

# Cross-VLAN Media Casting (TP-Link Omada SDN)

**Target Hardware:** TP-Link Omada Gateways (ER8411, ER707-M2, etc.)

**Controller:** Omada Software/Hardware Controller (OC300/OC200)

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## 1. Defining Custom Bonjour Services

By default, the Omada SDN does not include pre-defined entries for several modern streaming protocols. You must manually add these before they can be used in an mDNS rule.

1. Navigate to **Settings > Services > Bonjour Service**.
2. Click + **Create New Bonjour Service** for each of the following:

Service Name	Service Type	Protocol
<b>Spotify Connect</b>	<code>_spotify-connect._tcp.local</code>	TCP
<b>Google Cast</b>	<code>_googlecast._tcp.local</code>	TCP
<b>Apple Music / AirPlay</b>	<code>_airplay._tcp.local</code>	TCP
<b>Apple Music (RAOP)</b>	<code>_raop._tcp.local</code>	TCP

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## 2. Enabling the mDNS Forwarder

The mDNS (Multicast DNS) service allows discovery traffic to "jump" between isolated VLANs.

1. Go to **Settings > Services > mDNS**.
2. Click **Create New Rule**.
3. **Rule Name:** `Cross_VLAN_Discovery`
4. **Device Type:** Select **Gateway**.
5. **Bonjour Service:** Select the custom services created in Step 1 (Spotify, Google Cast, AirPlay, RAOP).
6. **Services Network:** Select the VLAN where the **Speakers/TVs** live (e.g., Media Network).
7. **Client Network:** Select the VLAN where your **Phones/Tablets** live (e.g., Main Network).

8. Click **Apply**.

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## 3. Configuring the Gateway ACL (Stateful Connection)

The **ER8411** is a stateful gateway, meaning it remembers which connections you started. You only need to permit traffic from the trusted network to the media network.

1. Navigate to **Settings > Network Security > ACL > Gateway ACL**.
  2. Click **Create New Rule**:
    - **Description:** Permit\_Main\_to\_Media\_Casting
    - **Direction:** LAN -> LAN
    - **Policy:** Permit
    - **Protocols:** All
    - **Source:** Network -> **Main Network**
    - **Destination:** Network -> **Media Network**
  3. **Important:** Ensure this rule is positioned **above** any "Block IoT to Main" or "Deny All" rules in the list.
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## 4. Troubleshooting

### IGMP Snooping

If devices still do not appear, ensure **IGMP Snooping** is enabled on your switches for the involved VLANs:

Settings > Wired Networks > LAN > [Edit VLAN] > IGMP Snooping

### Connection Stability

If the stream drops after a few seconds, verify that no "Block Media to Main" ACL is interfering with the return handshake. On stateful gateways like the ER8411, the rule in Step 3 is typically sufficient.

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Config applied: Cross-VLAN mDNS & Gateway ACL

Status: Active

Environment: TP-Link Omada SDN

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