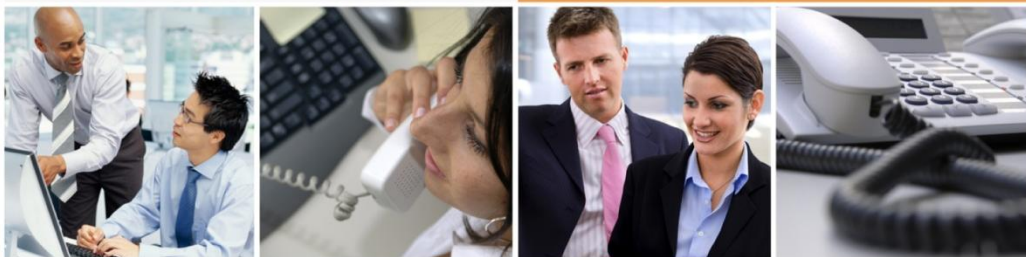


XO SIP Service  
Customer Configuration Guide for  
Siemens HiPath 3000  
with XO SIP



## 1. Overview

### **About This Document**

This document describes interoperability between XO SIP Package 1 (G.711) and Package 2 (G.729a) and Siemens HiPath 3000 deployed with an XO-provided Cisco 2432 Integrated Access Device (IAD) as the router/demarcation device.

This document assumes the audience has a general understanding of network provisioning and the connectivity requirements of XO Communications SIP service offering.

### **Known Issues**

While XO certifies interoperability between XO SIP service and the IP PBX as outlined herein, the following known issues were identified during Interoperability testing. The customer should be aware that certain features and functions may not be fully supportable. In some cases, special configurations and/or PBX software patches may be available from the vendor.

- 1) The following Call transfer scenarios are not supported due to lack of voice path:
  - Blind Transfer – PSTN to extension to extension fails with Package 2
  - Consult Transfer – PSTN to extension to extension fails with Package 2
  - Blind Transfer - PSTN to extension to PSTN fails with Packages 1 and 2
  - Consult Transfer - PSTN to extension to PSTN fails with Package 1

In all other scenarios when Call Transfer is supported, the 3<sup>rd</sup> party sees the calling line ID of the 2<sup>nd</sup> party, and not the calling line ID of the 1<sup>st</sup> party who originated the call.
- 2) Outbound modem calls to PSTN are not supported for XO SIP Package 1 or 2
- 3) XO SIP “Call Center” feature not supported with Siemens HiPath 3000
- 4) Inbound caller ID gets displayed on extension screen with prefix. The prefix is digit used to grab trunk to make outbound call. This is default behavior of Siemens HiPath 3000.
- 5) Codec preference needs to be configured on individual IP Phone extensions (using web interface of phone) as system’s codec preference doesn’t apply to IP Phone extensions. It only applies to analog extensions.
- 6) Siemens HiPath 3000 doesn’t support in band RTP DTMF with IP Phones but supports DTMF as RFC2833. Both types of DTMFs are supported with analog extension.
- 7) Inbound CNAM (calling line ID name) is not displayed on handsets for Siemens HiPath 3000 extensions. Siemens HiPath 3000 doesn’t support this feature on with SIP trunks. It only displays inbound calling line ID number.
- 8) Siemens HiPath 3000 doesn’t support Caller ID block feature code \*67. But same functionality can be achieved using IP Phone’s (OptiPoint 420 Standard) “suppress caller ID” mode.
- 9) Inbound T.38 Fax (SG3-G3): Fax using Package 2 completes as G.711 not as T.38 because Siemens HiPath 3000 didn’t send re-INVITE.

### **Registration Method**

Static registration is utilized between the Siemens HiPath 3000 and the XO call agent.

**XO SIP  
Service  
Packages  
Supported**

Pkg	Codec	DTMF	Fax
1	G.711	In-band RTP or RFC2833 on analog extensions, RFC2833 only on IP phones (see Known Issue #6 above)	T.38 and G.711 pass-through
2	G.729a	RFC2833 only	T.38 and G.711 pass-through; inbound T.38 Fax using Package 2 completes as G.711 (see Known Issue #9 above)

## 2. Testing of Siemens HiPath 3000

### 2.1. Software and Hardware Versions Tested

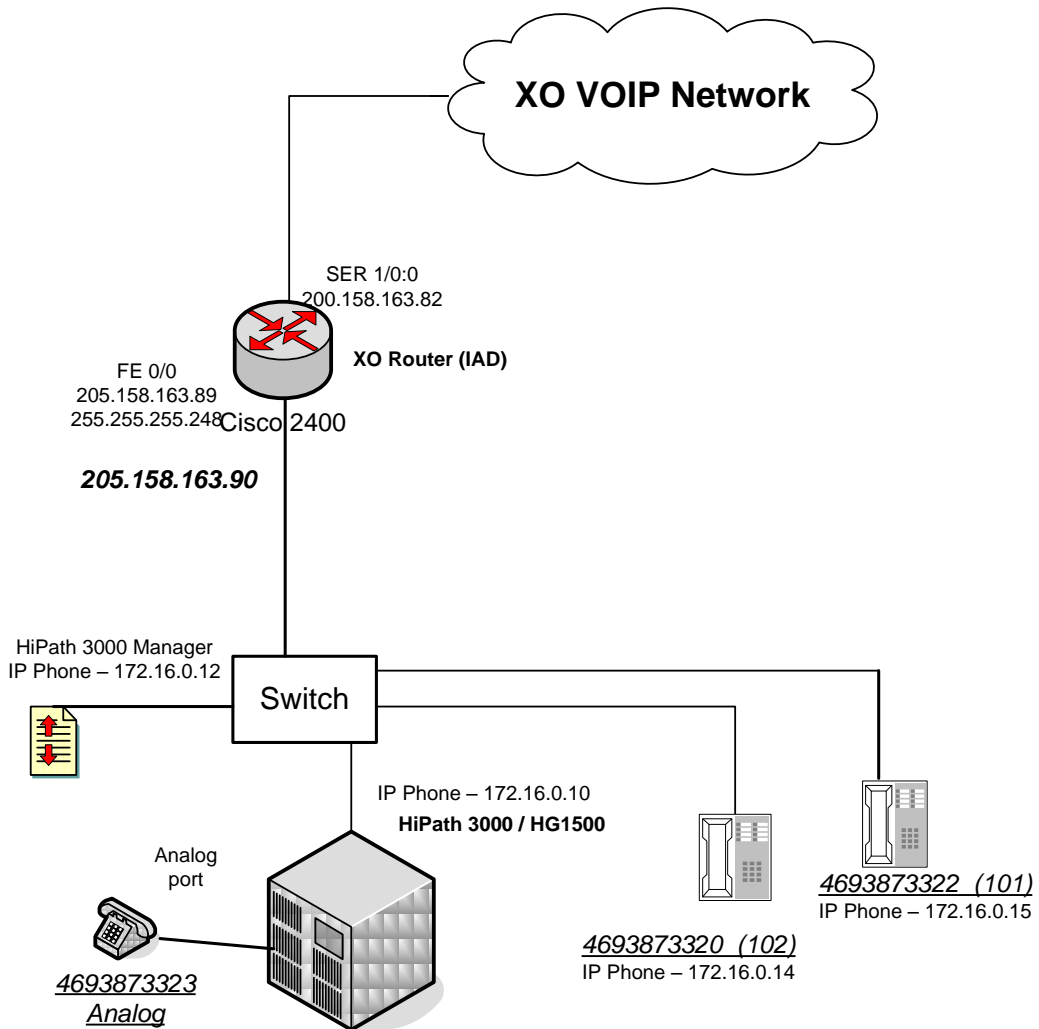
Cisco 2400 used as a router  
Cisco IOS Software, 2400 Software (C2430-IS-M), Experimental Version  
12.4(20060718:201451) [acphan-V124\_4\_T2\_1 104]  
System image file is "flash:c2430-is-mz.xo"

Siemens  
Siemens HiPath 3000  
Software version: HI-G15.84.004

IP Phones  
Model : OptiPoint 420 Standard  
Software version: V5.R6.3.0

Fax machines:  
G3: SHARP UX-B20  
SG3: Brother - IntelliFax 1860c

## 2.2. Lab Test Configuration



### 3. Siemens HiPath 3000 IP PBX Configuration

**In This Section** XO performed the minimum amount of configuration required to achieve successful completion of test calls over XO SIP. It is beyond the scope of this document and the testing efforts to show a complete configuration, therefore screenshots of the GUI interface are provided only for the details of the SIP trunk configuration that are relevant to interfacing with XO's SIP product.

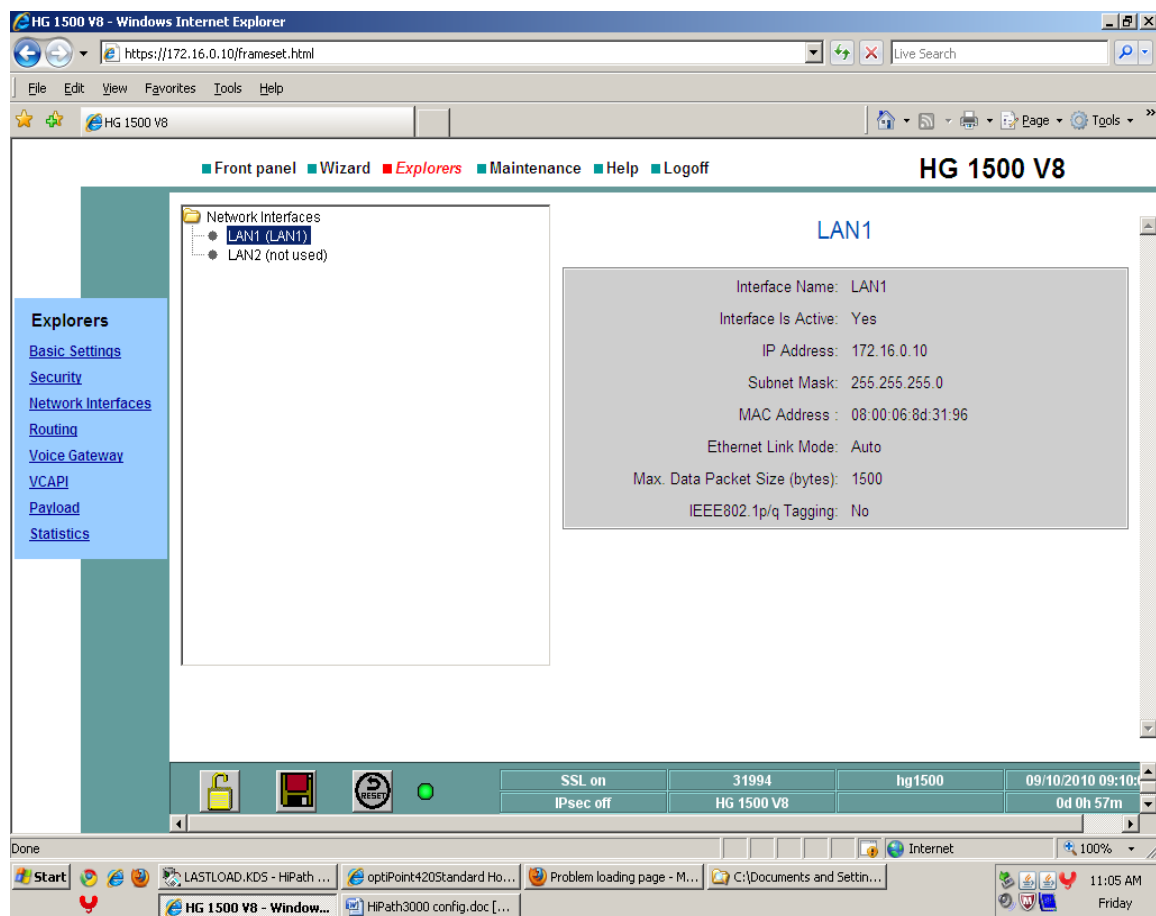
This section contains screenshots which detail the SIP trunk configurations.

#### 3.1 Siemens HiPath 3000 Configuration

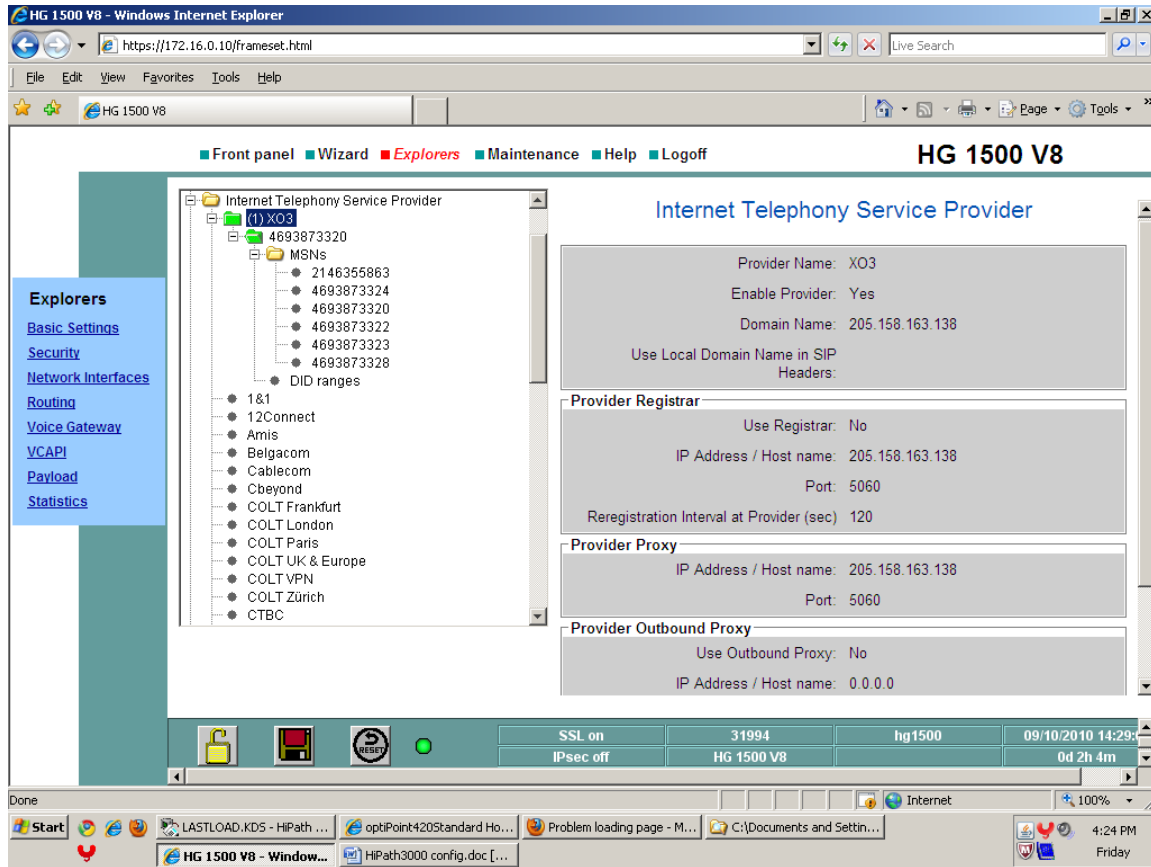
##### HG 1500 >> Network Interface >> LAN1

“IP Address” = PBX internal (private) IP Address

“Subnet Mask” = PBX internal (private) subnet mask

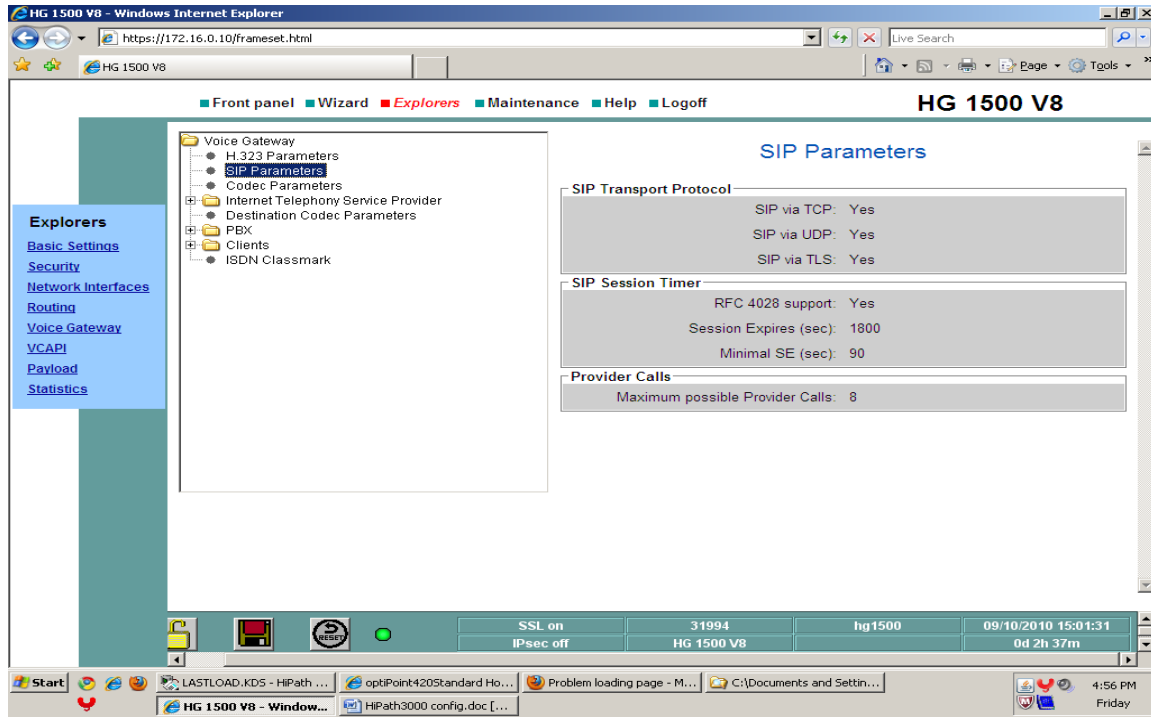


**Expert mode >> Voice Gateway >> Internet Telephony Service Provider >> XO3 configuration.**

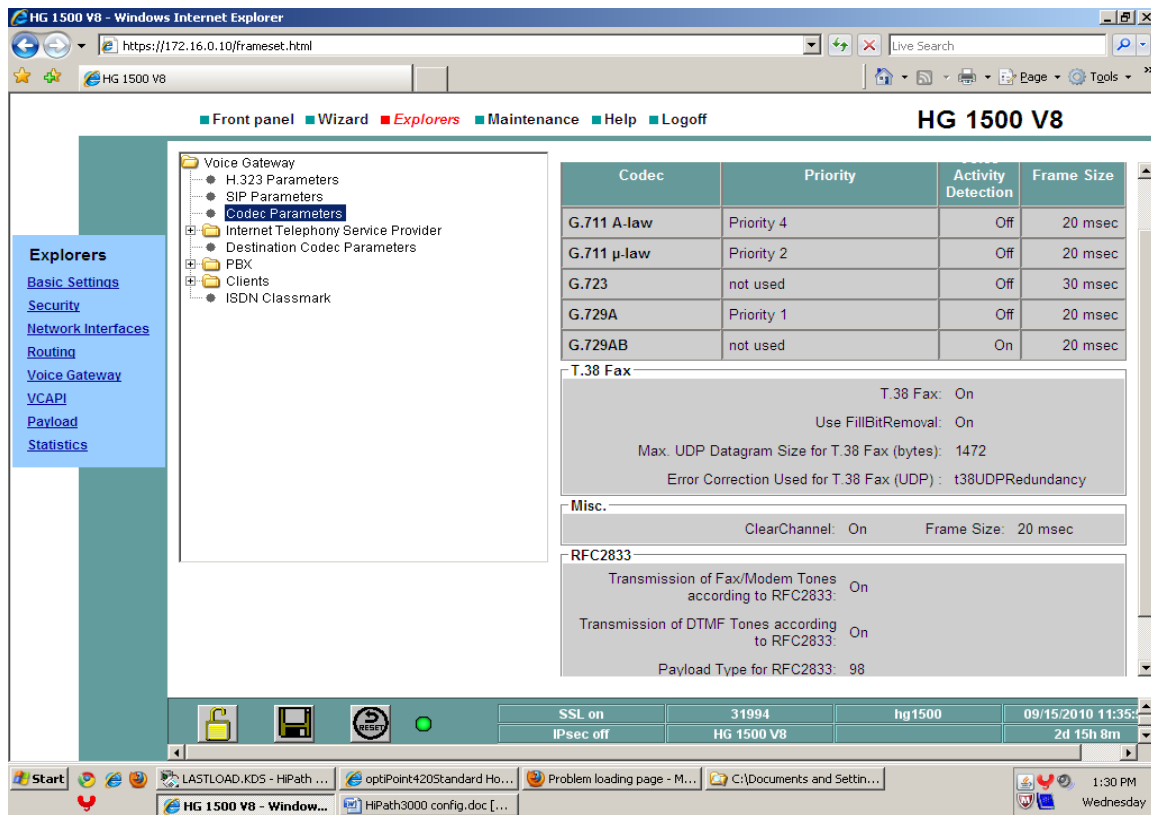


- Domain Name: 205.158.163.138 (**XO - NBS IP**)
- Provider proxy - IP Address/Host name: 205.158.163.138 (**XO - NBS IP**)
- PBX tested with SIP Trunk static registration configuration so “Registrar” settings are disabled.
- NAT was not enabled on IPPBX but XO router with lab setup.

## HG 1500 >> Voice Gateway >> SIP Parameters



## HG 1500 >> Voice Gateway >> Codec Parameters



Front panel Wizard **Explorers** Maintenance Help Logoff **HG 1500 V8**

**Explorers**

- Basic Settings
- Security
- Network Interfaces
- Routing
- Voice Gateway**
- VCAPI
- Payload
- Statistics

Voice Gateway

- H.323 Parameters
- SIP Parameters
- Codec Parameters**
- Internet Telephony Service Provider
- Destination Codec Parameters
- PBX
- Clients
- ISDN Classmark

Codec	Priority	Activity Detection	Frame Size
G.711 A-law	Priority 4	Off	20 msec
G.711 $\mu$ -law	Priority 2	Off	20 msec
G.723	not used	Off	30 msec
G.729A	Priority 1	Off	20 msec
G.729AB	not used	On	20 msec

T.38 Fax

T.38 Fax:  On

Use FillBitRemoval:  On

Max. UDP Datagram Size for T.38 Fax (bytes): 1472

Error Correction Used for T.38 Fax (UDP) : t38UDPRedundancy

Misc.

ClearChannel:  On      Frame Size: 20 msec

RFC2833

Transmission of Fax/Modem Tones according to RFC2833:  On

Transmission of DTMF Tones according to RFC2833:  On

Payload Type for RFC2833: 98

SSL on      31994      hg1500      09/15/2010 11:35:...

IPsec off      HG 1500 V8      2d 15h 8m

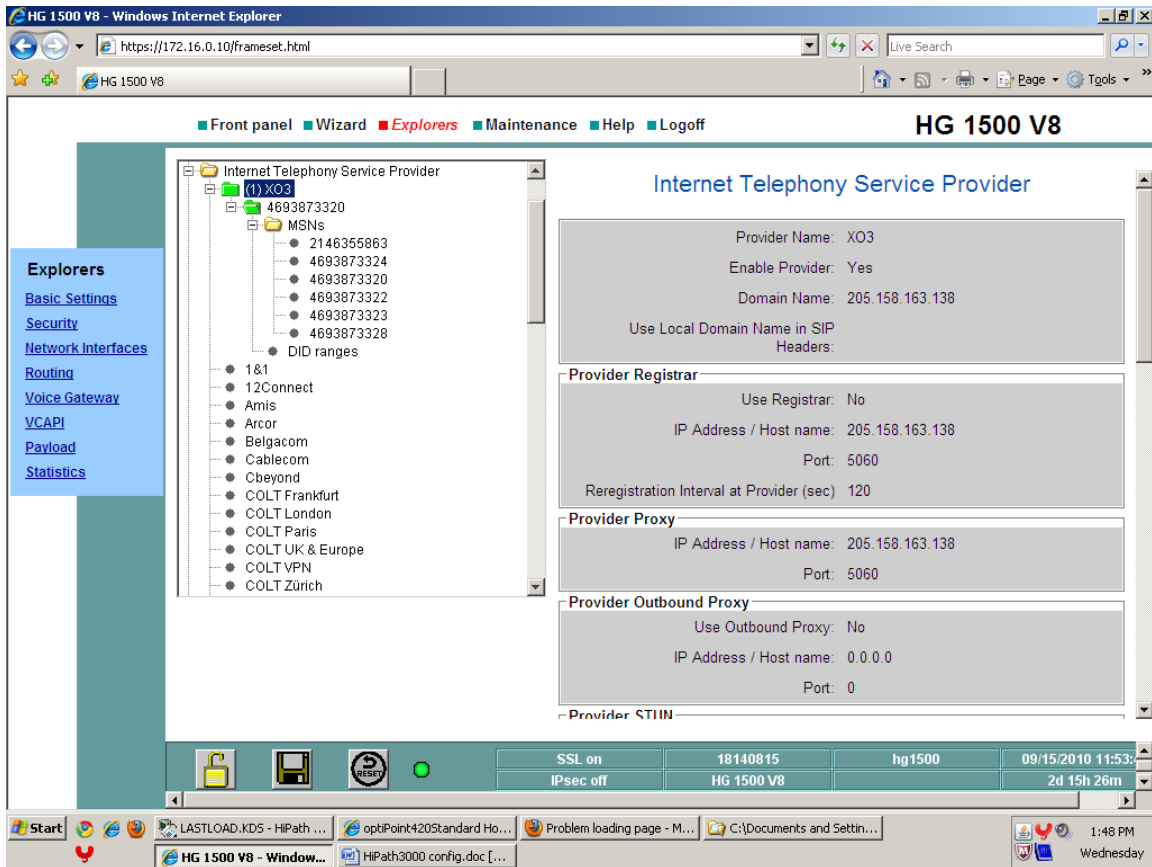
Start      LASTLOAD.KDS - HiPath ...      optiPoint420Standard Ho...      Problem loading page - M...      C:\Documents and Sett...      1:30 PM      Wednesday

HG 1500 V8 - Window...      HiPath3000 config.doc [...]

## SIP Provider profiles:

### HG 1500 >> Voice Gateway >> Internet Telephony Service Provider >> XO3

- A new SIP Provider profile was created for XO based on XO's requirements. Here are screen shots of that profile.



The screenshot displays the configuration interface for the Internet Telephony Service Provider (XO3) on the HG 1500 V8 system. The interface is viewed through a Windows Internet Explorer browser window.

**Internet Telephony Service Provider Configuration:**

- Provider Name:** XO3
- Enable Provider:** Yes
- Domain Name:** 205.158.163.138
- Use Local Domain Name in SIP Headers:** (checked)
- Provider Registrar:**
  - Use Registrar: No
  - IP Address / Host name: 205.158.163.138
  - Port: 5060
  - Reregistration Interval at Provider (sec): 120
- Provider Proxy:**
  - IP Address / Host name: 205.158.163.138
  - Port: 5060
- Provider Outbound Proxy:**
  - Use Outbound Proxy: No
  - IP Address / Host name: 0.0.0.0
  - Port: 0
- Provider STIN:** (field is empty)

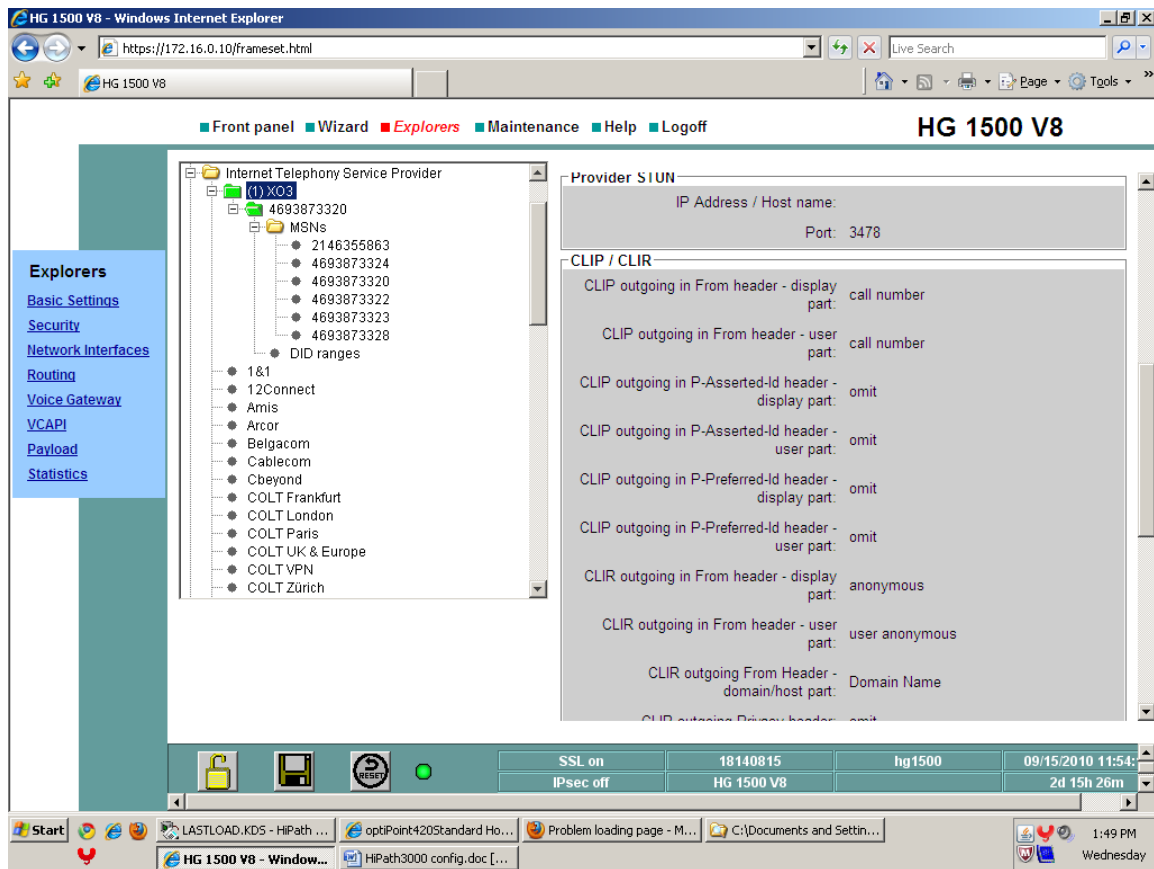
The left sidebar shows the configuration tree with the following items:

- Internet Telephony Service Provider
  - (1) XO3
    - 4693873320
      - MSNs
        - 2146355863
        - 4693873324
        - 4693873320
        - 4693873322
        - 4693873323
        - 4693873328
        - DID ranges
- 1&1
- 12Connect
- Amis
- Arcor
- Belgacom
- Cablecom
- Cbeyond
- COLT Frankfurt
- COLT London
- COLT Paris
- COLT UK & Europe
- COLT VPN
- COLT Zürich

The bottom status bar shows the following information:

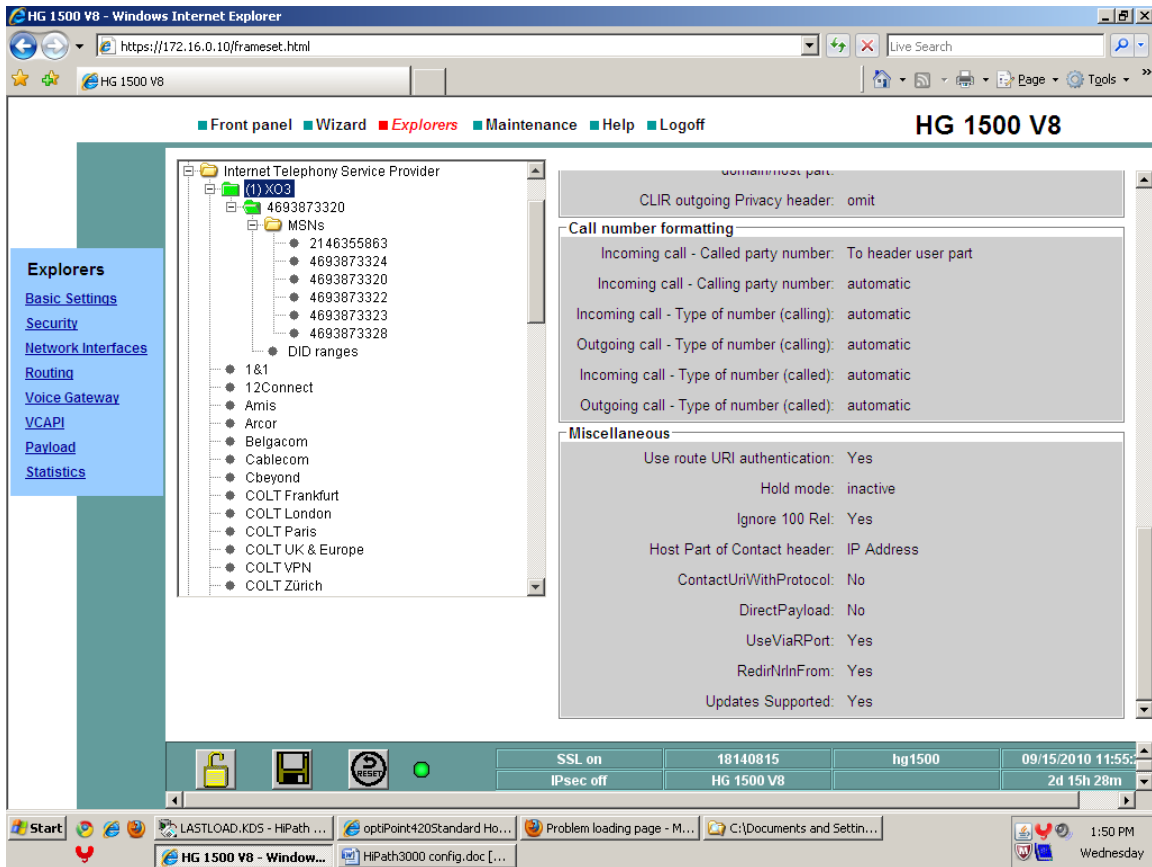
- SSL on
- IPsec off
- 18140815
- HG 1500 V8
- hg1500
- 09/15/2010 11:53:...
- 2d 15h 26m

## SIP Provider profiles (continue):



- CLIP is configured as “call number” to display assigned DID of an extension as caller number in outbound call.
- CLIR is configured as “anonymous” in case if CLIR mode is enabled from extension. With this configuration outbound call number and name displayed as ‘anonymous’.
- Also with CLIR configuration, all “P-Asserted-id” header fields **must** be “call number” as shown in above screen shot.

## SIP Provider profiles (continued):



The screenshot displays the configuration interface for the HG 1500 V8 system. The main window shows the configuration for an Internet Telephony Service Provider (XO3). The left sidebar contains a navigation menu with the following items: Explorers, Basic Settings, Security, Network Interfaces, Routing, Voice Gateway, VCAP, Payload, and Statistics. The main area is divided into two sections: a tree view of providers and a configuration panel.

**Providers List:**

- Internet Telephony Service Provider
  - (1) XO3
    - 4693873320
      - MSNs
        - 2146355863
        - 4693873324
        - 4693873320
        - 4693873322
        - 4693873323
        - 4693873328
      - DID ranges
        - 1&1
        - 12Connect
        - Amis
        - Arcor
        - Belgacom
        - Cablecom
        - Cbeyond
        - COLT Frankfurt
        - COLT London
        - COLT Paris
        - COLT UK & Europe
        - COLT VPN
        - COLT Zürich

**Configuration Panel (Call number formatting):**

- CLIR outgoing Privacy header: omit
- Call number formatting
  - Incoming call - Called party number: To header user part
  - Incoming call - Calling party number: automatic
  - Incoming call - Type of number (calling): automatic
  - Outgoing call - Type of number (calling): automatic
  - Incoming call - Type of number (called): automatic
  - Outgoing call - Type of number (called): automatic

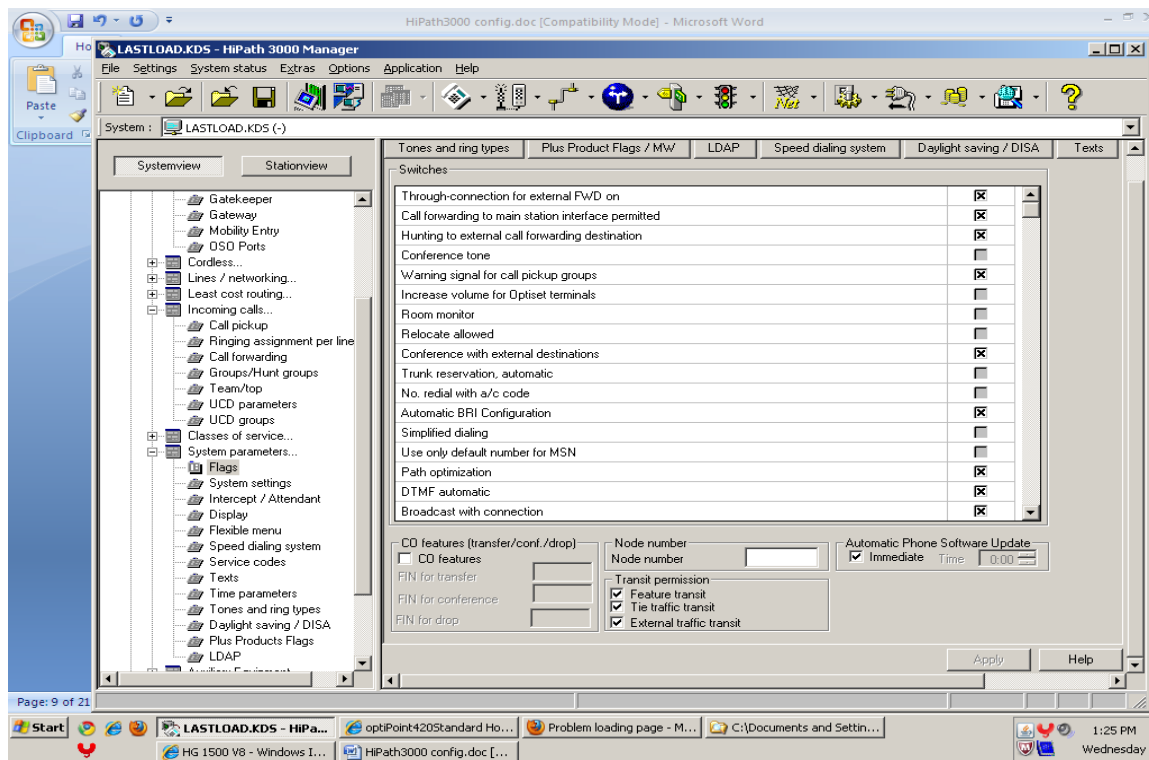
**Configuration Panel (Miscellaneous):**

- Miscellaneous
  - Use route URI authentication: Yes
  - Hold mode: inactive
  - Ignore 100 Rel: Yes
  - Host Part of Contact header: IP Address
  - ContactUriWithProtocol: No
  - DirectPayload: No
  - UseViaRPort: Yes
  - RedirNrInFrom: Yes
  - Updates Supported: Yes

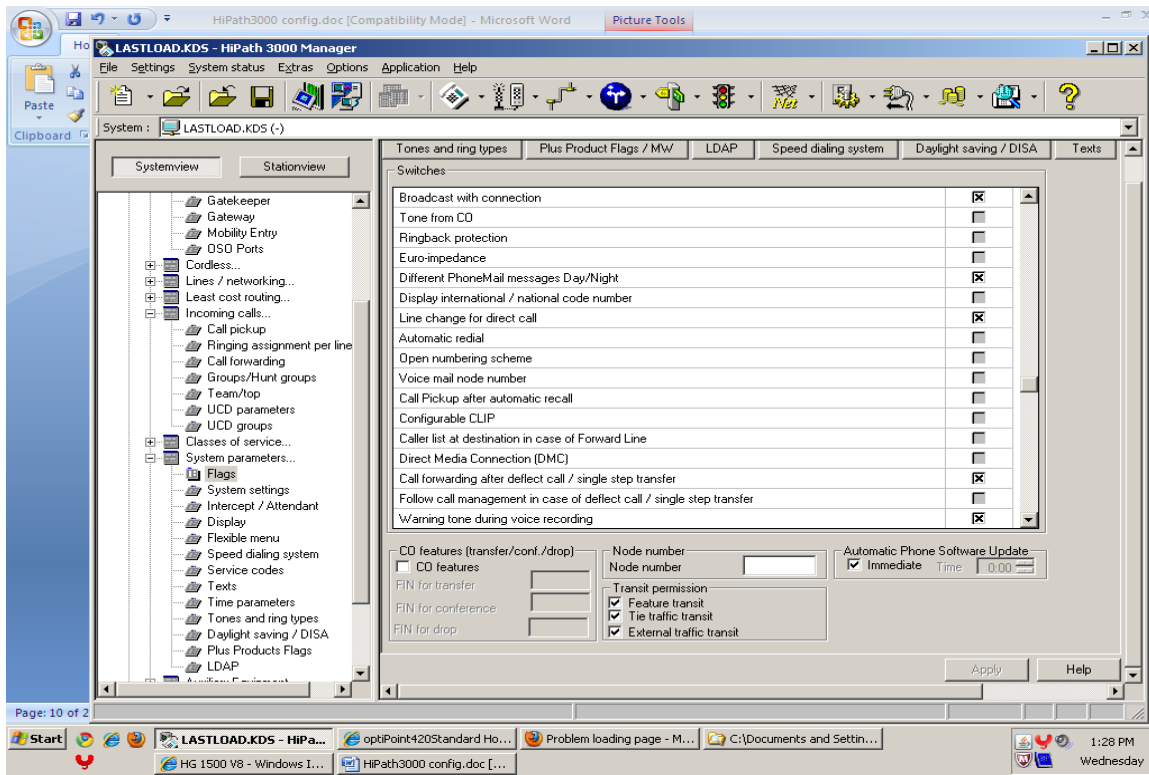
The bottom status bar shows system information: SSL on, IPsec off, 18140815, hg1500, 09/15/2010 11:55:2d 15h 28m.

- “RedirNrInFrom” flag is enabled to send out original caller number in “call forward” call scenario. Also this flag makes IPPBx to add “Diversion” header in such call.

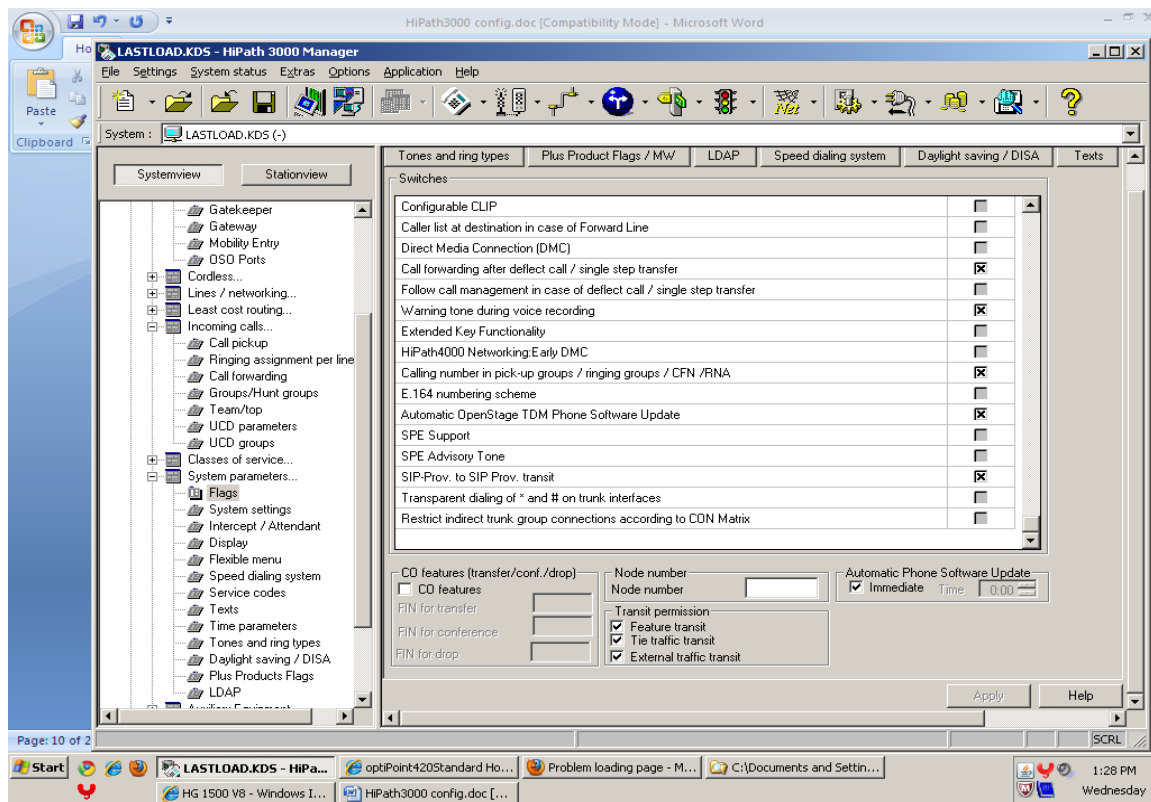
## HiPath Manager >> System parameters >> Flags



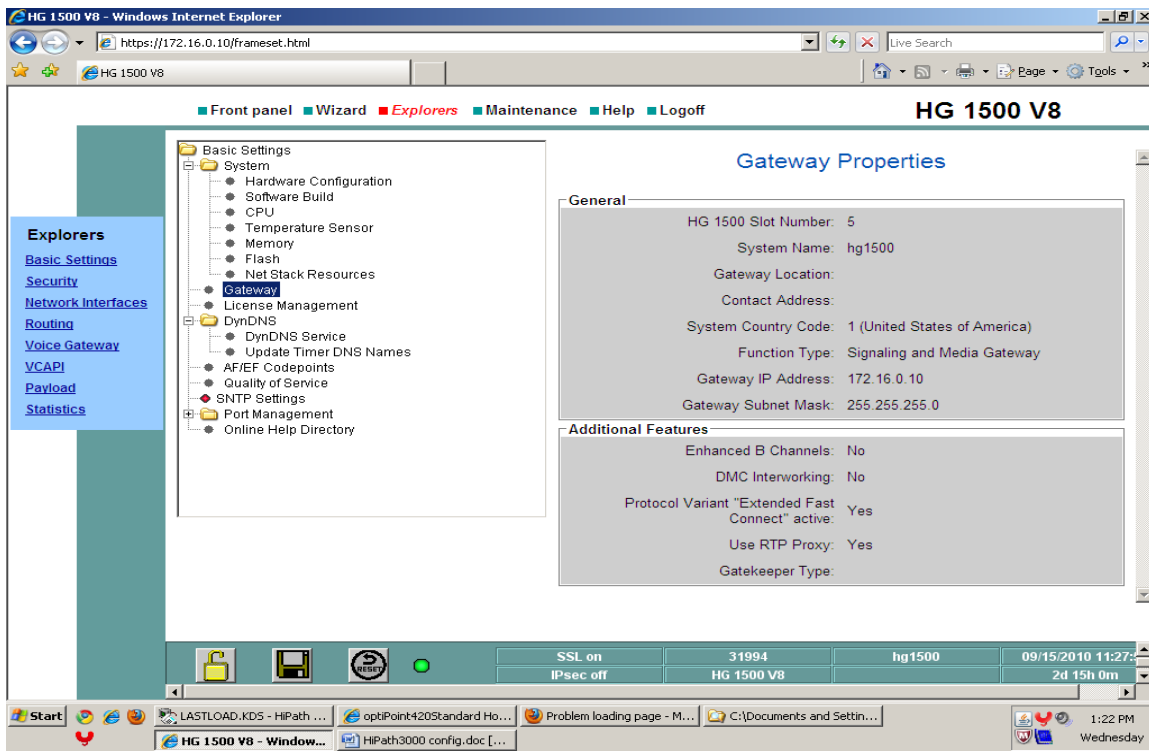
## HiPath Manager >> System parameters >> Flags (continued)



## HiPath Manager >> System parameters >> Flags (continued)



## HiPath Manager >> Basic Settings >> Gateway



## HG 1500 >> Voice Gateway >> Internet Telephony Service Provider >> XO3

The screenshot displays the configuration page for the XO3 Internet Telephony Service Provider within the HG 1500 V8 web interface. The interface is viewed through a Windows Internet Explorer browser window.

**Navigation and Status:**

- Top navigation: Front panel, Wizard, Explorers (selected), Maintenance, Help, Logoff.
- Page title: HG 1500 V8

**Left Panel (Explorers):**

- Basic Settings
- Security
- Network Interfaces
- Routing
- Voice Gateway
- VCAPI
- Payload
- Statistics

**Main Content Area:**

**Internet Telephony Service Provider**

Provider Name: XO3  
 Enable Provider: Yes  
 Domain Name: 205.158.163.138  
 Use Local Domain Name in SIP Headers:

**Provider Registrar**

Use Registrar: No  
 IP Address / Host name: 205.158.163.138  
 Port: 5060  
 Reregistration Interval at Provider (sec): 120

**Provider Proxy**

IP Address / Host name: 205.158.163.138  
 Port: 5060

**Provider Outbound Proxy**

Use Outbound Proxy: No  
 IP Address / Host name: 0.0.0.0  
 Port: 0

**Provider STIN**

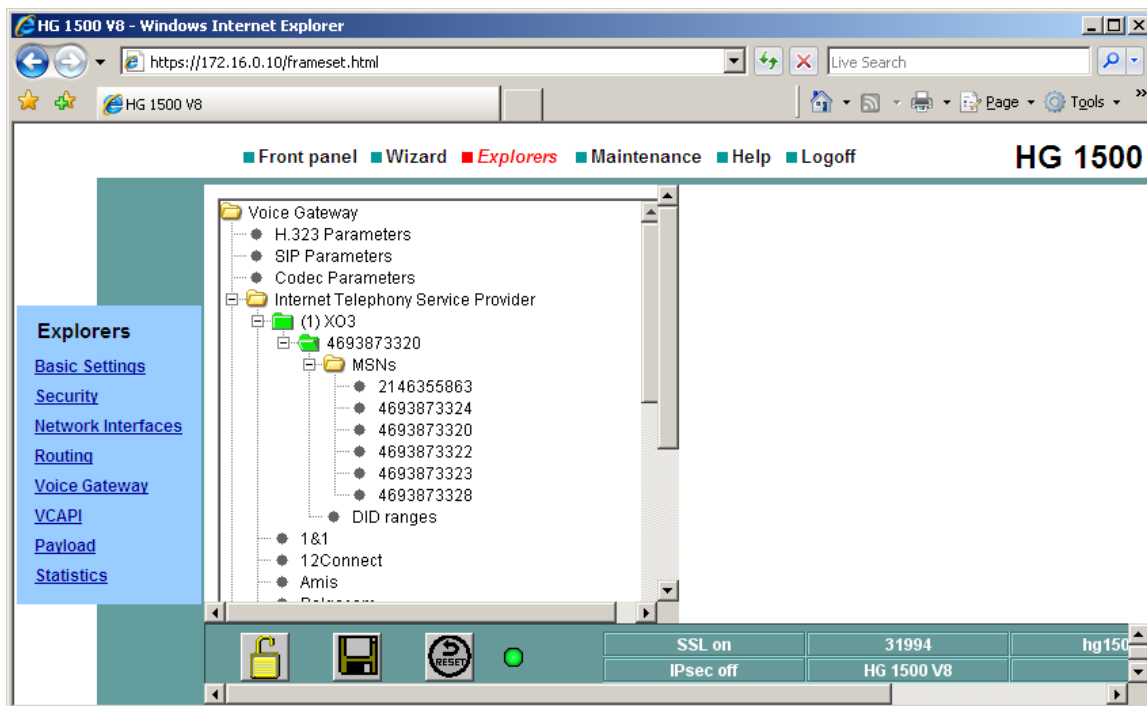
**Bottom Panel:**

- SSL on
- IPsec off
- 31994
- hg1500
- 09/15/2010 09:24:24
- HG 1500 V8
- 2d 12h 57m

**Windows Taskbar:**

- Start button
- Open applications: LASTLOAD.KDS - HiPath..., optiPoint420Standard Ho..., Problem loading page - M..., C:\Documents and Sett...
- System tray: 11:19 AM, Wednesday

**HG 1500 >> Voice Gateway>>Internet Telephony Service Provider >>XO3>>MSNs**



## HiPath Manager >> Station

System : LASTLOAD.KDS (-)

Systemview Stationview

LASTLOAD.KDS (-)  
 HG 1500 / Xpress@LAN 172.16.0  
 Settings  
 Set up station...  
 Station  
 Key programming  
 Endpoint hw sw version  
 Fax / Modem  
 Emergency  
 Gatekeeper  
 Gateway  
 Mobility Entry  
 DSO Ports  
 Cordless...  
 Lines / networking...  
 Least cost routing...  
 Incoming calls...  
 Call pickup  
 Ringing assignment per line  
 Call forwarding  
 Groups/Hunt groups  
 Team/top  
 UCD parameters  
 UCD groups  
 Classes of service...  
 System parameters...  
 Auxiliary Equipment...  
 Network...  
 Licensing...  
 System status  
 Custom...

Gateway			Mobility Entry		DSO Ports		
Call no.	DID	Name	Status	Type	Type	Access	LIN
8	206	206	STATION 107	⊗ *	No Port	Standard	SLUC8 2 - 8 Master
9	250	250	FAX 250	●	P.O.T	Fax	4SLA 3 - 1
10	251	251	STATION 251	●	P.O.T	Standard	4SLA 3 - 2
11	252	252	STATION 252	●	P.O.T	Standard	4SLA 3 - 3
12	253	253	STATION 253	●	P.O.T	Standard	4SLA 3 - 4
13	112	112	STATION 112	●	S0 Ext...	Phone Mail (C...	STLS2N 1 - 1 - 1
14	113	113	STATION 113	●	S0 Ext...	Phone Mail (C...	STLS2N 1 - 2 - 1
15	114	114	EVM 11 - 1	●	S0 Ext...	Phone Mail (C...	EVM 11 - 1
16	115	115	EVM 11 - 2	●	S0 Ext...	Phone Mail (C...	EVM 11 - 2
17	116	116	IVMS8 9 - 1...	⊗ *	S0 Ext...	Phone Mail (C...	
18	117	117	IVMS8 9 - 1...	⊗ *	S0 Ext...	Phone Mail (C...	
19	118	118	IVMS8 9 - 1...	⊗ *	S0 Ext...	Phone Mail (C...	
20	119	119	IVMS8 9 - 1...	⊗ *	S0 Ext...	Phone Mail (C...	
21	120	120	IVMS8 9 - 1...	⊗ *	S0 Ext...	Phone Mail (C...	
22	121	121	IVMS8 9 - 1...	⊗ *	S0 Ext...	Phone Mail (C...	
23	122	122	IVMS8 9 - 1...	⊗ *	S0 Ext...	Phone Mail (C...	
24	123	123	IVMS8 9 - 1...	⊗ *	S0 Ext...	Phone Mail (C...	
25	101	101	STATION 101	●	optiPoi...	Standard	HXGS3 5 - SYS - 1
26	102	102	STATION 102	●	optiPoi...	Standard	HXGS3 5 - SYS - 2

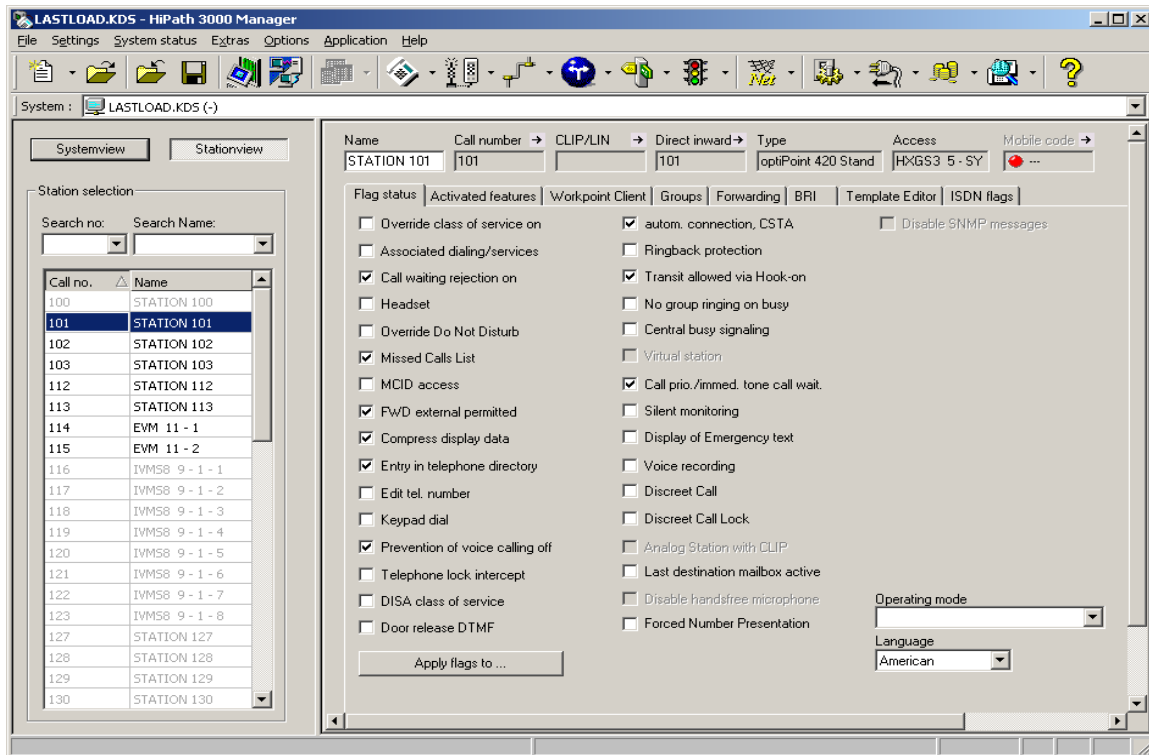
Check Apply Help

C:\Documents and Settings\lwhchen\My Documents\Doc

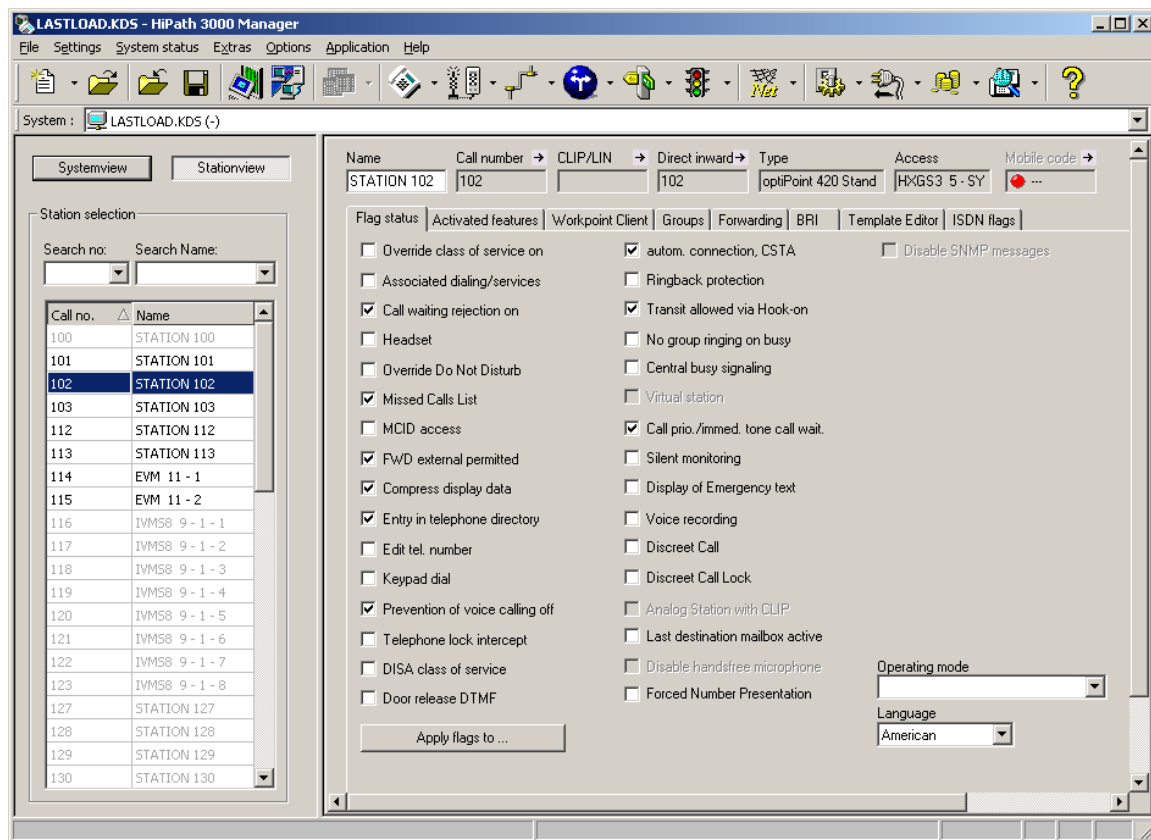
**Station parameter setting :**

**HiPath Manager >> Station >> Stationview**

**( Station 101)**

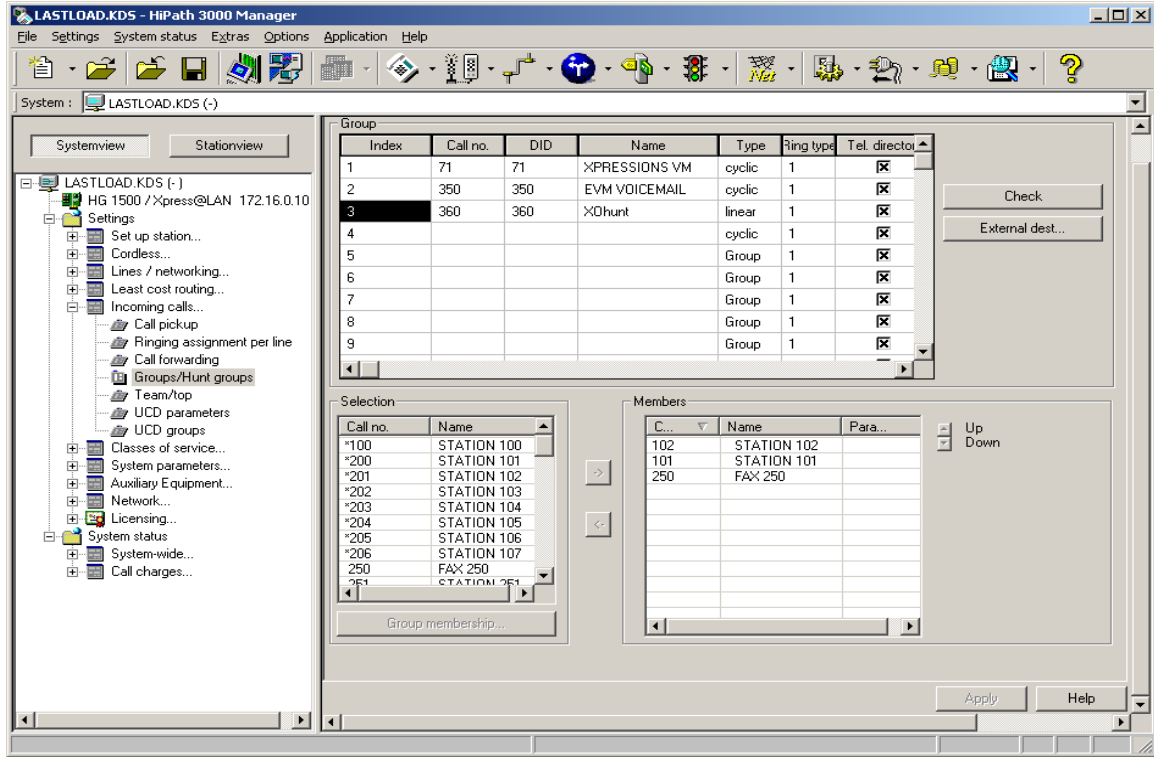


**(Station 102)**



## Hunt Group configuration:

### HiPath Manager >> Incoming calls >> Groups/Hunt Groups



## HiPath Manager >> Incoming calls >> Call Forwarding

The screenshot shows the 'LASTLOAD.KDS - HiPath 3000 Manager' application window. The left sidebar contains a tree view with 'Incoming calls...' expanded to 'Call forwarding'. The main area is divided into two sections:

**Call dest. list - Definition**

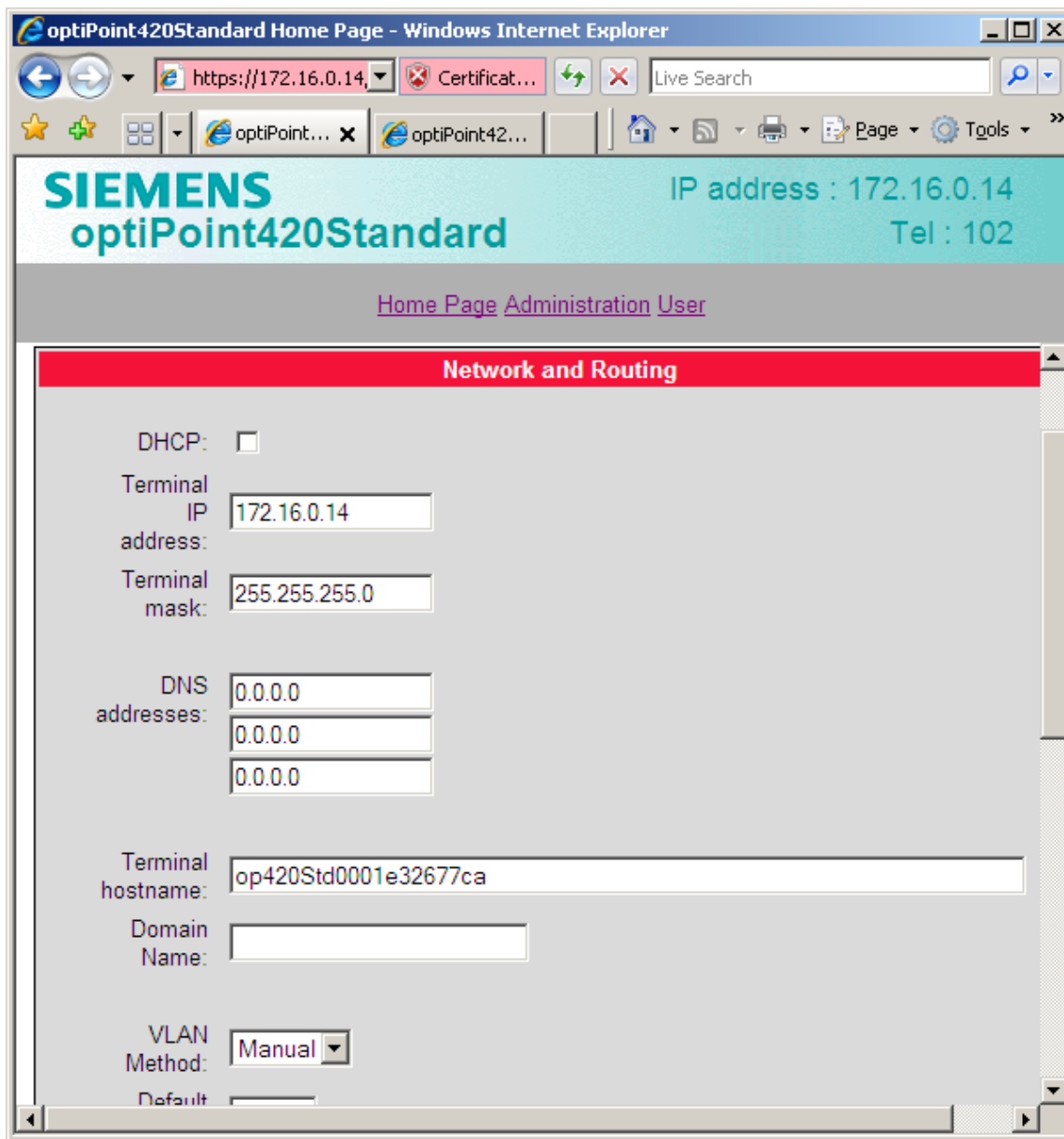
No.	Target 1	Target 2	Target 3	T...	Cycles	S...	SR Type	RNA
10	101	360	99725786857		1		immediate	<input checked="" type="checkbox"/>
11	101	360	71		1		immediate	<input checked="" type="checkbox"/>
12	350	**			3		immediate	<input checked="" type="checkbox"/>
13	*	71			1		immediate	<input checked="" type="checkbox"/>
14	*	99725786...			3		immediate	<input checked="" type="checkbox"/>
15	*	**	350		5		immediate	<input checked="" type="checkbox"/>
16	*	**	350		5		immediate	<input checked="" type="checkbox"/>
17	*	**			3		immediate	<input checked="" type="checkbox"/>

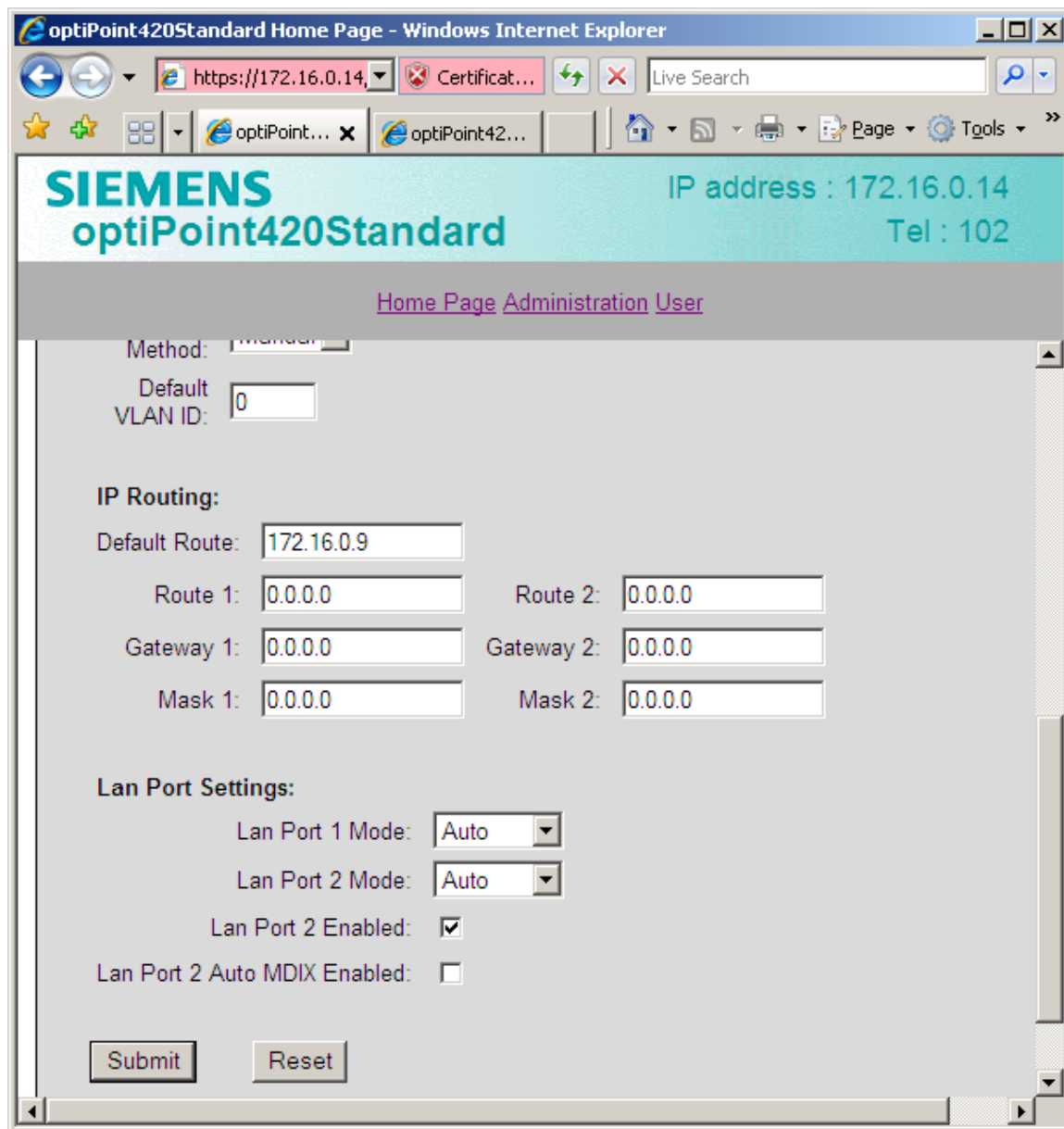
**Call dest. list - Station assignment**

Show all stations  
 Show members of call dest. list 1

Call no.	Name	Day	Night	Internal
100	STATION 100	14	15	16
101	STATION 101	17	17	17
102	STATION 102	14	15	16
103	STATION 103	14	15	16
112	STATION 112	14	15	16
113	STATION 113	14	15	16
114	EVM 11 - 1	17	17	17
115	EVM 11 - 2	17	17	17
116	IVMS8 9 - 1...	14	15	16
117	IVMS8 9 - 1...	14	15	16
118	IVMS8 9 - 1	14	15	16

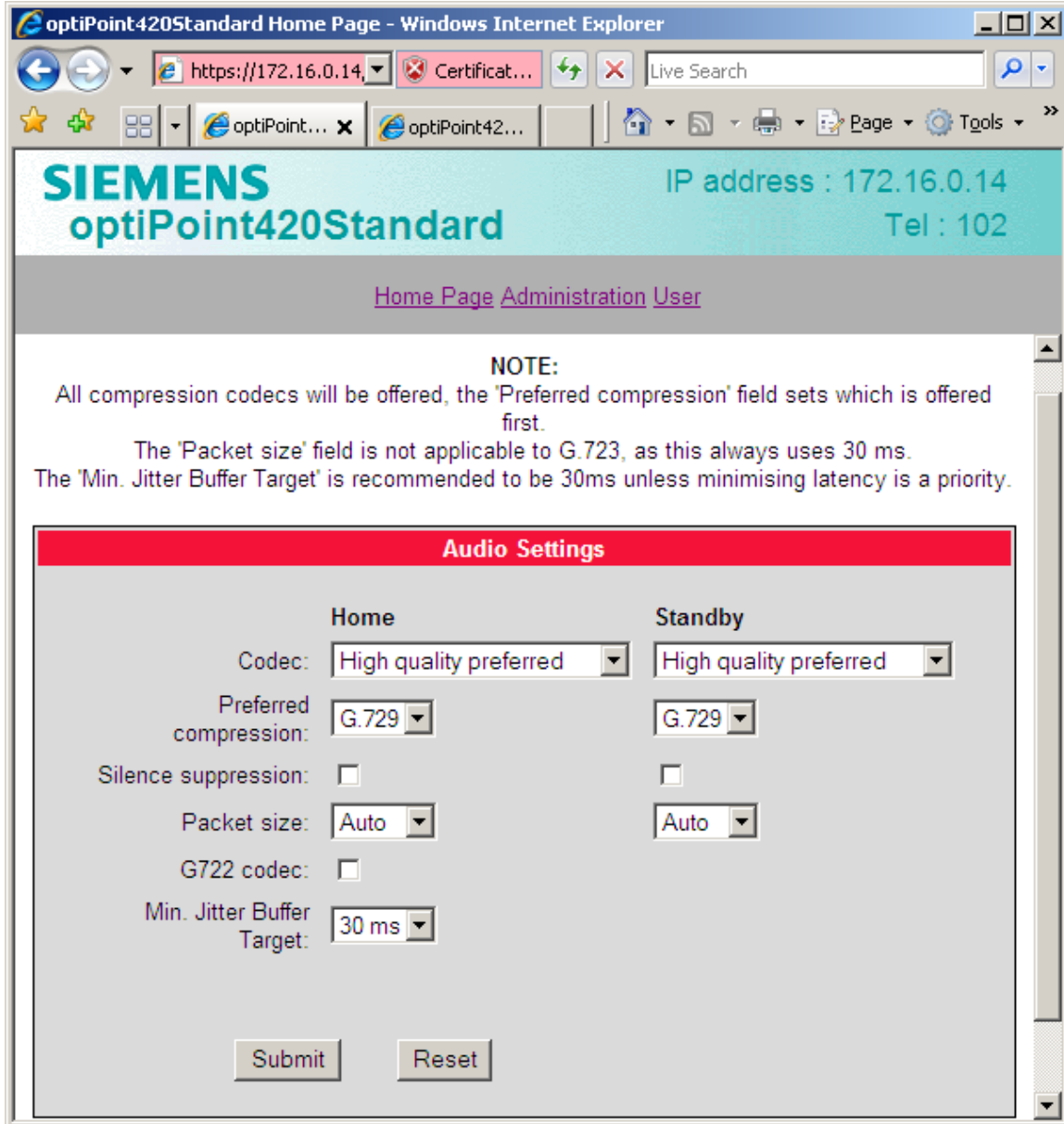
**IP Phone OptiPoint420 Standard configuration:**





## IP Phone OptiPoint420 Standard configuration for codec:

### For PKG1 (G.711)



optiPoint420Standard Home Page - Windows Internet Explorer

https://172.16.0.14/ Certificat... Live Search

optiPoint... x optiPoint42...

**SIEMENS** IP address : 172.16.0.14  
**optiPoint420Standard** Tel : 102

[Home Page Administration User](#)

**NOTE:**  
 All compression codecs will be offered, the 'Preferred compression' field sets which is offered first.  
 The 'Packet size' field is not applicable to G.723, as this always uses 30 ms.  
 The 'Min. Jitter Buffer Target' is recommended to be 30ms unless minimising latency is a priority.

**Audio Settings**

	Home	Standby
Codec:	High quality preferred	High quality preferred
Preferred compression:	G.729	G.729
Silence suppression:	<input type="checkbox"/>	<input type="checkbox"/>
Packet size:	Auto	Auto
G722 codec:	<input type="checkbox"/>	
Min. Jitter Buffer Target:	30 ms	

Submit Reset

**For PKG2 (G.729, G.711)**

