pfSense\_ISP (Virtual Internet)

WAN 10.0.2.15 WAN fdc7:ca30:907e::1

LAN1 192.168.241.1 LAN1 fd51:be27::1

LAN2 192.168.242.1



## WAN1

## WAN2





LAN1

LAN2



LAN2 fd51:b	e28:::	1						_		•		
Interfaces			<b>0</b> 0	General Configuration	n	Interfaces		90	General Co	nfiguration		
₩AN 1	100	O0baseT <full-duplex></full-duplex>	10.0.2.15 fdc7:ca30:907e::1	Enable	☑ Enable interface	<b>♣</b> WAN ↑ 1000	ObaseT <full-duplex></full-duplex>	192.168.241.12 fd51:be27::2000		Enable 🗹 En	nable interface	
LAN 1	100	00baseT <full-duplex></full-duplex>	192.168.241.1	Description	LAN	♣LAN ↑ 1000	ObaseT <full-duplex></full-duplex>	192.168.1.1	D	escription WAN	V	
			fd51:be27::1		Enter a description (name) for the interface here.		obaser stall aupiex-	fd51:be27:1:0:a00:27ff:fe9f:141d		Enter	a description (name) for the interfa	ice here.
♣LAN2 1	100	00baseT <full-duplex></full-duplex>	192.168.242.1 fd51:be28::1	IPv4 Configuration Type	Static IPv4	•			IPv4 Configura	ation Type DHC	CP	٠
				IPv6 Configuration Type	Static IPv6	•			IPv6 Configura	ation Type DHC	CP6	•
						DHCP6 Client Con	figuration					
Static IPv6 C	onfigur	ration				Option		onfiguration HCPv6 configuration options.	Configuration	Override guration from this file.		
IPv6 a	address	fd51:be27::1			/ 32 _	Use IPv4 connectivity a		v6 prefix/information through the IPv4 connectivity		guration from this file.		
IPv6 Upstream g	ateway	None		+ Add a	new gateway	parent interfac			· · · · ·			
				ng Gateway from the list or add a	new one using the "Add" button.	Request only an IPv prefi		an IPv6 prefix, do not request an IPv6 address				
		On local LANs the upstream	gateway should be "none".			DHCPv6 Prefi	<b>x</b> 48		<b>+</b>			
DHCPv6 Options						Delegation siz	The value in this	field is the delegated prefix length provided by the	DHCPv6 server. Normally spec	cified by the ISP.		
DHCPv6 Server	☑ Enabl	le DHCPv6 server on interface LAN				Send IPv6 prefix hir	nt Send an IPv6	prefix hint to indicate the desired prefix size for de	elegation			
Subnet	fd51:be2	7::				Debu	■ □ Stort DUCDS	client in debug mode				
Subnet Mask	32 bits						-	client in debug mode				
Available Range	fd51:be2	7:: to fd51:be27:ffff:ffff:ffff:ffff:ffff				General Config	uration		Tr	ack IPv6 Interface	•	
Range	fd51:be	27::1000	fd51:be27:2000			En	able 🗹 Enable	interface				
	From		То			Descrip	otion LAN			IPv6 Interface	WAN	<u>•</u>
Prefix Delegation Range	fd51:be	27:1:	fd51:be27:2::					scription (name) for the interface here.			Selects the dynamic IPv6 WAN inter	race to track for configuration.
Desfer Deleganting Class			10			IPv4 Configuration	Type Static IP	n/A	ų.	IPv6 Prefix ID	-	
Prefix Delegation Size	A Prefix r	range can be defined here for DHCP Prefix Dele	gation. This allows for assigning network	s to subrouters. The start and end of the range r	ust		otatic ii	VT			(hexadecimal from 0 to ffff)The val	ue in this field is the (Delegated) IPv6 prefix ID.
	end on b	oundaries of the prefix delegation size.				IPv6 Configuration	Type Track Int	terface	•			
DNS Servers	DNS 1	DNS 2	DNS 3	NS 4		DHCPv6 Options						
	Leave bla	ank to use the system default DNS servers, this	interface's IP if DNS forwarder is enabled	, or the servers configured on the "General" page		DHCPv6 Ser	ver ☑ Enable DH	ICPv6 server on interface LAN				
Domain name	The defe	ult in to use the demain name of this system as	s the default demain name provided by Di	HCP. An alternate domain name may be specified	hora	Sub	net Prefix Delegat	tion				
Domain search list	Tile dela	uit is to use the domain name of this system as	s the detault domain name provided by br	nor. All alternate domain name may be specified	161 6.	Subnet Ma	ask 64 bits					
Domain search list	The DHC	P server can optionally provide a domain searc	ch list. Use the semicolon character as sep	parator.		Available Rar		***************************************				
Default lease time						Available ital		tion subnet will be appended to the beginning o	f the defined range			
		ne in seconds. Used for clients that do not ask	for a specific expiration time.			Rar	nge ::1000		::2000			
	The defa	ult is 7200 seconds.					From		То			
Max lease time	Maniana	n lease time for clients that ask for a specific e				Prefix Delegation Rar			To			
	The defa	m lease time for clients that ask for a specific e ult is 86400 seconds.	spiration tille.				From					
Time Format Change		ge DHCPv6 display lease time from UTC to loca				Prefix Delegation S		e can be defined here for DHCP Prefix Delegation	This allows for assigning n	atworks to subrouters. T	The start and and of the range must	
		It DHCPv6 leases are displayed in UTC time. By . This will be used for all DHCPv6 interfaces lea:		l be displayed in local time and set to time zone				daries of the prefix delegation size.	n. Tino allows for assigning fit	ourrorks to subrouters. I	nne start alla ella or tile rallye Must	
1				_		DNS Serv	ers DNS 1	DNS 2	DNS 3	DNS 4		
Leases IPv6 address IAID	DUID	MAC address	Hostname Start End	Online Lease Type Actions			Leave blank t	o use the system default DNS servers, this inter	face's IP if DNS forwarder is e	nabled, or the servers co	onfigured on the "General" page.	
<b>⊘</b> fd51:be27::2000 0	00:01:00:0	11:1f:fe:d1:ee:08:00:27:f4:fd:f4	2017/01/05 2017/01/06	online active ⊞		Domain na	me					
		(Oracle VirtualBox	23:20:49 01:20:49				The default is	to use the domain name of this system as the	default domain name provided	d by DHCP. An alternate	domain name may be specified here.	

Domain search list

Default lease time

Max lease time

Time Format Change

The DHCP server can optionally provide a domain search list. Use the semicolon character as separator.

By default DHCPv6 leases are displayed in UTC time. By checking this box DHCPv6 lease time will be displayed in local time and set to time zone selected. This will be used for all DHCPv6 interfaces lease time.

Lease time in seconds. Used for clients that do not ask for a specific expiration time. The default is 7200 seconds.

Maximum lease time for clients that ask for a specific expiration time.

☐ Change DHCPv6 display lease time from UTC to local time

The default is 86400 seconds.

Success! Client computer has obtained an IPv6 address over DHCPv6, within the upstream prefix and client specified range.

IPv6 Prefix

	IPv6 address	IAID	DUID	MAC address	Hostname	Start	End	Online	Lease Type	Action
0	fd51:be27:1:2000	663741566	00.01:00.01:1f:ff:eecb:08:00:27:66:a2:4b	(Oracle VirtualBox virtual NIC)		2017/01/05 23:22:44	2017/01/06 01:22:44	online	active	⊕∎
D	elegated Prefix	ıs								
	IPv6 Prefix		IAID D	UID	Start		End		State	

Client acquired a full /48 block for its subnet.

Success!

2017/01/05 22:58:46 2017/01/06 00:58:46 active

pfSense\_ISP (Virtual Internet)

WAN 10.0.2.15 WAN fdc7:ca30:907e::1

LAN1 192.168.241.1 LAN1 fd51:be27::1

LAN2 192.168.242.1 LAN2 fd51:be28::1

no usable IPv6

connectivity to upstream

**⊘** fd3a:cea5:5feb::161f 661037643 00:01:00:01:1f:ff:ee:cb:08:00:27:66:a2:4b

IAID

DUID

Start

IPv6 Prefix



## WAN1

## WAN2





LAN1

LAN2



								·				
Interfaces			•	General Configuration	on			Interfaces				● ⊗
<b>♣</b> WAN ↑	1000	)baseT <full-duplex></full-duplex>	10.0.2.15 fdc7:ca30:907e::1	Enable	Enable interface			♣ WAN	<b>1</b> 0	000baseT <full-duplex></full-duplex>	192.168.24 fd51:be27::	
åLAN ↑	1000	)baseT <full-duplex></full-duplex>	192.168.241.1 fd51:be27::1	Description	LAN Enter a description (na	ame) for the interface h	ere.	<b>♣</b> LAN	<b>1</b> 0	000baseT <full-duplex></full-duplex>	192.168.1.	
å LAN2 ↑	1000	)baseT <full-duplex></full-duplex>	192.168.242.1	IPv4 Configuration Type	Static IPv4		-	Console a	actuall	y shows WAN IP	as fd51:be27::	2000/128
			fd51:be28::1	IPv6 Configuration Type	Static IPv6		•					
Static assign	nments	s, simulated intra	nnet.					BUODE OF A	0 (			
Otatia IBud Oa	fi	Ai						DHCP6 Client		□ Advanced Configuration		
Static IPv6 Co								· ·		Use advanced DHCPv6 config	juration options.	
	iddress	fd51:be27::1			1	32 •		Use IPv4 connect		☐ Request a IPv6 prefix/info	rmation through the IPv4 co	annectivity link
IPv6 Upstream ga	ateway	None		<b>★</b> Add a	new gateway LAN sh	hould have a /3	32 subnet.	Request only		☐ Only request an IPv6 prefix	x, do not request an IPv6 ad	Idress
			ernet connection, select an exi eam gateway should be "none	isting Gateway from the list or add a	a new one using the "Add"	button.			prefix			
DHCPv6 Options		on local Extra the apoli-	oam gatorray onoula be none	,		1		DHCPv6 Delegati	lan alaa	48 The value in this field is the de	elegated prefix length provid	ed by the DHCP
DHCPv6 Serve	er 🗹 En	nable DHCPv6 server on interface	LAN					Send IPv6 pre		Send an IPv6 prefix hint to		
Subne	et fd51:b	pe27::								☐ Start DHCP6 client in debu		
Subnet Mas	sk 32 bits	s									ginode	
Available Rang	ge fd51:b	be27:: to fd51:be27:ffff:ffff:ffff	ff.ffff.ffff					General Co				
Rang	fd51: From	:be27::1000		fd51:be27::2000 To					Enable	☑ Enable interface		
Prefix Delegation Rang	ge From			To				De	escription		ame) for the interface he	ere.
Prefix Delegation Siz			-			leaves (40 pm	-fives?	IPv4 Configura	ation Type	Static IPv4		
Trenx belegation of	A Pref	fix range can be defined here for I n boundaries of the prefix delega	DHCP Prefix Delegation. This allows for	or assigning networks to subrouters. The sta	art and end of the range must	Issues /48 pre	enxes?	IPv6 Configura		Track Interface		
DNS Server	rs DNS	1 DNS 2	DNS 3	DNS 4				DHCPv6 Opt				
	Leave	blank to use the system default	DNS servers, this interface's IP if DNS	forwarder is enabled, or the servers configur	red on the "General" page.				v6 Server	☑ Enable DHCPv6 server	on interface LAN	
Domain nam		efault is to use the domain name	of this system as the default domain	name provided by DHCP. An alternate doma	sin name may be enerified here				Subnet	Prefix Delegation		
Domain search lis		nault is to use the domain hame	or this system as the default domain	name provided by Drior. An alternate doma	in name may be specified here.			Subi	net Mask	64 bits		
	The DI	HCP server can optionally provid	de a domain search list. Use the semico	olon character as separator.				Availab	ole Range	:: to ::ffff:ffff:ffff Prefix Delegation subnet v	will be appended to the beg	sinning of the de
Default lease tim	Lease	e time in seconds. Used for clients efault is 7200 seconds.	s that do not ask for a specific expirati	ion time.					Range	::1000	nii be appended to the beg	anning of the de
Max lease tim		stault is 7200 seconds.								From		
mux rease tim	Maxim	num lease time for clients that as efault is 86400 seconds.	sk for a specific expiration time.					Prefix Delegation	n Range	From		
Time Format Chang	By def	nange DHCPv6 display lease time fault DHCPv6 leases are displaye ted. This will be used for all DHCP	ed in UTC time. By checking this box DI	HCPv6 lease time will be displayed in local tir	me and set to time zone			Prefix Delega	tion Size	48 A Prefix range can be defined on boundaries of the	ned here for DHCP Prefix D prefix delegation size.	lelegation. This
Status / DHC			vo interraces lease time.			± III ■ 0		DNS	S Servers	DNS 1	DNS 2	DNS
Status/ DHC	PVO Lea	1565			-	± III. III V		Doma	ain name	Leave blank to use the sys	tem default DNS servers, ti	his interface's li
Leases IPv6 address	IAID D	DUID	MAC address	Hostname Start End	Online Lease Type	e Actions				The default is to use the d	omain name of this system	n as the default
			:27:f4:fd:f4	2017/01/05 2017/01 17:48:02 19:48:02	1/05 online active	± +		Domain se	earch list	The DHCP server can option	onally provide a domain sea	earch list. Use th
Delegated Prefix	Y08		virtual NIC)					Default le	ase time	Lease time in seconds. Us	ed for clients that do not a	ısk for a specifi
IPv6 Pref		IAID	DUID	Start End	State	No	prefixes delegated.			The default is 7200 secon		
		Leases						Max le	ease time	Maximum lease time for co	lients that ask for a specific	c expiration tim
Once again, no prefixes of	delegat	iPv6 address	IAID DUID eb::2000 1702127664 00:01:00:	MAC ad::01:1f:ff:ec:81:08:00:27:66:a2:4b	20	art End 0 017/01/04 2017/01/04 7:52:30 19:52:30	Online Lease Type Active	Time Format	t Change	☐ Change DHCPv6 displa		

2017/01/04 2017/01/04 offline active 17:35:08 19:35:08

State

End

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micriao				001101	ar oomingaratio					
♣ WAN	<b>1</b>	000baseT <full-duplex></full-duplex>	192.168.241.12 fd51:be27::2000		Enable	<b>☑</b> Eı	nable interface			
<b>♣</b> LAN	<b>1</b>	000baseT <full-duplex></full-duplex>	192.168.1.1		Description	MAI				
						Enter	r a description (name) for the interf	ace here.		
Console	e actuall	y shows WAN IP as	fd51:be27::2000/128	IPv4 Cor	nfiguration Type	DH	CP		•	
				IPv6 Cor	nfiguration Type	DH	CP6		•	
DHCP6 Clie	ent Configu	ration								
	Options	☐ Advanced Configuration		☐ Configu	ration Override					
		Use advanced DHCPv6 configuration	ion options.	Override th	e configuration from th	is file.				
Use IPv4 conr paren	nectivity as nt interface	☐ Request a IPv6 prefix/informat	ion through the IPv4 connectivity link							
Request o	nly an IPv6 prefix	☐ Only request an IPv6 prefix, do	not request an IPv6 address							
	Pv6 Prefix	48	•	Should grab a /48 prefix?						
Dele	gation size	The value in this field is the delegat	ed prefix length provided by the DHCPv6							
Send IPv6	prefix hint	☐ Send an IPv6 prefix hint to indic	cate the desired prefix size for delegation							
	Debug	☐ Start DHCP6 client in debug mo	ode							
General (	Configurat	tion			Track IPv6 In	terfac	e			
	Enable	☑ Enable interface								
	Description	LAN			IPv6 In	terface	WAN		•	
		Enter a description (name)	) for the interface here.				Selects the dynamic IPv6 WAN inter	face to track for configuration.		
IPv4 Config	uration Type	Static IPv4		_	IPv6 P	refix ID	0 (hexadecimal from 0 to ffff)The val	lue in this field is the (Delegated)	IPv6 pref	
IPv6 Config	uration Type	Track Interface		•						
DHCPv6 C	ptions							I		
	CPv6 Server	☑ Enable DHCPv6 server on in	nterface LAN							
	Subnet	Prefix Delegation								
S	Subnet Mask	64 bits								
Avai	ilable Range	:: to ::ffff:ffff:ffff Prefix Delegation subnet will be	e appended to the beginning of the defi	ned range						
	Range	::1000		::20	00					
		From		То						
Prefix Deleg	ation Range	From		To						
								Should use a /48	prof	
Prefix Dele	egation Size	A Prefix range can be defined h end on boundaries of the prefix	ere for DHCP Prefix Delegation. This all collegation size.	llows for assig	ning networks to subr	outers.	The start and end of the range must	for the LAN?	prei	
	DNS Servers	DNS 1	DNS 2	3	DNS 4					
		Leave blank to use the system	default DNS servers, this interface's IP i	if DNS forward	der is enabled, or the s	ervers co	onfigured on the "General" page.			
De	omain name									
		The default is to use the domain name of this system as the default domain name provided by DHCP. An alternate domain name may be specified here.								
Domai	n search list	The DHCP server can optionally	y provide a domain search list. Use the	semicolon cha	racter as separator.					
Defaul	It lease time		or clients that do not ask for a specific e							
		The default is 7200 seconds.								
Ma	x lease time	Maximum lease time for clients The default is 86400 seconds.	that ask for a specific expiration time.							
Time For	mat Change	☐ Change DHCPv6 display lea	use time from UTC to local time displayed in UTC time. By checking this	box DHCPv6	ease time will be displ	ayed in I	local time and set to time zone			

DHCPv6 Options									
DHCPv6 Server	☑ Enable DHCPv6 server on interface LAN								
Subnet	fd51:be27::								
Subnet Mask	Subnet Mask 32 bits								
Available Range	fd51:be27:: to fd51:be27:ffff:ffff:ffff:ffff:ffff								
Range	fd51:be27::1000	fd51:be27::2000							
	From	То							
Prefix Delegation Range	fd51:be27:1::	fd51:be27:2::							
	From	То							
Prefix Delegation Size	48	•							
	A Prefix range can be defined here for DHCP Prefix Delegation end on boundaries of the prefix delegation size.	n. This allows for assigning networks to subrouters. The start and end of the range must							

Per a discussion with TandyUK from ##pfsense@irc/freenode.net, attempted to explicitly set a prefix delegation range.

Doing so raises more questions than answers, however. Are clients required to take the entire prefix delegation size? How are multiple clients handled? Why would the range assignment not be handled with an automatic default?