[ ]

INTEROPERABILITY REPORT

Ascom IP-DECT

Innovaphone IP302, IP810 and IP6010, Firmware version 10

IP PBX Integration (H323)

Ascom IPBS, Software version 6.1.3

Ascom, Gothenburg

October 2013

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INTRODUCTION

This interoperability report describes test results and optimal configuration of Ascom IP-DECT towards the Innovaphone IP PBX.
The document should be used in conjunction with configuration guide(s) from Innovaphone and Ascom.

Ascom

Ascom Wireless Solutions is a leading provider of on-site wireless communications for key segments such as hospitals, manufacturing industries, retail and hotels. More than 75,000 systems are installed at major companies all over the world. The company offers a broad range of voice and professional messaging solutions, creating value for customers by supporting and optimizing their Mission-Critical processes. The solutions are based on VoWiFi, IP-DECT, DECT and Nurse Call and paging technologies, smartly integrated into existing enterprise systems.

Founded in the 1950s and based in Göteborg, Sweden, Ascom Wireless Solutions is part of the Ascom Group and listed on the Swiss Stock Exchange. The company has subsidiaries in 10 countries and approximately 1,200 employees worldwide.
For further information, see the following URL: http://www.ascom.com/ws.

Innovaphone

Innovaphone develops pure IP telephone systems under the name of “Innovaphone PBX“,

Uniting security and high availability with the flexibility and scalability of IP. The Innovaphone PBX hardware comprises gateways and a series of IP telephones which are developed entirely in Germany and manufactured to a large extent in Europe. The entire product range is based on the unified hardware and software platform which is the core of the Innovaphone product philosophy. The number of activated licenses can be determined as required which renders the solution suitable for companies of any size: from small companies over medium size companies with several branch offices to large enterprises. The Innovaphone IP telephone systems are available exclusively through authorised distributors and resellers.

Innovaphone has been playing a decisive role in the development of IP telephony ever since the company was founded in 1997. Head office is located in Sindelfingen, South Germany.
For further information, see the following URL: http://www.innovaphone.com/

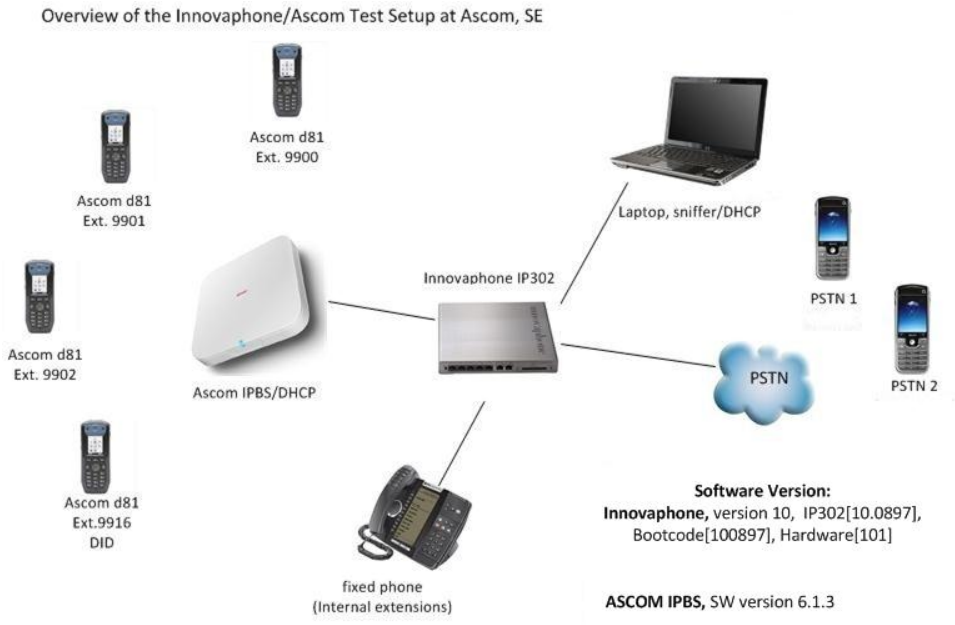
SITE INFORMATION

Test Site: Ascom HQ
Gothenburg
Sweden

Participant(s):

Raheleh Kamali (Ascom HQ, SE)
Peter Åstrand (Ascom HQ, SE)

Test Topology



SUMMARY

Innovaphone, version 10

Test cases in nearly all areas with regard to Ascom IP-DECT and Innovaphone IP PBX passed successfully.
Overall, the conclusion has to be that H.323 integration towards IP302 is very good.

Queries about licensing should be directed to Innovaphone.
Please also see "**APPENDIX A: TEST CONFIGURATIONS**" for further details.

IP-DECT

High Level Functionality	Result
Basic Call	OK[b]
DTMF	OK
Hold, Retrieve, Enquiry and Brokering	OK
Attended Transfer	OK
Blind-transfer	OK
Semi-attended Transfer	OK
Call Forward Unconditional	OK[a]
Call Forward No Reply	OK[a]
Call Forward Busy	OK[a]
Call Waiting	OK[a]
Message Waiting Indication	OK
Do Not Disturb	OK
Calling Line/Name Identification	OK
Connected Line/Name Identification	OK

a. Tested with Supplementary Services enabled

b. See ***Known Issue(s):*** in page **7**

General Conclusions

Ascom interoperability verification produced good results towards Innovaphone IP302 version 10 with few exceptions, See ***Known Issue(s):*** in page ***7.***

IP-DECT was configured to register at the IP PBX using endpoint numbers. The codec of choice for these tests was G.711A/20ms, while DTMF signalling was transmitted through RTP. One can say that, in comparison to SIP, H.323 requires little configuration besides the IP address of the H.323 gatekeeper and above mentioned settings. Parameter settings are elaborated upon in the ***"TEST RESULTS"*** section for respective platforms.

Call waiting (CW), do-not-disturb (DND) and call diversion (CDIV) were tested with supplementary services enabled on the IP-DECT base station (IPBS). Practically all test cases regarding basic call, brokering/enquiry, transfer and CDIV passed with positive results. No issues were logged for follow-up at Ascom HQ.

TEST RESULTS

Innovaphone IP302, v 10

- Ascom IPBS, v 6.1.3

Signalling Protocol:

- H.323

Innovaphone IP302:

- Settings are based on" Ascom VoIP Gateway: Installation and Operation Manual" (TD 92326GB), pp. 62-100
- LDAP replication required between IP PBX and IP-DECT master
- DSCP should be configured appropriately under IP -> Settings

Ascom IPBS:

- "Endpoint ID" and "Endpoint Number" corresponds to name and number in the user object
- (Assigning password is optional, it works in both cases)
- "Enbloc Dialling" and "Allow DTMF through RTP" enabled

Known Issue(s):

- No timeout when DECT calls another DECT that does not answer (PBX issue, per design)
- Internal ring tone after external call is blind-transferred to C, which does not save external number in call list (per IPBS design)
- Ascom IP-DECT does not support post-dial (per design)
- Possible to divert call to "diverter" (calling party hears busy, minor issue)

Test Areas

Basic Call, DTMF: 94% pass (17/18)

- CNIP/CONP OK, requires IP PBX configuration
- DTMF OK
- Overlap sending (post-dial) not supported by Ascom d81
- DECT ignores DECT NOK (#5103.1), no timeout

Basic Call, Portable Unavailable: 100 % pass (8/8)

- Good results overall

Procedure Mapping: 100% pass (2/2)

- Test cases passed with supplementary services and LDAP replicator enabled
- “Enbloc dialing” and “Local R-Key Handling” are checked in IPBS

Three-party Services: 95% pass (39/41)

- CNIP/CONP OK (updated after transfer)
- CLIP/COLP could not be verified properly for PSTN
- A calling A is treated as any other call (#5126.1)

Call Diversion: 90% pass (9/10)

- Supplementary Services enabled
- Feature codes supported through IPBS
- Test case #5132.1 (Diversion to Diverter), it is possible to divert the phone to itself (minor issue).

Telephony Features: 100% pass (9/9)

- Limited testing due to lack of 3rd party competence
- DND OK, Supplementary Services enabled
- Group calls tested with good results

Please keep in mind that metrics do NOT account for untested cases.

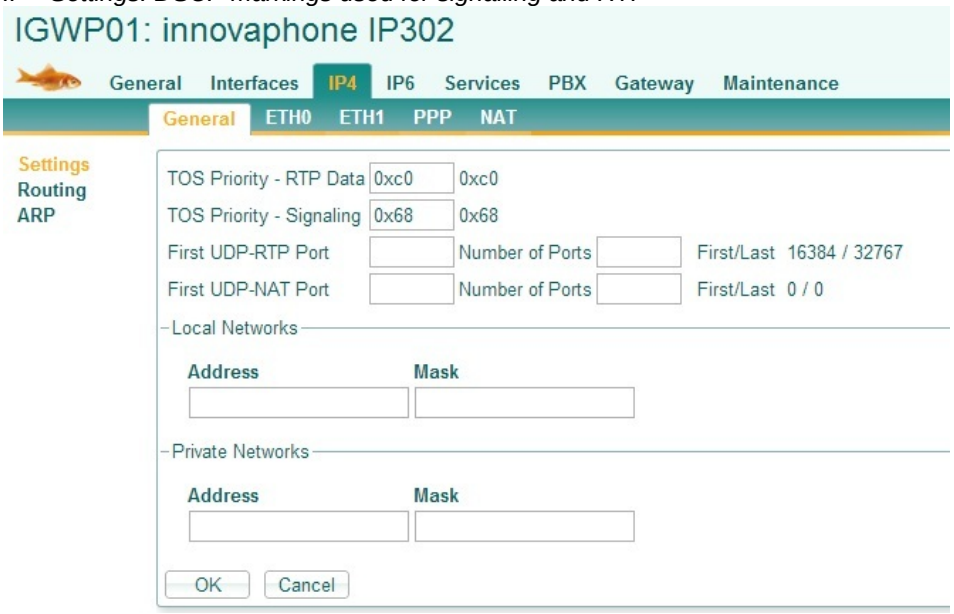
APPENDIX A: TEST CONFIGURATIONS

Innovaphone IP302, version 10

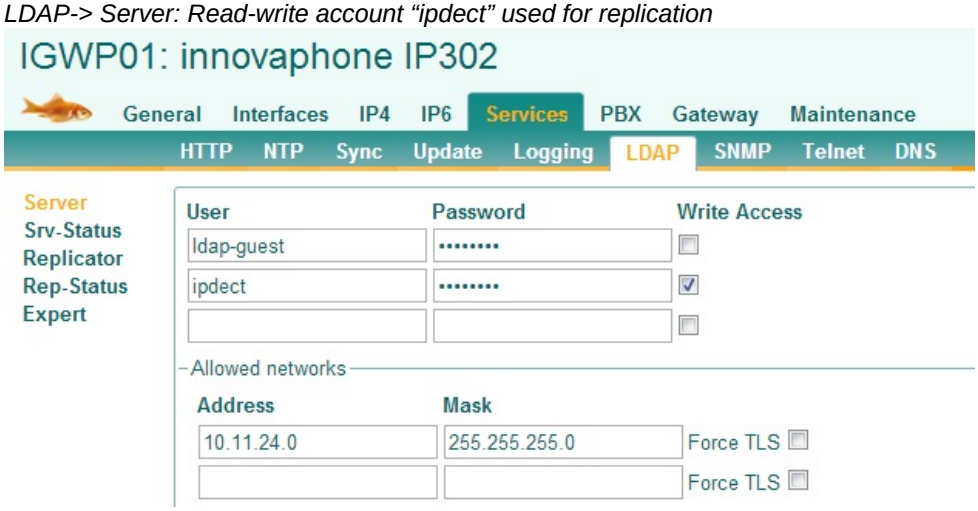
Below one will find screen shots reflecting the management interface and some aspects of setting up the PBX application on the IP302.

General -> info

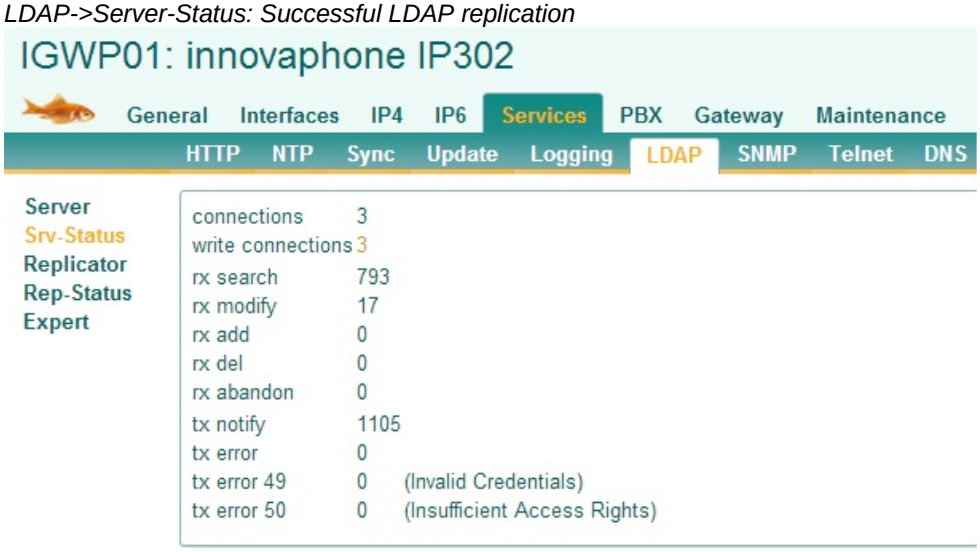
IP->Settings: DSCP markings used for signalling and RTP



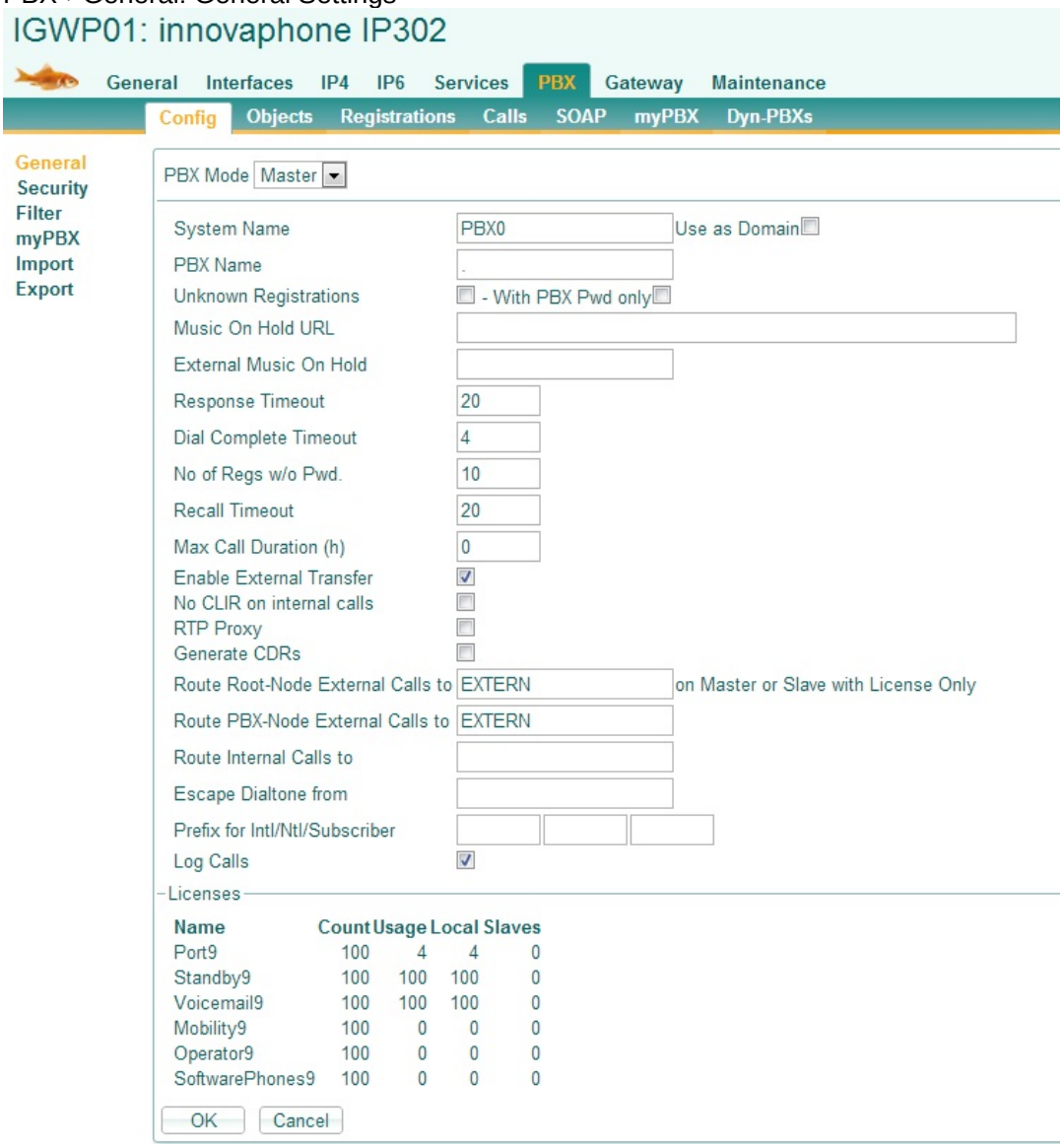
LDAP-> Server: Read-write account “ipdect” used for replication



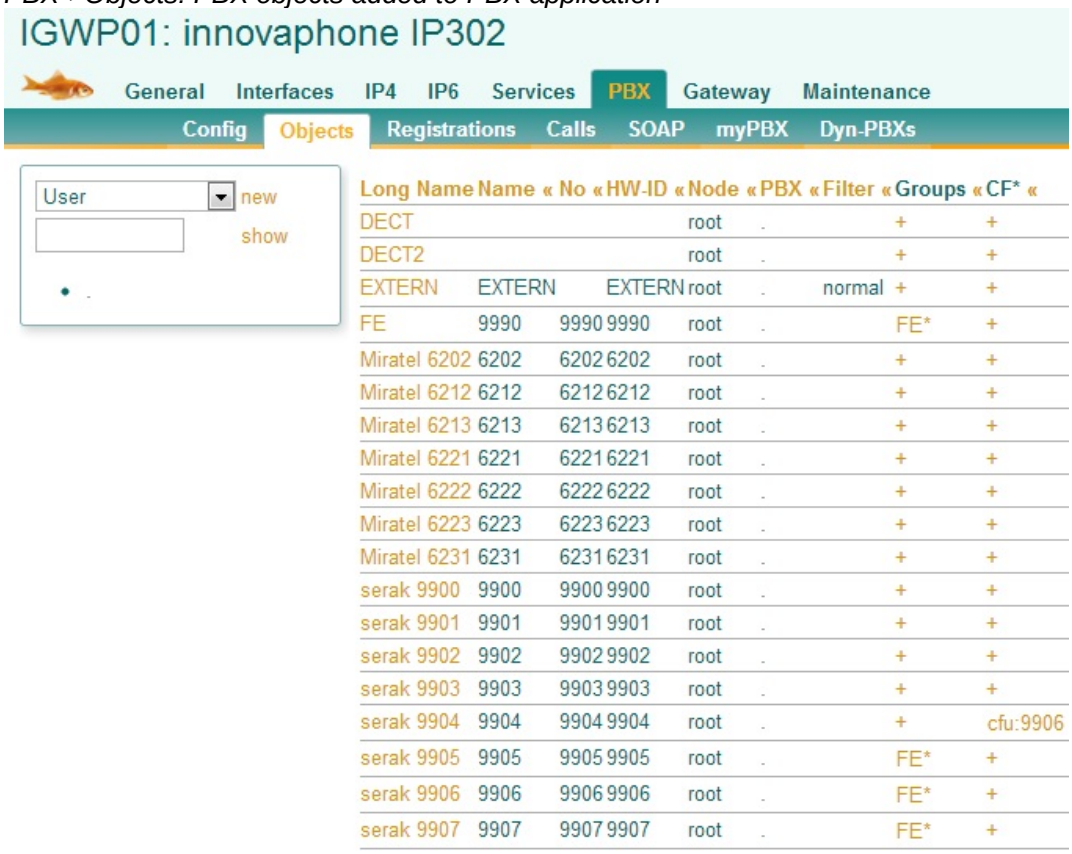
LDAP->Server-Status: Successful LDAP replication



PBX->General: General Settings

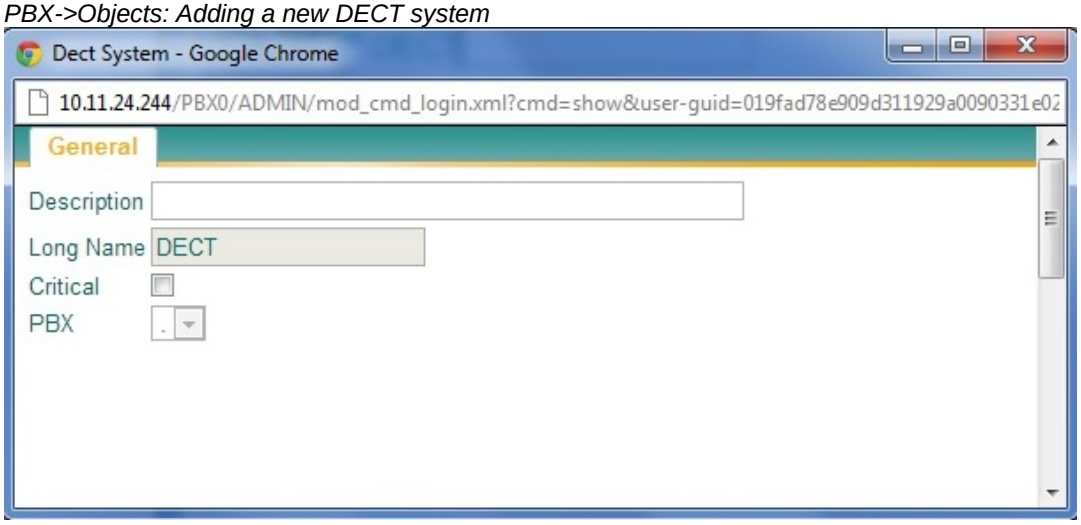


PBX->Objects: PBX objects added to PBX application

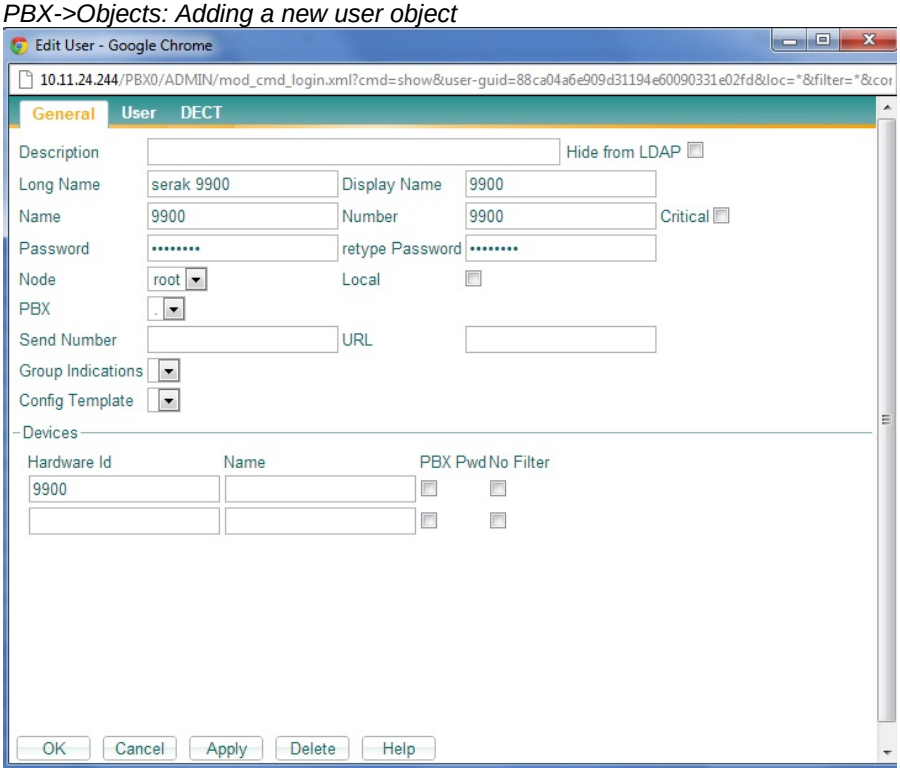


Long Name	Name	« No	« HW-ID	« Node	« PBX	« Filter	« Groups	« CF* «
DECT				root	.		+	+
DECT2				root	.		+	+
EXTERN	EXTERN		EXTERN	root	.	normal	+	+
FE	9990	9990	9990	root	.		FE*	+
Miratel 6202	6202	6202	6202	root	.		+	+
Miratel 6212	6212	6212	6212	root	.		+	+
Miratel 6213	6213	6213	6213	root	.		+	+
Miratel 6221	6221	6221	6221	root	.		+	+
Miratel 6222	6222	6222	6222	root	.		+	+
Miratel 6223	6223	6223	6223	root	.		+	+
Miratel 6231	6231	6231	6231	root	.		+	+
serak 9900	9900	9900	9900	root	.		+	+
serak 9901	9901	9901	9901	root	.		+	+
serak 9902	9902	9902	9902	root	.		+	+
serak 9903	9903	9903	9903	root	.		+	+
serak 9904	9904	9904	9904	root	.		+	cfu:9906
serak 9905	9905	9905	9905	root	.		FE*	+
serak 9906	9906	9906	9906	root	.		FE*	+
serak 9907	9907	9907	9907	root	.		FE*	+

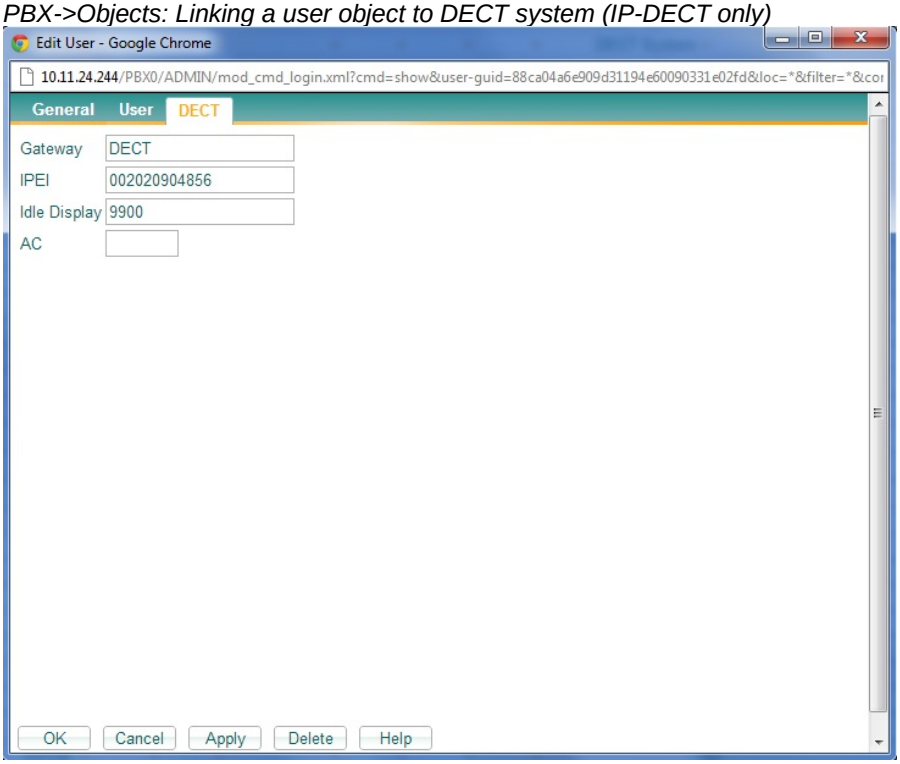
PBX->Objects: Adding a new DECT system



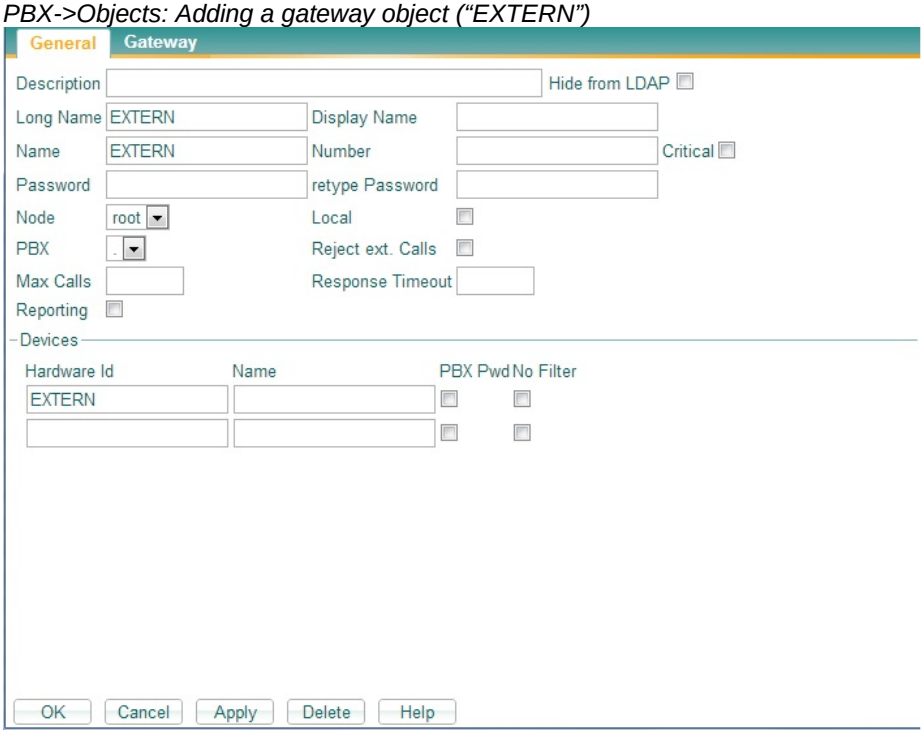
PBX->Objects: Adding a new user object



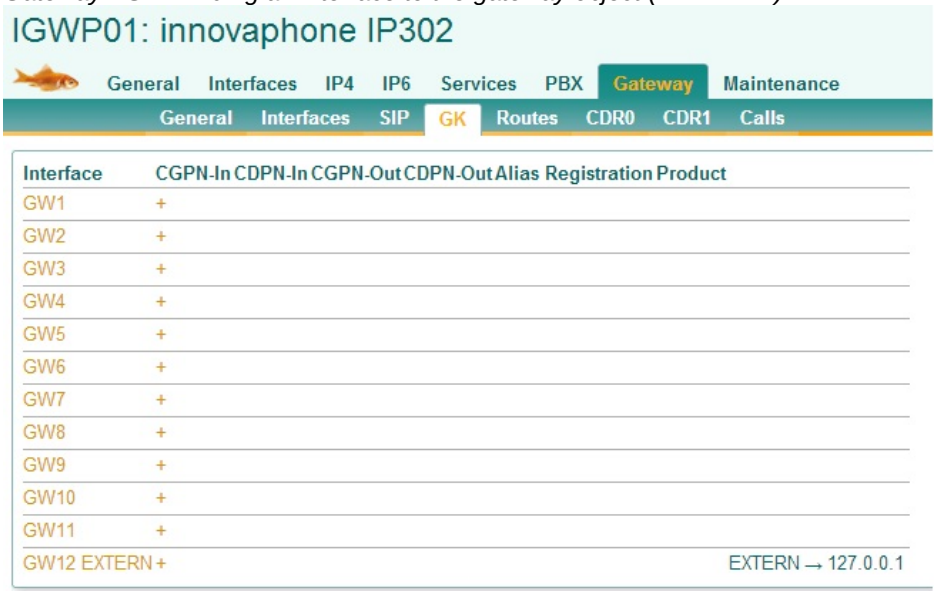
PBX->Objects: Linking a user object to DECT system (IP-DECT only)



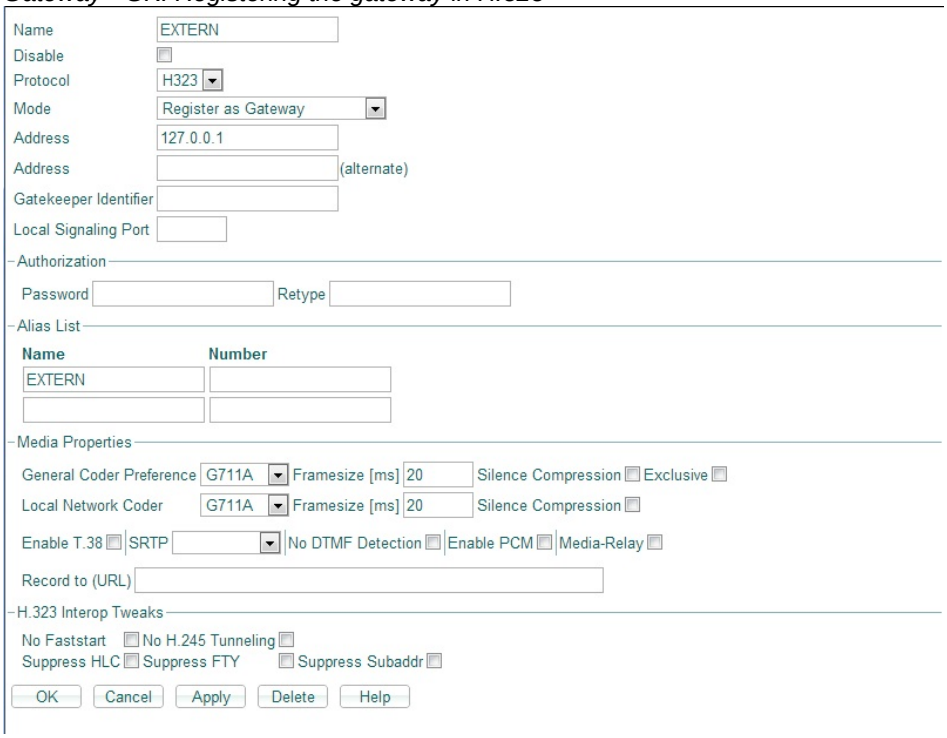
PBX->Objects: Adding a gateway object ("EXTERN")



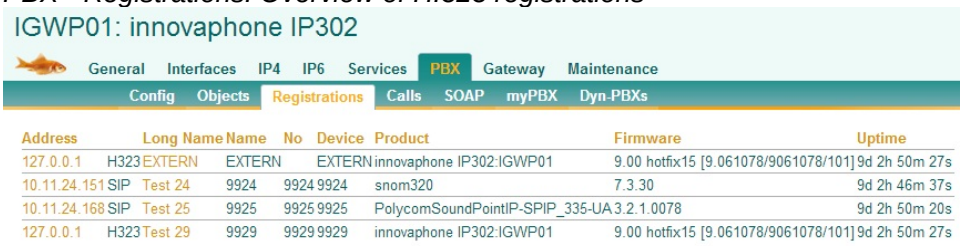
Gateway->GK: Binding an interface to the gateway object ("EXTERN")



Gateway->GK: Registering the gateway in H.323

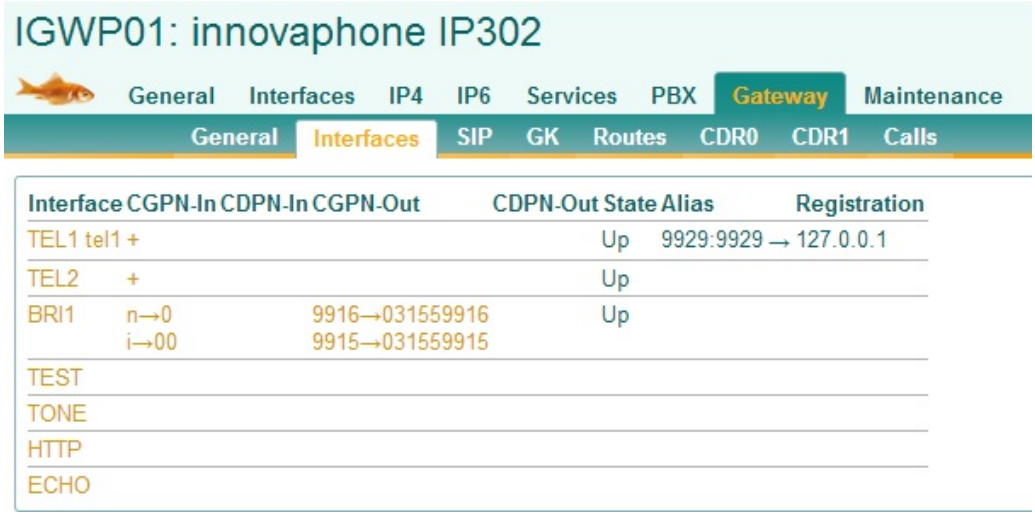


PBX->Registrations: Overview of H.323 registrations



Gateway->Routes: Routing of incoming and outgoing calls

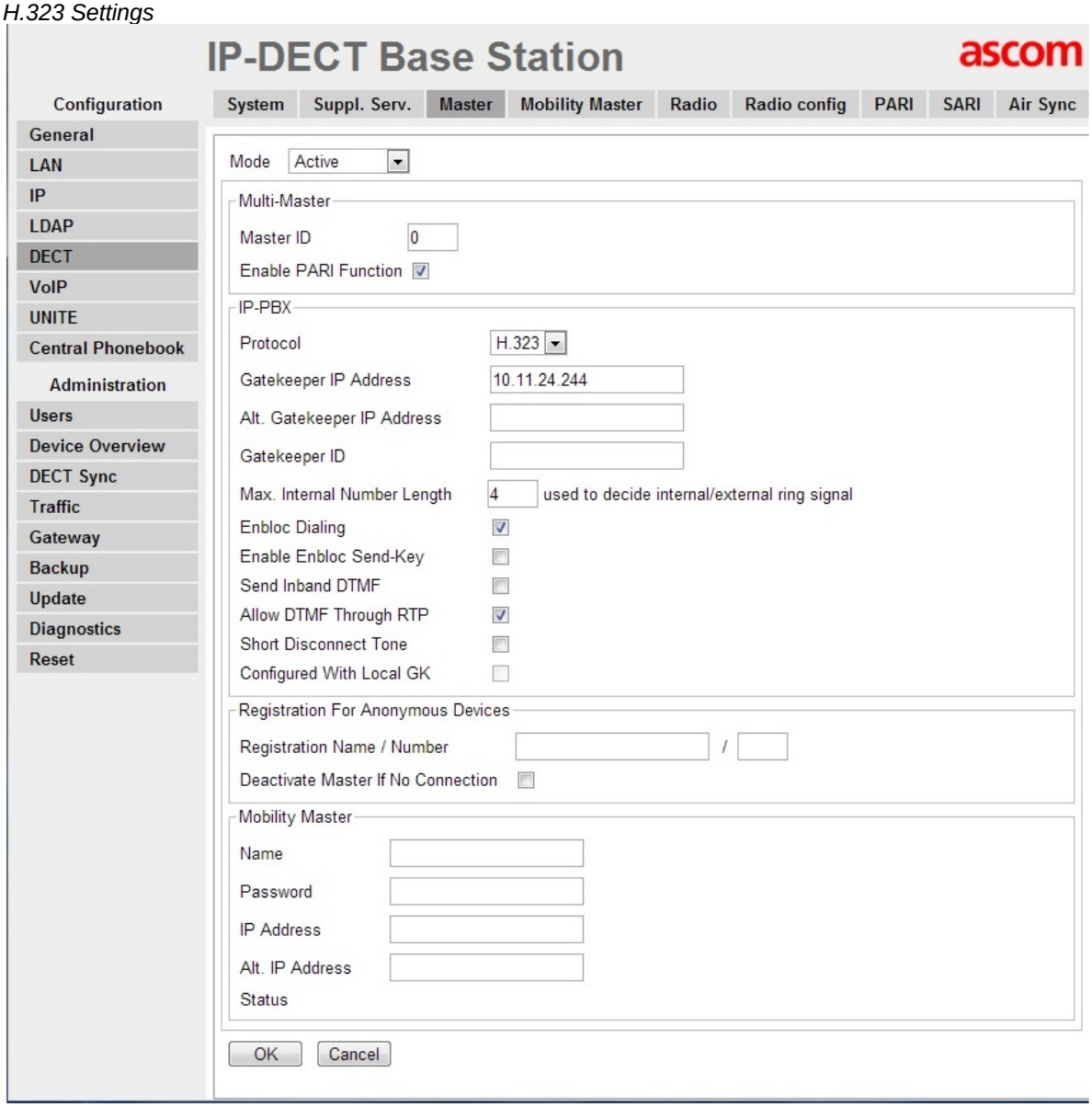
PBX->Registrations: Calling and called party number formats for incoming and outgoing calls



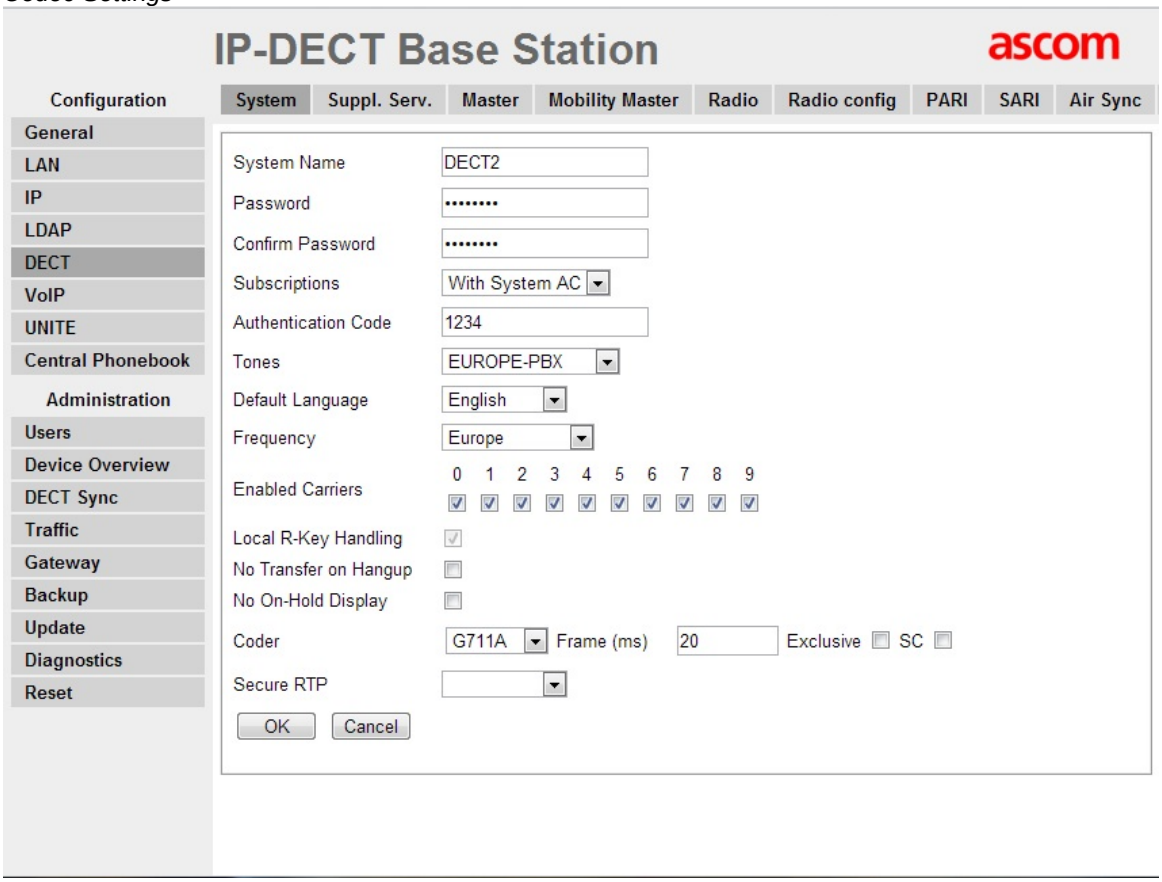
Please refer to Innovaphone's documentation for further details about Innovaphone configuration and licensing.

Ascom IP-DECT Base Station (IPBS)

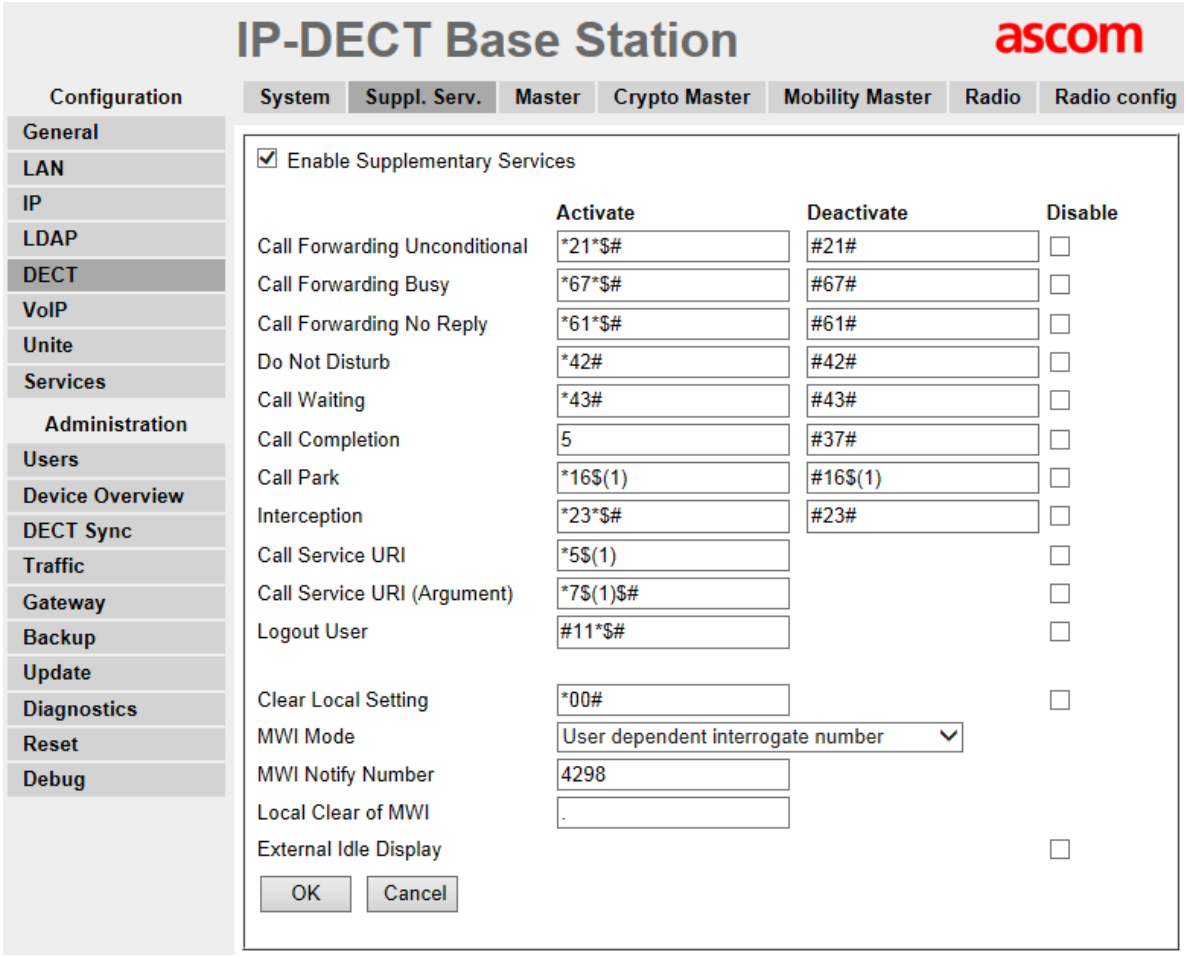
H.323 Settings



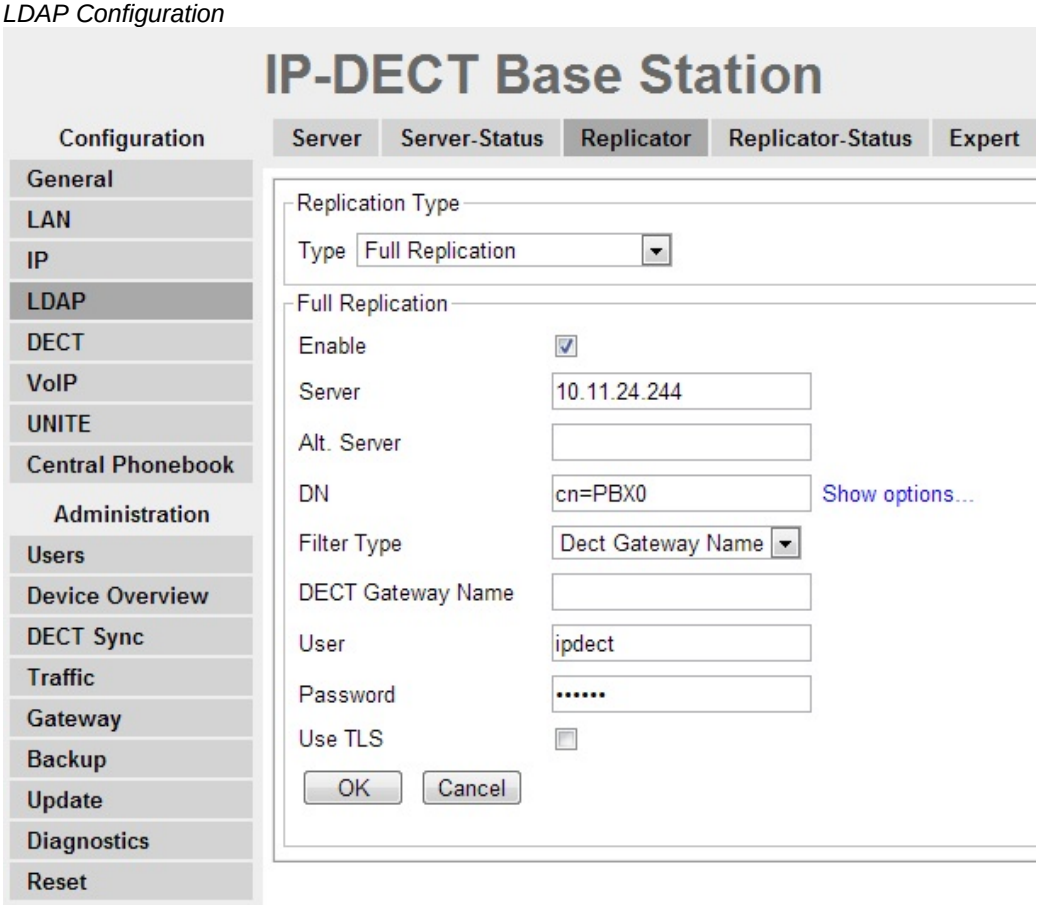
Codec Settings



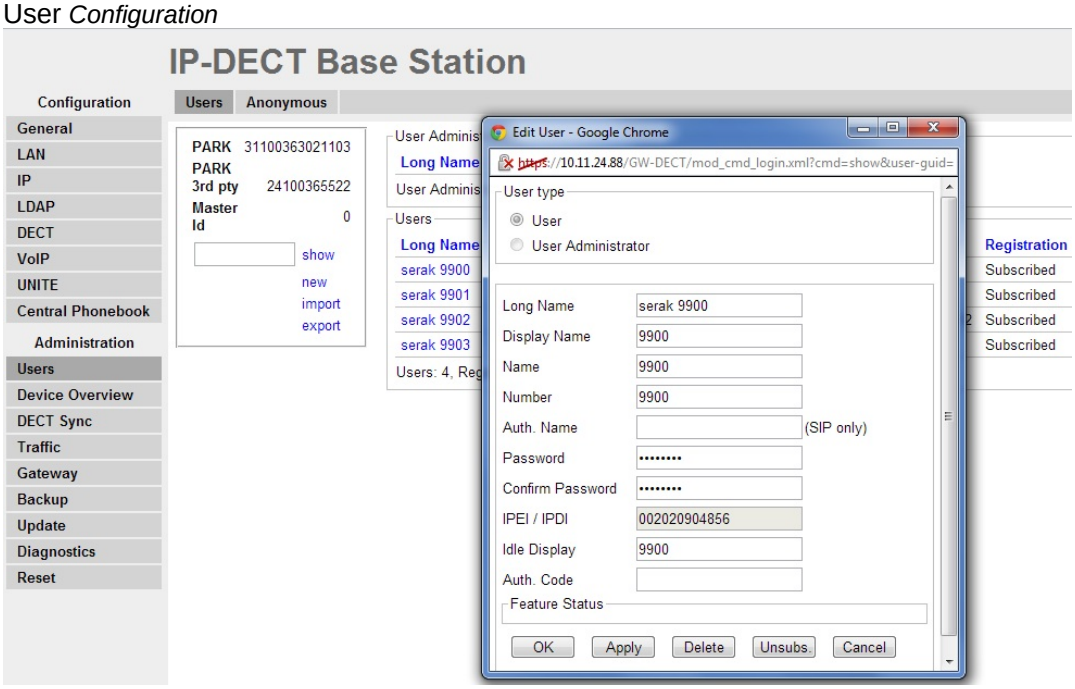
Supplementary Services Activated



LDAP Configuration



User *Configuration*



APPENDIX B: DETAILED TEST RECORDS

IP-DECT

Pass	84
Fail	0
Comments	4
Untested	16
Total	104

Test Record-Innovaphone

Miscellaneous

Please refer to IP-DECT test specifications available on the Ascom Extranet for detailed information regarding each test case.

See URL (requires login):
https://www.ascom-ws.com/AscomPartnerWeb/en/startpage/Sales-tools/Interoperability

Document History

Rev	Date	Author	Description
PA1	25.10.2013	SERAK	
PA2	12.12.2013	SEPAA	

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INTEROPERABILITY REPORT

Ascom i62

Innovaphone IP302, IP810 and IP6010, Firmware version 10

IP PBX Integration (H323)

Ascom i62, Software version 4.3.12

Ascom, Gothenburg

October 2013

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The document should be used in conjunction with configuration guide(s) from Innovaphone and Ascom.

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For further information, see the following URL: http://www.innovaphone.com/

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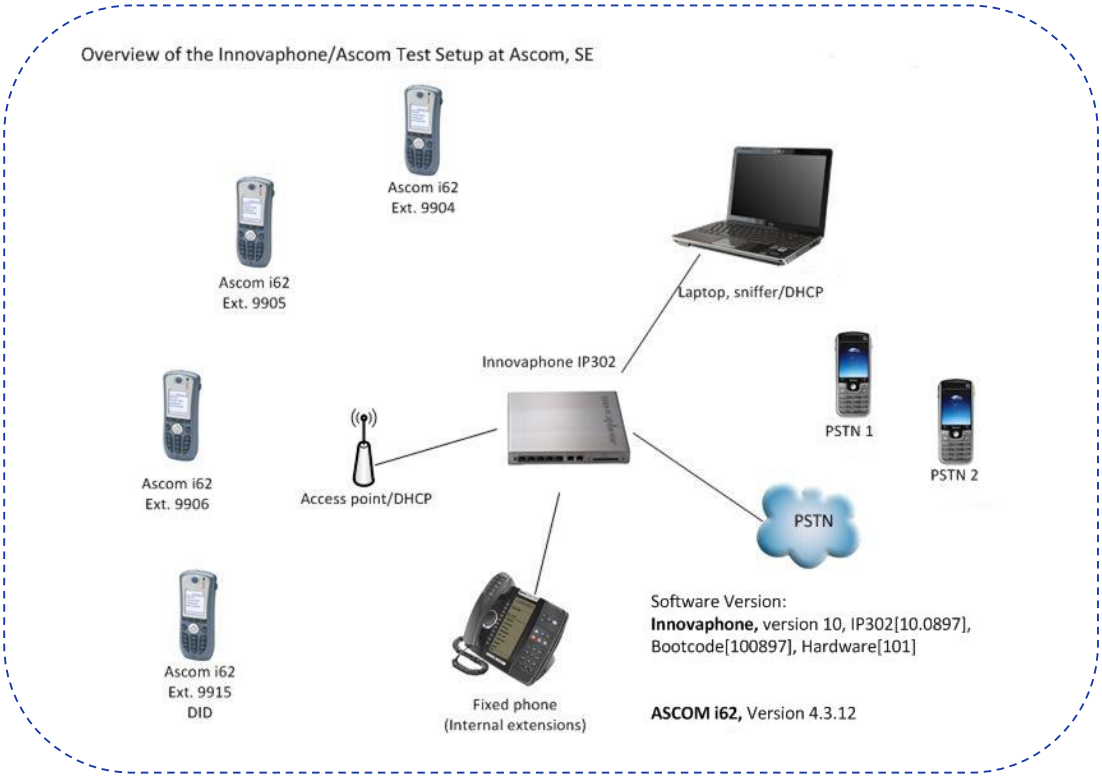
Gothenburg
Sweden

Participant(s):

Raheleh Kamali (Ascom HQ, SE)
Peter Åstrand (Ascom HQ, SE)

Test Topology



SUMMARY

Innovaphone, version 10

Test cases in nearly all areas with regard to Ascom i62 and Innovaphone IP PBX passed successfully.
Overall, the conclusion has to be that H.323 integration towards IP302 is very good.

Queries about licensing should be directed to Innovaphone.
Please also see "***APPENDIX A: TEST CONFIGURATIONS***" for further details.

VoWiFi

High Level Functionality	Result
Basic Call	OK[b]
DTMF	OK
Hold, Retrieve, Enquiry and Brokering	OK
Attended Transfer	OK
Blind-transfer	OK
Semi-attended Transfer	OK
Call Forward Unconditional	OK[a]
Call Forward No Reply	OK[a]
Call Forward Busy	OK[a]
Call Waiting	OK
Message Waiting Indication	OK
Do Not Disturb	OK
Calling Line/Name Identification	OK
Connected Line/Name Identification	OK

a. Soft- or hot-key is optional (call diversions can also be configured via the GUI of the IP PBX)
b. See ***Known Issue(s)*** in page **7**

General Conclusion

Ascom interoperability verification produced good results towards Innovaphone IP302 version 10 with few exceptions; see ***Known Issue(s)*** in page **7.**

Ascom i62 handsets were configured to register at the IP PBX using endpoint numbers. The codec of choice for these tests was G.711A/20ms, while DTMF signaling was transmitted through RTP. One can say that, in comparison to SIP, H.323 requires little configuration besides the IP address of the H.323 gatekeeper and abovementioned settings. Parameter settings are elaborated upon in the "**TEST RESULTS**" section for respective platforms.

Ascom i62 can use a special configuration of a soft- or hot-key for the purpose of programming call diversion (CDIV) at the IP PBX. Practically all test cases regarding basic call, brokering/enquiry, transfer and CDIV passed with positive results. No issues were logged for follow-up at Ascom HQ.

Innovaphone IP PBX Integration – VoWiFi

- Innovaphone IP PBX version 10
- Ascom i62, v 4.3.12

Signalling Protocol:

- H.323

Innovaphone IP302:

- Settings are based on ” Ascom VoIP Gateway: Installation and Operation Manual” (TD 92326GB), pp. 62-100
- DSCP should be configured appropriately under IP -> Settings

Ascom i62:

- Endpoint ID” and “Endpoint Number” corresponds to name and number in the user object (Assigning password is optional, it works in both cases)
- Default H.323 settings except hot-key for call diversions
- Call waiting enabled

Known Issue(s)

- No timeout when i62 calls another i62 that does not answer (PBX issue, per design)
- Ascom i62 does not support post-dial (per design)
- Possible to divert call to “diverter”, calling party hears busy (minor issue)
- There are two ongoing Intop issues related to Call pick up group (#23739) and Waiting Queue (# 23741).

Test Areas

Basic Call, DTMF: 94% pass (17/18)

- CNIP/CONP OK, requires IP PBX configuration
- DTMF OK
- Overlap sending (post-dial) not supported by Ascom i62
- i62 ignores i62 NOK (#5103.1), no timeout

Basic Call, Portable Unavailable: 100% pass (8/8)

- Good results overall

Procedure Mapping: 100% pass (2/2)

- Hot-key used in i62

Three-party Services: 90% pass (37/41)

- CNIP/CONP OK (updated after transfer)
- CLIP/COLP could not be verified properly for PSTN extensions
- Ignored CW on internal call does not give busy(#5125.3)

Call Diversion: 90% pass (9/10)

- Call diversion programmed through i62 hot-key
- Test case #5132.1 (Diversion to Diverter), it is possible to divert the phone to itself (Minor issue)

Telephony Feature: 100% pass (9/9)

- Limited testing due to lack of 3rd party competence
- Group calls tested with good results

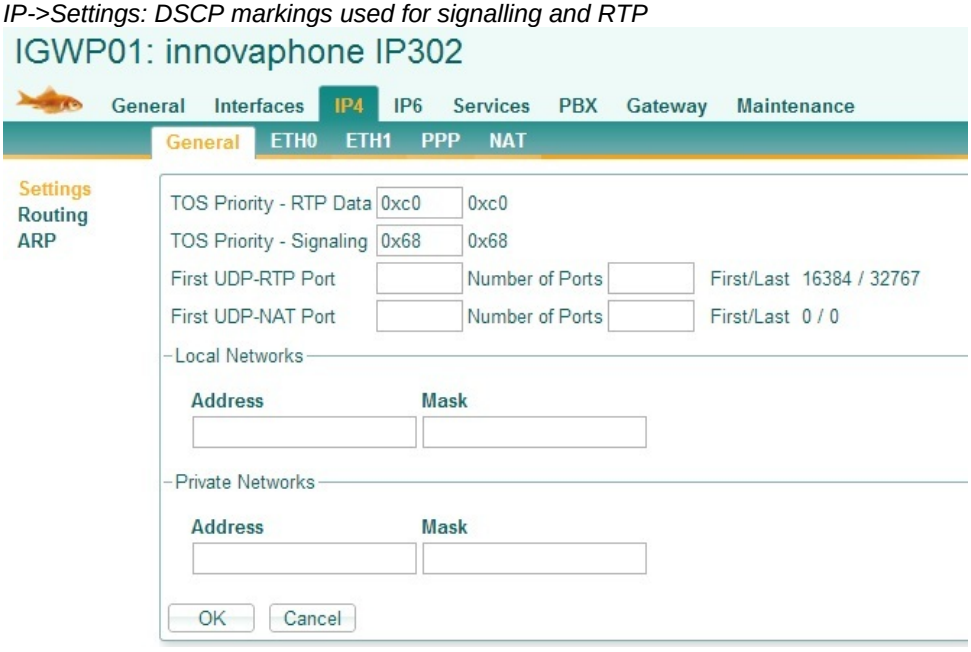
Please keep in mind that metrics do NOT account for untested cases

Innovaphone IP302, version 10

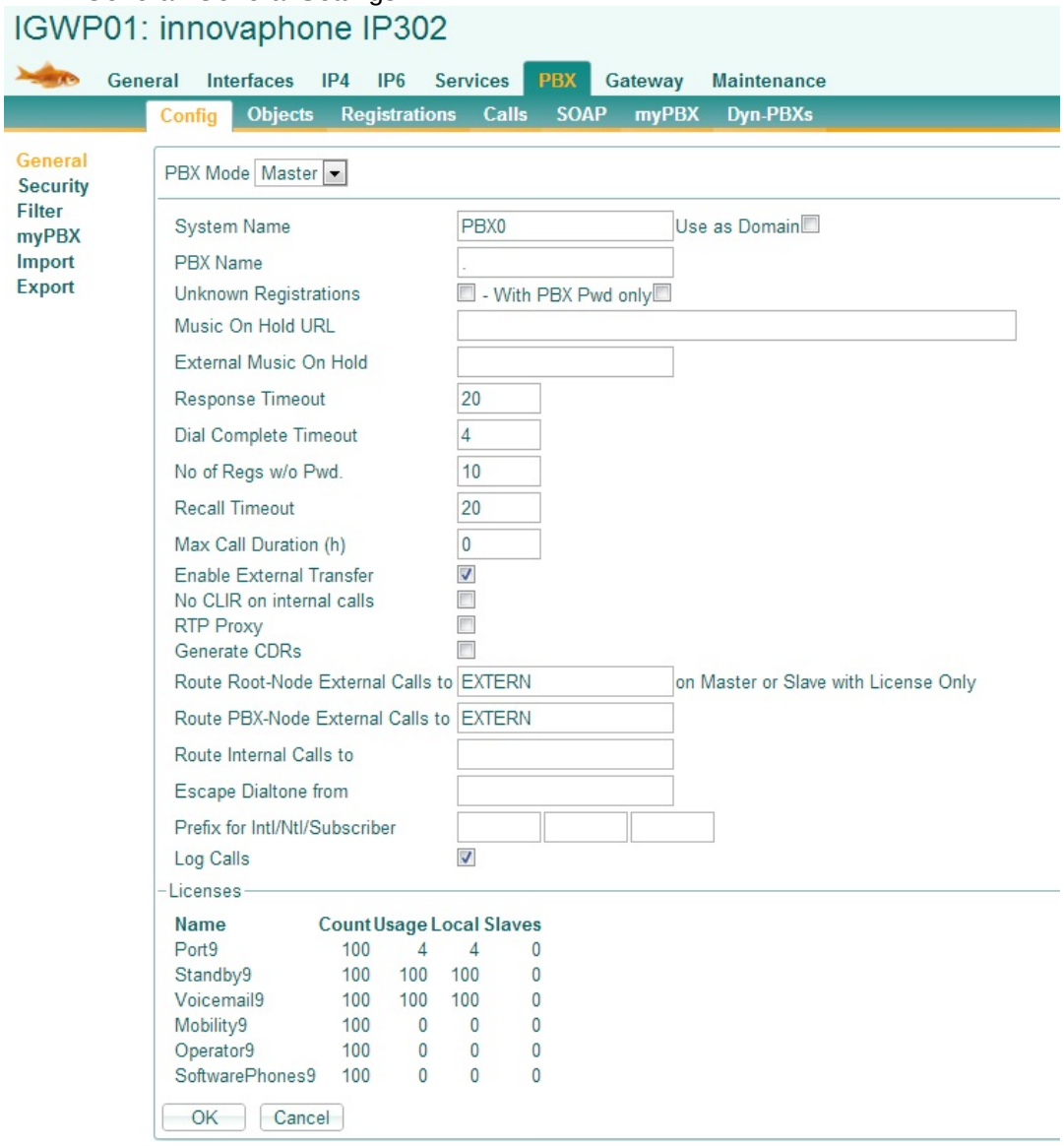
Below one will find screen shots reflecting the management interface and some aspects of setting up the PBX application on the IP302.

General -> info

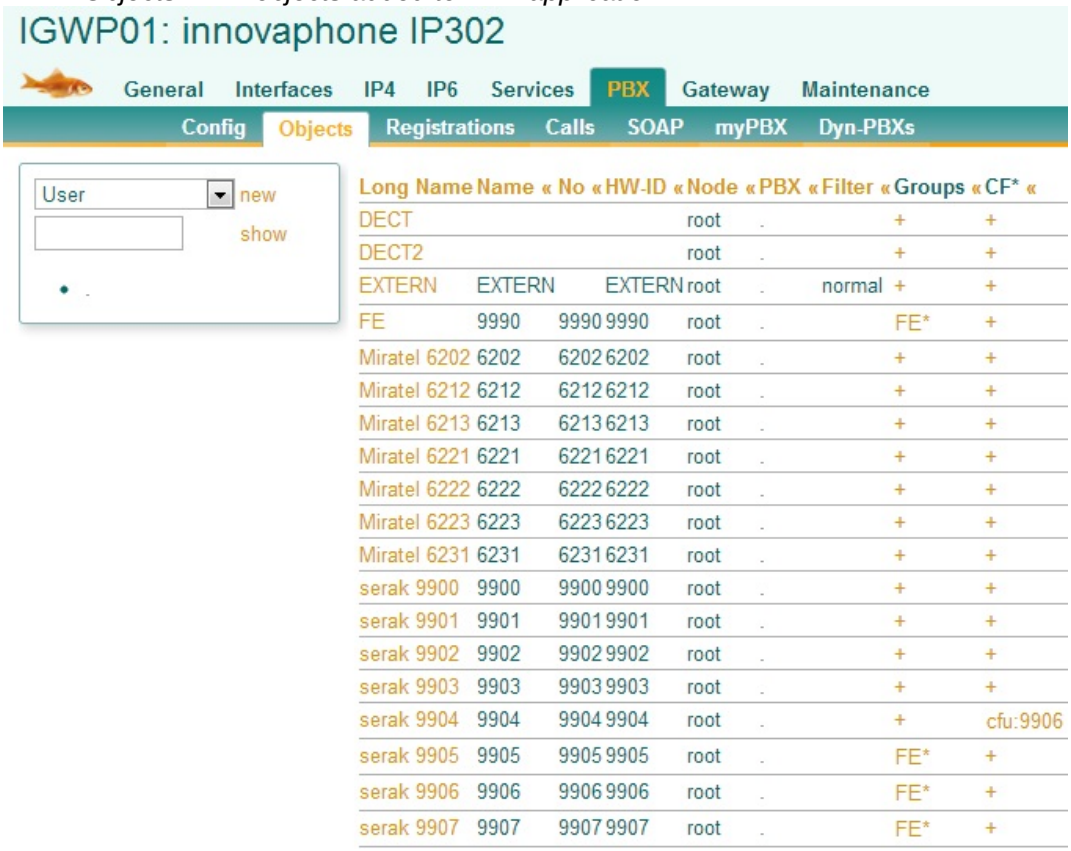
IP->Settings: DSCP markings used for signalling and RTP



PBX->General: General Settings

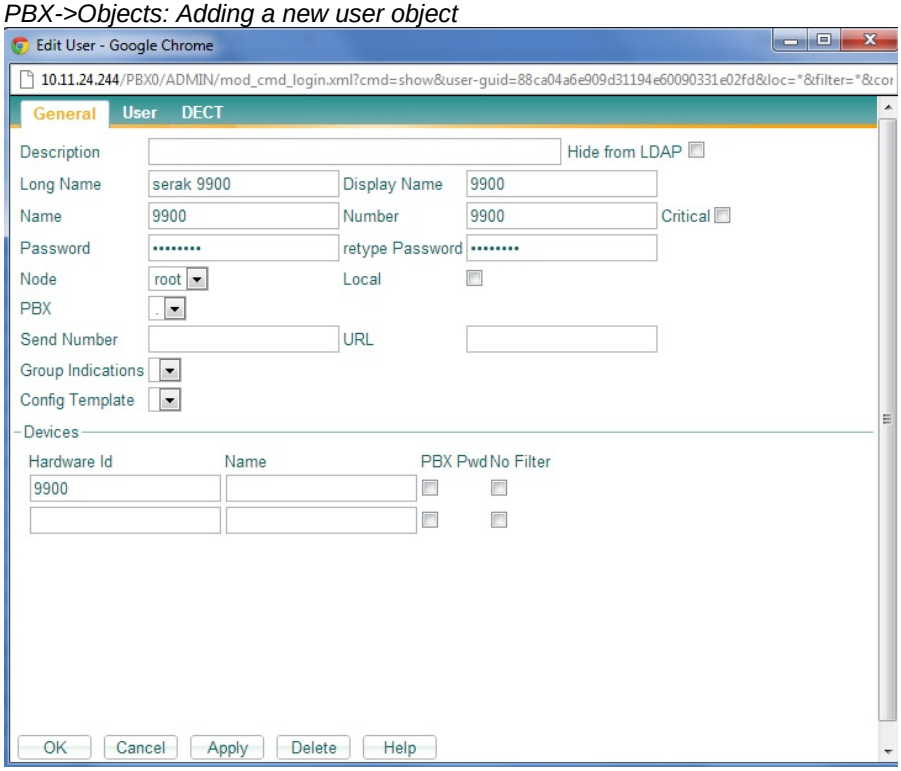


PBX->Objects: PBX objects added to PBX application

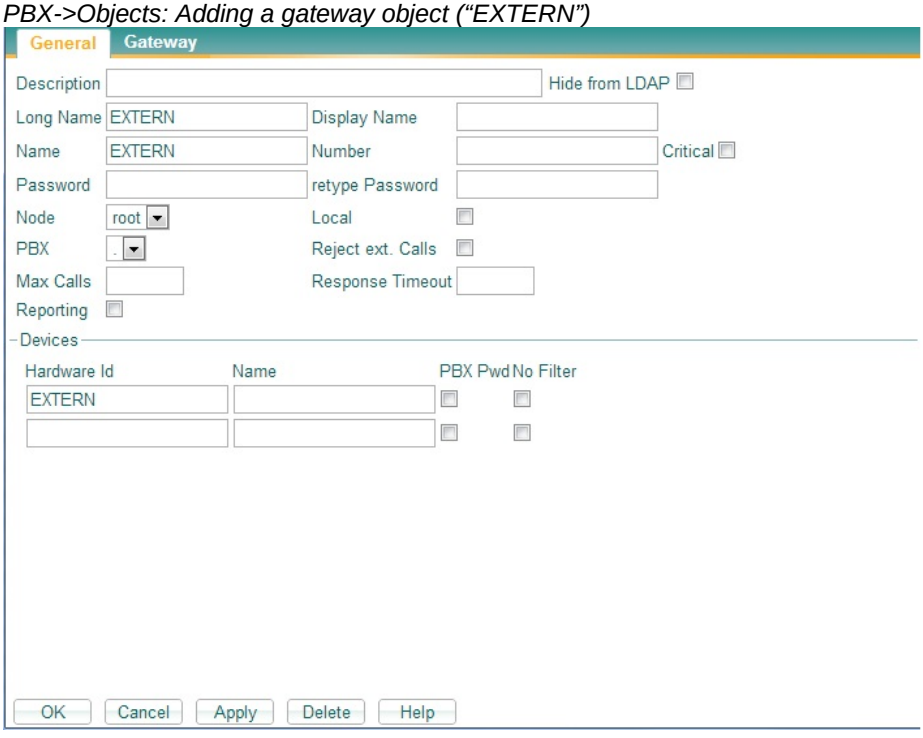


Long Name	Name	No	HW-ID	Node	PBX	Filter	Groups	CF*
DECT				root	.		+	+
DECT2				root	.		+	+
EXTERN	EXTERN		EXTERN	root	.	normal	+	+
FE	9990	9990	9990	root	.		FE*	+
Miratel 6202	6202	6202	6202	root	.		+	+
Miratel 6212	6212	6212	6212	root	.		+	+
Miratel 6213	6213	6213	6213	root	.		+	+
Miratel 6221	6221	6221	6221	root	.		+	+
Miratel 6222	6222	6222	6222	root	.		+	+
Miratel 6223	6223	6223	6223	root	.		+	+
Miratel 6231	6231	6231	6231	root	.		+	+
serak 9900	9900	9900	9900	root	.		+	+
serak 9901	9901	9901	9901	root	.		+	+
serak 9902	9902	9902	9902	root	.		+	+
serak 9903	9903	9903	9903	root	.		+	+
serak 9904	9904	9904	9904	root	.		+	cfu:9906
serak 9905	9905	9905	9905	root	.		FE*	+
serak 9906	9906	9906	9906	root	.		FE*	+
serak 9907	9907	9907	9907	root	.		FE*	+

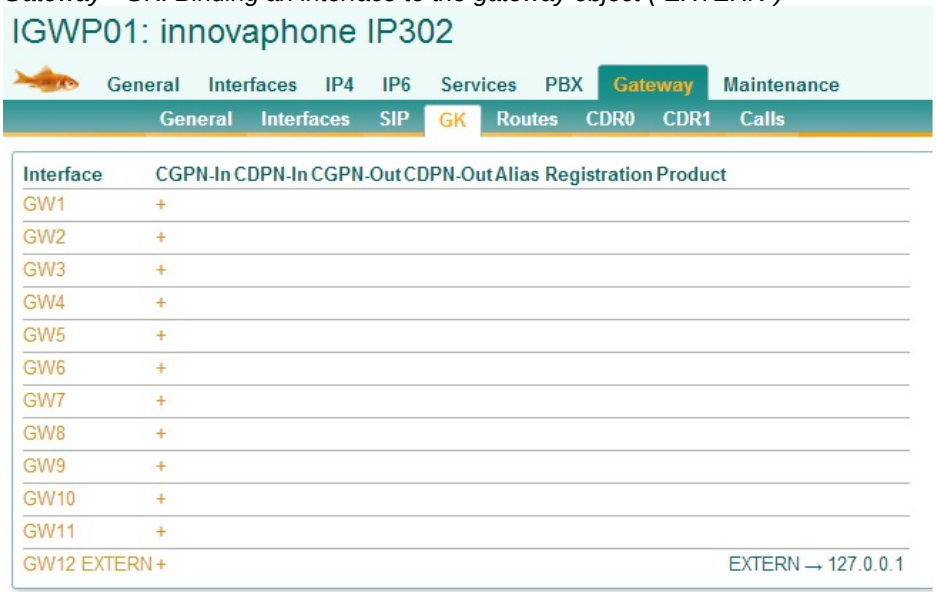
PBX->Objects: Adding a new user object



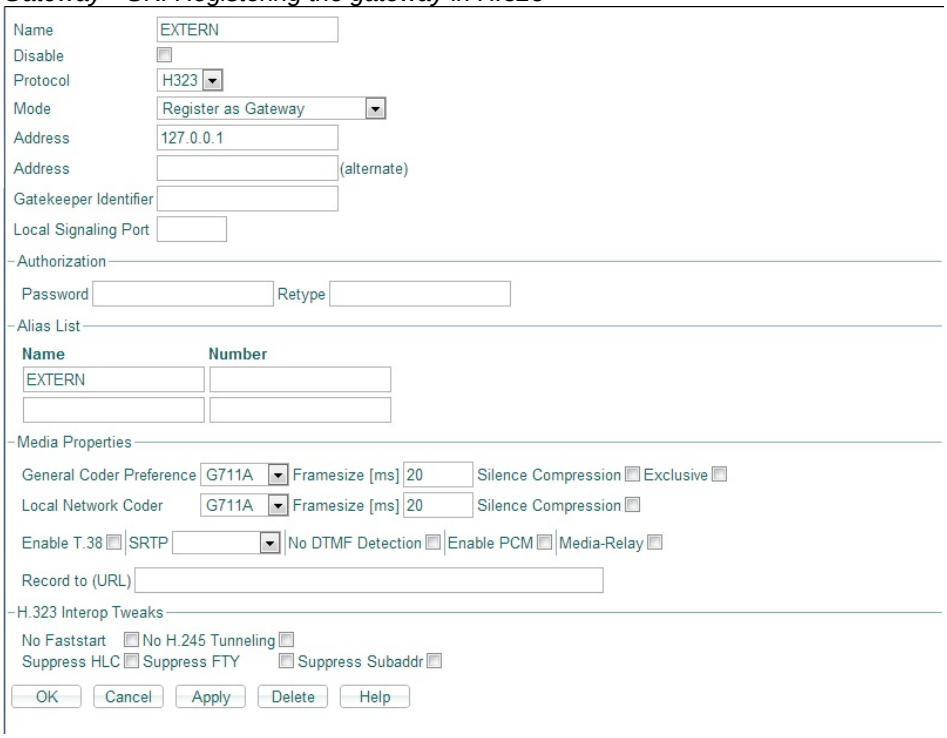
PBX->Objects: Adding a gateway object ("EXTERN")



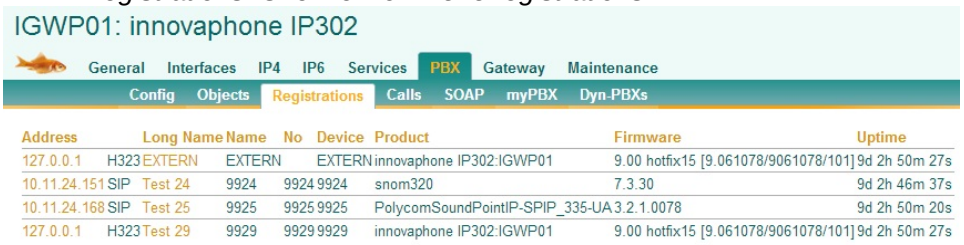
Gateway->GK: Binding an interface to the gateway object (“EXTERN”)



Gateway->GK: Registering the gateway in H.323

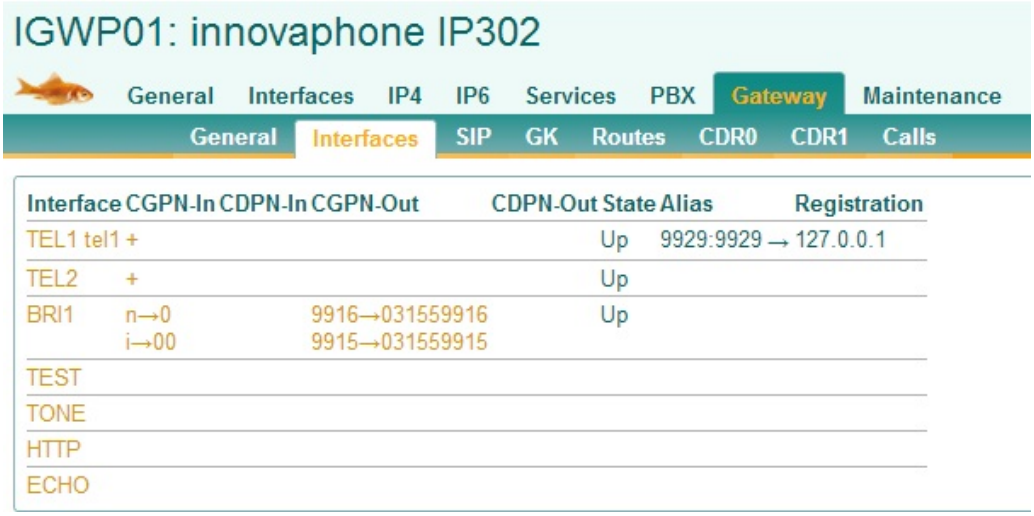


PBX->Registrations: Overview of H.323 registrations



Gateway->Routes: Routing of incoming and outgoing calls

PBX->Registrations: Calling and called party number formats for incoming and outgoing calls



Please refer to Innovaphone's documentation for further details about Innovaphone configuration and licensing.

Ascom i62

Network => <A|B|C|D>
- DHCP mode: Enable
- SSID: <ssid>
- Encryption: WPA-PSK & WPA2-PSK
- Voice Power Save Mode: U-APSD
- 802.11 b/g Channels: UNII1
- World Mode Regulatory Domain: ETSI
- IP DSCP for VOICE: 0x2E (46) – Expedited Forwarding
- IP DSCP for SIGNALLING: 0x1A (26) - Assured Forwarding 31

Device => General

- Time Zone: Central European Time (UTC+1)
- Shared Phone License: No

Audio => General
- Dialing Tones Pattern: <country>

VOIP => General
- VoIP Protocol:H.323
- Codec Configuration: G711A
- Codec Packetization Time Configuration: 20ms
- Internal call number length: 4
- Endpoint ID: <extension>

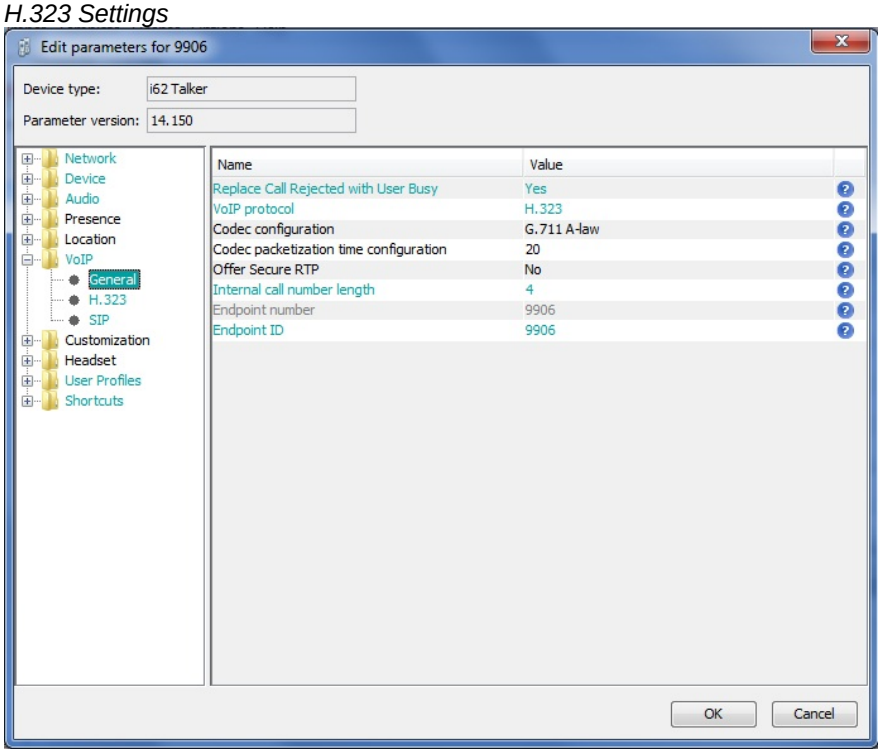
VoIP => H323
- Gatekeeper IP Address: <ip>
- Secondary Gatekeeper IP Address: <n/a>
- Gatekeeper Listening Port: 1720
- Gatekeeper ID: <n/a>
- Gatekeeper Password: <n/a>

Shortcut => Hot Key 2
- Function: Call_Diversions

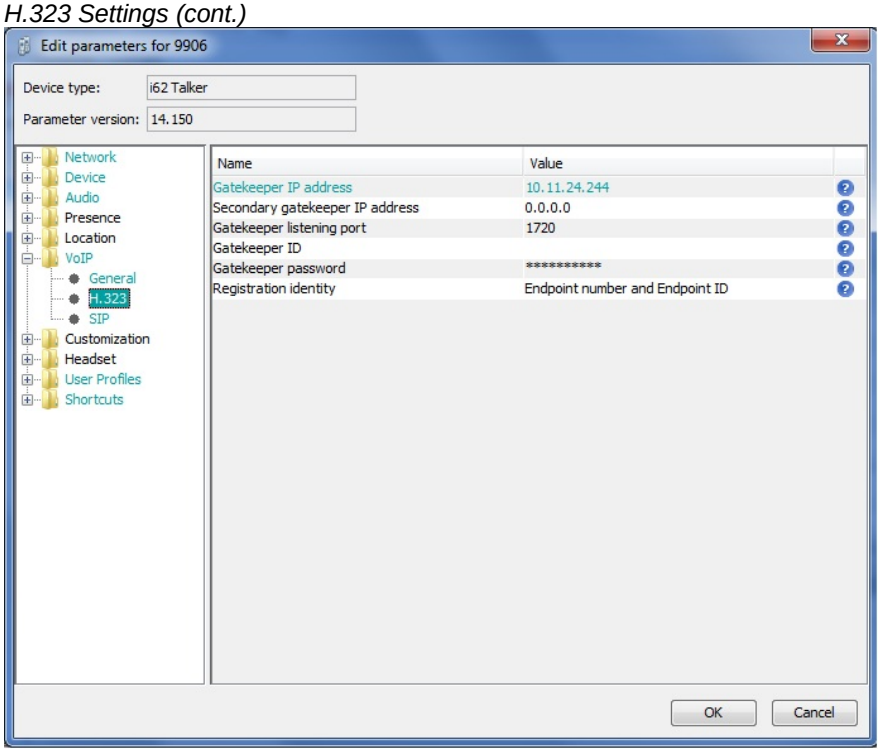
< I62 Template file >

Other settings were left as their defaults.

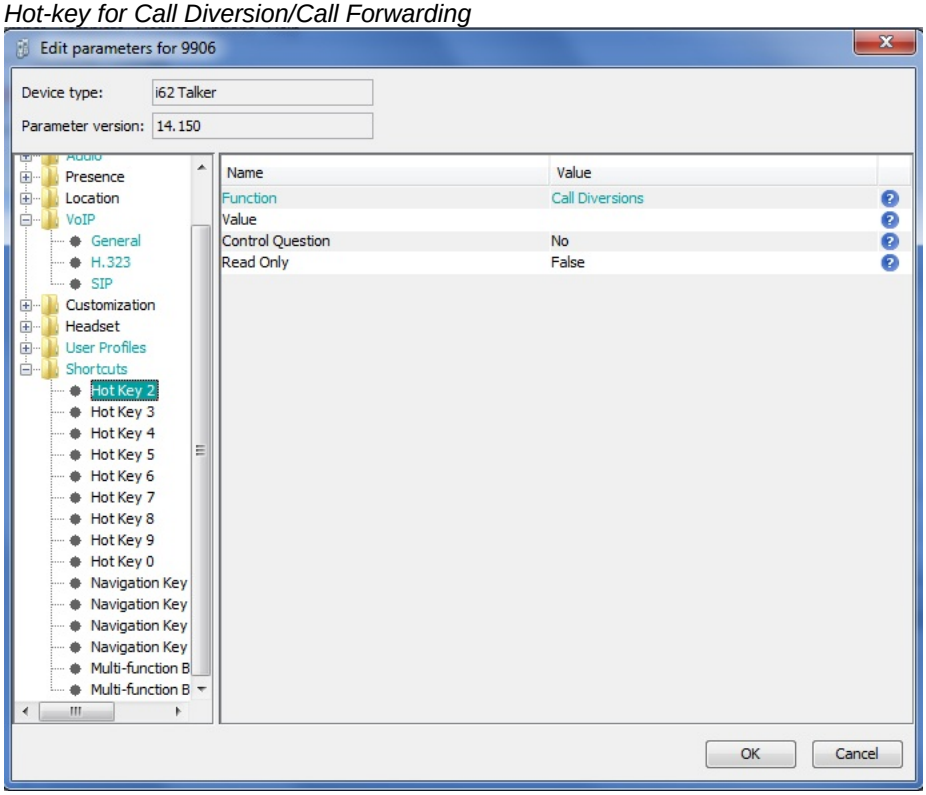
H.323 Settings



H.323 Settings (cont.)

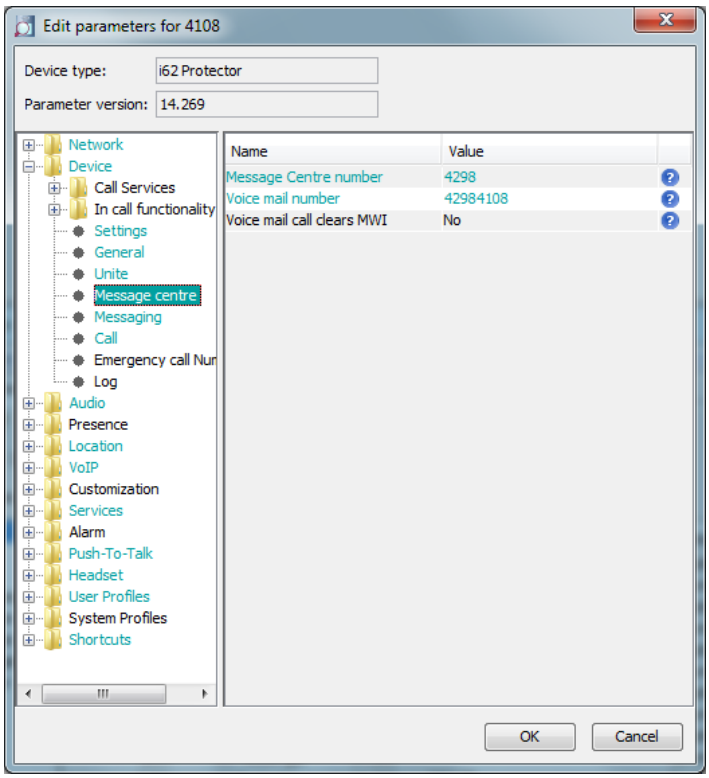


Hot-key for Call Diversion/Call Forwarding



Please refer to ***APPENDIX B***: DETAILED TEST RECORDS for more information regarding device configuration.

Voice Mail settings


Edit parameters for 4108
Device type:
i62 Protector
Parameter version:
14.269
Network
Device
Call Services
In call functionality
Settings
General
Unite
Message centre
Messaging
Call
Emergency call Nur
Log
Audio
Presence
Location
VoIP
Customization
Services
Alarm
Push-To-Talk
Headset
User Profiles
System Profiles
Shortcuts
Name
Value
Message Centre number
4298
Voice mail number
42984108
Voice mail call clears MWI
No
OK
Cancel

APPENDIX B: DETAILED TEST RECORDS

Ascom i62

Pass	82
Fail	1
Comments	5
Untested	16
Total	104

Test Record-Innovaphone

Miscellaneous

Please refer to the VoWIFI test specifications available on the Ascom Extranet for detailed information regarding each test case.

See URL (requires login):
https://www.ascom-ws.com/AscomPartnerWeb/en/startpage/Sales-tools/Interoperability

Document History

Rev	Date	Author	Description
PA1	25.10.2013	SERAK	
PA2	12.12.2013	SEPAA	