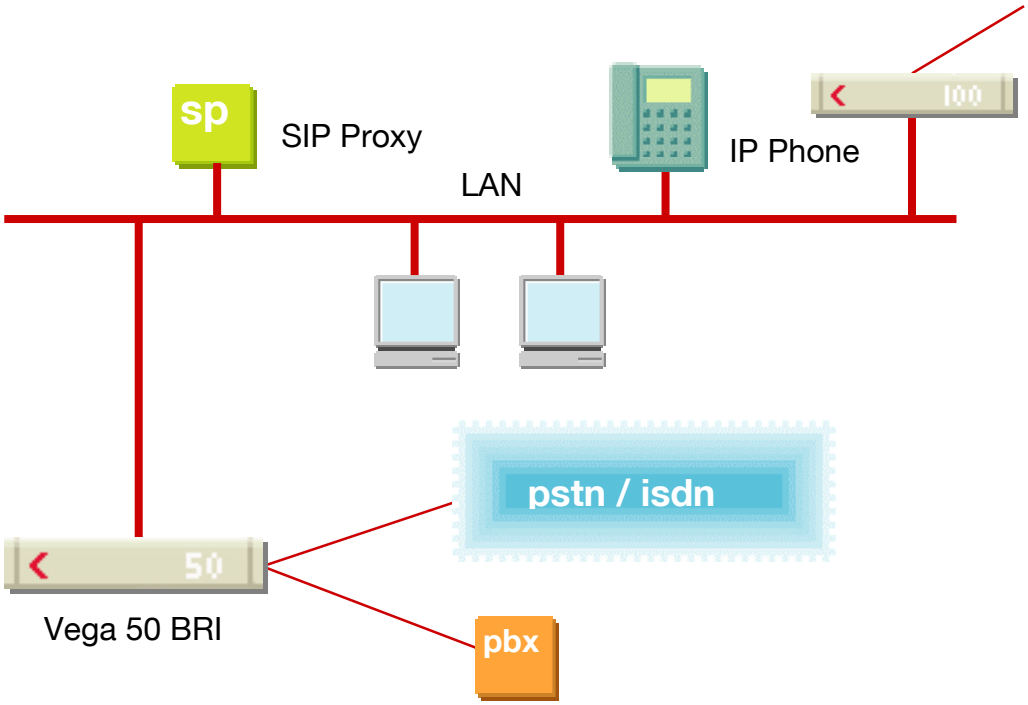
Initial configuration
Vega 50 BRI (SIP) – R4

This document describes how to configure the Vega 50 BRI 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 BRI to be a transparent gateway for the SIP Proxy.

- Calls made from the PBX or PSTN to the Vega will be forwarded to the SIP Proxy. The telephone number passed to the Vega will be forwarded unchanged to the SIP Proxy.
- Calls made from the SIP Proxy to the Vega will be forwarded to the PSTN or to the PBX based on the leading two digits of the telephone number passed. 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 passed as the dialed digits.



For use with Vega 50 BRI – SIP version 06.02.04 T031 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 Registration
7 Configure codecs
8 Configure SIP and audio parameters
9 Configure ISDN DSLs
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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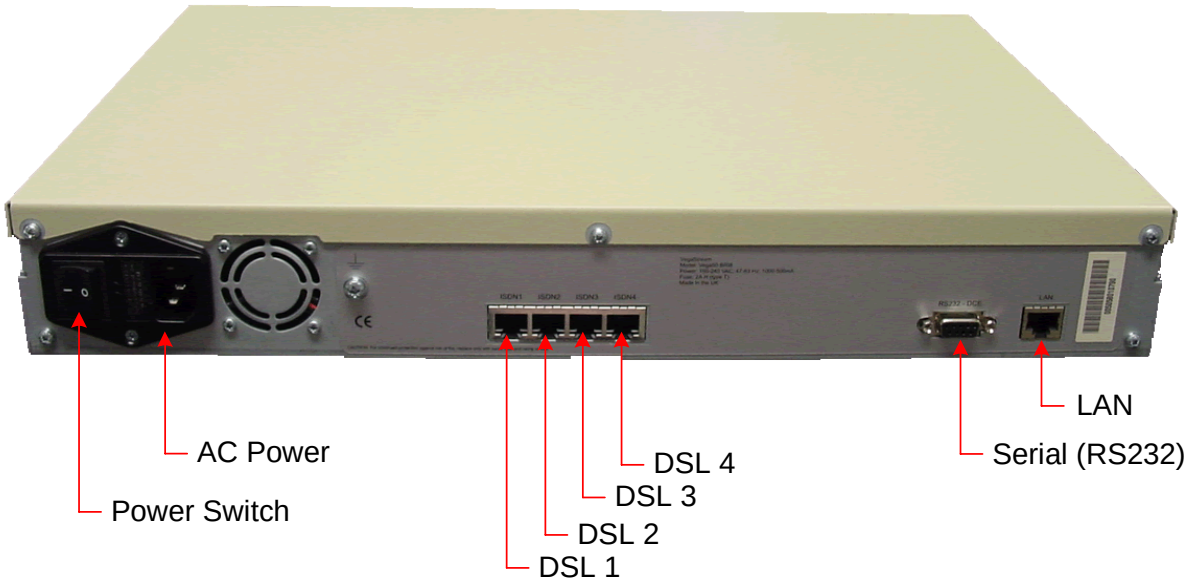
1. Connect your Vega to LAN, Telephone and Power



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:

Connection to a PBX - If you are connecting the Vega 50 BRI to a PBX, the Vega acts as the NeTwork equipment and a red-booted cable must be used.

For each ISDN interface that is to be connected to the PBX, insert one end of a red booted cable into one of the Vega ISDN (DSL) sockets and the other end to the PBX.

Connection to the PSTN - If you are connecting the Vega 50 BRI directly to the public telephone network it acts as the Terminal Equipment and the blue-booted cable must be used.

For each ISDN interface that is to be connected to the PSTN, insert one end of a blue booted cable to one of the Vega ISDN (DSL) sockets and the other end to the PSTN terminating box.

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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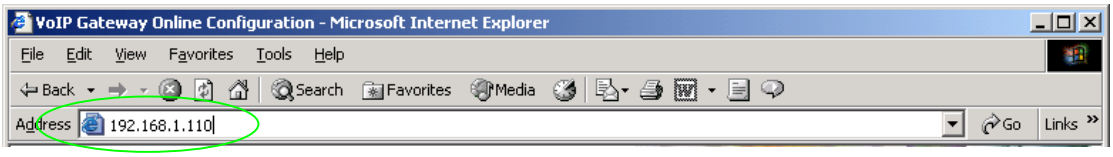
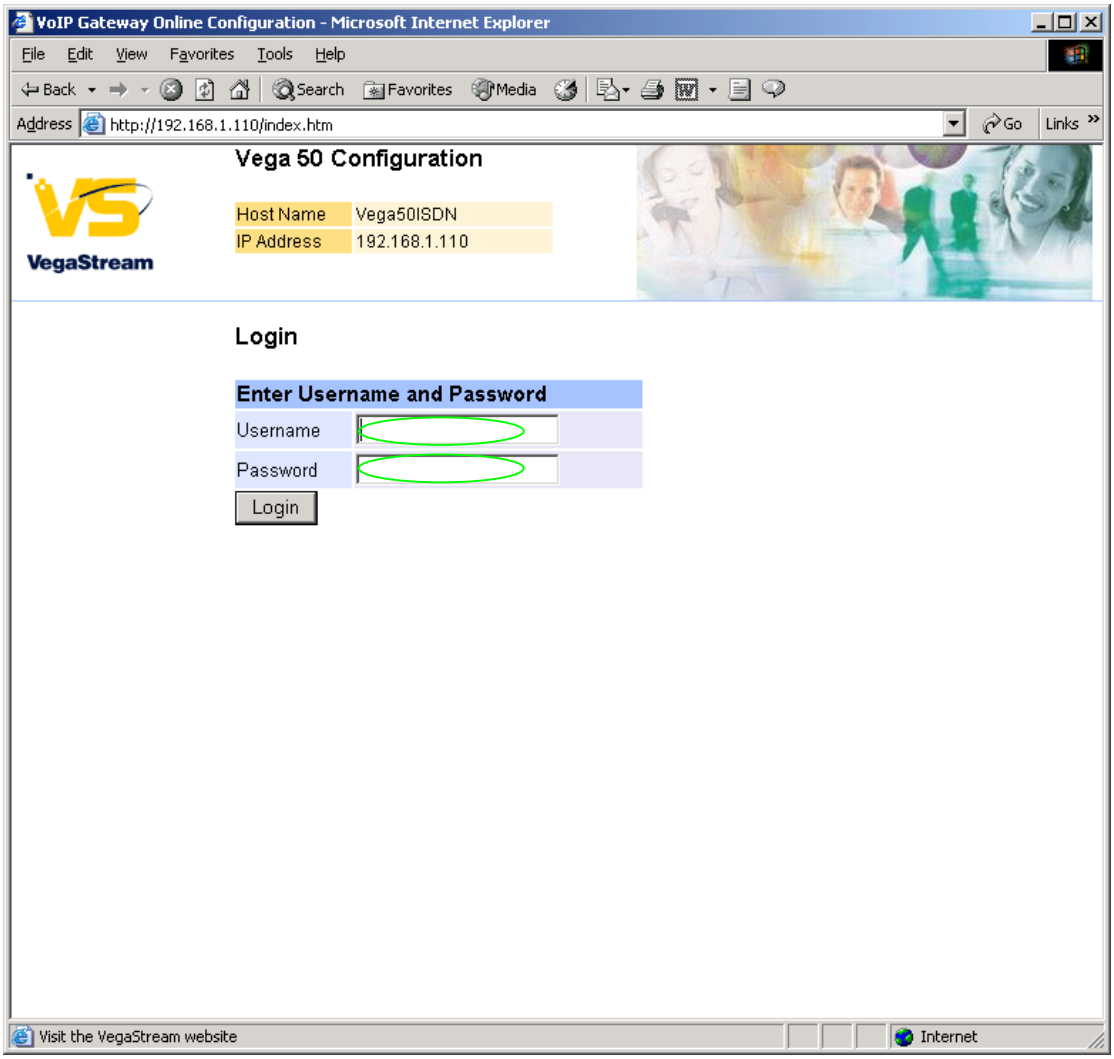
3. Configure password and login timeout

Now configuration will be carried out via a web browser.

- Enter this value in 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

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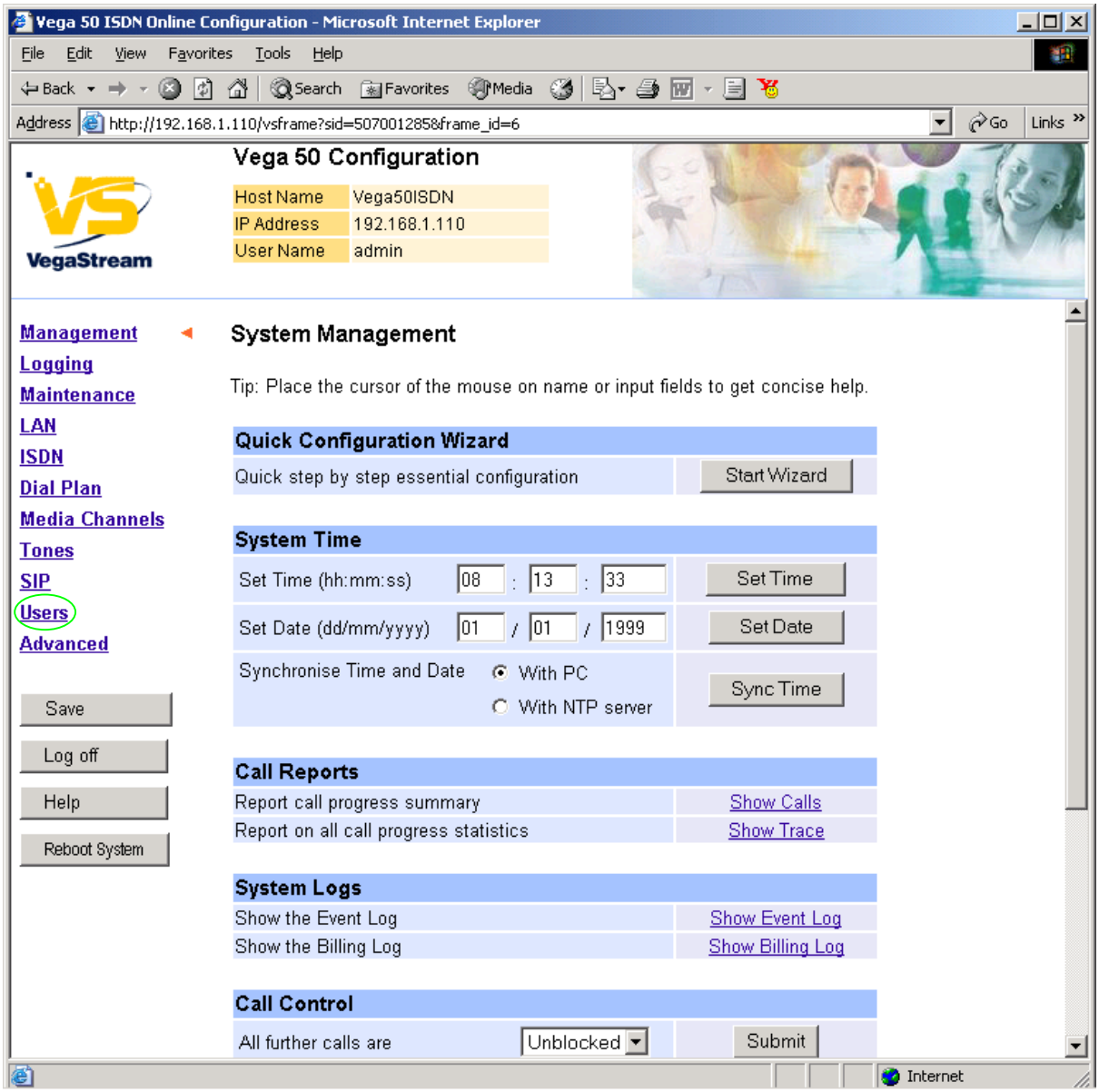

- On the left hand side menu select Users

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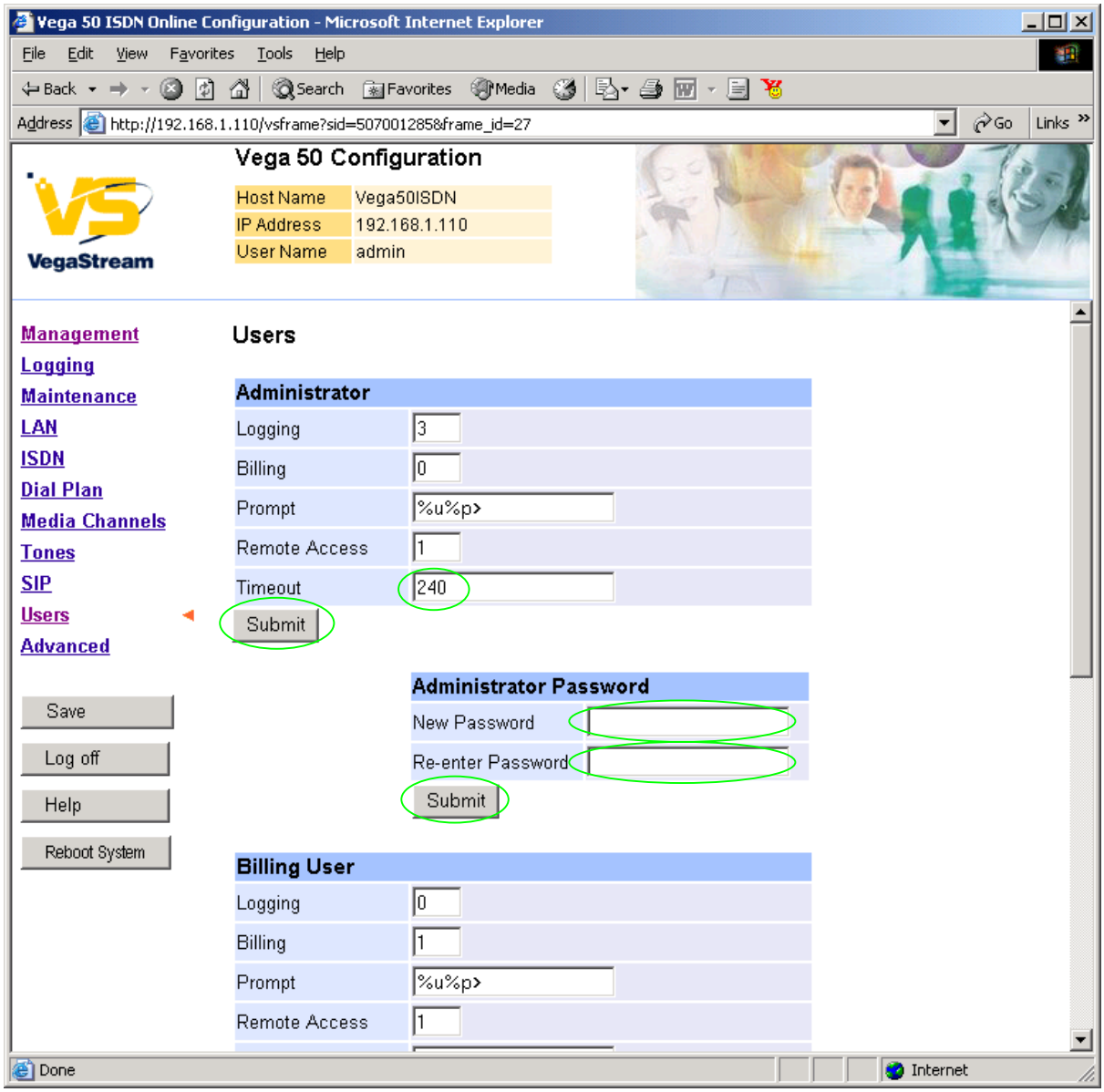

Recommended: Change the password

- 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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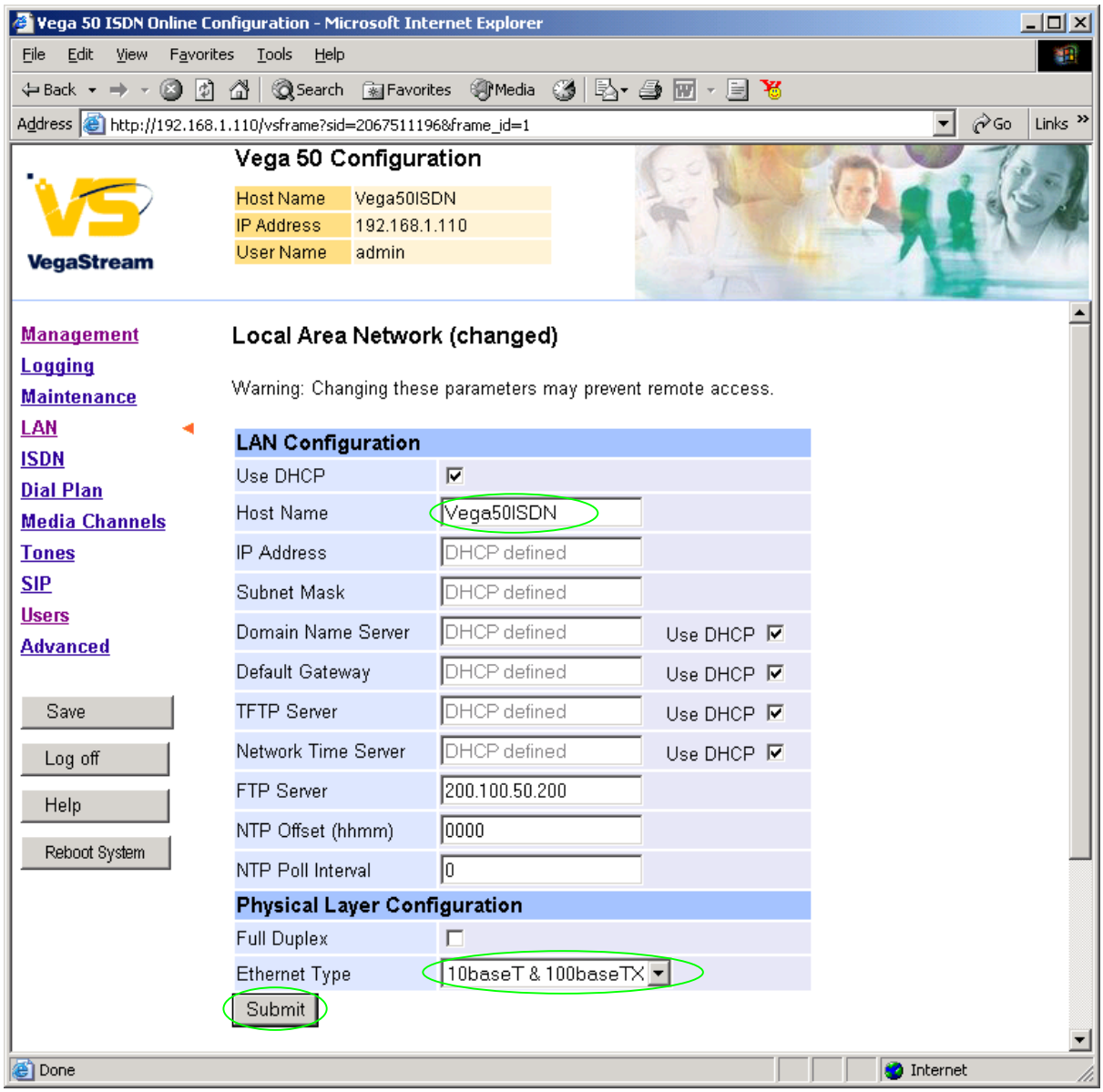
4. Check and configure LAN settings and Host name

➢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 manually set them up now, then

➢Select Submit and then click "here" to return

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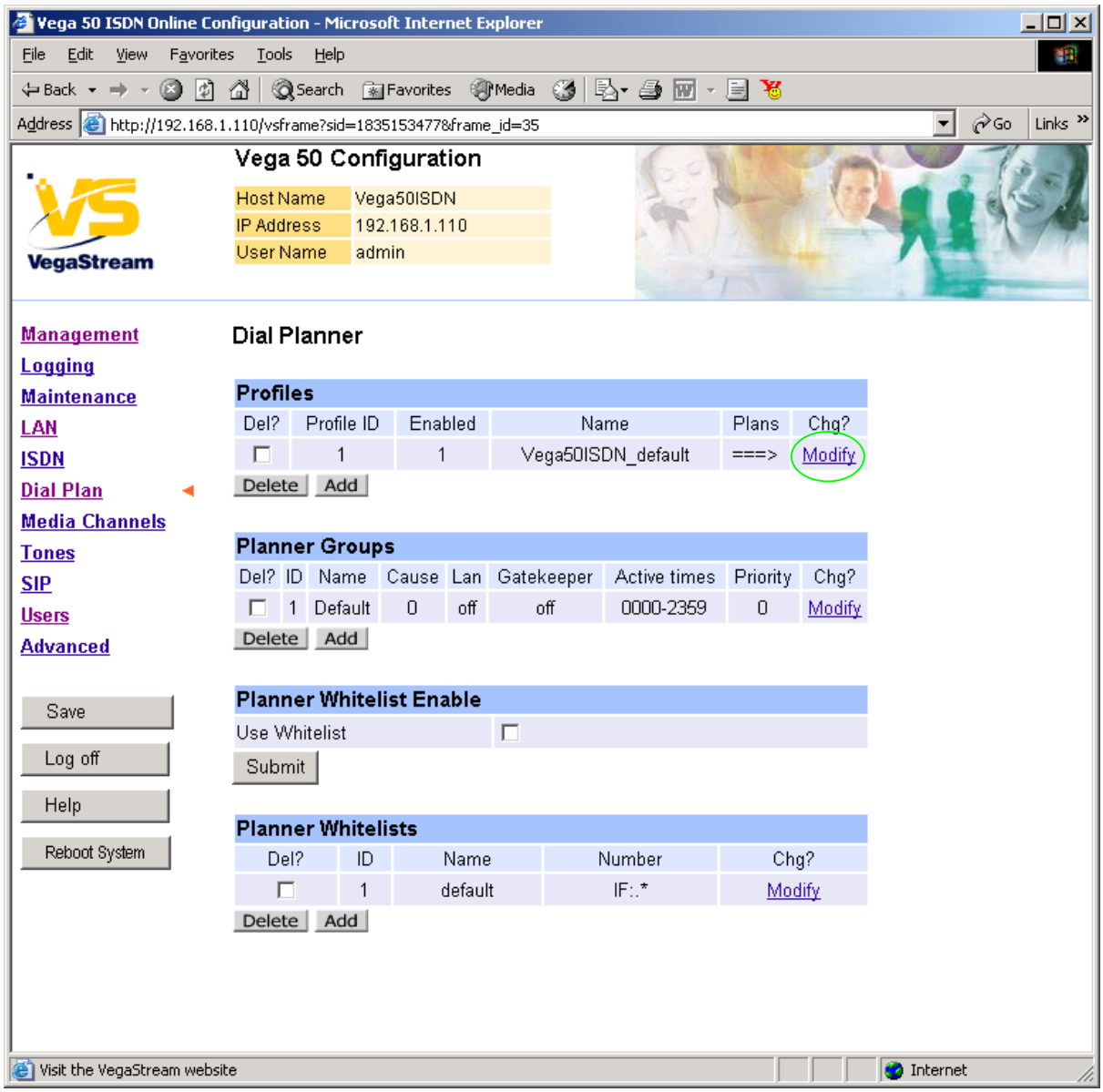
5. Configure the Dial Plan

➢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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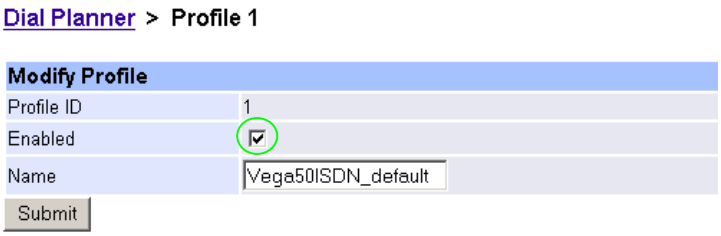
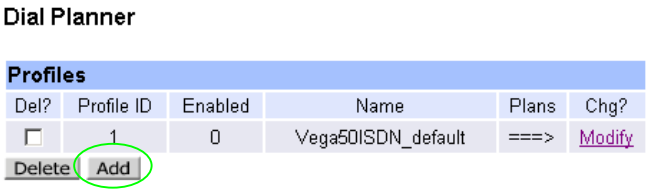


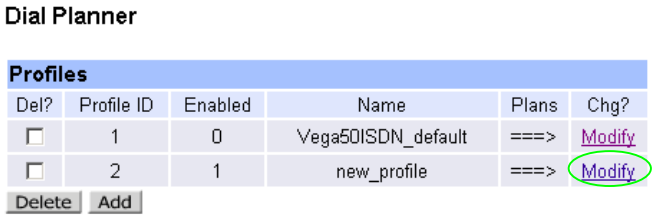
- disable (un-tick) Enabled, then
- select Submit and then click "here" to return

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



In the **Profiles** section

- Select Add



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

- Select Modify

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

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Dial Planner

Profiles

Del?	Profile ID	Enabled	Name	Plans	Chg?
☐	1	0	Vega50ISDN_default	===>	Modify
☐	2	1	ISDN_To_LAN	===>	Modify

Delete Add

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

- Select Modify

Dial Planner > **Profile 2**

Modify Profile

Profile ID	2
Enabled	☑
Name	ISDN_To_LAN

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

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

- Select Modify

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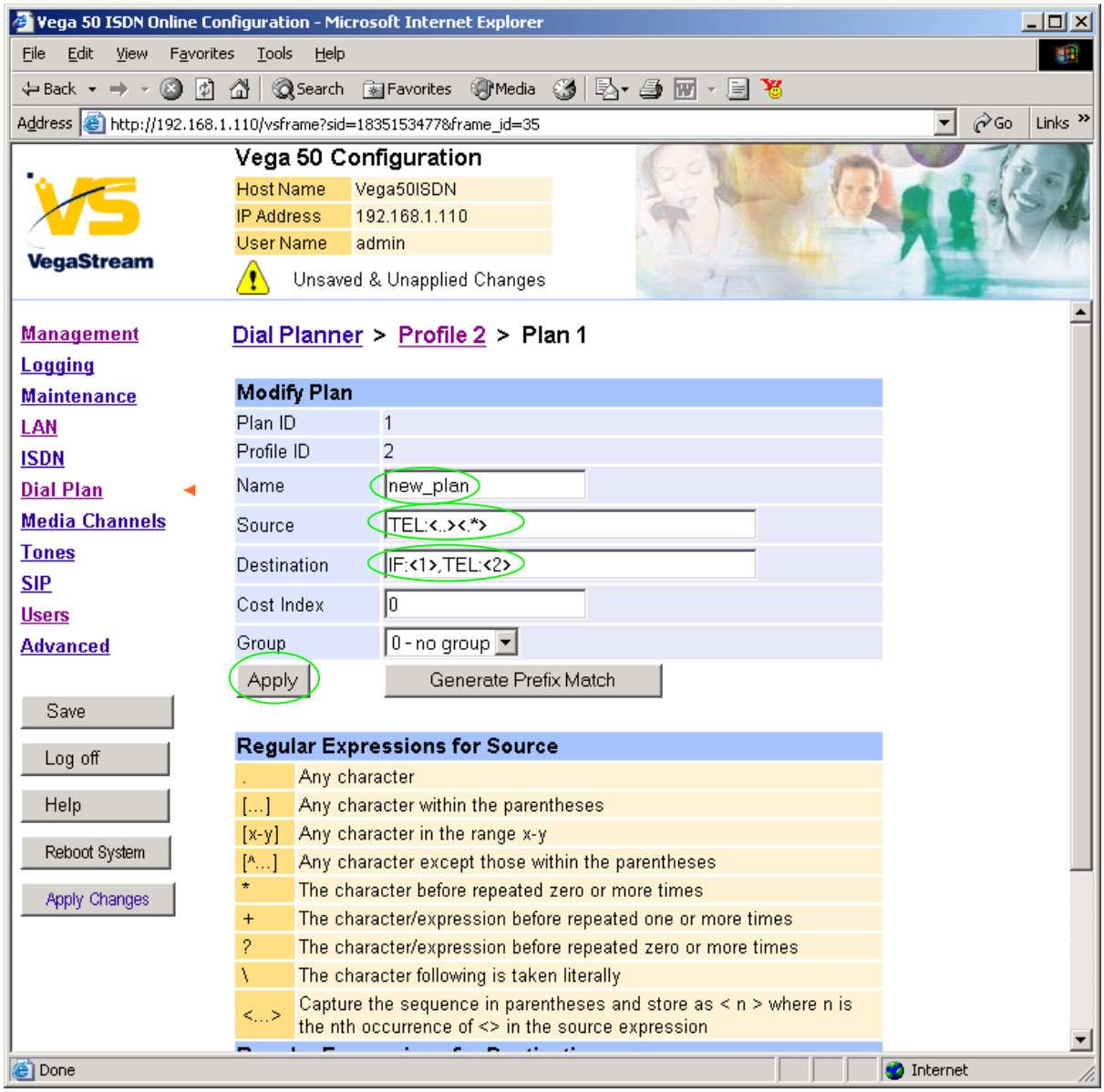

- Set Name = `From_ISDN_or_PBX`
- Set Source = `IF:[^9].,TEL:<.*>` *(This takes a call from either of the two ISDN interfaces and stores the telephone number presented in store <1>)*
- Set Destination = `IF:99,TEL:<1>` *(This routes the call to IF:99 (the LAN) and passes the received telephone number on as the destination telephone number)*
- select Apply and then click "here" to return

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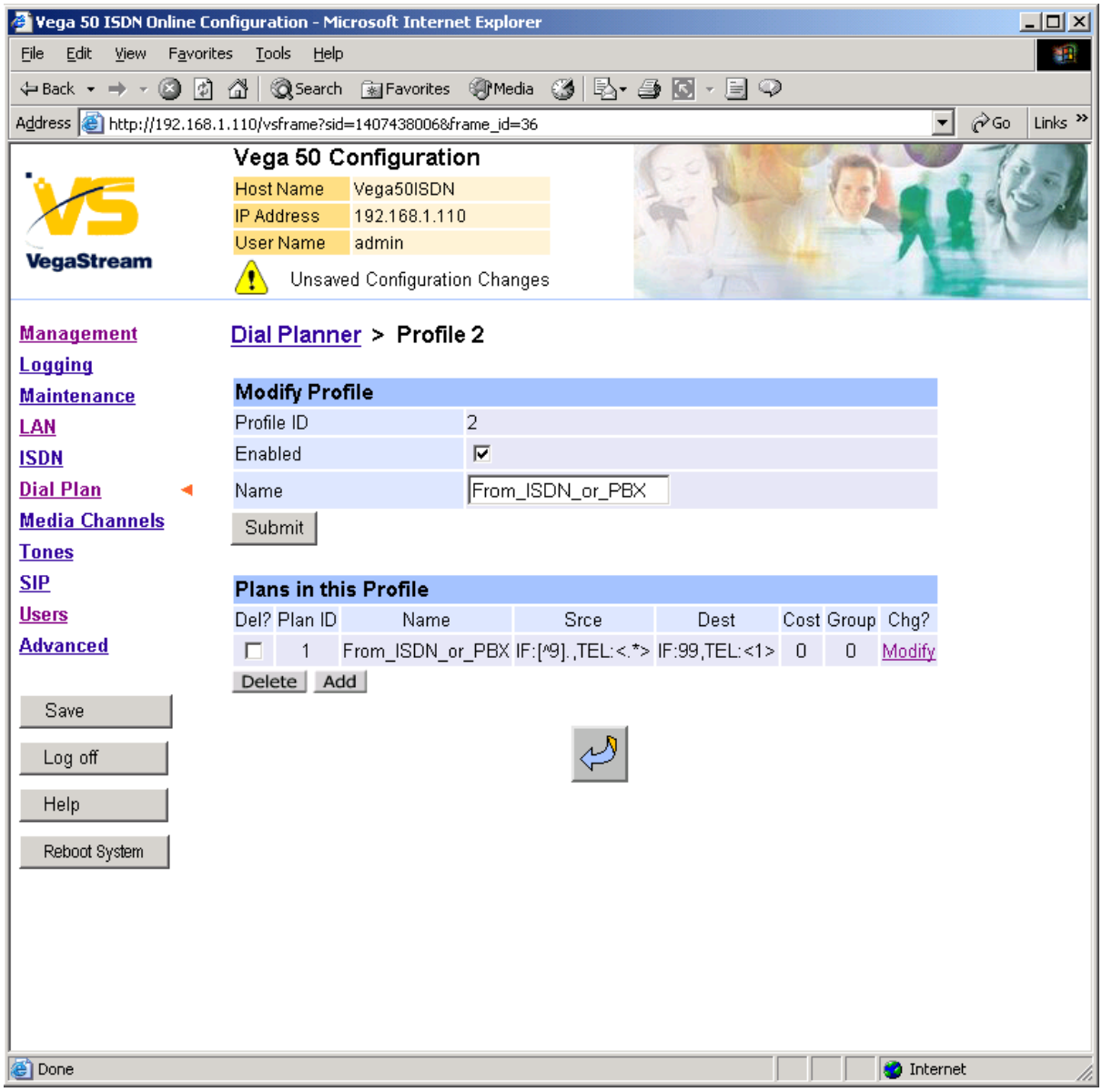

➢On the left hand side menu select Dial Plan

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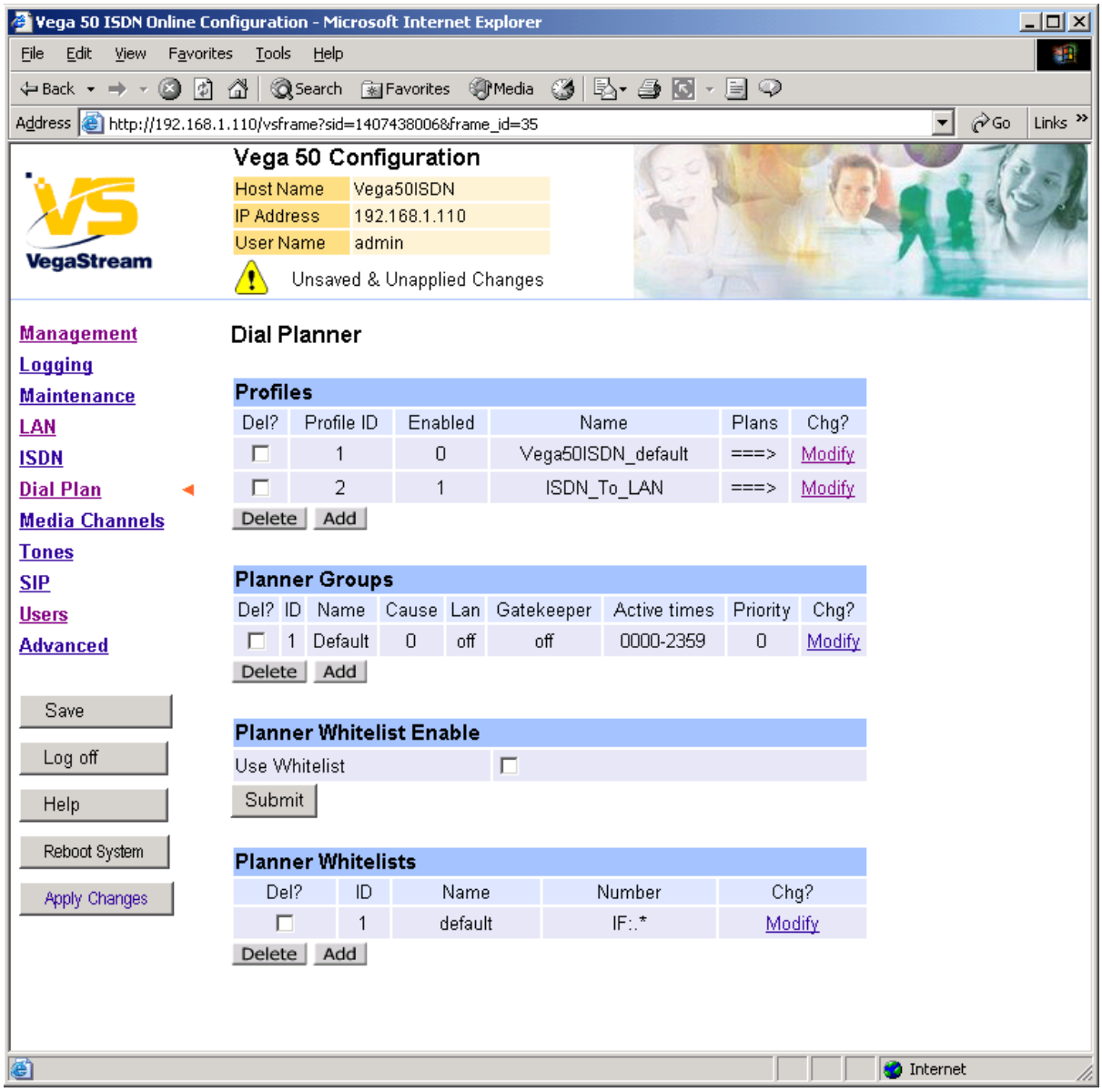

Now create a new profile and in it create a dial plan entry to handle calls being received inbound from the LAN:

In a similar manner to adding profile 2 add another profile, profile 3,

- Set Name = `LAN_to_ISDN_or_PBX`

Modify the first plan for Profile 3:

- Set Name = `From_LAN`
- Set Source = `IF:99,TEL:<..><.*>` *(For calls from IF:99 (LAN), take the first two digits presented and store them in store <1>; take any further digits and store them in store <2>)*
- Set Destination = `IF:<1>,TEL:<2>` *(The first two digits presented define the interface – 01 to 04 – and the remainder of the digits are passed on as the telephone number)*
- select Apply and then click "here" to return

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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 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.

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6. Registration

The Vega 50 BRI does not support registration with a SIP Proxy.

The SIP proxy must be manually configured to accept calls from the Vega 50 BRI (the telephone number for the call to be routed to will be supplied in the request URI).

For outgoing calls the Proxy must send the call to the Vega 50 BRI 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 01, 02, 03 or 04)
and where `ttt…t` is the telephone number for the Vega to dial

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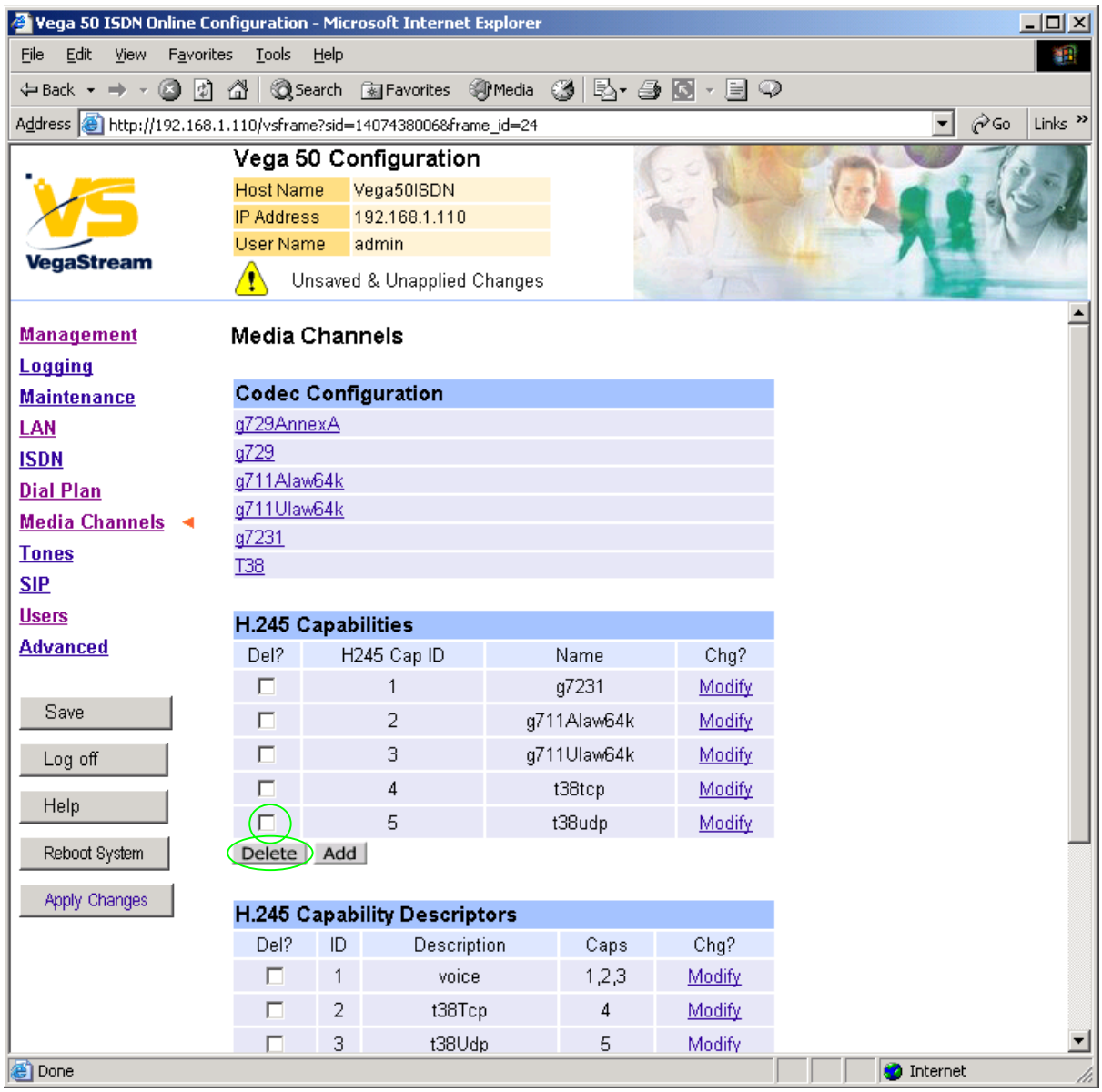
7. Configure codecs

➢On the left hand side menu select Media Channels



This screen selects the default codecs to load at power up and reboot. All required voice codecs should be configured in the H.245 Capabilities list (even though the H.245 protocol is not used in a SIP Vega. (Fax codecs are NOT configured here for SIP products).

In **H.245 Capabilities**

- Tick the Del? Tick box on Capability 5
- Select Delete

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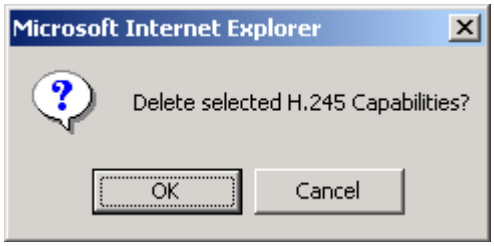
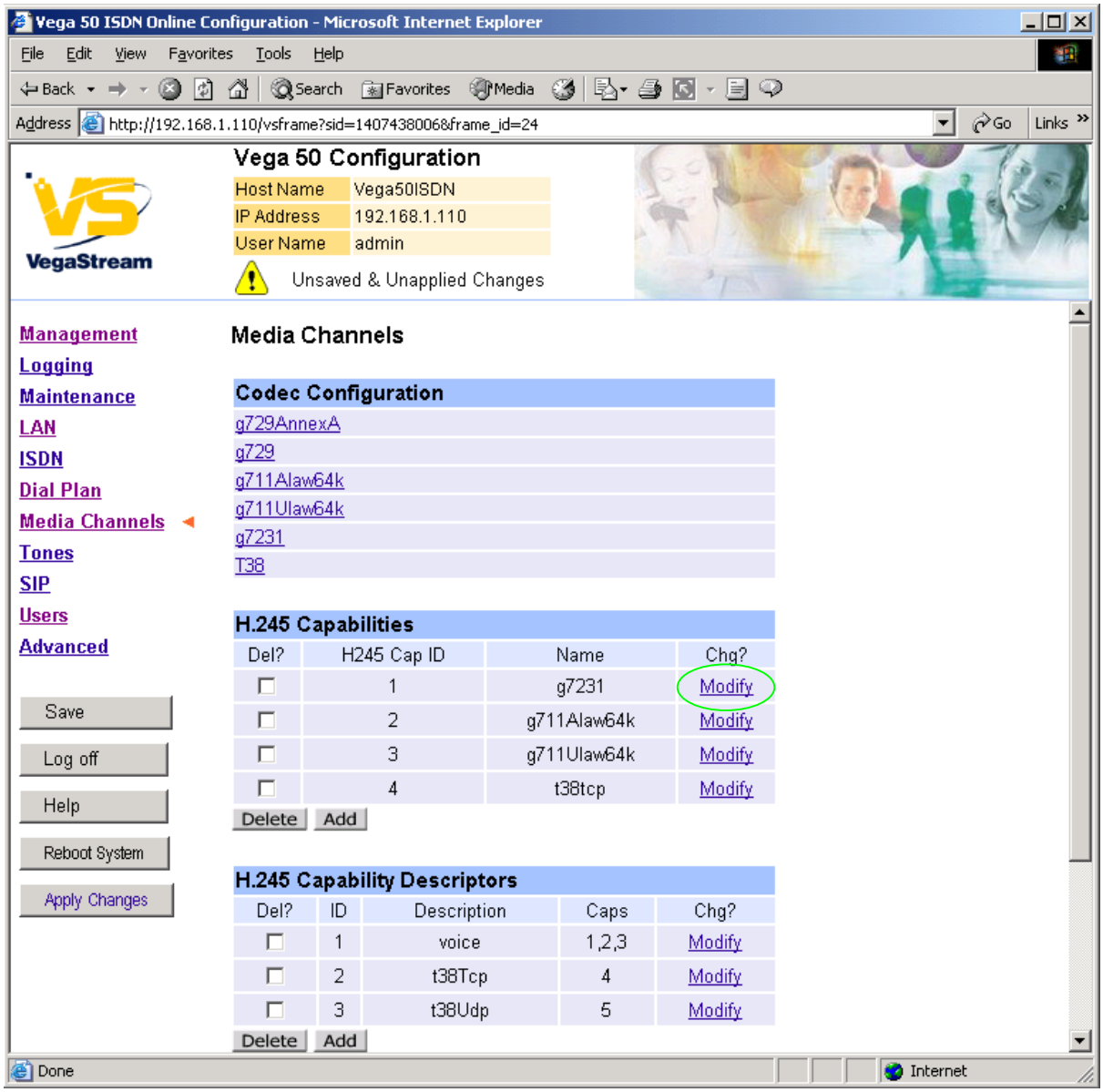


➢Select



➢ Select on H245 Cap ID 1

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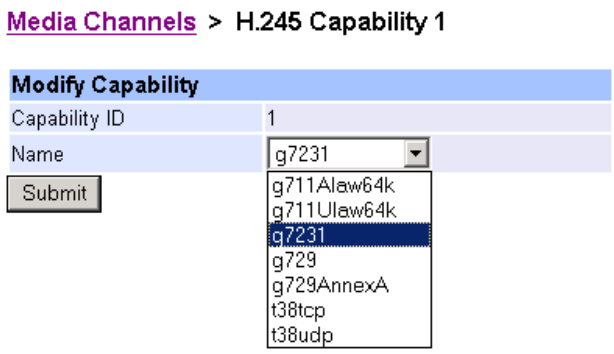
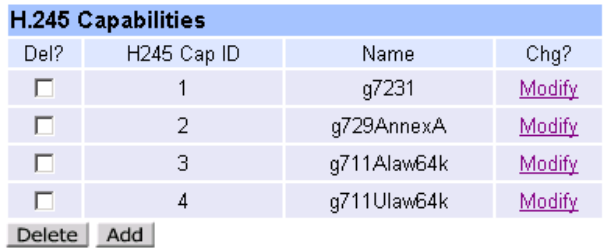


- Select required codec type – in this case g7231
- select Submit and then click "here" to return
- Modify all H245 Cap ID entries until the list looks as follows:



No other parameters need to be changed

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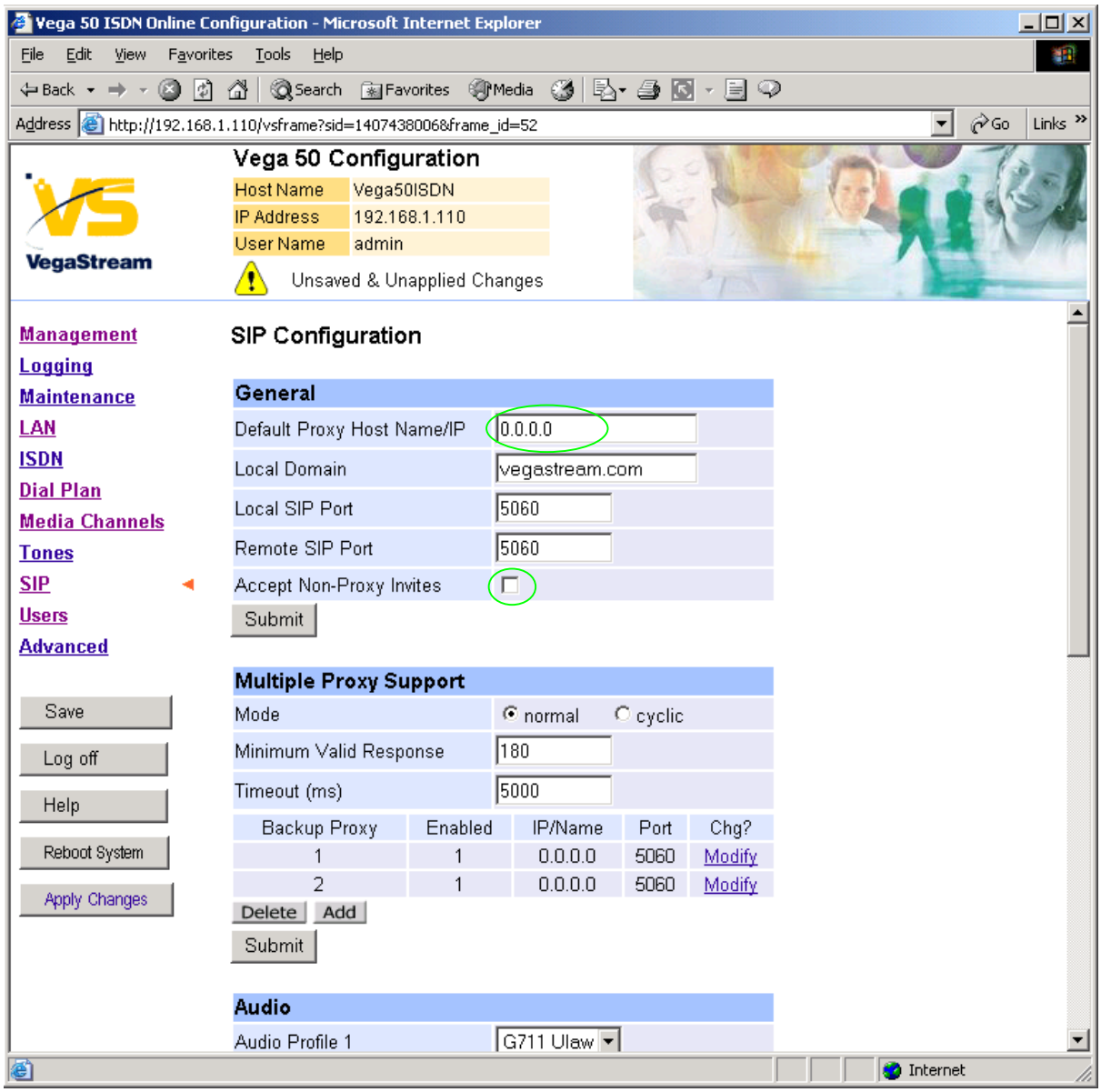
8. Configure SIP and audio parameters

➢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`

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

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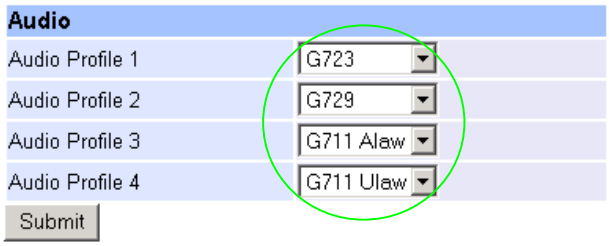
➢Scroll down to the Audio section

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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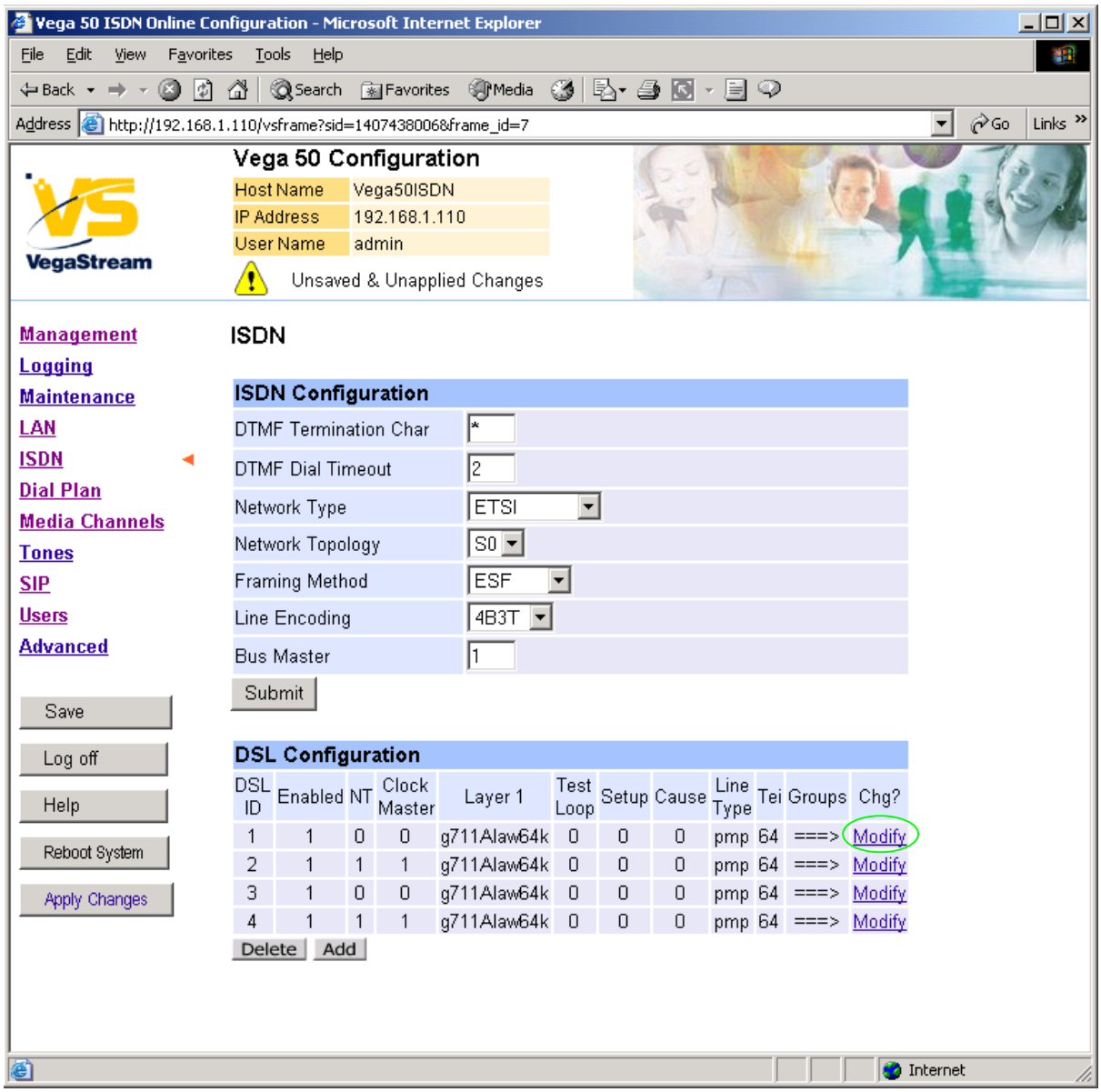
9. Configure ISDN DSLs

➢On the left hand side menu select ISDN



*The default values for **ISDN Configuration** – as shown above are the correct values for the BRI unit and should not be changed.*

Bus Master needs to be configured to point to an active TE trunk – to identify where the Vega will synchronise its internal clock from – in this configuration this should be 1 (DSL 1).

*For typical configurations in **DSL Configuration** the Line type should be configured for pp (point to point) and the TEI value should be changed to 0. Use of pmp (point to multipoint) and TEI=64 are useful when connecting the Vega 50 BRI to multiple BRI telephones.*

In **DSL Configuration**

➢Select Modify for DSL ID 1

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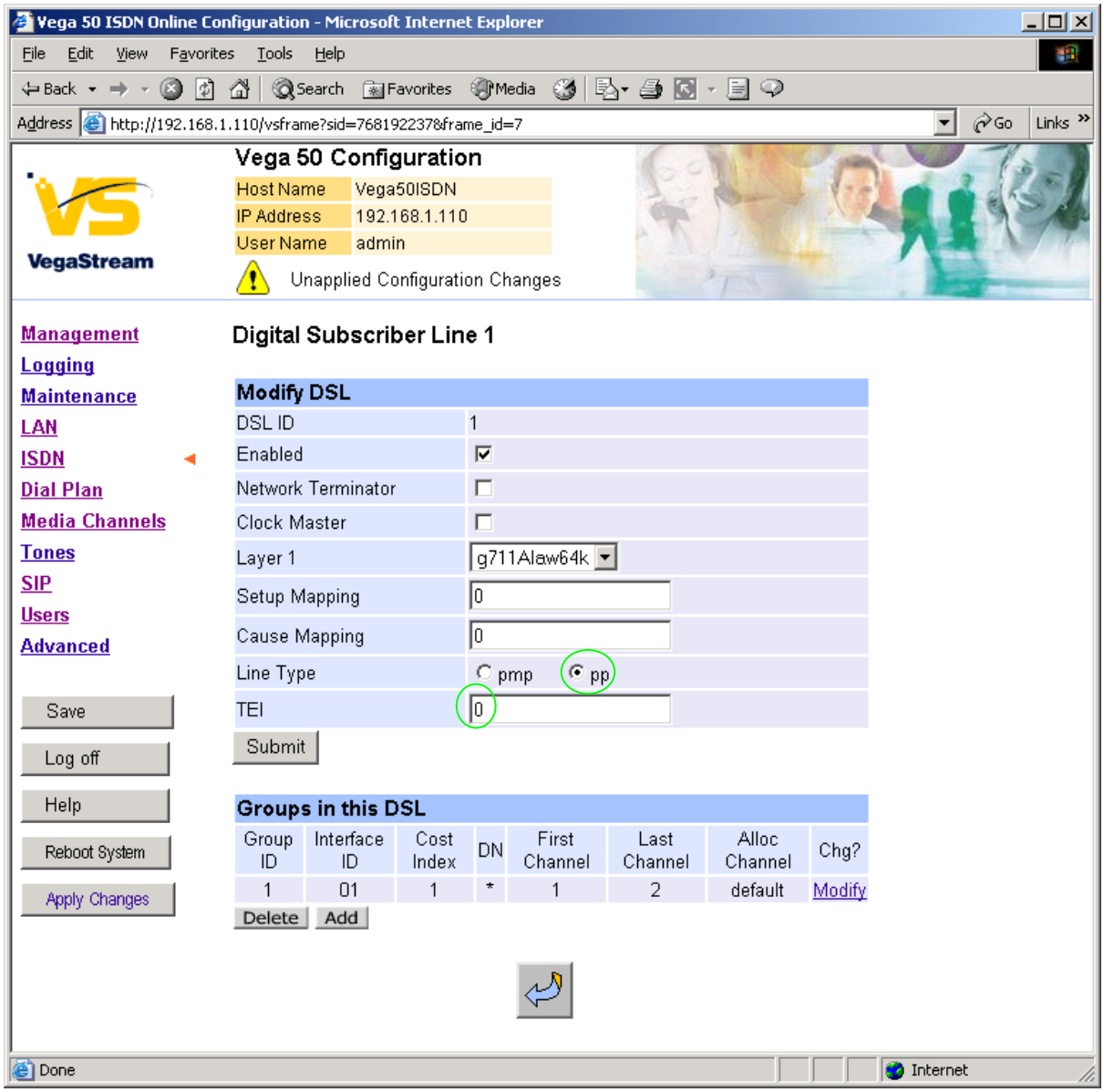

- Change line type to pp
- Set TEI = 0
- Select Submit and then click "here" to return

DSL Configuration

DSL ID	Enabled	NT	Clock Master	Layer 1	Test Loop	Setup	Cause	Line Type	Tei	Groups	Chg?
1	1	0	0	g711Alaw64k	0	0	0	pp	0	===>	Modify
2	1	1	1	g711Alaw64k	0	0	0	pmp	64	===>	Modify
3	1	0	0	g711Alaw64k	0	0	0	pmp	64	===>	Modify
4	1	1	1	g711Alaw64k	0	0	0	pmp	64	===>	Modify

Delete Add

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

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These are the default settings of the Vega and so no changes are required to the Network Terminator(NT) setting. If the values for NT are changed on any of the DSLs, then typically if NT is ticked then Clock Master should also be ticked. If NT is un-ticked (TE mode) then typically Clock Master should also be un-ticked.

➢Repeat setting line type = pp and TEI = 0 for DSLs 2 to 4

DSL Configuration

DSL ID	Enabled	NT	Clock Master	Layer 1	Test Loop	Setup	Cause	Line Type	Tei	Groups	Chg?
1	1	0	0	g711Alaw64k	0	0	0	pp	0	===>	Modify
2	1	1	1	g711Alaw64k	0	0	0	pp	0	===>	Modify
3	1	0	0	g711Alaw64k	0	0	0	pp	0	===>	Modify
4	1	1	1	g711Alaw64k	0	0	0	pp	0	===>	Modify

Delete Add

NOTE

Do not be surprised if, even after configuration, the LCD call count remains at "- -" and the Trunk LED flashes indicating no layer 2 connection. Many BRI connections do not bring up layer 2 until a call is made.

Table 1 can be used as a guide when setting up parameters for Vega 50 BRI ISDN installations.

Table 1. Network type, Line Encoding, and Topology

Product	Physical Connection	Network Topology	Network type	DSLs	Line Encoding	Calls
Vega 50-BRI-S	S/T 144 Kbps	S0	Euro ISDN	4	4B3T	8

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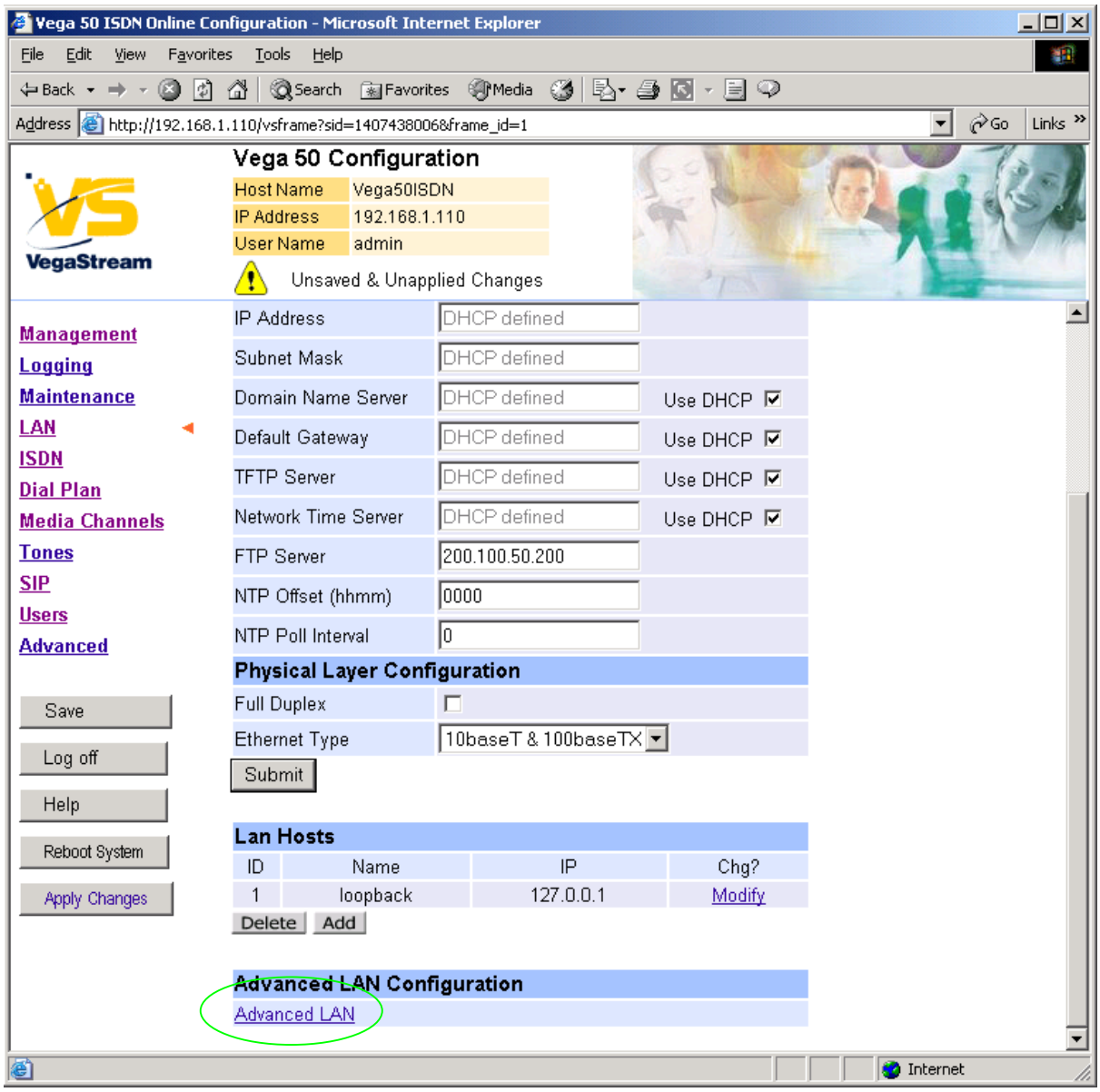
10. Configure pointer to CD ROM documentation

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



➢ Select Advanced LAN

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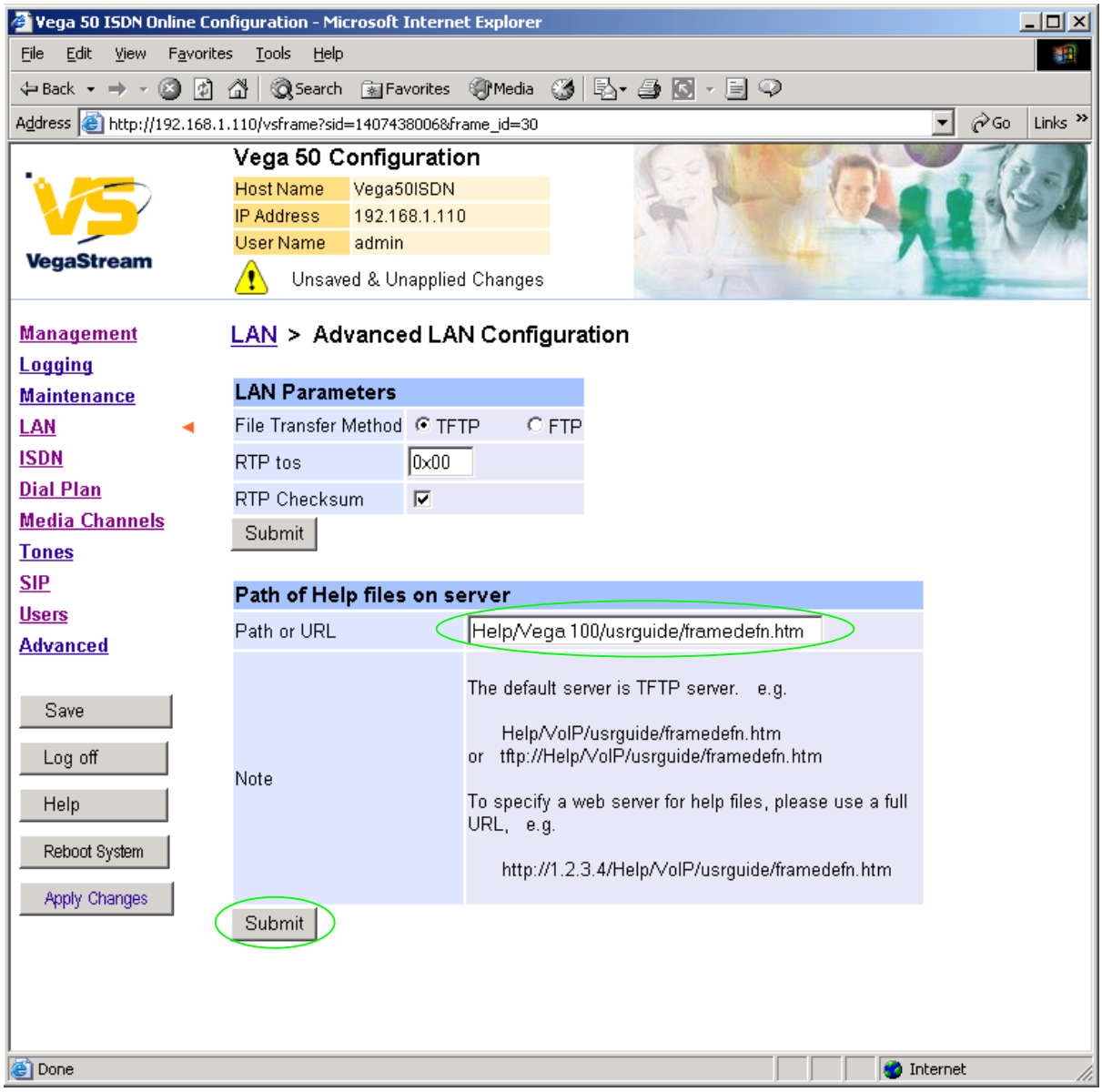

To configure for operation using the CD in the local PC CD-ROM drive,

- Set Path or URL = D:/Content/help/v50bris.htm

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

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

- select Submit and then click "here" to return

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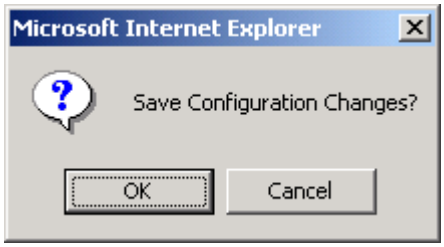
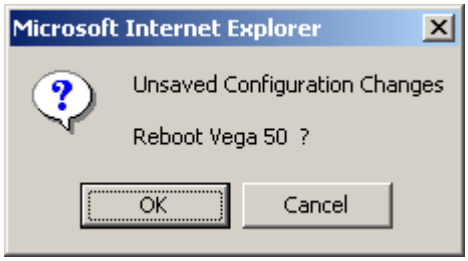
11. Save Changes

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 thtp: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

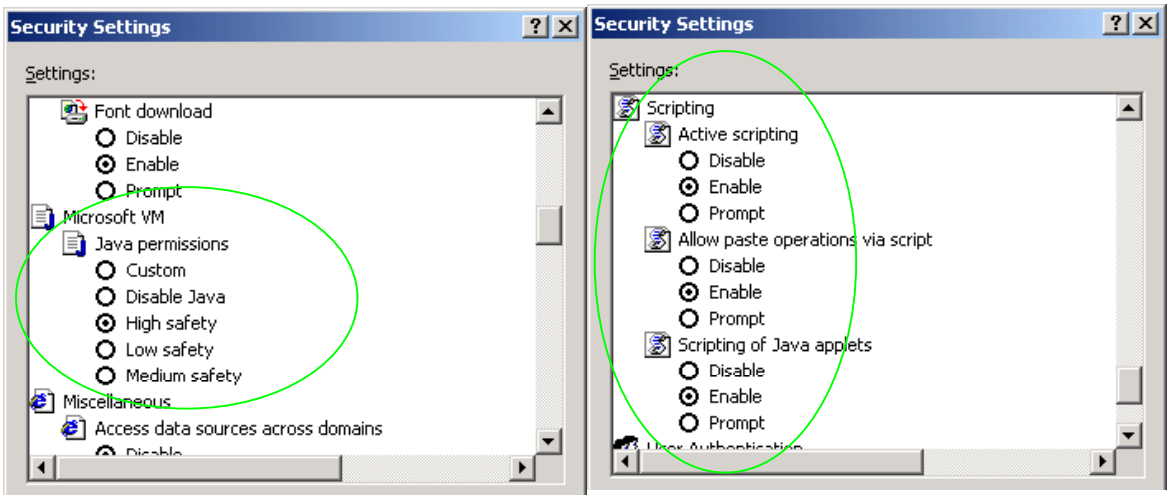
If you require help from VegaStream support personnel, please use the serial interface or telnet into the unit, log in and then type:

- `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 7). 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 7).

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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

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

14.1 Web browser configurable parameters

14.1.1 ISDN Channel Allocation Strategies

The Vega allows configuration of the channel allocation strategy to be used for each DSL on outgoing calls. Four options are available,

i) *Linear_down* – where the Vega will use the highest available free channel to make the outbound call … use this mode when the attached device is configured to make outbound calls using *Linear up.*
ii) *Linear_up* – where the Vega will use the lowest available free channel to make the outbound call … use this mode when the attached device is configured to make outbound calls using *Linear down.*
iii) *Round_robin* – in this mode the Vega remembers the last allocated channel and then tries to use the next channel up from this for the next outbound call. (After reaching the highest channel ID it restarts at the lowest channel again.) … use this mode when the attached device is configured to make outbound calls using *Round_robin* mode.
iv) *Default* – if the DSL is configured as NT then the Vega will use the *Linear_up* scheme, and if the DSL is configured as TE then the Vega will use *Linear_down*.

By default the Vega has chan_alloc set=*Default*

Using the web browser interface:

- On the left hand side menu select ISDN
- Then select the DSL to alter

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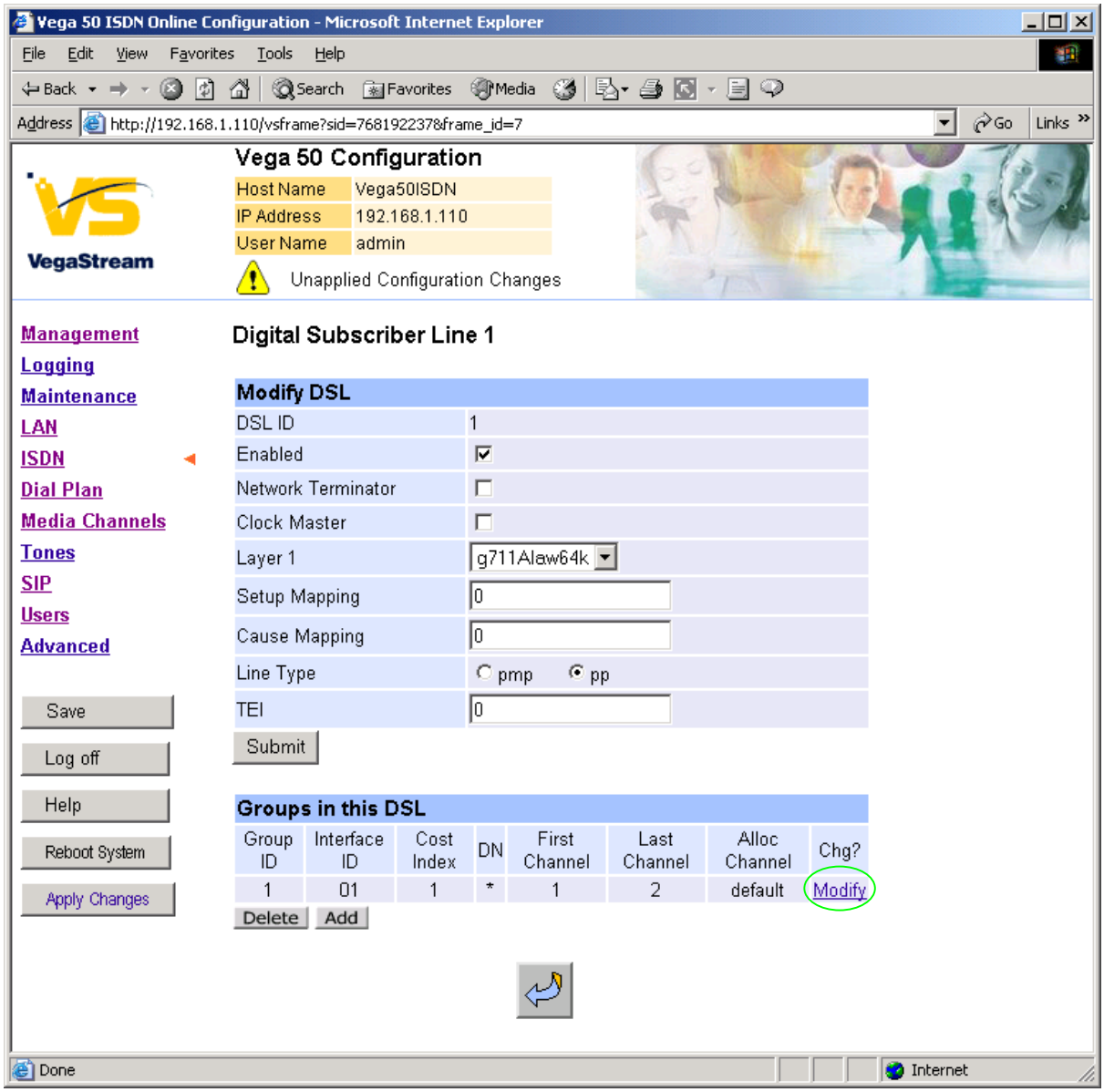

In the Groups in this DSL:

- Select Modify

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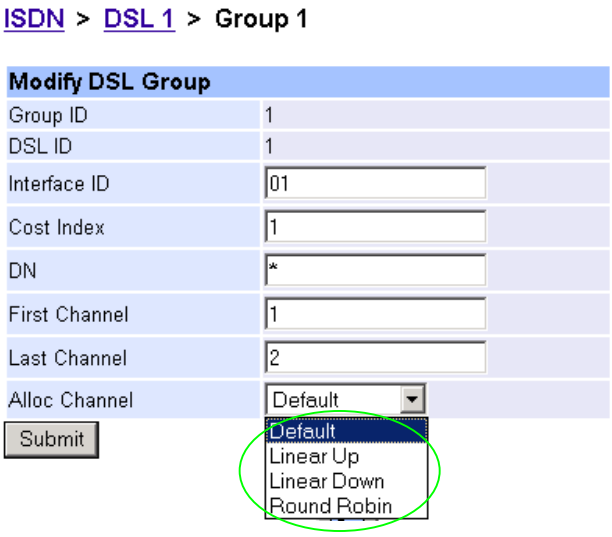

➢Select the desired channel allocation strategy from the Alloc Channel pull down.

➢select Submit and then click "here" to return

➢Save and reboot system to activate the change

14.2 Command Line Interface configurable parameters

These items must be configured using the Command Line interface available either using the serial connection or using a telnet session.

Connect to the Vega and log in.

14.3 Layer 2 control

Many Basic Rate ISDN trunks take layer 2 down when the line is not in use, bringing layer 2 up only when a call is to be made.

By default the Vega automatically tries to reinstate layer 2 immediately it sees layer 2 going down. This results in later 2 being removed, re-instated, and removed again on a regular basis. This can be observed by seeing regular link-down and link-up messages on the event log.

To allow layer 2 to be taken down between calls and only brought up for the duration of the calls, on the command line interface type:

- Set _advanced.isdn.restart_l2_after_disc=0

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On the front pannel, during calls the ISDN LED will be seen to be on solidly, and between calls the LED will flash.

14.3.1 End to End Call Proceeding

For SIP to ISDN calls, by default the Vega will send the Call Proceeding message on the SIP interface as soon as all the dialling information has been received.

It is possible to configure the Vega only to send the Call Proceeding on the SIP interface once it has received the call proceeding from the outgoing call made on the ISDN interface – i.e. the call proceeding is passed from end to end rather than being generated by the Vega. This mode is useful when the Vega is not the end point in the telephony network, but is an intermediate carrier.

To set the Vega to support end to end call proceeding, at the CLI prompt type:

- `Set _advanced.isdn.end_to_end_call_proceeding=1`

To allow the Vega to generate the call proceeding message set this configuration parameter to 0.

- Save and reboot system to activate the change

14.3.2 User progress tones

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.

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14.3.3 User progress tones

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 inband tone, then at the CLI prompt type:

- `Set _advanced.isdn.alert_with_progress=0`
- Save and reboot system to activate the change

If it is required that the Vega should always cut through the audio whatever the value of the in-band audio indicator, then at the CLI prompt type:

- `Set _advanced.isdn.alert_with_progress=2`
- Save and reboot system to activate the change

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

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