

Initial configuration

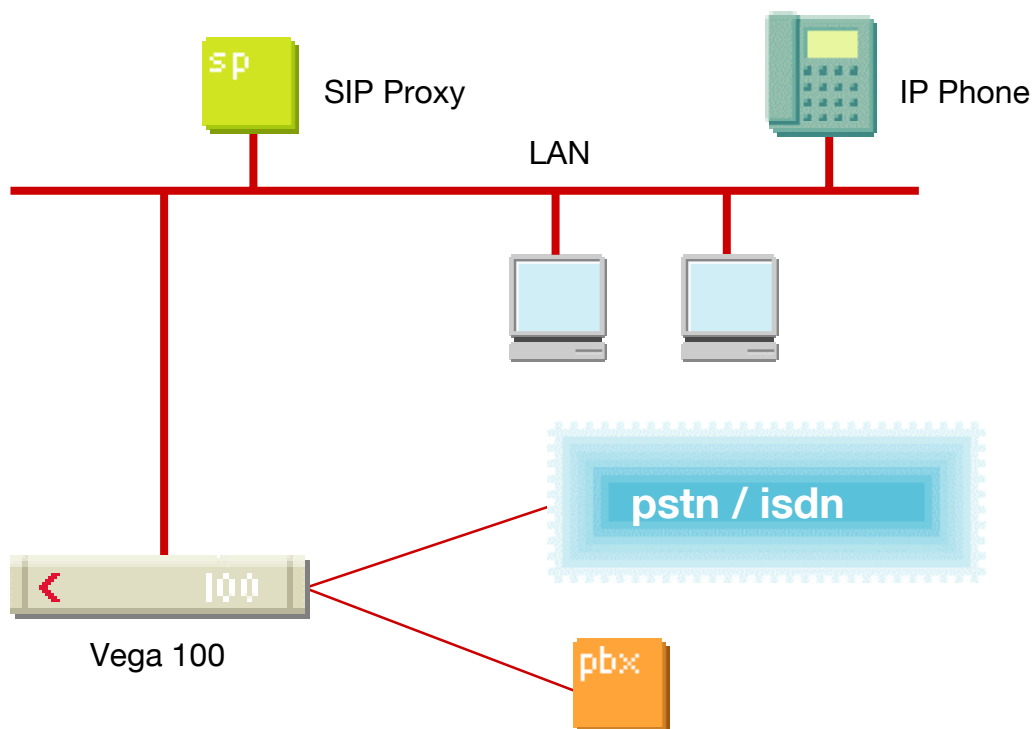
Vega 100 T1 (SIP) – R6



This document describes how to configure the Vega 100 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 100 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. The dialled 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 by the proxy. A leading 01 will cause the call to be routed to the PSTN, and a leading 02 will cause the call to be routed to the PBX. The digits following the 01 or 02 will be passed as the dialled digits.



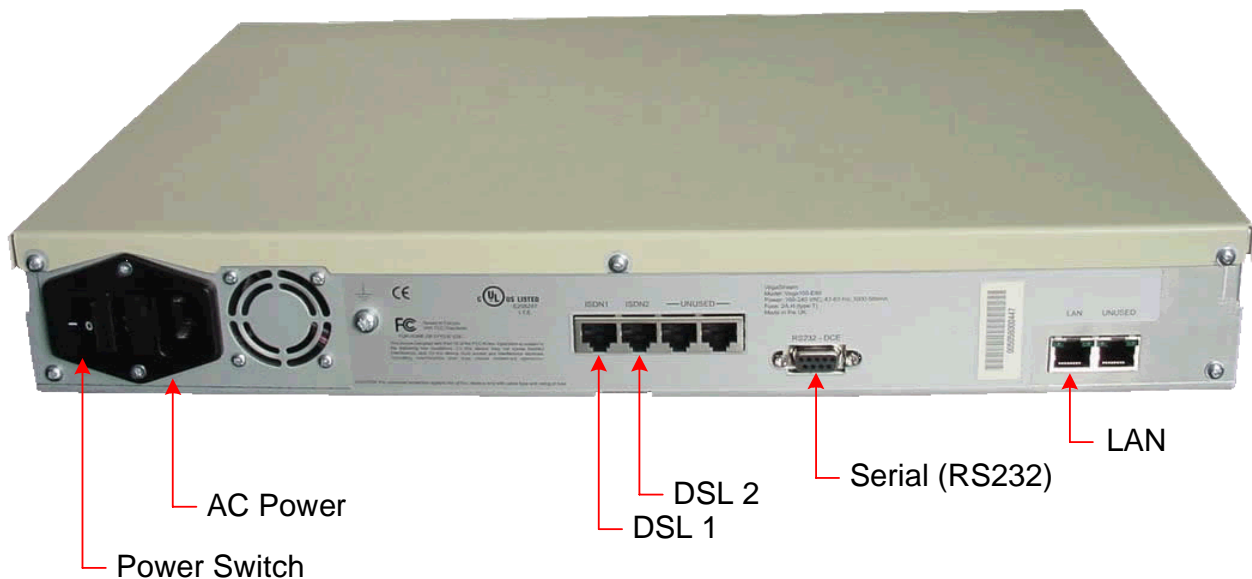
The configuration process is broken down into 12 stages as follows:

- 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 DSLs
- 10 Configure pointer to CD ROM documentation
- 11 Save Changes
- 12 Archive Vega Configuration

Please also see:

- 13 Technical Support
- 14 Advanced configuration

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 100 to a PBX, the Vega 100 acts as the NeTwork equipment and a red-booted cable must be used.

For each trunk that is to be connected to the PBX, insert one end of a red booted cable into one of the Vega 100 DSL sockets [DSL 1 or DSL 2] and the other end to the PBX.

Connection to the PSTN - If you are connecting the Vega 100 directly to the public telephone network it acts as the Terminal Equipment and the blue-booted cable must be used.

For each trunk that is to be connected to the PSTN, insert one end of a blue booted cable to one of the Vega 100 DSL sockets [DSL1 or DSL2] 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.

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
```

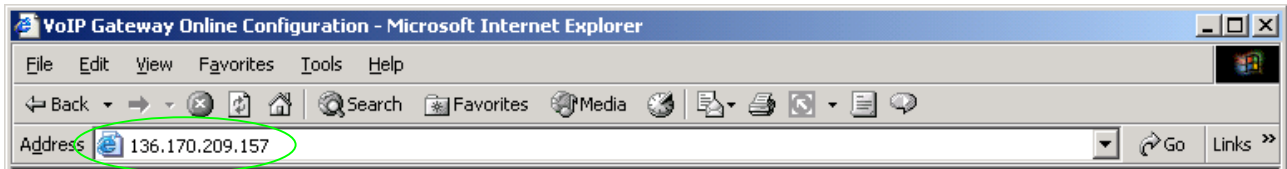
If this is not the IP address required, it can be overridden, together with other LAN parameters by typing:

```
> 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
```

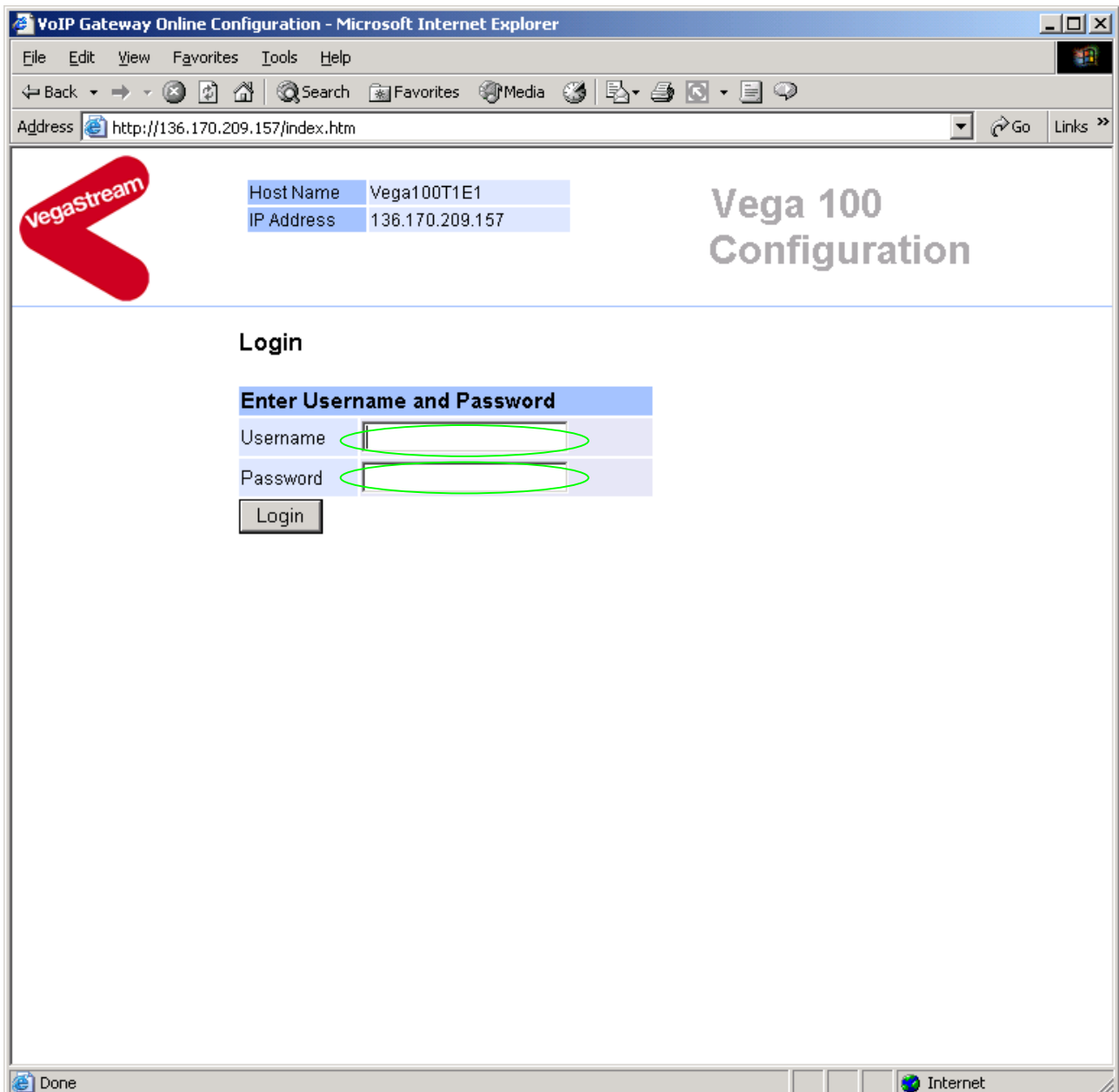
3. Configure password and login timeout

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

Host Name Vega100T1E1
IP Address 136.170.209.157
User Name admin

Vega 100 Configuration

Management **System Management**

Logging
Maintenance
LAN
DSL
Dial Plan
DSP
Media
Tones
SIP
Users
QoS
Advanced

Save
Log off
Help
Reboot System

Tip: Place the cursor of the mouse on name or input fields to get concise help.

Quick Configuration Wizard
Quick step by step essential configuration

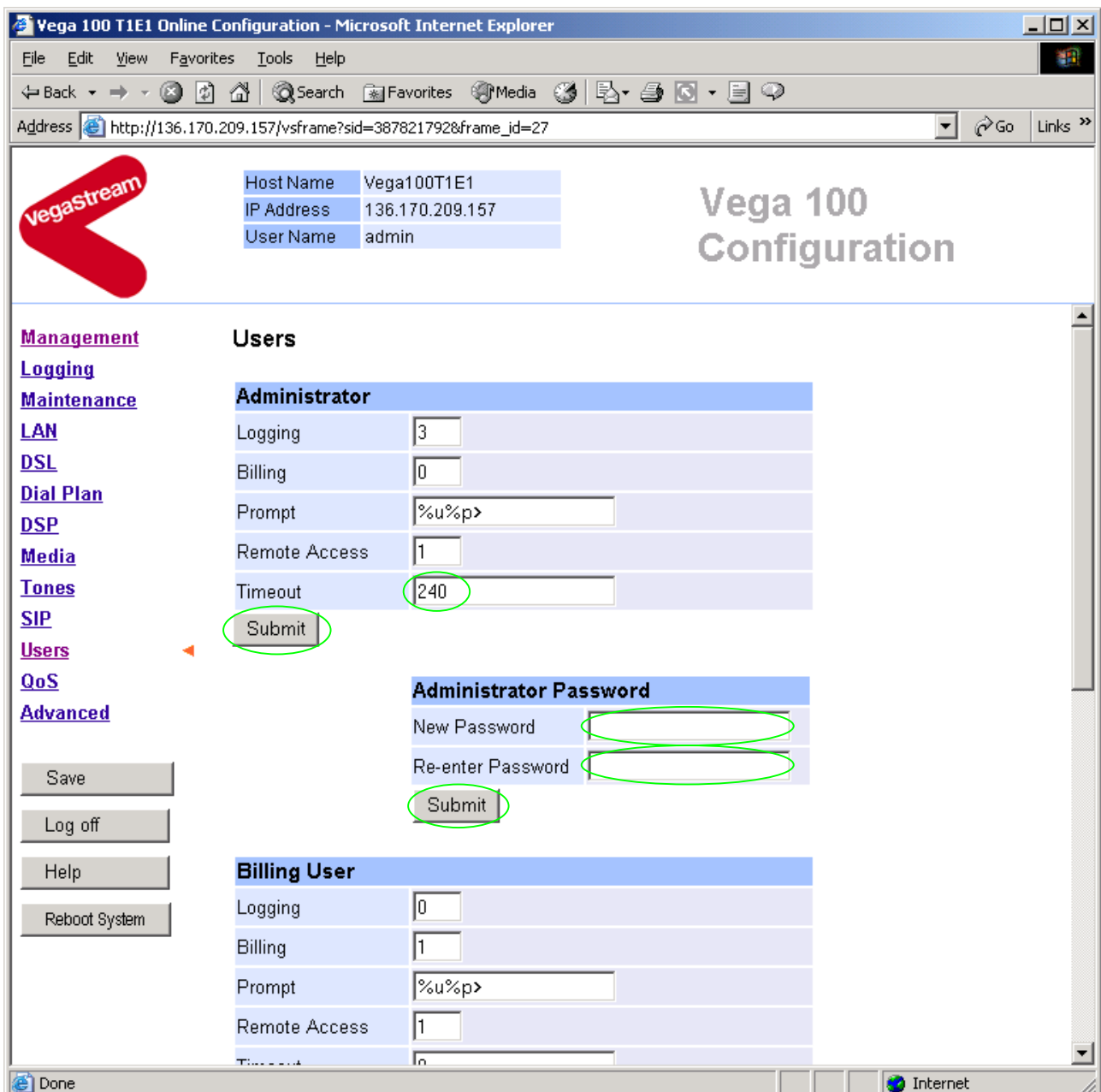
System Time
Set Time (hh:mm:ss) 09 : 36 : 34
Set Date (dd/mm/yyyy) 06 / 11 / 2003
Synchronise Time and Date With PC With NTP server

Call Reports
Report call progress summary [Show Calls](#)
Report on all call progress statistics [Show Trace](#)

System Logs
Show the Event Log [Show Event Log](#)
Show the Billing Log [Show Billing Log](#)

Call Control
All further calls are Unblocked

- On the left hand side menu select [Users](#)



Recommended: Change the password

- enter New Password and Re-enter Password then
- select and then click "[here](#)" to return

Optional: Change the timeout¹ – default is 240 seconds; can extend to 7200 seconds (2hrs)

- select 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.

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 and then click [“here”](#) to return

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

➤ Select and then click [“here”](#) to return

5. Configure the Dial Plan

➤ On the left hand side menu select [Dial Plan](#)

Host Name Vega100T1E1
IP Address 136.170.209.157
User Name admin

Vega 100 Configuration

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Dial Planner

Profiles

Del?	Profile ID	Enabled	Name	Plans	Chg?
<input type="checkbox"/>	1	1	Vega100T1E1_default	====>	Modify

Delete Add

Planner Groups

Del?	ID	Name	Cause	Lan	Gatekeeper	Active times	Priority	Chg?
<input type="checkbox"/>	1	Default	0	off	off	0000-2359	0	Modify

Delete Add

Planner Whitelist Enable

Use Whitelist

Submit

Planner Whitelists

Del?	ID	Name	Number	Chg?
<input type="checkbox"/>	1	default	IF:.*	Modify

Delete Add

Save
Log off
Help
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Internet

Firstly, turn off the default profile:

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

➤ Select [Modify](#)

[Dial Planner](#) > Profile 1

Modify Profile	
Profile ID	1
Enabled	<input checked="" type="checkbox"/>
Name	Vega100T1E1_default
<input type="button" value="Submit"/>	

- disable (un-tick) Enabled, then
- select 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:

Dial Planner

Profiles						
Del?	Profile ID	Enabled	Name	Plans	Chg?	
<input type="checkbox"/>	1	0	Vega100T1E1_default	===>	Modify	
<input type="button" value="Delete"/>	<input type="button" value="Add"/>					

In the **Profiles** section

- Select

Dial Planner

Profiles						
Del?	Profile ID	Enabled	Name	Plans	Chg?	
<input type="checkbox"/>	1	0	Vega100T1E1_default	===>	Modify	
<input type="checkbox"/>	2	1	new_profile	===>	<input type="button" value="Modify"/>	
<input type="button" value="Delete"/>	<input type="button" value="Add"/>					

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

- Select

[Dial Planner](#) > Profile 2

Modify Profile	
Profile ID	2
Enabled	<input checked="" type="checkbox"/>
Name	new_profile
<input type="button" value="Submit"/>	

- Set Name = ISDN_To_LAN
- select and then click "[here](#)" to return

Dial Planner

Profiles						
Del?	Profile ID	Enabled	Name	Plans	Chg?	
<input type="checkbox"/>	1	0	Vega100T1E1_default	====>	Modify	
<input type="checkbox"/>	2	1	ISDN_To_LAN	====>	Modify	

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

- Select [Modify](#)

[Dial Planner](#) > Profile 2

Modify Profile	
Profile ID	2
Enabled	<input checked="" type="checkbox"/>
Name	<input type="text" value="ISDN_To_LAN"/>

Plans in this Profile							
Del?	Plan ID	Name	Src	Dest	Cost	Group	Chg?
<input type="checkbox"/>	1	new_plan	TEL:<..><*>	IF:<1>,TEL:<2>	0	0	Modify

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

- Select [Modify](#)

Host Name Vega100T1E1
IP Address 136.170.209.157
User Name admin

Vega 100 Configuration

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Dial Planner > Profile 2 > Plan 1

Modify Plan

Plan ID 1
Profile ID 2
Name new_plan
Source TEL:<.><.*>
Destination IF:<1>,TEL:<2>
Cost Index 0
Group 0 - no group

Apply Generate Prefix Match

Regular Expressions for Source

.	Any character
[...]	Any character within the parentheses
[x-y]	Any character in the range x-y
[^...]	Any character except those within the parentheses
*	The character before repeated zero or more times
+	The character/expression before repeated one or more times
?	The character/expression before repeated zero or more times
\	The character following is taken literally
<...>	Capture the sequence in parentheses and store as < n > where n is the nth occurrence of <> in the source expression

Regular Expressions for Destination

- 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

VegaStream

Host Name	Vega100T1E1
IP Address	136.170.209.157
User Name	admin

Unsaved Configuration Changes

Dial Planner > Profile 2

Modify Profile

Profile ID	2
Enabled	<input checked="" type="checkbox"/>
Name	ISDN_To_LAN

Submit

Plans in this Profile

Del?	Plan ID	Name	Src	Dest	Cost	Group	Chg?
<input type="checkbox"/>	1	From_ISDN_or_PBX	IF:[*9],TEL:<*>	IF:99,TEL:<1>	0	0	Modify

Delete Add

Save Log off Help Reboot System

Internet

➤ On the left hand side menu select [Dial Plan](#)

Vega 100 Configuration

Host Name: Vega100T1E1
 IP Address: 136.170.209.157
 User Name: admin

Unsaved Configuration Changes

Dial Planner

Profiles

Del?	Profile ID	Enabled	Name	Plans	Chg?
<input type="checkbox"/>	1	0	Vega100T1E1_default	====>	Modify
<input type="checkbox"/>	2	1	ISDN_To_LAN	====>	Modify

Delete Add

Planner Groups

Del?	ID	Name	Cause	Lan	Gatekeeper	Active times	Priority	Chg?
<input type="checkbox"/>	1	Default	0	off	off	0000-2359	0	Modify

Delete Add

Planner Whitelist Enable

Use Whitelist

Submit

Planner Whitelists

Del?	ID	Name	Number	Chg?
<input type="checkbox"/>	1	default	IF:.*	Modify

Delete Add

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 or 02 – and the remainder of the digits are passed on as the telephone number)*

- select 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 or 02ttt...t, where ttt...t is the telephone number to dial and 01 or 02 is the interface through which the call is to be made.

For more details on the operation of the dial planner, including the various tokens that may be used, see the section "The Dial Planner" in the Vega Primer.

6. Configure SIP and audio parameters

- On the left hand side menu select [SIP](#)

Host Name Vega100T1E1
IP Address 136.170.209.157
User Name admin

Vega 100 Configuration

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SIP Configuration

General

Default Proxy Host Name/IP 0.0.0.0
Local Domain vegastream.com
Local SIP Port 5060
Remote SIP Port 5060
Accept Non-Proxy Invites
QoS profile 0

Submit

Multiple Proxy Support

Mode normal cyclic
Minimum Valid Response 180
Timeout (ms) 5000

Backup Proxy	Enabled	IP/Name	Port	Chg?
1	1	0.0.0.0	5060	Modify
2	1	0.0.0.0	5060	Modify

Delete Add
Submit

Audio

Save
Log off
Help
Reboot System
Apply Changes

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.

- select and then click "[here](#)" to return
- 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:

Audio	
Audio Profile 1	<input type="text" value="G723"/>
Audio Profile 2	<input type="text" value="G729"/>
Audio Profile 3	<input type="text" value="G711 Ulaw"/>
Audio Profile 4	<input type="text" value="G711 Alaw"/>

- select and then click "[here](#)" to return

7. Configure Authentication

In some systems – to ensure that only authorised devices are allowed to set up and clear calls – SIP authentication is used. If authentication is used, it is typically required on the SIP REGISTRATION, INVITE, ACK and BYE messages.

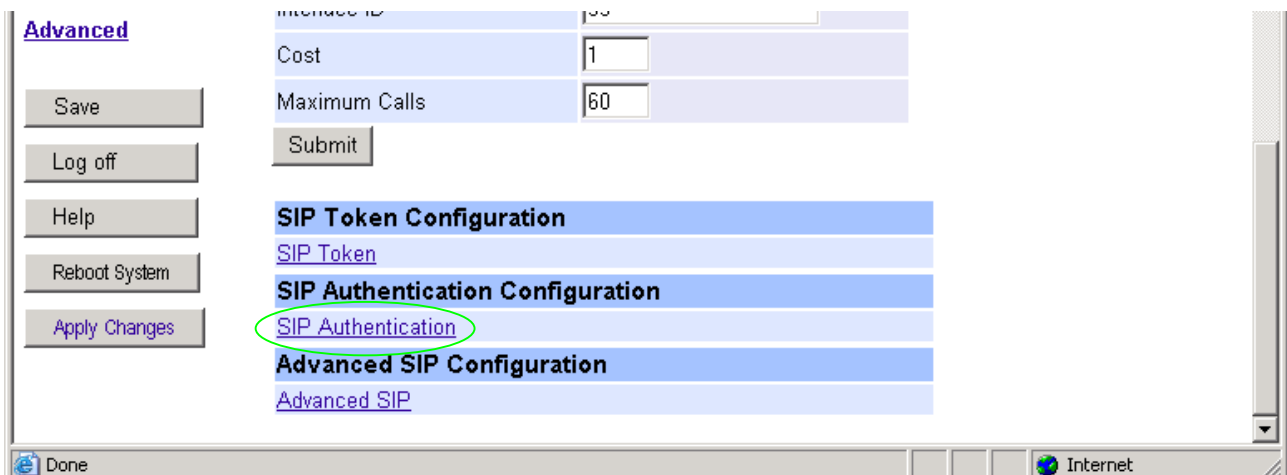
For authentication, a user-name, and a password can be configured. The user-name is constructed from three parts

Username Prefix, Username and Username Suffix

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 bottom to the **SIP Authentication Configuration** section



- Select [SIP Authentication](#)


Vega 100 T1E1 Online Configuration - Microsoft Internet Explorer

Address: http://136.170.209.157/vsframe?sid=-1261603407&frame_id=52



Host Name	Vega100T1E1
IP Address	136.170.209.157
User Name	admin

Vega 100 Configuration

 Unsaved & Unapplied Changes


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- DSL
- Dial Plan
- DSP
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- Tones
- SIP**
- Users
- QoS
- Advanced

SIP > Authentication

SIP Authentication Users

Del?	User	Enable	Username Prefix	Username Suffix	Username	Built Username	Password	Source	Chg?
<input type="checkbox"/>	1	0	no prefix	vega1	authuser1	authuser1vega1	pass1	IF:00	Modify



Done Internet

➤ Select [Modify](#)

[SIP](#) > [Authentication](#) > [User](#)

SIP Tokens	
Token	Value
1	vega1
2	01

Modify SIP Authentication User

SIP Authentication User 1	
Enable	<input type="checkbox"/>
Username Prefix	none
Username Suffix	vega1
Username	authuser1
Password	pass1
Source	IF:00
<input type="button" value="Submit"/>	

- Set Username Suffix = none
- Set Username = VegaGateway123
- Set Password = LetMeIn
- Set Source = IF:.*

- select and then click "[here](#)" to return

- On the left hand side menu select [SIP](#)
- Scroll down to the bottom to the **Advanced SIP Configuration** section

VegaStream

Host Name: Vega100T1E1
 IP Address: 136.170.209.84
 User Name: admin

Vega 100 Configuration

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DTMF INFO: mode1 mode2
 RFC2833 payload (96-127):
 Enable T38:
 Enable Fax:
 Fax Detect: always terminating never
 Signalling Application ID:
 T1 Retry Timer Increment (ms):
 T2 Retry Timer Limit (ms):
 Interface ID:
 Cost:
 Maximum Calls:

Save Submit

Log off

Help

Reboot System

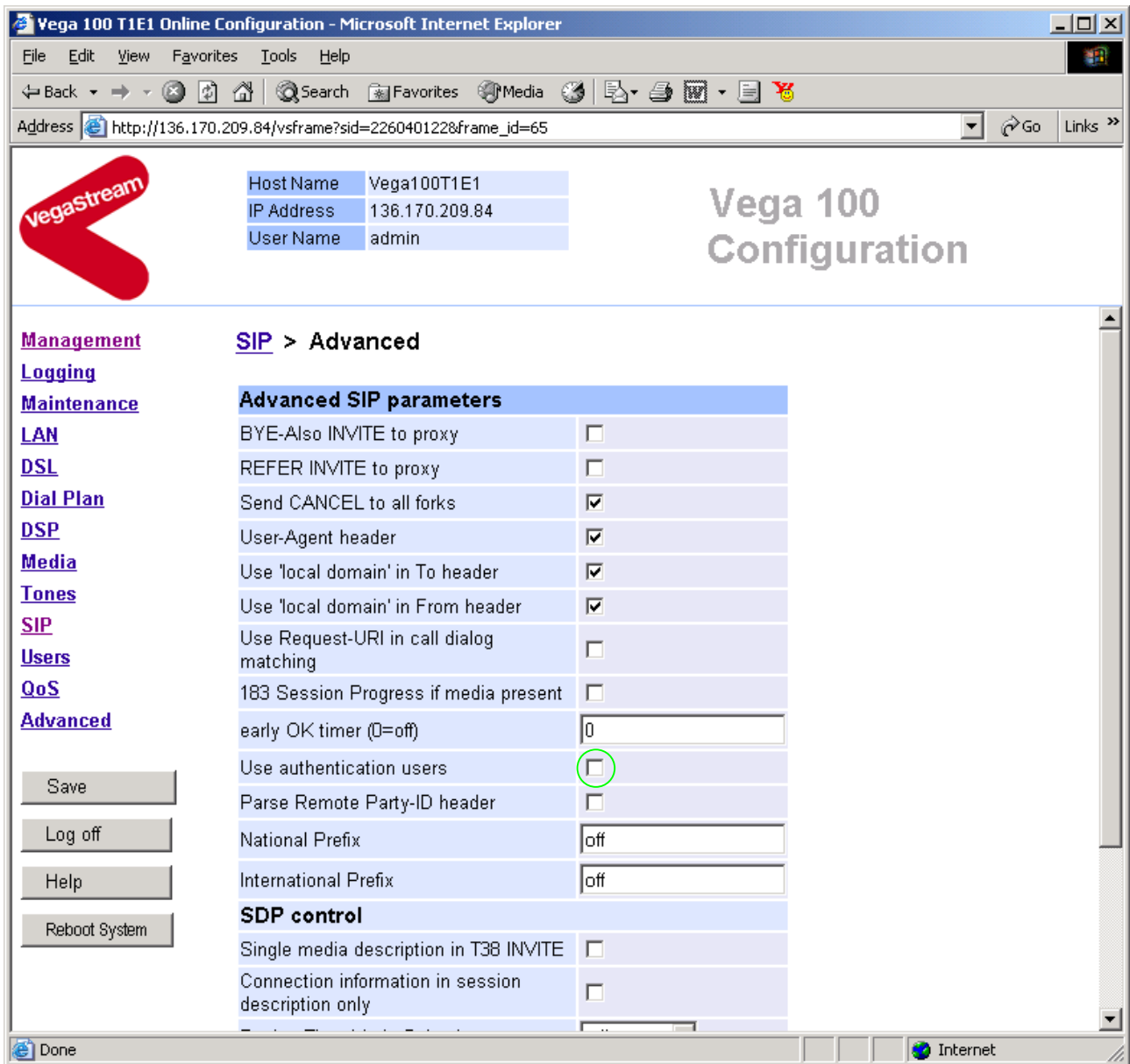
SIP Token Configuration
[SIP Token](#)

SIP Authentication Configuration
[SIP Authentication](#)

Advanced SIP Configuration
[Advanced SIP](#)

Done Internet

➤ Select [Advanced SIP](#)



➤ Tick Use Authentication Users

8. Configure Registration

Typically trunking gateways (like the Vega 100) 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 100

- 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 100 with a request URI of the format `ii...t@contact_address`

- where `ii` is the interface number through which to make the call (Vega interface 01 or 02), and
- where `...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 100 registration”](#)

9. Configure DSLs

➤ On the left hand side menu select [DSL](#)

Host Name Vega100T1E1
IP Address 136.170.209.157
User Name admin

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DSL

DSL Configuration

Network Type: ETSI
Network Topology: E1
Line Encoding: HDB3
Framing: CRC4
Bus Master: 1

Submit

PORT Configuration

PORT ID	Enabled	NT	Clock Master	Layer 1	E1 rx Short Haul	T1 tx equalization	ISDN	CAS	Groups	Chg?
1	1	0	0	g711Alaw64k	1	sh220_330	====>	====>	====>	Modify
2	1	1	1	g711Alaw64k	1	sh220_330	====>	====>	====>	Modify

Delete Add

Save
Log off
Help
Reboot System
Apply Changes

Start by selecting the correct Network Topology

DSL

DSL Configuration

Network Type: ETSI
Network Topology: E1
Line Encoding: E1
Framing: CRC4
Bus Master: 1


Submit

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

In the **DSL Configuration** section select the Network Type as required:

DSL

DSL Configuration	
Network Type	ETSI
Network Topology	ETSI
Line Encoding	
Framing	
Bus Master	
<input type="button" value="Submit"/>	



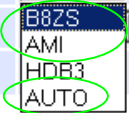
- ATT = 4ESS / 5ESS
- DMS = DMS 100
- DMS_M1 = Meridian specific DMS signalling
- NI = National ISDN NI1 / NI2
- QSIG = QSIG signalling
- RBS = Robbed bit CAS signaling
- AUTO – this selects DMS signaling

Note: ETSI is not supported on the T1 interface.

In the **DSL Configuration** section select the Line Encoding as required:

DSL

DSL Configuration	
Network Type	ATT
Network Topology	T1
Line Encoding	HDB3
Framing	B8ZS
Bus Master	
<input type="button" value="Submit"/>	



- B8ZS = Bipolar with 8 zero substitution (forces line reversals regularly)
- AMI = Alternate Mark Inversion
- AUTO – selects B8ZS

Note: HDB3 is not supported on the T1 interface.

In the **DSL Configuration** section select the Framing Method as required:

DSL

DSL Configuration	
Network Type	ATT
Network Topology	T1
Line Encoding	B8ZS
Framing	CRC4
Bus Master	ESF
<input type="button" value="Submit"/>	

ESF
SF
CRC4
PCM30
AUTO

- 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

- select and then click "[here](#)" to return

Vega 100 Configuration

Host Name: Vega100T1E1
 IP Address: 136.170.209.157
 User Name: admin

Unsaved & Unapplied Changes

DSL

DSL Configuration

Network Type: ATT
 Network Topology: T1
 Line Encoding: B8ZS
 Framing: ESF
 Bus Master: 1

Submit

PORT Configuration

PORT ID	Enabled	NT	Clock Master	Layer 1	E1 rx Short Haul	T1 tx equalization	ISDN	CAS	Groups	Chg?
1	1	0	0	g711Alaw64k	1	sh220_330	====>	====>	====>	Modify
2	1	1	1	g711Alaw64k	1	sh220_330	====>	====>	====>	Modify

Delete Add

Save
Log off
Help
Reboot System
Apply Changes

For the configuration indicated in the initial diagram DSL1 = connection to the PSTN and DSL 2 is a connection to a PBX. Therefore the Vega needs DSL 1 configured as TE (and a blue booted cable used on DSL 1), and DSL 2 configured as NT (and a red booted cable used on DSL 2).

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

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](#)

Host Name Vega100T1E1
IP Address 136.170.209.157
User Name admin

Unsaved & Unapplied Changes

Port 1

Port Configuration

Port ID	1
Enabled	<input checked="" type="checkbox"/>
Network Terminator	<input type="checkbox"/>
Clock Master	<input type="checkbox"/>
Layer 1	g711Alaw64k
Set E1 RX short haul	g711Ulaw64k
T1 TX equalization	auto

Submit

ISDN Configuration

DTMF Termination Char	*
DTMF Dial Timeout	2
Setup Mapping	0
Cause Mapping	0

Submit

CAS Configuration

Dial Format String	.
Dinit Dial Timeout	6

➤ Set Layer 1 = g711Ulaw64k

- 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. if either trunk is TE then the Bus Master value (in the ISDN Configuration section) should be set to point to the (one of the) TE trunk(s); 1 for DSL 1 and 2 for DSL 2.

➤ select [Submit](#) and then click "[here](#)" to return

Return to this page:

➤ Set DTMF Dial Timeout = 5

- select and then click "[here](#)" to return

If you selected RBS as the signalling type, see RBS CAS configuration in the advanced configuration section [14.2 Configuring RBS CAS](#) for details on additional configuration.

- On the left hand side menu select [DSL](#)

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

- Again select
- Scroll down to the bottom of the page

Vega 100 Configuration

Host Name Vega100T1E1
IP Address 136.170.209.157
User Name admin

Unsaved & Unapplied Changes

DTMF Termination Char *

DTMF Dial Timeout 2

Setup Mapping 0

Cause Mapping 0

Submit

CAS Configuration

Dial Format String .

Digit Dial Timeout 6

Info dtmf

Signal em_wink

Tone Delay 50

Submit


Groups

Group ID	Interface ID	Cost Index	DN	First Channel	Last Channel	Alloc Channel	Tunnel Mode	Chg?
1	01	1	*	1	auto	default	off	Modify

Delete Add

Save
Log off
Help
Reboot System
Apply Changes

In the **Groups** section, if Last Channel is not auto

- Select **Modify** and
- Set Last Channel = auto, or 23 for PRI signalling schemes, or 24 for RBS CAS, or auto
- select **Submit** and then click "[here](#)" to return
- select 

- Repeat the Port configuration for the other Port (PORT ID 2) – including g711ulaw, NT/clock master and last channel.

Table 1 can be used as a guide when setting up parameters for Vega 100 T1 ISDN installations.

Table 1. Network type, Line Encoding, and Topology

Product	Physical Connection	Network Topology	Network Type	DSLs	Framing	Line Encoding	Calls
Vega 100-PRI-T1	T1-1.544 Mbps	T1	AT&T 4ESS / 5ESS, NI 1 / NI 2, DMS-100	2	SF / ESF	B8ZS, AMI	23 / 46
Vega 100-PRI-T1	T1-1.544 Mbps	T1	QSIG	2	SF / ESF	B8ZS, AMI	23 / 46
Vega 100-T1-RBS_CAS	T1-1.544 Mbps	T1	RBS	2	SF / ESF	B8ZS, AMI	24 / 48

10. Configure pointer to CD ROM documentation

- On the left hand side menu select [LAN](#)
- Scroll to the bottom of the screen

Host Name Vega100T1E1
IP Address 136.170.209.157
User Name admin

Vega 100 Configuration

Unsaved & Unapplied Changes

Management
[Logging](#)
[Maintenance](#)
[LAN](#)
[DSL](#)
[Dial Plan](#)
[DSP](#)
[Media](#)
[Tones](#)
[SIP](#)
[Users](#)
[QoS](#)
[Advanced](#)

Save
Log off
Help
Reboot System
Apply Changes

FTP Server 136.170.209.214
NTP Offset (hhmm) 0000
NTP Poll Interval 0

Physical Layer Configuration
Full Duplex
Ethernet Type 10baseT & 100baseTX
QoS profile 1
Submit

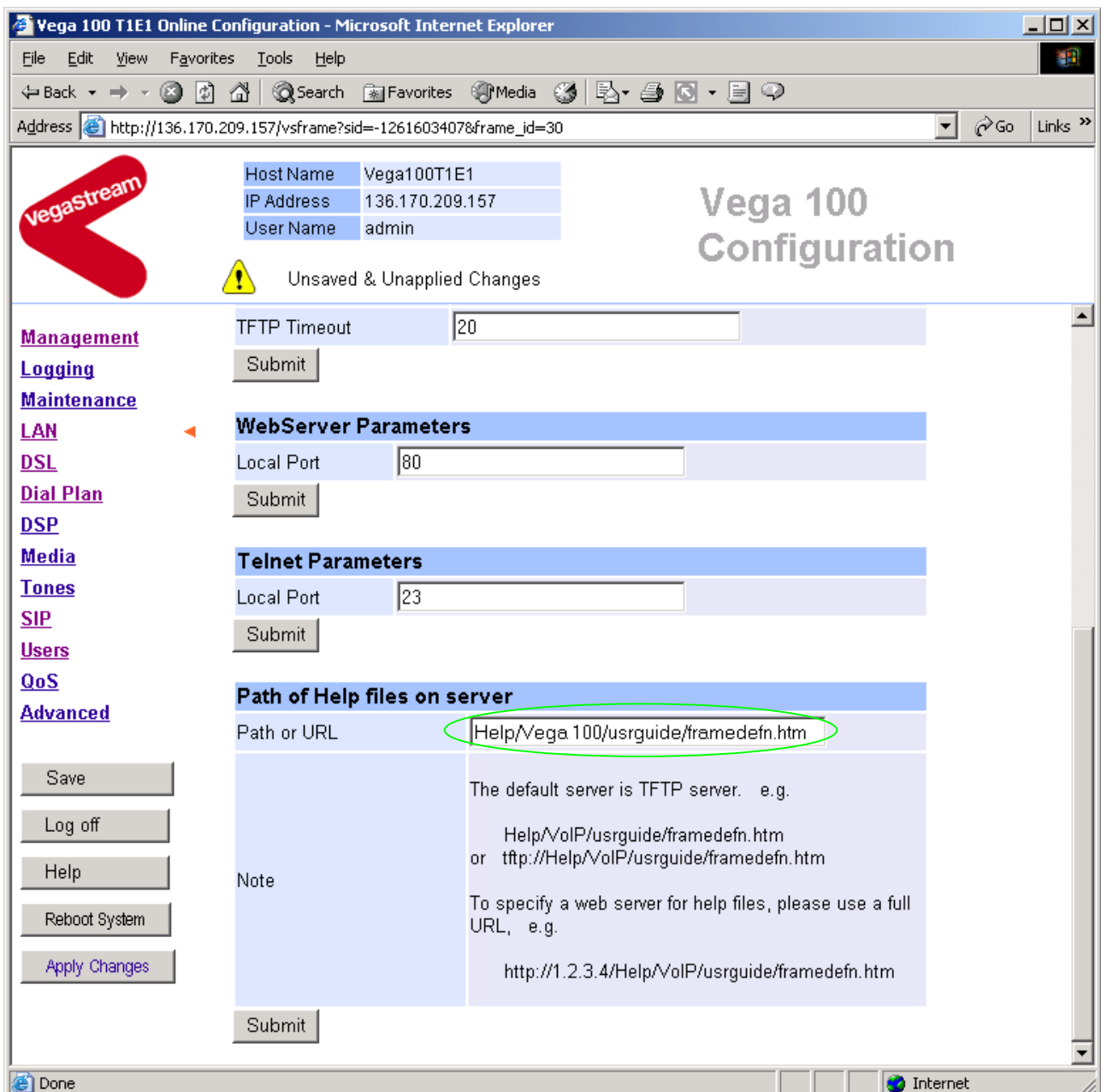
Lan Hosts

ID	Name	IP	Chg?
1	loopback	127.0.0.1	Modify

Delete Add

Advanced LAN Configuration
[Advanced LAN](#)
Private Subnets Configuration
[Private Subnets](#)
NAT Configuration
[NAT](#)
LAN Ports Configuration
[LAN Ports](#)

- Select [Advanced LAN](#)
- Scroll to the bottom of the screen



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

- Set Path or URL = D:/Content/help/v100t1s_R6.htm

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

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

- select and then click "[here](#)" to return

11. Save Changes

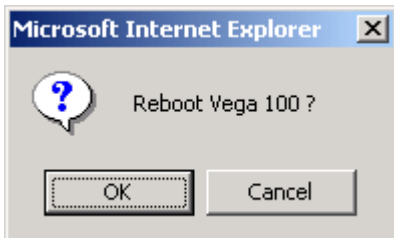
The changes to the configuration must be saved and activated. This is carried out as follows:

- On the left hand side menu select [Save](#)



- Select and after the configuration has been saved click "[here](#)" to return

- On the left hand side menu select



- Select

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

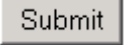
12. Archive Vega Configuration

Once configured it is recommended that the configuration is archived to an external server.

To do this check that the tftp address is configured to point to a tftp server (in the [LAN](#) page), then on the left hand side menu select [Advanced](#), and scroll to the CLI Command section:



The screenshot shows a web interface with a blue header bar labeled "CLI Command". Below the header is a white text input field and a grey "Submit" button.

- in the text entry box type “PUT tftp:initial_cfg.txt”. Select .

This will send all the configuration parameters to the tftp server and save them as the file “initial_cfg.txt”. (Note: you may want to choose a unique name rather than “initial_cfg.txt”, especially if you are configuring more than 1 unit).

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

If the ftp server requires a login username and password configure the following:

- set _advanced.lan.ftp.anonymous_login=0
- set _advanced.lan.ftp.username=<ftp username>
- set _advanced.lan.ftp._password-<ftp password>

13. Technical Support

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

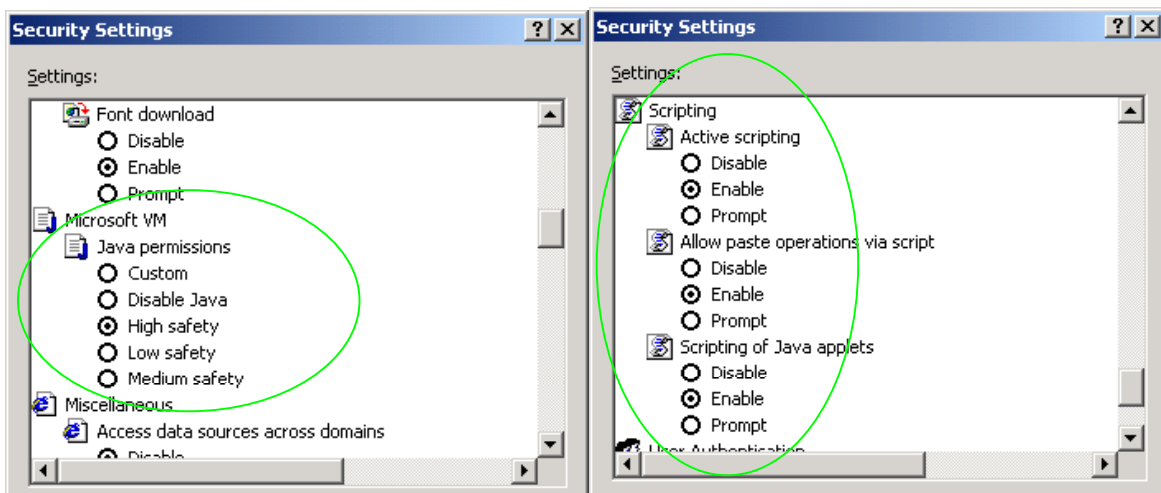
If you require help from VegaStream support personnel, please use the serial interface or telnet into the unit, log in and then type:

- show support
- sip monitor on
- log display on

Carry out the interaction you want explained, then copy the information provided by the Vega and e-mail it to support@VegaStream.com together with your question.

Notes:

1. If the screens do not appear as indicated, check that Java is enabled on your web browser (Tools>internet options>Security, select internet and custom level and configure Microsoft VM Java permissions and Scripting parameters as indicated below.



2. Where there are multiple sections – each with a **Submit** button – entries must be made to one section at a time, and those entries confirmed by the **Submit** button before the next section is altered. Each **Submit** button only confirms entries for its own section. Any changes in other sections will be discarded when the **Submit** is pressed.
3. Loss of audio mid call – consider reducing the selection of available codecs (see section 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”.

14. Advanced configuration

T1 units have further configurable parameters which may be desirable to configure in order to fully integrate into the attached ISDN infrastructure.

14.1 Configure Vega 100 registration

For trunking gateways, registration 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 "Vega100Gateway123"

- On the left hand side menu select [SIP](#)
- Scroll down to the **Registration** section

Host Name Vega100T1E1
IP Address 136.170.209.157
User Name admin

Vega 100 Configuration

Unsaved & Unapplied Changes

Registration

Enable Registration	<input checked="" type="checkbox"/>
Register on Start-up	<input type="checkbox"/>
Registrar Host Name/IP	0.0.0.0
Registrar Remote Port	5060
Expiry Time (seconds)	600
Show SIP Registration	Show Registration
<input type="button" value="Submit"/>	

SIP Registration Users Configuration

[SIP Registration Users](#)

Miscellaneous

SIP Signalling Transport	<input checked="" type="radio"/> udp <input type="radio"/> tcp
Reliable Provisional Responses	<input type="radio"/> supported <input type="radio"/> require <input checked="" type="radio"/> off
DTMF Transport	<input checked="" type="radio"/> rfc2833 <input type="radio"/> info <input type="radio"/> rfc2833 and tx info <input type="radio"/> rfc2833 and rx info <input type="radio"/> off
DTMF INFO	<input checked="" type="radio"/> mode1 <input type="radio"/> mode2
RFC2833 payload (96-127)	96
Enable T38	<input checked="" type="checkbox"/>
Enable Fax	<input checked="" type="checkbox"/>

- Select/tick Register on Start-up
- Set Registrar Host Name/IP =
IP_or_DNS_name_of_SIP_registrar_or_machine
proxying_for_the_registrar
- select and then click "[here](#)" to return

In the **SIP Registration Users Configuration** section

- Select SIP Registration Users

[SIP](#) > Registration

SIP Registration Users

Del?	User	Enable	Dn	Username Prefix	Username Suffix	Username	Built Username	Authentication User Index	Chg?
<input type="checkbox"/>	1	0	100	no prefix	vega1	reguser1	reguser1vega1	1 - VegaGateway123	Modify

➤ Select [Modify](#)

The screenshot shows the 'Vega 100 T1E1 Online Configuration' web interface in Microsoft Internet Explorer. The browser address bar shows 'http://136.170.209.157/vsframe?sid=-1261603407&frame_id=52'. The page title is 'Vega 100 Configuration'. A sidebar on the left contains navigation links: Management, Logging, Maintenance, LAN, DSL, Dial Plan, DSP, Media, Tones, SIP, Users, QoS, and Advanced. The main content area shows the breadcrumb 'SIP > Registration > User'. Below this, there are sections for 'SIP Tokens', 'SIP Authentication Users', and 'Modify SIP Registration User'. The 'Modify SIP Registration User' section is for 'SIP Registration User 1' and contains the following fields: 'Enable' (checkbox, circled in green), 'Dn' (text box with '100'), 'Username Prefix' (dropdown menu with 'none'), 'Username Suffix' (dropdown menu with 'vega1', circled in green), 'Username' (text box with 'reguser1', circled in green), and 'Authentication User Index' (dropdown menu with '1 - VegaGateway123', circled in green). A 'Submit' button is at the bottom of the form. A warning icon and 'Unsaved & Unapplied Changes' message are visible above the main content area. The bottom of the browser window shows 'Done' and 'Internet' status.

In Modify SIP Registration User, SIP Registration User 1

- Tick Enable
- Set Username Suffix = none
- Set Username = Vega100Gateway123

If Authentication will be needed for REGISTRATION

- Set Authentication User Index = Required Authentication User

Modify SIP Registration User

SIP Registration User 1	
Enable	<input checked="" type="checkbox"/>
Dn	<input type="text" value="100"/>
Username Prefix	<input type="text" value="none"/>
Username Suffix	<input type="text" value="none"/>
Username	<input type="text" value="Vega100Gateway123"/>
Authentication User Index	<input type="text" value="1 - VegaGateway123"/>
<input type="button" value="Submit"/>	

- Select and then click "[here](#)" to return

- Save and reboot to activate

14.2 Configuring RBS CAS

- On the left hand side menu select [DSL](#)

In the **Port Configuration** section:

PORT Configuration										
PORT ID	Enabled	NT	Clock Master	Layer 1	E1 rx Short Haul	T1 tx equalization	ISDN	CAS	Groups	Chg?
1	1	0	0	g711Ul ^{aw} 64k	1	sh220_330	====>	====>	====>	Modify
2	1	1	1	g711Al ^{aw} 64k	1	sh220_330	====>	====>	====>	Modify

- Select Modify
- Scroll down to the **CAS Configuration** section

CAS Configuration	
Dial Format String	<input type="text" value="."/>
Digit Dial Timeout	<input type="text" value="6"/>
Info	<input type="text" value="dtmf"/>
Signal	<input type="text" value="em_wink"/>
Tone Delay	<input type="text" value=""/>
<input type="button" value="Submit"/>	

➤ Select the type of RBS CAS signalling

- em_wink = E & M wink start signalling
- loopstart = loop start signaling
- gndstart = ground start signaling
- fgd = E & M wink start signaling supporting feature group D (for caller ID)

CAS Configuration	
Dial Format String	.
Digit Dial Timeout	6
Info	dtmf
Signal	em_wink
Tone Delay	50
<input type="button" value="Submit"/>	

Dial Format String – this chooses the format of the dialled number DNIS and calling party number ANI. See *the Vega Primer for more details*.

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

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

➤ select and then click "[here](#)" to return

14.3 Line impedance matching

In order to match the signal shapes produced by the Vega to the T1 line it is working with there is a parameter `tx_equalisation` that can be configured:

➤ `set _advanced.isdn.tx_equalization=<tx_equ>`

or on the web browser interface, in the **Port Configuration** section off the DSL page:

Port Configuration	
Port ID	1
Enabled	<input checked="" type="checkbox"/>
Network Terminator	<input type="checkbox"/>
Clock Master	<input type="checkbox"/>
Layer 1	g711Alaw64k
Set E1 RX short haul	<input checked="" type="checkbox"/>
T1 TX equalization	sh220_330
<input type="button" value="Submit"/>	

<tx_equ> can take the following values:

1h1b00	(long haul line break out 0 dB)	
1h1b07_5	(long haul line break out -7.5 dB)	
1h1b015	(long haul line break out -15 dB)	
1h1b022_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.)	

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 `1h1b00` and for short haul try `sh220_330`.

14.4 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

Vega 100 T1E1 Online Configuration - Microsoft Internet Explorer

Address: http://136.170.209.157/vsframe?sid=-1261603407&frame_id=7

VegaStream

Host Name: Vega100T1E1
 IP Address: 136.170.209.157
 User Name: admin

Vega 100 Configuration

Management
 Logging
 Maintenance
 LAN
 DSL
 Dial Plan
 DSP
 Media
 Tones
 SIP
 Users
 QoS
 Advanced

Unsaved & Unapplied Changes

DTMF Termination Char: *
 DTMF Dial Timeout: 2
 Setup Mapping: 0
 Cause Mapping: 0
 Submit

CAS Configuration

Dial Format String: .
 Digit Dial Timeout: 6
 Info: dtmf
 Signal: em_wink
 Tone Delay: 50
 Submit

Groups

Group ID	Interface ID	Cost Index	DN	First Channel	Last Channel	Alloc Channel	Tunnel Mode	Chg?
1	01	1	*	1	auto	default	off	Modify

Delete Add

Save
 Log off
 Help
 Reboot System
 Apply Changes

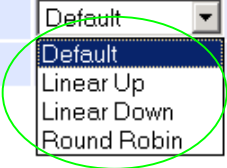
Done Internet

In the **Groups** section:

- Select [Modify](#)

[DSL](#) > [Port 1](#) > [Group 1](#)

Modify Port Group	
Group ID	1
Port ID	1
Interface ID	<input type="text" value="01"/>
Cost Index	<input type="text" value="1"/>
DN	<input type="text" value="*"/>
First Channel	<input type="text" value="1"/>
Last Channel	<input type="text" value="auto"/>
Alloc Channel	<input type="text" value="Default"/>
Tunnel Mode	<input type="text" value="Default"/>
<input type="button" value="Submit"/>	



- Select the desired channel allocation strategy from the Alloc Channel pull down.
- select and then click "[here](#)" to return

- Save and reboot system to activate the change

14.5 User progress tones on TE 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.

14.6 In-band audio indication for alerting

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 this and other parameters may be found in the Vega Primer.

Contact Details
Email: support@vegastream.com
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