



# Configuring Wide Area Bonjour

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## Configuring Wide Area Bonjour Domain

The Wide Area Bonjour domain configuration specifies the parameters of the controller, that is the Wide Area Bonjour Application running on Cisco DNA Center, as well as the service types that need to be exported to it from the SDG Agent. Configuring Wide Area Bonjour Domain involves creating service-lists and service policy similar to those created in Local Area Bonjour configuration; however, only egress policy from SDG Agent to controller is applicable.

## Enabling mDNS Gateway on the Device

To configure mDNS on the device, follow these steps:

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	<b>enable</b> <b>Example:</b> Device> <b>enable</b>	Enables privileged EXEC mode. Enter your password, if prompted.
<b>Step 2</b>	<b>configure terminal</b> <b>Example:</b> Device# <b>configure terminal</b>	Enters global configuration mode.
<b>Step 3</b>	<b>mdns-sd gateway</b> <b>Example:</b> Device(config)# <b>mdns-sd gateway</b>	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"> <li>• <b>air-print-helper</b>: Enables IOS devices like iPADS to discover and use older printers that support Bonjour</li> </ul>

	Command or Action	Purpose
		<ul style="list-style-type: none"> <li>• <b>cache-memory-max</b>: Configures the percentage memory for cache</li> <li>• <b>ingress-client</b>: Configures Ingress Client Packet Tuners</li> <li>• <b>rate-limit</b>: Enables rate limiting of incoming mDNS packets</li> <li>• <b>service-announcement-count</b>: Configures maximum advertisements</li> <li>• <b>service-announcement-timer</b>: Configures advertisements announce timer periodicity</li> <li>• <b>service-query-count</b>: Configures maximum queries</li> <li>• <b>service-query-timer</b>: Configures query forward timer periodicity</li> <li>• <b>service-type-enumeration</b>: Configures service enumeration</li> </ul> <p><b>Note</b> For <b>cache-memory-max</b>, <b>ingress-client</b>, <b>rate-limit</b>, <b>service-announcement-count</b>, <b>service-announcement-timer</b>, <b>service-query-count</b>, <b>service-query-timer</b>, and <b>service-type-enumeration</b> 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>
<b>Step 4</b>	<b>exit</b> <b>Example:</b> <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, 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**

	<b>Command or Action</b>	<b>Purpose</b>
<b>Step 1</b>	<b>enable</b> <b>Example:</b> Device> <b>enable</b>	Enables privileged EXEC mode. Enter your password, if prompted.
<b>Step 2</b>	<b>configure terminal</b> <b>Example:</b> Device# <b>configure terminal</b>	Enters global configuration mode.
<b>Step 3</b>	<b>mdns-sd service-definition</b> <i>service-definition-name</i> <b>Example:</b> Device(config)# <b>mdns-sd</b> <b>service-definition CUSTOM1</b>	Configures mDNS service definition. <b>Note</b> 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.
<b>Step 4</b>	<b>service-type</b> <i>string</i> <b>Example:</b> Device(config-mdns-ser-def)# <b>service-type</b> <b>_custom1._tcp.local</b>	Configures mDNS service type.
<b>Step 5</b>	Repeat step 4 to configure more than one service type in the custom service definition.	
<b>Step 6</b>	<b>exit</b> <b>Example:</b> Device(config-mdns-ser-def)# <b>exit</b>	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**

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

	Command or Action	Purpose
<b>Step 3</b>	<b>mdns-sd service-list</b> <i>service-list-name</i> {in   out} <b>Example:</b> Device(config)# <b>mdns-sd service-list VLAN100-list in</b>	Configures mDNS service list.
<b>Step 4</b>	<b>match</b> <i>service-definition-name</i> [ <b>message-type</b> {any   announcement   query}] <b>Example:</b> Device(config-mdns-sl-in)# <b>match PRINTER message-type announcement</b>	Matches the service to the message type. Here, <i>service-definition-name</i> refers to the names of services, such as, <i>airplay</i> , <i>airserver</i> , <i>airtunes</i> , and so on.  <b>Note</b> 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: <b>match</b> <i>service-definition-name</i> [ <b>message-type</b> {any   announcement   query}].  If the mDNS service list is set to OFF, the applicable command syntax is: <b>match</b> <i>service-definition-name</i> .
<b>Step 5</b>	<b>exit</b> <b>Example:</b> Device(config-mdns-sl-in)# <b>exit</b>	Exits mDNS service list configuration mode.

## Creating Service Policy

A Service Policy that is applied to an interface 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
<b>Step 1</b>	<b>enable</b> <b>Example:</b> Device> <b>enable</b>	Enables privileged EXEC mode.  Enter your password, if prompted.
<b>Step 2</b>	<b>configure terminal</b> <b>Example:</b>	Enters global configuration mode.

	Command or Action	Purpose
	Device# <code>configure terminal</code>	
<b>Step 3</b>	<b>mdns-sd service-policy</b> <i>service-policy-name</i> <b>Example:</b> Device(config)# <code>mdns-sd service-policy mdns-policy1</code>	Configures mDNS service policy.
<b>Step 4</b>	<b>service-list</b> <i>service-list-name</i> {in   out} <b>Example:</b> Device(config-mdns-ser-pol)# <code>service-list VLAN100-list in</code> Device(config-mdns-ser-pol)# <code>service-list VLAN300-list out</code>	Configures service lists for IN and OUT directions.
<b>Step 5</b>	<b>exit</b> <b>Example:</b> Device(config-mdns-ser-pol)# <code>exit</code>	Exits mDNS service policy configuration mode.

## Associating Service Policy with the Controller in Wide Area Bonjour Domain

In Wide Area Bonjour, the service policy is configured globally and does not get associated with a VLAN as in the case of Local Area Bonjour.

To configure service policy globally, follow these steps:

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	<b>enable</b> <b>Example:</b> Device> <code>enable</code>	Enables privileged EXEC mode. Enter your password, if prompted.
<b>Step 2</b>	<b>configure terminal</b> <b>Example:</b> Device# <code>configure terminal</code>	Enters global configuration mode.
<b>Step 3</b>	<b>service-export mdns-sd controller</b> <i>controller name</i> <b>Example:</b> Device(config)# <code>service-export mdns-sd controller DNAC-BONJOUR-CONTROLLER</code>	Specifies a name for the controller and enters service-export mode
<b>Step 4</b>	<b>controller-address</b> <i>ipv4-address</i> <b>Example:</b> Device(config-mdns-sd-se)# <code>controller-address 199.245.1.7</code>	Specifies the controller address.

	Command or Action	Purpose
<b>Step 5</b>	<b>controller-port</b> <i>port-number</i> <b>Example:</b> Device (config-mdns-sd-se) # <b>controller-port 9991</b>	Specifies the port number on which the controller is listening.
<b>Step 6</b>	<b>controller-source-interface</b> <i>interface-name</i> <b>Example:</b> Device (config-mdns-sd-se) # <b>controller-source-interface Loopback0</b>	Specifies the source-interface for the controller.
<b>Step 7</b>	<b>controller-service-policy</b> <i>service-policy-name</i> <b>out</b> <b>Example:</b> Device (config-mdns-sd-se) # <b>controller-service-policy policy1 OUT</b>	Specifies the service policy to be used by the controller. <b>Note</b> Only OUT policy is applicable for Wide Area Bonjour.
<b>Step 8</b>	<b>exit</b> <b>Example:</b> Device (config-mdns-sd) # exit	Exits controller service export configuration mode.
<b>Step 9</b>	<b>mdns-sd gateway</b> <b>Example:</b> Device (config) # <b>mdns-sd gateway</b>	Enters mDNS gateway configuration mode.
<b>Step 10</b>	<b>ingress-client query-suppression enable</b> <b>Example:</b> Device (config-mdns-sd) # ingress-client query-suppression enable	Enables ingress query suppression for better scale and performance.
<b>Step 11</b>	<b>exit</b> <b>Example:</b> Device (config-mdns-sd) # exit	Exits mDNS gateway configuration mode.