Configuring Local Area Bonjour in Multicast DNS Mode for LAN

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:

SUMMARY STEPS

1. **configure terminal**
2. **mdns-sd gateway**
3. **exit**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Device# `**`configure terminal`**	Enters global configuration mode.
Step 2	**mdns-sd gateway** **Example:** `Device(config)# `**`mdns-sd gateway`**	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:

Command or Action	Purpose
	• **air-print helper**: Enables IOS devices like iPADs to discover and use older printers that support Bonjour
	• **ingress-client**: Configures Ingress Client Packet Tuners
	• **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
	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.
Step 3 **exit** **Example:** `Device(config-mdns-sd)# exit`	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.

SUMMARY STEPS

1. **configure terminal**
2. **mdns-sd service-definition** *service-definition-name*
3. **service-type** *string*
4. Repeat step 4 to configure more than one service type in the custom service definition.
5. **exit**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** Device# **configure terminal**	Enters global configuration mode.
Step 2	**mdns-sd service-definition** *service-definition-name* **Example:** Device(config)# **mdns-sd service-definition CUSTOM1**	Configures mDNS service definition. **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** *string* **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:

SUMMARY STEPS

1. **configure terminal**
2. **mdns-sd service-list** *service-list-name* {**in** | **out**}
3. **match** {*ser-def-name* | *all*} **message-type** {**any** | **announcement** | **query**}
4. **exit**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** Device# **configure terminal**	Enters global configuration mode.
Step 2	**mdns-sd service-list** *service-list-name* {**in**	**out**} **Example:**	Configures mDNS service list.

	Command or Action	Purpose
	`Device(config)# mdns-sd service-list VLAN100-list in`	
Step 3	**match** {*ser-def-name* | **all**} **message-type** {**any** | **announcement** | **query**} **Example:** `Device(config-mdns-sl-in)# match PRINTER-IPPS message-type announcement`	Matches the service and message type. Here, *service-definition-name* refers to the names of services, such as, airplay, airserver, airtunes, and so on. **Note** To add a service, the service name must be part of the primary service list. If the mDNS service list is set to IN, the applicable command syntax is: **match** {*ser-def-name* | **all**} **message-type** {**any** | **announcement** | **query**}. If the mDNS service list is set to OUT, the applicable command syntax is: **match** {*ser-def-name* | **all**} [**source-interface** *valns*].
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:

SUMMARY STEPS

1. **configure terminal**
2. **mdns-sd service-policy** *service-policy-name*
3. **service-list** *service-list-name* {**in** \| **out**}
4. **exit**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.
Step 2	**mdns-sd service-policy** *service-policy-name* **Example:**	Configures mDNS service policy.

	Command or Action	Purpose
	Device(config)# **mdns-sd service-policy mdns-policy1**	
Step 3	**service-list** *service-list-name* {**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.
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:

SUMMARY STEPS

1. **configure terminal**
2. **vlan configuration** *vlan-id*
3. **mdns-sd gateway**
4. **exit**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** Device# **configure terminal**	Enters global configuration mode.
Step 2	**vlan configuration** *vlan-id* **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: • **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.

	Command or Action	Purpose
		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.
		• **service-policy** *policy-name*: 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.
		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
any             none
l3vni-list-in                           IN        l3vni_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
none           all
l3vni-list-out                    OUT          l3vni_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                       built-in
_spotify-connect._tcp.local

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        built-in                _atc._tcp.local
Switch(config)#
```

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
```