Configuration Guide

AudioCodes Mediant[™] Multi-Service Business Routers Series

Simplifying Network Configuration

Mediant 500Li MSBR

Version 7.2



Table of Contents

1	Intro	oductio	on	9
2	Ove	rview .		11
	21		Applications	11
	2.1		vor W/AN	
	2.2			11
	2.3			12
	2.4		over VRF	13
	2.5	Examp	ble Scenarios	14
3 Inte	Med erfac	iant 50 es	00Li Router with Voice Application using Proxy Server and B	BRI 15
	3.1	Data C	Configuration	15
		3.1.1	Configuring WAN IP Address	15
		3.1.2	Configuring Static IP Route	15
	3.2	Voice	Configuration	15
		3.2.1	Configuring Voice Coders	16
		3.2.2	Configuring WAN Media Realm and Assigning to "main-vrf-ipv4"	16
		3.2.3	Configuring WAN SRD	16
		3.2.4	Configuring WAN SIP Interface and Assigning to "main-vrf-ipv4"	16
		3.2.5	Assigning Proxy Set 1 to WAN SRD and Configuring Proxy Server (IP or	17
			Configuring IP Group for WAN Side	1/ 17
		3.2.7	Configuring BRI Interfaces	
		3.2.8	Configuring Trunk Group for BRI Interfaces	
		3.2.9	Configuring IP-to-Tel Routing	18
		3.2.10	Configuring Trunk Group Settings	18
		3.2.11	Configuring Accounts	19
		3.2.12	Viewing Pinhole Rules by show running-config data	20
		5.2.15	show hetwork available-app-interfaces Command	20
4 and	Med d BR	iant 50 Interfa	00Li Router with Voice Application using Tel-to-IP Routing T aces	able 21
	4.1	Data C	Configuration	21
		4.1.1	Configuring WAN IP Address	21
		4.1.2	Configuring Static IP Route	21
	4.2	Voice	Configuration	22
		4.2.1	Configuring Voice Coders	
		4.2.2	Configuring WAN Media Realm and Assigning to "main-vrf-ipv4"	22
		4.2.3	Configuring WAN SRD	22
		4.2.4	Configuring WAN SIP Interface and Assigning to "main-vrf-ipv4"	22
		4.2.5	Assigning Proxy Set 1 to WAN SRD and Configuring Proxy Server (IP or	
		Hostna	Me)	
		4.2.0	Configuring IF Group for WAN Side	∠3 22
		4.2.8	Configuring Trunk Group for BRI Interfaces	
		4.2.9	Configuring Tel-to-IP Routing Rules	24
		4.2.10	Configuring IP-to-Tel Routing Rules	24
		4.2.11	Configuring Trunk Group Settings	24
		4.2.12	Contiguring Accounts.	25
		4.2.13	viewing Pinnole Rules by snow running-config data	
		4.2.14	Show hetwork available-app-interfaces continuation	20

5	Med	iant 50	0Li with SBC Application	27
	5.1	Data C	Configuration	27
		5.1.1	Configuring WAN IP Address	
		5.1.2	Assigning Physical LAN Ethernet 1/1 to VLAN 1	27
		5.1.3	Configuring Logical Interface VLAN 1 and with Alias "LAN_IF"	27
		5.1.4	Configuring IP Route	28
	5.2	Voice (Configuration	28
		5.2.1	Configuring Voice Coders	28
		5.2.2	Configuring LAN Media Realm and Assigning to Alias "LAN IF"	
		5.2.3	Configuring WAN Media Realm and Assigning to "main-vrf-ipv4"	28
		5.2.4	Configuring LAN SRD	28
		5.2.5	Configuring WAN SRD	29
		5.2.6	Configuring LAN SIP Interface and Assigning to Alias "LAN_IF"	29
		5.2.7	Configuring WAN SIP Interface and Assigning to "main-vrf-ipv4"	29
		5.2.8	Assigning Proxy Set 2 to WAN SRD and Configuring Proxy Server (IP or	20
		F 2 0	Configuring IP Group for LAN Side	29
		5.2.9	Configuring IP Group for WAN Side	30
		5 2 11	Configuring SBC IP-to-IP Routing Rules	
		5.2.12	Viewing Pinhole Rules by show running-config data	
		5.2.13	show network available-app-interfaces Command	31
~			OI i Voice using DDI Interfaces and CDC Application with ID-4	
0	wea	iant 50	OLI VOICE USING BRI Interfaces and SBC Application with IPV4	00
inte	ertace	ə		33
	6.1	Data C	Configuration	33
		6.1.1	Configuring WAN IP Address	33
		6.1.2	Configuring Physical LAN Ethernet 1/1 and Assigning to VLAN 1	33
		6.1.3	Configuring Logical Interface VLAN 1 and with Alias "LAN_IF"	33
		6.1.4	Configuring IP Route	34
	6.2	Voice (Configuration	34
		6.2.1	Configuring Voice Coders	34
		6.2.2	Configuring LAN Media Realm and Assigning to Alias "LAN_IF"	34
		6.2.3	Configuring WAN Media Realm and Assigning to "main-vrf-ipv4"	34
		6.2.4	Configuring LAN SRD	34
		6.2.5	Configuring WAN SRD	34
		6.2.6	Configuring LAN SIP Interface and Assigning to Alias "LAN_IF"	35
		0.2.7	Conliguring WAN SIP Interface and Assigning to main-vn-ipv4	35
		U.Z.0 Hostna	me)	35
		6.2.9	Configuring IP Group for LAN Side	35
		6.2.10	Configuring IP Group for WAN Side	
		6.2.11	Configuring BRI Interfaces	36
		6.2.12	Configuring Trunk Group for BRI Interfaces	36
		6.2.13	Configuring IP-to-Tel Routing Rules	37
		6.2.14	Configuring Trunk Group Settings	37
		6.2.15	Configuring Accounts	37
		6.2.16	Enabling Keep Original User in REGISTER Messages	38
		0.2.17	Viewing Dipholo Dulos by show running config data	
		0.2.10 6.2.10	show network available app_interfaces Command	40 70
		0.2.19	Show hetwork available-app-interraces command	+0
7	Med	iant 50	0Li Voice using BRI Interfaces and SBC Application with WAN	l as
Loc	opba	ck Inte	rface	41
	71	Data C	Configuration	11
	1.1			ו רי או <i>ו</i>
		7.1.1 7.1.2	Configuring Loophack Interface	41 //1
		1.1.2	Configurity Loopback interface	

	7.1.3 7.1.4	Configuring Physical LAN Ethernet 1/1 with VLAN 1 Configuring Logical Interface VLAN 1 and with Alias "LAN_IF"	42 42
	7.1.5	Configuring IP Route	42
7.2	Voice	Configuration	42
	7.2.1	Configuring Voice Coders	42
	7.2.2	Configuring LAN Media Realm and Assigning to Alias "LAN_IF"	42
	7.2.3	Configuring WAN Media Realm and Assigning to Alias "WAN_LB" (Loopback	
	Interfac		43
	7.2.4	Configuring LAN SRD	43
	7.2.5	Configuring WAN SRD	43
	7.2.0	Configuring LAN SIP Interface and Assigning to Alias LAN_IF	43
	Interfac		43
	7.2.8	Assigning Proxy Set 2 to WAN SRD and Configuring Proxy Server (IP or	
	Hostna	me)	44
	7.2.9	Configuring IP Group for LAN Side	44
	7.2.10	Configuring IP Group for WAN Side	44
	7.2.11	Configuring BRI Interfaces	44
	7.2.12	Configuring Trunk Group for BRI Interfaces	45
	7.2.13	Configuring IP-to-Tel Routing Rules	45
	7.2.14	Configuring Trunk Group Settings	45
	7.2.15	Configuring Accounts	46
	7.2.16	Enabling Keep Original User in REGISTER Messages	46
	7.2.17	Configuring SBC IP-to-IP Routing Rules	46
	7.2.18	Viewing Pinhole Rules by show running-config data	48
	7.2.19	snow network available-app-interfaces Command	48
8 Med	liant 50	00Li Voice using BRI Interfaces and SBC Application with VRF	
Interiac	e		49
8.1	Data C	Configuration	49 49
8.1	Data (8.1.1	Configuration Configuring VRF	49 49 49
8.1	Data (8.1.1 8.1.2	Configuration Configuring VRF Configuring WAN IP Address	49 49 49 49
8.1	Data (8.1.1 8.1.2 8.1.3	Configuration. Configuring VRF Configuring WAN IP Address Configuring Physical LAN Ethernet 1/1 and Assigning to VLAN 1	49 49 49 49 49 49
8.1	Data (8.1.1 8.1.2 8.1.3 8.1.4	Configuration. Configuring VRF Configuring WAN IP Address Configuring Physical LAN Ethernet 1/1 and Assigning to VLAN 1 Configuring Logical Interface VLAN 1 and Alias "LAN_IF"	49 49 49 49 49 50
8.1	Data C 8.1.1 8.1.2 8.1.3 8.1.4 8.1.5	Configuration Configuring VRF Configuring WAN IP Address Configuring Physical LAN Ethernet 1/1 and Assigning to VLAN 1 Configuring Logical Interface VLAN 1 and Alias "LAN_IF" Configuring IP Route	49 49 49 49 50 50
8.1 8.2	Data C 8.1.1 8.1.2 8.1.3 8.1.4 8.1.5 Voice	Configuration Configuring VRF Configuring WAN IP Address Configuring Physical LAN Ethernet 1/1 and Assigning to VLAN 1 Configuring Logical Interface VLAN 1 and Alias "LAN_IF" Configuring IP Route Configuration	49 49 49 49 49 50 50
8.1 8.2	Data C 8.1.1 8.1.2 8.1.3 8.1.4 8.1.5 Voice 8.2.1	Configuration. Configuring VRF Configuring WAN IP Address Configuring Physical LAN Ethernet 1/1 and Assigning to VLAN 1 Configuring Logical Interface VLAN 1 and Alias "LAN_IF". Configuring IP Route Configuration Configuration	49 49 49 49 50 50 50 50
8.1 8.2	Data (8.1.1 8.1.2 8.1.3 8.1.4 8.1.5 Voice 8.2.1 8.2.2	Configuration. Configuring VRF Configuring WAN IP Address Configuring Physical LAN Ethernet 1/1 and Assigning to VLAN 1 Configuring Logical Interface VLAN 1 and Alias "LAN_IF" Configuring IP Route Configuration Configuration Configuring Voice Coders Configuring LAN Media Realm and Assigning to Alias "LAN_IF"	49 49 49 50 50 50 50 50
8.1 8.2	Data C 8.1.1 8.1.2 8.1.3 8.1.4 8.1.5 Voice 8.2.1 8.2.2 8.2.3	Configuration Configuring VRF Configuring WAN IP Address Configuring Physical LAN Ethernet 1/1 and Assigning to VLAN 1 Configuring Logical Interface VLAN 1 and Alias "LAN_IF" Configuring IP Route Configuring IP Route Configuring Voice Coders Configuring LAN Media Realm and Assigning to Alias "LAN_IF" Configuring WAN Media Realm and Assigning to Alias VRF "VoIP"	49 49 49 50 50 50 50 50 50 51
8.1 8.2	Data C 8.1.1 8.1.2 8.1.3 8.1.4 8.1.5 Voice 8.2.1 8.2.2 8.2.3 8.2.4	Configuration Configuring VRF Configuring WAN IP Address Configuring Physical LAN Ethernet 1/1 and Assigning to VLAN 1 Configuring Logical Interface VLAN 1 and Alias "LAN_IF" Configuring IP Route Configuring IP Route Configuring Voice Coders Configuring LAN Media Realm and Assigning to Alias "LAN_IF" Configuring WAN Media Realm and Assigning to Alias VRF "VoIP"	49 49 49 50 50 50 50 50 51 51
8.1 8.2	Data C 8.1.1 8.1.2 8.1.3 8.1.4 8.1.5 Voice 8.2.1 8.2.2 8.2.3 8.2.4 8.2.5	Configuration Configuring VRF Configuring WAN IP Address Configuring Physical LAN Ethernet 1/1 and Assigning to VLAN 1 Configuring Logical Interface VLAN 1 and Alias "LAN_IF" Configuring IP Route Configuring IP Route Configuring Voice Coders Configuring LAN Media Realm and Assigning to Alias "LAN_IF" Configuring WAN Media Realm and Assigning to Alias VRF "VoIP" Configuring LAN SRD Configuring WAN SRD Configuring WAN SRD	49 49 49 50 50 50 50 50 51 51 51
8.1 8.2	Data C 8.1.1 8.1.2 8.1.3 8.1.4 8.1.5 Voice 8.2.1 8.2.2 8.2.3 8.2.4 8.2.5 8.2.6 8.2.7	Configuration Configuring VRF Configuring WAN IP Address Configuring Physical LAN Ethernet 1/1 and Assigning to VLAN 1 Configuring Logical Interface VLAN 1 and Alias "LAN_IF" Configuring IP Route Configuring IP Route Configuring Voice Coders Configuring LAN Media Realm and Assigning to Alias "LAN_IF" Configuring WAN Media Realm and Assigning to Alias VRF "VoIP" Configuring LAN SRD Configuring WAN SRD Configuring LAN SIP Interface and Assigning to Alias "LAN_IF" Configuring WAN SIP Interface and Assigning to Alias "LAN_IF" Configuring WAN SIP Interface and Assigning to Alias "LAN_IF" Configuring WAN SIP Interface and Assigning to Alias "LAN_IF"	49 49 49 50 50 50 50 51 51 51 51
8.1 8.2	Data C 8.1.1 8.1.2 8.1.3 8.1.4 8.1.5 Voice 8.2.1 8.2.2 8.2.3 8.2.4 8.2.5 8.2.6 8.2.7 8.2.8	Configuration. Configuring VRF Configuring WAN IP Address Configuring Physical LAN Ethernet 1/1 and Assigning to VLAN 1 Configuring Logical Interface VLAN 1 and Alias "LAN_IF" Configuring IP Route Configuring IP Route Configuring Voice Coders. Configuring LAN Media Realm and Assigning to Alias "LAN_IF" Configuring WAN Media Realm and Assigning to Alias VRF "VoIP" Configuring UAN SRD Configuring UAN SRD Configuring UAN SRD Configuring LAN SIP Interface and Assigning to Alias "LAN_IF" Configuring WAN SIP Interface and Assigning to Alias VRF "VoIP" Configuring	49 49 49 49 50 50 50 50 51 51 51 51
8.1 8.2	Data C 8.1.1 8.1.2 8.1.3 8.1.4 8.1.5 Voice 8.2.1 8.2.2 8.2.3 8.2.4 8.2.5 8.2.6 8.2.7 8.2.8 Hostro	Configuration Configuring VRF Configuring WAN IP Address Configuring Physical LAN Ethernet 1/1 and Assigning to VLAN 1 Configuring Logical Interface VLAN 1 and Alias "LAN_IF" Configuring IP Route Configuring IP Route Configuring Voice Coders Configuring LAN Media Realm and Assigning to Alias "LAN_IF" Configuring WAN Media Realm and Assigning to Alias VRF "VoIP" Configuring WAN Media Realm and Assigning to Alias VRF "VoIP" Configuring LAN SRD Configuring WAN SRD Configuring LAN SIP Interface and Assigning to Alias VRF "VoIP" Configuring WAN SIP Interface and Assigning to Alias VRF "VoIP" Configuring WAN SIP Interface and Assigning to Alias VRF "VoIP" Configuring WAN SIP Interface and Assigning to Alias VRF "VoIP" Configuring WAN SIP Interface and Assigning to Alias VRF "VoIP" Configuring WAN SIP Interface and Assigning to Alias VRF "VoIP" Configuring Proxy Set 2 to WAN SRD and Configuring Proxy Server (IP or me)	49 49 49 49 50 50 50 50 50 51 51 51 51
8.1 8.2	Data (8.1.1 8.1.2 8.1.3 8.1.4 8.1.5 Voice 8.2.1 8.2.2 8.2.3 8.2.4 8.2.5 8.2.6 8.2.7 8.2.8 Hostna 8.2.9	Configuration Configuring VRF Configuring WAN IP Address Configuring Physical LAN Ethernet 1/1 and Assigning to VLAN 1 Configuring Logical Interface VLAN 1 and Alias "LAN_IF" Configuring IP Route Configuring Voice Coders Configuring Voice Coders Configuring LAN Media Realm and Assigning to Alias "LAN_IF" Configuring WAN Media Realm and Assigning to Alias VRF "VoIP" Configuring LAN SRD Configuring UAN SRD Configuring LAN SIP Interface and Assigning to Alias "LAN_IF" Configuring WAN SIP Interface and Assigning to Alias VRF "VoIP" Assigning Proxy Set 2 to WAN SRD and Configuring Proxy Server (IP or me)	49 49 49 49 50 50 50 50 51 51 51 51 51 51 51
8.1 8.2	Data (8.1.1 8.1.2 8.1.3 8.1.4 8.1.5 Voice 8.2.1 8.2.2 8.2.3 8.2.4 8.2.5 8.2.6 8.2.7 8.2.6 8.2.7 8.2.8 Hostna 8.2.9 8.2.10	Configuration Configuring VRF Configuring WAN IP Address Configuring Physical LAN Ethernet 1/1 and Assigning to VLAN 1 Configuring Logical Interface VLAN 1 and Alias "LAN_IF" Configuring IP Route Configuring IP Route Configuring Voice Coders Configuring LAN Media Realm and Assigning to Alias "LAN_IF" Configuring WAN Media Realm and Assigning to Alias VRF "VoIP" Configuring LAN SRD Configuring LAN SRD Configuring LAN SRD Configuring LAN SIP Interface and Assigning to Alias "LAN_IF" Configuring WAN SRD Configuring VAN SRD Configuring VAN SIP Interface and Assigning to Alias VRF "VoIP" Configuring WAN SIP Interface and Assigning to Alias VRF "VoIP" Configuring WAN SIP Interface and Assigning to Alias VRF "VoIP" Configuring IP Group for LAN Side Configuring IP Group for LAN	49 49 49 49 50 50 50 50 51 51 51 51 51 51 51 52 52 52
8.1 8.2	Data C 8.1.1 8.1.2 8.1.3 8.1.4 8.1.5 Voice 8.2.1 8.2.2 8.2.3 8.2.4 8.2.5 8.2.6 8.2.7 8.2.8 Hostna 8.2.9 8.2.10 8.2.11	Configuration Configuring VRF Configuring WAN IP Address Configuring Physical LAN Ethernet 1/1 and Assigning to VLAN 1 Configuring Logical Interface VLAN 1 and Alias "LAN_IF" Configuring IP Route Configuration Configuring Voice Coders Configuring LAN Media Realm and Assigning to Alias "LAN_IF" Configuring WAN Media Realm and Assigning to Alias VRF "VoIP" Configuring LAN SRD Configuring LAN SRD Configuring LAN SIP Interface and Assigning to Alias "LAN_IF" Configuring WAN SIP Interface and Assigning to Alias VRF "VoIP" Configuring WAN SIP Interface and Assigning to Alias VRF "VoIP" Configuring WAN SIP Interface and Assigning to Alias VRF "VoIP" Configuring IP Group for LAN SID and Configuring Proxy Server (IP or me) Configuring IP Group for LAN Side Configuring BRI Interfaces	49 49 49 49 50 50 50 50 51 51 51 51 51 51 52 52 52 52
8.1 8.2	Data C 8.1.1 8.1.2 8.1.3 8.1.4 8.1.5 Voice 8.2.1 8.2.2 8.2.3 8.2.4 8.2.5 8.2.6 8.2.7 8.2.8 Hostna 8.2.9 8.2.10 8.2.11 8.2.12	Configuration Configuring VRF Configuring WAN IP Address Configuring Physical LAN Ethernet 1/1 and Assigning to VLAN 1 Configuring Logical Interface VLAN 1 and Alias "LAN_IF" Configuring IP Route Configuring Voice Coders Configuring Voice Coders Configuring LAN Media Realm and Assigning to Alias "LAN_IF" Configuring WAN Media Realm and Assigning to Alias VRF "VoIP" Configuring WAN Media Realm and Assigning to Alias VRF "VoIP" Configuring LAN SRD Configuring LAN SRD Configuring WAN SRD Configuring WAN SRD Configuring WAN SIP Interface and Assigning to Alias "LAN_IF" Configuring WAN SIP Interface and Assigning to Alias VRF "VoIP" Configuring WAN SIP Interface and Assigning to Alias VRF "VoIP" Configuring WAN SIP Interface and Assigning to Alias VRF "VoIP" Configuring IP Group for LAN Side Configuring IP Group for LAN Side Configuring BRI Interfaces. Configuring BRI Interfaces.	49 49 49 49 50 50 50 50 50 51 51 51 51 51 51 51 51 52 52 52 52 52 52
8.1 8.2	Data C 8.1.1 8.1.2 8.1.3 8.1.4 8.1.5 Voice 8.2.1 8.2.2 8.2.3 8.2.4 8.2.5 8.2.6 8.2.7 8.2.8 Hostna 8.2.9 8.2.10 8.2.11 8.2.12 8.2.13	Configuration Configuring VRF Configuring WAN IP Address Configuring Physical LAN Ethernet 1/1 and Assigning to VLAN 1 Configuring Logical Interface VLAN 1 and Alias "LAN_IF" Configuring IP Route Configuration Configuring Voice Coders Configuring LAN Media Realm and Assigning to Alias "LAN_IF" Configuring WAN Media Realm and Assigning to Alias VRF "VoIP" Configuring UAN Media Realm and Assigning to Alias VRF "VoIP" Configuring LAN SRD Configuring WAN SRD Configuring WAN SRD Configuring WAN SRD Interface and Assigning to Alias VRF "VoIP" Assigning Proxy Set 2 to WAN SRD and Configuring Proxy Server (IP or me) Configuring IP Group for LAN Side Configuring IP Group for WAN Side Configuring BRI Interfaces Configuring BRI Interfaces Configuring IP-to-Tel Routing Rules.	49 49 49 49 50 50 50 50 50 51 51 51 51 51 51 51 52 52 52 52 52 53 53
8.1 8.2	Data (8.1.1 8.1.2 8.1.3 8.1.4 8.1.5 Voice 8.2.1 8.2.2 8.2.3 8.2.4 8.2.5 8.2.6 8.2.7 8.2.8 Hostna 8.2.9 8.2.10 8.2.11 8.2.12 8.2.13 8.2.14	Configuration. Configuring VRF. Configuring WAN IP Address Configuring Physical LAN Ethernet 1/1 and Assigning to VLAN 1. Configuring Logical Interface VLAN 1 and Alias "LAN_IF". Configuring IP Route Configuring Voice Coders. Configuring LAN Media Realm and Assigning to Alias "LAN_IF". Configuring WAN Media Realm and Assigning to Alias VRF "VoIP" Configuring WAN Media Realm and Assigning to Alias VRF "VoIP" Configuring WAN SRD. Configuring UAN SRD. Configuring WAN SRD Configuring WAN SRD Configuring WAN SRD Configuring WAN SRD Configuring Proxy Set 2 to WAN SRD and Configuring Proxy Server (IP or me) Configuring IP Group for LAN Side Configuring IP Group for WAN Side Configuring BRI Interfaces. Configuring IP Group for BRI Interfaces. Configuring IP-to-Tel Routing Rules. Configuring IP-to-Tel Routing Rules. Configuring Trunk Group Settings	49 49 49 49 50 50 50 50 50 51 51 51 51 51 51 51 51 52 52 52 52 53 53 53
8.1 8.2	Data (8.1.1 8.1.2 8.1.3 8.1.4 8.1.5 Voice 8.2.1 8.2.2 8.2.3 8.2.4 8.2.5 8.2.6 8.2.7 8.2.8 Hostna 8.2.9 8.2.10 8.2.11 8.2.12 8.2.13 8.2.14 8.2.15	Configuration. Configuring VRF Configuring WAN IP Address Configuring Physical LAN Ethernet 1/1 and Assigning to VLAN 1 Configuring Logical Interface VLAN 1 and Alias "LAN_IF" Configuring IP Route Configuring Voice Coders. Configuring LAN Media Realm and Assigning to Alias "LAN_IF" Configuring LAN Media Realm and Assigning to Alias VRF "VoIP" Configuring LAN Media Realm and Assigning to Alias VRF "VoIP" Configuring LAN SRD Configuring WAN SRD Configuring LAN SIP Interface and Assigning to Alias "LAN_IF" Configuring WAN SRD Configuring Proxy Set 2 to WAN SRD and Configuring Proxy Server (IP or me) Configuring IP Group for LAN Side Configuring IP Group for WAN Side Configuring BRI Interfaces Configuring BRI Interfaces Configuring IP-to-Tel Routing Rules Configuring Trunk Group Settings Configuring Accounts	49 49 49 49 50 50 50 50 50 51 51 51 51 51 51 51 51 52 52 52 52 53 53 53 54
8.1 8.2	Data C 8.1.1 8.1.2 8.1.3 8.1.4 8.1.5 Voice 8.2.1 8.2.2 8.2.3 8.2.4 8.2.5 8.2.6 8.2.7 8.2.8 Hostna 8.2.9 8.2.10 8.2.11 8.2.12 8.2.13 8.2.14 8.2.15 8.2.16	Configuration Configuring VRF Configuring WAN IP Address Configuring Physical LAN Ethernet 1/1 and Assigning to VLAN 1 Configuring Logical Interface VLAN 1 and Alias "LAN_IF" Configuring IP Route Configuring Voice Coders Configuring Voice Coders Configuring Voice Coders Configuring Voice Coders Configuring VAN Media Realm and Assigning to Alias "LAN_IF" Configuring WAN Media Realm and Assigning to Alias VRF "VoIP" Configuring LAN SRD Configuring UAN SRD Configuring UAN SRD Configuring UAN SRD Configuring WAN SIP Interface and Assigning to Alias "LAN_IF" Configuring WAN SIP Interface and Assigning to Alias VRF "VoIP" Assigning Proxy Set 2 to WAN SRD and Configuring Proxy Server (IP or me) Configuring IP Group for LAN Side Configuring IP Group for WAN Side Configuring RI Interfaces Configuring RI Interfaces Configuring IP foroup for BRI Interfaces Configuring IP-to-Tel Routing Rules Configuring Trunk Group Settings Configuring Accounts Enabling Keep Original User in REGISTER Message	49 49 49 49 50 50 50 50 51 51 51 51 51 51 52 52 52 52 52 53 53 53 54 54
8.1 8.2	Data C 8.1.1 8.1.2 8.1.3 8.1.4 8.1.5 Voice 8.2.1 8.2.2 8.2.3 8.2.4 8.2.5 8.2.6 8.2.7 8.2.8 Hostna 8.2.9 8.2.10 8.2.11 8.2.12 8.2.13 8.2.14 8.2.15 8.2.16 8.2.17	Configuration Configuring VRF Configuring WAN IP Address Configuring Physical LAN Ethernet 1/1 and Assigning to VLAN 1 Configuring Logical Interface VLAN 1 and Alias "LAN_IF" Configuring IP Route Configuring Voice Coders Configuring Voice Coders Configuring Voice Coders Configuring Voice Coders Configuring VAN Media Realm and Assigning to Alias "LAN_IF" Configuring WAN Media Realm and Assigning to Alias VRF "VoIP" Configuring LAN SRD Configuring UAN SRD Configuring WAN SRD Configuring WAN SIP Interface and Assigning to Alias "LAN_IF" Configuring WAN SIP Interface and Assigning to Alias VRF "VoIP" Assigning Proxy Set 2 to WAN SRD and Configuring Proxy Server (IP or me) Configuring IP Group for LAN Side Configuring IP Group for WAN Side Configuring RI Interfaces Configuring RI Interfaces Configuring IP foroup for BRI Interfaces Configuring IP-to-Tel Routing Rules Configuring Trunk Group Settings Configuring Xeep Original User in REGISTER Message Configuring SBC IP-to-IP Routing Rules	49 49 49 49 50 50 50 50 50 51 51 51 51 51 52 52 52 52 52 52 53 53 54 54 54
8.1 8.2	Data C 8.1.1 8.1.2 8.1.3 8.1.4 8.1.5 Voice 8.2.1 8.2.2 8.2.3 8.2.4 8.2.5 8.2.6 8.2.7 8.2.8 Hostna 8.2.9 8.2.10 8.2.11 8.2.12 8.2.13 8.2.14 8.2.15 8.2.14 8.2.15 8.2.16 8.2.17 8.2.16	Configuration Configuring VRF Configuring WAN IP Address Configuring Physical LAN Ethernet 1/1 and Assigning to VLAN 1 Configuring Logical Interface VLAN 1 and Alias "LAN_IF" Configuring IP Route Configuring Voice Coders. Configuring Voice Coders. Configuring LAN Media Realm and Assigning to Alias "LAN_IF" Configuring WAN Media Realm and Assigning to Alias VRF "VoIP" Configuring LAN SRD. Configuring UAN SRD Configuring WAN SRD Configuring WAN SRD Configuring WAN SIP Interface and Assigning to Alias VRF "VoIP" Assigning Proxy Set 2 to WAN SRD and Configuring Proxy Server (IP or me) Configuring IP Group for LAN Side Configuring IP Group for BRI Interfaces. Configuring IP to-Tel Routing Rules. Configuring IP-to-Tel Routing Rules. Configuring SBC IP-to-IP Routing Rules. Viewing Pinhole Rules by show running-config data.	49 49 49 49 50 50 50 50 50 51 51 51 51 51 51 51 51 51 52 52 52 52 52 52 53 53 54 54 54 54 54



This page is intentionally left blank.

Notice

Information contained in this document is believed to be accurate and reliable at the time of printing. However, due to ongoing product improvements and revisions, AudioCodes cannot guarantee accuracy of printed material after the Date Published nor can it accept responsibility for errors or omissions. Updates to this document can be downloaded from https://www.audiocodes.com/library/technical-documents.

This document is subject to change without notice.

Date Published: October-06-2020

WEEE EU Directive

Pursuant to the WEEE EU Directive, electronic and electrical waste must not be disposed of with unsorted waste. Please contact your local recycling authority for disposal of this product.

Customer Support

Customer technical support and services are provided by AudioCodes or by an authorized AudioCodes Service Partner. For more information on how to buy technical support for AudioCodes products and for contact information, please visit our website at https://www.audiocodes.com/services-support/maintenance-and-support.

Stay in the Loop with AudioCodes



Abbreviations and Terminology

Each abbreviation, unless widely used, is spelled out in full when first used.

Related Documentation

Document Name
Mediant MSBR CLI Reference Guide
Mediant 500Li User's Manual
Mediant 500Li Hardware Installation Manual

Document Revision Record

LTRT	Description
31941	Initial document release for Version 7.2.

Documentation Feedback

AudioCodes continually strives to produce high quality documentation. If you have any comments (suggestions or errors) regarding this document, please fill out the Documentation Feedback form on our website at <u>https://online.audiocodes.com/documentation-feedback</u>.

1 Introduction

The Mediant 500Li MSBR uses a single IP interface with the capability to link applications such as VoIP to run over the stack. VoIP is now an application that runs on top of the router stack, comprising a Session Border Controller (SBC) and gateway.

Router networking configuration for the Mediant 500Li MSBR is different to that of the MSBRs, but applications configuration is the same. However, for all models, you need to know how to bind the VoIP applications over the networking stack and to link other applications to the stack.



Figure 1-1: Single IP Interface



This page is intentionally left blank.

2 Overview

This chapter provides an overview of the networking concepts that are described in this document.

2.1 VoIP Applications

The following key networking concepts are discussed in this document:

- VoIP over WAN: A group of IP interfaces from which a single interface is dynamically selected through which to send the VoIP traffic.
- **VoIP over LAN:** An explicit IP interface through which to send the VoIP traffic.
- **VoIP over VRF:** Configuration of the VoIP application in a VRF mode.
- VoIP over Loopback: An explicit IP interface (LAN or WAN) through which to send VoIP traffic.

2.2 VoIP over WAN

This below configuration example shows the use of the keywords (**bolded**) which represent a pool of WAN interfaces that can be used by the VoIP application. In the example, the VoIP application searches for the proxy IP address through its pool of WAN interfaces, and decides over which WAN interface to run the voice traffic. Using this "**main-vrf-ipv4**" concept, flexibility is maintained to choose from which interface to send the voice traffic, for example, failover from the primary interface to the 4G network interface.

The figure below illustrates an example scenario for VoIP over WAN.



Figure 2-1: VoIP over WAN

Configuration of the VoIP application to work over a group or pool of interfaces comprising the "**main-vrf-ipv4**" side is done as shown in the following example:

```
realm 1
   name "MR_WAN"
   network-source-ipv4 "main-vrf-ipv4"
   port-range-start 6000
   session-leg 100
```

```
port-range-end 6990
activate
exit
sip-interface 1
interface-name "SIP_WAN"
network-source "main-vrf-ipv4"
application-type sbc
srd-name WAN_SRD
media-realm-name "MR_WAN"
activate
exit
```

2.3 VoIP over LAN

To configure the VoIP application over a LAN interface, you only need to specify the router's **alias** of the IP address that you wish to attach to the VoIP interface, which can be a specific VLAN (for example, "VLAN 2"), a bridge interface (for example, "BVI 1"), or a loopback interface.

The following example shows configuration of an alias name ("LAN_IF") for VLAN 1 (192.168.0.1) and its attachment to a Media Realm and a SIP Interface:

```
interface VLAN 1
   ip address 192.168.0.1 255.255.255.0 alias "LAN IF"
  desc "incoming connection vlan 1"
  no napt
  no firewall enable
  no shutdown
 exit
realm 1
    name "MR LAN"
   network-source-ipv4 "LAN IF"
   port-range-start 6000
    session-leg 100
   port-range-end 6990
   activate
   exit
sip-interface 1
    interface-name "SIP LAN"
   network-source "LAN IF"
    application-type sbc
    srd-name WAN SRD
   media-realm-name "MR LAN"
   activate
  exit
```

2.4 VoIP over VRF

The WAN concept supports all router options, including configuration of the VoIP application in a VRF mode:

```
ip vrf VRF_VoIP ipv4-alias "VoIP"
interface GigabitEthernet 0/0
   ip address 10.10.10.1 255.255.255.0
  ip vrf forwarding VRF VoIP
  no napt
  no firewall enable
  no shutdown
   exit
interface VLAN 1
  ip address 192.168.0.1 255.255.255.0 alias "LAN IF"
   desc "incoming connection vlan 1"
  ip vrf forwarding VRF VoIP
  no napt
  no shutdown
   exit
realm 1
    name "MR LAN"
    network-source-ipv4 "LAN_IF"
    port-range-start 6000
    session-leg 100
    activate
   exit
realm 2
    name "MR WAN"
    network-source-ipv4 "VolP"
    port-range-start 6000
    session-leg 100
   activate
   exit
sip-interface 1
    interface-name "LAN IF"
    network-source "LAN_IF"
    application-type sbc
    srd-name "LAN SRD"
    media-realm-name "MR LAN"
    activate
   exit
sip-interface 2
    interface-name "WAN IF"
    network-source "VolP"
    application-type sbc
    srd-name "WAN SRD"
    media-realm-name "MR WAN"
    activate
  exit
```

2.5 Example Scenarios

This document includes the following example scenarios:

- Mediant 500Li Router with Voice Application using Proxy Server and BRI Interfaces
- Mediant 500Li Router with Voice Application using Tel-to-IP Routing Table and BRI Interfaces
- Mediant 500Li with SBC Application
- Mediant 500Li Voice using BRI Interfaces and SBC Application with IPv4 Interface
- Mediant 500Li Voice using BRI Interfaces and SBC Application with WAN as Loopback Interface
- Mediant 500Li Voice using BRI Interfaces and SBC Application with VRF Interface

3 Mediant 500Li Router with Voice Application using Proxy Server and BRI Interfaces

This example scenario describes how to route calls when the Mediant 500Li is configured as a simple voice application using a Proxy server, BRI interfaces, and basic router configuration.

Figure 3-1: Example of Voice using SIP Proxy and BRI Interfaces



Back to scenarios menu.

3.1 Data Configuration

This section describes the data configuration on Mediant 500Li.

3.1.1 Configuring WAN IP Address

```
interface GigabitEthernet 0/0
  ip address 10.10.10.1 255.255.255.0
  mtu auto
  desc "WAN ethernet"
  napt
  firewall enable
  no shutdown
  exit
```

3.1.2 Configuring Static IP Route

ip route 0.0.0.0 0.0.0.0 10.10.10.2 GigabitEthernet 0/0 1

3.2 Voice Configuration

This section describes the voice configuration on Mediant 500Li.

3.2.1 Configuring Voice Coders

```
coders-and-profiles audio-coders-groups 0
  coders-group-name "AudioCodersGroups_0"
  activate
  audio-coders 0
   name g711-alaw
   p-time 20
   rate 64
   activate
  exit
  exit
```

3.2.2 Configuring WAN Media Realm and Assigning to "main-vrf-ipv4"

```
realm 1
  name "MR_WAN"
  network-source-ipv4 "main-vrf-ipv4"
  port-range-start 6000
  session-leg 50
  activate
  exit
```

3.2.3 Configuring WAN SRD

```
srd 1
   name "SRD_WAN"
   activate
   exit
```

3.2.4 Configuring WAN SIP Interface and Assigning to "main-vrf-ipv4"

```
sip-interface 1
    interface-name "WAN_IF"
    network-source "main-vrf-ipv4"
    srd-name "SRD_WAN"
    media-realm-name "MR_WAN"
    activate
    exit
```

3.2.5 Assigning Proxy Set 1 to WAN SRD and Configuring Proxy Server (IP or Hostname)

```
proxy-set 1
  proxy-name "IPPBX"
  srd-name "SRD_WAN"
  gwipv4-sip-int-name "WAN_IF"
  activate
  proxy-ip 0
   proxy-address "11.11.11.100"
  activate
  exit
  exit
```

3.2.6 Configuring IP Group for WAN Side

```
ip-group 1
   name "WAN_IPG"
   proxy-set-name "IPPBX"
   srd-name "SRD_WAN"
   media-realm-name "MR_WAN"
   activate
   exit
```

3.2.7 Configuring BRI Interfaces

```
interface bri 2/1
    isdn-termination-side network-termination-side
    protocol 50
    activate
    exit
    interface bri 2/2
    isdn-termination-side network-termination-side
    protocol 50
    activate
    exit
```

3.2.8 Configuring Trunk Group for BRI Interfaces

```
gateway trunk-group 0
   trunk-group-id 1
   first-trunk-id 1
   first-b-channel 1
  last-b-channel 1
   last-trunk-id 1
  module 2
  activate
  exit
  gateway trunk-group 1
  trunk-group-id 2
  first-trunk-id 1
   first-b-channel 2
   last-b-channel 2
  last-trunk-id 1
  module 2
  activate
  exit
```

3.2.9 Configuring IP-to-Tel Routing

```
gateway routing ip2tel-routing 0
  dst-phone-pattern "1000"
  trunk-group-id 1
  activate
  exit
  gateway routing ip2tel-routing 1
  dst-phone-pattern "2000"
  trunk-group-id 2
  activate
  exit
```

3.2.10 Configuring Trunk Group Settings

```
gateway trunk-group-setting 0
  trunk-group-id 1
  channel-select-mode always-ascending
  registration-mode per-account
  serving-ip-group-name "WAN_IPG"
  activate
  exit
  gateway trunk-group-setting 1
   trunk-group-id 2
   channel-select-mode always-ascending
  registration-mode per-account
   serving-ip-group-name "WAN_IPG"
  activate
  exit
```

3.2.11 Configuring Accounts

```
sip-definition account 0
  served-trunk-group 1
  serving-ip-group-name "WAN_IPG"
  user-name "1000"
  password QHFxcnM= obscured
  host-name "11.11.11.100"
  contact-user "1000"
  register reg
  activate
  exit
  sip-definition account 1
  served-trunk-group 2
  serving-ip-group-name "WAN IPG"
  user-name "2000"
  password Q3F0dXY= obscured
  host-name "11.11.11.100"
  contact-user "2000"
  register reg
  activate
  exit
```

3.2.12 Viewing Pinhole Rules by show running-config data

#	Note:	The following VoIP Firewall pinholes rules are in effect for system services,
	#	conflicting rules should not be created:
	#	Application Media Realm: WAN IP 10.10.10.1 protocol udp ports 6000-6499, interface GigabitEthernet 0/0
	#	Application SIP: WAN IP 10.10.10.1 protocol udp ports 5060-5060, interface GigabitEthernet 0/0
	#	Application SIP: WAN IP 10.10.10.1 protocol tcp ports 5060-5060, interface GigabitEthernet 0/0
	#	Application SIP: WAN IP 10.10.10.1 protocol tcp ports 5061-5061, interface GigabitEthernet 0/0
I		

3.2.13 show network available-app-interfaces Command

The output of the show network available-app-interfaces command has two parts. The first part displays the VRF/Interface that is bound to IP addresses. The second part displays application binding information.

In our example, the SIP application is binded to the main VRF, the source IP interface is GigabitEthernet 0/0 (10.10.10.1), and the destination is the destination of the IP-PBX (11.11.11.100).

show net	work available-app-	interfaces				
VRF IFs:	VRF Alias	Address Fami	lу	Vrf Name	IF Status	
	"main-vrf-ipv4" "main-vrf-ipv6"	IPv4 IPv6		main-vrf main-vrf	UP UP	
IP IFs:	IP Alias	IP Address	Device :	IF Name Vrf Name	IF Status	
Applicati	ons binding: (Curre	nt source interface reso	ved in the vrf according to app. d	estination address)		
	App name	VRF Alias	App Dst Address	Source Address		Device IF name
	SIP	"main-vrf-ipv4"	11.11.11.100	10.10.10.1		SigabitEthernet 0/0

If no IP route is configured, the 'Source Address' column displays "None":

show netw	ork available-app-interfaces				
VRF IFs:	VRF Alias	Address Family		Vrf Name	IF Status
	"main-vrf-ipv4" "main-vrf-ipv6"	IPv4 IPv6		main-vrf main-vrf	UP UP
IP IFs:	IP Alias	IP Address	Device IF Name	Vrf Name	IF Status
Note - VR	F/IP Alias is the name used in	order to bind each application to netwo	rk interface		

Appricacions binding.	(current source interface res	orved in the vir according to app.	descritacion address)	
App name	VRF Alias	App Dst Address	Source Address	Device IF name
SIP	"main-vrf-ipv4"	11.11.100	None (no route)	None (no route)

4 Mediant 500Li Router with Voice Application using Tel-to-IP Routing Table and BRI Interfaces

This example scenario describes how to route calls when Mediant 500Li is configured as a simple voice application using the Tel-to-IP Routing table, BRI interfaces, and basic router configuration.



Note: In this example scenario, the Proxy server is used only for the WAN binding to take effect. The calls will be routed according to the Tel-to-IP Routing table.

Figure 4-1: Example of Voice using Tel-to-IP Routing Table and BRI Interfaces



Back to scenarios menu.

4.1 Data Configuration

This section describes the data configuration of Mediant 500Li.

4.1.1 Configuring WAN IP Address

```
interface GigabitEthernet 0/0
  ip address 10.10.10.1 255.255.255.0
  mtu auto
  desc "WAN ethernet"
  napt
  firewall enable
  no shutdown
  exit
```

4.1.2 Configuring Static IP Route

ip route 0.0.0.0 0.0.0.0 10.10.10.2 GigabitEthernet 0/0 1

4.2 Voice Configuration

This section describes the voice configuration of Mediant 500Li.

4.2.1 Configuring Voice Coders

```
coders-and-profiles audio-coders-groups 0
   coders-group-name "AudioCodersGroups_0"
   activate
   audio-coders 0
   name g711-alaw
   p-time 20
   rate 64
   activate
   exit
   exit
```

4.2.2 Configuring WAN Media Realm and Assigning to "main-vrf-ipv4"

```
realm 1
   name "MR_WAN"
   network-source-ipv4 "main-vrf-ipv4"
   port-range-start 6000
   session-leg 50
   activate
   exit
```

4.2.3 Configuring WAN SRD

```
srd 1
   name "SRD_WAN"
   activate
   exit
```

4.2.4 Configuring WAN SIP Interface and Assigning to "main-vrf-ipv4"

```
sip-interface 1
    interface-name "WAN_IF"
    network-source "main-vrf-ipv4"
    srd-name "SRD_WAN"
    media-realm-name "MR_WAN"
    activate
    exit
```

4.2.5 Assigning Proxy Set 1 to WAN SRD and Configuring Proxy Server (IP or Hostname)

```
proxy-set 1
  proxy-name "IPPBX"
  srd-name "SRD_WAN"
  gwipv4-sip-int-name "WAN_IF"
  activate
  proxy-ip 0
   proxy-address "11.11.11.100"
  activate
  exit
  exit
```

4.2.6 Configuring IP Group for WAN Side

```
ip-group 1
   name "WAN_IPG"
   proxy-set-name "IPPBX"
   srd-name "SRD_WAN"
   media-realm-name "MR_WAN"
   activate
   exit
```

4.2.7 Configuring BRI Interfaces

```
interface bri 2/1
   isdn-termination-side network-termination-side
   protocol 50
   activate
   exit
   interface bri 2/2
   isdn-termination-side network-termination-side
   protocol 50
   activate
   exit
```

4.2.8 Configuring Trunk Group for BRI Interfaces

```
gateway trunk-group 0
   trunk-group-id 1
   first-trunk-id 1
   first-b-channel 1
   last-b-channel 1
   last-trunk-id 1
   module 2
   activate
   exit
   gateway trunk-group 1
   trunk-group-id 2
   first-trunk-id 1
   first-b-channel 2
```

```
last-b-channel 2
last-trunk-id 1
module 2
activate
exit
```

4.2.9 Configuring Tel-to-IP Routing Rules

```
gateway routing tel2ip-routing 0
  dst-phone-pattern "30"
  dst-ip-address "11.11.11.100"
  dst-port 5060
  dest-sip-interface-name "WAN_IF"
  activate
  exit
  gateway routing tel2ip-routing 1
  dst-phone-pattern "050"
  dst-ip-address "20.20.20.100"
  dst-port 5060
  dest-sip-interface-name "WAN_IF"
  activate
  exit
```

4.2.10 Configuring IP-to-Tel Routing Rules

```
gateway routing ip2tel-routing 0
  dst-phone-pattern "1000"
  trunk-group-id 1
  activate
  exit
  gateway routing ip2tel-routing 1
  dst-phone-pattern "2000"
  trunk-group-id 2
  activate
  exit
```

4.2.11 Configuring Trunk Group Settings

```
gateway trunk-group-setting 0
   trunk-group-id 1
   channel-select-mode always-ascending
   registration-mode per-account
   activate
   exit
   gateway trunk-group-setting 1
   trunk-group-id 2
   channel-select-mode always-ascending
   registration-mode per-account
   activate
   exit
```

4.2.12 Configuring Accounts

```
sip-definition account 0
  served-trunk-group 1
  serving-ip-group-name "WAN_IPG"
  user-name "1000"
  password QHFxcnM= obscured
  host-name "11.11.11.100"
  contact-user "1000"
  register reg
  activate
  exit
  sip-definition account 1
  served-trunk-group 2
  serving-ip-group-name "WAN IPG"
  user-name "2000"
  password Q3F0dXY= obscured
  host-name "11.11.11.100"
  contact-user "2000"
  register reg
  activate
  exit
```

4.2.13 Viewing Pinhole Rules by show running-config data

4.2.14 show network available-app-interfaces Command

The output of the show network available-app-interfaces command has two parts. The first part displays the VRF/Interface that is bound to IP addresses. The second part displays application binding information.

In this example, the SIP application is binded to the main VRF, the source IP address is the GigabitEthernet 0/0 (10.10.10.1), and the destination is the destination of the IP-PBX (11.11.11.100).

Show her	work available-app-interface	2					
VRF IFS:	VRF Alias	Address Family		Vrf N	ame I	IF Status	
	"main-vrf-ipv4" "main-vrf-ipv6"	IPV4 IPV6		main- main-	vrf U vrf U	UP UP	
IP IFs:	IP Alias	IP Address	Device IF	Name Vrf N	ame I	IF Status	
NOTE - VR	F/IP Alias is the name used	in order to bind each a	oplication to network interfac	e			
Note - VR Applicati	F/IP Alias is the name used ons binding: (Current source	in order to bind each a interface resolved in	oplication to network interfac the vrf according to app. dest	e ination address)			
Note - VR Applicati	F/IP Alias is the name used ons binding: (Current source App name VRF Ali	in order to bind each a interface resolved in as	oplication to network interfac the vrf according to app. dest App Dst Address	e ination address) Source Add	ress	Device IF	name
Note - VR Applicati	F/IP Alias is the name used ons binding: (Current source App name VRF Ali SIP "main-v	in order to bind each a interface resolved in as rf-ipv4"	oplication to network interfac the vrf according to app. dest App Dst Address 11.11.11.100	e ination address) Source Add 10.10.10.1	ress	Device IF GigabitEth	name ernet 0

If no IP route is configured, the 'Source Address' displays "None":

show networ	rk available-app-interfaces				
VRF IFS: \	/RF Alias	Address Family		Vrf Name	IF Status
	'main-vrf-ipv4" 'main-vrf-ipv6"	IPv4 IPv6		main-vrf main-vrf	UP UP
IP IFS: 1	IP Alias	IP Address	Device IF Name	Vrf Name	IF Status

Note - VRF/IP Alias is the name used in order to bind each application to network interface

Applications binding:	(Current source interface res	olved in the vrf according to app.	destination address)	
App name	VRF Alias	App Dst Address	Source Address	Device IF name
SIP	"main-vrf-ipv4"	11.11.11.100	None (no route)	None (no route)

5 Mediant 500Li with SBC Application

This example scenario describes how to route calls when Mediant 500Li is configured for the SBC application.

Figure 5-1: Example of IP Phone Connected to SBC



Back to scenarios menu.

5.1 Data Configuration

This section describes the data configuration of median 500Li.

5.1.1 Configuring WAN IP Address

```
interface GigabitEthernet 0/0
  ip address 10.10.10.1 255.255.255.0
  napt
  firewall enable
  no shutdown
  exit
```

5.1.2 Assigning Physical LAN Ethernet 1/1 to VLAN 1

```
interface GigabitEthernet 1/1
   switchport mode trunk
   switchport trunk native vlan 1
   no shutdown
   exit
```

5.1.3 Configuring Logical Interface VLAN 1 and with Alias "LAN_IF"

```
interface VLAN 1
    ip address 192.168.0.1 255.255.255.0 alias "LAN_IF"
    ip dhcp-server network 192.168.0.2 192.168.0.10 255.255.255.0
    service dhcp
    no napt
    no firewall enable
    no shutdown
exit
```

5.1.4 Configuring IP Route

ip route 0.0.0.0 0.0.0.0 10.10.10.2 GigabitEthernet 0/0 1

5.2 Voice Configuration

This section describes the voice configuration of Mediant 500Li.

5.2.1 Configuring Voice Coders

```
coders-and-profiles audio-coders-groups 0
  coders-group-name "AudioCodersGroups_0"
  activate
  audio-coders 0
   name g711-alaw
   p-time 20
   rate 64
   activate
  exit
  exit
```

5.2.2 Configuring LAN Media Realm and Assigning to Alias "LAN_IF"

```
realm 1
   name "MR_LAN"
   network-source-ipv4 "LAN_IF"
   port-range-start 6000
   session-leg 100
   activate
   exit
```

5.2.3 Configuring WAN Media Realm and Assigning to "main-vrf-ipv4"

```
realm 2
  name "MR_WAN"
  network-source-ipv4 "main-vrf-ipv4"
  port-range-start 6000
  session-leg 100
  activate
  exit
```

5.2.4 Configuring LAN SRD

```
srd 1
   name "LAN_SRD"
   activate
   exit
```

5.2.5 Configuring WAN SRD

```
srd 2
   name "WAN_SRD"
   activate
   exit
```

5.2.6 Configuring LAN SIP Interface and Assigning to Alias "LAN_IF"

```
sip-interface 1
    interface-name "SIP_LAN"
    network-source "LAN_IF"
    application-type sbc
    srd-name "LAN_SRD"
    media-realm-name "MR_LAN"
    activate
    exit
```

5.2.7 Configuring WAN SIP Interface and Assigning to "main-vrf-ipv4"

```
sip-interface 2
    interface-name "SIP_WAN"
    network-source "main-vrf-ipv4"
    application-type sbc
    srd-name "WAN_SRD"
    media-realm-name "MR_WAN"
    activate
    exit
```

5.2.8 Assigning Proxy Set 2 to WAN SRD and Configuring Proxy Server (IP or Hostname)

```
proxy-set 2
  proxy-name "WAN_Proxy"
  proxy-enable-keep-alive using-options
  srd-name "WAN_SRD"
  sbcipv4-sip-int-name "SIP_WAN"
  activate
  proxy-ip 0
   proxy-address "11.11.11.100"
  activate
  exit
  exit
```

5.2.9 Configuring IP Group for LAN Side

```
ip-group 1
  type user
  name "IP_Phone"
  srd-name "LAN_SRD"
  media-realm-name "MR_LAN"
  classify-by-proxy-set disable
  activate
  exit
```

5.2.10 Configuring IP Group for WAN Side

```
ip-group 2
   name "IPPBX"
   proxy-set-name "WAN_Proxy"
   srd-name "WAN_SRD"
   media-realm-name "MR_WAN"
   activate
   exit
```

5.2.11 Configuring SBC IP-to-IP Routing Rules

```
sbc routing ip2ip-routing 0
  route-name "Options Termination"
  request-type options
  dst-type dst-address
  dst-address "internal"
  activate
 exit
 sbc routing ip2ip-routing 1
  route-name "IPP==>IPPBX"
  src-ip-group-name "IP Phone"
  dst-ip-group-name "IPPBX"
  activate
 exit
 sbc routing ip2ip-routing 2
  route-name "IPPBX==>IPP"
  src-ip-group-name "IPPBX"
  dst-ip-group-name "IP Phone"
  activate
 exit
sbc classification 0
  classification-name "IP Phone"
  srd-name "LAN SRD"
  src-sip-interface-name "SIP_LAN"
  src-ip-group-name "IP_Phone"
  activate
 exit
```

5.2.12 Viewing Pinhole Rules by show running-config data

# Note:	The following VoIP Firewall pinholes rules are in effect for system services,
#	conflicting rules should not be created:
#	Application Media Realm: WAN IP 10.10.10.1 protocol udp ports 6000-6999, interface GigabitEthernet 0/0
#	Application SIP: WAN IP 10.10.10.1 protocol udp ports 5060-5060, interface GigabitEthernet 0/0
#	Application SIP: WAN IP 10.10.10.1 protocol tcp ports 5060-5060, interface GigabitEthernet 0/0
#	Application SIP: WAN IP 10.10.10.1 protocol tcp ports 5061-5061, interface GigabitEthernet 0/0

5.2.13 show network available-app-interfaces Command

The output of the show network available-app-interfaces command has two parts. The first part displays the VRF/Interface that is bound to IP addresses. The second part displays application binding information.

In this example, the SIP application is binded to the main VRF, the source IP address is the GigabitEthernet 0/0 (10.10.10.1), and the destination is the destination of the IP-PBX (11.11.11.100).

show netw	ork available-app-int	erfaces						
VRF IFs:	VRF Alias	Address Family		Vrf Name	IF Status			
	"main-vrf-ipv4" "main-vrf-ipv6"	IPv4 IPv6		main-vrf main-vrf	UP UP			
IP IFS:	IP Alias	IP Address	Device	IF Name Vrf Name	IF Status			
	"LAN_IF"	192.168.0.1	VLAN 1	main-vrf	UP			
Note - VR	Note - VRF/IP Alias is the name used in order to bind each application to network interface							
Applicati	Applications binding: (Current source interface resolved in the vrf according to app. destination address)							
	App name	VRF Alias	App Dst Address	Source Address	Device IF name			
	SIP	"main-vrf-ipv4"	11.11.11.100	10.10.10.1	GigabitEthernet 0/0			

If no IP route is configured, the 'Source Address' displays "0.0.0.0":

sho	show network available-app-interfaces							
VRF	IFs:	VRF Alias	Address Family		Vrf Name	IF Status		
		"main-vrf-ipv4" "main-vrf-ipv6"	IPv4 IPv6		main-vrf main-vrf	UP UP		
IP	IFs:	IP Alias	IP Address	Device IF Name	Vrf Name	IF Status		
		"LAN_IF"	192.168.0.1	VLAN 1	main-vrf	UP		

Note - $\ensuremath{\mathsf{VRF}}\xspace/\ensuremath{\mathsf{IP}}\xspace$ Alias is the name used in order to bind each application to network interface

Applications binding: (Current source interface resolved in the vrf according to app. destination address)

	App name	VRF Alias	App Dst Address	Source Address	Device IF name
1	SIP	"main-vrf-ipv4"	11.11.11.100	0.0.0.0	None (no route)



This page is intentionally left blank.

6 Mediant 500Li Voice using BRI Interfaces and SBC Application with IPv4 Interface

Figure 6-1: Example of Voice using BRI Interfaces and SBC



Back to scenarios menu.

6.1 Data Configuration

This section describes the data configuration of median 500Li.

6.1.1 Configuring WAN IP Address

```
interface GigabitEthernet 0/0
  ip address 10.10.10.1 255.255.255.0
  napt
  firewall enable
  no shutdown
  exit
```

6.1.2 Configuring Physical LAN Ethernet 1/1 and Assigning to VLAN 1

```
interface GigabitEthernet 1/1
   switchport mode trunk
   switchport trunk native vlan 1
   no shutdown
   exit
```

6.1.3 Configuring Logical Interface VLAN 1 and with Alias "LAN_IF"

```
interface VLAN 1
    ip address 192.168.0.1 255.255.255.0 alias "LAN_IF"
    ip dhcp-server network 192.168.0.2 192.168.0.10 255.255.255.0
    service dhcp
    no napt
    no firewall enable
    no shutdown
exit
```

6.1.4 Configuring IP Route

ip route 0.0.0.0 0.0.0.0 10.10.10.2 GigabitEthernet 0/0 1

6.2 Voice Configuration

This section describes the voice configuration of median 500Li.

6.2.1 Configuring Voice Coders

```
coders-and-profiles audio-coders-groups 0
  coders-group-name "AudioCodersGroups_0"
  activate
  audio-coders 0
   name g711-alaw
   p-time 20
   rate 64
   activate
  exit
  exit
```

6.2.2 Configuring LAN Media Realm and Assigning to Alias "LAN_IF"

```
realm 1
   name "MR_LAN"
   network-source-ipv4 "LAN_IF"
   port-range-start 6000
   session-leg 100
   activate
   exit
```

6.2.3 Configuring WAN Media Realm and Assigning to "main-vrf-ipv4"

```
realm 2
  name "MR_WAN"
  network-source-ipv4 "main-vrf-ipv4"
  port-range-start 6000
  session-leg 100
  activate
  exit
```

6.2.4 Configuring LAN SRD

```
srd 1
   name "LAN_SRD"
   activate
   exit
```

6.2.5 Configuring WAN SRD

```
srd 2
    name "WAN_SRD"
    activate
```

exit

6.2.6 Configuring LAN SIP Interface and Assigning to Alias "LAN_IF"

```
sip-interface 1
    interface-name "SIP_LAN"
    network-source "LAN_IF"
    application-type sbc
    srd-name "LAN_SRD"
    media-realm-name "MR_LAN"
    activate
    exit
```

6.2.7 Configuring WAN SIP Interface and Assigning to "main-vrf-ipv4"

```
sip-interface 2
    interface-name "SIP_WAN"
    network-source "main-vrf-ipv4"
    application-type sbc
    srd-name "WAN_SRD"
    media-realm-name "MR_WAN"
    activate
    exit
```

6.2.8 Assigning Proxy Set 2 to WAN SRD and Configuring Proxy Server (IP or Hostname)

```
proxy-set 2
```

```
proxy-name "WAN_Proxy"
proxy-enable-keep-alive using-options
srd-name "WAN_SRD"
sbcipv4-sip-int-name "SIP_WAN"
activate
proxy-ip 0
proxy-address "11.11.11.100"
activate
exit
exit
```

6.2.9 Configuring IP Group for LAN Side

```
ip-group 1
  type user
  name "IP_Phone"
  srd-name "LAN_SRD"
  media-realm-name "MR_LAN"
  classify-by-proxy-set disable
  activate
  exit
```

6.2.10 Configuring IP Group for WAN Side

```
ip-group 2
  name "IPPBX"
  proxy-set-name "WAN_Proxy"
  srd-name "WAN_SRD"
  media-realm-name "MR_WAN"
  activate
  exit
```

6.2.11 Configuring BRI Interfaces

```
interface bri 2/1
   isdn-termination-side network-termination-side
   protocol 50
   activate
   exit
   interface bri 2/2
   isdn-termination-side network-termination-side
   protocol 50
   activate
   exit
```

6.2.12 Configuring Trunk Group for BRI Interfaces

```
gateway trunk-group 0
  trunk-group-id 1
   first-trunk-id 1
   first-b-channel 1
  last-b-channel 1
  last-trunk-id 1
  module 2
  activate
  exit
  gateway trunk-group 1
  trunk-group-id 2
  first-trunk-id 1
  first-b-channel 2
  last-b-channel 2
  last-trunk-id 1
  module 2
  activate
  exit
```

6.2.13 Configuring IP-to-Tel Routing Rules

```
gateway routing ip2tel-routing 0
  dst-phone-pattern "1000"
  trunk-group-id 1
  activate
  exit
  gateway routing ip2tel-routing 1
  dst-phone-pattern "2000"
  trunk-group-id 2
  activate
  exit
```

6.2.14 Configuring Trunk Group Settings

```
gateway trunk-group-setting 0
   trunk-group-id 1
   channel-select-mode always-ascending
   registration-mode per-account
   serving-ip-group-name "IPPBX"
   activate
   exit
   gateway trunk-group-setting 1
   trunk-group-id 2
   channel-select-mode always-ascending
   registration-mode per-account
   serving-ip-group-name "IPPBX"
   activate
   exit
```

6.2.15 Configuring Accounts

```
sip-definition account 0
   served-trunk-group 1
   serving-ip-group-name "IPPBX"
  user-name "1000"
  password QHFxcnM= obscured
  host-name "11.11.11.100"
  contact-user "1000"
  register reg
  activate
  exit
  sip-definition account 1
  served-trunk-group 2
  serving-ip-group-name "IPPBX"
  user-name "2000"
  password Q3F0dXY= obscured
  host-name "11.11.11.100"
  contact-user "2000"
  register reg
  activate
 exit
```

6.2.16 Enabling Keep Original User in REGISTER Messages

```
sbc settings
   keep-contact-user-in-reg unique-param
   activate
   exit
```

6.2.17 Configuring SBC IP-to-IP Routing Rules

```
sbc routing ip2ip-routing 0
  route-name "Options Termination"
  request-type options
  dst-type dst-address
  dst-address "internal"
  activate
 exit
sbc routing ip2ip-routing 1
  route-name "IPP==>IPPBX"
  src-ip-group-name "IP Phone"
  dst-ip-group-name "IPPBX"
  activate
 exit
sbc routing ip2ip-routing 2
   route-name " IPPBX==>GW"
   src-ip-group-name "IPPBX"
   dst-user-name-prefix "1000"
   dst-type gateway
   activate
  exit
sbc routing ip2ip-routing 3
   route-name " IPPBX==>GW"
   src-ip-group-name "IPPBX"
   dst-user-name-prefix "2000"
   dst-type gateway
   activate
  exit
sbc routing ip2ip-routing 4
  route-name "IPPBX==>IPP"
  src-ip-group-name "IPPBX"
  dst-user-name-prefix "6000"
  dst-ip-group-name "IP_Phone"
  activate
 exit
sbc routing ip2ip-routing 5
  route-name "IPPBX==>IPP"
  src-ip-group-name "IPPBX"
  dst-user-name-prefix "7000"
  dst-ip-group-name "IP_Phone"
  activate
 exit
sbc classification 0
  classification-name "IP Phone"
```

```
srd-name "LAN_SRD"
src-sip-interface-name "SIP_LAN"
src-ip-group-name "IP_Phone"
activate
exit
```

6.2.18 Viewing Pinhole Rules by show running-config data

6.2.19 show network available-app-interfaces Command

The output of the show network available-app-interfaces command has two parts. The first part displays the VRF/Interface that is bound to IP addresses. The second part displays application binding information.

In this example, the SIP application is binded to the main VRF, the source IP address is the GigabitEthernet 0/0 (10.10.10.1), and the destination is the destination of the IP-PBX (11.11.11.100).

show network available-app-interfaces							
VRF IFS:	VRF Alias	Address Family			Vrf Name	IF Status	
	"main-vrf-ipv4" "main-vrf-ipv6"	IPV4 IPV6			main-vrf main-vrf	UP UP	
IP IFS:	IP Alias	IP Address		Device IF Name	Vrf Name	IF Status	
	"LAN_IF"	192.168.0.1		VLAN 1	main-vrf	UP	
Note - VR	F/IP Alias is the name u	used in order to bind each	application to netwo	rk interface			
Applications binding: (Current source interface resolved in the vrf according to app. destination address)							
	App name VRF	Alias	App Dst Address		Source Address		Device IF name
	SIP "ma	ain-vrf-ipv4"	11.11.11.100		10.10.10.1		GigabitEthernet 0/0

If no IP route is configured, the 'Source Address' displays "0.0.0.0":

sho	ihow network available-app-interfaces							
VRF	IFs:	VRF Alias	Address Family		Vrf Name	IF Status		
		"main-vrf-ipv4" "main-vrf-ipv6"	IPv4 IPv6		main-vrf main-vrf	UP UP		
IP	IFs:	IP Alias	IP Address	Device IF Name	Vrf Name	IF Status		
		"LAN_IF"	192.168.0.1	VLAN 1	main-vrf	UP		

Note - VRF/IP Alias is the name used in order to bind each application to network interface

Applications binding: (Current source interface resolved in the vrf according to app. destination address)

	App name	VRF Alias	App Dst Address	Source Address	Device IF name
I.	SIP	"main-vrf-ipv4"	11.11.11.100	0.0.0.0	None (no route)

7 Mediant 500Li Voice using BRI Interfaces and SBC Application with WAN as Loopback Interface

Traditional PBX **IP Network** M500Li GW/SBC IP PBX Core Router FXS 1000 11.11.11.1/24 10.10.10.1/30 10.10.10.2/30 ÷ FXS 2000 VLAN 10 192.168.0.1/24 11.11.11,100/24 0 LOOPBACK 1 - Network WAN 20.20.20.1 IP Phone IP Phone IP 192.168.0.3/24 IP 192.168.0.2/24 Proxy 11.11.11.100 Proxy 11.11.11.100 6000 7000

Figure 7-1: Example of Voice using BRI Interfaces and SBC with WAN Loopback

Back to scenarios menu.

7.1 Data Configuration

This section describes the data configuration of Mediant 500Li.

7.1.1 Configuring WAN IP Address

```
interface GigabitEthernet 0/0
  ip address 10.10.10.1 255.255.255.0
  mtu auto
  desc "WAN ethernet"
  napt
  firewall enable
  no shutdown
  exit
```

7.1.2 Configuring Loopback Interface

```
interface Loopback 1
    ip address 20.20.20.1 alias "WAN_LB"
    mtu auto
    desc "LAN Loopback 1"
    no ipv6 enable
    no service dhcp
    network wan
    no napt
    no firewall enable
    no shutdown
    exit
```

7.1.3 Configuring Physical LAN Ethernet 1/1 with VLAN 1

```
interface GigabitEthernet 1/1
   switchport mode trunk
   switchport trunk native vlan 1
   no shutdown
   exit
```

7.1.4 Configuring Logical Interface VLAN 1 and with Alias "LAN_IF"

```
interface VLAN 1
    ip address 192.168.0.1 255.255.255.0 alias "LAN_IF"
    mtu auto
    desc "incoming_connection vlan 1"
    ip dhcp-server network 192.168.0.2 192.168.0.10 255.255.255.0
    service dhcp
    no napt
    no firewall enable
    no shutdown
    exit
```

7.1.5 Configuring IP Route

ip route 0.0.0.0 0.0.0.0 10.10.10.2 GigabitEthernet 0/0 1

7.2 Voice Configuration

This section describes the voice configuration of Mediant 500Li.

7.2.1 Configuring Voice Coders

```
coders-and-profiles audio-coders-groups 0
  coders-group-name "AudioCodersGroups_0"
  activate
  audio-coders 0
   name g711-alaw
   p-time 20
   rate 64
   activate
  exit
  exit
```

7.2.2 Configuring LAN Media Realm and Assigning to Alias "LAN_IF"

```
realm 1
   name "MR_LAN"
   network-source-ipv4 "LAN_IF"
   port-range-start 6000
   session-leg 100
   activate
   exit
```

7.2.3 Configuring WAN Media Realm and Assigning to Alias "WAN_LB" (Loopback Interface)

```
realm 2
  name "MR_WAN"
  network-source-ipv4 "WAN_LB"
  port-range-start 6000
  session-leg 100
  activate
  exit
```

7.2.4 Configuring LAN SRD

```
srd 1
   name "LAN_SRD"
   activate
   exit
```

7.2.5 Configuring WAN SRD

```
srd 2
   name "WAN_SRD"
   activate
   exit
```

7.2.6 Configuring LAN SIP Interface and Assigning to Alias "LAN_IF"

```
sip-interface 1
    interface-name "SIP_LAN"
    network-source "LAN_IF"
    application-type sbc
    srd-name "LAN_SRD"
    media-realm-name "MR_LAN"
    activate
    exit
```

7.2.7 Configuring WAN SIP Interface and Assigning to Alias "WAN_LB" (Loopback Interface)

```
sip-interface 2
    interface-name "SIP_WAN"
    network-source "WAN_LB"
    application-type sbc
    srd-name "WAN_SRD"
    media-realm-name "MR_WAN"
    activate
    exit
```

7.2.8 Assigning Proxy Set 2 to WAN SRD and Configuring Proxy Server (IP or Hostname)

```
proxy-set 2
proxy-name "WAN_Proxy"
proxy-enable-keep-alive using-options
srd-name "WAN_SRD"
sbcipv4-sip-int-name "SIP_WAN"
activate
proxy-ip 0
proxy-address "11.11.11.100"
activate
exit
exit
```

7.2.9 Configuring IP Group for LAN Side

```
ip-group 1
  type user
  name "IP_Phone"
  srd-name "LAN_SRD"
  media-realm-name "MR_LAN"
  classify-by-proxy-set disable
  activate
  exit
```

7.2.10 Configuring IP Group for WAN Side

```
ip-group 2
  name "IPPBX"
  proxy-set-name "WAN_Proxy"
  srd-name "WAN_SRD"
  media-realm-name "MR_WAN"
  activate
  exit
```

7.2.11 Configuring BRI Interfaces

```
interface bri 2/1
isdn-termination-side network-termination-side
protocol 50
activate
exit
interface bri 2/2
isdn-termination-side network-termination-side
protocol 50
activate
exit
```

7.2.12 Configuring Trunk Group for BRI Interfaces

```
gateway trunk-group 0
  trunk-group-id 1
  first-trunk-id 1
   first-b-channel 1
  last-b-channel 1
  last-trunk-id 1
  module 2
  activate
 exit
 gateway trunk-group 1
  trunk-group-id 2
  first-trunk-id 1
  first-b-channel 2
  last-b-channel 2
  last-trunk-id 1
  module 2
  activate
 exit
```

7.2.13 Configuring IP-to-Tel Routing Rules

```
gateway routing ip2tel-routing 0
  dst-phone-pattern "1000"
  trunk-group-id 1
  activate
  exit
  gateway routing ip2tel-routing 1
  dst-phone-pattern "2000"
  trunk-group-id 2
  activate
  exit
```

7.2.14 Configuring Trunk Group Settings

```
gateway trunk-group-setting 0
  trunk-group-id 1
  channel-select-mode always-ascending
  registration-mode per-account
  serving-ip-group-name "IPPBX"
  activate
  exit
  gateway trunk-group-setting 1
   trunk-group-id 2
   channel-select-mode always-ascending
  registration-mode per-account
  serving-ip-group-name "IPPBX"
  activate
  exit
```

7.2.15 Configuring Accounts

```
sip-definition account 0
   served-trunk-group 1
   serving-ip-group-name "IPPBX"
  user-name "1000"
  password QHFxcnM= obscured
  host-name "11.11.11.100"
  contact-user "1000"
  register reg
  activate
 exit
 sip-definition account 1
  served-trunk-group 2
  serving-ip-group-name "IPPBX"
  user-name "2000"
  password Q3F0dXY= obscured
  host-name "11.11.11.100"
  contact-user "2000"
  register reg
  activate
 exit
```

7.2.16 Enabling Keep Original User in REGISTER Messages

```
sbc settings
   keep-contact-user-in-reg unique-param
   activate
   exit
```

7.2.17 Configuring SBC IP-to-IP Routing Rules

```
sbc routing ip2ip-routing 0
  route-name "Options Termination"
  request-type options
  dst-type dst-address
  dst-address "internal"
  activate
 exit
sbc routing ip2ip-routing 1
  route-name "IPP==>IPPBX"
  src-ip-group-name "IP Phone"
  dst-ip-group-name "IPPBX"
  activate
 exit
sbc routing ip2ip-routing 2
   route-name " IPPBX==>GW"
   src-ip-group-name "IPPBX"
   dst-user-name-prefix "1000"
   dst-type gateway
   activate
   exit
```

```
sbc routing ip2ip-routing 3
   route-name " IPPBX==>GW"
   src-ip-group-name "IPPBX"
   dst-user-name-prefix "2000"
   dst-type gateway
   activate
   exit
sbc routing ip2ip-routing 4
  route-name "IPPBX==>IPP"
  src-ip-group-name "IPPBX"
  dst-user-name-prefix "6000"
  dst-ip-group-name "IP Phone"
  activate
  exit
sbc routing ip2ip-routing 5
  route-name "IPPBX==>IPP"
  src-ip-group-name "IPPBX"
  dst-user-name-prefix "7000"
  dst-ip-group-name "IP Phone"
  activate
  exit
sbc classification 0
  classification-name "IP Phone"
  srd-name "LAN_SRD"
  src-sip-interface-name "SIP LAN"
  src-ip-group-name "IP_Phone"
  activate
  exit
```

7.2.18 Viewing Pinhole Rules by show running-config data

opback 1
)

7.2.19 show network available-app-interfaces Command

The output of the show network available-app-interfaces command has two parts. The first part displays the VRF/Interface that is bound to IP addresses. The second part displays application binding information (current source interface used in the application bounded VRF).

In this example, the SIP application uses two IP aliases -- one for the LAN ("LAN_IF") and one for the WAN ("WAN_LB").

show network available-app-interfaces

VRF	IFs:	VRF Alias	Address Family		Vrf Name	IF Status
		"main-vrf-ipv4" "main-vrf-ipv6"	IPv4 IPv6		main-vrf main-vrf	UP UP
IP	IFs:	IP Alias	IP Address	Device IF Name	Vrf Name	IF Status
		"WAN_LB" "LAN_IF"	20.20.20.1 192.168.0.1	Loopback 1 VLAN 1	main-vrf main-vrf	UP UP

Note - VRF/IP Alias is the name used in order to bind each application to network interface

8 Mediant 500Li Voice using BRI Interfaces and SBC Application with VRF Interface

Figure 8-1: Example of Voice using BRI Interfaces and SBC with VRF



Back to scenarios menu.

8.1 Data Configuration

This section describes the data configuration of Mediant 500Li.

8.1.1 Configuring VRF

```
configure data
    ip vrf VRF VoIP ipv4-alias "VoIP"
```

8.1.2 Configuring WAN IP Address

```
interface GigabitEthernet 0/0
  ip address 10.10.10.1 255.255.255.0
  desc "WAN ethernet"
   ip vrf forwarding VRF_VoIP
   napt
   firewall enable
   no shutdown
   exit
```

8.1.3 Configuring Physical LAN Ethernet 1/1 and Assigning to VLAN 1

```
interface GigabitEthernet 1/1
  switchport mode trunk
  switchport trunk native vlan 1
  no shutdown
  exit
```

8.1.4 Configuring Logical Interface VLAN 1 and Alias "LAN_IF"

```
interface VLAN 1
    ip address 192.168.0.1 255.255.255.0 alias "LAN_IF"
    desc "incoming_connection vlan 1"
    ip dhcp-server network 192.168.0.2 192.168.0.10 255.255.255.0
    service dhcp
    ip vrf forwarding VRF_VoIP
    no napt
    no shutdown
    exit
```

8.1.5 Configuring IP Route

ip route vrf **VRF_VoIP** 0.0.0.0 0.0.0.0 10.10.10.2 GigabitEthernet 0/0 1

8.2 Voice Configuration

This section describes the voice configuration of Mediant 500Li.

8.2.1 Configuring Voice Coders

```
coders-and-profiles audio-coders-groups 0
    coders-group-name "AudioCodersGroups_0"
    activate
    audio-coders 0
    name g711-alaw
    p-time 20
    rate 64
    activate
    exit
    exit
```

8.2.2 Configuring LAN Media Realm and Assigning to Alias "LAN_IF"

```
realm 1
   name "MR_LAN"
   network-source-ipv4 "LAN_IF"
   port-range-start 6000
   session-leg 100
   activate
   exit
```

8.2.3 Configuring WAN Media Realm and Assigning to Alias VRF "VoIP"

```
realm 2
   name "MR_WAN"
   network-source-ipv4 "VoIP"
   port-range-start 6000
   session-leg 100
   activate
   exit
```

8.2.4 Configuring LAN SRD

```
srd 1
   name "LAN_SRD"
   activate
   exit
```

8.2.5 Configuring WAN SRD

```
srd 2
   name "WAN_SRD"
   activate
   exit
```

8.2.6 Configuring LAN SIP Interface and Assigning to Alias "LAN_IF"

```
sip-interface 1
    interface-name "SIP_LAN"
    network-source "LAN_IF"
    application-type sbc
    srd-name "LAN_SRD"
    media-realm-name "MR_LAN"
    activate
    exit
```

8.2.7 Configuring WAN SIP Interface and Assigning to Alias VRF "VoIP"

```
sip-interface 2
    interface-name "SIP_WAN"
    network-source "VoIP"
    application-type sbc
    srd-name "WAN_SRD"
    media-realm-name "MR_WAN"
    activate
    exit
```

8.2.8 Assigning Proxy Set 2 to WAN SRD and Configuring Proxy Server (IP or Hostname)

```
proxy-set 2
proxy-name "WAN_Proxy"
proxy-enable-keep-alive using-options
srd-name "WAN_SRD"
sbcipv4-sip-int-name "SIP_WAN"
activate
proxy-ip 0
proxy-address "11.11.11.100"
activate
exit
exit
```

8.2.9 Configuring IP Group for LAN Side

```
ip-group 1
  type user
  name "IP_Phone"
  srd-name "LAN_SRD"
  media-realm-name "MR_LAN"
  classify-by-proxy-set disable
  activate
  exit
```

8.2.10 Configuring IP Group for WAN Side

```
ip-group 2
  name "IPPBX"
  proxy-set-name "WAN_Proxy"
  srd-name "WAN_SRD"
  media-realm-name "MR_WAN"
  activate
  exit
```

8.2.11 Configuring BRI Interfaces

```
interface bri 2/1
   isdn-termination-side network-termination-side
   protocol 50
   activate
   exit
   interface bri 2/2
   isdn-termination-side network-termination-side
   protocol 50
   activate
   exit
```

8.2.12 Configuring Trunk Group for BRI Interfaces

```
gateway trunk-group 0
   trunk-group-id 1
   first-trunk-id 1
  first-b-channel 1
  last-b-channel 1
  last-trunk-id 1
  module 2
  activate
  exit
  gateway trunk-group 1
  trunk-group-id 2
  first-trunk-id 1
  first-b-channel 2
  last-b-channel 2
  last-trunk-id 1
  module 2
  activate
  exit
```

8.2.13 Configuring IP-to-Tel Routing Rules

```
gateway routing ip2tel-routing 0
  dst-phone-pattern "1000"
  trunk-group-id 1
  activate
  exit
  gateway routing ip2tel-routing 1
  dst-phone-pattern "2000"
  trunk-group-id 2
  activate
  exit
```

8.2.14 Configuring Trunk Group Settings

```
gateway trunk-group-setting 0
  trunk-group-id 1
  channel-select-mode always-ascending
  registration-mode per-account
  serving-ip-group-name "IPPBX"
  activate
  exit
  gateway trunk-group-setting 1
   trunk-group-id 2
   channel-select-mode always-ascending
  registration-mode per-account
   serving-ip-group-name "IPPBX"
  activate
  exit
```

8.2.15 Configuring Accounts

```
sip-definition account 0
   served-trunk-group 1
   serving-ip-group-name "IPPBX"
  user-name "1000"
  password QHFxcnM= obscured
  host-name "11.11.11.100"
  contact-user "1000"
  register reg
  activate
 exit
 sip-definition account 1
  served-trunk-group 2
  serving-ip-group-name "IPPBX"
  user-name "2000"
  password Q3F0dXY= obscured
  host-name "11.11.11.100"
  contact-user "2000"
  register reg
  activate
 exit
```

8.2.16 Enabling Keep Original User in REGISTER Message

```
sbc settings
   keep-contact-user-in-reg unique-param
   activate
   exit
```

8.2.17 Configuring SBC IP-to-IP Routing Rules

```
sbc routing ip2ip-routing 0
  route-name "Options Termination"
  request-type options
  dst-type dst-address
  dst-address "internal"
  activate
 exit
sbc routing ip2ip-routing 1
  route-name "IPP==>IPPBX"
  src-ip-group-name "IP Phone"
  dst-ip-group-name "IPPBX"
  activate
 exit
sbc routing ip2ip-routing 2
   route-name " IPPBX==>GW"
   src-ip-group-name "IPPBX"
   dst-user-name-prefix "1000"
   dst-type gateway
   activate
   exit
```

```
sbc routing ip2ip-routing 3
   route-name " IPPBX==>GW"
   src-ip-group-name "IPPBX"
   dst-user-name-prefix "2000"
   dst-type gateway
   activate
   exit
sbc routing ip2ip-routing 4
  route-name "IPPBX==>IPP"
  src-ip-group-name "IPPBX"
  dst-user-name-prefix "6000"
  dst-ip-group-name "IP Phone"
  activate
  exit
sbc routing ip2ip-routing 5
  route-name "IPPBX==>IPP"
  src-ip-group-name "IPPBX"
  dst-user-name-prefix "7000"
  dst-ip-group-name "IP Phone"
  activate
  exit
sbc classification 0
  classification-name "IP Phone"
  srd-name "LAN_SRD"
  src-sip-interface-name "SIP LAN"
  src-ip-group-name "IP_Phone"
  activate
  exit
```

8.2.18 Viewing Pinhole Rules by show running-config data

8.2.19 show network available-app-interfaces Command

The output of the show network available-app-interfaces command has two parts. The first part displays the VRF/Interface that is bound to IP addresses. The second part displays application binding information (current source interface used in the application bounded VRF).

In this example, the SIP application is blnded to VRF VoIP, the source IP is the GigabitEthernet 0/0 interface (10.10.10.1), and the destination is the destination of the IP-PBX (11.11.11.100).

show network available-app-interfaces						
VRF IFs:	F IFs: VRF Alias Address Family			Vrf Name	IF Status	
	"main-vrf-ipv4" "main-vrf-ipv6" "VOIP"	IPv4 IPv6 IPv4		main-vrf main-vrf VRF_VOIP	UP UP UP	
IP IFs:	IP Alias	IP Address	Device IF Name	Vrf Name	IF Status	
	"LAN_IF"	192.168.0.1	VLAN 1	VRF_VOIP	UP	
Note - VRF/IP Alias is the name used in order to bind each application to network interface						
Applications binding: (Current source interface resolved in the vrf according to app. destination address)						

 App name
 VRF Alias
 App Dst Address
 Source Address
 Device IF name

 SIP
 "voIP"
 11.11.11.00
 10.10.11
 GigabitEthernet 0/0

If no IP route is configured, the 'Source Address' column displays "None":

show netw	work available-app-interfaces						
VRF IFs:	VRF Alias	Address Family		Vrf Name	IF Status		
	- "main-vrf-ipv4" "main-vrf-ipv6" "VoIP"	IPV4 IPV6 IPV4		main-vrf main-vrf VRF_VOIP	UP UP UP		
IP IFs:	IP Alias	IP Address	Device IF Name	Vrf Name	IF Status		
	"LAN_IF"	192.168.0.1	VLAN 1	VRF_VOIP	UP		
Note - VF	Note - VRF/IP Alias is the name used in order to bind each application to network interface						
Applicati	pplications binding: (Current source interface resolved in the vrf according to app. destination address)						

App na	me VRF Alias	App Dst Address	Source Address	Device IF name
SIP	"VOIP"	11.11.100	None (no route)	None (no route)

This page is intentionally left blank.

International Headquarters

1 Hayarden Street, Airport City Lod 7019900, Israel Tel: +972-3-976-4000 Fax: +972-3-976-4040

AudioCodes Inc.

200 Cottontail Lane Suite A101E Somerset NJ 08873 Tel: +1-732-469-0880 Fax: +1-732-469-2298

Contact us: <u>https://www.audiocodes.com/corporate/offices-worldwide</u> Website: <u>https://www.audiocodes.com/</u>

©2020 AudioCodes Ltd. All rights reserved. AudioCodes, AC, HD VoIP, HD VoIP Sounds Better, IPmedia, Mediant, MediaPack, What's Inside Matters, OSN, SmartTAP, User Management Pack, VMAS, VoIPerfect, VoIPerfectHD, Your Gateway To VoIP, 3GX, VocaNom, AudioCodes One Voice, AudioCodes Meeting Insights, AudioCodes Room Experience and CloudBond are trademarks or registered trademarks of AudioCodes Limited. All other products or trademarks are property of their respective owners. Product specifications are subject to change without notice.

Document #: LTRT-31941

