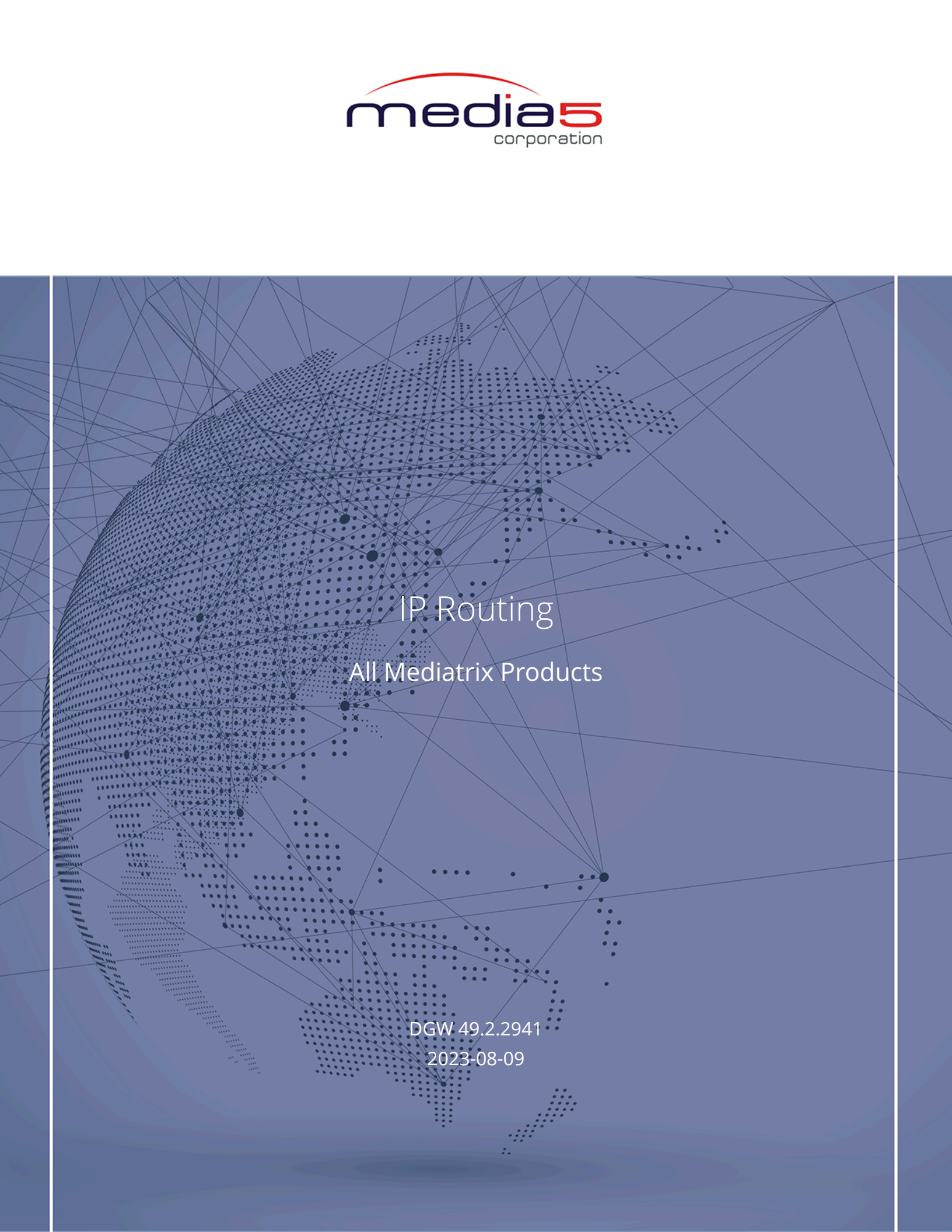


The background of the slide is a dark blue gradient with a complex, abstract network graphic. It consists of numerous small black dots connected by thin, light blue lines, forming a dense, interconnected web that resembles a globe or a complex data structure. The lines and dots are more concentrated in the center and fade out towards the edges.

IP Routing

All Mediatrix Products

DGW 49.2.2941

2023-08-09

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# Basic Concepts

## Important Information About IP Routing

- The Mediatrix unit's IP Routing settings do not support IPv6.
- A packet matching a route uses the custom routing table first and then the main routing table if no route in the custom routing table was able to send the packet to the desired destination IP address.
- When creating an advanced IP routing Rule, leaving the **Source Address** or/and **Source Link** fields empty, indicate that any source of address or/and link will match the rule
- IP Routing works together with the following services:
  - Network Firewall
  - NAT
  - DHCP server
  - Network Traffic Control
- When the IP Routing service is started and the IPv4 Forwarding is enabled, IP routing is activated even if there is no configured rule (the Mediatrix unit will forward received packets). If the IP Routing service is stopped, IP forwarding is disabled, this tab is greyed out and the parameters are not displayed.
- Enabling the IP routing service and adding rules has an impact on the Mediatrix unit's overall performance as IP routing requires additional processing. The more rules are enabled, the more overall performance is affected.

**Note:** Media5 recommends to use a 30 ms packetization time when IP routing is enabled (instead of a 20 ms ptime, for instance) in order to simultaneously use all the channels available on the unit.

## Static IPv4 vs Advanced IP Routing

Network IP routing defines the routes for outgoing network traffic, where each route is associated with a network interface. The selection of which route a network packet should follow is generally based on the destination IP address criteria.

The Static IPv4 Routes are used to specify additional routes from the default ones automatically created by the configuration of the various network interfaces (see the BNI service).

The Advanced IP Routes are used only when IPv4 Forwarding is enabled, and allow to select a route, not just from the destination IP address, but also from the source IP address and interface criteria.

## IP Routing Rule Order - Important

The IP routing rules sequence is very important because only one forwarding rule is applied on a packet. Rules priority is determined by their position in the **Advanced IP Routes** table. If you want the unit to try to match one rule before another one, you must put that rule first. Make sure to put the most restrictive rules before the less restrictive ones.

# Basic Tasks

## Enabling IPv4 Forwarding

### Steps

- 1) Go to **Network/IP Routing**.
- 2) In the **IP Routing configuration** table, select **Enable**.
- 3) Click **Save**.

### Result

If IP Forwarding is disabled, the **Advanced IP Routes** table is greyed out.

| IP Routing configuration |                                         |
|--------------------------|-----------------------------------------|
| IPv4 Forwarding:         | <input type="button" value="Enable"/> ▾ |

## Creating an IP Routing Rule

### Steps

- 1) Go to **Network/IP Routing**.
- 2) In the **Advanced IP Routes** table, click **+**.
- 3) Complete the fields as required.

**Note:** Leaving the **Source Address** or/and **Source Link** fields empty, indicate that any source of address or/and link will match the rule

**Note:** Do not forget to **Enable** the route.

**Note:** The yellow Yes displayed at the top of the window indicates that the configuration has been modified but not applied (i.e., the Advanced IP Routes section of the Status page differs from the IP Routing page).

- 4) Click **Save & Apply**

### Result

The enabled rules are displayed under **Network/ Status**, in the **Advanced IP Routes** section, The yellow Config Modified Yes flag is cleared.

| Advanced IP Routes |            |                |               |                    |       |   |
|--------------------|------------|----------------|---------------|--------------------|-------|---|
| Priority           | Activation | Source Address | Source Link   | Forward To Network |       |   |
| 1                  | Enable ▾   | Source Address | Source Link ▾ | link ▾             | ⬆ ⬇ ⬅ |   |
| 2                  | Enable ▾   | Source Address | Source Link ▾ | link ▾             | ⬆ ⬇ ⬅ |   |
|                    |            |                |               |                    |       | + |

## Creating a Static IPv4 Route

### Steps

- 1) Go to **Network/IP Routing**.
- 2) In the **Static IP Routes** table, click **+**.
- 3) Complete the fields as required.

**Note:** When the **Link** field is left empty, the link is automatically selected according to the gateway IP address and the information already present in the routing table.

- 4) Click **Save & Apply**

### Result

| Static IP Routes |                        |        |                    |   |
|------------------|------------------------|--------|--------------------|---|
| Index            | Destination            | Link   | Gateway            |   |
| 1                | Destination IP Address | Link ▾ | Gateway IP Address | ⬅ |
| 2                | Destination IP Address | Link ▾ | Gateway IP Address | ⬅ |
|                  |                        |        |                    | + |

The current routes available are displayed in the **Network/Status** under the **IP4 Routes** IPv4 Routes table.

| IPv4 Routes |                       |                      |          |
|-------------|-----------------------|----------------------|----------|
| Link        | Destination           | Gateway              | Protocol |
| eth1        | 0.0.0.0/0             |                      | Static   |
| eth1        | static.ip.route       | your.default.gateway | Kernel   |
| eth1        | uplink.network/subnet | static.gateway.ip    | Static   |
| eth1        | 10.5.0.0/16           | 0.0.0.0              | Kernel   |

# Advanced IP Routing Parameters

Although the services can be configured in great part in the Web browser, some aspects of the configuration can only be completed with the configuration parameters by :

- using a MIB browser
- using the CLI
- creating a configuration script containing the configuration parameters

For more details on advanced parameters, refer to the [DGW Configuration Guide - Reference Guide](#) published on the [Media5 Documentation Portal](#).

- To define whether or not the Classless Static Route Option is enabled:  
**Bni.DhcpClientClasslessStaticRouteOption**
- To define a list of user classes: **Bni.DhcpClientUserClass**

# IP Routing Configuration Examples

Refer to the [Technical Bulletin - Port Forwarding for a Web Server located on the LAN](#) published on the [Media5 Documentation Portal](#).

## Online Help

If you are not familiar with the meaning of the fields and buttons, click **Show Help**, located at the upper right corner of the Web page. When activated, the fields and buttons that offer online help will change to green and if you hover over them, the description will be displayed.

# DGW Documentation

Mediatrix devices are supplied with an exhaustive set of documentation.

Mediatrix user documentation is available on the [Media5 Documentation Portal](#).

Several types of documents were created to clearly present the information you are looking for. Our documentation includes:

- **Release notes:** Generated at each GA release, this document includes the known and solved issues of the software. It also outlines the changes and the new features the release includes.
- **Configuration notes:** These documents are created to facilitate the configuration of a specific use case. They address a configuration aspect we consider that most users will need to perform. However, in some cases, a configuration note is created after receiving a question from a customer. They provide standard step-by-step procedures detailing the values of the parameters to use. They provide a means of validation and present some conceptual information. The configuration notes are specifically created to guide the user through an aspect of the configuration.
- **Technical bulletins:** These documents are created to facilitate the configuration of a specific technical action, such as performing a firmware upgrade.
- **Hardware installation guide:** They provide the detailed procedure on how to safely and adequately install the unit. It provides information on card installation, cable connections, and how to access for the first time the Management interface.
- **User guide:** The user guide explains how to customise to your needs the configuration of the unit. Although this document is task oriented, it provides conceptual information to help the user understand the purpose and impact of each task. The User Guide will provide information such as where and how TR-069 can be configured in the Management Interface, how to set firewalls, or how to use the CLI to configure parameters that are not available in the Management Interface.
- **Reference guide:** This exhaustive document has been created for advanced users. It includes a description of all the parameters used by all the services of the Mediatrix units. You will find, for example, scripts to configure a specific parameter, notification messages sent by a service, or an action description used to create Rulesets. This document includes reference information such as a dictionary, and it does not include any step-by-step procedures.

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