

Configuring VRF-Aware Local Area Bonjour Services

Beginning from Cisco IOS XE Bengaluru 17.4.1, Cisco Catalyst 9000 Series switches supports Virtual Routing and Forwarding-Aware (VRF-Aware) services in Local Area Bonjour domain. VRF-Aware Local Area Bonjour services provide boundary-based service discovery for Layer 3 segmented IPv4 and IPv6 network and support policy-based (secure) routing services for Wired and Wireless networks. VRF-Aware Local Area Bonjour service is supported on enterprise-grade, traditional, and next-generation fabric-based deployment models as described in Cisco DNA Service for Bonjour Solution Overview.

- Prerequisites for VRF-Aware Local Area Bonjour Services, on page 1
- Restrictions for VRF-Aware Local Area Bonjour Services, on page 2
- Information about VRF-Aware Local Area Bonjour Services, on page 2
- Understanding VRF-Aware Wide Area Bonjour Services, on page 4
- Understanding VRF-Aware Service on Multilayered Wired and Wireless Networks, on page 5
- How to configure Intra-Virtual Network Proxy Service on Local Area Bonjour Domain, on page 7
- How to configure Inter-Virtual Network Proxy Service on Local Area Bonjour Domain, on page 12
- Verifying VRF-Aware Local Area Bonjour Services, on page 14

Prerequisites for VRF-Aware Local Area Bonjour Services

- You must understand the mDNS service segmentation capabilities to implement, manage, and troubleshoot the proxy service in Local Area Bonjour domain.
- Ensure that the Cisco Catalyst 9000 Series switch is configured in SDG-Agent mode. VRF-Aware Local
 Area Bonjour service is supported on first-hop IP gateway of switches configured in SDG-Agent mode
 in Wired and Wireless networks.
- Ensure that the software version installed on the Cisco Catalyst 9000 Series switch is Cisco IOS XE Bengaluru 17.4.1 or higher.
- Ensure that all required IP VRF with IPv4 or IPv6 address-family configurations is completed. These
 configurations are required to activate VRF on the switch configured in SDG-Agent mode.
- Ensure that the IP VRF configured to a local SVI interface supports IP gateway so that the mDNS Wired and Wireless endpoint can be attached directly or remotely.

- To activate mDNS gateway in Unicast mode for a VLAN, ensure that the mDNS gateway and service policy is configured after enabling the VLAN using the **vlan configuration** *id* command.
- Ensure that all configurations for IPv4 or IPv6-based data routing and forwarding both within the same VRF or different VRFs are complete including network requirements such as stateful firewall configuration, route-leaking configuration and so on.

Restrictions for VRF-Aware Local Area Bonjour Services

- VRF-Aware Local Area Bonjour service is not supported on a Layer 2 Cisco Catalyst 9000 Series switch or a Layer 2 Cisco Catalyst 9800 WLC in Service-Peer mode.
- VRF-Aware Local Area Bonjour services are configured to provide mDNS service discovery information between Layer 3 segments within the same or different IP VRF, or share services from non-VRF enabled networks only. Any additional IP routing and data forwarding configurations are beyond the scope of this implementation.

Information about VRF-Aware Local Area Bonjour Services

The Cisco DNA Service for Bonjour solution provides end-to-end service-routing for enterprise-grade Wired and Wireless networks. The enterprise network builds secure and segmented networks that protect IT-managed infrastructure and shares services and resources among trusted and untrusted user group. The physical infrastructure can be logically virtualized into a private networking space that supports secure communication services within closed user groups and conditionally extends boundary services based on business and technical demands.

VRF-Aware Local Area Bonjour gateway services allow to dynamically discover and distribute mDNS services on the same VRF segmented Layer 3 overlay networks based on policy. You can also build an Extranet network using the mDNS location-filter policy that supports proxy services among multiple logical VRF or a global IP routing domain on a local system. The Layer 3 VRF segmented networks can also be configured to route in overlay using any next-generation overlay networks such as Cisco SD-Access, BGP EVPN VXLAN or classic technologies such as Multi-VRF, MPLS.

Figure 1: Cisco DNA Service for Bonjour with VRF-Aware Services illustrates the Cisco DNA Service for Bonjour solution configured with VRF-Aware services for enterprise-grade Wired and Wireless networks.

Cisco DNA Center

Wide Area Bonjour Application

Service-Peer

Agent

Controller

Agent

Service-Peer

Agent

Distribution

WLC Access

Unicast Bonjour Service

Unicast Bonjour Service

Unicast Bonjour Service

Unicast Bonjour Service

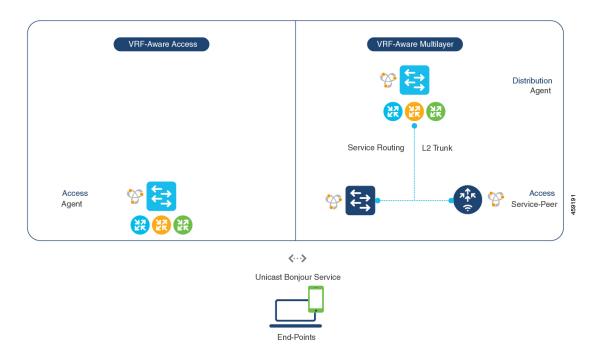
Figure 1: Cisco DNA Service for Bonjour with VRF-Aware Services

Gateway Modes for VRF-Aware Bonjour Services

VRF is a Layer 3 specific virtual routing function and therefore it is implemented on Layer 3 Ethernet switches with first-hop IP gateways that can directly or remotely attach mDNS endpoints.

Figure 2: Gateway Modes for VRF-Aware Services illustrates the Cisco Catalyst 9000 Series switch in SDG-Agent mode supporting VRF-Aware services in Layer 3 access mode and in multi-layer network deployment mode. In multi-layer network deployment mode, the gateway to the distribution layer provides a Layer 2 or Layer 3 boundary to a downstream Layer 2 Cisco Catalyst 9000 Series switch and Cisco Catalyst 9800 WLC for local proxy service with local VLANs.

Figure 2: Gateway Modes for VRF-Aware Services



- VRF-Aware Routed Access: The Cisco Catalyst 9000 Series switch can be deployed as an IP gateway for
 directly attached Wired or Wireless mDNS endpoints. The Cisco Wireless SSID can be configured as
 fabric-enabled or as FlexConnect with local switching that provides local termination point to a first-hop
 Ethernet switch that supports Layer 3 overlay networks such as Cisco SD-Access or BGP EVPN
 based-fabric networks. A Cisco Catalyst 9000 Series switch configured in SDG-Agent mode provides
 unicast-based mDNS gateway services to directly attached Wired and Wireless endpoints within the
 same or different virtual routing network space or a default global IP network.
- VRF-Aware Multilayer: The Cisco Catalyst 9000 Series Switch can be deployed as an IP gateway for
 remotely attached Wired or Wireless mDNS endpoints through an intermediate Layer 2 Cisco Catalyst
 9000 Series switch or Cisco Catalyst 9800 Series WLC. A Cisco Catalyst 9000 Series switch, configured
 in SDG-Agent mode and in the distribution layer, provides VRF-Aware mDNS gateway services, while the
 Layer 2 Ethernet switch and Cisco WLC in Unicast mode provides local proxy services to directly attached
 Wired and Wireless endpoints within the same or different VLAN.

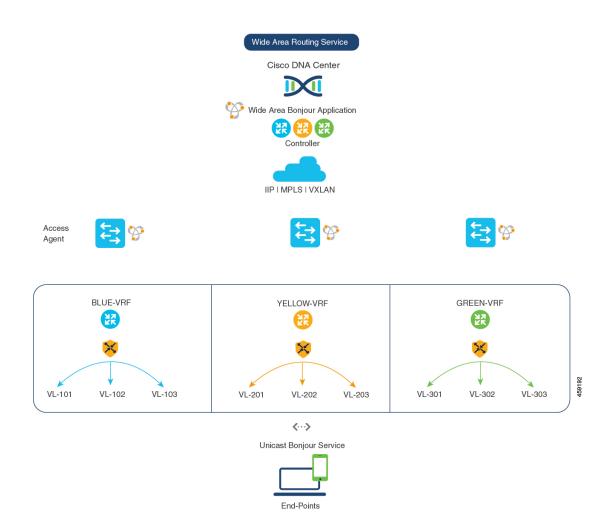
Understanding VRF-Aware Wide Area Bonjour Services

The VRF-Aware service discovery and distribution can be implemented across multiple switches in SDG-Agent mode on an IP, MPLS, or VXLAN-enabled network with Wide Area Bonjour. The Cisco DNA-Center Wide Area Bonjour application supports granular and policy-based routing services that allow discovery and distribution of mDNS services dynamically over overlay networks. You can build a global policy combining one or more source and receiver SDG-Agents that allow distributing or advertising services from a specific IPv4 or even an IPv6 network mapped to the VRF.

The network wide and distributed switches in SDG-Agent mode transport locally discovered or requested mDNS service information over lightweight unicast routing services to a centralized Cisco DNA-Center controller in an underlay IPv4 network. These switches must be configured with a unified service-export policy for local networks mapped to one or more VRFs or to a global IP routing domain.

Figure 3: VRF-Aware Wide Area Bonjour Services illustrates VRF-Aware Wide Area Bonjour services for IP, MPLS, or VXLAN enabled overlay networks.

Figure 3: VRF-Aware Wide Area Bonjour Services



Understanding VRF-Aware Service on Multilayered Wired and Wireless Networks

The Cisco Catalyst 9000 Series switches support VRF-Aware service for multilayered Wired and central-switching Wireless-enabled networks. The Layer 2 or Layer 3 network boundary to the Cisco Catalyst 9000 Series switches is extended at the distribution layer with an intermediate Layer 2 Cisco Catalyst 9000

Series switch or Cisco Catalyst 9800 Series WLC and directly attached to the Wired and central-switching Wireless endpoints. As the IP gateway shifts, the Cisco Catalyst 9000 Series switches in the distribution layer must be configured in SDG-Agent mode and the downstream Layer 2 switch and WLC network devices must be configured in Service-Peer mode to support mDNS proxy services to locally attached endpoints.

The VRF-Aware service configured on a switch, in SDG-Agent mode and in the distribution layer, follows configuration and operation guidelines for Wired and central-switching Wireless as described in Understanding VRF-Aware Wide Area Bonjour Services, on page 4. The Layer 2 switch and WLC network devices remains transparent to VRF-Aware services and continues to provide local proxy services to locally attached users in the same or different VLANs.

The VRF-Aware service discovery and distribution can be implemented across multiple switches in SDG-Agent mode on an IP, MPLS, or VXLAN-enabled network with Wide Area Bonjour. The Cisco DNA-Center Wide Area Bonjour application supports granular and policy-based routing services that allow discovery and distribution of mDNS services dynamically for overlay networks. You can build a global policy combining one or more source and receiver SDG-Agent that allow distributing or advertising services from a specific IPv4 or even an IPv6 network mapped to the VRF.

Figure 4: VRF-Aware on Multilayered Wired and Wireless Network illustrates end-to-end VRF-Aware on multilayered Wired and Wireless networks across Wide Area Bonjour domain with Cisco DNA-Center.

Wide Area Routing Service Cisco DNA Center Wide Area Bonjour Application IIP | MPLS | VXLAN Distribution Agent Access Service-Pee BLUE-VRF GREEN-VRF YELLOW-VRF X VL-101 VL-102 VL-103 VL-302 VL-303 VL-201 VL-202 VL-203 VL-301 <···> Unicast Bonjour Service

Figure 4: VRF-Aware on Multilayered Wired and Wireless Network

How to configure Intra-Virtual Network Proxy Service on Local Area Bonjour Domain

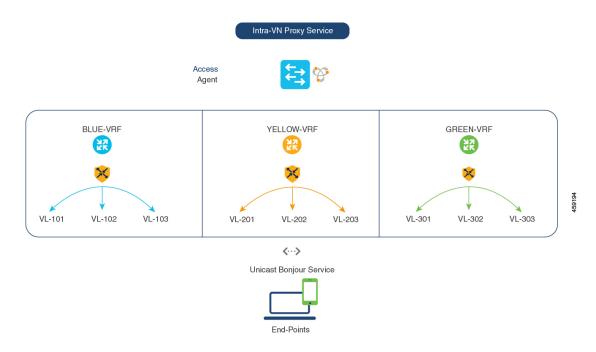
Intra-Virtual Network (Intra-VN) Proxy Service is a policy-based VRF-Aware service discovery and distribution implemented on the IP VRF of a switch in SDG-Agent mode connected to multiple IP networks.

Beginning from Cisco IOS XE Bengaluru 17.4.1, the Cisco Catalyst 9000 Series switches support mDNS gateway service as the default on each VRF. You must build a mDNS service policy that implicitly allows required mDNS service types and mapping services to endpoint facing VLANs. The Cisco Catalyst 9000 Series switch can automatically discover VRF associations to a VLAN interface without additional configurations.

The Cisco Catalyst 9000 Series switch in SDG-Agent mode dynamically discovers mDNS services from a local network and automatically builds VRF-aware service information. To enable Layer 3 segmented proxy service by default, the SDG-Agent provides limited mDNS service proxy response to endpoints in other VLANs mapped with the same VRF.

Figure 5: Intra-VN Service Proxy illustrates VRF-Aware enabled on an Intra-VN proxy service.

Figure 5: Intra-VN Service Proxy



Configuring mDNS Gateway Mode

To configure mDNS gateway mode, perform this procedure:

Procedure

	Command or Action	Purpose
Step 1	enable	Enables privileged EXEC mode.
	Example:	Enter your password, if prompted.
	Device> enable	
Step 2	configure terminal	Enters global configuration mode.
	Example:	
	Device# configure terminal	
Step 3	mdns-sd gateway	Enables mDNS on the Layer 2 switch and enters
	Example:	in mDNS gateway configuration mode.

	Command or Action	Purpose		
	Device(config)# mdns-sd gateway	Enter the following commands in mDNS gateway configuration mode to enable the respective functionalities:		
		air-print-helper: Enables communication between Apple iOS devices like iPhones and iPads to discover and use older printers that do not support driverless AirPrint function.		
		 cache-memory-max: Configures the percentage memory for cache. 		
		• ingress-client: Configures ingress client packet tuners.		
		rate-limit: Enables rate limiting of incoming mDNS packets.		
		• service-announcement-count: Configures maximum service advertisement count.		
		service-announcement-timer: Configures advertisements announce timer periodicity.		
		• service-query-count: Configures maximum query count.		
		 service-query-timer: Configures query forward timer periodicity. 		
		• service-type-enumeration: Configures service enumeration.		
		Note For cache-memory-max, ingress-client, rate-limit, service-announcement-count, service-announcement-timer, service-query-count, service-query-timer and service-type-enumeration commands, you can retain the default value of the respective parameter for general deployments. Configure a different value, if required, for a specific deployment.		
Step 4	mode {service-peer sdg-agent}	Configure mDNS gateway in either of the		
	Example:	following modes based on system settings: • service-peer: Enables Layer 2 Cisco		
	Device(config-mdns-sd)# mode sdg-agen	Catalyst Series switch in mDNS Service-Peer mode.		

	Command or Action	Purpose
		sdg-agent: Enables Layer 3 Cisco Catalyst Series switch in SDG-Agent mode to peer with Cisco DNA Center controller for Wide Area Bonjour service-routing.
Step 5	end	Returns to privileged EXEC mode.
	<pre>Example: Device(config-mdns-sd)# end</pre>	

Configuring mDNS Service Policy

To configure an mDNS service policy and apply it on a target VLAN in SDG-Agent mode, perform the following steps:

Procedure

	Command or Action	Purpose	
Step 1	enable	Enables privileged EXEC mode.	
	Example:	Enter your password, if prompted.	
	Device> enable		
Step 2	configure terminal	Enters global configuration mode.	
	Example:		
	Device# configure terminal		
Step 3	mdns-sd service-list service-list-name{in out}	Configures the mDNS service-list to classify	
	Example:	one or more service-types.	
	Device(config)# mdns-sd service-list	A unique service-list is required to process the	
	BLUE-VRF-LIST-IN in Device (config) # mdns-sd service-list	incoming mDNS message and the outbound	
	BLUE-VRF -LIST-OUT out	response to requesting end points.	
Step 4	match service-destination-name	Checks the inbound service-list. The switch either accepts or drops the incoming mDNS	
	[message-type {any announcement query}]		
	Example:	service type (like Apple TV) advertisement or	
	Device(config)# mdns-sd service-list	query matching message type. The service-list contains implicit deny at the end.	
	BLUE-VRF-LIST-IN in	·	
	Device(config-mdns-sl-in)# match APPLE-TV	The default message-type is any .	
	Device (config-mdns-sl-in) # match		
	PRINTER-IPPS message-type announcement		
Step 5	match service-destination-name	Checks the outbound service-list. The switch	
	[message-type {any announcement query}]	provides local proxy services by responding	
	Example:	with a matching service-type to one or more requesting end points. For example, the	

	Command or Action	Purpose
	Device(config)# mdns-sd service-list BLUE-VRF-LIST-OUT out Device(config-mdns-sl-in)# match APPLE-TV	Apple-TV and Printer learned from VLAN 101 are distributed to the receiver in the same VLAN 101.
	<pre>Device(config-mdns-sl-in)# match PRINTER-IPPS</pre>	The service-list contains implicit deny at the end.
		The message-type for outbound service-list is not required.
Step 6	mdns-sd service-policy service-policy-name Example:	Configures a unique mDNS service policy in global configuration mode.
	Device(config) # mdns-sd service-policy BLUE-VRF-POLICY	
Step 7	service-list service-list-name (in out)	Configures a mDNS service policy to associate with the service list for each direction.
	Example: Device(config)# mdns-sd service-policy BLUE-VRF-POLICY Device(config-mdns-ser-policy)# service-list BLUE-VRF-LIST-IN in Device(config-mdns-ser-policy)# service-list BLUE-VRF-LIST-OUT out	
Step 8	<pre>vlan /D Example: Device(config) # vlan 101-103 Device(config-vlan) # name BLUE-VRF</pre>	Configures VLAN ID in the local database for overlay mDNS endpoints.
Step 9	vlan configuration ID	Enables VLAN configuration for advanced service parameters.
	Example: Device(config)# vlan configuration 101-103	One or more VLANs can be configured for the same settings. For example, the VLAN configuration range 101-110 or 200 allows to configure consecutive and nonconsecutive VLAN IDs.
Step 10	mdns-sd gateway	Enables the mDNS gateway on the specified VLAN IDs.
	<pre>Example: Device(config-vlan)# mdns-sd gateway</pre>	VLAIVIDS.
Step 11	service-policy BLUE-VRF-POLICY	Associates an mDNS service policy with the specified VLAN IDs.
	<pre>Example: Device(config-vlan-mdns)# service-policy BLUE-VRF-POLICY</pre>	•
Step 12	end	Returns to privileged EXEC mode.
	<pre>Example: Device(config-vlan-mdns)# end</pre>	

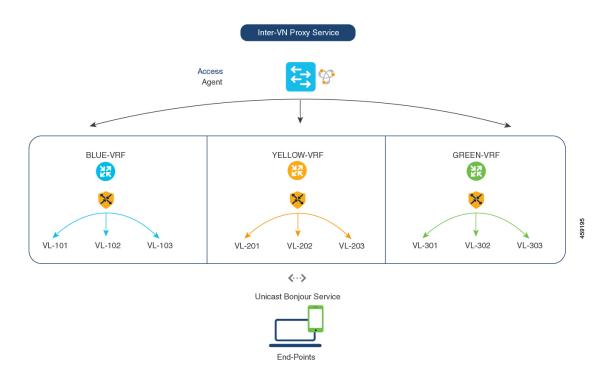
How to configure Inter-Virtual Network Proxy Service on Local Area Bonjour Domain

Inter-VN Proxy Service is a policy-based VRF-Aware service discovery and distribution implemented on multiple IP VRFs or on a global IP routing domain of a switch in SDG-Agent mode connected to multiple IP networks.

Beginning from Cisco IOS XE Bengaluru 17.4.1, the Cisco Catalyst 9000 Series switches support mDNS service discovery and distribution between IP VRFs or on a global routing domain based on the configured mDNS location-filter policy. The existing location-filter configuration on an SDG-Agent permits mDNS service information between configured VLANs and records discovery and distribution on the mapping table. Although configuring inter-VN provides Extranet mDNS proxy services between Wired and Wireless networks, additional methods such as stateful firewall, route-leaking and so on must also be configured to handle the data transfer between Inter-VN or VRF to global IP routing.

Figure 6: Inter-VN Proxy Service shows Inter-VN proxy service for Extranet network.

Figure 6: Inter-VN Proxy Service



Configuring Inter-Virtual Network Location-Filter

To enable the local service proxy on the switch to discover mDNS services between local VLANs, perform the following steps:

Procedure

	Command or Action	Purpose	
Step 1	enable	Enables privileged EXEC mode.	
	Example:	Enter your password, if prompted.	
	Device> enable		
Step 2	configure terminal	Enters global configuration mode.	
	Example:		
	Device# configure terminal		
Step 3	vlan ID	Configures a VLAN ID in local database for	
	Example:	overlay mDNS endpoints.	
	Device(config)# vlan 101		
	Device(config-vlan)# name BLUE-VRF Device(config)# vlan 201		
	Device(config-vlan)# name YELLOW-VRF		
	Device(config)# vlan 301 Device(config-vlan)# name GREEN-VRF		
Step 4	mdns-sd location-filter location-filter-name	Configures a unique location-filter.	
	Example:		
	Device(config) # mdns-sd location-filter INTER-VN-LOCAL-PROXY		
Step 5	match location {all default ID} vlan [ID]	Configures the match criteria that mutually distribute permitted services between grouped	
	Example:	VLANs.	
	Device(config-mdns-loc-filter)# match location-group default vlan 101		
	Device(config-mdns-loc-filter)# match		
	location-group default vlan 201 Device(config-mdns-loc-filter) # match		
	location-group default vlan 301		
Step 6	mdns-sd service-list service-list-name (in	Configures mDNS service-list to classify one or more service-types. Unique service-list is required to process incoming mDNS message and the outbound response to the requesting	
	out}		
	Example:		
	Device(config)# mdns-sd service-list BLUE-VRF-LIST-OUT out	end points.	
Step 7	match service-destination-name	Associates the location-filter to one or more	
	[message-type {any announcement query}]	service-types to enable local proxy between local VLANs. For example, the Apple-TV	
	Example:	learned from the YELLOW-VRF VLAN 201 and	
	Device(config)# mdns-sd service-list BLUE-VRF-LIST-OUT out	the GREEN-VRF VLAN 301 will be distributed	
	Device(config-mdns-sl-out)# match	to the receiver in the BLUE-VRF VLAN 101.	
	APPLE-TV location-filter LOCAL-PROXY	The service-list contains implicit deny at the end.	

	Command or Action	Purpose			
		The message-type for outbound service-list is not required.			
Step 8	mdns-sd service-policy service-policy-name	Creates a unique mDNS service-policy.			
	Example:				
	Device(config)# mdns-sd service-policy BLUE-VRF-POLICY				
Step 9	service-list service-list-name {in out}	Configures an mDNS service policy to			
	Example:	associate with the service-list for each direction.			
	Device(config)# mdns-sd service-policy	4			
	BLUE-VRF-POLICY Device(config-mdns-ser-policy)#				
	service-list BLUE-VRF-LIST-OUT out				
Step 10	vlan configuration <i>ID</i>	Enables VLAN configuration for advanced			
	Example:	service parameters.			
	Device(config)# vlan configuration 101-103	One or more VLANs can be created for the same settings. For example, the VLAN configuration range 101-110 or 200 allows to configure consecutive and nonconsecutive VLAN IDs.			
Step 11	mdns-sd gateway	Enables the mDNS gateway on the specified			
	Example:	VLAN IDs.			
	Device(config-vlan)# mdns-sd gateway				
Step 12	service-policy BLUE-VRF-POLICY	Associates an mDNS service-policy with the			
	Example:	specified VLAN IDs.			
	Device(config-vlan-mdns)# service-policy BLUE-VRF-POLICY				
Step 13	end	Returns to privileged EXEC mode.			
	Example:				
	Device(config-vlan-mdns)# end				

Verifying VRF-Aware Local Area Bonjour Services

The dynamically discovered VRF-Aware service information can be verified on Cisco Catalyst 9000 Series switch in SDG-Agent mode by including the **vrf** keyword on the existing **show mdns-sd** command. You can verify each VRF-service record information based on the unique VRF name.

The following is an example of the command that displays the dynamically discovered mDNS service records in the BLUE-VRF:

Device# show mdns-sd cache vrf BLUE-VRF

mDNS CACHE

[<name>] [Mac Address]</name>	[<rr record<="" th=""><th>Data>]</th><th>[<type>]</type></th><th>[<ttl>/Remainir</ttl></th><th>g] [Vlan-Id/If-name]</th></rr>	Data>]	[<type>]</type>	[<ttl>/Remainir</ttl>	g] [Vlan-Id/If-name]
RTP-ATV-1device-info	_tcp.local		TXT	4500/4495	511
a018.28f2.9889	(13) 'mode	l=J33iAP	•		
_airplaytcp.local			PTR	4500/4495	511
a018.28f2.9889	RTP-ATV-1	. airpla	y. tcp.local	=	
_raoptcp.local			PTR	4500/4495	511
a018.28f2.9889	A01828F29	889@RTP-	ATV-1raop.	_tcp.local	
RTP-ATV-1. airplay. tc	p.local		SRV	4500/4495	511
a018.28f2.9889	0	0		7000	RTP-ATV-3.local
A01828F29889@RTP-ATV-1	. raop. tcp	.local	SRV	4500/4495	511
a018.28f2.9889	0	0		7000	RTP-ATV-3.local
RTP-ATV-1.local			AAAA	4500/4495	511
a018.28f2.9889	2001:10:1	53:2:C2F	:9445:7062:5	C3C	
RTP-ATV-1.local			A	4500/4495	511
a018.28f2.9889	10.155.1.	17			
RTP-ATV-1airplaytc	p.local		TXT	4500/4495	511
a018.28f2.9889					
(208) 'deviceid=A0:18:2	8:F2:98:89'	'feature	s=0x5A7FFFF7	,0x1E''flags=0x44	''model=~'~
A01828F29889@RTP-ATV-1	raoptcp	.local	TXT	4500/4495	511
a018.28f2.9889					
(177) 'cn=0,1,2,3''da=t:	rue''et=0,3	,5''ft=0:	x5A7FFFF7,0x	1E''md=0,1,2''am=	AppleTV3,2'~

Use the following commands in privileged EXEC mode on a Cisco Catalyst 9000 Series switch configured in SDG-Agent mode to verify various Local Area Bonjour domain mDNS parameters such as service configuration, cache records, statistics, and so on.

Table 1: Commands to Verify VRF-Aware Services

Command	Purpose
show mdns-sd cache {all interface mac name service-peer static type vlan vrf}	Displays all available mDNS cache record that supports multiple variables and provides granular source details. The following variables are available:
	all: Displays all available cache records discovered from multiple source connections of a system.
	interface: Displays the available cache records discovered from a specified Layer 3 interface.
	mac: Displays the available cache records discovered from the specified MAC address.
	name: Displays the available cache records based on service provider announced name.
	service-peer: Displays available cache records discovered from the specified Layer 2 Service-Peer.
	static: Displays the locally configured static mDNS cache entries.
	 type: Displays the available cache records based on the specific mDNS record type (PTR, SRV, TXT, A, or AAAA).
	vlan: Displays the available cache records discovered from the specified Layer 2 VLAN ID in unicast mode.
	 vrf: Displays each VRF available cache records based on the specific mDNS record type (PTR, SRV, TXT, A, or AAAA).
show mdns-sd service-definition {name type}	Displays the built-in and user-defined custom service definitions and provides the mapping from service name to mDNS PTR records.
	The service-definition can be filtered by name or type.
show mdns-sd service-list {direction name}	Displays the configured inbound or outbound service-list that classifies matching service types for a service policy.
	The service lists can be filtered by name or specific direction.

Command	Purpose
show mdns-sd service-policy {interface name}	Displays the list of mDNS service policies mapped with inbound or outbound service-lists.
	The service policies list can be filtered by the associated specified interface or by name.
show mdns-sd statistics {all cache debug interface service-list service-policy services vlan}	Displays the detailed mDNS statistics processed bidirectionally by the system on each mDNS-gateway-enabled VLAN, when mDNS in configured in unicast mode.
	The keywords for the mDNS statistics provide a detail view on the interface, policy, service-list, and services.
show mdns-sd summary {interface vlan}	Displays the brief information about mDNS gateway and the key configuration status on all VLANs and interfaces of the system.

Verifying VRF-Aware Local Area Bonjour Services