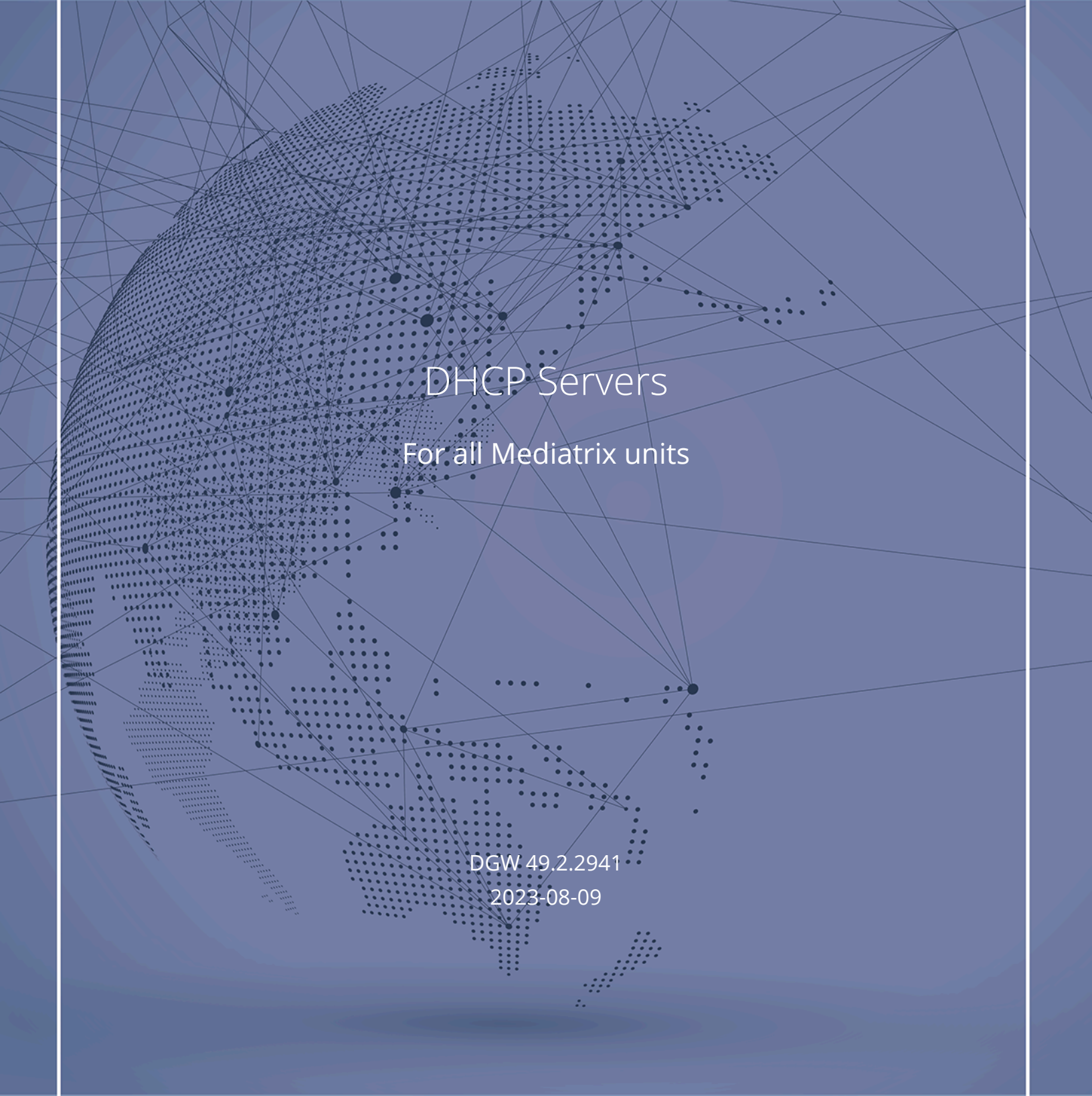


The background of the page is a dark blue gradient with a complex, abstract network graphic. It consists of numerous small black dots connected by thin, light gray lines, forming a dense, interconnected web that resembles a globe or a complex data structure. The lines and dots are more concentrated in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

# DHCP Servers

For all Mediatrix units

DGW 49.2.2941  
2023-08-09

# Table of Contents

|                                                                |    |
|----------------------------------------------------------------|----|
| Basic Concepts                                                 | 4  |
| DHCP Server                                                    | 4  |
| Default vs Specific DHCP Server Configurations                 | 4  |
| Available Configuration Sources                                | 4  |
| Parameters Configuration Sources                               | 5  |
| Subnet Server                                                  | 5  |
| Sending Configuration Parameters to a Client                   | 5  |
| Lease Assignment                                               | 6  |
| DHCP Server Configuration Options                              | 6  |
| Basic Tasks                                                    | 8  |
| Configuring the LAN1 DHCP Server Subnet                        | 8  |
| Advanced Tasks                                                 | 10 |
| Creating A VLAN DHCP Server Subnet                             | 10 |
| Adding a Static Lease Using the DGW Web Interface              | 10 |
| Configuring the DHCP Server Subnet Lease Time (Option 51)      | 11 |
| Configuring the DHCP Server Domain Name Parameters (Option 15) | 11 |
| Configuring the DHCP Server Default Gateway (Option 3)         | 12 |
| Configuring the DHCP Server DNS Parameters (Option 6)          | 12 |
| Configuring the DHCP Server NTP Parameters (Option 42)         | 13 |
| Configuring the DHCP Server NBNS (Option 44)                   | 13 |
| Configuring the DHCP Server Name Parameters (Option 66)        | 14 |
| Configuring the DHCP Server Bootfile Parameters (Option 67)    | 14 |
| Online Help                                                    | 16 |

## Table of Contents

|                         |    |
|-------------------------|----|
| Available Documentation | 17 |
| Copyright Notice        | 18 |

# Basic Concepts

## DHCP Server

The Mediatrix unit contains an embedded DHCP server that allocates IP addresses and provides leases to the various subnets that are configured

These subnets could have PCs or other IP devices connected to the unit's LAN Ethernet connectors. These devices could be any combination of switches, PCs, IP phones, etc. If the DHCP service is stopped (which is the default configuration), the **DHCP Server** tab is greyed out and the parameters are not displayed.

**IMPORTANT:** There can only be one subnet per Network Interface.

## Default vs Specific DHCP Server Configurations

You can use two types of configuration:

- Default configurations that apply to each subnet of all network interfaces of the Mediatrix unit
- Specific configurations that override the default configurations. You can define specific configurations for each subnet in your Mediatrix unit. For instance, you could define a lease time for all the subnets of the Mediatrix unit and use the specific configuration parameters to set a different value for one specific subnet.

The parameters available differ according to the subnet you have selected. The Default subnet has less parameters than the specific subnets available on the Mediatrix unit.

**IMPORTANT:** There can only be one subnet per Network Interface.

## Available Configuration Sources

A parameter's configuration source can be toggled. Here are the possible configuration sources:

|                   |                                                                        |
|-------------------|------------------------------------------------------------------------|
| Static            | Parameter is defined as a static parameter locally                     |
| Automatic         | Parameter is obtained from the Uplink network via DHCP or IPCP (PPPoE) |
| HostConfiguration | Parameter is obtained from the HOC Service                             |
| HostInterface     | Parameter is obtained from network interface matching the subnet       |

## Parameters Configuration Sources

The following table lists the configuration parameters and their available configuration sources:

| Parameter name       | Configuration sources |           |                   |               |
|----------------------|-----------------------|-----------|-------------------|---------------|
|                      | Static                | Automatic | HostConfiguration | HostInterface |
| Domain name          | X                     |           | X                 |               |
| Lease time           | X                     |           |                   |               |
| Default router       | X                     |           |                   | X             |
| List of DNS servers  | X                     | X         | X                 |               |
| List of NTP servers  | X                     | X         | X                 |               |
| List of NBNS servers | X                     |           |                   |               |

## Subnet Server

The DHCP server manages hosts' network configuration on a given subnet. Each subnet can be seen as having a distinct DHCP server managing it, which is called a subnet server.

To activate a subnet server for a given network interface, the name of that network interface and the name of the subnet must match, the subnet enable option must be enabled and the configuration of the subnet must be valid. Only one subnet can be defined per network interface.

The network interface can be a physical interface or a logical interface (ex: sub-interface using VLAN). The subnet server status is updated dynamically according to many parameters.

**Note:** The subnet configuration is invalid when the range of the start or end addresses is out of the network interface's CIDR range, or both parameters are incompatible.

## Sending Configuration Parameters to a Client

When an address is leased to a host, several network configuration parameters are sent to that host at the same time according to the options found in the DHCP request. Parameters are set to default at subnet creation time. A parameter can be defined with a subnet specific configuration.

The subnet server will not send a parameter with an empty value. This means that if a client requests a domain name and the subnet server domain name parameter contains an empty field, the subnet server will not add the domain name option in the DHCP response.

## Lease Assignment

In order to assign leases, the subnet server draws from an IP address pool (or subnet scope) defined by a start address and an end address. The subnet mask assigned to hosts is taken directly from the network interface. All hosts on the same subnet share the same configuration. The maximum number of supported hosts on a subnet is 254.

Specific IP addresses (static leases), designated by their MAC address, can be defined as reserved for specific hosts.

The subnet server will always assign leases within the IP address pool with an exception for static leases. When a static lease is defined for the host requesting an address, this lease will be assigned to the host if the IP address is within the subnet range even if the address is not within the IP address pool.

## DHCP Server Configuration Options

- **Lease Time (Option 51):** The Mediatrix unit DHCP server offers a lease time to its subnets. You can use a default lease time for all subnets or define a lease time specific to one or more subnets.
- **Domain Name (Option 15):** The Mediatrix unit DHCP server offers a domain name to its subnets. You can use a default domain name for all subnets or define a domain name specific to one or more subnets.
- **Default Gateway (Option 3):** The Mediatrix unit DHCP server offers a default gateway (also called default router) to its subnets.

**Note:** The default gateway parameters are not available in the Default interface. You must access the specific subnets configuration to set its parameters.

- **DNS (Option 6):** The Mediatrix unit DHCP server offers up to four DNS addresses to its subnets. You can use the default DNS addresses for all subnets or define static DNS addresses specific to one or more subnets.
- **NTP (Option 42):** The Mediatrix unit DHCP server offers the addresses of up to four NTP (Network Time Protocol) servers to its subnets. You can use the default NTP addresses for all subnets or define static NTP IP addresses specific to one or more subnets.
- **NBNS (Option 44):** The NetBIOS Name Server (NBNS) protocol, also called Windows Internet Name Service (WINS) can be configured through this option. This is only needed if you need file sharing on old Windows 95/98/Me/NT PCs. The Mediatrix unit DHCP server offers up to

four NBNS addresses to its subnets. You can use the default NBNS addresses for all subnets or define static NBNS addresses specific to one or more subnets.

- **Server Name (Option 66):** The Mediatrix unit DHCP server offers a server name to its subnets. You can use a default server name for all subnets or define a server name specific to one or more
- **Bootfile Name (Option 67):** The Mediatrix unit DHCP server offers a Bootfile name to its subnets. You can use a default Bootfile name for all subnets or define a Bootfile name specific to one or more.

# Basic Tasks

## Configuring the LAN1 DHCP Server Subnet

### Before you start

Make sure the DHCP service is started (**System/Services/User Service**) otherwise the **DHCP Server** tab will be greyed.

### Information

Although the parameters of these steps can be configured differently, the values suggested will work for almost every scenario.

### Steps

- 1) Go to **Network/DHCP Server**.
- 2) In the **Select Subnet** drop down menu located at the top of the page, select **Lan1**.
- 3) In the **DHCP Server Configuration** table, set the **DHCP Server Enable** to **Enable**.
- 4) In the **Start IP Address** and **End IP Address** fields, indicate the IP range to use
- 5) Set **Automatic Configuration Interface** to **Uplink**.
- 6) Complete the fields of the **Lease Time (Option 51)** section. Make sure to set the
  - **Subnet Specific** selection list to **Yes**
- 7) Complete the fields of the **Domain Name (Option 15)** section. Make sure to set the
  - **Enable Option** selection list to **Enable**
  - **Subnet Specific** selection list to **Yes**
  - **Configuration Source** selection list to **Static**
- 8) Complete the fields of the **Default Gateway (Option 3)** section. Make sure to set the
  - **Enable Option** selection list to **Enable**
  - **Configuration Source** selection list to **Host Interface**.
- 9) Complete the fields of the **DNS (Option 6)** section. Make sure to set the
  - **Enable Option** selection list to **Enable**
  - **Subnet Specific** selection list to **Yes**
  - **Configuration Source** selection list to **Static**
- 10) Complete the fields of the **NTP (Option 42)** section. Make sure to set the
  - **Enable Option** selection list to **Enable**
  - **Subnet Specific** selection list to **Yes**
  - **Configuration Source** selection list to **Static**

- 11) Complete the fields of the **NBNS (Option 44)** section. Make sure to set the
  - **Enable Option** selection list to **Enable**
  - **Subnet Specific** selection list to **Yes**
- 12) Do not enable Option 66 or 67.
- 13) Click **Apply**.

# Advanced Tasks

## Creating A VLAN DHCP Server Subnet

### Before you start

If you are not using a secure connection, **Activate unsecure script transfers and execution through web browser** to be able to execute script via the Web browser. To enable a VLAN in the DHCP server, make sure the VLAN is configured in the Network/VLAN tab and has an IP address configured in Network/Interfaces.

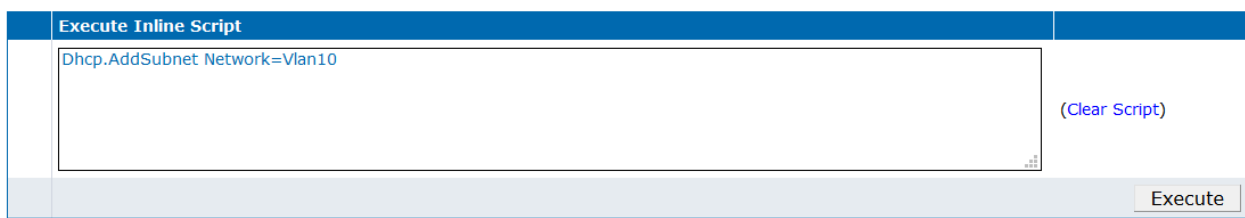
### Steps

- 1) Go to **Management/Configuration Scripts/Execute**.

**Note:** the following step is crucial to make sure the subnet is available in the **Select Subnet** field under **Network/DHCP Server**.

- 2) In the **Execute Inline Script** field enter `Dhcp.AddSubnet Network=Vlan10`.
- 3) Click **Execute**.

### Result



The Vlan10 subnet will be available for configuration from the **Select Subnet** field under **Network/DHCP Server**.

## Adding a Static Lease Using the DGW Web Interface

### Before you start

If you are not using a secure connection, **Activate unsecure script transfers and execution through web browser** to be able to execute script via the Web browser.

### Steps

- 1) Go to **Management/Configuration Scripts/Execute**.

- 2) To add a Static Lease, in the **Execute Inline Script** field enter the Dhcp.AddStatic Lease with the Mac address of the device and its desired static IP address. For example, **Dhcp.AddStaticLease MacAddress=0090f8000000 IpAddress=192.168.0.9**.

**Note:** To delete a static lease, use the Delete operation on the Dhcp.StaticLeases table. For example: **Dhcp.StaticLeases[MacAddress=0090f8000000].Delete=Delete**

- 3) Click **Execute**.

## Result

The Vlan10 subnet will be available for configuration from the **Select Subnet** field under **Network/DHCP Server**. Adding a static lease can also be done via the command-line interface via SSH. To list all static leases, execute the **Dhcp.StaticLeases** command (only available by SSH): **Global>Dhcp.StaticLeases**

## Configuring the DHCP Server Subnet Lease Time (Option 51)

### Before you start

Make sure the DHCP service is started (**System/Services/User Service**) otherwise the **DHCP Server** tab will be greyed.

### Steps

- 1) Go to **Network/DHCP Server**.
- 2) From the **Select Subnet** selection list, choose the subnet requiring Option 51 configuration.
- 3) In the **DHCP Server Configuration** table, make sure the **DHCP Server Enable** selection list is set to **Enable**.
- 4) Under the **Lease Time (Option 51)** section, from the **Subnet Specific** selection list, choose
  - **No** to use the default lease time
  - **Yes** to override the default lease time.
- 5) If you chose **Yes**, complete the **Lease Time** field.
- 6)
- 7) Click **Apply**.

## Configuring the DHCP Server Domain Name Parameters (Option 15)

### Before you start

Make sure the DHCP service is started (**System/Services/User Service**) otherwise the **DHCP Server** tab will be greyed.

### Steps

- 1) Go to **Network/DHCP Server**.

- 2) From the **Select Subnet** selection list, choose the subnet requiring Option 15 configuration.
- 3) In the **DHCP Server Configuration** table, make sure the **DHCP Server Enable** selection list is set to **Enable**.
- 4) Under the **Domain Name (Option 15)** section, from the **Enable Option** selection list, choose
  - **Disable** to use the default domain name
  - **Enable** to override the default domain name.
- 5) If you chose **Enable**, complete the fields as required.
- 6) Click **Apply**.

## Configuring the DHCP Server Default Gateway (Option 3)

### Before you start

Make sure the DHCP service is started (**System/Services/User Service**) otherwise the **DHCP Server** tab will be greyed.

### Steps

- 1) Go to **Network/DHCP Server**.
- 2) From the **Select Subnet** selection list, choose the subnet requiring Option 3 configuration.
- 3) In the **DHCP Server Configuration** table, make sure the **DHCP Server Enable** selection list is set to **Enable**.

**Note:** The default gateway parameters are not available in the Default interface. You must access the specific subnets configuration to set the parameters.

- 4) Under the **Default Gateway (Option 3)** section, from the **Enable Option** selection list, choose
  - **Disable** to use the default router
  - **Enable** to override the default router.
- 5) If you chose **Enable**, complete the fields as required.
- 6) Click **Apply**.

## Configuring the DHCP Server DNS Parameters (Option 6)

### Before you start

Make sure the DHCP service is started (**System/Services/User Service**) otherwise the **DHCP Server** tab will be greyed.

### Steps

- 1) Go to **Network/DHCP Server**.

- 2) From the **Select Subnet** selection list, choose the subnet requiring Option 6 configuration.
- 3) In the **DHCP Server Configuration** table, make sure the **DHCP Server Enable** selection list is set to **Enable**.
- 4) Under the **DNS (Option 6)** section, from the **Enable Option** selection list, choose
  - **Disable** to use the default DNS address
  - **Enable** to override the default router.
- 5) If you chose **Enable**, complete the fields as required.
- 6) Click **Apply**.

## Configuring the DHCP Server NTP Parameters (Option 42)

### Before you start

Make sure the DHCP service is started (**System/Services/User Service**) otherwise the **DHCP Server** tab will be greyed.

### Steps

- 1) Go to **Network/DHCP Server**.
- 2) From the **Select Subnet** selection list, choose the subnet requiring Option 42 configuration.
- 3) In the **DHCP Server Configuration** table, make sure the **DHCP Server Enable** selection list is set to **Enable**.
- 4) Under the **NTP (Option 42)** section, from the **Enable Option** selection list, choose
  - **Disable** to use the default NTP servers
  - **Enable** to override the NTP servers.
- 5) If you chose **Enable**, complete the fields as required.
- 6) Click **Apply**.

## Configuring the DHCP Server NBNS (Option 44)

### Before you start

Make sure the DHCP service is started (**System/Services/User Service**) otherwise the **DHCP Server** tab will be greyed.

### Steps

- 1) Go to **Network/DHCP Server**.
- 2) From the **Select Subnet** selection list, choose the subnet requiring Option 51 configuration.
- 3) In the **DHCP Server Configuration** table, make sure the **DHCP Server Enable** selection list is set to **Enable**.
- 4) Under the **NBNS (Option 44)** section, make sure the **Enable Option** is set to **Enable**

- 5) from the **Subnet Specific** selection list, choose
  - **No** to use the default configuration,
  - **Yes** to override the specific configuration as defined in the following parameters:  
**SpecificNbnsServers.StaticNbns1** , **SpecificNbnsServers.StaticNbns2** ,  
**SpecificNbnsServers.StaticNbns3** , and **SpecificNbnsServers.StaticNbns4**.
- 6) If you chose **Yes**, complete the fields as required.
- 7) Click **Apply**.

## Configuring the DHCP Server Name Parameters (Option 66)

### Before you start

Make sure the DHCP service is started (**System/Services/User Service**) otherwise the **DHCP Server** tab will be greyed. To use specific files, you must know their name, their path and your server must be accessible by the unit.

### Steps

- 1) Go to **Network/DHCP Server**.
- 2) From the **Select Subnet** selection list, choose the subnet requiring Option 66 configuration.
- 3) In the **DHCP Server Configuration** table, make sure the **DHCP Server Enable** selection list is set to **Enable**.
- 4) Under the **Server Name (Option 66)** make sure the **Enable Option** is set to **Enable**,
- 5) From the **Subnet Specific** selection list, choose
  - **No** to use the default server name
  - **Yes** to override the default server name.
- 6) If you chose **Yes**, complete the fields as required.
- 7) Click **Apply**.

## Configuring the DHCP Server Bootfile Parameters (Option 67)

### Before you start

Make sure the DHCP service is started (**System/Services/User Service**) otherwise the **DHCP Server** tab will be greyed. To use specific files, you must know their name, their path and your server must be accessible by the unit.

### Steps

- 1) Go to **Network/DHCP Server**.
- 2) From the **Select Subnet** selection list, choose the subnet requiring Option 67 configuration.
- 3) In the **DHCP Server Configuration** table, make sure the **DHCP Server Enable** selection list is set to **Enable**.

- 4) Under the **Bootfile Name (Option 67)** section, from the **Enable Option** selection list, choose **Enable** to override the default DHCP Server Bootfile Name.
- 5) From the **Subnet Specific** selection list, choose
  - **No** to use the default configuration.
  - **Yes** to override the default configuration.
- 6) If you chose **Yes**, complete the **Bootfile Name** field.
- 7) Click **Apply**.

## 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.

# Available Documentation

For more details, refer to the [Mediatrix Documentation](#) published on the [Media5 Documentation Portal](#).

# Copyright Notice

Copyright © 2023 Media5 Corporation.

This document contains information that is proprietary to Media5 Corporation.

Media5 Corporation reserves all rights to this document as well as to the Intellectual Property of the document and the technology and know-how that it includes and represents.

This publication cannot be reproduced, neither in whole nor in part, in any form whatsoever, without written prior approval by Media5 Corporation.

Media5 Corporation reserves the right to revise this publication and make changes at any time and without the obligation to notify any person and/or entity of such revisions and/or changes.



[media5corp.com](http://media5corp.com)