### Avaya IP Office 4.1 SIP Customer Configuration Guide For use with AT&T IP Flexible Reach

Issue 3.0 4<sup>th</sup> April 2008

© 2008 AT&T Intellectual Property. All rights reserved. AT&T, the AT&T logo and all other AT&T marks contained herein are trademarks of AT&T Intellectual Property and/or AT&T affiliated companies. All content of any kind belonging to Avaya Inc. is protected by Avaya's copyright and trademark rights, and all such rights are reserved. Page 1 of 23

### **Table of contents**

1	Intro	oduction	3
2	Spec	cial Notes	3
3	Öve	rview	4
	3.1	Configuration	5
	3.2	Supported Platforms	5
	3.3	Supported Phone Types	5
	3.4	Voice Coders Supported (VCM) per platform	6
	3.5	Basic Call Scenarios	6
4	Cust	tomer Configuration Guide	7
	4.1	How to identify you are running version 4.1	7
	4.2	How to check for SIP Trunking Licenses	8
	4.3	Setting Up IP Routes to AT&T IP Network	9
	4.4	Main SIP Line	
	4.5	SIP Line: SIP URI tab	12
	4.6	Setting SIP tab in User Field	14
	4.7	Routing Calls to AT&T	15
	4.8	Receiving Calls from AT&T	17
	4.9	IP Phone Configuration	19
5	Trou	uble Shooting	21

# 1 Introduction

This document provides a configuration guide to assist administrators in connecting Avaya IP Office Communication System to AT&T over SIP trunks.

# 2 Special Notes

## **Emergency 911/E911 Services Limitations**

While AT&T IP Flexible Reach Services support E911/911 calling capabilities in certain circumstances, there are significant limitations on how these capabilities are delivered. Please review the AT&T IP Flexible Reach Service Guide in detail to understand these limitations and restrictions.

## Fax is Not Supported

IP Office does not support fax transmission using SIP.

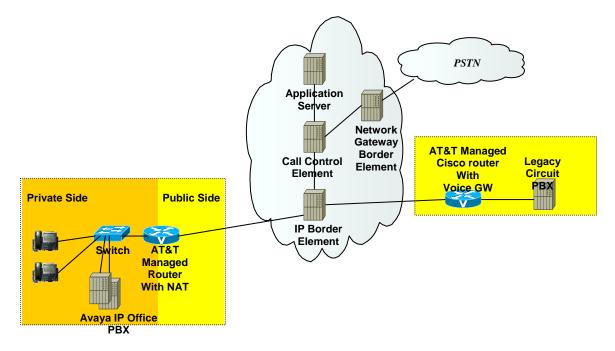
## Failover to an Alternate AT&T Border Element

Currently, there is no tested configuration with the Avaya IP Office SIP trunk for connecting to an alternate AT&T Border Element if the primary border element is not available.

© 2008 AT&T Intellectual Property. All rights reserved. AT&T, the AT&T logo and all other AT&T marks contained herein are trademarks of AT&T Intellectual Property and/or AT&T affiliated companies. All content of any kind belonging to Avaya Inc. is protected by Avaya's copyright and trademark rights, and all such rights are reserved. Page 3 of 23

# 3 Overview

This section provides a service overview of the integration of Avaya IP Office Communication System with the AT&T IP Flexible Reach.



© 2008 AT&T Intellectual Property. All rights reserved. AT&T, the AT&T logo and all other AT&T marks contained herein are trademarks of AT&T Intellectual Property and/or AT&T affiliated companies. All content of any kind belonging to Avaya Inc. is protected by Avaya's copyright and trademark rights, and all such rights are reserved. Page 4 of 23

# 3.1 Configuration

The Avaya customer premises shall consist of the following components.

- Avaya IP Office Communication System Avaya offers various models and configurations for this equipment. Nominally the unit will include a built in processor unit, POTs line interfaces, analog ports, DCP ports for Avaya 6000 series digital phones and optionally T1 interfaces, wireless LAN interfaces etc.
- AT&T Managed Router (AT&T managed) This is the router managed by AT&T. The router shall perform network address translation, packet marking and QOS for voice.

# 3.2 Supported Platforms

SIP trunks are supported in the following platforms:

- Small Office Edition
- IP406v2
- IP412
- IP500

# 3.3 Supported Phone Types

A list of supported phones is provided below:

2400/5400 series digital 4600/5600 series IP 6400 series digital T3 (IP and digital) –excluding Small Office 3701/3711 (IP DECT) Analog phones

# 3.4 Voice Coders Supported (VCM) per platform

SIP trunks require the use of the VCM as described next.

- IP Office Communication System Small Office Edition: either VCM 3 or VCM 16.
- IP406v2 supports a single VCM chosen among the following types: VCM4, VCM 5, VCM 8, VCM 10, VCM 16, VCM 20, VCM 24 and VCM 30.
- IP412 supports any two cards VCM's of the following types; VCM4, VCM 5, VCM 8, VCM 10, VCM 16, VCM 20, VCM 24 and VCM 30.
- IP500 supports two variants: First is legacy VCM cards in number of two selected between the following options: VCM4, VCM 8, VCM 16, VCM 24 and VCM 30. Second option is new VCM cards in number of two from any VCM 32 and 64.

The number of calls supported on the VCM card is specified by the VCM card number (i.e. VCM 5 supports 5 calls, etc).

### 3.5 Basic Call Scenarios

The following routing scenarios are supported by the IP Office and **DO NOT** use the AT&T Call Control.

• Local IP OFFICE phone to IP OFFICE phone

The following routing scenarios are supported by the IP OFFICE IP PBX and **DO** use the AT&T Call Control. For voice calls, the G.729 codec shall be used. **Fax is not currently supported.** 

- IP OFFICE phones to PSTN (domestic US and international).
- IP OFFICE phones to legacy PBX site with Cisco gateway.
- Legacy PBX site with Cisco gateway to IP OFFICE phones.
- IP OFFICE phones at one IP OFFICE IP PBX site to IP OFFICE phones at another IP PBX site.

If the customer has subscribed to Calling Plans B and C (Local), then the following routing scenarios are supported by the IP OFFICE IP PBX and **DO** use the AT&T Call Control. For voice calls, the G.729 or G.711 codec may be used. IP Office selects G.729 as the highest priority codec.

© 2008 AT&T Intellectual Property. All rights reserved. AT&T, the AT&T logo and all other AT&T marks contained herein are trademarks of AT&T Intellectual Property and/or AT&T affiliated companies. All content of any kind belonging to Avaya Inc. is protected by Avaya's copyright and trademark rights, and all such rights are reserved. Page 6 of 23

- Inbound PSTN to IP OFFICE phone
- Outbound local PSTN calls from the IP OFFICE phones.
- Outbound local N11 (i.e. 411, 911) calls from the IP OFFICE phones.

# 4 Customer Configuration Guide

This configuration guide specifies the Avaya IP Office Communication System screens that must be configured and updated to support the AT&T Voice over Managed Services.

In order to enable SIP communication you will need a valid SIP trunking license and IP Office with VCM cards.

### 4.1 How to identify you are running version 4.1

Users can identify the version number they are running by to looking at the top line of their manager screen and identify the Manager and Core version.

🚰 Avaya IP Office Manager 6.1 (12	) IP500_225 [4.1(12)] [Administrator(Administrator)	ministrator)]								
	lelp									
2 🖻 - 🗐 🖪 🖬 🛕	🖌 🎂 🕴 IP500_225 🔹 Sy	stem	• IP5	00_225		-				
IP Offices	System		E				IP500_228	5		📸 •   X   🗸   <   >
K BOOTP (9)	Name		System		LAN2 DNS	Voicemail	Telephony LD	AD Surtem	Events CDR Twinning	VCM
<ul> <li>Operator (3)</li> <li>IP500_225</li> </ul>	TP500_225			CHINE	CHINE DING		500 225	System	Locale	
			Name Contact	Informa	ation	193	00_223		Locale	United States (US English)
HuntGroup (6) Short Code (130) Service (0) RAS (1) Incoming Call Route (38 WanPort (0)			Time Off (hours:m	inutes)		00:	1.5.1			
Directory (3)			TFTP Ser	ver IP Ad	dress	19	92 168 42	2 228	Branch Prefix	500225
<ul> <li>Time Profile (4)</li> <li>Firewall Profile (2)</li> </ul>			Time Ser	ver IP Ad	ldress	C	) . 0 . 0	. 0	Local Number Length	3
IP Route (5)			File Write	r IP Add	lress	C	0.0.0	. 0		
Account Code (1)			Dongle S	erial Nur	mber	Lo	cal 5100672			
			AVPP IP	Address		C	0.0.0	. 0		
- Liser Rights (10)			Conteren	icina Cer	nter URL	-				
Auto Attendant (4)			DSS St						Hide auto recordir	ng
Authorization Code (2)			🔽 Beep	on listen					Favour RIP Routes,	-
			•					m		
						Error Li	ist			< >
	Config Item Type	Record	Description							
	IP500_225 User     IP500_225 System	RemoteManager IP500_225			lanager has the ort Code has no		ord. Outsiders ma	y access your	system.	
	IP500_225 System				Route destination					
	IP500_225 Incoming Call Route							int group was	created with the name CF1	then if Voicemail was unavailable the
	1P500_225 System	IP500_225					igured on an IP 5	00 system with	n an IP500 Professional Editi	on licence.
	1 IP500_225 Short Code		Duplicate S	hort Coo	de with feature	Dial				
۰ III ۲	•				III					•
Ready										

© 2008 AT&T Intellectual Property. All rights reserved. AT&T, the AT&T logo and all other AT&T marks contained herein are trademarks of AT&T Intellectual Property and/or AT&T affiliated companies. All content of any kind belonging to Avaya Inc. is protected by Avaya's copyright and trademark rights, and all such rights are reserved. Page 7 of 23

As shown above, the IP Office Core software version is 4.1 (12).

## 4.2 How to check for SIP Trunking Licenses

To make calls using SIP you must have a valid license that can be purchased through Avaya business partners, in the number of 1, 5, 10, 20 or a combination of all the above up to 128 instances of the same license. Avaya will provide a license that will need to be inserted into license form. An example is provided in Figure 3. License can be shared among different SIP trunks; the number of instances represents the maximum number of calls that can be dialed or received at the same time by IP Office using any of its SIP trunks.

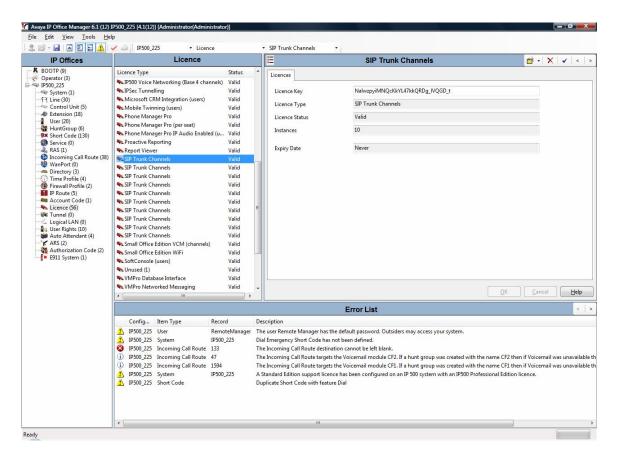


Figure 1: License From with valid SIP license

© 2008 AT&T Intellectual Property. All rights reserved. AT&T, the AT&T logo and all other AT&T marks contained herein are trademarks of AT&T Intellectual Property and/or AT&T affiliated companies. All content of any kind belonging to Avaya Inc. is protected by Avaya's copyright and trademark rights, and all such rights are reserved. Page 8 of 23

*License Key* is the license identifier that will be provided by Avaya business partners.

License Type must be set to SIP Trunk Channel.

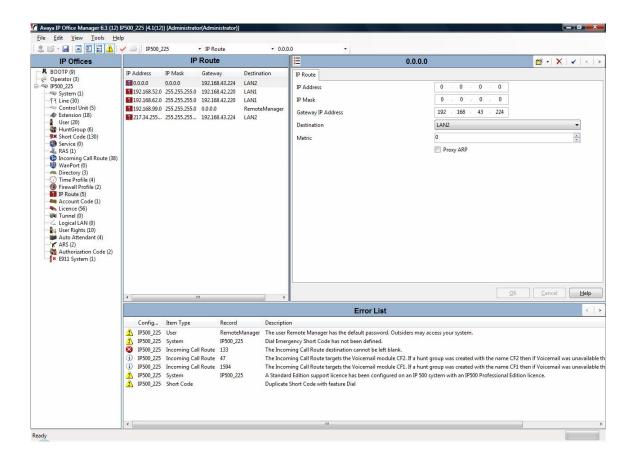
License Status should be set to Valid, if the acquired license is a valid one.

Instances, will display the number of license instance that have been purchased.

Expiry Date will indicate the expiration of the license

# 4.3 Setting Up IP Routes to AT&T IP Network

This section deals with the IP route configuration. The gateway IP address is the LAN side address of the AT&T managed router. Please contact AT&T customer care to get the correct address.



© 2008 AT&T Intellectual Property. All rights reserved. AT&T, the AT&T logo and all other AT&T marks contained herein are trademarks of AT&T Intellectual Property and/or AT&T affiliated companies. All content of any kind belonging to Avaya Inc. is protected by Avaya's copyright and trademark rights, and all such rights are reserved. Page 9 of 23

## 4.4 Main SIP Line

This section deals with the SIP line tab on the SIP Line configuration.

PLEASE CONTACT YOUR AT&T CUSTOMER CARE REPRESENTATIVE FOR THE AT&T IPBE (IP BORDER ELEMENT) IP ADDRESSES FOR YOUR SPECIFIC PBX. You must configure a SIP line for each of the 2 AT&T Border Elements provided by AT&T Customer care.

👫 Avaya IP Office Manager 6.1 (12) II	P500_225 [4.1(12)] [Administrate	r(Administrator)]				
<u>File Edit View Tools Help</u>	<b>,</b>					
	/ 🧾 IP500_225	- Line	<ul> <li>16</li> </ul>	•		
IP Offices	Line		2	SIP Line - Line 16*		📸 • 🗙 🗸 < >
BOOTP (9)	Line Number Line Type	Line SubTyp ^	SIP Line SIP URI			
<ul> <li>Operator (3)</li> <li>IP500 225</li> </ul>	171 Analogue Trun	k		[		
System (1)	172 Analogue Trun	c	Line Number	16	Registration Required	E 6
	行3 Analogue Trun	c	ITSP Domain Name		In Service	
Control Unit (5)	174 Analogue Trun	k i				
Extension (18)	🛩 5 BRI	ETSI	ITSP IP Address	207 242 225 200	Use Tel URI	
User (20)	🛩 6 BRI	ETSI	Primary Authentication Name		VoIP Silence Suppression	
Short Code (130)	🛩 7 BRI	ETSI				
Service (0)	🛩 8 BRI	ETSI	Primary Authentication Password		Out Of Band DTMF	
RAS (1)	🍬 9 SIP Line		Primary Registration Expiry	3600	Local Tones	V
- (b) Incoming Call Route (38) 	No SIP Line	E			E	E
Directory (3)	🍡 11 IP		Secondary Authentication Name		Fax T38	
Time Profile (4)	► 12 SIP Line		Secondary Authentication Password		RE-INVITE Supported	
Firewall Profile (2)	SIP Line			3600 🜩	Voice Packet Size	20
IP Route (5)	The SIP Line		Secondary Registration Expiry	3000	Voice Packet Size	20
Licence (56)	<ul> <li>SIP Line</li> <li>SIP Line</li> </ul>				Compression Mode	G.729(a) 8K CS-ACELP
📲 Tunnel (0)	10 SIP Line					·
	17 SIP Line		Network Configuration			
🕼 User Rights (10) 🐲 Auto Attendant (4)	19 SIP Line		Layer 4 Protocol UDP	<ul> <li>Send F</li> </ul>	Port 5060	▲ ▼
ARS (2)	> 20 SIP Line					
Authorization Code (2)	SIP Line		Use Network Topology Info	2 • Listen	Port 5060	A. 
E911 System (1)	> 22 IP					
	SIP Line					-
	🍬 24 IP		( )	III.		•
	🍬 25 SIP Line	-				
	۰ ( m	•				<u>OK</u> <u>C</u> ancel <u>H</u> elp
				Error List		<   >
	Config Item Type	Record	Description			
	1 IP500_225 User	RemoteM		the default password. Outsiders may a	ccess your system.	
	1 IP500_225 System	IP500_225				
	IP500_225 Incoming Cal		The Incoming Call Route destin			
	IP500_225 Incoming Cal				group was created with the name	CF2 then if Voicemail was unavailable th
	(i) IP500_225 Incoming Cal					CF1 then if Voicemail was unavailable th
	IP500_225 System	IP500_225	A Standard Edition support licer	nce has been configured on an IP 500	system with an IP500 Professional I	Edition licence.
	1 IP500_225 Short Code		Duplicate Short Code with featu	ure Dial		
	And Annual Contraction of Contract of Contract					
	4		m			•
Ready						
Reauy						

Figure 2: SIP Main Line

Here is a guideline for configuration of each field.

- Line number is automatically assigned by Manager in an incremental manner.
- ITSP Domain Name shall be left blank

© 2008 AT&T Intellectual Property. All rights reserved. AT&T, the AT&T logo and all other AT&T marks contained herein are trademarks of AT&T Intellectual Property and/or AT&T affiliated companies. All content of any kind belonging to Avaya Inc. is protected by Avaya's copyright and trademark rights, and all such rights are reserved. Page 10 of 23

- Registration Required, shall be left un-ticked
- ITSP IP Address shall be set to the AT&T border element associated with this SIP line.
- Primary Authentication Name shall be left blank
- Primary Authentication Password shall be left blank
- Primary Registration Expiry shall be left as default
- Secondary Authentication Name shall be left blank
- Secondary Authentication Password shall be left blank
- Secondary Registration Expiry shall be left as default
- In Service shall be ticked
- Use TEL URI shall be left un-ticked
- Re-INVITE Supported shall be left un-ticked
- Compression mode should be set to G.729(a) 8K CS-ACELP
- Send Port shall be set to 5060 (default)
- Listen Port shall be set to 5060 (default)

© 2008 AT&T Intellectual Property. All rights reserved. AT&T, the AT&T logo and all other AT&T marks contained herein are trademarks of AT&T Intellectual Property and/or AT&T affiliated companies. All content of any kind belonging to Avaya Inc. is protected by Avaya's copyright and trademark rights, and all such rights are reserved. Page 11 of 23

# 4.5 SIP Line: SIP URI tab

Ready

Eile Edit View Iools Help 2 🖙 - 属 🛋 🖬 🖬 🖌 🗸	iP500_22	5 <del>v</del> Line		• 16					
IP Offices		Line	×			SIP Line - Line 16		📸 •   🗙   🗸   <	
# BOOTP (9)           @ Deprator (3)           IPS00_225           IPS00_225           Control Unit (3)           Control Unit (3)           Extension (17)           User (20)           HuntGroup (6)           WanPort (0)           Directory (3)           Time Profile (4)           @ Firewall Profile (2)           IP Route (5)           IP Account Code (1)           Licence (56)           Cole (1AN (0))           User Rights (10)           Warkendambar (4)           Authorization Code (2)	Line Number fil fil fil fil fil fil fil fil	Analogue Trunk Analogue Trunk Analogue Trunk BRI ETSI BRI ETSI BRI ETSI SIP Line SIP Line	Edit Char Edit Char Edit Char Edit Char Edit Char Contact Display N Registrati Incoming Outgoing Max Calls	Groups 64 64 45 46 47 47 480 480 480 480 480 480 480 480 480 480 914		17323664893 732364893 4894 18032220000 743336073	OK Cancel	Cancel	
	Error List								
	Config	Item Type	Record RemoteManager	Description	ote Manager I	nas the default password. Outsiders may access y	our system		
	1P500_22		299 Extn299		doesn't exist				
	1P500_22		IP500_225	Dial Emerger	cy Short Code	has not been defined.			
	3 IP500_22	5 Incoming Call Route	133	The Incomin	g Call Route de	stination cannot be left blank.			
	i IP500_22	5 Incoming Call Route	1594	The Incomin	g Call Route ta	rgets the Voicemail module CF1. If a hunt group	was created with the name CF1 the	n if Voicemail was unava	
	1P500_22	5 System	IP500_225	A Standard E	dition support	licence has been configured on an IP 500 system	with an IP500 Professional Edition	licence.	
	1 IP500_22	5 Short Code		Duplicate She	ort Code with f	eature Dial			

This section deals with the SIP URI tab on the SIP Line configuration.

Local URI can be set in two different modes for this configuration type:

- By editing each field individually. This mode allows setting each SIP URI to coincide with a given DID assigned by AT&T. With this mode, SIP URI settings are common for all users in the system.
- 2. By setting in to Use User Data (shown above). This setting allows differentiating each SIP URI to a given user in the system. The fields will be filled in using SIP tab in User form.

© 2008 AT&T Intellectual Property. All rights reserved. AT&T, the AT&T logo and all other AT&T marks contained herein are trademarks of AT&T Intellectual Property and/or AT&T affiliated companies. All content of any kind belonging to Avaya Inc. is protected by Avaya's copyright and trademark rights, and all such rights are reserved. Page 12 of 23

The fields on this form are Local URI, Contact, and Display Name and are described next.

- Local URI populates the user part of the FROM header for outbound calls.
- **Contact** sets the user part of the CONTACT header for outbound calls.
- **Display Name** sets the display name field in the FROM header for outbound calls.

The number of simultaneous calls may also dependent on the number of calls supported on the VCM cards.

© 2008 AT&T Intellectual Property. All rights reserved. AT&T, the AT&T logo and all other AT&T marks contained herein are trademarks of AT&T Intellectual Property and/or AT&T affiliated companies. All content of any kind belonging to Avaya Inc. is protected by Avaya's copyright and trademark rights, and all such rights are reserved. Page 13 of 23

# 4.6 Setting SIP tab in User Field

🖻 - 🛃 🖪 🔜 🔝 🔥	/ 🤐 IP500	225 • User		<ul> <li>208 Extn208</li> </ul>						
IP Offices		User		E		Extn208: 208		<b>-</b>	×	<ul> <li></li> </ul>
BOOTP (9) Operator (3)	Name	Extension		Menu Programming Twi	inning T3 Option	s Phone Manager Options H	unt Group Membership Ann	ouncements	SIP	4
IP500_225	NoUser									
System (1)	RemoteMa			SIP Name	12014710206					
F3 Line (30)	Extn201	201		SIP Display Name (Alias)	12014710206					
<ul> <li>Control Unit (5)</li> <li>Extension (18)</li> </ul>	Extn202	202 203		Contact	12014710206					
User (20)	Extn203 Extn204	203		Contact	12014/10200					
HuntGroup (6)	Extn204	204								
Short Code (130)	Extn205	205			Anonymous					
Service (0) RAS (1)	Extn200	200								
Incoming Call Route (38)	Extn208	208	-							
WanPort (0)	Extn209	209								
Directory (3)	Extn210	210								
) Time Profile (4) ) Firewall Profile (2)	Extn211	211								
IP Route (5)	Extn212	212								
Account Code (1)	Extn213	213								
Licence (56)	Extn214	214								
U Tunnel (0) Logical LAN (0)	Extn215	215								
User Rights (10)	🛔 Extn216	216								
Auto Attendant (4)	Extn229	229								
ARS (2) Authorization Code (2)	Extn299	299								
E911 System (1)										
· · · · ·										
							<u>o</u> k	Canc	el (	Help
					Error L	ist				<
	Config	Item Type	Record	Description						
	1P500_225	i User	RemoteManager	The user Remote Manager ha	as the default passv	word. Outsiders may access your	system.			
	1 IP500_225	5 System	IP500_225	Dial Emergency Short Code h	as not been define	ed.				
	3 IP500_225	Incoming Call Route	133	The Incoming Call Route des	tination cannot be	left blank.				
	(i) IP500_225	incoming Call Route	47	The Incoming Call Route targ	gets the Voicemail r	module CF2. If a hunt group was	created with the name CF2 th	hen if Voicem	ail was	unavail
	(i) IP500_225	Incoming Call Route	1594	The Incoming Call Route targ	gets the Voicemail r	module CF1. If a hunt group was	created with the name CF1 th	hen if Voicem	ail was	unavail
	1P500_225		IP500_225			nfigured on an IP 500 system wit	h an IP500 Professional Edition	n licence.		
	1 IP500_225	5 Short Code		Duplicate Short Code with fe	ature Dial					
	•									

This section deals with the SIP tab on the user configuration.

The fields on this form are SIP Name, SIP Display Name (Alias), and contact and are described next.

- **SIP Name** populates the user part of the FROM header for outbound calls.
- **SIP Display Name** sets the display name field in the FROM header for outbound calls.
- **Contact** sets the user part of the CONTACT header for outbound calls.

*Anonymous* enables the Privacy Mechanism for outbound calls according to RFC 3325.

© 2008 AT&T Intellectual Property. All rights reserved. AT&T, the AT&T logo and all other AT&T marks contained herein are trademarks of AT&T Intellectual Property and/or AT&T affiliated companies. All content of any kind belonging to Avaya Inc. is protected by Avaya's copyright and trademark rights, and all such rights are reserved. Page 14 of 23

## 4.7 Routing Calls to AT&T

This section describes the IP Office configuration required for sending calls to the AT&T IP FLEXIBLE REACH network.

The usual system of SHORT CODE object can be used to direct calls to the AT&T IP FLEXIBLE REACH network. The following screen shot gives an example in a fictitious IP Address.

Kaya IP Office Manager 6.1 (12) IP500_225 [4.1(	12)] [Administrato	r(Administrator)]					
<u>File Edit View Tools H</u> elp							
: 2 🖻 - 🗐 🔺 🖭 🖬 🔺 🛹 🖄 IP50	0_225	<ul> <li>Short Code</li> </ul>	<b>•</b> 98#		-		
IP Offices		Short Co	ode		12	98#: Dial*	📸 +   🗙   🖌   <   >
8 BOOTP (9)	Code	Telephone	e Number	*	Short Code		
Operator (3)	9×*12*N#	N					
E 9500_225	9×*11*N#	N			Code	9N;	
filline (30)	9×*10*N#	N			Feature	Dial	*
	90* *09				reature	Diai	
<ul> <li>Æ Extension (18)</li> </ul>	98 *08				Telephone Number	N"@207.242.225.200"	
User (20)	9×*07*N#	N			1. 6 11	46	
HuntGroup (6)	<b>9×</b> *06				Line Group Id	40	
Short Code (130)	9×*05				Locale		-
RAS (1)	9×*04						
Dincoming Call Route (38)	9×*03				Force Account Code		
WanPort (0)	9× *02				Force Authorization Code		
Directory (3)	9× 02						
- 💭 Time Profile (4)							
Firewall Profile (2)	<b>9×*00</b>			_			
IP Route (5)	<b>9×</b> 556	017072999	38				
Licence (56)	9×555N	N					
Tunnel (0)	9×777	206					
Logical LAN (0)	9×5N	N		-			
- Los User Rights (10)	9×55N#	N					
👘 Auto Attendant (4)	9×888N#	N					
K ARS (2)	<b>9×66N</b>	N					
Authorization Code (2)	<b>9×</b> 43*	120147102	13				
In Carl System (1)	9× AGNbackup	N*@64.95.	.245.15"				
	9×91*	"17323684	893@64.95.245.15"				
	<b>9×</b> 9*	"12014710	213@64.95.245.15"				
	<b>9x</b> 98#	"80086483	31@207.242.225.200	D			
	<b>9×</b> 98*	"08008648	331@64.95.245.15"				
	<b>9×</b> 93#	"12014710	213@207.242.225.20	00"S1			
	<b>9×</b> 67#	"18032220	000@207.242.225.20	00"			
	<b>9×</b> 46*	120147102	13"@207.242.225.20				
		m		•			<u>O</u> K <u>Cancel</u> <u>H</u> elp
					Error Lis	st	<   >
	Config	Item Type	Record	Description			
	1 IP500_225	User	RemoteManager	The user Re	mote Manager has the default	t password. Outsiders may access y	our system
	1 IP500_225		IP500 225		ency Short Code has not been		su system.
		Incoming Call Route			ng Call Route destination can		E
		Incoming Call Route					was created with the name CF2 then if Voicemail
		Incoming Call Route					was created with the name CF1 then if Voicemail
	1 IP500_225		IP500_225				with an IP500 Professional Edition licence.
		Short Code	IF 500_225		Edition support licence has be hort Code with feature Dial	en configured on an IP 300 system	with an in-pool Professional Edition licence.
	× 12500 775	Shon Code		Dubicate S	non Code with feature Dial		
Ready							

The fields are populated as follows:

- **Short code** This field matches the dialed number. The sample short code shown above will match on a "9" followed by any number of digits (represented by "N"). The short code should end with a semi colon.
- Line Group ID Set this field to the SIP URI Outgoing Group ID that it is used to connect to the AT&T IP FLEXIBLE REACH network.
- Feature Set this field to "Dial".
- **Telephone number** is set to "N"@<IP Border Element address on the IP Flexible Reach Service>"". Note that IP Office can only send calls to

© 2008 AT&T Intellectual Property. All rights reserved. AT&T, the AT&T logo and all other AT&T marks contained herein are trademarks of AT&T Intellectual Property and/or AT&T affiliated companies. All content of any kind belonging to Avaya Inc. is protected by Avaya's copyright and trademark rights, and all such rights are reserved. Page 15 of 23

one AT&T Border Element. If that Border Element is not available, then the customer must manually re-configure this value to point to the secondary Border Element.

© 2008 AT&T Intellectual Property. All rights reserved. AT&T, the AT&T logo and all other AT&T marks contained herein are trademarks of AT&T Intellectual Property and/or AT&T affiliated companies. All content of any kind belonging to Avaya Inc. is protected by Avaya's copyright and trademark rights, and all such rights are reserved. Page 16 of 23

### 4.8 Receiving Calls from AT&T

The translation of each DID to an IP Office extension is done using ICR call route field as shown below.

You must configure Incoming Call Routes for each of the SIP lines associated with each of the 2 AT&T Border Elements provided by AT&T Customer care.

👫 Avaya IP Office Manager 6.1 (12) IP	500_225 [4.1(12)] [Administrator(Adm	inistrator)]				ō X
<u>File Edit View Tools H</u> elp						
2	• 进 IP500_225 • Inc	oming Call Route	<b>-</b> 46	•		
IP Offices	Incoming Call Rou	ie 🗄		46	📸 -   🗙   -	<   <   >
If Offices     If Offices     If South P(s)     Operator (3)     South P(s)     If South P(s)     South P(s)     If South P(s)     South P(s)     If S	Line Gr., Incoming N., Destina © 0 333 My © 0 333 My © 11 202 Ech © 14 333 My © 15 84448 © 20 Dialin © 21 333 My © 44 208 Ech © 46 208 Ech © 99 . © 100 208 Ech © 110 370 HG	ion ▲ Sta Troup Be: 202 Lin Troup Inc Troup Inc 208 Lo. 208 Lo. Troup Pri 208 Ta: 208 Ta: 2	indard Voice Recording arer Capability ne Group Id coming Number coming Sub Address coming CLI cale g			
Loncet (0)     Long(c)     Log(cal LAN (0)     Log(cal LAN (c))     Lo	Image: Constraint of the system         333 My           Image: Constraint of the system         334 My           Image: Constraint of the system         333 My           Image: Constraint of the system         333 My           Image: Constraint of the system         334 My           Image: Constraint of the system         333 My <td< td=""><td>Group</td><td></td><td></td><td>OK Cancel</td><td>Help</td></td<>	Group			OK Cancel	Help
	614 208 Extr	208 -				14-F
				Error List		<   >
	Config         Item Type           ♪         P500.225         User           ♪         P500.225         System           ②         P500.225         Incoming Call Roc           ①         P500.225         Incoming Call Roc           ①         P500.225         System           〕         P500.225         System           〕         P500.225         System           〕         P500.225         System           〕         P500.225         System		Dial Emergency Sho The Incoming Call R The Incoming Call R	nager has the default password. Outsiders may access your system. t Code has not been defined. oute destination cannot be left blank. oute targets the Voicemail module CF1. If a hunt group was created w upport licence has been configured on an IP 500 system with an IP500		s unavailable
				···		•
Ready						

© 2008 AT&T Intellectual Property. All rights reserved. AT&T, the AT&T logo and all other AT&T marks contained herein are trademarks of AT&T Intellectual Property and/or AT&T affiliated companies. All content of any kind belonging to Avaya Inc. is protected by Avaya's copyright and trademark rights, and all such rights are reserved. Page 17 of 23

raya IP Office Manager 6.1 (12) IP Edit <u>V</u> iew <u>T</u> ools <u>H</u> elp	200_222 [4.1(12)] [Administr	ator(Adminis)	rator)]	
	i IP500_225	• Incomir	ig Call Route	te • 46 •
IP Offices	Incoming Ca	II Route	X	∃ 46 📸 •   ×   ∢   <
E 00.TP (9) ( 0 perstor (3) ) IP500_225 → System (1) → C there (30) → Control Unit (5) → Control Unit (5) → Extension (18) ↓ User (20) → Huntforeup (6) → X short Code (130) → Service (0) → KAS (1) → Directory (3) → Directory (3)	Line Gr., Incoming N., 0 0 0 0 11 0 14 0 15 0 21 0 21 0 44 0 44 0 45 0 10 0 10 0 10 0 10 0 10 0 10 0 11 0 15 0 21 0 21 0 21 0 24 0 44 0 45 0 10 0 10 0 11 0 14 0 15 0 21 0 21 0 24 0 44 0 46 0 10 0 0 10 0 0 0 0 0 0 0 0 0 0 0 0 0	Destination 333 MyGrou 333 MyGrou 333 MyGrou 333 MyGrou 333 MyGrou 333 MyGrou 208 Extn208 333 MyGrou 208 Extn208 208 Extn208	р р р р р Р Е Р Р Р Р Р Р Р	Standard Voice Recording Destinations TimeProfile Destination Fallback Extension  Control Cont
	614	208 Extn208		Error List
	Config Item Typ	e	Record	Description
	IP500_225         User           IP500_225         System           IP500_225         Incoming           IP500_225         Incoming           IP500_225         System           IP500_225         System           IP500_225         System           IP500_225         System           IP500_225         System	g Call Route g Call Route		nager The user Remote Manager has the default password. Outsiders may access your system. Dial Emergency Short Code has not been defined. The Incoming Call Route destination cannot be left blank. The Incoming Call Route argets the Voicemail module CFL if a hunt group was created with the name CFL then if Voicemail was unavail. A Standard Edition support licence has been configured on an IP 500 system with an IP500 Professional Edition licence. Duplicate Short Code with feature Dial

The fields are populated as follows:

- Bearer Capability shall be set to Any Voice.
- Line Group Id shall be set to the *Incoming Group ID* of the *SIP URI* that is used to receive external phone calls.
- **Incoming Number** is the called number string sent by AT&T IP Flexible Reach. If the telephone number (i.e. TN) is a virtual TN, then AT&T will send the full 10 digit TN. If the TN is non-virtual, then AT&T will send the last 4 digits of the TN. In the example shown above there is no number entered so therefore all the calls are matched. In order to narrow call matching enter here the 10 or 4 digit TN.
- **Destination** shall be set to the desired target of incoming calls that can be an extension or hunt-group.

© 2008 AT&T Intellectual Property. All rights reserved. AT&T, the AT&T logo and all other AT&T marks contained herein are trademarks of AT&T Intellectual Property and/or AT&T affiliated companies. All content of any kind belonging to Avaya Inc. is protected by Avaya's copyright and trademark rights, and all such rights are reserved. Page 18 of 23

## 4.9 IP Phone Configuration

An example of an IP phone configuration is shown next.

- Enable Fast Start for non Avaya phones is enabled
- Allow Direct Media Path can be left ticked or un-ticked depending on user preference. SIP trunks will always use relay (no direct media path).
- To minimize the number of voice coder employed, it is recommended to set **Compression Mode** to G.729.

🖻 - 🔲 🖃 🖬 🛕 -	<ul> <li>IP500_225</li> <li>Exten</li> </ul>	sion • 8000 22	9 -	
IP Offices	Extension	E	VoIP Extension: 8000 229	📸 •   🗙   🗸   <
	Id         Extension         Module         Port           ●,8001         299         0         0           ●,800         299         0         0           ●,800         216         BP4         8           ●,79         215         BP4         7           ●,77         213         BP4         5           ●,77         212         BP4         4           ●,75         211         BP4         2           ●,77         212         BP4         4           ●,75         211         BP4         2           ●,77         212         BP4         1           ●,56         206         BD3         8           ●,55         207         BD3         7           ●,55         205         BD3         5           ●,55         204         BD3         4           ●,51         203         BD3         3           ●,55         202         BD3         1           ●,49         201         BD3         1	Extn VoIP IP Address MAC Address Voice Payload Size (m Compression Mode TDM->IP Gain IP->TDM Gain H450 Support	0 · 0 · 0 · 0 00 00 00 00 00 00 20 G.729(a) 8K CS-ACELP · · Default · · None · ·	VoIP Silence Suppression Enable Faststart for non-Avaya IP phones Fax Transport Support Out Of Band DTMF Local Tones Enable RSVP Allow Direct Media Path VPN Phone Allowed
				OK Cancel Help
			Error List	<
	Config Item Type ▲ 19500,225 User ▲ 19500,225 System ③ 19500,225 Incoming Call Route 19590,225 Incoming Call Route ▲ 19500,225 System ▲ 19500,225 System	IP500_225         Dial Emerger           133         The Incomin           47         The Incomin           1594         The Incomin           IP500_225         A Standard E	note Manager has the default password. Outsiders may access your system. cry Short Code has not been defined. g Call Route destination cannot be left blank. g Call Route destination cannot be left blank. g Call Route targets the Voicemail module CF1. If a hunt group was created g Call Route targets the Voicemail module CF1. If a hunt group was created dition support licence has been configured on an IP 500 system with an IPS ort Code with feature Dial	with the name CF1 then if Voicemail was unavail

© 2008 AT&T Intellectual Property. All rights reserved. AT&T, the AT&T logo and all other AT&T marks contained herein are trademarks of AT&T Intellectual Property and/or AT&T affiliated companies. All content of any kind belonging to Avaya Inc. is protected by Avaya's copyright and trademark rights, and all such rights are reserved. Page 19 of 23

An extra step is required to support 30 msec payloads for Avaya IP Phones. This is achieved by adding the SourceNumber *FORCE\_AVAYAIP\_TO\_30ms* to the NoUser form:

- 🖃 🖪 🔛 🔺 🤸	/ 🚢   IP500_22	5 • User		<ul> <li>No</li> </ul>	User	-						
IP Offices		User		E			NoUser:				<b>e</b> -	×   ✓   <
OTP (9)	Name	Extension		User	Voicemail DN	D ShortCodes	Source Numbers	Telephony	Forwarding	Dial In Voice	e Recording	utton Program
erator (3) 00_225	NoUser						search and the search	receptionly	ronnong	Contra Long		l
System (1)	Remote Mana	ger		Sour	rce Number							Add
Line (30)	Extn201	201		FOR	CE_AVAYAIP_TO_3	0ms						
Control Unit (5)	Extn202	202										Remove
Extension (18) User (20)	Extn203	203										Edit
HuntGroup (6)	Extn204	204										
Short Code (130)	Extn205	205										
Service (0)	Extn206	206										
RAS (1)	Extn207	207										
Incoming Call Route (38) WanPort (0)	Extn208	208										
Directory (3)	Extn209	209										
Time Profile (4)	Extn210	210										
irewall Profile (2)	Extn211	211										
P Route (5) Account Code (1)	Extn212	212										
icence (56)	Extn213	213										
Tunnel (0)	Extn214	214										
Logical LAN (0)	Extn215	215										
Jser Rights (10)	Extn216 Extn229	216 229										
Auto Attendant (4) ARS (2)	Extn229 Extn299	229										
Authorization Code (2)	Exth299	299										
911 System (1)												
1.4 5.555							III					
										<u>O</u> K	<u>C</u> ance	el He
						Error	List					
	Config	Item Type	Record	Descripti	ion							
	1P500_225	User	RemoteManager	The user	Remote Manager I	has the default pa	sword. Outsiders n	nay access yo	ur system.			
	1 IP500_225		IP500_225		ergency Short Code							
		Incoming Call Route	133	The Inco	ming Call Route de	stination cannot l	be left blank.					
	(i) IP500_225	Incoming Call Route	47	The Inco	ming Call Route ta	rgets the Voicema	il module CF2. If a	hunt group w	as created with	h the name CF2	then if Voicem	ail was unava
		Incoming Call Route					il module CF1. If a l					
	1 IP500_225	System	IP500_225	A Standa	ard Edition support	licence has been o	onfigured on an IP	500 system v	vith an IP500 Pr	rofessional Edit	tion licence.	
	1P500_225	Short Code		Duplicate	e Short Code with f	eature Dial						
	the state of the s											
	*										_	

© 2008 AT&T Intellectual Property. All rights reserved. AT&T, the AT&T logo and all other AT&T marks contained herein are trademarks of AT&T Intellectual Property and/or AT&T affiliated companies. All content of any kind belonging to Avaya Inc. is protected by Avaya's copyright and trademark rights, and all such rights are reserved. Page 20 of 23

# 5 Trouble Shooting

IP Office has a protocol trace tool called "system monitor". During trouble shooting, the customer may be asked to run this tool and provide traces to AT&T Customer Care. Sample output from this tool are shown next.

74693707mS SipDebugInfo: extension is dialing 8008648331@207.242.225.200

```
74693707mS SipDebugInfo: CMSetup receive, ep f5732238, dialog f5732d08
74693707mS SipDebugInfo: MZ extension is dialing 8008648331@207.242.225.200
74693707mS SipDebugInfo: ***
74693707mS SipDebugInfo: INVITE (method) SENT TO 207.242.225.200 5060
74693708mS SipDebugInfo: Registration Required is 0, Primary Status 0, Secondary Status 0
74693710mS SipDebugInfo: TxInvite: INVITE SENT TO 207.242.225.200 5060
74693710mS SipDebugInfo: *
74693710mS SipDebugInfo: Sending INVITE, ep f5732238, dialog f5732d08
74693710mS SipDebugInfo: Sip sendToNetwork packet of length 830
74693711mS SipDebugInfo: SIP Line (16): SendToTarget cff2e1c8, 5060
74693711mS SIP Trunk: 16:Tx
          INVITE sip:8008648331@207.242.225.200 SIP/2.0
          Via: SIP/2.0/UDP 217.36.111.99:5060;rport;branch=z9hG4bKfaf7bf23f5e3c2b636e28f7f567f7a56
          From: ErnestoandPaul <sip:17323684893@217.36.111.99>;tag=023291dd0527aac4
          To: <sip:8008648331@207.242.225.200>
          Call-ID: 5381584b34db8b076351cbeca01c07aa@217.36.111.99
          CSeq: 1472430449 INVITE
          Contact: ErnestoandPaul <sip:17323684893@217.36.111.99:5060;transport=udp>
          Max-Forwards: 70
          Allow: INVITE, ACK, CANCEL, OPTIONS, BYE, INFO
          Content-Type: application/sdp
          Content-Length: 302
          v=0
          o=UserA 585867926 1856642184 IN IP4 217.36.111.99
          s=Session SDP
          c=IN IP4 217.36.111.99
          t = 0.0
          m=audio 49152 RTP/AVP 18 4 8 0 101
          a=rtpmap:18 G729/8000
          a=rtpmap:4 G723/8000
          a=rtpmap:8 PCMA/8000
          a=rtpmap:0 PCMU/8000
          a=fmtp:18 annexb = no
          a=rtpmap:101 telephone-event/8000
          a=fmtp:101 0-15
74693711mS SipDebugInfo: initialising mTxnContext
74693712mS SipDebugInfo: *******
                                              *******
74693712mS SipDebugInfo: State Transtion form Old State 0 to New state 1
74693712mS SipDebugInfo: *
74693712mS SipDebugInfo: SIPDialog::UpdateSDPState has just transitioned to state 1
74693867mS SIP Trunk: 16:Rx
```

© 2008 AT&T Intellectual Property. All rights reserved. AT&T, the AT&T logo and all other AT&T marks contained herein are trademarks of AT&T Intellectual Property and/or AT&T affiliated companies. All content of any kind belonging to Avaya Inc. is protected by Avaya's copyright and trademark rights, and all such rights are reserved. Page 21 of 23

SIP/2.0 100 Trying Via: SIP/2.0/UDP 217.36.111.99:5060;received=217.36.111.99;branch=z9hG4bKfaf7bf23f5e3c2b636e28f7f567f7a56;rport=5060 From: ErnestoandPaul <sip:17323684893@217.36.111.99>;tag=023291dd0527aac4 To: <sip:8008648331@207.242.225.200> Call-ID: 5381584b34db8b076351cbeca01c07aa@217.36.111.99 CSeq: 1472430449 INVITE 74693867mS SipDebugInfo: MZ SIPDialog: ReceiveFromTarget 74693869mS SipDebugInfo: MZ SIPDialog TXN : Decoding of message Succeded 1 74693869mS SipDebugInfo: SIP: ProcessInbound Message 74693869mS SipDebugInfo: Find End Point 5381584b34db8b076351cbeca01c07aa@217.36.111.99 74693869mS SipDebugInfo: Process SIP response dialog f5732d08, method INVITE,CodeNum 100 in state 1 74693870mS SipDebugInfo: MZ SIPDialog No Tag due to error 74693870mS SipDebugInfo: ExtractRouteFromRecord, entered 74693870mS CMTARGET: TargetOnProgress: res: 1 74693871mS CMCallEvt: 0.8725.0 49 TargetingEP: RequestEnd 0.8726.0 49 SIPTrunk Endpoint 74693871mS CMTARGET: 0.8724.0 49 Extn208.0: CancelTimer CMTCNoAnswerTimeout 74693871mS CMCallEvt: 0.8725.0 -1 BaseEP: DELETE CMEndpoint f5734980 TOTAL NOW=2 CALL\_LIST=1 74693871mS CMCallEvt: 0.8726.0 49 SIPTrunk Endpoint: StateChange: END=B CMCSOffering->CMCSAccept 74693872mS CMCallEvt: 0.8724.0 49 Extn208.0: StateChange: END=A CMCSDialling->CMCSDialled 74693872mS CMExtnEvt: v=8 State, new=Proceeding old=Dialling,0,0,Extn208 74693873mS SipDebugInfo: \*\*\*\*\*\*\* 74693873mS SipDebugInfo: State Transtion form Old State 1 to New state 5 74693873mS SipDebugInfo: \*\* 74693873mS SipDebugInfo: SIP Line (16): Cannot free Txn Key 2015 74694216mS SIP Trunk: 16:Rx SIP/2.0 183 Session Progress Via: SIP/2.0/UDP 217.36.111.99:5060;received=217.36.111.99;branch=z9hG4bKfaf7bf23f5e3c2b636e28f7f567f7a56;rport=5060 From: ErnestoandPaul <sip:17323684893@217.36.111.99>;tag=023291dd0527aac4 To: <sip:8008648331@207.242.225.200>;tag=ds254196ac Call-ID: 5381584b34db8b076351cbeca01c07aa@217.36.111.99 CSeg: 1472430449 INVITE Content-Length: 228 Contact: <sip:8008648331@207.242.225.200:5060;transport=udp> Allow: INVITE, BYE, ACK, CANCEL, PRACK, INFO Content-Disposition: session; handling=required Content-Type: application/sdp v=0o=Sonus\_UAC 11634 6705 IN IP4 207.242.225.200 s=SIP Media Capabilities c=IN IP4 207.242.225.200 t=0 0 m=audio 19196 RTP/AVP 18 101 a=rtpmap:18 G729/8000 a=rtpmap:101 telephone-event/8000 a=fmtp:101 0-15 a=sendrecv

© 2008 AT&T Intellectual Property. All rights reserved. AT&T, the AT&T logo and all other AT&T marks contained herein are trademarks of AT&T Intellectual Property and/or AT&T affiliated companies. All content of any kind belonging to Avaya Inc. is protected by Avaya's copyright and trademark rights, and all such rights are reserved. Page 22 of 23

This Customer Configuration Guide ("CCG") is offered as a convenience to AT&T's customers. The specifications and information regarding the product in this CCG are subject to change without notice. All statements, information, and recommendations in this CCG are believed to be accurate but are presented without warranty of any kind, express or implied, and are provided "AS IS". Users must take full responsibility for the application of the specifications and information in this CCG.

In no event shall AT&T or its suppliers be liable for any indirect, special, consequential, or incidental damages, including, without limitation, lost profits or loss or damage arising out of the use or inability to use this CCG, even if AT&T or its suppliers have been advised of the possibility of such damage.

© 2008 AT&T Intellectual Property. All rights reserved. AT&T, the AT&T logo and all other AT&T marks contained herein are trademarks of AT&T Intellectual Property and/or AT&T affiliated companies. All content of any kind belonging to Avaya Inc. is protected by Avaya's copyright and trademark rights, and all such rights are reserved. Page 23 of 23