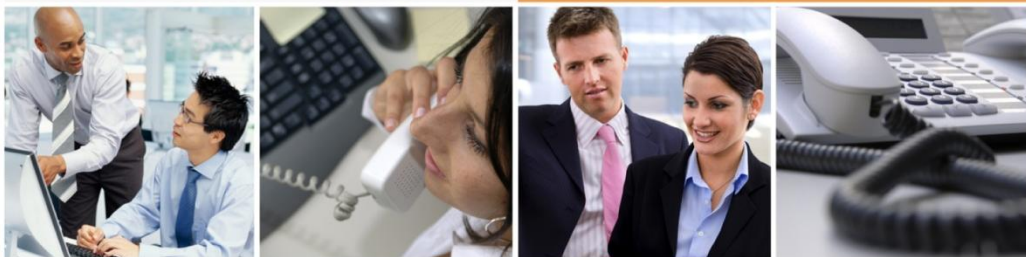


XO SIP Service

Customer Configuration Guide for
Samsung OfficeServ 7200 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 the Samsung OfficeServ 7200 IP PBX software version 10.02.26 V4.46a, and subsequent releases, 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) Consult Transfer using REFER is not supported on Samsung OfficeServ 7200.
Workaround:
 - Instead of using REFER, in section “5.2.13 (MMC 837),” set the Item “Supplementary Type” to the Value of “PBX Managed 2” (see pg. 7 for screen capture).
 - With this setting, Samsung OfficeServ 7200 sends new INVITE for call transfer instead of REFER.
- 2) Samsung OfficeServ 7200 supports either G.711 or G.729 codec. Codec preference is not configurable for primary and secondary codec.
- 3) When using XO SIP Package 1 (G.711 codec), outbound fax to G3/SG3 FAX works as G.711 only, even if Samsung OfficeServ 7200 is configured for T.38.
- 4) When using XO SIP Package 2 (G.729 codec), only T.38 fax is supported for inbound and outbound Fax (G3/SG3). G.711 fax is not supported with XO SIP Package 2.
- 5) In-band DTMF is not supported. Only RFC 2833 is supported
- 6) Inbound modem calls fail with XO SIP Package 2 (G.729 codec)
- 7) Samsung OfficeServ 7200 doesn't support send no answer “Hunt Group” call forward to PSTN.
- 8) Outbound caller ID block feature is not supported by Samsung OfficeServ 7200.
- 9) Samsung OfficeServ 7200 requires SIP-aware NAT, thus NAT will be enabled on the XO-managed IAD.
- 10) Samsung OfficeServ supports Diversion Header to forward originating caller ID to PSTN in call forward from PSTN to PSTN scenarios. The following configuration is required to enable this feature:
 - IT 5.14.4 or MMC 210 (MMC 400)
 - Held Party CLI send: **off**
 - Make sure IT 2.6.2 EFWD extension CLI: off and Repeat CLI: **on**

Registration Method

Static registration is utilized between the Samsung OfficeServ 7200 IP PBX and the XO call agent.

**XO SIP
Service
Packages
Supported**

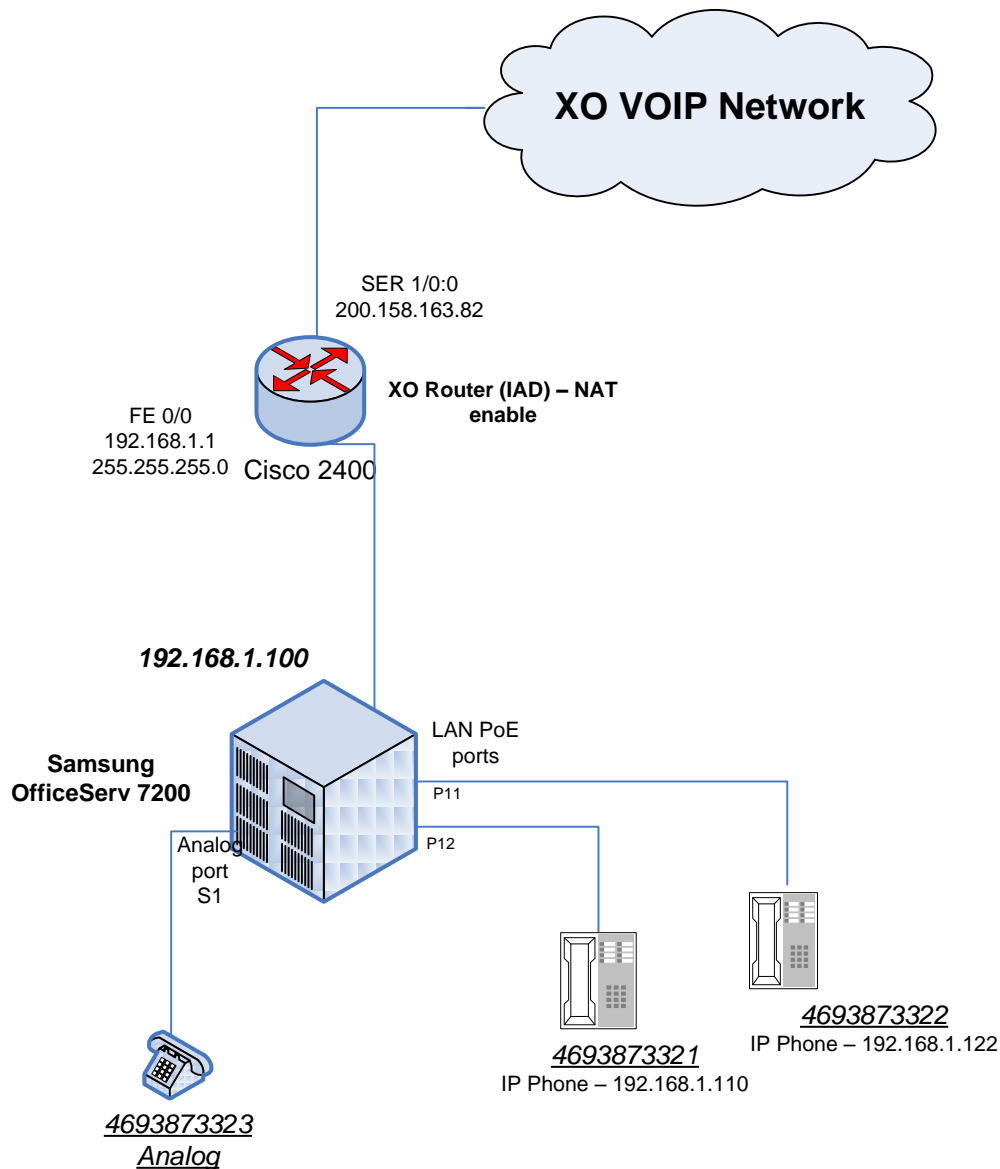
Pkg	Codec	DTMF	Fax
1	G.711	RFC2833 only	Inbound: G.711 or T.38. Outbound: T.38 only, see Known Issue #3 above
2	G.729a	RFC2833 only	T.38 only, see Known Issue #4 above

2. Testing of Samsung OfficeServ 7200

2.1. Software and Hardware Versions Tested

1. Cisco 2400 series used as a router
2. Samsung OfficeServ 7200
Software version: 10.02.26 V4.46a
3. IP Phone:
Model no.: ITP-5121D and ITP-5107S (firmware V3.37)
4. Fax machines (analog):
G3: SHARP UX-B20
SG3: Brother - IntelliFax 1860c

2.2. Lab Test Configuration



Note: Above lab setup only shows main lab network elements. In this setup NAT was configured on XO Router (IAD).

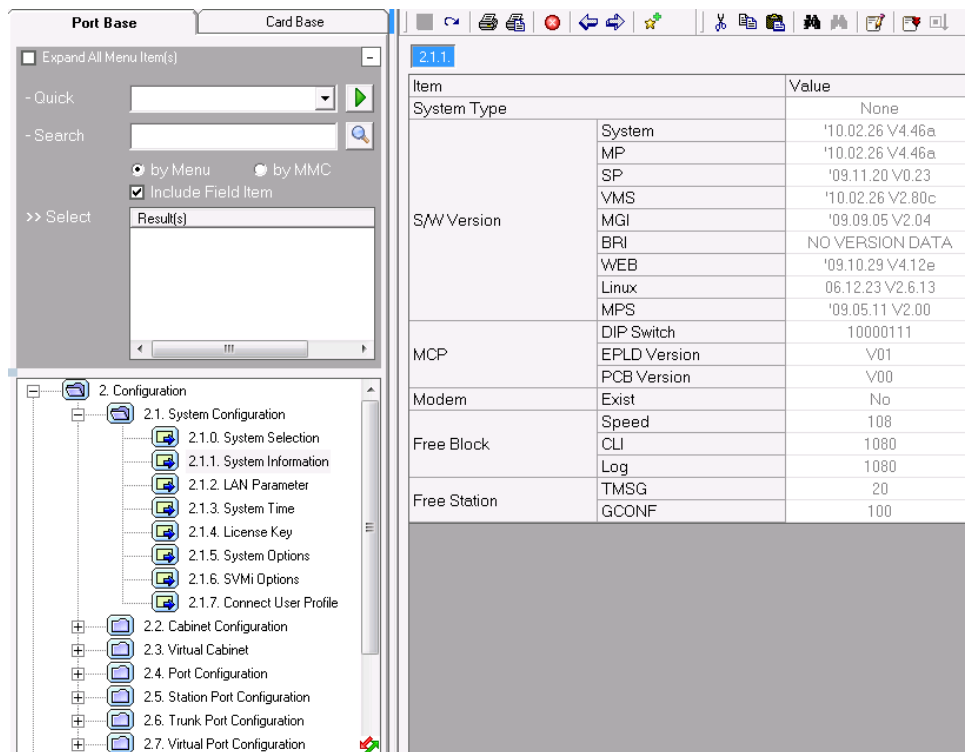
3. Samsung OfficeServ 7200 IP PBX Configuration

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.

Note: the section numbers below refer to the numbering in the Samsung interface.

2.1.1 System Information

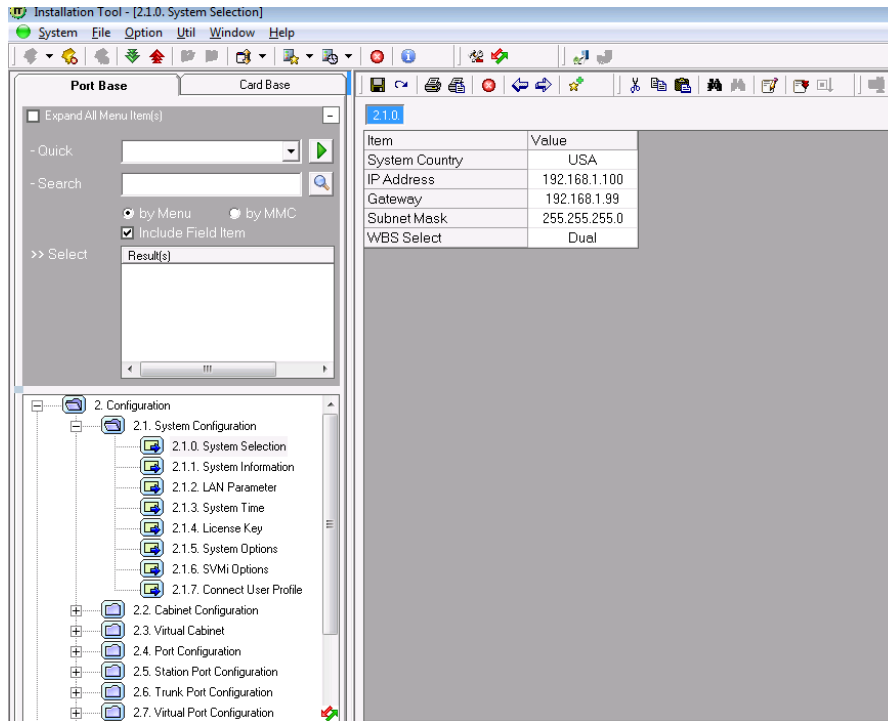


Item	Value	
System Type	None	
SW Version	System	'10.02.26 V4.46a
	MP	'10.02.26 V4.46a
	SP	'09.11.20 V0.23
	VMS	'10.02.26 V2.80c
	MGI	'09.09.05 V2.04
	BPI	NO VERSION DATA
	WEB	'09.10.29 V4.12e
MCP	Linux	06.12.23 V2.6.13
	MPS	'09.05.11 V2.00
	DIP Switch	10000111
Modem	EPLD Version	V01
	PCB Version	V00
Free Block	Exist	No
	Speed	108
Free Station	CLI	1080
	Log	1080
Free Station	TMSG	20
	GCONF	100

2.1.0 System selection

IPAddress: IPPBX IP

GATEWAY: XO Router internal IP



2.1.2 LAN Parameters

The screenshot shows a configuration window for a 'Port Base'. The top section contains search and navigation tools. Below is a tree view of configuration options, with '2.1.2 LAN Parameter' selected. The right side of the window displays a table of parameters and their values.

Item	Value
IP Type	Private Only
MAC Address	001632CD95CB
Public IP Address 1	0.0.0.0
Public IP Address 2	0.0.0.0
Public IP Address 3	0.0.0.0

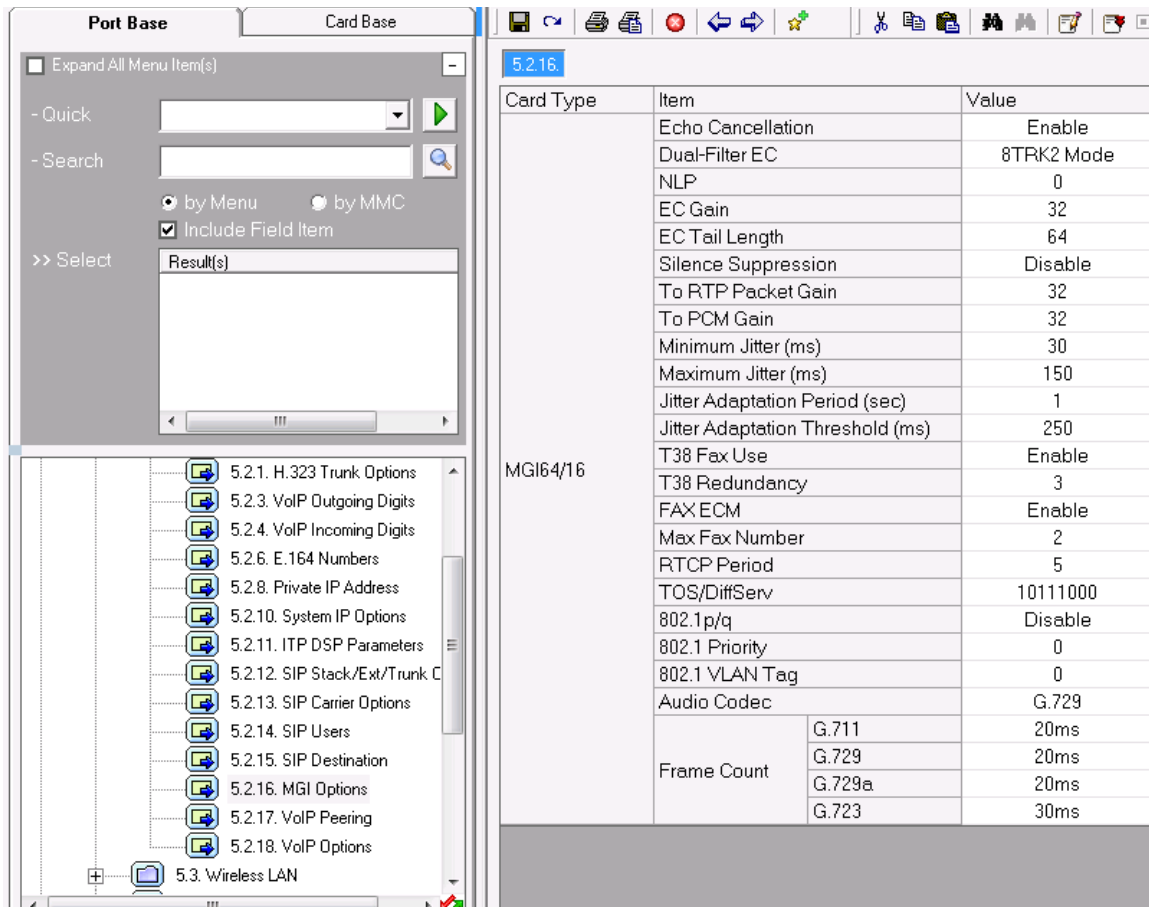
5.2.13: SIP Carrier Options

Outbound Proxy: XO NBS IP

Item	Value
SIP Carrier Name	XO
SIP Server Enable	Enable
SIP Service Available	Yes
Registra Address	
Registra Port	5060
Outbound Proxy	205.158.163.138
Alternative Outband Proxy	0.0.0.0
Outbound Proxy Port	5060
Proxy Domain Name	
DNS Server 1	0.0.0.0
DNS Server 2	0.0.0.0
User Name	
Auth Username	
Auth Password	
Regist. Per User	Disable
Session Timer	None
Session Expire Time	1800
Trunk Reg Expire Time	1800
Alive Notify	Options
Alive Notify Time	1800
IMS Option	Disable
P-Asserted-ID Use	None
Privacy	Disable
SIP Peering	Disable
Send CLI Table	1
Supplementary Type	PBX managed 2
302 Response	Disable
SIP Destination Type	To Header
Codec Auto Nego	Enable
Hold Reinvite	Disable
URI Type	SIP

Hold Reinvite	Disable
URI Type	SIP
SIP Signal Type	UDP
E.164 Support	Disable
PRACK Support	Disable

5.2.16: MGI Options



The screenshot shows the configuration interface for MGI Options. The left pane displays a tree view of configuration options, with 5.2.16. MGI Options selected. The right pane shows a table of settings for Card Type MGI64/16.

Card Type	Item	Value
MGI64/16	Echo Cancellation	Enable
	Dual-Filter EC	8TRK2 Mode
	NLP	0
	EC Gain	32
	EC Tail Length	64
	Silence Suppression	Disable
	To RTP Packet Gain	32
	To PCM Gain	32
	Minimum Jitter (ms)	30
	Maximum Jitter (ms)	150
	Jitter Adaptation Period (sec)	1
	Jitter Adaptation Threshold (ms)	250
	T38 Fax Use	Enable
	T38 Redundancy	3
	FAX ECM	Enable
	Max Fax Number	2
	RTCP Period	5
	TOS/DiffServ	10111000
	802.1p/q	Disable
	802.1 Priority	0
802.1 VLAN Tag	0	
Audio Codec	G.729	
Frame Count	G.711	20ms
	G.729	20ms
	G.729a	20ms
	G.723	30ms

2.1.5: System Options

The screenshot displays the configuration interface for '2.1.5 System Options'. On the left, a tree view shows the configuration hierarchy under '2. Configuration', with '2.1.5 System Options' selected. The main area shows a table of configuration items and their values.

Item	Value
Technician Password	4321
Country Code	1
Area Code	
Carrier Code	
Auto Insert Digit	
Daily Save DB	Hour: 0, Min: 0
Alarm Overflow	Over Written
System Speed Max	Max500
System Speed Block	50
Idle when enblock	Disable
LCD2 Enblock	Disable
External BGM/MOH	Ext. Source
Maximum Chain Forward All Step	1
Pickup Group Ring Service	Disable
MOBEX Executive Option	Auth by CLI: Off, Auth Hold Tone: Off, Tone Source: TONE, BLF by CLI: Off, Answer Delay Time (sec): 1
Trunk To MOBEX CLI	ISDN: Received, SIP: Received, DTMF: Inband(RFC2833)
VoIP RTP Option	MPS Service: On, No MPS -> MGI: On, SIP-T -> SIP-T MGI Use: Off, SIP-T Ringback Message: 183

2.2.15: MPS Card

The screenshot displays a configuration interface with a tree view on the left and a details pane on the right. The tree view shows a hierarchy under '2. Configuration' with '2.2.15. MPS Card' selected. The details pane shows a table of configuration items for the selected card.

Item	Value
Card Type	Embedded MPS
IP Version	IPv4
IP Address	192.168.1.100
Gateway	192.168.1.99
Subnet Mask	255.255.255.0
IP Type	Private Only
Local RTP Port (start)	40000
Public IP Address 1	0.0.0.0
Public RTP Port 1	40000
Public IP Address 2	0.0.0.0
Public RTP Port 2	40000
Public IP Address 3	0.0.0.0
Public RTP Port 3	40000

2.4.3: Send CLI Number

The screenshot shows the configuration interface for 'Send CLI Number'. On the left, a tree view shows the configuration hierarchy: 2. Configuration > 2.4. Port Configuration > 2.4.3. Send CLI Number. The main area displays a table with the following data:

Tel Number	Send CLI Number	Send SIP Alias Name
3402	3402	
3403	3403	
3404	3404	
3405	3405	
3406	3406	
3407	3407	
3408	3408	
3409	3409	
3410	3410	
3411	3411	
3412	3412	
3413	3413	
3414	3414	
3415	3415	
3416	3416	
3201	4693873321	
3202	4693873322	
3203		
3204	3204	
3205	3205	
3206	3206	
3207	3207	
3208	3208	
3209	3209	

2.6.2 Trunk On/Off (required sending original caller ID in call forward to PSTN case)

The screenshot shows the configuration interface for 'Trunk On/Off'. On the left, a tree view shows the configuration hierarchy: 2. Configuration > 2.6. Trunk Port Configuration > 2.6.2. Trunk On/Off. The main area displays a table with the following data:

Tel Number	CO/PBX Line	Abandon Call Report	1A2 Emulate	Incoming DND	Trunk Forward	EFWD Extension CLI	Repeat CLI	Tandem CLI Code Insert	Color Ring As
8305	CO Line	Yes	Off	On	On	On	Off	On	Off
8306	CO Line	Yes	Off	On	On	On	Off	On	Off
8307	CO Line	Yes	Off	On	On	On	Off	On	Off
8308	CO Line	Yes	Off	On	On	On	Off	On	Off
8309	CO Line	Yes	Off	On	On	On	Off	On	Off
8310	CO Line	Yes	Off	On	On	On	Off	On	Off
8311	CO Line	Yes	Off	On	On	On	Off	On	Off
8312	CO Line	Yes	Off	On	On	On	Off	On	Off
8313	CO Line	Yes	Off	On	On	On	Off	On	Off
8314	CO Line	Yes	Off	On	On	On	Off	On	Off
8315	CO Line	Yes	Off	On	On	On	Off	On	Off
8316	CO Line	Yes	Off	On	On	On	Off	On	Off
8501	CO Line	Yes	Off	On	On	Off	On	On	Off
8502	CO Line	Yes	Off	On	On	On	On	On	Off
8503	CO Line	Yes	Off	On	On	On	On	On	Off
8504	CO Line	Yes	Off	On	On	On	On	On	Off
8505	CO Line	Yes	Off	On	On	On	On	On	Off
8506	CO Line	Yes	Off	On	On	On	On	On	Off
8507	CO Line	Yes	Off	On	On	On	On	On	Off
8508	CO Line	Yes	Off	On	On	On	On	On	Off
8401	CO Line	Yes	Off	On	On	On	Off	On	Off
8402	CO Line	Yes	Off	On	On	On	Off	On	Off
8403	CO Line	Yes	Off	On	On	On	Off	On	Off
8404	CO Line	Yes	Off	On	On	On	Off	On	Off
8405	CO Line	Yes	Off	On	On	On	Off	On	Off
8406	CO Line	Yes	Off	On	On	On	Off	On	Off
8407	CO Line	Yes	Off	On	On	On	Off	On	Off
8408	CO Line	Yes	Off	On	On	On	Off	On	Off

3.1.2 Routing Digits

Entry Number	LCR Digit	Length	Route Table
1	0	1	1
2	1	11	1
3	411	4	1
4	9	10	1
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			

3.1.4: Routing Table

Class No	Zone 1		Zone 2		Zone 3		Zone 4	
	Group	Modify	Group	Modify	Group	Modify	Group	Modify
1	805							
2								
3								
4								
5								
6								
7								
8								

3.2.3: DID Ringing

The screenshot shows a configuration tool interface. On the left, a tree view is expanded to '3.2.3. DID Ringing'. The main area displays a table with the following data:

Entry Number	Incoming digits	Ring Plan						Translate Name	Delete Count	Max Call	Call Wait	M O
		1	2	3	4	5	6					
1	4693873321	3201	3201	3201	3201	3201	3201		0	99	No	
2	4693873322	3202	3202	3202	3202	3202	3202		0	99	No	
3	4693873323	2001	2001	2001	2001	2001	2001		0	99	No	
4	4693873324	5019	5019	5019	5019	5019	5019		0	99	No	
5	4693873325	5001	5001	5001	5001	5001	5001		0	99	No	
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												

4.1.1: Station Groups

4.1.1.		
Group Number	5000	5001
Group Index	0	1
Group Type	Normal	Normal
Ring Mode	Uncondition	Sequential
Next Port		5019
RBT Message		
Group Name		
Transfer Time	0	5
Overflow Time	35	22
Hunt Time	0	10
Group Busy	Off	Off
Group Answer	Off	Off
All Out Next	Off	Off
Member	1	2009
	2	2010
	3	2011
	4	2012
	5	2013
	6	2014
	7	2015
	8	2016
	9	
	10	
	11	
	12	
	13	
	14	
	15	
	16	