



Configuring Local Area Bonjour in Multicast DNS Mode for LAN

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How to configure Multicast DNS Mode for LAN and Wired Networks

This section provides information about how to configure Local Area Bonjour in multicast DNS mode.

Enabling mDNS Gateway on the Device

To configure mDNS on the device, follow these steps:

Procedure

	Command or Action	Purpose
Step 1	configure terminal Example: Device# <code>configure terminal</code>	Enters global configuration mode.
Step 2	mdns-sd gateway Example: Device(config)# <code>mdns-sd gateway</code>	Enables mDNS on the device and enters mDNS gateway configuration mode. Enter the following commands in mDNS gateway configuration mode to enable the respective functionalities: <ul style="list-style-type: none">• air-print helper: Enables IOS devices like iPADS to discover and use older printers that support Bonjour• ingress-client: Configures Ingress Client Packet Tuners

	Command or Action	Purpose
		<ul style="list-style-type: none"> • service announcement-count: Configures maximum service advertisement count for controller • service announcement-timer: Configures advertisements announce timer periodicity for controller • service query-count: Configures maximum query count for controller • service query-timer: Configures query forward timer periodicity for controller <p>Note For ingress-client, service-announcement-count, service-announcement-timer, service-query-count, and service-query-timer commands, you can retain the default value of the respective parameter for general deployments. Configure a different value, if required, for a specific deployment.</p>
Step 3	exit Example: <pre>Device(config-mdns-sd)# exit</pre>	Exits mDNS gateway configuration mode.

Creating Custom Service Definition

Service definition is a construct that provides an admin friendly name to one or more mDNS service types or PTR Resource Record Name. By default, a few built-in service definitions are already predefined and available for admin to use. In addition to built-in service definitions, admin can also define custom service definitions.

Procedure

	Command or Action	Purpose
Step 1	configure terminal Example: <pre>Device# configure terminal</pre>	Enters global configuration mode.
Step 2	mdns-sd service-definition <i>service-definition-name</i>	Configures mDNS service definition.

	Command or Action	Purpose
	Example: Device(config)# mdns-sd service-definition CUSTOM1	Note All the created custom service definitions are added to the primary service list. Primary service list comprises of a list of custom and built-in service definitions.
Step 3	service-type <i>string</i> Example: Device(config-mdns-ser-def)# service-type _custom1._tcp.local	Configures mDNS service type.
Step 4	Repeat step 4 to configure more than one service type in the custom service definition.	
Step 5	exit Example: Device(config-mdns-ser-def)# exit	Exit mDNS service definition configuration mode.

Creating Service List

mDNS service list is a collection of service definitions. To create a service list, follow these steps:

Procedure

	Command or Action	Purpose
Step 1	configure terminal Example: Device# configure terminal	Enters global configuration mode.
Step 2	mdns-sd service-list <i>service-list-name</i> { in out } Example: Device(config)# mdns-sd service-list VLAN100-list in	Configures mDNS service list.
Step 3	match { <i>ser-def-name</i> <i>all</i> } message-type { any announcement query } Example: Device(config-mdns-sl-in)# match PRINTER-IPPS message-type announcement	Matches the service and message type. Here, <i>service-definition-name</i> refers to the names of services, such as, airplay, airserver, airtunes, and so on.

	Command or Action	Purpose
		<p>Note To add a service, the service name must be part of the primary service list.</p> <p>If the mDNS service list is set to IN, the applicable command syntax is: match {<i>ser-def-name</i> <i>all</i>} message-type {<i>any</i> announcement query}.</p> <p>If the mDNS service list is set to OUT, the applicable command syntax is: match {<i>ser-def-name</i> <i>all</i>} [source-interface <i>valns</i>].</p>
Step 4	exit Example: Device(config-mdns-sl-in)# exit	Exits mDNS service list configuration mode.

Creating Service Policy

A Service Policy that is applied to a VLAN specifies the allowed Bonjour service announcements or the queries of specific service types that should be processed, in ingress direction or egress direction or both. For this, the service policy specifies two service-lists, one each for ingress and egress directions. In the Local Area Bonjour domain, the same service policy can be attached to one or more Bonjour client VLANs; however, different VLANs may have different service policies.

To configure service policy with service lists, follow these steps:

Procedure

	Command or Action	Purpose
Step 1	configure terminal Example: Device# configure terminal	Enters global configuration mode.
Step 2	mdns-sd service-policy <i>service-policy-name</i> Example: Device(config)# mdns-sd service-policy mdns-policy1	Configures mDNS service policy.
Step 3	service-list <i>service-list-name</i> { in out } Example: Device(config-mdns-ser-pol)# service-list VLAN100-list in Device(config-mdns-ser-pol)# service-list VLAN300-list out	Configures service lists for IN and OUT directions.

	Command or Action	Purpose
Step 4	exit Example: Device(config-mdns-ser-pol)# exit	Exits mDNS service policy configuration mode.

Associating Service Policy to a VLAN

To configure mDNS on the device, follow these steps:

Procedure

	Command or Action	Purpose
Step 1	configure terminal Example: Device# configure terminal	Enters global configuration mode.
Step 2	vlan configuration <i>vlan-id</i> Example: (config-vlan-config)# vlan configuration 601	Enters VLAN configuration mode and enables VLAN configuration.
Step 3	mdns-sd gateway Example: (config-vlan-mdns-sd)# mdns-sd gateway	Configures mDNS gateway on the VLAN. Enter the following commands in the interface mDNS gateway configuration mode to enable the respective functionalities: <ul style="list-style-type: none"> • active-query: Sets the time interval for SDG agent to refresh the active status of connected Bonjour client services. The timer value ranges from 60 to 3600 seconds. <p>Note The default active-query timer is for 1800 seconds and it will run for all VLANs where mdns-sd gateway is enabled. There is no way to disable it.</p> <ul style="list-style-type: none"> • service-policy <i>policy-name</i>: Attaches the specified service policy to the VLAN. Bonjour announcements, and queries received by and sent from the VLAN are governed by the policies configured in the service policy. This configuration is not mandatory. If the user has not specified the service policy for a VLAN, then a default service policy default-mdns-service-policy will be used.

	Command or Action	Purpose
		Note Service policies can only be attached at VLAN level.
Step 4	exit Example: Device(config-if-mdns-sd)# exit	Exits mDNS gateway configuration mode.

Verifying Local Area Bonjour in Multicast DNS Mode for LAN

This section shows how to verify Local Area Bonjour in Multicast DNS mode for LAN.

Verifying SDG-Agent Status

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

```
Global mDNS Gateway
=====
mDNS Gateway           : Enabled
Rate Limit             : 200 PPS
Cache Memory Max      : 10 Percentage
AirPrint Helper       : Disabled

Ing-qry supp          : Enabled
Ing-qry supp Packet Gap : 15 PPS
Ing-qry reply service count : 100
Service Announcement Count : 100
Service Query Count   : 100
Announcement Timer    : 5 Seconds
Query Timer           : 15 Seconds
```

The following is a sample output of the **show mdns-sd service-policy [name ser-pol-name]** command.

```
Service Policy Name      Service List IN Name      Service List Out
Name
-----
sp-one                   cus-sl-in
cus-sl-out
default-mdns-service-policy default-mdns-in-service-list
default-mdns-out-service-list
Device#
```

The following is a sample output of the **show mdns-sd service-list [{direction {in | out}} | {name sl-name}]** command.

```
Name           Type      Service
Msg-Type      Source
```

macbook-list-out		OUT	macbook_custom
none	all		
appletv-list-out		OUT	appletv_custom
none	all		
default-mdns-in-service-list		IN	apple-airprint
any	none		apple-remote-login
any	none		apple-screen-share
any	none		apple-tv
any	none		apple-windows-fileshare
any	none		google-chromecast
any	none		google-expeditions
any	none		homesharing
any	none		multifunction-printer
any	none		printer-ipps
13vni-list-in		IN	13vni_custom
any	none		
default-mdns-out-service-list		OUT	apple-airprint
none	all		apple-remote-login
none	all		apple-screen-share
none	all		apple-tv
none	all		apple-windows-fileshare
none	all		google-chromecast
none	all		google-expeditions
none	all		homesharing
none	all		multifunction-printer
none	all		printer-ipps
13vni-list-out		OUT	13vni_custom
none	all		
macbook-list-in		IN	macbook_custom
any	none		

```

appletv-list-in          IN          appletv_custom
any                     none
list1                   IN          custom1
any                     none
list2                   OUT         custom1
none                    all
List2                   OUT         custom1
none                    all

```

The following is a sample output of the **show mdns-sd service-definition** [{name *ser-def-name*} | {type {built-in | custom}}] command.

Service	Type	PTR
airplay	built-in	_airplay._tcp.local
apple-screen-share	built-in	_rfb._tcp.local
spotify _spotify-connect._tcp.local	built-in	
apple-remote-login	built-in	_sftp-ssh._tcp.local _ssh._tcp.local
apple-itunes-music	built-in	_daap._tcp.local
apple-tv	built-in	_raop._tcp.local _airplay._tcp.local
apple-homekit	built-in	_hap._tcp.local _homekit._tcp.local
appletv_custom	custom	_airplay._tcp.local
_companion-link._tcp.local		_homekit._tcp.local
_mediaremotetv._tcp.local		_raop._tcp.local
_sleep-proxy._udp.local		
apple-itunes-library Switch(config)#	built-in	_atc._tcp.local

Verifying Local Area Bonjour Configuration for LAN

The following is a sample output of the **show running-config mdns** [all] command.


```
!Command: show running-config mdns
!No configuration change since last restart
!Time: Fri Apr 15 06:58:29 2022

version 10.2(3) Bios:version 07.69
feature mdns

mdns-sd gateway
  air-print helper
  ingress-client query-suppression
vlan configuration 10
mdns-sd gateway
  active-query timer 60
vlan configuration 2000
mdns-sd gateway
  active-query timer 60
mdns-sd controller bhag
  address 100.100.100.1
  source-interface Lo0
mdns-sd service-list cus-sl-in IN
  match all message-type any
mdns-sd service-list cus-sl-out OUT
  match all
mdns-sd service-policy sp-one
  service-list cus-sl-in IN
  service-list cus-sl-out OUT
```

