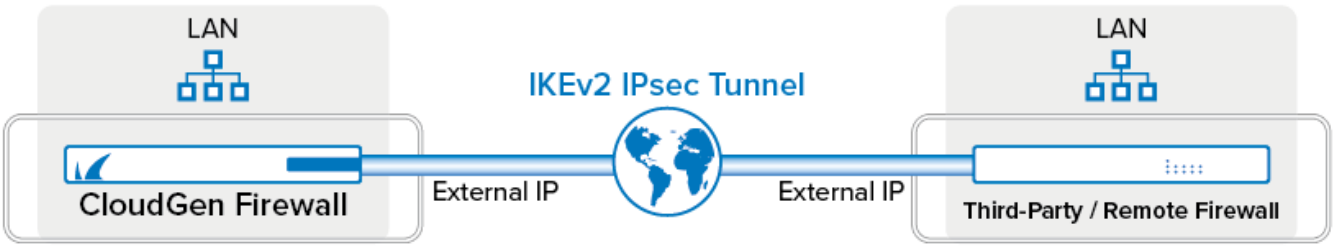
How to Configure a Site-to-Site IPsec IKEv2 VPN Tunnel

https://campus.barracuda.com/doc/79462888/

The Barracuda CloudGen Firewall can establish IPsec VPN tunnels to any standard compliant IKEv2 IPsec VPN gateway. The site-to-site IPsec VPN tunnel must be configured with identical settings on both the firewall and the third-party IKEv2 IPsec gateway.



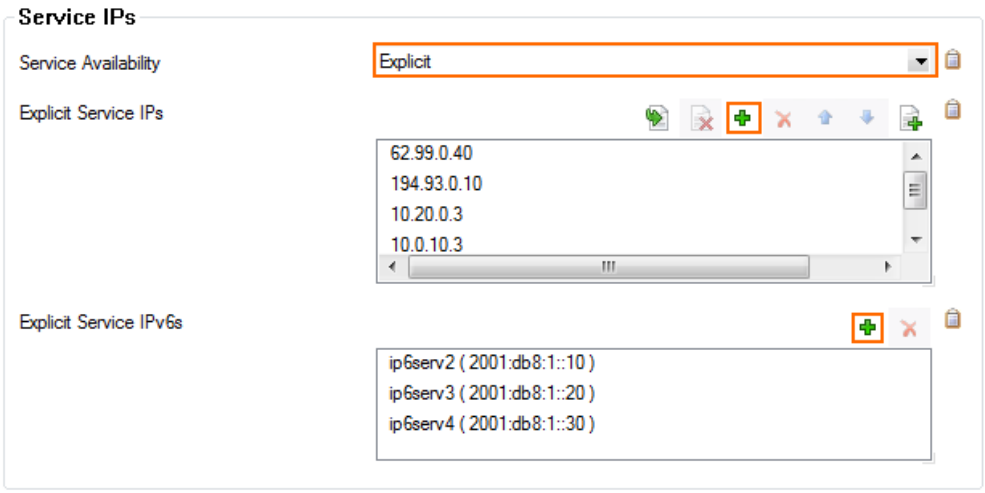
Before You Begin

If not already present, configure the **Default Server Certificate** in **CONFIGURATION > Configuration Tree > Box > Assigned Services > VPN-Service > VPN Settings**. For more information, see VPN Settings.

Step 1. Configure the VPN Service Listeners

Configure the IPv4 and IPv6 listener addresses for the VPN service.

1. Go to **CONFIGURATION > Configuration Tree > Box > Assigned Services > VPN-Service > Service Properties**.
2. Click **Lock**.
3. From the **Service Availability** list, select the source for the IPv4 listeners of the VPN service.
   - When selecting **Explicit**, click **+** for each IP address and enter the IPv4 addresses in the **Explicit Service IPs** list.
4. Click **+** to add an entry to the **Explicit IPv6 Service IPs**.
5. Select an IPv6 listener from the list of configured explicit IPv6 service IP addresses.



6. Click **Send Changes** and **Activate**.

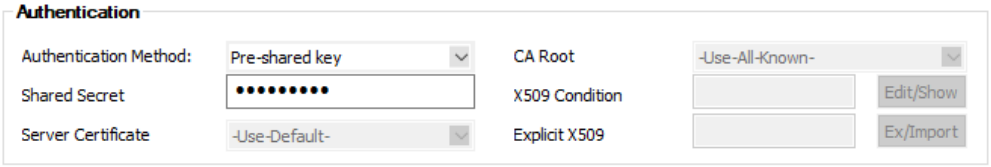
Step 2. Create an IKEv2 IPsec Tunnel on the CloudGen Firewall

1. Go to **CONFIGURATION > Configuration Tree > Box > Assigned Services > VPN-Service > Site to Site**.
2. Click the **IPsec IKEv2 Tunnels** tab.
3. Click **Lock**.
4. Right-click the table and select **New IKEv2 Tunnel**. The **IKEv2 Tunnel** window opens.
5. Enter a **Tunnel Name**.
6. Set **Initiates Tunnel:**
   - **Yes** – The firewall is the active unit and continuously attempts to connect to the remote VPN gateway until a VPN tunnel is established.
   - **No** – The firewall is the passive unit and waits for connection attempts from the remote VPN gateway.
7. Set **Restart SA on Close**:
   - **Yes** – Restart the connection if the tunnel terminates unexpectedly.
   - **No** – Close the VPN connection if the tunnel terminates unexpectedly.

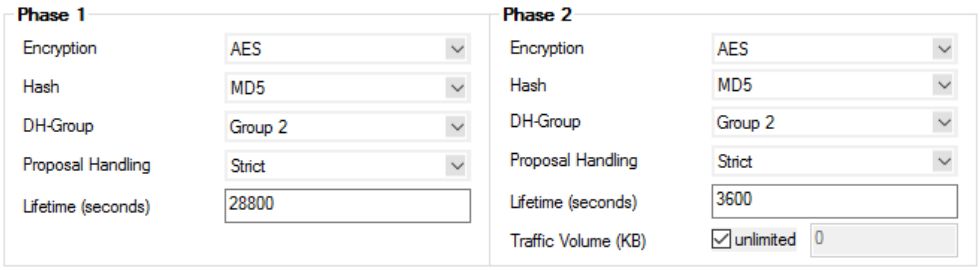
The combination of **Restart SA on Close** and **IKE Reauthentication** is not supported. This configuration needs to be avoided on both sides of the tunnel to achieve a stable connection.

8. Select the **Authentication Method**:
   - **Pre-shared key** – Enter the **Shared Secret** to use a shared passphrase to authenticate.
     The shared secret can consist of small and capital characters, numbers, and non alpha-numeric symbols, except the hash sign (#).
   - **CA certificate** – Select a **Server Certificate**, **CA Root** certificate, and enter a **X509 Condition** to use certificate authentication.

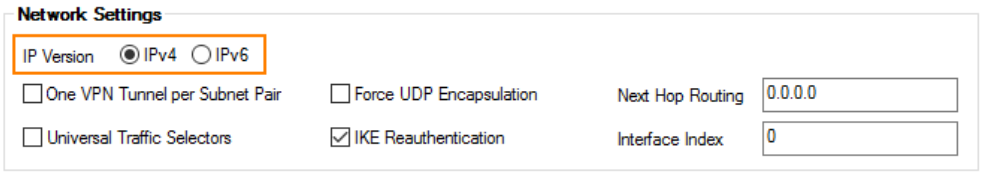
- **X509 certificate (explicit)** – Select a **Server Certificate** and import an **Explicit X509** certificate.



9. Select the **Phase 1** settings:
   - **Encryption** – Select the encryption algorithm: **AES**, **3DES**, **Blowfish**, or **AES256**.
   - **Hash** – Select the hashing algorithm: **MD5**, **SHA**, **SHA256**, or **SHA512**.
   - **DH-Group** – Select the Diffie-Hellman Group. Supported groups are: 1, 2, 5, 14 - 21.
   - **Proposal Handling**
     - **Strict** – The effective encryption is strictly determined by the proposed set of **Encryption**, **Hash** and **Group**. The communication partner must agree with the proposed set; otherwise, no communication will be established due to a missing common encryption agreement.
     - **Negotiate** – This option lets a communication partner decrease the strength of the encryption if it cannot support the proposed encryption from the initiator.
   - **Lifetime (seconds)** – Enter the number of seconds until the IPsec SA is re-keyed. Default: 28800
10. Select the **Phase 2** settings:
    - **Encryption** – Select the encryption algorithm: **AES**, **3DES**, **Blowfish**, or **AES256**.
    - **Hash** – Select the hashing algorithm: **MD5**, **SHA**, **SHA256**, or **SHA512**.
    - **DH-Group** – Select the Diffie-Hellman Group. Supported groups are: 1, 2, 5, 14 - 21.
    - **Proposal Handling**
      - **Strict** – The effective encryption is strictly determined by the proposed set of **Encryption**, **Hash** and **Group**. The communication partner must agree with the proposed set; otherwise, no communication will be established due to a missing common encryption agreement.
      - **Negotiate** – This option lets a communication partner decrease the strength of the encryption if it cannot support the proposed encryption from the initiator.
    - **Lifetime (seconds)** – Enter the number of seconds until the IPsec SA is re-keyed. Default: 3600.
    - **Lifetime (KB**) – Enter the number of KB after which the IPsec SA is re-keyed.

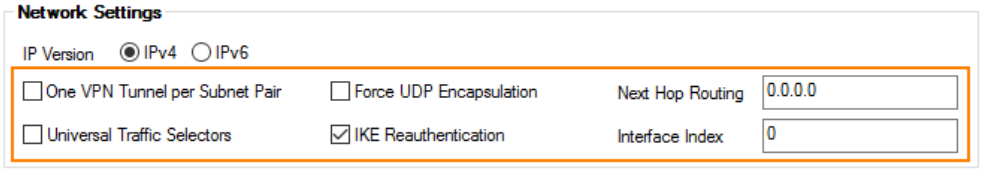


11. Select the IP Version of the local listener and the remote gateway.
    - **IP Version** – Click **IPv4** or **IPv6** to match the **Local Gateway** and **Remote Gateway** IP address IP versions.

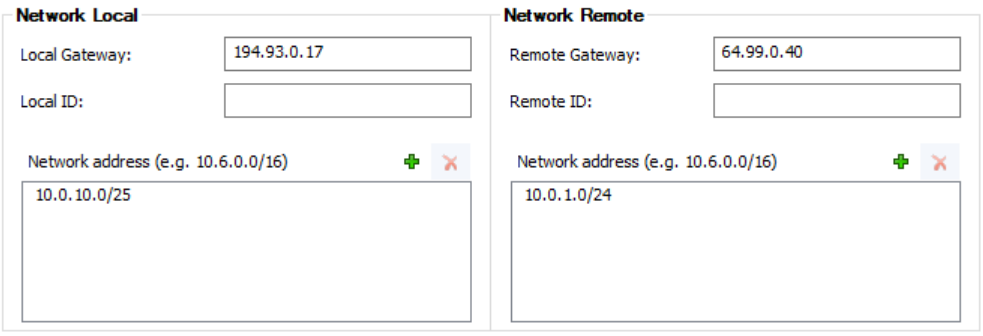


12. (optional) Select **Advanced Network Settings**
    - **One VPN Tunnel per Subnet Pair** – Creates a dedicated security association for each subnet pair. This is needed if the remote device is a Cisco ASA.
      If you connect to Sophos, the check box must not be selected!
    - **Force UDP Encapsulation** – Use UDP encapsulation (4500) for ESP traffic even if no NAT is detected.
    - **Universal Traffic Selector** – Instruct peer to route all traffic into tunnel. This is needed if the remote device is a Checkpoint firewall.
    - **IKE Reauthentication** – Reauthenticate during every IKE rekeying. This setting must be disabled if the remote device is a Microsoft Azure Dynamic VPN Gateway.

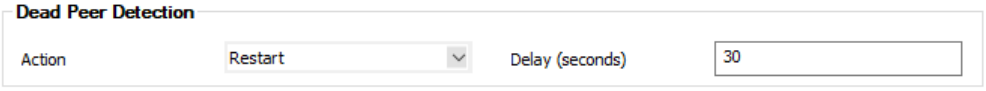
      The combination of **Restart SA on Close** and **IKE Reauthentication** is not supported. This configuration needs to be avoided on both sides of the tunnel to achieve a stable connection.
    - **Next Hop Routing** – Sets the next hop IP address for routed VPN traffic.
    - **Interface Index** – The number of the virtual interface to be used for routed VPN.



13. Enter the **Network Local** settings:
    - **Local Gateway** – Enter the external IP address of the firewall. If you are using a dynamic WAN IP address, enter `0.0.0.0`.
    - **Local ID** – Enter an IP address, FQDN, email, or a distinguished name. If left blank, the local gateway IP is used.
    - **Network Address** – Add the local networks you want to reach through the VPN tunnel, and click **Add**.
14. Enter the **Network Remote** settings:
    - **Remote Gateway** – Depending on the setting of **Initiate Tunnel**, this edit field accepts different input:
      - **Initiate Tunnel = Yes** – The input must be a hostname or IP address. No network IPs in CIDR notation are allowed.
      - **Initiate Tunnel = No** – The input must be an IP address or network address. If the remote appliance is using dynamic IP addresses, enter `0.0.0.0/0`.
    - **Remote ID** – Enter a unique ID. VPN tunnels without remote ID will not establish successfully.
    - **Network Address** – Add the IP address of the remote network, and click **Add**.



15. Enter the **Dead Peer Detection** settings:
    - **Action**:
        - **None** – Disable DPD.
        - **Clear** – Connection with the dead peer is stopped, routes removed.
        - **Hold** – Connection is put in hold state.
        - **Restart** – Connection is restarted.
    - **Delay (seconds)** – Enter the number of seconds after which an empty INFORMATIONAL message is sent to check if the remote peer is still available.



Entering the value of 0 seconds causes the firewall to use the default value of 30 seconds.

16. Click **OK**.
17. Click **Send Changes and Activate**.

Step 3. Create an IPsec Tunnel on the Remote Appliance

C onfigure the remote firewall or third-party VPN gateway with the same settings. Only the local and remote networks and the IP address for the remote VPN gateway must be interchanged.

Step 4. Create Access Rules for VPN Traffic

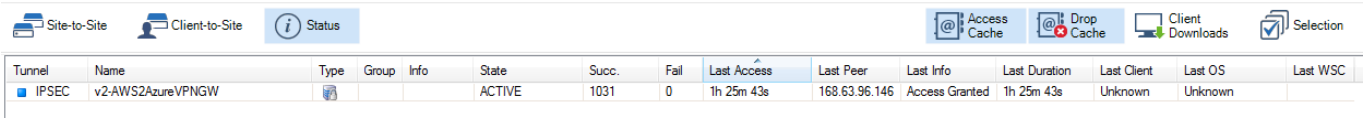
To allow traffic in and out of the VPN tunnel, create a **Pass** access rule.

For more information, see How to Create Access Rules for Site-to-Site VPN Access.

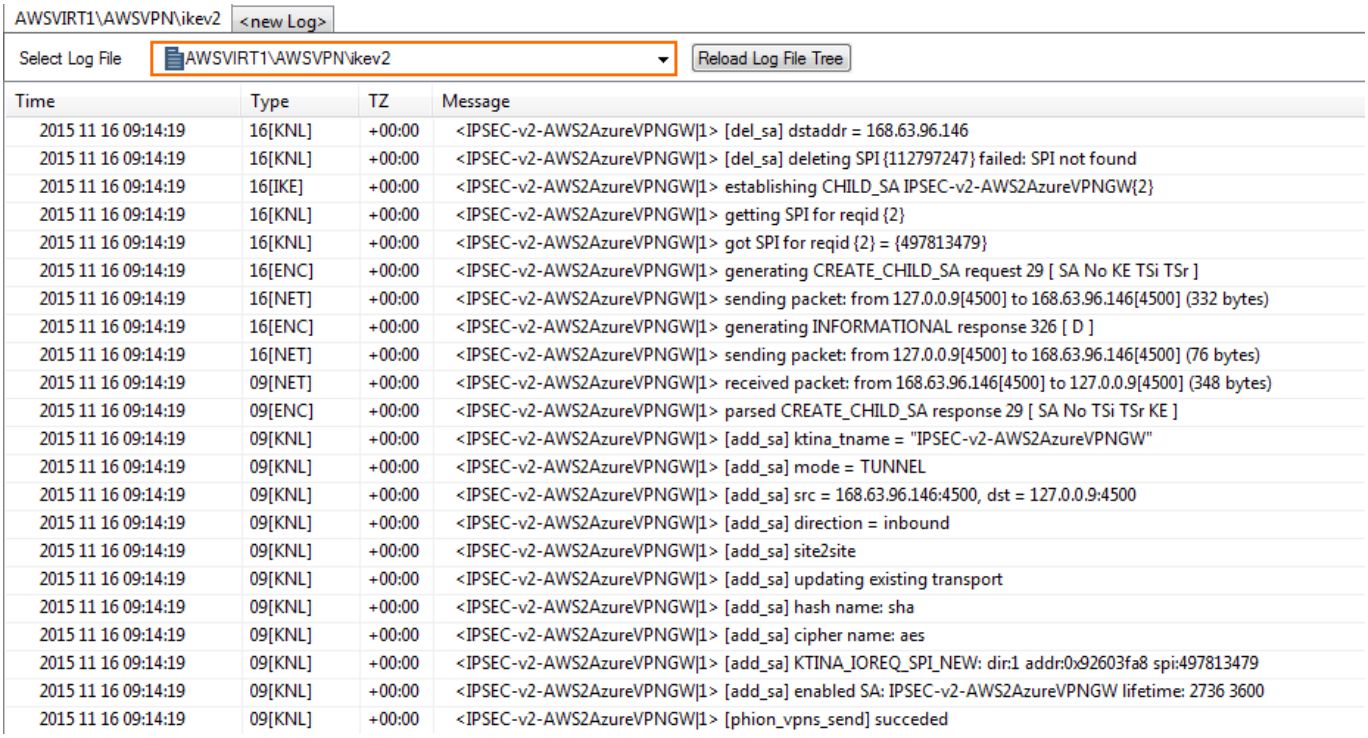
Monitoring a VPN Site-to-Site Tunnel

To verify that the VPN tunnel was initiated successfully and traffic is flowing, go to **VPN > Site-to-**

Site or VPN > Status.



Go to **LOGS** and select the **/<your_vpn_service>/IKEv2** log file.



Figures

1. autovpn_ipsec_ikev2.png
2. vpn_service_listeners.png
3. S2S_IKEv2_01.png
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