

Пример конфигурации "LAN-to-LAN туннель между ASA 5505 и ASA/PIX"

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Введение

В этом документе приводится пример настройки туннеля IPsec "ЛВС-ЛВС" между устройствами защиты Cisco ASA/PIX и устройством адаптивной защиты Cisco ASA 5505.

Предварительные условия

Требования

Для этого документа отсутствуют особые требования.

Используемые компоненты

Сведения, содержащиеся в данном документе, касаются следующих версий программного обеспечения и оборудования:

- Устройство адаптивной защиты Cisco серии ASA 5500, на котором установлено ПО версии 7.x или более поздней версии
- Устройство адаптивной защиты Cisco серии ASA 5505, на котором установлено ПО версии 7.x или более поздней версии

Сведения, представленные в этом документе, были получены от устройств, работающих в специальной лабораторной среде. Все устройства, описанные в этом документе, были запущены с чистой (стандартной) конфигурацией. В рабочей сети необходимо изучить потенциальное воздействие всех команд до их использования.

Родственные продукты

Эта конфигурация может также использоваться со следующими версиями программного/аппаратного обеспечения:

- Устройство защиты Cisco серии PIX 500, на котором установлено ПО версии 7.x или более поздней версии
- Устройство адаптивной защиты Cisco серии ASA 5505, на котором установлено ПО версии 7.x или более поздней версии

Условные обозначения

Более подробную информацию о применяемых в документе обозначениях см. в описании [условных обозначений, используемых в технической документации Cisco](#).

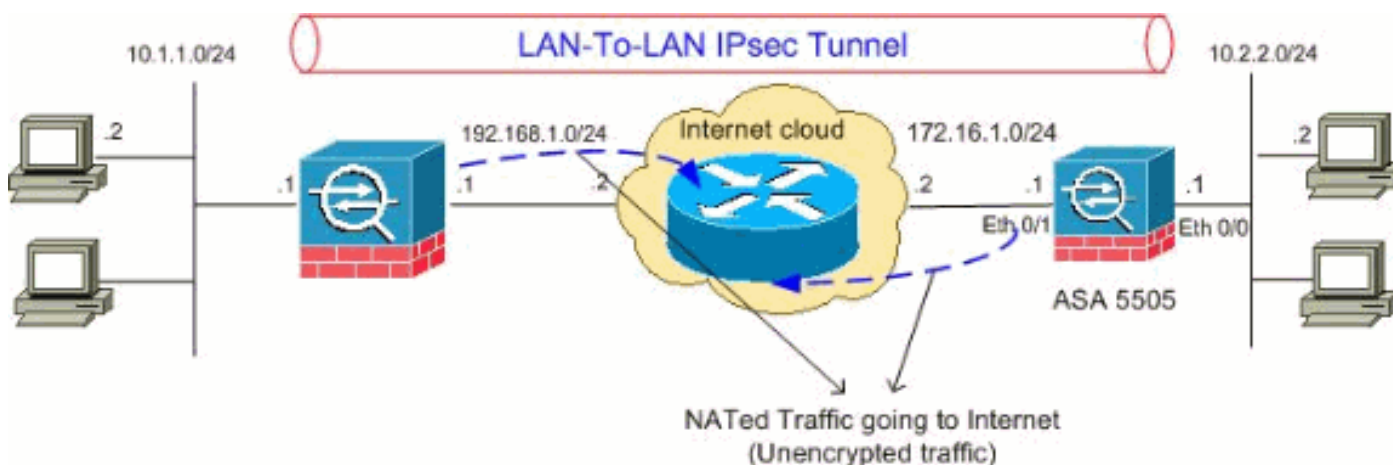
Настройка

В этом разделе содержатся сведения о настройке функций, описанных в этом документе.

Примечание: [Используйте инструмент Command Lookup \(только для зарегистрированных пользователей\)](#) для того, чтобы получить более подробную информацию о командах, использованных в этом разделе.

Схема сети

В настоящем документе используется следующая схема сети:



Конфигурации

Эти конфигурации используются в данном документе:

- [Конфигурация Cisco ASA 5505](#)
- [Конфигурация ASA Cisco 5510](#)

Конфигурация Cisco ASA 5505

```
ASA5505#show running-config : Saved : ASA Version 8.0(2)
! hostname ASA5505 enable password 8Ry2YjIyt7RRXU24
```

```
encrypted names ! interface Vlan1 no nameif no security-
level no ip address ! interface Vlan2 nameif outside
security-level 0 ip address 172.16.1.1 255.255.255.0 !
interface Vlan3 nameif inside security-level 100 ip
address 10.2.2.1 255.255.255.0 ! interface Ethernet0/0
switchport access vlan 3 ! interface Ethernet0/1
switchport access vlan 2 ! interface Ethernet0/2
shutdown ! interface Ethernet0/3 shutdown ! interface
Ethernet0/4 shutdown ! interface Ethernet0/5 shutdown !
interface Ethernet0/6 shutdown ! interface Ethernet0/7
shutdown ! passwd 2KFQnbNIdI.2KYOU encrypted boot system
disk0:/asa802-k8.bin ftp mode passive access-list 100
extended permit ip 10.2.2.0 255.255.255.0 10.1.1.0
255.255.255.0 !--- Access-list for interesting traffic
(Site to Site) to be !--- encrypted between ASA 5505 and
ASA/PIX networks. access-list nonat extended permit ip
10.2.2.0 255.255.255.0 10.1.1.0 255.255.255.0 !---
Access-list for traffic to bypass the network address !-
-- translation (NAT) process. pager lines 24 mtu inside
1500 mtu outside 1500 no failover icmp unreachable rate-
limit 1 burst-size 1 asdm image disk0:/asdm-602.bin no
asdm history enable arp timeout 14400 nat-control global
(outside) 1 interface nat (inside) 0 access-list nonat
nat (inside) 1 0.0.0.0 0.0.0.0 !--- Specify the NAT
configuration. !--- NAT 0 prevents NAT for the ACL
defined in this configuration. !--- The nat 1 command
specifies NAT for all other traffic. route outside
10.1.1.0 255.255.255.0 172.16.1.2 1 route outside
192.168.1.0 255.255.255.0 172.16.1.2 1 timeout xlate
3:00:00 timeout conn 1:00:00 half-closed 0:10:00 udp
0:02:00 icmp 0:00:02 timeout sunrpc 0:10:00 h323 0:05:00
h225 1:00:00 mgcp 0:05:00 mgcp-pat 0:05:00 timeout sip
0:30:00 sip_media 0:02:00 sip-invite 0:03:00 sip-
disconnect 0:02:00 timeout uauth 0:05:00 absolute
dynamic-access-policy-record DfltAccessPolicy no snmp-
server location no snmp-server contact snmp-server
enable traps snmp authentication linkup linkdown
coldstart !--- PHASE 2 CONFIGURATION !--- The encryption
types for Phase 2 are defined here. crypto ipsec
transform-set myset esp-3des esp-sha-hmac !--- Define
the transform set for Phase 2. crypto map outside_map 20
match address 100 !--- Define which traffic can be sent
to the IPsec peer. crypto map outside_map 20 set peer
192.168.1.1 !--- Sets the IPsec peer. crypto map
outside_map 20 set transform-set myset !--- Sets the
IPsec transform set "myset" !--- to be used with the
crypto map entry "outside_map" crypto map outside_map
interface outside !--- Crypto map applied to the outside
interface of the ASA crypto isakmp enable outside crypto
isakmp policy 10 authentication pre-share encryption
3des hash sha group 2 lifetime 86400 !--- PHASE 1
CONFIGURATION ---! !--- This configuration uses isakmp
policy 10. !--- These configuration commands !--- define
the Phase 1 policies that are used. telnet timeout 5 ssh
timeout 5 console timeout 0 threat-detection basic-
threat threat-detection statistics access-list ! class-
map inspection_default match default-inspection-traffic
! ! policy-map type inspect dns preset_dns_map
parameters message-length maximum 512 policy-map
global_policy class inspection_default inspect dns
preset_dns_map inspect ftp inspect h323 h225 inspect
h323 ras inspect netbios inspect rsh inspect rtsp
inspect skinny inspect esmtp inspect sqlnet inspect
sunrpc inspect tftp inspect sip inspect xdmcp ! service-
```

```
policy global_policy global tunnel-group 192.168.1.1
type ipsec-l2l !--- In order to create and manage the
database of connection-specific records !--- for ipsec-
l2l-IPsec (LAN-to-LAN) tunnels, use the tunnel-group !--
- command in global configuration mode. !--- For L2L
connections the name of the tunnel group MUST be the IP
!--- address of the IPsec peer. tunnel-group 192.168.1.1
ipsec-attributes pre-shared-key * !--- Enter the pre-
shared-key in order to configure the authentication
method. prompt hostname context
Cryptochecksum:68eba159fd8e4c893f24185ffb40bb6f : end
ASA5505#
```

Конфигурация ASA Cisco 5510

```
ASA5510#show running-config : Saved : ASA Version 8.0(2)
! hostname ASA5510 enable password 8Ry2YjIyt7RRXU24
encrypted names ! interface Ethernet0/0 nameif inside
security-level 100 ip address 10.1.1.1 255.255.255.0 !
interface Ethernet0/1 nameif outside security-level 0 ip
address 192.168.1.1 255.255.255.0 ! interface
Ethernet0/2 shutdown no nameif no security-level no ip
address ! interface Ethernet0/3 shutdown no nameif no
security-level no ip address ! interface Management0/0
shutdown no nameif no security-level no ip address !
passwd 2KFQnbNIdI.2KYOU encrypted ftp mode passive
access-list 100 extended permit ip 10.1.1.0
255.255.255.0 10.2.2.0 255.255.255.0 !--- Access-list
for interesting traffic (Site to Site) to be !---
encrypted between ASA 5505 and ASA/PIX networks. access-
list nonat extended permit ip 10.1.1.0 255.255.255.0
10.2.2.0 255.255.255.0 !--- Access-list for traffic to
bypass the network address !--- translation (NAT)
process. pager lines 24 mtu inside 1500 mtu outside 1500
no failover icmp unreachable rate-limit 1 burst-size 1
asdm image disk0:/asdm-522.bin no asdm history enable
arp timeout 14400 nat-control global (outside) 1
interface nat (inside) 0 access-list nonat nat (inside)
1 0.0.0.0 0.0.0.0 !--- Specify the NAT configuration. !-
-- NAT 0 prevents NAT for the ACL defined in this
configuration. !--- The nat 1 command specifies NAT for
all other traffic. route outside 10.2.2.0 255.255.255.0
192.168.1.2 1 route outside 172.16.1.0 255.255.255.0
192.168.1.2 1 timeout xlate 3:00:00 timeout conn 1:00:00
half-closed 0:10:00 udp 0:02:00 icmp 0:00:02 timeout
sunrpc 0:10:00 h323 0:05:00 h225 1:00:00 mgcp 0:05:00
mgcp-pat 0:05:00 timeout sip 0:30:00 sip_media 0:02:00
sip-invite 0:03:00 sip-disconnect 0:02:00 timeout uauth
0:05:00 absolute dynamic-access-policy-record
DfltAccessPolicy no snmp-server location no snmp-server
contact snmp-server enable traps snmp authentication
linkup linkdown coldstart !--- PHASE 2 CONFIGURATION !--
- The encryption types for Phase 2 are defined here.
crypto ipsec transform-set myset esp-3des esp-sha-hmac
!--- Define the transform set for Phase 2. crypto map
outside_map 20 match address 100 !--- Define which
traffic can be sent to the IPsec peer. crypto map
outside_map 20 set peer 172.16.1.1 !--- Sets the IPsec
peer. crypto map outside_map 20 set transform-set myset
!--- Sets the IPsec transform set "myset" !--- to be
used with the crypto map entry "outside_map" crypto map
outside_map interface outside !--- Crypto map applied to
the outside interface of the ASA crypto isakmp enable
outside crypto isakmp policy 10 authentication pre-share
encryption 3des hash sha group 2 lifetime 86400 !---
```

```
PHASE 1 CONFIGURATION ---! !--- This configuration uses
isakmp policy 10. !--- These configuration commands !---
define the Phase 1 policies that are used. crypto isakmp
policy 65535 authentication pre-share encryption 3des
hash sha group 2 lifetime 86400 telnet timeout 5 ssh
timeout 5 console timeout 0 threat-detection basic-
threat threat-detection statistics access-list ! class-
map inspection_default match default-inspection-traffic
! ! policy-map type inspect dns preset_dns_map
parameters message-length maximum 512 policy-map
global_policy class inspection_default inspect dns
preset_dns_map inspect ftp inspect h323 h225 inspect
h323 ras inspect netbios inspect rsh inspect rtsp
inspect skinny inspect esmtp inspect sqlnet inspect
sunrpc inspect tftp inspect sip inspect xdmcp ! service-
policy global_policy global tunnel-group 172.16.1.1 type
ipsec-l2l !--- In order to create and manage the
database of connection-specific records !--- for ipsec-
l2l-IPsec (LAN-to-LAN) tunnels, use the tunnel-group !--
- command in global configuration mode. !--- For L2L
connections the name of the tunnel group MUST be the IP
!--- address of the IPsec peer. tunnel-group 172.16.1.1
ipsec-attributes pre-shared-key * !--- Enter the pre-
shared-key in order to configure the authentication
method. prompt hostname context
Cryptochecksum:d41d8cd98f00b204e9800998ecf8427e : end
ASA5510#
```

Проверка

Этот раздел позволяет убедиться, что конфигурация работает правильно.

Средство Output Interpreter (OIT) (только для зарегистрированных клиентов) поддерживает определенные команды show. Посредством OIT можно анализировать выходные данные команд show.

- **show crypto isakmp sa** – отображает все текущие сопоставления безопасности IKE (SA) на одноранговом узле.
- **show crypto ipsec sa** — отображает все текущие SA.

В данном разделе показан пример конфигурации проверки для:

- [Cisco ASA 5505](#)
- [ASA Cisco 5510](#)

Конфигурация Cisco ASA 5505

```
ASA5505#show crypto isakmp sa Active SA: 1 Rekey SA: 0
(A tunnel will report 1 Active and 1 Rekey SA during
rekey) Total IKE SA: 1 1 IKE Peer: 192.168.1.1 Type :
L2L Role : initiator Rekey : no State : MM_ACTIVE
ASA5505#show crypto ipsec sa interface: outside Crypto
map tag: outside_map, seq num: 20, local addr:
172.16.1.1 access-list 100 permit ip 10.2.2.0
255.255.255.0 10.1.1.0 255.255.255.0 local ident
(addr/mask/prot/port): (10.2.2.0/255.255.255.0/0/0)
remote ident (addr/mask/prot/port):
(10.1.1.0/255.255.255.0/0/0) current_peer: 192.168.1.1
#pkts encaps: 4, #pkts encrypt: 4, #pkts digest: 4 #pkts
```

```
decaps: 4, #pkts decrypt: 4, #pkts verify: 4 #pkts
compressed: 0, #pkts decompressed: 0 #pkts not
compressed: 4, #pkts comp failed: 0, #pkts decomp
failed: 0 #pre-frag successes: 0, #pre-frag failures: 0,
#fragments created: 0 #PMTUs sent: 0, #PMTUs rcvd: 0,
#decapsulated frgs needing reassembly: 0 #send errors:
0, #recv errors: 0 local crypto endpt.: 172.16.1.1,
remote crypto endpt.: 192.168.1.1 path mtu 1500, ipsec
overhead 58, media mtu 1500 current outbound spi:
A0411DE6 inbound esp sas: spi: 0x8312C39C (2199045020)
transform: esp-3des esp-sha-hmac none in use settings
={L2L, Tunnel, } slot: 0, conn_id: 8192, crypto-map:
outside_map sa timing: remaining key lifetime (kB/sec):
(3824999/27807) IV size: 8 bytes replay detection
support: Y outbound esp sas: spi: 0xA0411DE6
(2688622054) transform: esp-3des esp-sha-hmac none in
use settings ={L2L, Tunnel, } slot: 0, conn_id: 8192,
crypto-map: outside_map sa timing: remaining key
lifetime (kB/sec): (3824999/27807) IV size: 8 bytes
replay detection support: Y
```

Конфигурация ASA Cisco 5510

```
ASA5510#show crypto isakmp sa Active SA: 1 Rekey SA: 0
(A tunnel will report 1 Active and 1 Rekey SA during
rekey) Total IKE SA: 1 1 IKE Peer: 172.16.1.1 Type : L2L
Role : responder Rekey : no State : MM_ACTIVE
ASA5510#show crypto ipsec sa interface: outside Crypto
map tag: outside_map, seq num: 20, local addr:
192.168.1.1 access-list 100 permit ip 10.1.1.0
255.255.255.0 10.2.2.0 255.255.255.0 local ident
(addr/mask/prot/port): (10.1.1.0/255.255.255.0/0/0)
remote ident (addr/mask/prot/port):
(10.2.2.0/255.255.255.0/0/0) current_peer: 172.16.1.1
#pkts encaps: 4, #pkts encrypt: 4, #pkts digest: 4 #pkts
decaps: 4, #pkts decrypt: 4, #pkts verify: 4 #pkts
compressed: 0, #pkts decompressed: 0 #pkts not
compressed: 4, #pkts comp failed: 0, #pkts decomp
failed: 0 #pre-frag successes: 0, #pre-frag failures: 0,
#fragments created: 0 #PMTUs sent: 0, #PMTUs rcvd: 0,
#decapsulated frgs needing reassembly: 0 #send errors:
0, #recv errors: 0 local crypto endpt.: 192.168.1.1,
remote crypto endpt.: 172.16.1.1 path mtu 1500, ipsec
overhead 58, media mtu 1500 current outbound spi:
8312C39C inbound esp sas: spi: 0xA0411DE6 (2688622054)
transform: esp-3des esp-sha-hmac none in use settings
={L2L, Tunnel, } slot: 0, conn_id: 8192, crypto-map:
outside_map sa timing: remaining key lifetime (kB/sec):
(4274999/27844) IV size: 8 bytes replay detection
support: Y outbound esp sas: spi: 0x8312C39C
(2199045020) transform: esp-3des esp-sha-hmac none in
use settings ={L2L, Tunnel, } slot: 0, conn_id: 8192,
crypto-map: outside_map sa timing: remaining key
lifetime (kB/sec): (4274999/27844) IV size: 8 bytes
replay detection support: Y
```

Устранение неполадок

В этом разделе описывается процесс устранения неполадок конфигурации.

Используйте эти команды, как показано ниже:

- **clear crypto isakmp sa** — удаляет SA фазы 1. **Внимание.** : Команда **clear crypto isakmp sa** навязчива, который очистит все активные VPN-туннели. *Начиная с ПО PIX/ASA версии 8.0(3) индивидуальный контекст безопасности IKE можно очистить с помощью команды **clear crypto isakmp sa <peer ip address>**. [До версии 8.0\(3\) ПО можно было использовать команду **vpn-sessiondb logoff tunnel-group <tunnel-group-name>** для очистки IKE и IPsec SA для одного туннеля.](#)*

```
ASA5505#vpn-sessiondb logoff tunnel-group 192.168.1.1 Do you want to
logoff the VPN session(s)? [confirm] Y INFO: Number of sessions from TunnelGroup
"192.168.1.1" logged off : 1 ASA5505# Jan 19 13:58:43 [IKEv1 DEBUG]: Group = 192.168.1.1, IP
= 192.168.1.1, Pitcher: received key delete msg, spi 0xaa157573 Jan 19 13:58:43 [IKEv1]:
Group = 192.168.1.1, IP = 192.168.1.1, Connection terminated for peer 192.168.1.1. Reason:
Administrator Reset Remote Proxy 10.1.1.0, Local Proxy 10.2.2.0 Jan 19 13:58:43 [IKEv1
DEBUG]: Group = 192.168.1.1, IP = 192.168.1.1, IKE SA MM: 116f1ccf rcv'd Terminate: state
MM_ACTIVE flags 0x0021c042, refcnt 1, tuncnt 1 Jan 19 13:58:43 [IKEv1 DEBUG]: Group =
192.168.1.1, IP = 192.168.1.1, sending delete/delete with reason message Jan 19 13:58:43
[IKEv1 DEBUG]: Group = 192.168.1.1, IP = 192.168.1.1, constructing blank hash payload Jan
19 13:58:43 [IKEv1 DEBUG]: Group = 192.168.1.1, IP = 192.168.1.1, constructing IPsec delete
payload Jan 19 13:58:43 [IKEv1 DEBUG]: Group = 192.168.1.1, IP = 192.168.1.1, constructi ng
qm hash payload Jan 19 13:58:43 [IKEv1]: IP = 192.168.1.1, IKE_DECODE SENDING Message
(msgid=c17 46fb4) with payloads : HDR + HASH (8) + DELETE (12) + NONE (0) total length : 68
Jan 19 13:58:43 [IKEv1 DEBUG]: Group = 192.168.1.1, IP = 192.168.1.1, Active unit receives
a delete event for remote peer 192.168.1.1. Jan 19 13:58:43 [IKEv1 DEBUG]: Group =
192.168.1.1, IP = 192.168.1.1, IKE Deleting SA: Remote Proxy 10.1.1.0, Local Proxy 10.2.2.0
Jan 19 13:58:43 [IKEv1 DEBUG]: Group = 192.168.1.1, IP = 192.168.1.1, IKE SA MM: 116f1ccf
terminating: flags 0x0121c002, refcnt 0, tuncnt 0 Jan 19 13:58:43 [IKEv1 DEBUG]: Group =
192.168.1.1, IP = 192.168.1.1, sending delete/delete with reason message Jan 19 13:58:43
[IKEv1 DEBUG]: Group = 192.168.1.1, IP = 192.168.1.1, constructing blank hash payload Jan
19 13:58:43 [IKEv1 DEBUG]: Group = 192.168.1.1, IP = 192.168.1.1, constructing IKE delete
payload Jan 19 13:58:43 [IKEv1 DEBUG]: Group = 192.168.1.1, IP = 192.168.1.1, constructi ng
qm hash payload Jan 19 13:58:43 [IKEv1]: IP = 192.168.1.1, IKE_DECODE SENDING Message
(msgid=a7e 78fac) with payloads : HDR + HASH (8) + DELETE (12) + NONE (0) total length : 80
Jan 19 13:58:43 [IKEv1 DEBUG]: Pitcher: received key delete msg, spi 0xaa157573 Jan 19
13:58:43 [IKEv1 DEBUG]: Pitcher: received key delete msg, spi 0x746fe476 Jan 19 13:58:43
[IKEv1]: IP = 192.168.1.1, Received encrypted packet with no matching SA, dropping
```

- **clear crypto ipsec sa peer <peer IP address>** — Очищает ассоциации связи в фазе

```
2.ASA5505(config)#clear ipsec sa peer 192.168.1.1 ASA5505(config)# IPSEC: Deleted inbound
decrypt rule, SPI 0x8030618F Rule ID: 0xD4E56A18 IPSEC: Deleted inbound permit rule, SPI
0x8030618F Rule ID: 0xD4DF4110 IPSEC: Deleted inbound tunnel flow rule, SPI 0x8030618F Rule
ID: 0xD4DAE1F0 IPSEC: Deleted inbound VPN context, SPI 0x8030618F VPN handle: 0x00058FBC
IPSEC: Deleted outbound encrypt rule, SPI 0x0D6CDEEB Rule ID: 0xD4DA4348 IPSEC: Deleted
outbound permit rule, SPI 0x0D6CDEEB Rule ID: 0xD4DAE7A8 IPSEC: Deleted outbound VPN
context, SPI 0x0D6CDEEB VPN handle: 0x0005633C
```

- **debug crypto isakmp sa <debug level>** — для отладки согласований SA

```
ISAKMP.ASA5505(config)#debug crypto isakmp 7 ASA5505(config)# Jan 19 13:39:49 [IKEv1]: IP
= 192.168.1.1, IKE_DECODE RECEIVED Message (msgid=0) with payloads : HDR + SA (1) + VENDOR
(13) + VENDOR (13) + VENDOR (13) + NONE (0) total length : 188 Jan 19 13:39:49 [IKEv1
DEBUG]: IP = 192.168.1.1, processing SA payload Jan 19 13:39:49 [IKEv1 DEBUG]: IP =
192.168.1.1, Oakley proposal is acceptable Jan 19 13:39:49 [IKEv1 DEBUG]: IP = 192.168.1.1,
processing VID payload Jan 19 13:39:49 [IKEv1 DEBUG]: IP = 192.168.1.1, Received NAT-
Traversal ver 02 V ID Jan 19 13:39:49 [IKEv1 DEBUG]: IP = 192.168.1.1, processing VID
payload Jan 19 13:39:49 [IKEv1 DEBUG]: IP = 192.168.1.1, Received NAT-Traversal ver 03 V ID
Jan 19 13:39:49 [IKEv1 DEBUG]: IP = 192.168.1.1, processing VID payload Jan 19 13:39:49
[IKEv1 DEBUG]: IP = 192.168.1.1, Received Fragmentation VID Jan 19 13:39:49 [IKEv1 DEBUG]:
IP = 192.168.1.1, IKE Peer included IKE fragmentation capability flags: Main Mode: True
Aggressive Mode: True Jan 19 13:39:49 [IKEv1 DEBUG]: IP = 192.168.1.1, processing IKE SA
payload Jan 19 13:39:49 [IKEv1 DEBUG]: IP = 192.168.1.1, IKE SA Proposal # 1, Transform # 1
acceptable Matches global IKE entry # 2 Jan 19 13:39:49 [IKEv1 DEBUG]: IP = 192.168.1.1,
constructing ISAKMP SA payload Jan 19 13:39:49 [IKEv1 DEBUG]: IP = 192.168.1.1, constructing
NAT-Traversal VID ver 02 payload Jan 19 13:39:49 [IKEv1 DEBUG]: IP = 192.168.1.1,
constructing Fragmentation VID + extended capabilities payload Jan 19 13:39:49 [IKEv1]: IP =
192.168.1.1, IKE_DECODE SENDING Message (msgid=0) with payloads : HDR + SA (1) + VENDOR (13)
```

+ VENDOR (13) + NONE (0) total length : 128 Jan 19 13:39:49 [IKEv1]: IP = 192.168.1.1, IKE_DECODE RECEIVED Message (msgid=0) with payloads : HDR + KE (4) + NONCE (10) + VENDOR (13) + VENDOR (13) + VENDOR (13) + VENDOR (13) + NAT-D (130) + NAT-D (130) + NONE (0) total length : 304 Jan 19 13:39:49 [IKEv1 DEBUG]: IP = 192.168.1.1, processing ke payload Jan 19 13:39:49 [IKEv1 DEBUG]: IP = 192.168.1.1, processing ISA_KE payload Jan 19 13:39:49 [IKEv1 DEBUG]: IP = 192.168.1.1, processing nonce payload Jan 19 13:39:49 [IKEv1 DEBUG]: IP = 192.168.1.1, processing VID payload Jan 19 13:39:49 [IKEv1 DEBUG]: IP = 192.168.1.1, Received Cisco Unity client VID Jan 19 13:39:49 [IKEv1 DEBUG]: IP = 192.168.1.1, processing VID payload Jan 19 13:39:49 [IKEv1 DEBUG]: IP = 192.168.1.1, Received xauth V6 VID Jan 19 13:39:49 [IKEv1 DEBUG]: IP = 192.168.1.1, processing VID payload Jan 19 13:39:49 [IKEv1 DEBUG]: IP = 192.168.1.1, Processing VPN3000/ASA spoofing IOS Vendor ID payload (version: 1.0.0, capabilities: 20000001) Jan 19 13:39:49 [IKEv1 DEBUG]: IP = 192.168.1.1, processing VID payload Jan 19 13:39:49 [IKEv1 DEBUG]: IP = 192.168.1.1, Received Altiga/Cisco VPN3000/Cisco ASA GW VID Jan 19 13:39:49 [IKEv1 DEBUG]: IP = 192.168.1.1, processing NAT-Discovery payload Jan 19 13:39:49 [IKEv1 DEBUG]: IP = 192.168.1.1, computing NAT Discovery hash Jan 19 13:39:49 [IKEv1 DEBUG]: IP = 192.168.1.1, processing NAT-Discovery payload Jan 19 13:39:49 [IKEv1 DEBUG]: IP = 192.168.1.1, computing NAT Discovery hash Jan 19 13:39:49 [IKEv1 DEBUG]: IP = 192.168.1.1, constructing ke payload Jan 19 13:39:49 [IKEv1 DEBUG]: IP = 192.168.1.1, constructing nonce payload Jan 19 13:39:49 [IKEv1 DEBUG]: IP = 192.168.1.1, constructing Cisco Unity VID payload Jan 19 13:39:49 [IKEv1 DEBUG]: IP = 192.168.1.1, constructing xauth V6 VID payload Jan 19 13:39:49 [IKEv1 DEBUG]: IP = 192.168.1.1, Send IOS VID Jan 19 13:39:49 [IKEv1 DEBUG]: IP = 192.168.1.1, Constructing ASA spoofing IOS Vendor ID payload (version: 1.0.0, capabilities: 20000001) Jan 19 13:39:49 [IKEv1 DEBUG]: IP = 192.168.1.1, constructing VID payload Jan 19 13:39:49 [IKEv1 DEBUG]: IP = 192.168.1.1, Send Altiga/Cisco VPN3000/Cisco ASA GW VID Jan 19 13:39:49 [IKEv1 DEBUG]: IP = 192.168.1.1, constructing NAT-Discovery payload Jan 19 13:39:49 [IKEv1 DEBUG]: IP = 192.168.1.1, computing NAT Discovery hash Jan 19 13:39:49 [IKEv1 DEBUG]: IP = 192.168.1.1, constructing NAT-Discovery payload Jan 19 13:39:49 [IKEv1 DEBUG]: IP = 192.168.1.1, computing NAT Discovery hash Jan 19 13:39:49 [IKEv1]: IP = 192.168.1.1, Connection landed on tunnel_group 192.168.1.1 Jan 19 13:39:49 [IKEv1 DEBUG]: Group = 192.168.1.1, IP = 192.168.1.1, Generating keys for Responder... Jan 19 13:39:49 [IKEv1]: IP = 192.168.1.1, IKE_DECODE SENDING Message (msgid=0) with payloads : HDR + KE (4) + NONCE (10) + VENDOR (13) + VENDOR (13) + VENDOR (13) + VENDOR (13) + NAT-D (130) + NAT-D (130) + NONE (0) total length : 304 Jan 19 13:39:49 [IKEv1]: IP = 192.168.1.1, IKE_DECODE RECEIVED Message (msgid=0) with payloads : HDR + ID (5) + HASH (8) + IOS KEEPALIVE (128) + VENDOR (13) + NONE (0) total length : 96 Jan 19 13:39:49 [IKEv1 DEBUG]: Group = 192.168.1.1, IP = 192.168.1.1, processing ID payload Jan 19 13:39:49 [IKEv1 DEBUG]: Group = 192.168.1.1, IP = 192.168.1.1, processing hash payload Jan 19 13:39:49 [IKEv1 DEBUG]: Group = 192.168.1.1, IP = 192.168.1.1, Computing hash for ISAKMP Jan 19 13:39:49 [IKEv1 DEBUG]: IP = 192.168.1.1, Processing IOS keep alive payload: proposal=32767/32767 sec. Jan 19 13:39:49 [IKEv1 DEBUG]: Group = 192.168.1.1, IP = 192.168.1.1, processing VID payload Jan 19 13:39:49 [IKEv1 DEBUG]: Group = 192.168.1.1, IP = 192.168.1.1, Received DPD VID Jan 19 13:39:49 [IKEv1]: Group = 192.168.1.1, IP = 192.168.1.1, Automatic NAT Detection Status: Remote end is NOT behind a NAT device This end is NOT behind a NAT device Jan 19 13:39:49 [IKEv1]: IP = 192.168.1.1, Connection landed on tunnel_group 192.168.1.1 Jan 19 13:39:49 [IKEv1]: Group = 192.168.1.1, IP = 192.168.1.1, Freeing previously allocated memory for authorization-dn-attributes Jan 19 13:39:49 [IKEv1 DEBUG]: Group = 192.168.1.1, IP = 192.168.1.1, constructing ID payload Jan 19 13:39:49 [IKEv1 DEBUG]: Group = 192.168.1.1, IP = 192.168.1.1, constructing hash payload Jan 19 13:39:49 [IKEv1 DEBUG]: Group = 192.168.1.1, IP = 192.168.1.1, Computing hash for ISAKMP Jan 19 13:39:49 [IKEv1 DEBUG]: IP = 192.168.1.1, Constructing IOS keep alive payload: proposal=32767/32767 sec. Jan 19 13:39:49 [IKEv1 DEBUG]: Group = 192.168.1.1, IP = 192.168.1.1, constructing dpd vid payload Jan 19 13:39:49 [IKEv1]: IP = 192.168.1.1, IKE_DECODE SENDING Message (msgid=0) with payloads : HDR + ID (5) + HASH (8) + IOS KEEPALIVE (128) + VENDOR (13) + NONE (0) total length : 96 Jan 19 13:39:49 [IKEv1]: Group = 192.168.1.1, IP = 192.168.1.1, PHASE 1 COMPLETE D Jan 19 13:39:49 [IKEv1]: IP = 192.168.1.1, Keep-alive type for this connection: DPD Jan 19 13:39:49 [IKEv1 DEBUG]: Group = 192.168.1.1, IP = 192.168.1.1, Starting P1 rekey timer: 73440 seconds. Jan 19 13:39:49 [IKEv1]: IP = 192.168.1.1, IKE_DECODE RECEIVED Message (msgid=94 21905f) with payloads : HDR + HASH (8) + SA (1) + NONCE (10) + ID (5) + ID (5) + NOTIFY (11) + NONE (0) total length : 196 Jan 19 13:39:49 [IKEv1 DEBUG]: Group = 192.168.1.1, IP = 192.168.1.1, processing hash payload Jan 19 13:39:49 [IKEv1 DEBUG]: Group = 192.168.1.1, IP = 192.168.1.1, processing SA payload Jan 19 13:39:49 [IKEv1 DEBUG]: Group = 192.168.1.1, IP = 192.168.1.1, processing nonce payload Jan 19 13:39:49 [IKEv1 DEBUG]: Group = 192.168.1.1, IP = 192.168.1.1, processing ID payload Jan 19 13:39:49 [IKEv1]: Group = 192.168.1.1, IP = 192.168.1.1, Received remote IP Proxy


```

Subnet data in ID Payload: Address 10.1.1.0, Mask 255.255.255.0, Protocol 0, Port 0 Jan 19
13:39:49 [IKEv1 DEBUG]: Group = 192.168.1.1, IP = 192.168.1.1, processing ID payload Jan 19
13:39:49 [IKEv1]: Group = 192.168.1.1, IP = 192.168.1.1, Received local IP Proxy Subnet
data in ID Payload: Address 10.2.2.0, Mask 255.255.255.0, Protocol 0, Port 0 Jan 19
13:39:49 [IKEv1 DEBUG]: Group = 192.168.1.1, IP = 192.168.1.1, processing notify payload Jan
19 13:39:49 [IKEv1]: Group = 192.168.1.1, IP = 192.168.1.1, QM IsRekeyed old sa not found by
addr Jan 19 13:39:49 [IKEv1]: Group = 192.168.1.1, IP = 192.168.1.1, Static Crypto Map
check, checking map = outside_map, seq = 20... Jan 19 13:39:49 [IKEv1]: Group = 192.168.1.1,
IP = 192.168.1.1, Static Crypto Map check, map outside_map, seq = 20 is a successful match
Jan 19 13:39:49 [IKEv1]: Group = 192.168.1.1, IP = 192.168.1.1, IKE Remote Peer configured
for crypto map: outside_map Jan 19 13:39:49 [IKEv1 DEBUG]: Group = 192.168.1.1, IP =
192.168.1.1, processing IPsec SA payload Jan 19 13:39:49 [IKEv1 DEBUG]: Group = 192.168.1.1,
IP = 192.168.1.1, IPsec SA Proposal # 1, Transform # 1 acceptable Matches global IPsec SA
entry # 20 Jan 19 13:39:49 [IKEv1]: Group = 192.168.1.1, IP = 192.168.1.1, IKE: requesting
SPI! Jan 19 13:39:49 [IKEv1 DEBUG]: Group = 192.168.1.1, IP = 192.168.1.1, IKE got SPI from
key engine: SPI = 0x826ff027 Jan 19 13:39:49 [IKEv1 DEBUG]: Group = 192.168.1.1, IP =
192.168.1.1, oakley constructing quick mode Jan 19 13:39:49 [IKEv1 DEBUG]: Group =
192.168.1.1, IP = 192.168.1.1, constructing blank hash payload Jan 19 13:39:49 [IKEv1
DEBUG]: Group = 192.168.1.1, IP = 192.168.1.1, constructing IPsec SA payload Jan 19
13:39:49 [IKEv1 DEBUG]: Group = 192.168.1.1, IP = 192.168.1.1, constructing IPsec nonce
payload Jan 19 13:39:49 [IKEv1 DEBUG]: Group = 192.168.1.1, IP = 192.168.1.1, constructing
proxy ID Jan 19 13:39:49 [IKEv1 DEBUG]: Group = 192.168.1.1, IP = 192.168.1.1, Transmitti

```

- ***debug crypto ipsec sa <debug level>*** — для отладки согласований SA

```

IPsec.ASA5505(config)#debug crypto ipsec 7 ASA5505(config)# IPSEC: New embryonic SA created
@ 0xD4E56E18, SCB: 0xD4E56CF8, Direction: inbound SPI : 0x8030618F Session ID: 0x00006000
VPIF num : 0x00000001 Tunnel type: l2l Protocol : esp Lifetime : 240 seconds IPSEC: New
embryonic SA created @ 0xD4E57AD8, SCB: 0xD4DAE608, Direction: outbound SPI : 0x0D6CDEEB
Session ID: 0x00006000 VPIF num : 0x00000001 Tunnel type: l2l Protocol : esp Lifetime : 240
seconds IPSEC: Completed host OBSA update, SPI 0x0D6CDEEB IPSEC: Creating outbound VPN
context, SPI 0x0D6CDEEB Flags: 0x00000005 SA : 0xD4E57AD8 SPI : 0x0D6CDEEB MTU : 1500 bytes
VCID : 0x00000000 Peer : 0x00000000 SCB : 0x015E69CB Channel: 0xD3D60A98 IPSEC: Completed
outbound VPN context, SPI 0x0D6CDEEB VPN handle: 0x0005633C IPSEC: New outbound encrypt
rule, SPI 0x0D6CDEEB Src addr: 10.2.2.0 Src mask: 255.255.255.0 Dst addr: 10.1.1.0 Dst mask:
255.255.255.0 Src ports Upper: 0 Lower: 0 Op : ignore Dst ports Upper: 0 Lower: 0 Op :
ignore Protocol: 0 Use protocol: false SPI: 0x00000000 Use SPI: false IPSEC: Completed
outbound encrypt rule, SPI 0x0D6CDEEB Rule ID: 0xD4DA4348 IPSEC: New outbound permit rule,
SPI 0x0D6CDEEB Src addr: 172.16.1.1 Src mask: 255.255.255.255 Dst addr: 192.168.1.1 Dst
mask: 255.255.255.255 Src ports Upper: 0 Lower: 0 Op : ignore Dst ports Upper: 0 Lower: 0 Op
: ignore Protocol: 50 Use protocol: true SPI: 0x0D6CDEEB Use SPI: true IPSEC: Completed
outbound permit rule, SPI 0x0D6CDEEB Rule ID: 0xD4DAE7A8 IPSEC: Completed host IBSA update,
SPI 0x8030618F IPSEC: Creating inbound VPN context, SPI 0x8030618F Flags: 0x00000006 SA :
0xD4E56E18 SPI : 0x8030618F MTU : 0 bytes VCID : 0x00000000 Peer : 0x0005633C SCB :
0x015DD135 Channel: 0xD3D60A98 IPSEC: Completed inbound VPN context, SPI 0x8030618F VPN
handle: 0x00058FBC IPSEC: Updating outbound VPN context 0x0005633C, SPI 0x0D6CDEEB Flags:
0x00000005 SA : 0xD4E57AD8 SPI : 0x0D6CDEEB MTU : 1500 bytes VCID : 0x00000000 Peer :
0x00058FBC SCB : 0x015E69CB Channel: 0xD3D60A98 IPSEC: Completed outbound VPN context, SPI
0x0D6CDEEB VPN handle: 0x0005633C IPSEC: Completed outbound inner rule, SPI 0x0D6CDEEB Rule
ID: 0xD4DA4348 IPSEC: Completed outbound outer SPD rule, SPI 0x0D6CDEEB Rule ID: 0xD4DAE7A8
IPSEC: New inbound tunnel flow rule, SPI 0x8030618F Src addr: 10.1.1.0 Src mask:
255.255.255.0 Dst addr: 10.2.2.0 Dst mask: 255.255.255.0 Src ports Upper: 0 Lower: 0 Op :
ignore Dst ports Upper: 0 Lower: 0 Op : ignore Protocol: 0 Use protocol: false SPI:
0x00000000 Use SPI: false IPSEC: Completed inbound tunnel flow rule, SPI 0x8030618F Rule ID:
0xD4DAE1F0 IPSEC: New inbound decrypt rule, SPI 0x8030618F Src addr: 192.168.1.1 Src mask:
255.255.255.255 Dst addr: 172.16.1.1 Dst mask: 255.255.255.255 Src ports Upper: 0 Lower: 0
Op : ignore Dst ports Upper: 0 Lower: 0 Op : ignore Protocol: 50 Use protocol: true SPI:
0x8030618F Use SPI: true IPSEC: Completed inbound decrypt rule, SPI 0x8030618F Rule ID:
0xD4E56A18 IPSEC: New inbound permit rule, SPI 0x8030618F Src addr: 192.168.1.1

```

[Дополнительные сведения](#)

- [Страница поддержки устройств адаптивной безопасности Cisco ASA серии 5500](#)

- [Страница поддержки устройств защиты Cisco PIX серии 500](#)
- [Устранение наиболее распространенных проблем удаленных VPN-подключений и VPN-туннелей LAN — LAN на базе протокола IPSec](#)
- [Страница технической поддержки протоколов согласования IPSec и IKE](#)
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