

Configuring Wide Area Bonjour

Cisco Wide Area Bonjour domain enables global service-routing beyond a single IP gateway for traditional LAN and WLAN networks. In Cisco Wide Area Bonjour domain, Cisco Catalyst LAN switches are deployed in Layer 3 routed mode to act as distributed SDG Agents throughout the network. These SDG agents build a TCP-based, stateful, reliable, and light-weight communication channel with a Cisco DNA Center. The Cisco DNA Center must also be configured with Cisco Wide Area Bonjour application for policy-based global service discovery and distribution.

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Restrictions for Wide Area Bonjour for LAN and WLAN Networks

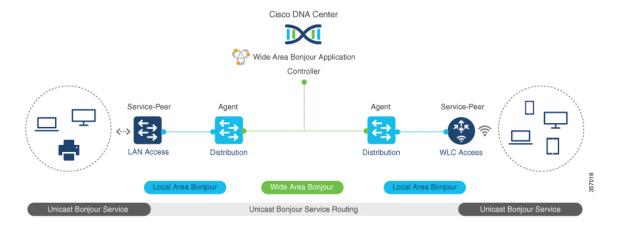
Wide Area Bonjour service-routing between Cisco DNA Center and a Catalyst SDG Agent Switch over management port is not supported. We recommend that you use a switch Loopback interface instead.

Information About Wide Area Bonjour LAN and WLAN Networks

Wide Area Bonjour, by definition, allows service-routing over an IP network without network boundaries. Hence, the core objective of Cisco Wide Area Bonjour is to advertise and browse Bonjour services in a global IP network that is limited to local or remote sites, as required. Typically, the LAN and Wireless LAN IP gateway deployed in SDG Agent mode build the stateful TCP-based unicast connection to the Cisco DNA Center for Wide Area Bonjour service-routing.

The fundamentals of service-routing are based on the policies defined in Local Area and Wide Area Bonjour domains. The policy defines implicit guidelines to accept, process and respond to mDNS services on the SDG Agent and the Cisco DNA-Center. The service policy carries multiple tuples to distinctly classify and distribute the service provider information along with granular network location. The following figure illustrates an end-to-end reference network model for Cisco Wide Area Bonjour.

Figure 1: Cisco Wide Area Bonjour Domain



How to Configure Wide Area Bonjour for LAN and WLAN Networks (Prior to Cisco IOS XE Bengaluru 17.6.2)

This section provides information about how to configure Wide Area Bonjour for LAN and WLAN networks. Configuration of Cisco Wide Area Bonjour requires you to configure the Cisco Catalyst Series switch in SDG Agent mode and build the service policies in Wide Area Bonjour application of Cisco DNA Center.

Configuring Cisco Wide Area Bonjour Service Policy

To build and apply the Wide Area Bonjour export service policy and enable service-routing, perform the following steps.



Note

The controller-bound service policy does not require an ingress service policy.

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 outgoing mDNS service list to classify one or more service types.

	Command or Action	Purpose
	Example: Device(config) # mdns-sd service-list WIDE-AREA-SERVICES-LIST-OUT out	A unique service list is required to process the incoming mDNS message and the outbound response to the requesting end points.
Step 4	<pre>match service-definition-name [message-type {any announcement query}] Example: Device(config-mdns-sl-out) # match APPLE-TV Device(config-mdns-sl-out) # match PRINTER-APPS</pre>	Checks and matches the outbound service list. The switch exports locally discovered services and requests remote service information from Wide Area Bonjour domain. The service announcement and query request are processed based on permitted, built-in, or custom service types. The service list contains an implicit deny at the end. The message-type for an outbound service-list is not required.
Step 5	mdns-sd service-policy service-policy-name Example: Device(config) # mdns-sd service-policy DNAC-CONTROLLER-POLICY	Creates a unique mDNS service policy.
Step 6	<pre>service-list service-list-name {in out} Example: Device(config-mdns-ser-policy) # service-list WIDE-AREA-SERVICES-LIST-OUT out</pre>	Configures an mDNS service policy to associate with the service-list for each direction.
Step 7	<pre>end Example: Device(config-mdns-sd) # end</pre>	Returns to privileged EXEC mode.

Configuring Cisco Wide Area Bonjour Service-Routing

To build and apply Wide Area Bonjour export service policy and setup controller parameters that enable service-routing, perform the following steps

Procedure

	Command or Action	Purpose
Step 1	enable	Enables privileged EXEC mode.
	Example: Device> enable	Enter your password, if prompted.
Step 2	configure terminal	Enters global configuration mode.
	Example:	

	Command or Action	Purpose
	Device# configure terminal	
Step 3	<pre>service-export mdns-sd controller controller-name Example: Device(config) # service-export mdns-sd controller DNAC-BONJOUR-CONTROLLER</pre>	Configures the service export controller to enable Wide Area Bonjour service-routing with Cisco DNA Center. Only one service export can be configured.
Step 4	<pre>controller-address ipv4-address Example: Device(config-mdns-sd-se)# controller-address 100.0.0.1</pre>	Assigns the Cisco DNA Center IPv4 address to pair service-routing. Only one controller address can be configured.
Step 5	<pre>controller-source-interface interface-name Example: Device(config-mdns-sd-se)# controller-source-interface Loopback0</pre>	Configures the source interface to build service-routing from the SDG-Agent and the Cisco DNA Center. We recommend you to use the Loopback interface.
Step 6	<pre>controller-service-policy service-policy-name out Example: Device(config-mdns-sd-se)# controller-service-policy DNAC-CONTROLLER-POLICY out</pre>	Associates the controller-bound egress mDNS policy for Wide Area Bonjour service-routing.
Step 7	<pre>end Example: Device(config-mdns-sd-se)# end</pre>	Returns to privileged EXEC mode.

How to Configure Wide Area Bonjour for LAN and WLAN Networks (From Cisco IOS XE Bengaluru 17.6.2)

This section provides information about how to configure Wide Area Bonjour for LAN and WLAN networks. Configuration of Cisco Wide Area Bonjour requires you to configure the Cisco Catalyst Series switch in SDG Agent mode and build the service policies in Wide Area Bonjour application of Cisco DNA Center.

Configuring Cisco Wide Area Bonjour Service-Routing

To build and apply Wide Area Bonjour export service policy and setup controller parameters that enable service-routing, 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	service-export mdns-sd controller controller-name	Configures the service export controller to enable Wide Area Bonjour service-routing with Cisco DNA Center
	Example: Device(config)# service-export mdns-sd controller DNAC-BONJOUR-CONTROLLER	Only one service export can be configured.
Step 4	<pre>controller-address ipv4-address Example: Device(config-mdns-sd-se)#</pre>	Assigns the Cisco DNA Center IPv4 address to pair service-routing. Only one controller address can be configured.
	controller-address 100.0.0.1	
Step 5	<pre>controller-source-interface interface-name Example: Device (config-mdns-sd-se) #</pre>	Configures the source interface to build service-routing from the SDG-Agent and the Cisco DNA Center.
	controller-source-interface Loopback0	We recommend you to use the Loopback interface.
Step 6	end	Returns to privileged EXEC mode.
	Example:	
	Device(config-mdns-sd-se)# end	

What to do next

The default controller service policy is automatically configured, if a customized controller service policy is not configured. To configure a customized controller service policy, see (Optional) Configuring Cisco Wide Area Bonjour Custom Controller Service Policy, on page 5

(Optional) Configuring Cisco Wide Area Bonjour Custom Controller Service Policy

To build and apply the Wide Area Bonjour custom-controller service policy, 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 controller service-list controller-service-list-name	Configures the mDNS controller service list to classify one or more service types.
	Example:	
	Device(config)# mdns-sd controller service-list WIDE-AREA-SERVICES-LIST	
Step 4	match {all service-definition-name [message-type {any announcement query}] [source-interface {mDNS-VLAN-number mDNS-VLAN-range}] }	Checks and matches the controller service list. The switch exports locally discovered services and requests remote service information from Wide Area Bonjour domain. The service
	Example:	announcement and query request are processed based on permitted, built-in, or custom service
	Device(config-mdns-sl-out)# match APPLE-TV	types.
	Device(config-mdns-sl-out)# match PRINTER-APPS	The service list contains an implicit deny at the end.
Step 5	mdns-sd controller service-policy controller-service-policy-name	Creates a custom mDNS controller service policy.
	Example:	
	Device(config)# mdns-sd controller service-policy DNAC-CONTROLLER-POLICY	
Step 6	service-list controller-service-list-name	Associates a controller service list to a
	Example:	controller service policy.
	<pre>Device(config-mdns-ser-policy)# service-list WIDE-AREA-SERVICES-LIST</pre>	
Step 7	exit	Returns to global configuration mode.
	Example:	
	Device(config-mdns-sd)# exit	
Step 8	service-export mdns-sd controller controller-name	Configures the service export controller to enable Wide Area Bonjour service-routing with Cisco DNA Center.
	Example: Device(config)# service-export mdns-sd controller DNAC-BONJOUR-CONTROLLER	Only one service export can be configured.

	Command or Action	Purpose
Step 9	controller-service-policy controller-service-policy-name Example:	Associates the custom mDNS controller service policy for Wide Area Bonjour service-routing.
	Device(config-mdns-sd-se)# controller-service-policy DNAC-CONTROLLER-POLICY	
Step 10	end	Returns to privileged EXEC mode.
	Example:	
	Device(config-mdns-sd-se)# end	

Verifying Wide Area Bonjour for LAN and WLAN Networks

The following show commands are used to verify Wide Area Bonjour for LAN and WLAN networks:

- · show mdns-sd controller detail
- · show mdns-sd controller export-summary
- · show mdns-sd controller statistics
- · show mdns-sd controller summary

Additional References for Wide Area Bonjour for LAN and WLAN Networks

Related Topic	Document Title
Cisco Wide Area Bonjour Application on Cisco DNA	Cisco Wide Area Bonjour Application on Cisco DNA
Center User Guide	Center User Guide, Release 2.1.2
DNA Service for Bonjour Deployment on Cisco	Cisco Catalyst 9800 Series Wireless Controller
Catalyst 9800 WLCs	Software Configuration Guide

Additional References for Wide Area Bonjour for LAN and WLAN Networks