



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.

The diagram illustrates the Unicast Bonjour Service Routing architecture. It shows a central **Wide Area Bonjour Application Controller** connected to two **Agents** (Distribution) via a **Wide Area Bonjour** link. Each **Agent** is connected to a **Service-Peer** (LAN Access or WLC Access) via a **Local Area Bonjour** link. The **Service-Peers** are connected to local networks (LAN or WLAN) containing various devices. The **Wide Area Bonjour** link is managed by the **Cisco DNA Center**.

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The diagram illustrates the Unicast Bonjour Service Routing architecture. It shows three main components: two Local Area Bonjour networks and a central Wide Area Bonjour network. The Local Area Bonjour networks are represented by circles containing icons for various devices (computer, printer, laptop, smartphone, tablet). The Wide Area Bonjour network is represented by a central circle containing a DNA helix icon. The Local Area Bonjour networks are connected to the Wide Area Bonjour network via Service-Peer and Agent nodes. The Service-Peer nodes are connected to the Local Area Bonjour networks, and the Agent nodes are connected to the Wide Area Bonjour network. The Service-Peer nodes are connected to the Agent nodes via a Service-Peer link. The Agent nodes are connected to the Wide Area Bonjour network via an Agent link. The Service-Peer link is labeled 'Service-Peer' and the Agent link is labeled 'Agent'. The Service-Peer link is also labeled 'Unicast Bonjour Service' and the Agent link is labeled 'Unicast Bonjour Service Routing'.

How to Configure Wide Area Bonjour for LAN and WLAN Networks

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 Example: Device> enable	Enables privileged EXEC mode. Enter your password, if prompted.
Step 2	configure terminal Example: Device# configure terminal	Enters global configuration mode.
Step 3	mdns-sd service-list <i>service-list-name</i> { in out } Example: Device(config)# mdns-sd service-list WIDE-AREA-SERVICES-LIST-OUT out	Configures the outgoing mDNS service list to classify one or more service types. A unique service list is required to process the incoming mDNS message and the outbound response to the requesting end points.
Step 4	match <i>service-definition-name</i> [message-type { any announcement query }] Example: Device(config-mdns-sl-out)# match APPLE-TV Device(config-mdns-sl-out)# match PRINTER-APPS	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.

	Command or Action	Purpose
Step 5	mdns-sd service-policy <i>service-policy-name</i> Example: Device(config)# mdns-sd service-policy DNAC-CONTROLLER-POLICY	Creates a unique mDNS service policy.
Step 6	service-list <i>service-list-name</i> { in out } Example: Device(config-mdns-ser-policy)# service-list WIDE-AREA-SERVICES-LIST-OUT out	Configures an mDNS service policy to associate with the service-list for each direction.
Step 7	end Example: Device(config-mdns-sd)# end	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 Example: Device> enable	Enables privileged EXEC mode. Enter your password, if prompted.
Step 2	configure terminal Example: Device# configure terminal	Enters global configuration mode.
Step 3	service-export mdns-sd controller <i>controller-name</i> Example: Device(config)# service-export mdns-sd controller DNAC-BONJOUR-CONTROLLER	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	controller-address <i>ipv4-address</i> Example: Device(config-mdns-sd-se)# controller-address 100.0.0.1	Assigns the Cisco DNA Center IPv4 address to pair service-routing. Only one controller address can be configured.

	Command or Action	Purpose
Step 5	controller-source-interface <i>interface-name</i> Example: Device(config-mdns-sd-se) # controller-source-interface Loopback0	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	controller-service-policy <i>service-policy-name</i> out Example: Device(config-mdns-sd-se) # controller-service-policy DNAC-CONTROLLER-POLICY out	Associates the controller-bound egress mDNS policy for Wide Area Bonjour service-routing.
Step 7	end Example: Device(config-mdns-sd-se) # end	Returns to privileged EXEC mode.

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

