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### 1) Introduction

- Target : Configuration Pfsense for multiples Xbox One and play together online without UPnP or DMZ.
- Pfsense version : 2.4.4-p3
- Hardwares :
  - o Pfsense on Qotom (from aliexpress)
  - o Xbox One 1
  - o Xbox One 2

### 2) Change default port for Xbox Live on Xbox

(<https://forum.netduma.com/topic/21835-the-new-xbox-one-update-has-manual-port-selection-3074-more/>)

I advise to choose different port than 3074 by default (if you have a Xbox 360 for example, because you can't change the default port on Xbox 360 instead of the Xbox One ; or if a friend come with a Xbox One you will not change this port).

For example, manual port : Xbox1 : 49366 - Xbox2 : 49568

### 3) Set static IP for each Xbox on DHCP server

In my configuration, the switch is DHCP server, you can use your box ISP or Pfsense

(<https://docs.netgate.com/pfsense/en/latest/dhcp/dhcp-server.html>)

You can reboot your DHCP server and Xbox to be sure IP and port is correct !

### 4) Create IP Alias and Port Alias on Pfsense

Make a table to summarize the information :

Name	Static IP	Port Xbox Live
Xbox One 1	192.168.0.16	49366
Xbox One 2	192.168.0.17	49568

## Firewall -> Aliases -> IP

IP Xbox One n°1 :

### Firewall / Aliases / Edit

#### Properties

**Name**

The name of the alias may only consist of the characters "a-z, A-Z, 0-9 and \_".

**Description**

A description may be entered here for administrative reference (not parsed).

**Type**

#### Host(s)

**Hint**

Enter as many hosts as desired. Hosts must be specified by their IP address or fully re-resolved and updated. If multiple IPs are returned by a DNS query, all are used. An as 192.168.1.16/28 may also be entered and a list of individual IP addresses will be

**IP or FQDN**

IP Xbox One n°2 :

### Firewall / Aliases / Edit

#### Properties

**Name**

The name of the alias may only consist of the characters "a-z, A-Z, 0-9 and \_".

**Description**

A description may be entered here for administrative reference (not parsed).

**Type**

#### Host(s)

**Hint**

Enter as many hosts as desired. Hosts must be specified by their IP address or fully re-resolved and updated. If multiple IPs are returned by a DNS query, all are used. as 192.168.1.16/28 may also be entered and a list of individual IP addresses will be

**IP or FQDN**

Port Xbox One n°1 :

## Firewall / Aliases / Edit

### Properties

**Name**

The name of the alias may only consist of the characters "a-z, A-Z, 0-9 and \_".

**Description**

A description may be entered here for administrative reference (not parsed).

**Type**



### Port(s)

**Hint**

Enter ports as desired, with a single port or port range per entry. Port ranges can be e

**Port**

Port Xbox One n°2 :

## Firewall / Aliases / Edit

### Properties

**Name**

The name of the alias may only consist of the characters "a-z, A-Z, 0-9 and \_".

**Description**

A description may be entered here for administrative reference (not parsed).

**Type**



### Port(s)

**Hint**

Enter ports as desired, with a single port or port range per entry. Port ranges can be b

**Port**

## 5) Pfsense general configuration

System -> Advanced -> Firewall & NAT

- NAT Reflection mode for port forwards : **Pure NAT**
- Enable automatic outbound NAT for Reflection : **Check**

**System / Advanced / Firewall & NAT**

**Admin Access**   **Firewall & NAT**   **Networking**   **Miscellaneous**   **System Tunables**   **Notifications**

**Network Address Translation**

<b>NAT Reflection mode for port forwards</b>	<div>Pure NAT</div> <ul style="list-style-type: none"><li>• The pure NAT mode uses a set of NAT rules to direct packets to the target of the port forward. It has better scalability, but it must be possible to accurately determine the interface and gateway IP used for communication with the target at the time the rules are loaded. There are no inherent limits to the number of ports other than the limits of the protocols. All protocols available for port forwards are supported.</li><li>• The NAT + proxy mode uses a helper program to send packets to the target of the port forward. It is useful in setups where the interface and/or gateway IP used for communication with the target cannot be accurately determined at the time the rules are loaded. Reflection rules are not created for ranges larger than 500 ports and will not be used for more than 1000 ports total between all port forwards. Only TCP and UDP protocols are supported.</li></ul> <p>Individual rules may be configured to override this system setting on a per-rule basis.</p>
<b>Reflection Timeout</b>	<div></div> <p>Enter value for Reflection timeout in seconds. Note: Only applies to Reflection on port forwards in NAT + proxy mode.</p>
<b>Enable NAT Reflection for 1:1 NAT</b>	<div><input type="checkbox"/> Automatic creation of additional NAT redirect rules from within the internal networks.</div> <p>Note: Reflection on 1:1 mappings is only for the inbound component of the 1:1 mappings. This functions the same as the pure NAT mode for port forwards. For more details, refer to the pure NAT mode description above. Individual rules may be configured to override this system setting on a per-rule basis.</p>
<b>Enable automatic outbound NAT for Reflection</b>	<div><input checked="" type="checkbox"/> Automatic create outbound NAT rules that direct traffic back out to the same subnet it originated from.</div> <p>Required for full functionality of the pure NAT mode of NAT Reflection for port forwards or NAT Reflection for 1:1 NAT. Note: This only works for assigned interfaces. Other interfaces require manually creating the outbound NAT rules that direct the reply packets back through the router.</p>

## 6) Port Forward

Firewall -> NAT -> Port Forward

Create a new entry for Xbox One 1

- Interface : WAN
- Protocol : TCP/UDP
- Destination : WAN address
- Destination port range : choose your *Port Alias Xbox One 1*
- Redirect target IP : choose your *IP Alias Xbox One 1*
- Redirect target port : choose your *Port Alias Xbox One 1*

## Edit Redirect Entry

Disabled ☐ Disable this ruleNo RDR (NOT) ☐ Disable redirection for traffic matching this rule

This option is rarely needed. Don't use this without thorough knowledge of the implications.

**Interface** WAN1\_SFR\_4\_IGB1

Choose which interface this rule applies to. In most cases "WAN" is specified.

**Protocol** TCP/UDP

Choose which protocol this rule should match. In most cases "TCP" is specified.

**Source** [Display Advanced](#)**Destination** ☐ Invert match. WAN1\_SFR\_4\_IGB1 address

Type

Address/mask

**Destination port range**

Other

Xbox\_One\_Elite\_port

Other

Xbox\_One\_Elite\_port

From port

Custom

To port

Custom

Specify the port or port range for the destination of the packet for this mapping. The 'to' field may be left empty if only mapping a single port.

**Redirect target IP**

Xbox\_One\_Elite

Enter the internal IP address of the server on which to map the ports.

e.g.: 192.168.1.12

**Redirect target port**

Other

Xbox\_One\_Elite\_port

Port

Custom

Specify the port on the machine with the IP address entered above. In case of a port range, specify the beginning port of the range (the end port will be calculated automatically).














This is usually identical to the "From port" above.

Repeat this operation for the second Xbox !

At the final :

Port Forward 1:1 Outbound NPt

## Rules

	Interface	Protocol	Source Address	Source Ports	Dest. Address	Dest. Ports	NAT IP	NAT Ports	Description	Actions	
XBOX											
	 	WAN1_SFR_4_IGB1	TCP/UDP	*	*	WAN1_SFR_4_IGB1 address	Xbox_One_Elite_port	Xbox_One_Elite	Xbox_One_Elite_port	Sans UPnP	  
	 	WAN1_SFR_4_IGB1	TCP/UDP	*	*	WAN1_SFR_4_IGB1 address	Xbox_One_S_port	Xbox_One_S	Xbox_One_S_port	Xbox_One	  

## 7) NAT Outbound

Firewall -&gt; NAT -&gt; Outbound

Select Mode : Hybrid Outbound NAT

## Firewall / NAT / Outbound

Port Forward 1:1 **Outbound** NPt

### Outbound NAT Mode

Mode



Automatic outbound NAT rule generation.  
(IPsec passthrough included)



Hybrid Outbound NAT rule generation.  
(Automatic Outbound NAT + rules below)



Manual Outbound NAT rule generation.  
(AON - Advanced Outbound NAT)



Disable Outbound NAT rule generation.  
(No Outbound NAT rules)

Create a new entry for the Xbox One 1 :

Interface : WAN

Address Family : IPv4

Protocol : any

Source : Alias for Xbox1 /32

Destination : any

Address : Interface Address

**Check Static Port !!!**

## Firewall / NAT / Outbound / Edit

### Edit Advanced Outbound NAT Entry

Disabled

☐ Disable this rule

Do not NAT

☐ Enabling this option will disable NAT for traffic matching this rule and stop processing Outbound NAT rules  
In most cases this option is not required.

Interface

WAN1\_SFR\_4\_IGB1

The interface on which traffic is matched as it exits the firewall. In most cases this is "WAN" or another externally-connect

Address Family

IPv4

Select the Internet Protocol version this rule applies to.

Protocol

any

Choose which protocol this rule should match. In most cases "any" is specified.

Source

Network

Xbox\_One\_Elite

32

Type

Source network for the outbound NAT mapping.

Destination

Any

24

Type

Destination network for the outbound NAT mapping.

☐ Not

Invert the sense of the destination match.

### Translation

Address

Interface Address

Connections matching this rule will be mapped to the specified Address.  
The Address can be an Interface, a Host-type Alias, or a Virtual IP address.

Port or Range

☒ Static Port

Create a new entry for the Xbox One 2 (the same thing than the first Xbox) :

The only difference is “Static Port” ; must be **Uncheck for the second Xbox One**

Interface : WAN

Address Family : IPv4

Protocol : any

Source : Alias for Xbox2 /32

Destination : any

Address : Interface Address

**UNCheck Static Port !!!**

Firewall / NAT / Outbound / Edit

### Edit Advanced Outbound NAT Entry

**Disabled** ☐ Disable this rule

**Do not NAT** ☐ Enabling this option will disable NAT for traffic matching this rule and stop processing Outbound NAT rules  
In most cases this option is not required.

**Interface** WAN1\_SFR\_4\_IGB1  
The interface on which traffic is matched as it exits the firewall. In most cases this is "WAN" or another externally-connected interface.

**Address Family** IPv4  
Select the Internet Protocol version this rule applies to.

**Protocol** any  
Choose which protocol this rule should match. In most cases "any" is specified.

**Source** Network Xbox\_One\_S / 32  
Type Source network for the outbound NAT mapping. Port or Range

**Destination** Any / 24  
Type Destination network for the outbound NAT mapping. Port or Range

☐ Not  
Invert the sense of the destination match.

### Translation

**Address** Interface Address  
Connections matching this rule will be mapped to the specified Address.  
The Address can be an Interface, a Host-type Alias, or a Virtual IP address.

**Port or Range**  ☒ Static Port

At the final :

Mappings										
<input type="checkbox"/>	Interface	Source	Source Port	Destination	Destination Port	NAT Address	NAT Port	Static Port	Description	Actions
<input checked="" type="checkbox"/>	WAN1_SFR_4_IGB1	Xbox_One_Elite	*	*	*	WAN1_SFR_4_IGB1 address	*	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/>	WAN1_SFR_4_IGB1	Xbox_One_S	*	*	*	WAN1_SFR_4_IGB1 address	*	<input type="checkbox"/>		

If you check “Static Port” for the 2 Xbox, in Xbox interface your NAT will be OPEN but error to play together (Red Daed Redeption 2, Warframe, Destiny2 ...)

## 8) Firewall Rules

Normally, the firewall rule is automatic created by the NAT rule, so you don't need to create a firewall rules.

Firewall / Rules / WAN1\_SFR\_4\_IGB1

Floating

WAN\_SECURE

LAN\_1\_IGB0

WAN1\_SFR\_4\_IGB1

WIFI

Rules (Drag to Change Order)

	States	Protocol	Source	Port	Destination	Port	Gateway	Queue	Schedule	Description	Actions
<div><div></div><div><div></div><div></div><div></div></div></div>	<div>0 / 0 B</div>	IPv4 TCP/UDP	*	*	Xbox_One_Elite	Xbox_One_Elite_port	*	none		NAT Sans UPnP	<div><div></div><div></div><div></div><div></div></div>
<div><div></div><div><div></div><div></div><div></div></div></div>	<div>0 / 0 B</div>	IPv4 TCP/UDP	*	*	Xbox_One_S	Xbox_One_S_port	*	none		NAT Xbox_One	<div><div></div><div></div><div></div><div></div></div>

## 9) Conclusion

With this configuration, you can play together online without issues at every games.

If you check Static Port for the both Xbox, the status will be OPEN but you can't play together !

I don't find the solution for NAT Open for the both Xbox AND play together (Warframe, RDR Online, Destiny 2, ...)

- Xbox One 1 will appear with NAT Open
- Xbox One 2 will appear with NAT Strict

Name	Static IP	Port Xbox Live	Static Port (NAT Outbound)
Xbox One 1	192.168.0.16	49366	Check
Xbox One 2	192.168.0.17	49568	Uncheck
Xbox 360 or Xbox One friends	192.168.0.xx	3074	Check