

Grandstream Networks, Inc.

**DHCP Option Usage Guide for
Routers&Switches**



DHCP Option Usage Guide for Routers&Switches

Introduction

This document explains how DHCP Options—especially **Option 43 and its Grandstream-specific sub-options**—are used to automatically provision, configure, and manage Grandstream routers, switches, access points, and VoIP devices.

Each section gives:

- A simple explanation of the option
- The use case
- How to configure it (ASCII + Hex examples)

Routers support **ASCII, Hex, and IP Address** formats.

Switches support **ASCII only**.

Option 43 – Grandstream Sub-Options

DHCP Option 43 is commonly used by vendors, including Grandstream, to deliver device-specific configuration parameters during IP assignment. Different sub-options map to different features, such as ACS, VLAN assignment, Manager discovery, or firmware paths.

Sub-Option	Purpose	Description
1	ACS URL	TR-069/ACS server address for device auto-provisioning
2	Provisioning Code	Identifies provider-specific profiles
66	Firmware Server	URL for device firmware upgrades
132	VLAN ID	Assigns VLAN tag to compatible phones/APs
133	VLAN Priority	Assigns 802.1Q priority value
223	Manager (Non-AP)	Discovery for routers/switches
224	Manager (AP)	Discovery for AP devices
245	Management VLAN	AP management VLAN assignment
246	AP Mode	Switches Grandstream routers between Router/AP mode

Sub-Option 1 ACS URL

What it does:

Provides the TR-069/ACS server address that devices should connect to for remote provisioning and management.

Typical use case:

APs or phones inside a VLAN should automatically register with an ACS platform.

Example ACS URL:

`http://ump.avsystem.cloud:10301/cloudacs/grandstream`

Sub Option 1 ACS URL

Insert URL directly.

Hex Example:

01:34:68:74:74:70:3A:2F:2F:75:6D:70:2E:61:76:73:79:73:74:65:6D:2E:63:6C:6F:75:64:3A:31:30:33:30:31:2F:63:6C:6F:75:64:6:

Sub Option 1 ACS URL

What it does:

Identifies the service provider profile that the ACS should apply to the device.

Typical use case:

A phone or HT device sends its Provisioning Code to ACS, which assigns provider-specific settings.

Example value:

Grandstream

ASCII Example:

Grandstream

Sub Option 2 Provisioning Code ASCII Example

Hex Example:

02:0E:67:72:61:6E:64:74:72:65:61:6D:74:65:73:74:FF

Sub Option 2 Provisioning Code Hex Example

Sub-Option 66 Firmware Server Path

What it does:

Specifies the firmware server URL that devices should use for upgrades.

Typical use case:

Large deployments where phones/APs must auto-update via a DHCP-provided server.

Example Firmware URL:

```
http://192.168.120.249/new/
```

ASCII Example:

Insert the string directly.

DHCP Option

Option ⓘ
43

Type
ASCII ▾

Service ⓘ
Firmware Ser... ▾

Content ⓘ
http://192.168.120.249/new/

⊖

Add ╕

Sub Option 66 Firmware Server Path ASCII Example

Hex Example:

```
42:1B:68:74:74:70:3A:2F:2F:31:39:32:2E:31:36:38:2E:31:32:30:2E:32:34:39:2F:6E:65:77:2F:FF
```

DHCP Option

Option ⓘ
43

Type
Hex ▾

Service ⓘ
▾

Content ⓘ
42:1B:68:74:74:70:3A:2F:2F:

⊖

Add ╕

Sub Option 66 Firmware Server Path Hex Example

Sub-Option 132 VLAN ID

What it does:

Assigns a VLAN ID to Grandstream phones/APs using DHCP.

Use case:

Phones automatically join the designated voice VLAN when they boot.

Example value:

```
10
```

ASCII Example:

Hex Example:

84:02:31:30:FF

Sub-Option 133 VLAN Priority

What it does:

Specifies the 802.1Q priority level (0–7) for QoS.

Use case:

Phones require both VLAN ID + Priority to obtain a VLAN IP.

Example value:

5

ASCII Example:

5

DHCP Option

Option ⓘ	Type	Service ⓘ	Content ⓘ	
43	ASCII ▾	VLAN ID ▾	10	⊖
43	ASCII ▾	VLAN Priority ▾	5	⊖
				Add ⊕

Sub Option 132 VLAN ID ASCII Example

Hex Example:

85:01:35:FF

Combined VLAN ID + VLAN Priority (in one line):

84:02:31:30:85:01:35:FF

DHCP Option

Option ⓘ	Type	Service ⓘ	Content ⓘ	
43	Hex ▾	▾	84:02:31:30:85:01:35:FF	⊖
				Add ⊕

Combined VLAN ID + VLAN Priority in one line

Sub-Option 223 Manager Server (Non-AP Devices)

What it does:

Allows Grandstream routers and switches to automatically register with the Grandstream Manager platform.

Use case:

Routers and switches appear in Manager without manual adoption.

Example server:

192.168.202.89:8443

ASCII Example:

192.168.202.89:8443

DHCP Option

Option ⓘ

Type

Service ⓘ

Content ⓘ

43

ASCII ▾

Manager Ser... ▾

192.168.202.89:8443

⊖

Add ╕

Sub Option 223 Manager Server Non AP Devices ASCII Example

Hex Example:

DF:13:31:39:32:2E:31:36:38:2E:32:30:32:2E:38:39:3A:38:34:34:33:FF

DHCP Option

Option ⓘ

Type

Service ⓘ

Content ⓘ

43

Hex ▾

▾

DF:13:31:39:32:2E:31:36:38

⊖

Add ╕

Sub Option 223 Manager Server Non AP Devices Hex Example

Sub-Option 224 Manager Server (AP Devices)

What it does:

Same as Sub-Option 223 but specifically for APs.

Use case:

APs automatically register with the Manager for centralized monitoring.

Example server:

192.168.202.89:10014

ASCII Example:

192.168.202.89:10014

DHCP Option

Option ⓘ

Type

Service ⓘ

Content ⓘ

43

ASCII ▾

Manager Ser... ▾

192.168.202.89:10014

⊖

Add ╕

Sub Option 224 Manager Server AP Devices ASCII Example

Hex Example:

E0:14:31:39:32:2E:31:36:38:2E:32:30:32:2E:38:39:3A:31:30:30:31:34:FF

DHCP Option

Option ⓘ
43

Type
Hex ▾

Service ⓘ
▾

Content ⓘ
E0:14:31:39:32:2E:31:36:38:

⊖

Add

⊕

Sub Option 224 Manager Server AP Devices Hex Example

Sub-Option 245 AP Management VLAN

What it does:

Assigns a management VLAN to a Grandstream access point.

Use case:

AP boots, receives VLAN information, and obtains an IP from the management VLAN.

Example value:

vlan:10

ASCII Example:

vlan:10

DHCP Option

Option ⓘ
43

Type
ASCII ▾

Service ⓘ
AP Managem... ▾

Content ⓘ
vlan:10

⊖

Add

⊕

Sub Option 245 AP Management VLAN ASCII Example

Hex Example:

F5:07:76:6C:61:6E:3A:31:30:FF

DHCP Option

Option ⓘ
43

Type
Hex ▾

Service ⓘ
▾

Content ⓘ
F5:07:76:6C:61:6E:3A:31:30:

⊖

Add

⊕

Sub Option 245 AP Management VLAN Hex Example

Sub-Option 246 AP Mode Switch

What it does:

Switches a Grandstream router between Router Mode and AP Mode.

Use case:

In multi-router environments, some devices should operate only as APs.

Possible values:

- 0 = Router mode
- 1 = AP mode

Example value:

1

ASCII Example:

1

DHCP Option

Option ⓘ

Type

Service ⓘ

Content ⓘ

43

ASCII ▾

AP Mode ▾

1

⊖

Add ╕

Sub Option 246 AP Mode Switch ASCII Example

Hex Example:

F6:01:31:FF

DHCP Option

Option ⓘ

Type

Service ⓘ

Content ⓘ

43

Hex ▾

▾

F6:01:31:FF

⊖

Add ╕

Sub Option 246 AP Mode Switch Hex Example

Custom Sub-Options (Flexible Configuration)

What it does:

Allows configuration of features that do not map to predefined sub-options.

Use case:

Custom upgrade paths or special provisioning mechanisms.

Example: AP upgrade inside a VLAN

B.http://172.16.0.211/AP_Version/1.0.25.5/

Here:

- "B" is ASCII for Option 66

DHCP Option

Option ⓘ

Type

Service ⓘ

Content ⓘ

43

ASCII ▾

Custom ▾

B.http://172.16.0.211/AP_Vi

⊖

Add ╕

Other Common DHCP Options

These are not part of Option 43, but your document includes them, so here they are with explanations and examples.

Option 2: Time Offset

What it does:

Sets the time zone offset (in seconds).

Use case:

Phones will adopt the time zone configured by the DHCP server/UCM.

Example:

Offset for -3 hours:

```
-10800
```

Option 42: NTP Server Address

What it does:

Provides the NTP server address for time synchronization.

Use case:

Phones sync time with UCM or central NTP.

Example:

```
192.168.20.29
```

Option 3: Default Gateway

What it does:

Specifies the default gateway for a VLAN.

Use case:

PCs or devices inside VLAN 10 should use a specific gateway.

Example:

Supported Devices

Device type	Models supported
Routers	GWN7062
	GWN7052(F)
	GWN7001/GWN7002/GWN7003
	GWN7062E/GWN7062ET
Layer 3 Switches	GWN7800 Pro Series
	GWN7801(P) / GWN7802(P) / GWN7803(P)
	GWN7806(P)
	GWN7811(P) / GWN7812P / GWN7813(P)
	GWN7816(P)
	GWN7821P / GWN7822P
	GWN7830 / GWN7831 / GWN7832
Convergence devices	GCC6010
	GCC6010W
	GCC6011
	GCC6020
	GCC6021

Need Support?

Can't find the answer you're looking for? Don't worry we're here to help!

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