

One Connection · Infinite Possibilities

Tech Pack V Switching - LACP

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D-Link®

Themen

- Was ist LACP?
- Konfiguration an D-Link Switchen
- LACP & VLAN
- LACP HASH Algorithmen (Übersicht)

LACP

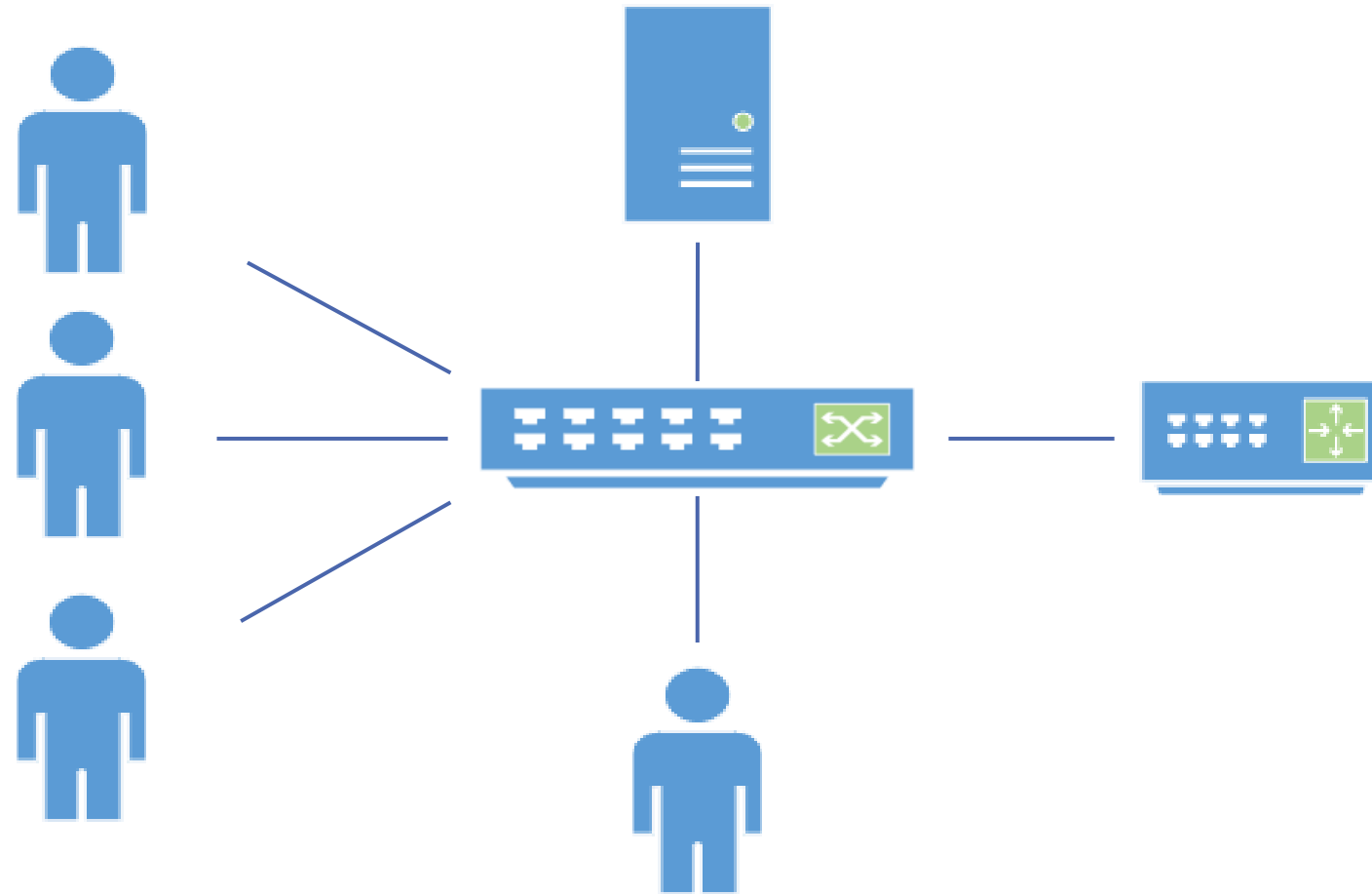
Link Aggregation Protocol



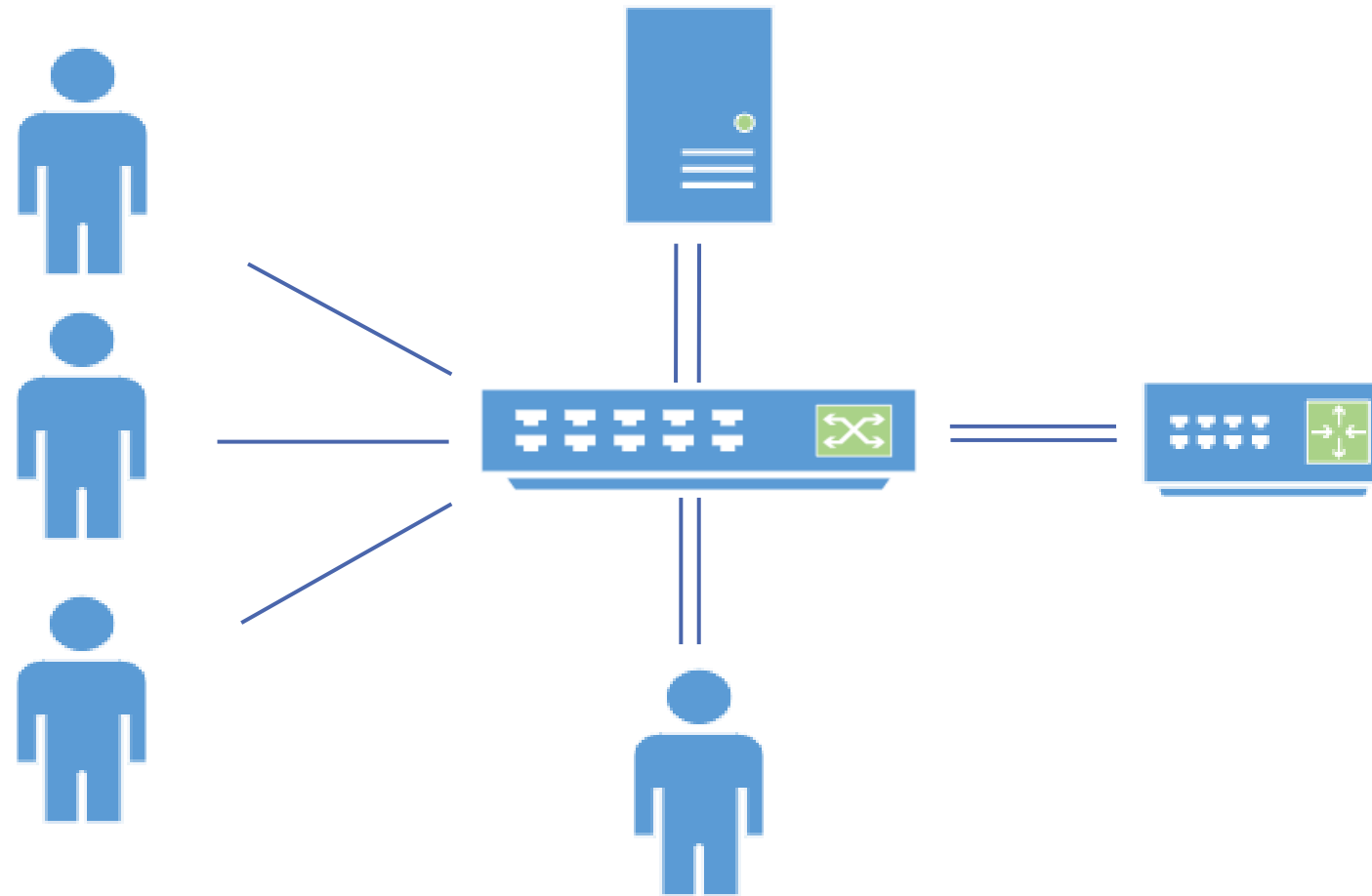
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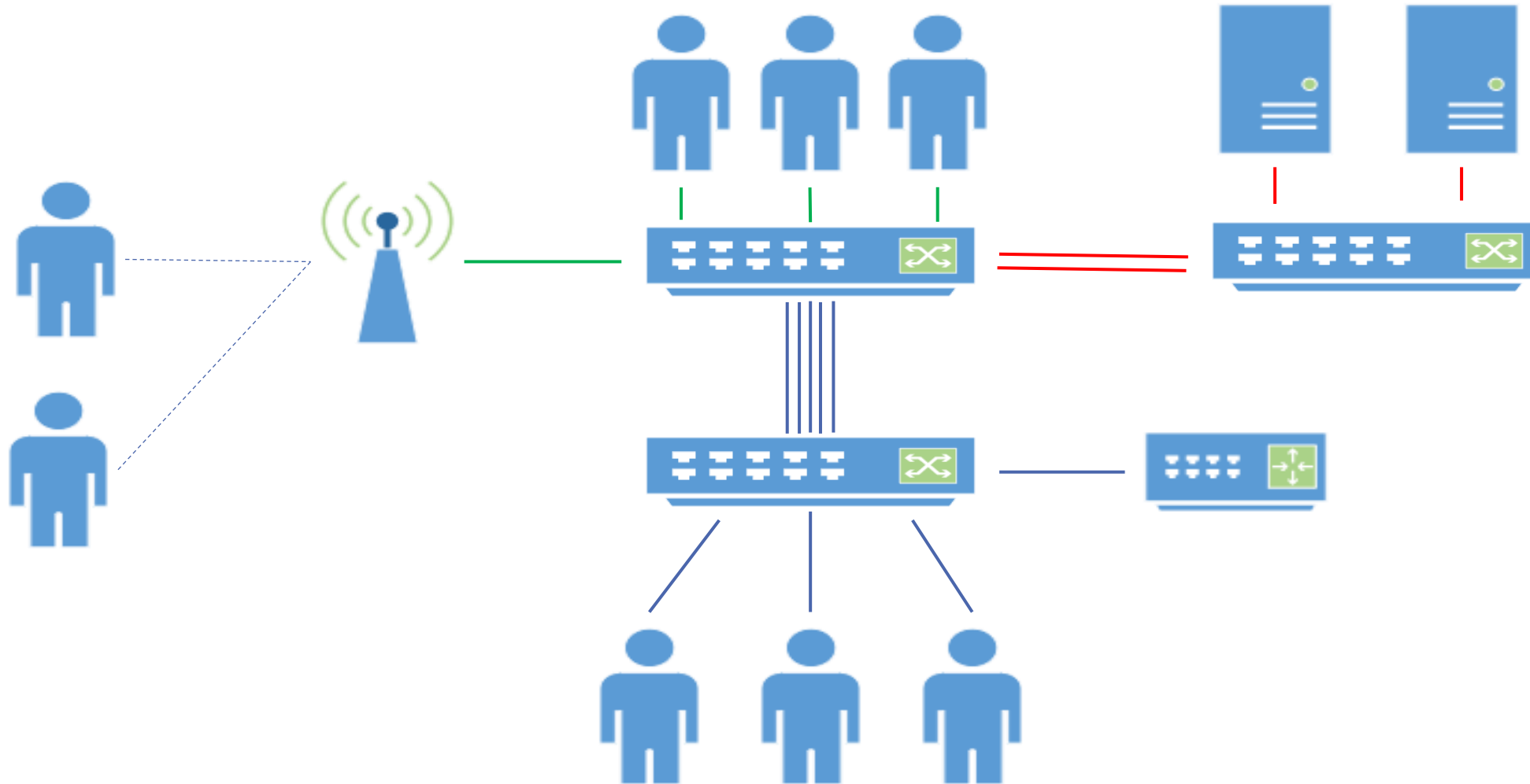
Was ist LACP? – ein normales Netzwerk (früher)



Was ist LACP? – mögliche LAGs



Was ist LACP? – Netzwerkwachstum (heute)



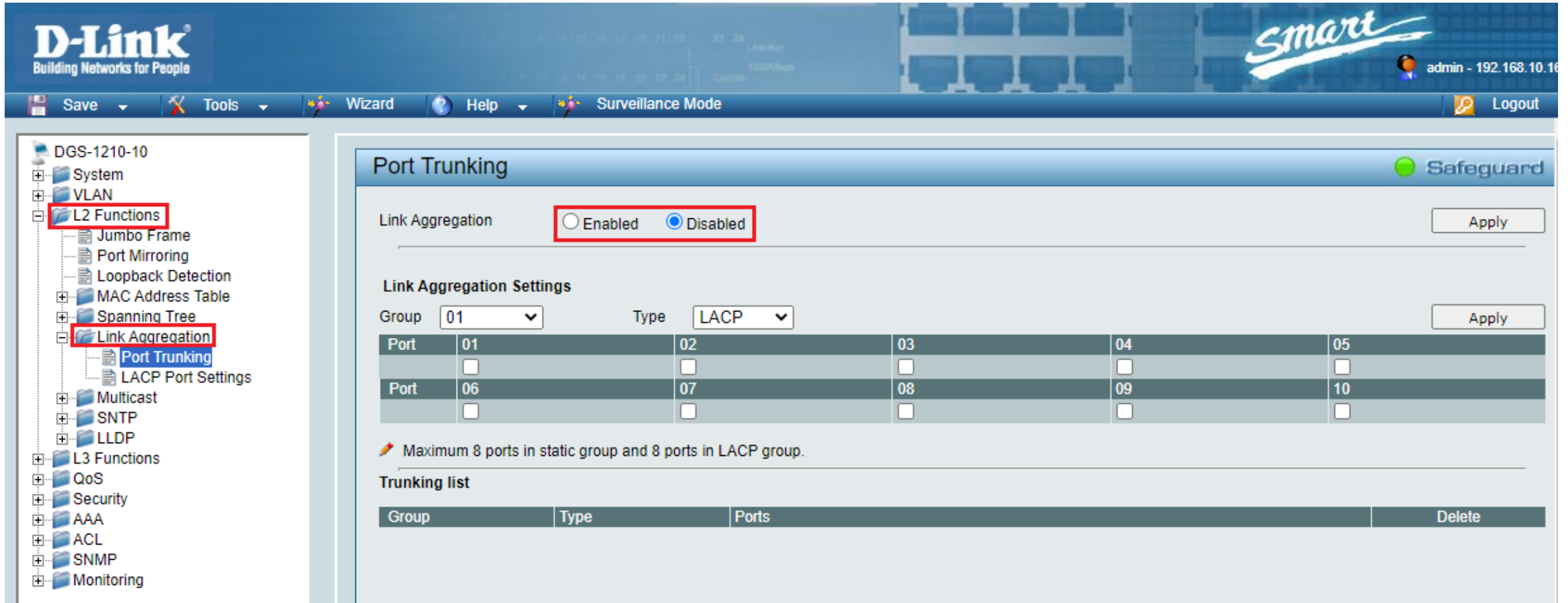
Was ist LACP? – die Definition

- Link Aggregation
- Bündelung mehrere physischer LAN-Schnittstellen zu einem logischen Kanal
 - Erhöhung des Datendurchsatzes
 - Ausfallsicherheit
 - Wichtig! Es führt nicht zu einer Erhöhung der Geschwindigkeit der einzelnen Verbindung
- Fast jeder Netzwerkhersteller hat ein eigenes Verfahren für Link Aggregation, welche untereinander inkompatibel sind (meistens als statischer Trunk bezeichnet)
- LACP (Link Aggregation Control Protocol)
 - Herstellerunabhängiger Standard für Link Aggregation (IEEE 802.1AX-2008 vormalig IEEE 802.3ad)

Was ist LACP? – die Funktionsweise

- Bis zu acht Ports können zu einer Link Aggregation Group (LAG) verbunden
- Ein LAG wird wie ein einzelner Port behandelt (kein Loop)
- Erkennung und Kontrolle erfolgt über LACP BPDUs (Bridge Protocol Data Units)
- LACP Modus:
 - Aktiv (Active LACP)
 - Sekündliches Senden des Kontroll-Paketes
 - Passiv (Passive LACP)
 - Nur antworten auf ein empfangenes Kontroll-Paket
 - Aktiv-Aktiv, Aktiv-Passiv (weniger Pakete)
- Load Balancing Algorithmen zum Verteilen der Pakete auf die verfügbaren Leitungen

Die Konfiguration eines DGS-1210 Rev F/G



The screenshot shows the D-Link web interface for configuring a DGS-1210-10 switch. The left sidebar contains a tree view of configuration options, with 'L2 Functions' and 'Link Aggregation' highlighted. The main content area is titled 'Port Trunking' and features a 'Safeguard' status indicator. Under 'Link Aggregation', the 'Enabled' radio button is selected. Below this, the 'Link Aggregation Settings' section shows 'Group' set to '01' and 'Type' set to 'LACP'. A table lists ports 01 through 10, each with a checkbox for selection. A note states: 'Maximum 8 ports in static group and 8 ports in LACP group.' At the bottom, a 'Trunking list' table is partially visible.

DGS-1210-10

- System
- VLAN
- L2 Functions**
 - Jumbo Frame
 - Port Mirroring
 - Loopback Detection
 - MAC Address Table
 - Spanning Tree
 - Link Aggregation**
 - Port Trunking**
 - LACP Port Settings
 - Multicast
 - SNTP
 - LLDP
- L3 Functions
- QoS
- Security
- AAA
- ACL
- SNMP
- Monitoring

Port Trunking Safeguard

Link Aggregation ☐ Enabled ☒ Disabled Apply

Link Aggregation Settings

Group **01** Type **LACP** Apply

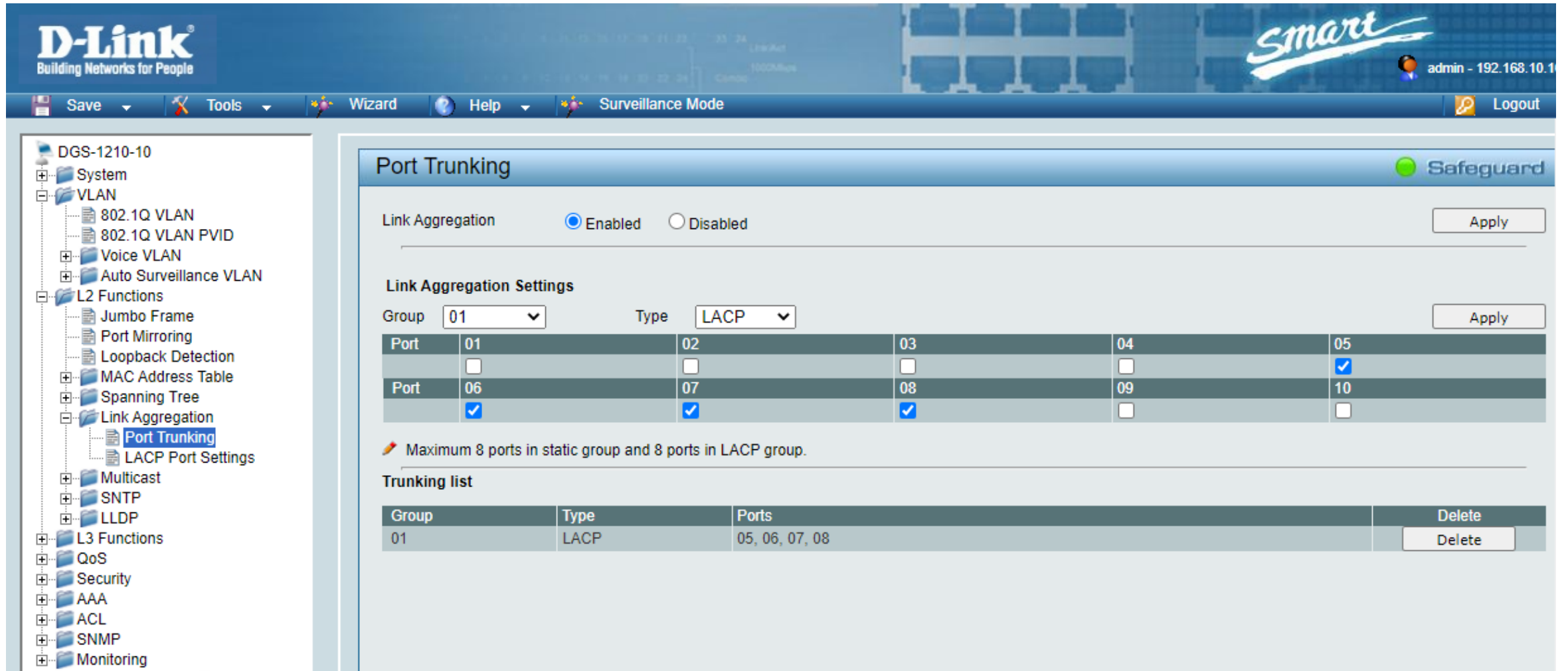
Port	01	02	03	04	05
	☐	☐	☐	☐	☐
Port	06	07	08	09	10
	☐	☐	☐	☐	☐

Maximum 8 ports in static group and 8 ports in LACP group.

Trunking list

Group	Type	Ports	Delete
-------	------	-------	--------

Die Konfiguration eines DGS-1210 Rev F/G



The image shows the web-based configuration interface of a D-Link DGS-1210-10 switch. The left sidebar contains a tree view of the configuration menu, with 'Port Trunking' selected under 'Link Aggregation'. The main content area displays the 'Port Trunking' configuration page. At the top, 'Link Aggregation' is set to 'Enabled'. Below this, 'Link Aggregation Settings' shows 'Group' 01 and 'Type' LACP. A table lists ports 01 through 10, with checkboxes indicating which ports are included in the trunking group. Ports 01, 02, 03, 06, 07, and 08 are checked. A note states: 'Maximum 8 ports in static group and 8 ports in LACP group.' At the bottom, a 'Trunking list' table shows the configuration for Group 01 (LACP) including ports 05, 06, 07, and 08.

Port Trunking Safeguard

Link Aggregation ☒ Enabled ☐ Disabled Apply

Link Aggregation Settings

Group Type Apply

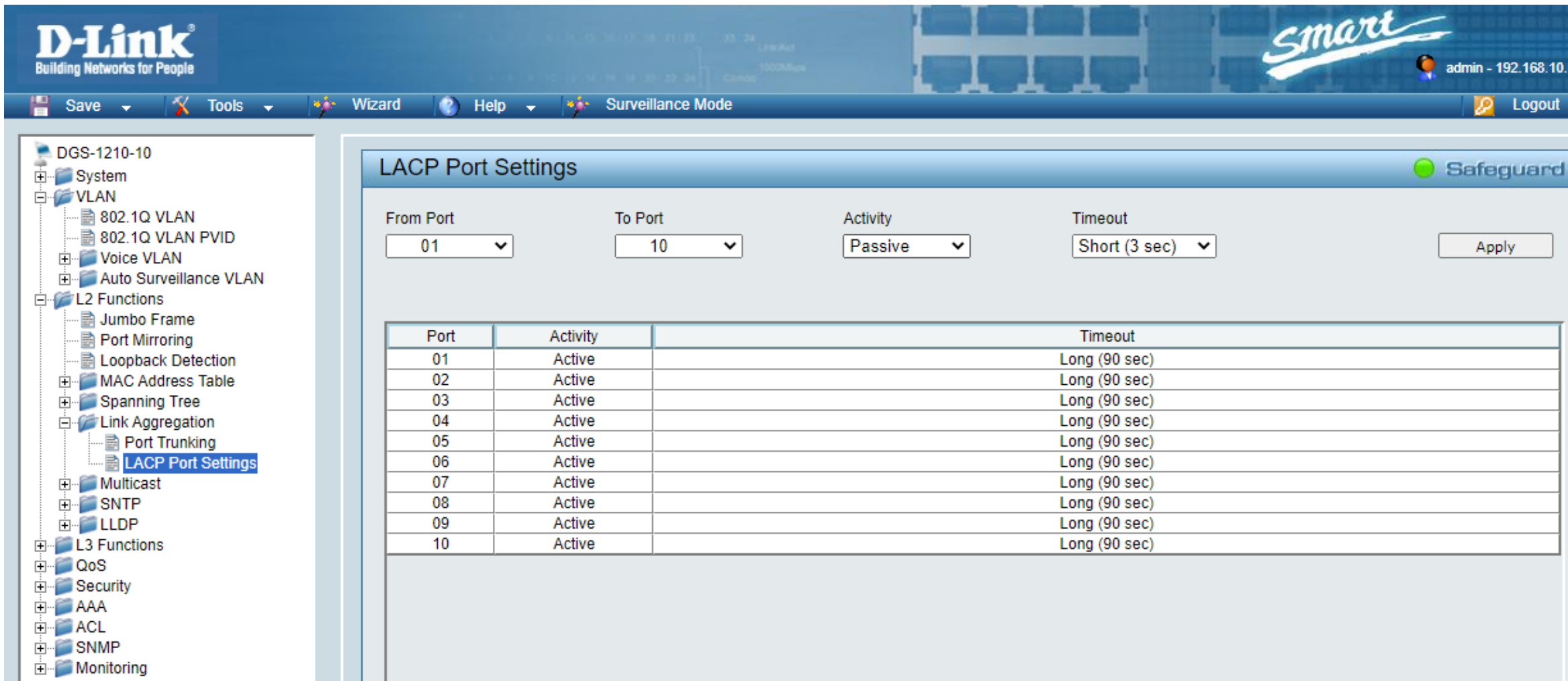
Port	01	02	03	04	05
	☐	☐	☐	☐	☒
Port	06	07	08	09	10
	☒	☒	☒	☐	☐

 Maximum 8 ports in static group and 8 ports in LACP group.

Trunking list

Group	Type	Ports	Delete
01	LACP	05, 06, 07, 08	Delete

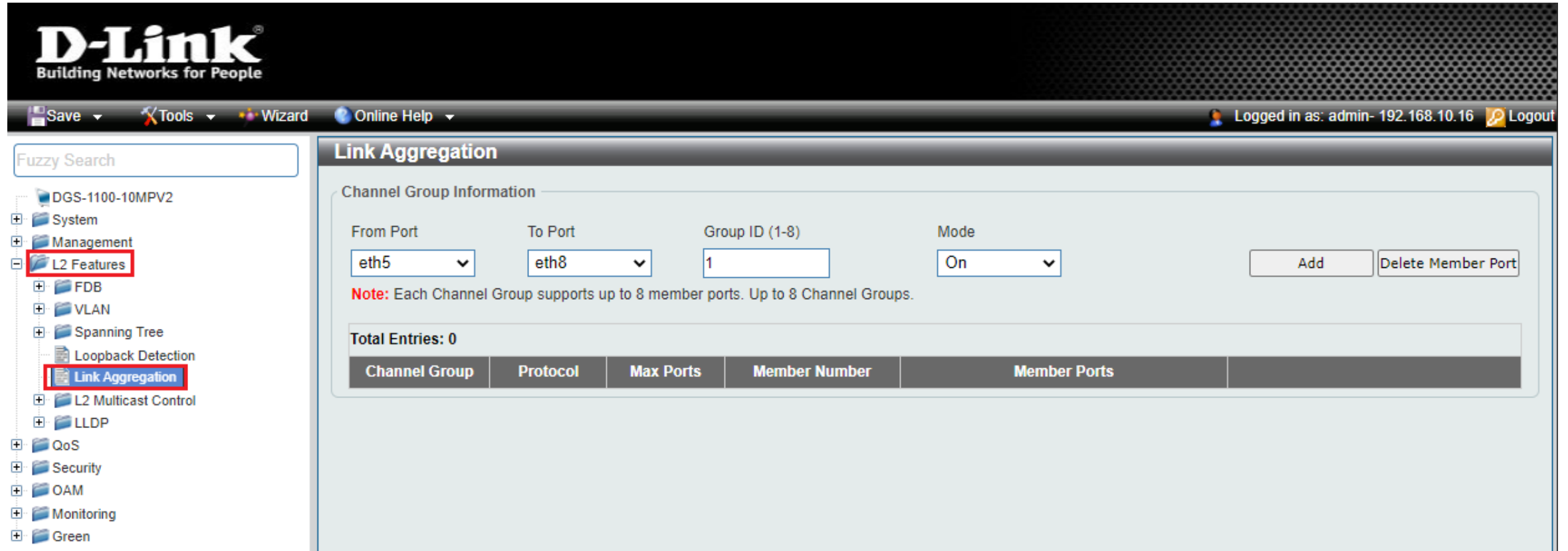
Die Konfiguration eines DGS-1210 Rev F/G



The screenshot shows the D-Link web management interface for a DGS-1210-10 switch. The left sidebar contains a tree view of configuration categories: System, VLAN, Voice VLAN, Auto Surveillance VLAN, L2 Functions, L3 Functions, QoS, Security, AAA, ACL, SNMP, and Monitoring. The 'L2 Functions' category is expanded, showing sub-items like Jumbo Frame, Port Mirroring, Loopback Detection, MAC Address Table, Spanning Tree, Link Aggregation, Port Trunking, and LACP Port Settings. The 'LACP Port Settings' page is active, displaying configuration options for LACP. At the top, there are dropdown menus for 'From Port' (01), 'To Port' (10), 'Activity' (Passive), and 'Timeout' (Short (3 sec)), followed by an 'Apply' button. Below these, a table lists the LACP settings for each port (01 to 10).

Port	Activity	Timeout
01	Active	Long (90 sec)
02	Active	Long (90 sec)
03	Active	Long (90 sec)
04	Active	Long (90 sec)
05	Active	Long (90 sec)
06	Active	Long (90 sec)
07	Active	Long (90 sec)
08	Active	Long (90 sec)
09	Active	Long (90 sec)
10	Active	Long (90 sec)

Die Konfiguration des DGS-1100-V2



The screenshot shows the D-Link web interface for configuring Link Aggregation on a DGS-1100-10MPV2 switch. The left sidebar shows the navigation menu with 'L2 Features' and 'Link Aggregation' highlighted. The main content area is titled 'Link Aggregation' and contains a 'Channel Group Information' section. This section has four input fields: 'From Port' (eth5), 'To Port' (eth8), 'Group ID (1-8)' (1), and 'Mode' (On). There are 'Add' and 'Delete Member Port' buttons. A note states: 'Each Channel Group supports up to 8 member ports. Up to 8 Channel Groups.' Below this is a table with the header 'Total Entries: 0' and columns: Channel Group, Protocol, Max Ports, Member Number, and Member Ports. The table is currently empty.

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Save Tools Wizard Online Help

Logged in as: admin- 192.168.10.16 Logout

Fuzzy Search

- DGS-1100-10MPV2
- System
- Management
- L2 Features**
 - FDB
 - VLAN
 - Spanning Tree
 - Loopback Detection
 - Link Aggregation**
 - L2 Multicast Control
 - LLDP
- QoS
- Security
- OAM
- Monitoring
- Green

Link Aggregation

Channel Group Information

From Port: eth5 To Port: eth8 Group ID (1-8): 1 Mode: On

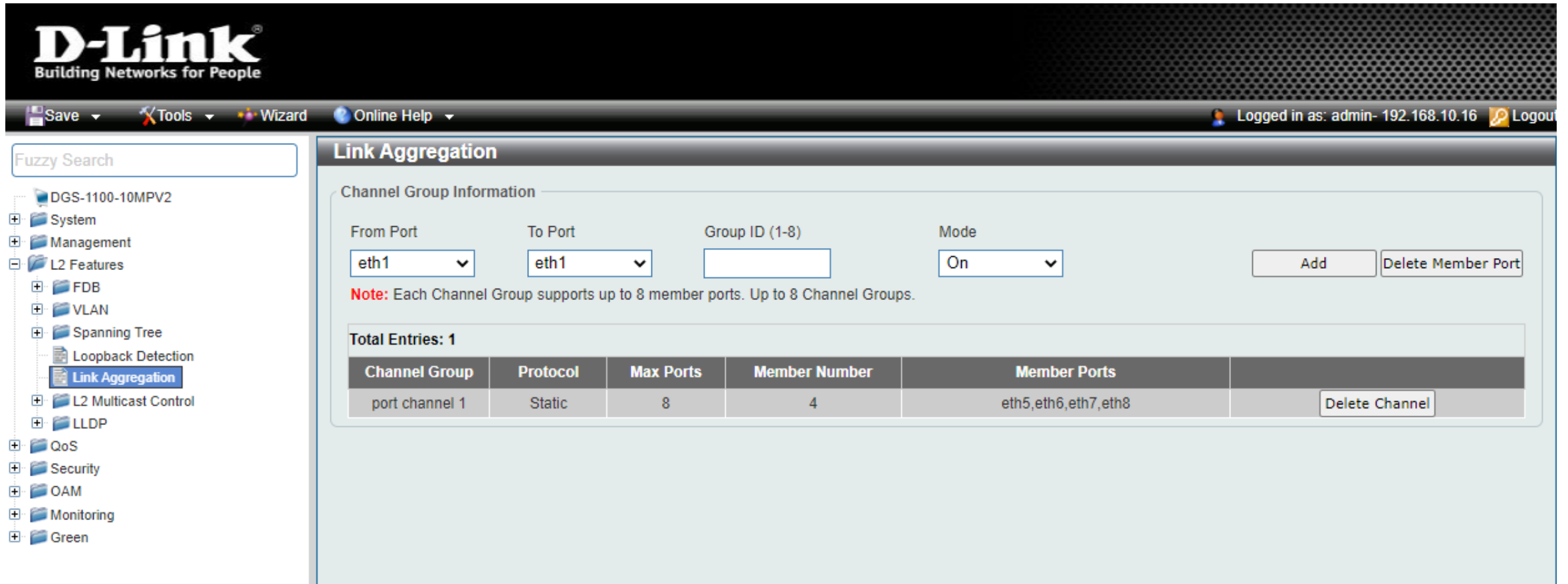
Add Delete Member Port

Note: Each Channel Group supports up to 8 member ports. Up to 8 Channel Groups.

Total Entries: 0

Channel Group	Protocol	Max Ports	Member Number	Member Ports
---------------	----------	-----------	---------------	--------------

Die Konfiguration des DGS-1100-V2



The screenshot shows the D-Link web interface for configuring Link Aggregation on a DGS-1100-10MPV2 switch. The left sidebar contains a navigation tree with categories like System, Management, L2 Features, L2 Multicast Control, QoS, Security, OAM, Monitoring, and Green. The 'Link Aggregation' option under L2 Features is selected. The main content area is titled 'Link Aggregation' and includes a 'Channel Group Information' section with input fields for 'From Port' (eth1), 'To Port' (eth1), 'Group ID (1-8)', and 'Mode' (On). There are 'Add' and 'Delete Member Port' buttons. A note states: 'Each Channel Group supports up to 8 member ports. Up to 8 Channel Groups.' Below this is a table showing 'Total Entries: 1' with columns for Channel Group, Protocol, Max Ports, Member Number, Member Ports, and a 'Delete Channel' button.

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Save Tools Wizard Online Help

Logged in as: admin- 192.168.10.16 Logout

Fuzzy Search

- DGS-1100-10MPV2
- System
- Management
- L2 Features
 - FDB
 - VLAN
 - Spanning Tree
 - Loopback Detection
 - Link Aggregation**
- L2 Multicast Control
- LLDP
- QoS
- Security
- OAM
- Monitoring
- Green

Link Aggregation

Channel Group Information

From Port: eth1 To Port: eth1 Group ID (1-8): Mode: On

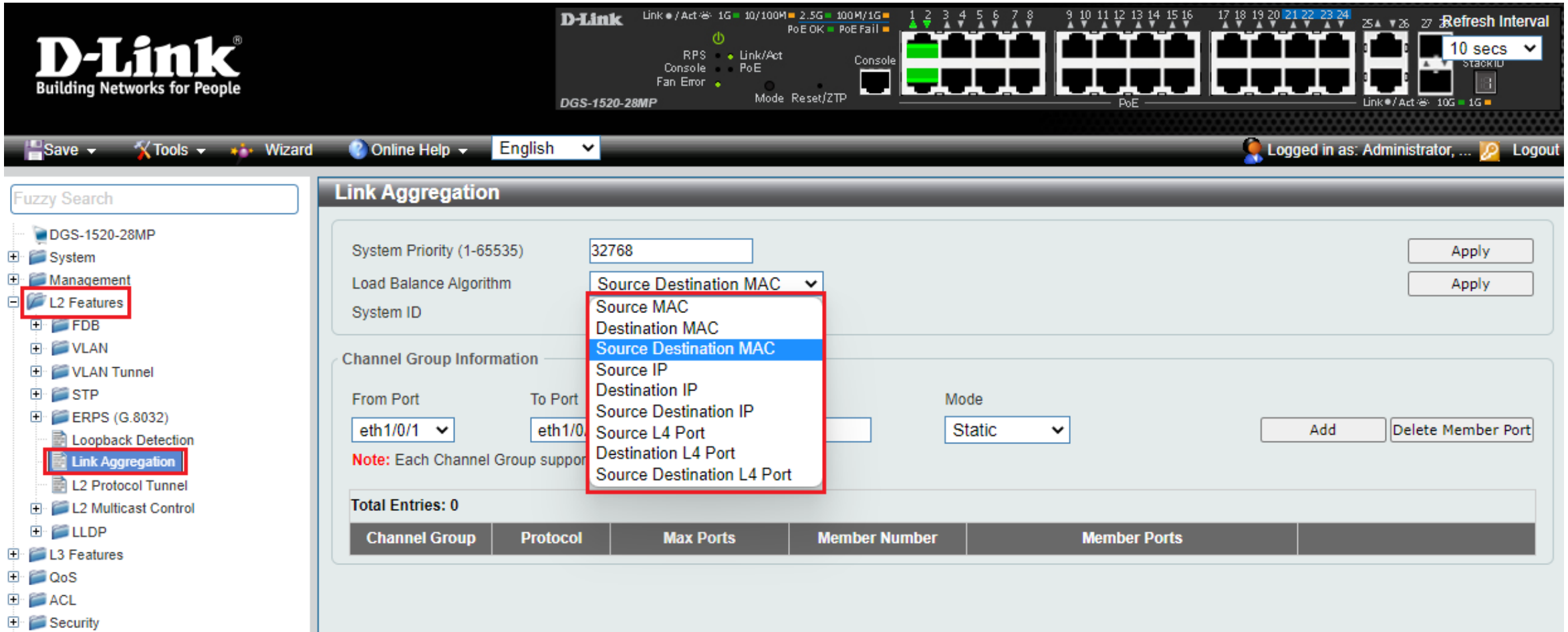
Add Delete Member Port

Note: Each Channel Group supports up to 8 member ports. Up to 8 Channel Groups.

Total Entries: 1

Channel Group	Protocol	Max Ports	Member Number	Member Ports	
port channel 1	Static	8	4	eth5,eth6,eth7,eth8	Delete Channel

Die Konfiguration des DGS-1520



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DGS-1520-28MP

Link • / Act: 1G • 10/100M • 2.5G • 100M/1G • PoE OK • PoE Fail

RPS • Link/Act • Console • PoE • Fan Error • Mode Reset/ZTP

Refresh Interval: 10 secs

Save Tools Wizard Online Help English

Logged in as: Administrator, ... Logout

Fuzzy Search

DGS-1520-28MP

- System
- Management
 - L2 Features**
 - FDB
 - VLAN
 - VLAN Tunnel
 - STP
 - ERPS (G.8032)
 - Loopback Detection
 - Link Aggregation**
 - L2 Protocol Tunnel
 - L2 Multicast Control
 - LLDP
- L3 Features
 - QoS
 - ACL
 - Security

Link Aggregation

System Priority (1-65535): 32768 Apply

Load Balance Algorithm: Source Destination MAC Apply

System ID

Channel Group Information

From Port: eth1/0/1 To Port: eth1/0/1 Mode: Static

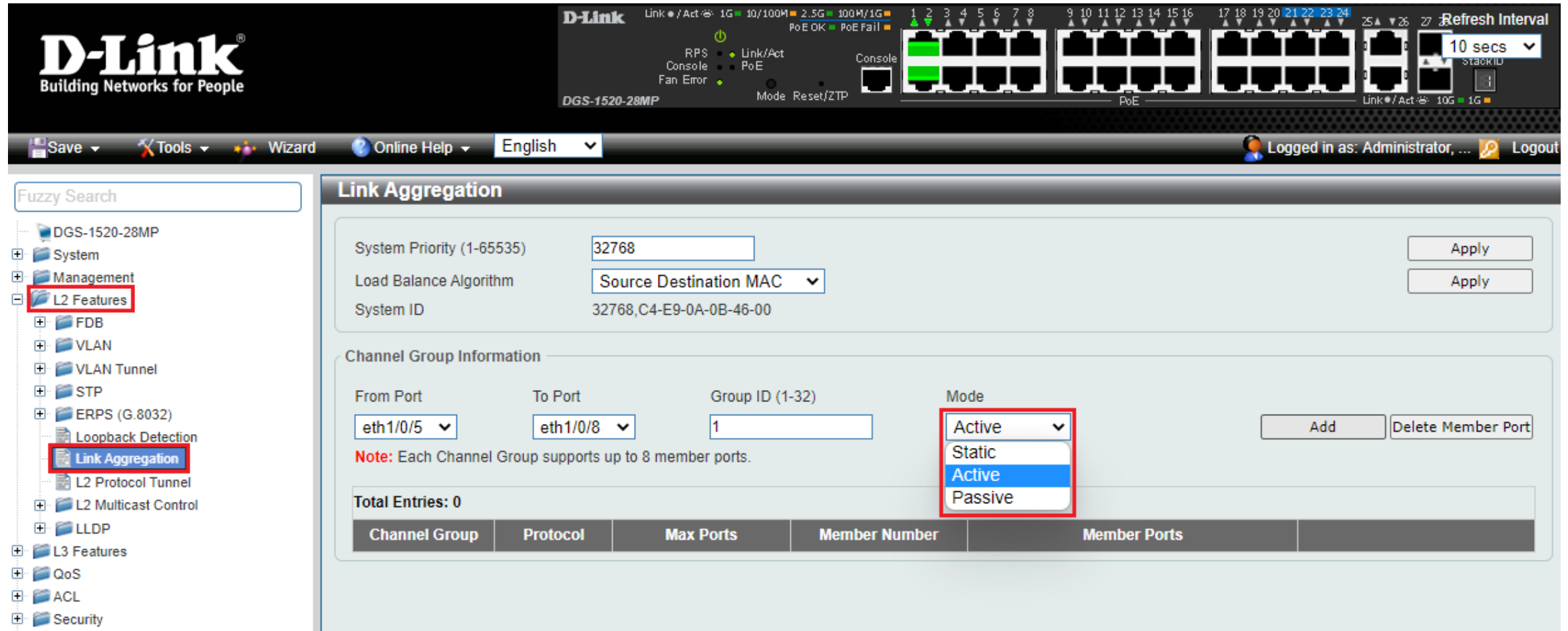
Add Delete Member Port

Note: Each Channel Group supports up to 24 member ports.

Total Entries: 0

Channel Group	Protocol	Max Ports	Member Number	Member Ports
---------------	----------	-----------	---------------	--------------

Die Konfiguration des DGS-1520



The screenshot displays the D-Link web management interface for a DGS-1520-28MP switch. The top header includes the D-Link logo, status indicators for various ports (1G, 10/100M, 2.5G, 100M/1G), and a refresh interval set to 10 seconds. The left sidebar shows a navigation tree with 'L2 Features' and 'Link Aggregation' highlighted. The main content area is titled 'Link Aggregation' and contains the following configuration fields:

- System Priority (1-65535): 32768
- Load Balance Algorithm: Source Destination MAC
- System ID: 32768,C4-E9-0A-0B-46-00

Below these fields is the 'Channel Group Information' section with a table for configuring channel groups:

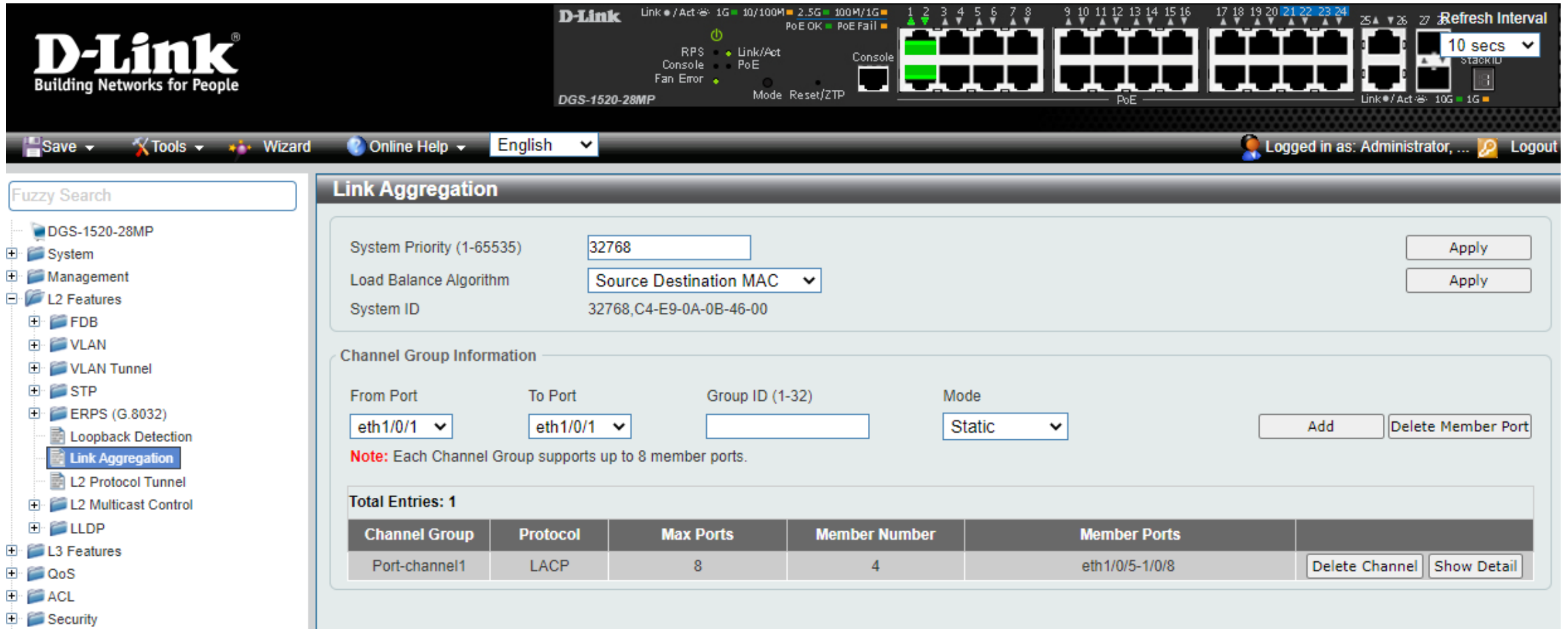
From Port	To Port	Group ID (1-32)	Mode	
eth1/0/5	eth1/0/8	1	Active	Add Delete Member Port

A red box highlights the 'Mode' dropdown menu, which is currently set to 'Active'. The dropdown options are: Active, Static, Active, and Passive. A note below the table states: 'Note: Each Channel Group supports up to 8 member ports.'

At the bottom, there is a table showing the total entries and a list of channel groups:

Channel Group	Protocol	Max Ports	Member Number	Member Ports
Total Entries: 0				

Die Konfiguration des DGS-1520



The screenshot displays the D-Link web management interface for a DGS-1520-28MP switch. The top header includes the D-Link logo, status indicators for various ports (1G, 10/100M, 2.5G, 100M/1G), and a refresh interval set to 10 seconds. The left sidebar shows a navigation tree with 'Link Aggregation' selected under 'L2 Features'. The main content area is titled 'Link Aggregation' and contains the following configuration options:

- System Priority (1-65535): 32768
- Load Balance Algorithm: Source Destination MAC
- System ID: 32768,C4-E9-0A-0B-46-00

Below these are 'Channel Group Information' fields:

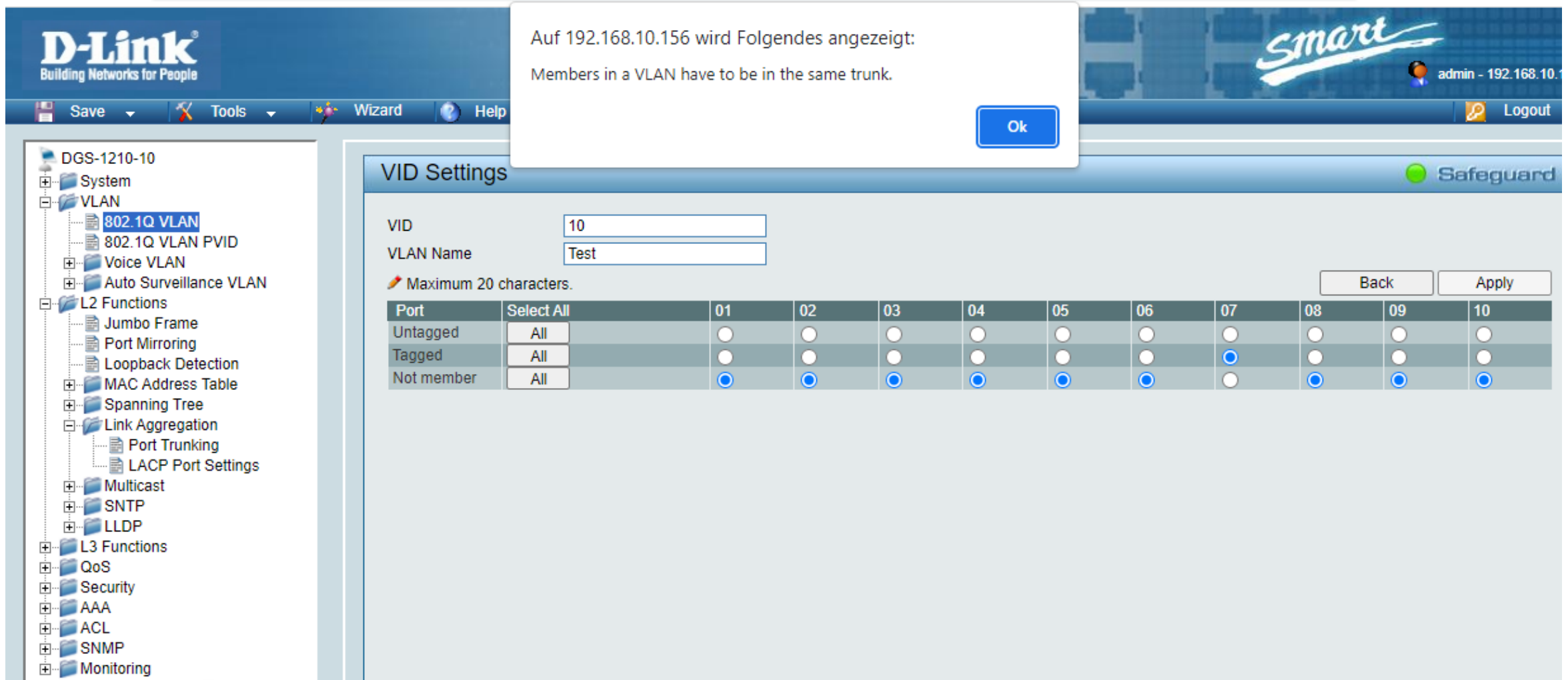
- From Port: eth1/0/1
- To Port: eth1/0/1
- Group ID (1-32): (empty)
- Mode: Static

Buttons for 'Add' and 'Delete Member Port' are present. A note states: 'Each Channel Group supports up to 8 member ports.'

The 'Total Entries: 1' section contains a table with the following data:

Channel Group	Protocol	Max Ports	Member Number	Member Ports	
Port-channel1	LACP	8	4	eth1/0/5-1/0/8	Delete Channel Show Detail

Die Konfiguration des VLAN – DGS-1210



Auf 192.168.10.156 wird Folgendes angezeigt:
Members in a VLAN have to be in the same trunk.

Ok

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Save Tools Wizard Help

DGS-1210-10

- System
- VLAN
 - 802.1Q VLAN
 - 802.1Q VLAN PVID
- Voice VLAN
- Auto Surveillance VLAN
- L2 Functions
 - Jumbo Frame
 - Port Mirroring
 - Loopback Detection
- MAC Address Table
- Spanning Tree
- Link Aggregation
 - Port Trunking
 - LACP Port Settings
- Multicast
- SNTP
- LLDP
- L3 Functions
- QoS
- Security
- AAA
- ACL
- SNMP
- Monitoring

VID Settings

VID: 10

VLAN Name: Test

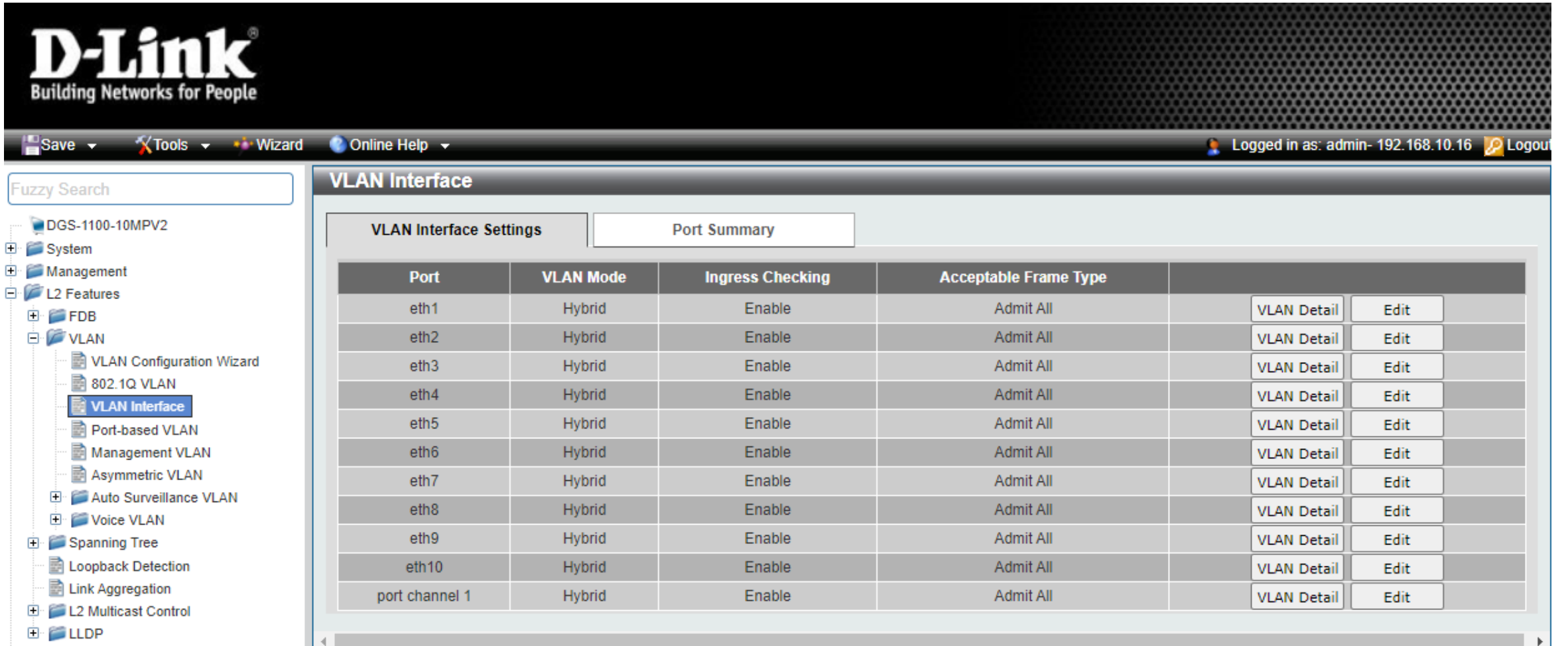
Maximum 20 characters.

Back Apply

Port	Select All	01	02	03	04	05	06	07	08	09	10
Untagged	All	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Tagged	All	☐	☐	☐	☐	☐	☐	☒	☐	☐	☐
Not member	All	☒	☒	☒	☒	☒	☒	☐	☒	☒	☒

Safeguard

Die Konfiguration des VLAN - DGS-1100-V2/DGS-1520



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Save Tools Wizard Online Help

Logged in as: admin- 192.168.10.16 Logout

Fuzzy Search

DGS-1100-10MPV2

- System
- Management
- L2 Features
 - FDB
 - VLAN
 - VLAN Configuration Wizard
 - 802.1Q VLAN
 - VLAN Interface**
 - Port-based VLAN
 - Management VLAN
 - Asymmetric VLAN
 - Auto Surveillance VLAN
 - Voice VLAN
- Spanning Tree
- Loopback Detection
- Link Aggregation
- L2 Multicast Control
- LLDP

VLAN Interface

VLAN Interface Settings Port Summary

Port	VLAN Mode	Ingress Checking	Acceptable Frame Type		
eth1	Hybrid	Enable	Admit All	VLAN Detail	Edit
eth2	Hybrid	Enable	Admit All	VLAN Detail	Edit
eth3	Hybrid	Enable	Admit All	VLAN Detail	Edit
eth4	Hybrid	Enable	Admit All	VLAN Detail	Edit
eth5	Hybrid	Enable	Admit All	VLAN Detail	Edit
eth6	Hybrid	Enable	Admit All	VLAN Detail	Edit
eth7	Hybrid	Enable	Admit All	VLAN Detail	Edit
eth8	Hybrid	Enable	Admit All	VLAN Detail	Edit
eth9	Hybrid	Enable	Admit All	VLAN Detail	Edit
eth10	Hybrid	Enable	Admit All	VLAN Detail	Edit
port channel 1	Hybrid	Enable	Admit All	VLAN Detail	Edit

LACP Hash-Algorithmen

- Layer 2
 - MAC basiert
 - SRC, DST, SRC-DST
- Layer 3
 - IP basiert
 - SRC, DST, SRC-DST
- Layer 4
 - Session ID basiert

Zeit für Fragen



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Vertriebsregionen und Ansprechpartner



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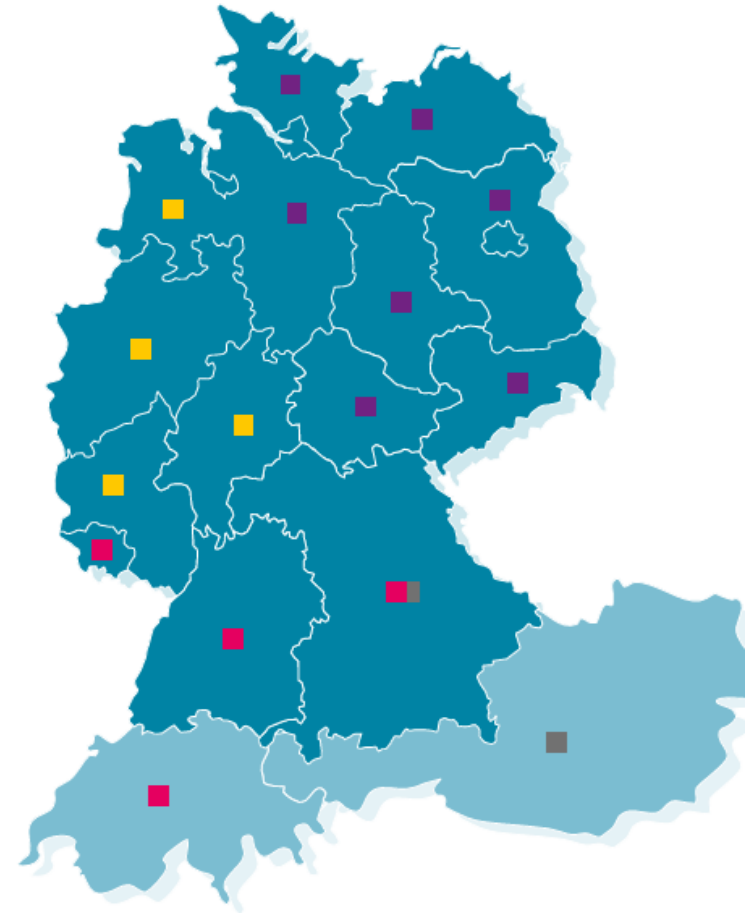


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D-Link Service Angebot



WLAN-Ausleuchtung

- Theoretische WLAN-Ausleuchtung anhand von Grundrissplänen | Wireless LAN Planungs-Service

[Kostenfrei - hier anfragen*](#)

- Je nach baulichen Gegebenheiten: Vor-Ort-Messung für neues WLAN | Wireless LAN Ausleuchtungs-Service

[Angebot anfragen](#)



Netzwerkplanung

- Optimale Planung für Ihre Kunden | Netzwerkplanungs-Service
- Basierend auf den Anforderungen Ihres Kunden
- Angebot mit Stückliste, Produktinformationen und Preisen (über Ihren Distributor)

[Kostenfrei - hier anfragen*](#)

*Kostenfrei
bis 31.12.2026

Mehr Service gefällig?



Analyse bestehender Netzwerke

- Exakte Messung bei Ihrem Kunden vor Ort | Wireless LAN Validierungs-Service
- Ermittelt Schwachstellen / Funklöcher im aktiven Netzwerk
- Bei Optimierungsbedarf: Produktvorschläge und Stückliste für die Beschaffung

[Angebot anfragen](#)



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- Auftrag ausgeführt, Projekt beendet?
- Fortlaufender Support für Ihre Kunden
- Wir empfehlen den Remote-Wartungsservice unseres Partners BITCAM IT

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