



## Configuring Wide Area Bonjour

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Cisco Wide Area Bonjour domain enables global service-routing beyond a single IP gateway for traditional and overlay LAN networks. In Cisco Wide Area Bonjour domain, Cisco Nexus 9300 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

Wide Area Bonjour service-routing between Cisco DNA Center and a Nexus 9300 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

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.

# How to Configure Wide Area Bonjour for LAN

This section provides information about how to configure Wide Area Bonjour for LAN. Configuration of Cisco Wide Area Bonjour requires you to configure the Cisco Nexus 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
<b>Step 1</b>	<b>configure terminal</b> <b>Example:</b> Device# <b>configure terminal</b>	Enters global configuration mode.
<b>Step 2</b>	<b>mdns-sd controller service-list</b> <i>service-list-name</i> <b>Example:</b> Device(config)# <b>mdns-sd controller</b> <b>service-list WIDE-AREA-SERVICES-LIST-OUT</b>	Configures the outgoing mDNS controller service list to classify one or more service types.
<b>Step 3</b>	<b>match {ser-def-name   all} message-type {any   announcement   query}</b> <b>[source-interface vlans]</b> <b>Example:</b> Device(config-mdns-sl-out)# <b>match</b> <b>APPLE-TV</b> Device(config-mdns-sl-out)# <b>match</b> <b>PRINTER-APPS</b>	<p>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.</p> <p>The service list contains an implicit deny at the end.</p> <p>The <b>message-type</b> is used and either announcement or query filter can be added.</p>
<b>Step 4</b>	<b>mdns-sd controller service-policy</b> <i>service-policy-name</i> <b>Example:</b> Device(config)# <b>mdns-sd controller</b> <b>service-policy DNAC-CONTROLLER-POLICY</b>	Creates a unique mDNS service policy.

	Command or Action	Purpose
<b>Step 5</b>	<b>end</b> <b>Example:</b> Device(config-mdns-sd) # <b>end</b>	Returns to privileged EXEC mode.

## Configuring Cisco Wide Area Bonjour Controller on Nexus 9300 Series Switches

To configure Cisco Wide Area Bonjour controller on Nexus 9300 series of switches, perform the following steps:

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	<b>configure terminal</b> <b>Example:</b> Device# <b>configure terminal</b>	Enters global configuration mode.
<b>Step 2</b>	<b>mdns-sd controller</b> <i>controller-name</i> <b>Example:</b> Device(config) # <b>mdns-sd controller</b> <b>DNAC-BONJOUR-CONTROLLER</b>	Configures the controller to enable Wide Area Bonjour service-routing with Cisco DNA Center.  Only one controller can be configured.
<b>Step 3</b>	<b>address</b> <i>ipv4-address</i> <b>Example:</b> Device(config-mdns-sd-se) # <b>address</b> <b>100.0.0.1</b>	Assigns the Cisco DNA Center IPv4 address to pair service-routing.  <b>Note</b> Only one controller address can be configured. IPv6 address is not supported.
<b>Step 4</b>	<b>source-interface</b> <i>interface-name</i> <b>Example:</b> Device(config-mdns-sd-se) # <b>source-interface Loopback0</b>	Configures the source interface to build service-routing from the SDG-Agent and the Cisco DNA Center.  Nexus 9300 Series of switches support only loopback interface as a source interface.
<b>Step 5</b>	<b>service-policy</b> <i>service-policy-name</i> <b>Example:</b> Device(config-mdns-sd-se) # <b>service-policy</b> <b>DNAC-CONTROLLER-POLICY</b>	Associates the controller-bound egress mDNS policy for Wide Area Bonjour service-routing.  Specifies the service policy to be used by the controller. If no policy is configured, a default controller policy <b>default-mdns-ctrl-srv-policy</b> is used.

	Command or Action	Purpose
<b>Step 6</b>	<b>end</b>  <b>Example:</b> Device(config-mdns-sd) # <b>end</b>	Returns to privileged EXEC mode.

## Verifying Wide Area Bonjour for LAN

The following is a sample output of the **show mdns controller service-policy** command.

```
switch(config)# show mdns-sd controller service-policy name default-mdns-ctrl-srv-policy
```

```
Service Policy Name          Service List Name
=====
default-mdns-ctrl-srv-policy  default-mdns-ctrl-srv-list
```

The following is a sample output of the **show mdns controller service-list** command.

```
switch(config)# show mdns-sd controller service-list name default-mdns-ctrl-srv-list
```

```
Name          Service          Msg-Type
Source
=====
default-mdns-ctrl-srv-list  apple-airprint   any
  all
  all          apple-remote-login  any
  all          apple-screen-share  any
  all          apple-tv           any
  all          apple-windows-fileshare  any
  all          google-chromecast  any
  all          google-expeditions  any
  all          homesharing        any
  all          multifunction-printer  any
  all          printer-ipps       any
  all
```

The following is a sample output of the **show mdns controller summary** command.

```
switch(config)# show mdns-sd controller summary
```

```
Controller Summary
=====
Controller Name   : DNAC_BONJOUR_CONTROLLER
```

```

Controller IP      : 100.100.100.1
State             : UP
Port              : 9991
Interface         : Lo0
Filter List       : default-mdns-ctrl-srv-policy
Dead Time         : 120 sec
Service Buffer     : Disabled

```

The following is a sample output of the **show mdns controller detail** command.

```

switch(config)# show mdns-sd controller detail

Controller : DNAC_BONJOUR_CONTROLLER
IP 100.100.100.1, Dest Port : 9991, Src Port: 52482, State UP
Source Interface : Lo0, MD5 Disabled
Hello Timer 30 sec, Dead Timer 120 sec, Next Hello 00:00:06
Uptime 00:00:23
Service Buffer : Disabled
Service Announcement :
Filter : default-mdns-ctrl-srv-policy
Count 50, Delay timer 30 sec, Pending Announcement 0, Pending Withdraw 0
Total Export Count 0, Next Export in 00:00:06
Service Query :
Query Suppression Disabled
Query Count 50, Query Delay Timer 15 sec, Pending 0
Total Query Count 0, Next Query in 00:00:06

```

The following is a sample output of the **show mdns controller statistics** command.

```

switch(config)# show mdns-sd controller statistics

Total messages sent           : 3130
Total messages received       : 3128
Keepalive message sent        : 3126
Keepalive messages received   : 3126
Interface WITHDRAW messages sent : 2
Vlan WITHDRAW messages sent   : 0
Clear cache messages sent     : 0
Total RESYNC state count      : 0
Last successful RESYNC        : Not-Applicable
Service Advertisements:
Advertisements sent           : 0
Withdraws sent                 : 0
Advertisements Filtered       : 0
Total service resynced        : 0
Service Queries:
Queries sent                   : 0
Queries Filtered               : 0
Query responses received       : 0

```

The following is a sample output of the **show mdns controller export-summary** command.

```

switch(config)# mdns-sd controller export-summary
Controller Export Summary
=====

```

```
Controller IP      : 100.100.100.1
State              : UP
Filter List        : default-mdns-ctrl-srv-policy
Count              : 50
Delay Timer        : 30
Export             : 0
Drop               : 0
Next Export        : 00:00:07
```

## Additional References for Wide Area Bonjour for LAN

Related Topic	Document Title
Cisco Wide Area Bonjour Application on Cisco DNA Center User Guide	<a href="#">Cisco Wide Area Bonjour Application on Cisco DNA Center User Guide, Release 2.1.2</a>