

HowTo: Einrichtung statisches Routing mit einem DGS-1500-xx

[Voraussetzungen]

1. DGS-1500-xx mit aktueller Firmware 2.10.002 und höher

[Szenario]

Ein DGS-1500-xx soll verschiedene Netzwerke lokal Routen, ein Internetzugang wird über ein entsprechendes Gateway zur Verfügung gestellt.





[Vorbereitung]

- ⇒ Der DGS-1500-xx hat im Auslieferungszustand die Standard IP 10.90.90/8 sowie das Passwort "admin"
- ⇒ Bitte ändern Sie dies bei der Ersteinrichtung (Integration in Ihre bestehende Infrastruktur) des DGS-1500-xx in Ihrem Netzwerk, für die genaue Vorgehensweise der Einstellung der IP & des Benutzernamens schlagen Sie bitte im Handbuch (<u>ftp://ftp.dlink.de/dgs/</u>) nach
- Stellen Sie bitte sicher, dass Sie die aktuellste Firmware f
 ür den DGS-1500-xx installiert haben (<u>ftp://ftp.dlink.de/dgs/</u>)
- ⇒ Beachten Sie die Unterschiede bezüglich 802.1Q tagged und untagged VLAN
- ⇒ Bitte beachten Sie, dass das "default" VLAN (VLAN ID 1) nicht routbar ist
- ⇒ Bitte beachten Sie, dass Sie nur auf das jeweilige IP Interface f
 ür das eigene VLAN zugreifen k
 önnen



[Anlegen der VLANs]

- 1.) Gehen Sie in das Menü VLAN und auf das Untermenü 802.1Q VLAN
 - a. Stellen Sie sicher, dass Sie "Asymetric VLAN" deaktiviert haben
 - b. Mittels "Add" können Sie zusätzliche VLANs anlegen

DGS-1500-28 ਦਿ∵	802.1	Q VLAN Setting	js				Safeguard
VLAN 802.1Q VLAN VLAN Status	Asymm	ietric VLAN [Example] 🔘 Enabled	Disabled			Apply
E GVRP	Totals	tatic VI AN entries: 1					
Auto Surveillance VLAN	/ Maxi	mum 4094 entries.					Add
€ 2 Functions	VID	VLAN Name	Advertisement	Untagged	Tagged	Forbidden	Delete
L3 Functions	1	default	Disabled	01-28			Delete
e 🖉 QoS							
E Security							
H-Monitoring							

- c. Geben Sie bei VID die entsprechende VLAN ID (z.B. 2) ein
- d. Geben Sie bei VLAN Name den entsprechenden VLAN Namen (z.B. Transfer) ein
- e. Fügen Sie dem VLAN noch keine Ports hinzu
- f. Bestätigen Sie die Eingabe mit "Apply"

DGS-1500-28	VID Settings												_	S	afeg	uard
VLAN	VID	2														
	VLAN Name	Transfer														
Voice VLAN Auto Surveillance VLAN	VLAN Advertisement	© Enabled	Di	isable	d											
E- E L2 Functions	Aaximum 20 🖉	characters.									(В	ack		App	oly
	Port	Select All	01	02	03	04	05	06	07	08	09	10	11	12	13	14
E Security	Untagged															
AAA 📷	Tagged															
ACL	Forbidden	AII														
SNMP SNMP Monitoring	Not member	All	٢	٢	٢	۲	۲	۲	٢	٢	٢	٢	٢	٢	۲	٢
	Port	Select All	15	16	17	18	19	20	21	22	23	24	25	26	27	28
	Untagged															
	Tagged	AII														
	Forbidden	AII														
Anno den anno 1990 an 1990 Anno 1990 anno 1990 anno 1990 Anno 1990 anno 1990 anno 1990	Not member	AII	۲	۲	۲	۲	۲	۲	۲	۲	۲	۲	۲	۲	٥	۲

g. Wiederholen Sie die Schritte "C" – "F" um alle entsprechenden VLANs anzulegen

DGS-1500-28	802.1	Q VLAN Setting	S				Safeguard
VLAN	Asymn	netric VLAN [Example]	© Enabled	Oisabled			Apply
	Total s	tatic VLAN entries: 4					Add
€ ≦ L2 Functions	VID	VLAN Name	Advertisement	Untagged	Tagged	Forbidden	Delete
E L3 Functions	1	default	Disabled	01-28			Delete
€ ··· 💭 QoS	2	Transfer	Disabled				Delete
	3	Client A_C	Disabled				Delete
ACL	4	Client B	Disabled				Delete
 Image: Simple set of the set o							



- 2.) Fügen Sie Ports den VLANs hinzu
 - a. Gehen Sie die VID 1 und entfernen Sie alle nicht benötigten Ports (not memeber)
 - b. Beachten Sie, dass Sie den Port, an dem Ihr Client angeschlossen ist weiterhin im VLAN VID 1 bleiben muss
 - c. Bestätigen Sie die Eingabe mit "Apply"

1500-28 stem	VID Settin	gs										-) s	afeg	uar
AN 802.1Q VLAN VLAN Status	VID VLAN Name	1 default													
GVRP Voice VLAN	Advertisemer	nt 📀 Enabled	d 💿 Di	sabled											
to Surveillance VLAN	🥒 Maximum	20 characters.								1	E	Back		Арр	ly
s s	Port	Select All	01	02	03 0	4 05	06	07	08	09	10	11	12	13	14
	Untagged		0	\odot	0		\odot	\odot	\odot	\odot	0	\odot	0	\odot	\odot
	Tagged	All	\odot	\odot	0		0	0	\odot	0	0	0	0	\odot	0
	Forbidden	All													
	Not Member	All	٥	٢	•		٢	٢	٢	•	٢	٢	٢	٢	0
	Port	Select All	15	16	17 1	8 19	20	21	22	23	24	25	26	27	28
	Untagged	All	0	\odot	0		0	0	\odot	۲	۲	0	0	\odot	0
	Tagged	All	0	$\overline{\mathbf{O}}$	0		0	0	\odot	0	0	0	0	\odot	0
	Forbidden	All	0	\odot	0		0	0	0	0	0	0	0	\odot	0
	Not Member	All	0	0	0		0	0	0		6	0	0	0	0
	802.1Q VL	AN Settings	© Ena	abled	Disa	ıbled	_	_	_		_		Se	i feg App	uaro
re VI AN	802.1Q VL Asymmetric VL Total static VL	AN Settings AN [Example] AN entries: 4	© Ena	abled	O Disa	ibled	-	_	_		-	•) S=	App Add	Uaro Iy
	802.1Q VL Asymmetric VI Total static VI Maximum 4 VID VLAN	AN Settings AN [Example] AN entries: 4 .094 entries. J Name	◯ Ena	abled emen <u>t</u>	Disa	bled	Ta	gged_		For	rbidd <u>e</u> r	1		App Add Add	uar ly
	802.1Q VL Asymmetric VI Total static VI Maximum 4 VID VLAN 1 defa	AN Settings AN [Example] AN entries: 4 094 entries. UName uit) Ena	abled ement	Disa Untage 23-24	ibled jed	Ta	jged		For	rbidder	1		App App Add Delete	Utar ly
	802.1Q VL Asymmetric VI Total static VI Maximum 4 VID VLAN 1 defa 2 Tran	AN Settings AN (Example) AN entries: 4 094 entries. Name uit sfer	© Ena Advertise Disabler Disabler	abled ement d	Disa Untage 23-24	ibled jed	Та	jged		For	rbidder	1		App Add Delete Delete	
	802.1Q VL Asymmetric VI Total static VI Maximum 4 VID VLAN 1 defa 2 Tran 3 Clier	AN Settings AN [Example] AN entries: 4 094 entries. Name uit sfer nt A_C	C Ena Advertise Disabler Disabler Disabler	abled ement d d	Disa Untage 23-24	bled jed	Та	jged		For	rbidder	1		App App Add Delete Delete Delete	
	802.1Q VL Asymmetric VL Total static VL Maximum 4 VID VLAN 1 defa 2 Tran 3 Clier 4 Clier	AN Settings AN [Example] AN entries: 4 094 entries. 4 Name uit sfer nt A_C nt B	C Ena Advertise Disableo Disableo Disableo Disableo	abled ement d d d	Disa Untage 23-24	ibled	Та	1ged		For	rbiddet	1		App Add Delete Delete Delete Delete	U (ar ly
YLAN atus AN veillance VLAN S S	802.1Q VL Asymmetric VI Total static VI Maximum 4 VID VLAN 1 defa 2 Tran 3 Clier 4 Clier	AN Settings AN [Example] AN entries: 4 094 entries. UName uit sfer nt A_C nt B	© Ena Disabler Disabler Disabler	abled ement d d	Disa Untagg 23-24	bled	Ta	gged		For	bidder	1		App App Add Delete Delete Delete Delete	
28 I Status S VLAN Surveillance VLAN ions ions	802.1Q VL Asymmetric VI Total static VI Maximum 4 VID VLAN 1 defa 2 Tran 3 Clier 4 Clier	AN Settings	○ Ena Advertise Disablee Disablee Disablee	abled ement d d d d	Disa Untagg 23-24	ibled	Ta	1ged		For	bidder	1		App Add Delete Delete Delete	

- d. Fügen Sie nun dem VLAN VID 2 entsprechend Ports hinzu
- e. Bestätigen Sie die Eingabe mit "Apply"

▶ DGS-1500-28 ⊕-jji System	VID Settings												_	S	afeg	uard
VLAN	VID VLAN Name Advertisement Maximum 20 c	2 Transfer © Enabled haracters.	O	isable	d							E	lack		Арр	Jy
L2 Functions	Port	Select All	01	02	03	04	05	06	07	08	09	10	11	12	13	14
• QoS	Untagged	All	۲	۲	0	0	\odot	\odot	0	\odot	\odot	\odot	0	\odot	0	\odot
🖶 🚰 Security	Tagged	All	0	\bigcirc	\odot	\odot	0	0	\odot	0	0	0	\odot	\odot	\odot	\odot
🗄 🎬 AAA	Forbidden	All	0	0	0		0	0	0	0	0	0		0	0	
I ACL	Not Member															
SNMP Monitoring	Devi		4.5	4.0	4.7	4.0	4.0	20	24	22	22	24	25	20	07	20
i i i i i i i i i i i i i i i i i i i	Lintegrand	Select All					19	20		22	23	24	20	20	21	20
	Ontagged															
	Tagged	All	0													
and and and and a t	Forbidden															
	Not Member	All	0	۲	0	0	۲	۲	۲	۲	۲	۲	0	۲	0	۲



DGS-1500-28	802.1	Q VLAN Setting	5				Safeguard
VLAN 802.1Q VLAN VLAN Status	Asymm	etric VLAN [Example]	O Enabled	Oisabled			Apply
	Total st	atic VLAN entries: 4					bbA
Auto Surveillance VLAN	🥕 Maxir	mum 4094 entries.					
🔄 🃁 L2 Functions	VID	VLAN Name	Advertisement	Untagged	Tagged	Forbidden	Delete
🔄 🃁 L3 Functions	1	default	Disabled	23-24			Delete
🔁 🎬 QoS	2	Transfer	Disabled	01-02			Delete
🔁 🎬 Security	-			01 02			Delete
🗄 🚎 AAA	3	Client A_C	Disabled				Delete
🔄 🎬 ACL	4	Client B	Disabled				Delete
🔄 🎬 SNMP							
🛓 👕 Monitoring							

f. Wiederholen Sie die Schritte "D" – "D" um allen entsprechenden VLANs Ports zuzuweisen

DGS-1500-28	802.10	Q VLAN Setting	js				Safeguard
VLAN	Asymme	etric VLAN [Example]	🗢 Enabled	Disabled			Apply
● I GVRP I GVRP I GVRP	Total st	atic VLAN entries: 4					Add
	🥒 Maxir	num 4094 entries.					
🗄 🃁 L2 Functions	VID	VLAN Name	Advertisement	Untagged	Tagged	Forbidden	Delete
🖻 🃁 L3 Functions	1	default	Disabled	23-24			Delete
🔁 📁 QoS	2	Transfer	Disabled	01-02			Delete
🔁 📁 Security	-	Client 8 C	Dischlad	00.00			Delete
🔁 🎬 AAA	2	Client A_C	Disapled	03-00			Delete
🖲 🎬 ACL	4	Client B	Disabled	07-10			Delete
🔄 🎬 SNMP							
🟟 🕋 Monitorina							

[Anlegen der IP Interfaces und Zuweisung zu den entsprechenden VLANs]

- 3.) Gehen Sie in das Menü L3 Functions und auf das Untermenü IP Interface
 - a. Bei Interface Name können Sie die Bezeichnung für das IP Interface (z.B. IP_Trans) anlegen
 - b. Bei VLAN Name müssen Sie das entsprechend in Punkt 1 angelegte VLAN (z.B. Transfer) dem IP Interface zuweisen
 - c. Bei IPv4 Adresse weisen Sie dem IP Interface die entsprechende IP-Adresse zu (z.B. 192.168.10.250)
 - d. Bei Netmask weisen Sie die entsprechende Subnetzmaske (z.B. /24 = 255.255.255.0) zu
 - e. Bei Interface Admin State können Sie das IP Interface an-/abschalten
 - f. Mit "Add" fügen Sie die Einstellungen dem System hinzu

È DGS-1500-28 È ≝≦System	IP Interface	Setting	S						Safeguard
VLAN L2 Functions L2 Functions L94 Functions Profit Neighbor Settings Profit Neighbor Settings Profit Static Route Prof Static Route Prof Static Route Prof Static Route Profit Setting Table Finder Profit Setting Table Finder Single IP Manangement Gos	Interface Name VLAN Name IPv4 Address Netmask Interface Admin	State	24 (2 Enab	55.255.255.0) led				G	Add
er j Security ∎ j AAA	Interface Name	VLAN Nar	ne	IPv4 Address	Netmask	Admin State	Link State	IPv6	Delete
	System	default		10.90.90.90	255.0.0.0	Enabled	Link Up	IPv6	Delete



DGS-1500-28	ID Interface	Settings					6	Cofoguard
🗈 📁 System	IF Interface	Settings						- Saleguaru
🖅 📁 VLAN								
L2 Functions	Interface Name	IP_	_Trans					
IP Interface	VLAN Name	Tra	ansfer					
IPv6 Neighbor Settings	IPv4 Address	19	92.168.10.250					
IPv4 Static Route	Netmask	24	4 (255,255,255,0)	•				
	Interface Admin		inabled	-				
	Interface Autom		nabieu					
🖶 📁 ARP								
i aus	🥒 Maximum 4 e	entries						
E Security	Interface Name	VLAN Name	e IPv4 Address	Netmask	Admin	Link State	IPv6	Delete
H AAA H ACL	System	dofault	10.00.00.00	255.0.0.0	State	LinkUn	IDu4	Delete
SNMP	System	Uelault	10.30.30.30	233.0.0.0	Enabled	Link Op	LE VO	Delete
i≟jj Monitoring								
CGS-1500-28								
DGS-1500-28	IP Interface	Settings					•	Safeguard
DGS-1500-28 P-20 System P-20 VLAN	IP Interface	Settings					•	Safeguard
DGS-1500-28 System VLAN L2 Functions	IP Interface	Settings			-	-	•	Safeguard
DGS-1500-28 System VLAN L2 Functions P L3 Functions	IP Interface Interface Name VLAN Name	Settings					•	Safeguard
DGS-1500-28 System VLAN L2 Functions Pinterface Pire Chain Ports	IP Interface Interface Name VLAN Name IPv4 Address	Settings					•	Safeguard
DGS-1500-28 System L2 Functions PM System PM System PM System PM System PM System PM Static Route PM Static Route PM System Settings PM Static Route	IP Interface Interface Name VLAN Name IPv4 Address Netmask	Settings	(255.255.255.0)				•	Safeguard
DGS-1500-28 System VLAN L2 Functions IP Interface IPv6 Neighbor Settings IPv4 Static Route IPv6 Static Route IPv6 Static Route	IP Interface Interface Name VLAN Name IPv4 Address Netmask Interface Admin	Settings	(255.255.255.0) nabled				•	Safeguard
DGS-1500-28 System VLAN L2 Functions IP Interface IPv6 Neighbor Settings IPv4 Static Route IPv6 Routing Table Finder	IP Interface Interface Name VLAN Name IPv4 Address Netmask Interface Admin	Settings	(255.255.255.0) nabled				•	Safeguard
DGS-1500-28 System L2 Functions IP Interface IPv6 Neighbor Settings IPv4 Static Route IPv6 Static Route IPv6 Static Route IPv6 Static Route IPv6 Static Route Single IP Manangement	IP Interface Interface Name VLAN Name IPv4 Address Netmask Interface Admin	Settings	(255.255.255.0) nabled				•	Add
DGS-1500-28 System L2 Functions IP Interface IPv6 Neighbor Settings IPv4 Static Route IPv6 Static Route IPv6 Static Route IPv6 Static Route IPv6 Static Route Single IP Manangement QOS	IP Interface Interface Name VLAN Name IPv4 Address Netmask Interface Admin	Settings	(255.255.255.0) nabled				•	Add
DGS-1500-28 System VLAN L2 Functions IP Interface IPv6 Neighbor Settings IPv6 Neighbor Settings IPv6 Static Route IPv6 Static Route IPv6 Static Route IPv6 Static Route IPv6 Static Route IPv6 Static Route Single IP Manangement QoS Security AAA	IP Interface Interface Name VLAN Name IPv4 Address Netmask Interface Admin	Settings 24 State En	(255.255.255.0) nabled	↓ Netmask	Admin	Link State	IPv6	Add
DGS-1500-28 System VLAN L2 Functions IP Interface IPv6 Neighbor Settings IPv6 Neighbor Settings IPv6 Static Route IPv6 Static Route IPv6 Static Route IPv6 Static Route IPv6 Static Route IPv6 Static Route Single IP Manangement QoS Security AAA ACL	IP Interface Interface Name VLAN Name IPv4 Address Netmask Interface Admin Maximum 4 e Interface Name System	Settings 24 State En ntries. VLAN Name default	(255.255.255.0) habled	Netmask 255.0.0	Admin State Enabled	Link State Link Up	IPv6	Add Delete
DGS-1500-28 System VLAN L2 Functions IP V6 Static Route IP V6 Static Route IP V6 Static Route IP V6 Static Route IP V6 Static Route Single IP Manangement QOS Security AAA ACL SMMP	IP Interface Interface Name VLAN Name IPv4 Address Netmask Interface Admin Maximum 4 e Interface Name System IP_Trans	Settings 24 State En vLAN Name default Transfer	(255.255.255.0) habled IPv4 Address 10.90.90.90 192.168.10.250	Netmask 255.0.00 255.255.255.0	Admin State Enabled Enabled	Link State Link Up Link Down	IPv6 IPv6 IPv6	Add Delete Delete
DGS-1500-28 System VLAN L2 Functions IP v6 Neighbor Settings IP v6 Neighbor Settings IP v6 Neighbor Settings IP v4 Static Route IP v6 v6 static Route IP v6 v6 static Route IP v	IP Interface Interface Name VLAN Name IPv4 Address Netmask Interface Admin Maximum 4 e Interface Name System IP_Trans	Settings 24 State En VLAN Name default Transfer	(255.255.255.0) habled IPv4 Address 10.90.90.90 192.168.10.250	Netmask 255.0.00 255.255.0	Admin State Enabled Enabled	Link State Link Up Link Down	IPv6 IPv6 IPv6	Add Delete Delete Delete

g. Wiederholen Sie die Schritte "A" – "F" um allen entsprechenden IP Interfaces anzulegen

DGS-1500-28	IP Interfa	ice Settin	gs					<u> </u>	Safeguard
€ € VLAN			-						
E L2 Functions	Interface N	ame							
IP Interface	VLAN Nam	e							
IPv6 Neighbor Settings	IPv4 Addre	5S							
	Netmask		24 (2	55.255.255.0)	-				
IPv6 Static Route	Interface A	dmin State	Enab	led	-				
ARP									Add
€ © QoS	🥒 Maximu	n 4 entries.							
ure for the security f	Interface N	ame VLAN N	ame	IPv4 Address	Netmask	Admin State	Link State	IPv6	Delete
ACL	System	default		10.90.90.90	255.0.0.0	Enabled	Link Up	IPv6	Delete
SNMP Monitoring	IP_Trans	Transfe	r	192.168.10.250	255.255.255.0	Enabled	Link Down	IPv6	Delete
	IP_Client_	A_C Client A	C	192.168.20.1	255.255.255.0	Enabled	Link Down	IPv6	Delete
Anter anter viele 2 ? ?	IP_Client_	B Client B		192.168.30.1	255.255.255.0	Enabled	Link Down	IPv6	Delete



DGS-1500-28	System Settings		Safeguard
OHCP Auto Configuration DHCP/BOOTP Relay DHCP/BOOTP Relay DHCPV6 Relay Settings	Interface Name VLAN Name Interface Admin State IPv4 Address Netmask Gateway DHCP Option 12 State: DHCP Option 12 Host Name	System default Enabled ▼ 10.90.90.90 8 (255.0.0.0) ▼ 0.0.0.0 Disabled ▼ DGS-1500-28	
CL SNMP	System Information		Αρριγ
DGS-1500-28 System System Port Settings DHCP Auto Configuration DHCP & Relay Settings DHCP & Relay S	System Settings	System default Enabled ▼ 10.90.90.90 24 (255.255.255.0) ▼ 10.90.90.90 Disabled ▼ DGS-1500-28	Apply
C SNMP	System Information		

h. Passen Sie die System IP-Adresse und Subnetzmaske an (z.B. 10.90.90/24)

[Anlegen der 0/0 (Default) Route]

- 4.) Gehen Sie in das Menü L3 Functions und auf das Untermenü IPv4 Static Route
 - a. Bei IPv4 Address tragen Sie das Zielnetz (z.B. 0.0.0.0 = ALLES) ein
 - b. Bei Netmask tragen Sie die Zielnetzmaske (z.B. 0.0.0.0 = ALLES) ein
 - c. Bei Gateway tragen Sie den next Hop Router (z.B. 192.168.10.1) ein
 - d. Bei Metric tragen Sie die Kosten für diese Route ein (z.B. 1)
 - e. Mit "Add" bestätigen Sie diese Einstellungen

DGS-1500-28	Static Route	Settings						Safeguard
🖲 🚰 VLAN								
E E L2 Functions	IPv/ Address	0.0.0.0						
🖻 🎯 L3 Functions	II V4 Address	0.0.0.0						
IP Interface	Netmask	0 (0.0	.0.0)	-				
📄 🖹 IPv6 Neighbor Settings	Cataviau	100.46	0.40.4					
	Galeway	192.10	8.10.1					
IPv4 Routing Table Finder	Metric (1-65535)	1						
IPv6 Static Route								
IPv6 Routing Table Finder	Backup State	Prima	ry	-				
ARP								Add
🗄 🎬 Single IP Manangement	Total Catrica - 0							Add
	Total Entries : 0							
E Security	IPv4 Address	Netmask	Gateway	Metric	Protocol	Backup	Status	Delete
AAA								
ACL								
SNMP								
- m Manifesian								

- 7 -



▶ DGS-1500-28 	Static F	Route Sett	ings						Safeguard
VLAN L2 Functions L3 Functions Phterace Pherece Physical Static Route Physical Static Route	IPv4 Addr Netmask Gateway Metric (1- Backup S Total Entr	ess 65535) tate ies : 1	24 (255.25	5.255.0) ·	•				Add
AAA ACL SNMP Monitoring	IPv4 Add 0.0.0.0	ress Netr 0.0.0	nask D.O	Gateway 192.168.10.1	Metric 1	Protocol Static	Backup Primary	Status Inactive	Delete Delete

Bitte pflegen Sie anschließend an Ihrem Gateway die entsprechenden Rückrouten ein.

Diese können z.B. so aussehen:

am Internetgateway 192.168.10.1/24

Netz 192.168.20.0/24 -> next Hop Router (DGS-1500-xx) -> Gateway IP 192.168.10.250

Netz 192.168.30.0/24 -> next Hop Router (DGS-1500-xx) -> Gateway IP 192.168.10.250

List of Static Routes										
	Name	Destination	Subnet Mask	Gateway	Interface	Metric	Active	Private		
	Client_A_C	192.168.20.0	255.255.255.0	192.168.10.250	LAN	10	Yes	No		
	Client_B	192.168.30.0	255.255.255.0	192.168.10.250	LAN	10	Yes	No		