

## How to Configure a Client-to-Site VPN with Certificate Authentication

<https://campus.barracuda.com/doc/11142156/>

The Barracuda NextGen Firewall X-Series supports client-to-site VPN with certificate authentication. You can use either the Barracuda VPN client, mobile clients running iOS or Android, as well as third-party IPsec clients supporting client authentication:

### Mobile devices

The X-Series Firewall supports IPsec VPN connections for Apple iOS and Android devices. You must enable the **IPsec client** option in the access policy to be able to connect with a mobile client.

### Barracuda VPN client

The Barracuda VPN client authenticates with the certificate and username/password. You must enable the **Barracuda VPN Client** option in the access policy to be able to connect with the Barracuda VPN client.

### Third-party IPsec clients

The X-Series Firewall adheres to the IPsec standard. Any third-party IPsec client implementing this standard can connect to the IPsec VPN. You must enable IPsec client in the access policy to use the IPsec VPN client.

## Step 1. Enable the VPN service on a network interface

Enable the VPN service on a static IP address. If you do not have a static WAN IP address, you must enable the VPN service for a static internal interface and then redirect incoming connections to the VPN service with a firewall rule.

### Static (fixed) WAN IP address

To enable the VPN service for the static network interface:

1. Go to the **NETWORK > IP Configuration** page.
2. In the **Static Interface Configuration** section click **Edit** to configure your static WAN interface.

### STATIC INTERFACE CONFIGURATION

Add Static Network Interface

Name	IP Address/Mask	Interface	Classification	Action
HQDMZ	172.16.0.1/255.255.255.0	p4	DMZ	<a href="#">Edit</a> 
HQISP1	62.99.0.50/255.255.255.0	p3	WAN	<a href="#">Edit</a> 

3. In the **Edit Static Network Interface** window, select the **VPN Server** check box.

Network Interface:

Name:   
Maximum 8 characters, no spaces allowed.

IP Address:

Netmask:

Services to Allow:  Ping  DNS Server  **VPN Server**  SSL VPN  
Enable/Disable 'reply to ping' or NTP requests.

If SSL VPN service is also enabled for this interface, go to the **VPN > Site-To-Site VPN** page and disable the **Use TCP Port 443** setting for the VPN service.

4. Click **Save**.

### Dynamic (DHCP/3G/PPPoE) WAN IP Address

You must have an active DynDNS account, so that the client can connect to the dynamic IP address. For more information on creating a DynDNS account, see <http://www.dyndns.org>.

To use the VPN service with a dynamic WAN IP address, run the VPN service on an internal IP address. Do not use the management IP address; instead, add a secondary IP address. Then, create an access rule to redirect all incoming VPN traffic from the dynamic interface to the VPN service.

- Go to the **NETWORK > IP Configuration** page.
- Enable dynamic DNS.
  - In the **Dynamic Interface Configuration** section, click **Edit** to configure the dynamic WAN interface.
  - In the **Edit Dynamic Network Interface** window, enable **Use Dynamic DNS**.
  - Enter the **DynDNS Hostname** and authentication information.
  - Click **Save**.
- In the **Management IP Configuration** section, enter a secondary IP address:
  - IP ADDRESS** - Enter an IP address that is free in the local network. For

example, 10.0.10.6 if the MIP address is in the 10.0.10.0/24 network.

- **VPN SERVER** - Select this check box.

Secondary IP Addresses:

IP Address	Ping	DNS Server	VPN Server	SSL VPN	
. . .	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Add
10 . 0 . 10 . 6	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

4. Click **Add**.
5. Create an access rule to redirect incoming VPN connections on the dynamic interface to the VPN server listening on the local IP address.
  1. Go to the **FIREWALL > Firewall Rules** page.
  2. Click **Add Access Rule**.
  3. In the **Add Access Rule** window, configure a **Redirect to Service** firewall rule.
    - For the **Destination**, select the network object corresponding to your Internet connection type (DHCP, 3G, or DSL).
    - For the **Redirected To** setting, select the **VPN** network object.

**Add Access Rule** ?

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**General** **Advanced**

Action: Redirect to Service

Name: DynamicIP-2-VPN

Bi-directional:  Yes  No

Disable:  Yes  No

Description:

IPS:  Yes  No

Application Control:  Yes  No

Connection: Default (SNAT)

URL Filter:  Yes  No

Adjust Bandwidth: Internet

Virus Protection:  Yes  No

SSL Inspection:  Yes  No

DNAT (port forwarding) - Redirect traffic to a specific IP address.  
 Redirect to Service - Redirect traffic to a service on the Barracuda Firewall.  
 Bi-directional - Source and destination networks are interchangeable.

URL Filter, Virus Protection and SSL Inspection depend on Application Control enabled. URL Filter and Virus Protection require a valid Web Security subscription.

The interface must have bandwidth management enabled on the NETWORK > IP Configuration page for this policy to be applied.

Source: Internet + -  
 Ref: Any -

**Redirect to Service Details**

VPN

The following protocols and port/protocol combinations are automatically selected upon the chosen Service **VPN**:  
 UDP 691, UDP 500, UDP 4500, UDP 1701, TCP 1723, TCP 691, TCP 443

Destination: Trusted LAN + -  
 Ref: DHCP1 Local IP -  
 Ref: DSL1 Local IP -  
 Ref: 3G Local IP -

Network Objects  IP Address  Geo Loc.

4. Click **Save**.
6. Move the access rule above the **BLOCKALL** rule so it is the first access rule to match incoming VPN traffic. For more information, see [Firewall Rules Order](#).
7. Click **Save**.

## Step 2. Upload or create certificates

Use a third-party PKI to create the VPN and client certificates. For more information on how to create certificates, see [How to Create Certificates with XCA](#) and [How to Create Certificates for a Client-to-Site VPN](#).

The **SubAlt name** of the VPN server certificate must be DNS: `examplevpn.domain.com` or DNS: `*`. If you are using an FQDN, it must resolve to the IP address of the X-Series Firewall VPN service.

1. Go to the **ADVANCED > Certificates** page.
2. Click **Upload**.
  - **Certificate Name** - Enter VPN Certificate.
  - **Certificate Type** - Select the type of certificate you want to upload.
  - **Add to VPN Certificates** - Enable the checkbox.
  - **Certificate File** - Select the certificate file you want to upload.
3. Click **Save**.

### Step 3. Configure client-to-site VPN settings

Configure user authentication and IPsec settings.

#### Step 3.1 Configure user authentication and select the certificate

1. Go to the **VPN > Client-To-Site VPN** page.
2. In the **Settings** section, select a **User Authentication** method. You can use local or [external user authentication](#).
3. From the **Local Certificate** list, select the certificate that you created in Step 2 (e.g., **VPNCertificate**).
4. Click **Save**.

#### Step 3.2 Configure IPsec settings for certificate authentication

Configure the authentication type and, if needed, the encryption algorithms for IPsec phase 1 and 2.

1. Go to the **VPN > Client-To-Site VPN** page.
2. In the **IPsec Settings** section select **Client Certificate** as the **Authentication** type.
3. (optional) Configure the **IPsec Phase 1 Settings** and **IPsec Phase 2 Settings**.

Do not change the default IPsec Phase 1 and Phase 2 settings if you want to use iOS or Android devices as VPN clients,

4. Click **Save**.

## IPSEC SETTINGS

Authentication

 Shared Key   
  Shared Key or Client Certificate   
  Client Certificate

*Shared Key: Requires an additional password (shared key) to be entered below.*

### IPsec Phase 1 Settings

Encryption	Hash	DH Group	Lifetime
AES	SHA	Group 2	3600

*Lifetime in seconds, from 60 to 86400. Recommended: 3600*

### IPsec Phase 2 Settings

Name	Encryption	Hash	DH Group	Lifetime	
	AES	SHA	Group 2	3600	Add
Client2SiteVPNclients	AES	SHA	Group 2	3600	

*To connect with iOS or Android mobile devices, select Encryption: AES, HASH: SHA, Group: Group 2 and Lifetime: 3600*

### Step 3.3 Create a VPN access policy

Define the VPN clients and network information to be passed to client.

Access policies are matched based on the **Allowed Group** of the access policy from top to bottom. Make sure access policies are entered so the more specific **allowed groups** are on the top of the list and the generic \* conditions are on the bottom of the list.

- Go to the **VPN > Client-To-Site VPN** page.
- In the **VPN Access Policies** section, click **Add Access Policy**.
- In the **Add VPN Access Policy** window, configure the following settings:
  - Name** - A name for the access policy.
    - The name of the access policy is referred to as **group name** on iOS and Android devices.
  - Client Network** - The network that the client will be assigned to (e.g., 192.168.100.0/24).
  - (Optional) Domain** - The domain assigned to the client.
  - Primary DNS Server** - The IP address of the DNS server.
  - Published Networks** - The local networks available for the VPN client.
    - Add 0.0.0.0/0 to the Published Networks to allow the client to access the Internet through the VPN tunnel.
  - IPsec Phase 2** - The IPsec Phase 2 settings that you configured in Step 3.2 (e.g., **Client2SiteVPNclients** from the example in Step 3.2).
  - No Split Tunnel Mode** - Enable to lock down the client to only connect to the **Published Networks** of the VPN tunnel. Windows hosts using the Barracuda VPN client only.
    - Enabling this option blocks VPN access for all non-Windows clients!

- **Allowed Peers** – Enable **IPsec Clients** for mobile devices and third-party IPsec clients and **Barracuda VPN client** to be able to connect with the Barracuda VPN client.
- **Allowed Groups** – The groups that are allowed to connect. To allow all groups, enter an asterisk (\*).
- **Use for CudaLaunch** – Enable self-provisioning on Windows, macOS, or iOS devices for remote clients using the CudaLaunch portal. For more information, see [CudaLaunch](#).  
Configure the following settings:
  - **CudaLaunch Server** – Enter the IP address of the server providing CudaLaunch.
  - **Allowed Groups** – Enter the user groups that the policy applies to. Click + after each entry. You can use question marks (?) and asterisks (\*) as wildcard characters.

4. Click **Save**.

## Step 4. Configure clients

Configure VPN clients to connect to the IPsec VPN with certificate authentication.

### Barracuda VPN clients

Configure the Barracuda VPN client to connect to the IPsec VPN with certificate authentication you just created.

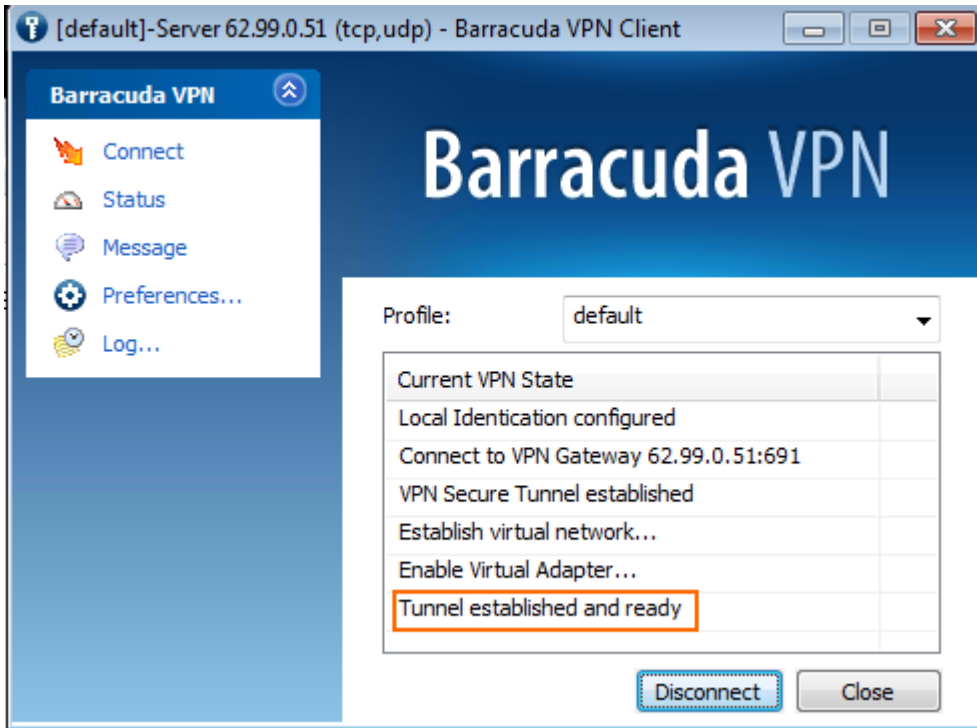
1. Go to the **VPN > Client-To-Site** page.
2. Download and install the Barracuda VPN Client.
  1. In the **Settings** section, select your operating system from the **Download Barracuda VPN Client** list and click **Download**.
  2. Install the **Barracuda VPN Client**. You must have administrative rights.
  3. Reboot the computer after the installation.
3. Configure a profile for connecting to the IPsec VPN.
  1. Start the Barracuda VPN Client.
  2. In the left pane, click **Preferences**.
  3. In the **Barracuda VPN Control** window, right-click the **default** profile and select **Modify Profile**.
  4. In the **Properties** window, specify these settings:
    - **Certificate** – Select **X509 authentication**.
    - **Remote Server** – Enter the WAN IP address or DynDNS name (e.g., 62.99.0.51 or bfw-vpn.dyndns.org) in the **Host names or IP addresses of remote server** field.
  5. Click **OK**.
4. Close the **Barracuda VPN Control** window.

After configuring the Barracuda VPN client, you can connect to the IPsec VPN:

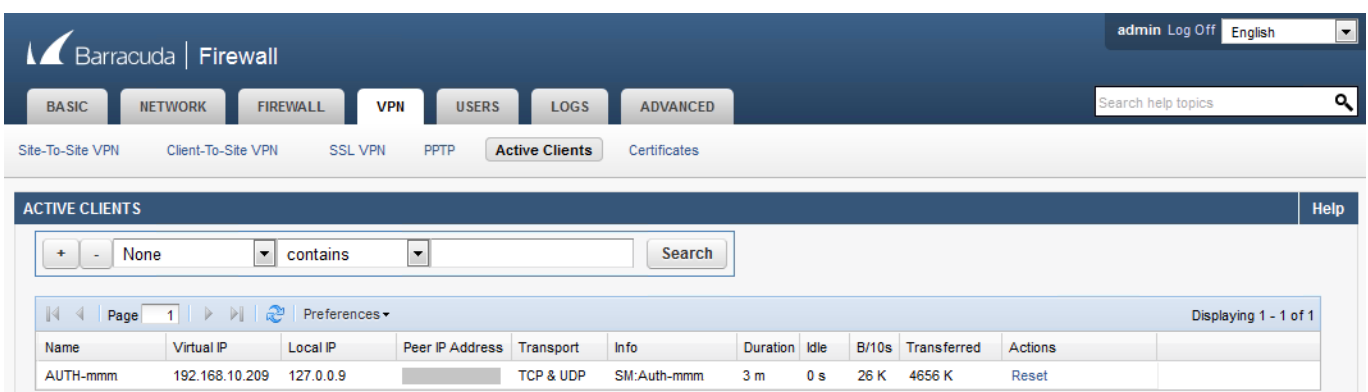
1. Start the **Barracuda VPN Connector**.

2. Enter your **Username** and **Password**.
3. Click **Connect**.

You are now connected to the client-to-site IPsec VPN with the Barracuda VPN Client.



The connection status is displayed on the **VPN > Active Connections** page.



### Mobile clients

For instructions on configuring mobile clients, see these articles:

Mobile OS	Supported Version	Article
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Apple iOS	5.2 and above	<a href="#">How to Configure the Apple iOS VPN Client for IPsec Shared Key VPN</a>
Android	4.0 and above	<a href="#">How to Configure the Android VPN Client for IPsec Shared Key VPN</a>

**Third-party IPsec VPN clients**

The X-Series Firewall adheres to the IPsec standard. Any third-party IPsec client implementing this standard can connect to the IPsec VPN.



## Figures

1. c2sIPsec\_67\_01.png
2. c2sIPsec02\_67.png
3. c2sIPsec03\_67.png
4. c2sIPsec04\_67.png
5. c2sIPsec07\_67.png
6. c2sIPsec06.png
7. c2s\_connect.png

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