (Registration_Domain)` … already configured in section 1.5
- `DN` … per port value
- `Host_Name_or_IP_address_of_Vega` … set up by DHCP or in section 1.3

Name Registration message format:

--- address:
`Username_prefixUsernameUsername_suffix@Registration_Domain`

--- contact:
`<sip:DN@Host_Name_or_IP_address_of_Vega>`

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Numeric registration uses configurable entries:

- `Usernumber_prefix` … per unit value
- `Usernumber` … per port value
- `Usernumber_suffix` … per unit value
- `Local Host (Registration_Domain)` … already configured in section 1.5
- `DN` … per port value
- `Host_Name_or_IP_address_of_Vega` … set up by DHCP or in section 1.3

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

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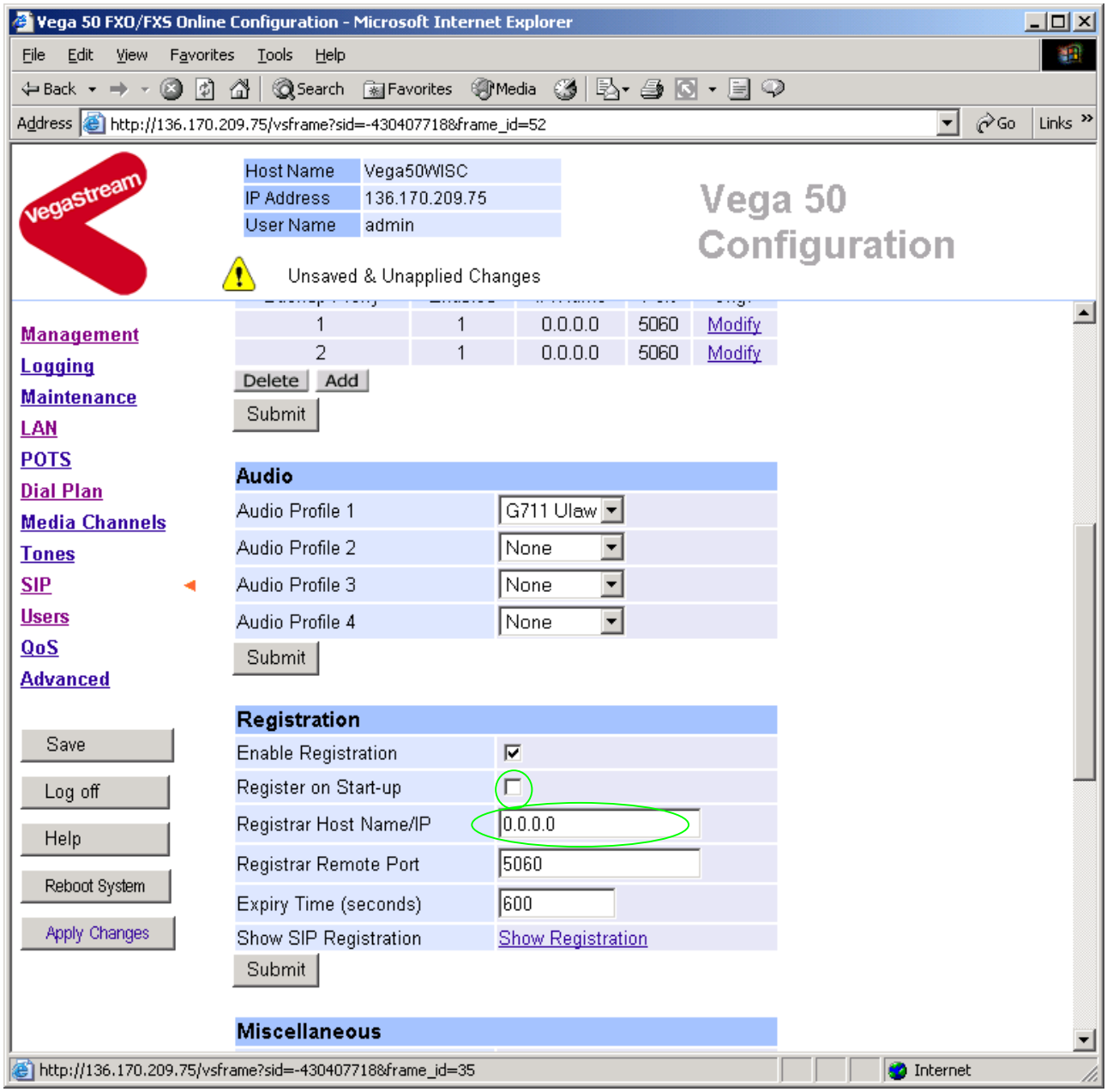

- Tick Register on Start-up

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

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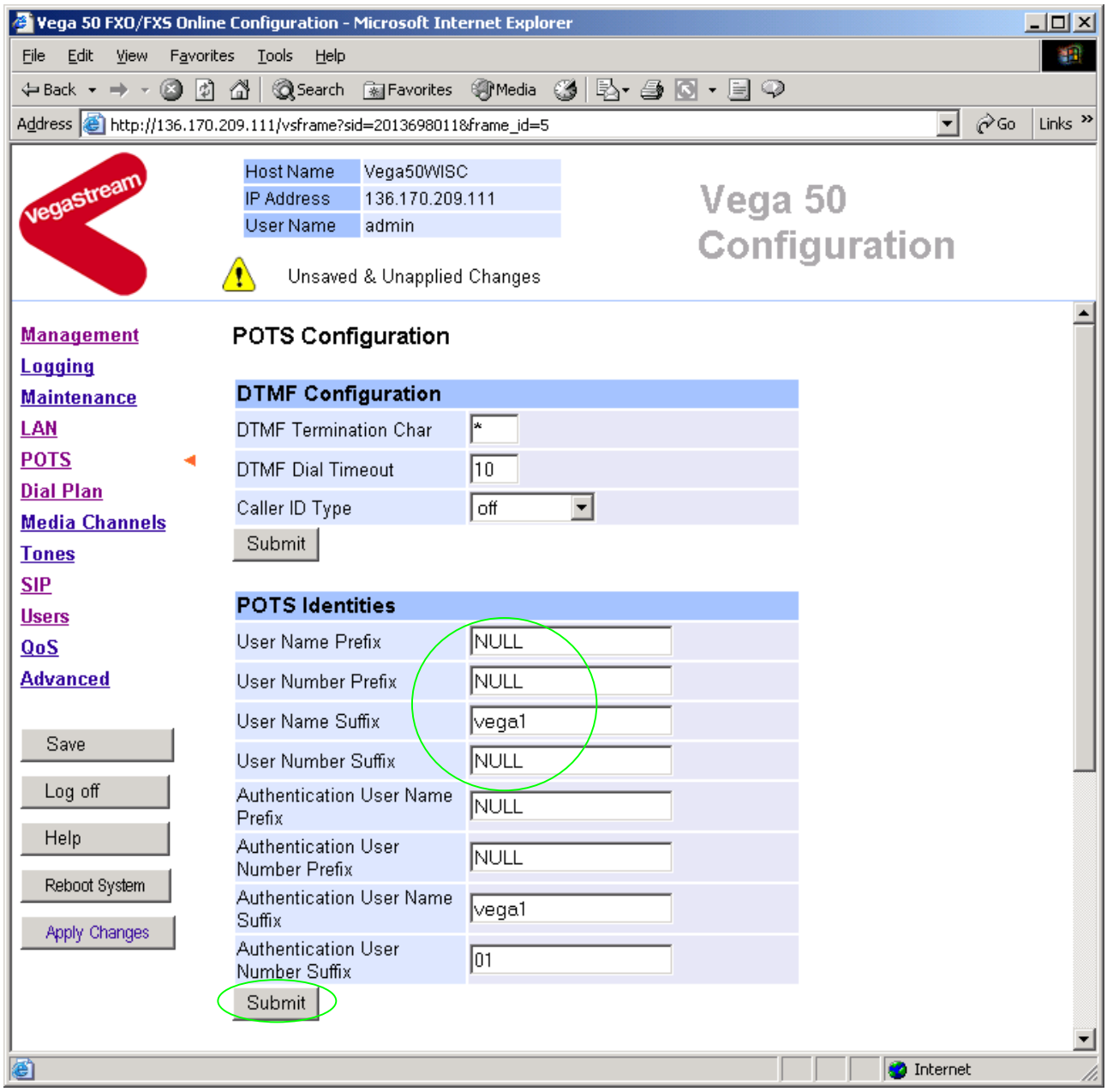
- On the left hand side menu select POTS



- 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:

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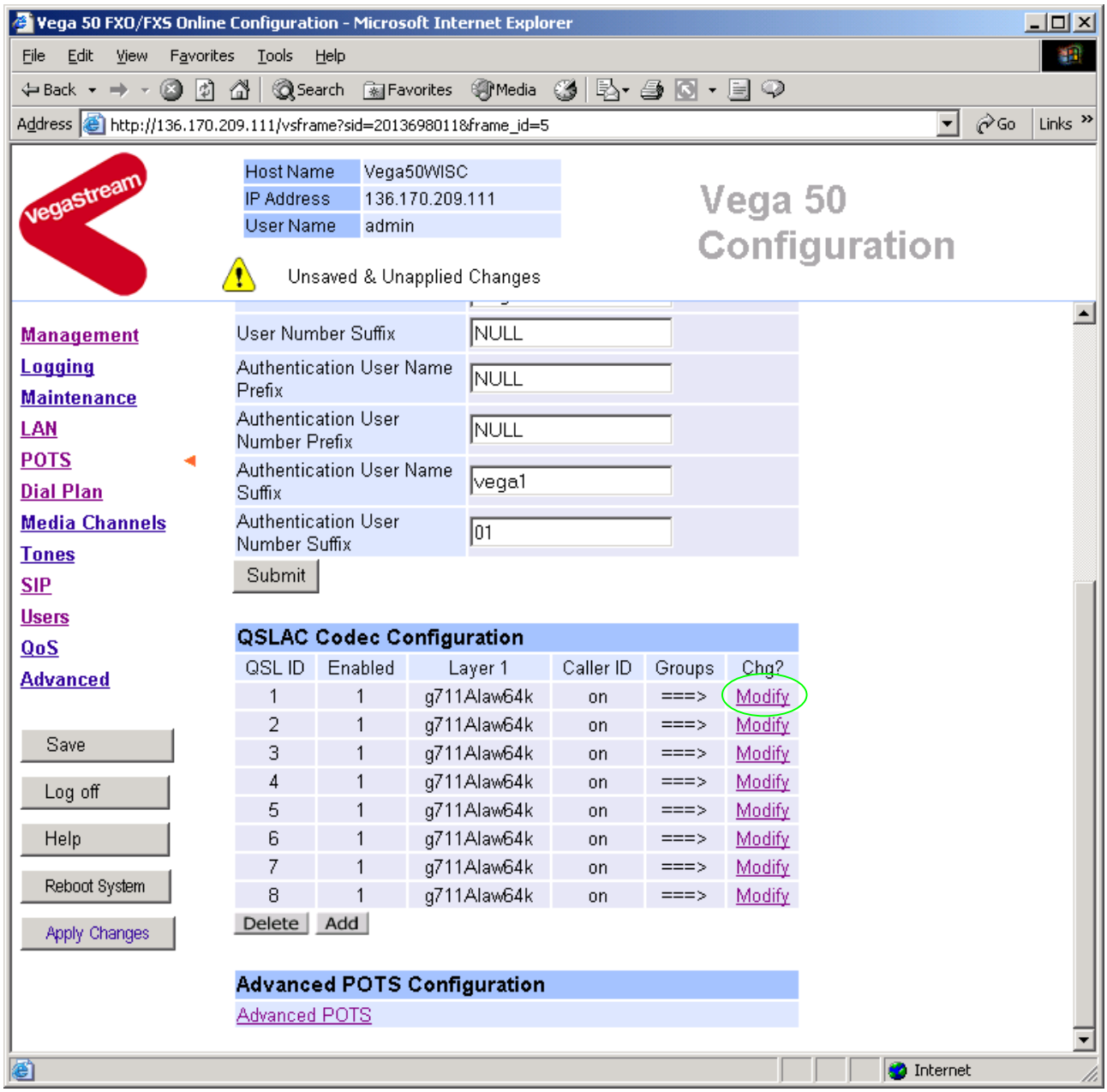

On QSL ID 1:

- Select Modify

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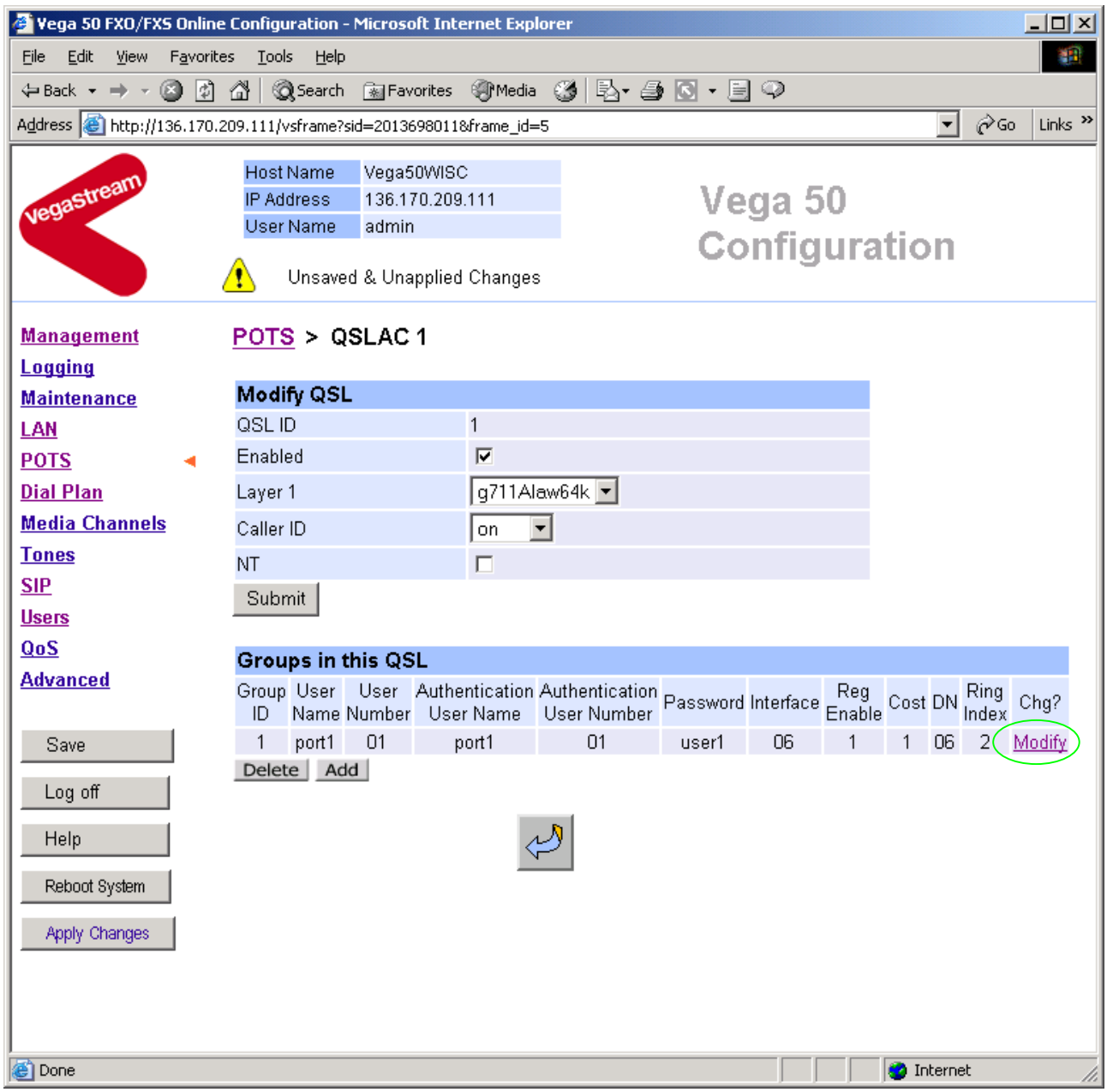

In **Groups in this QSL**, for Group ID 1

- Select Modify

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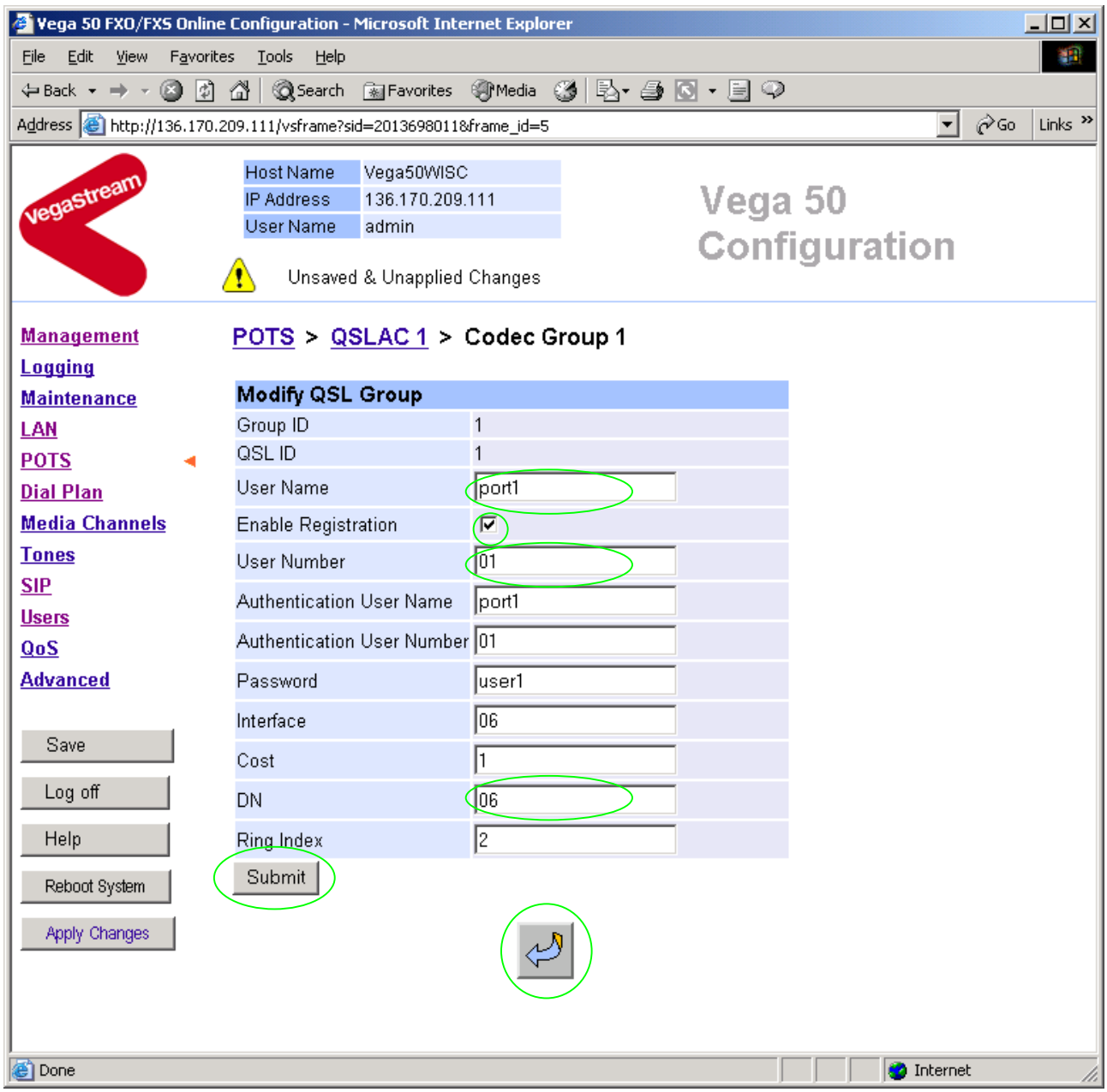

- set User Name = `Port1`
- check User Number = `01`
- check that DN = `06`
- check that `Enable Registration` is ticked
- select Submit and then click "here" to return
- select … to return to QSLAC Codec Configuration

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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

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

Contact Details
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