



IP Office Technical Tip

Tip no: 185

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Region: GLOBAL

Configuring a VPN Remote IP Phone with a Kentrox Q2300 VPN Router

The following document assumes that the user/installer is familiar with configuring both the IP Office and VPN devices as well as setting manually configuring IP hard phones. This document is for reference purposes only when creating the VPN tunnels and does not provide details on how to configure any other aspect of either device.

Test Systems Software Versions and Basic Phone Settings

IP Office Core Software	4.0.7
Kentrox Q2300 Router Software	1.35.17 [Apr 25 2006]
IP Phone Model	5610
IP Phone Firmware	2.3.249
IP Office IP Address	192.168.2.5
TFTP/File Server	192.168.2.10
IP Phone IP Address	DHCP
IP Phone CallSV	192.168.2.5
IP Phone CallSVPort	1719 [Default]
IP Phone Router	DHCP
IP Phone Mask	DHCP
IP Phone FileSv	192.168.2.10
IP Phone 802.1Q	Auto
IP Phone VLAN ID	0
Password used during testing	1234567890
Remote ID used for Option1 test	vpnphone
Remote ID used for Option2 test	vpnphone2

Notes

1. The IP Phones may require a Virtual IP Address to be configured in the VPN settings. Please take care in choosing a Virtual IP Range. Consider where the phone is most likely to be used and ensure that the Virtual IP Range selected will not conflict. For instance, many VPN IP Phones may be installed at user's homes. Typically a Home Router uses 192.168.0.x or 192.168.1.x as its internal network range therefore it is recommended that this is not used as a Virtual IP Address Range.
2. **IMPORTANT:** Many VPN Routers will not allow a direct media path to be established between two VPN Endpoints. It will be necessary to uncheck the Direct Media Path checkbox in the Extension Configuration in IP Office. Failure to do so will result in No Speech path when two VPN extensions try and establish a call.
3. Review the Sample 46vpnsetting.txt file for simplifying configuration settings on the IP Phones.
4. While the defaults for Encryption are set at 4500-4500 and these settings are preferred, there may be instances where (depending on what the Home router supports) the user may need to either disable this setting, or change to one of the other options.
5. If manually configuring a Virtual IP Address on the IP Hard-phone, ensure that accurate records are kept of IP Address allocations to avoid IP Address conflicts.

IP Office Configuration

Using IP Office Manager, Open the Configuration and Select IP Routes.

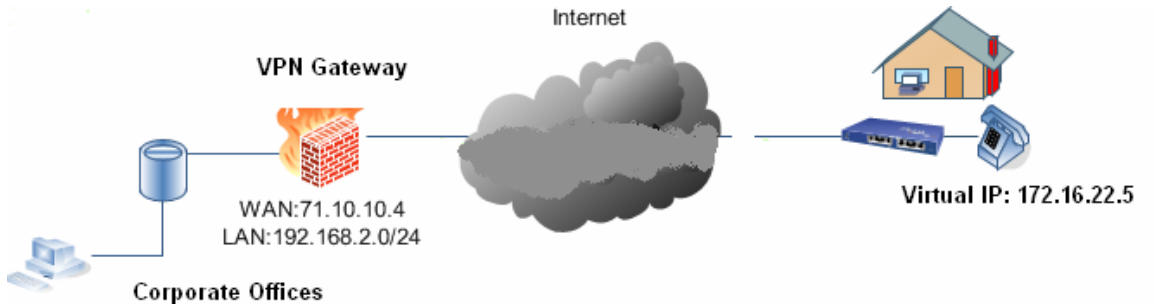
Add a New IP Route for the Virtual LAN Network to be used in the environment.

IP Route	
IP Address	172 . 16 . 22 . 0
IP Mask	255 . 255 . 255 . 0
Gateway IP Address	192 . 168 . 2 . 1
Destination	LAN1
Metric	0
	<input type="checkbox"/> Proxy ARP

Modify the Extensions – VoIP Tab for those extensions that will be VPN Extensions, and uncheck the Direct Media Path Check Box.

Extn	VoIP
IP Address	0 . 0 . 0 . 0
MAC Address	00 00 00 00 00 00
Voice Payload Size (ms)	20
Compression Mode	G.729(a) 8K CS-ACELP
Gain	Default
H450 Support	H450
	<input type="checkbox"/> VoIP Silence Suppression <input type="checkbox"/> Enable Faststart for non-Avaya IP phones <input type="checkbox"/> Fax Transport Support <input checked="" type="checkbox"/> Out Of Band DTMF <input type="checkbox"/> Local Tones <input type="checkbox"/> Enable RSVP <input type="checkbox"/> Allow Direct Media Path

Networking Scenario:



Kentrox Q2300 VPN Router VPN Configuration settings

There are two methods that can be used to connect a VPN Remote Phone providing the customer with different options for installation and management of the remote phone users.

Option 1 – Using Dynamic VPN

This is the simplest and quickest method of implementation allowing multiple clients to connect.

For configuration settings, refer to page 4

Option 2 – Using IKE and VPN Policy

This option provides more configuration options so far as defining the Client policy to be used, more control over the algorithms to be used etc, it also has more steps to setup and configure.

For configuration settings, refer to pages 5 - 6

Kentrox Q2300 Option 1: Using a Dynamic VPN Policy

Once logged into the router, Select the VPN Option, then Select Global Settings

Global Settings – Option 1	
VPN Interface	ipwan [71.10.10.4]
Local ID	VPN Interface
	ipwan
Egress TOS Action	Copy
Ingress TOS Action	Copy
Egress DF Bit Action	clear
Enable Strict Encryption	Checked
Enable Dynamic VPN	Checked
VPN Preshared Key	1234567890

Kentrox Option 1: VPN Remote Phone Settings

VPN Remote Phone Configuration – Option 1	
VPN Profile	Generic PSK
Server	71.10.10.4
IKE ID	vpnphone
PSK – (Pre Shared Key)	1234567890
IKE Parameters	
IKE ID Type	FQDN
Diffie Hellman Group	2
Encryption ALG	3Des
Authentication ALG	Sha1
IKE Xchange Mode	Aggressive
IKE Config Mode	Disabled
IPSEC Parameters	
Encryption ALG	3DES
Authentication ALG	Sha1
Diffie Hellman Group	2
VPN Start Mode	Boot
Password Type	Save in Flash
Encapsulation	4500 – 4500
Protected Nets	
Virtual IP	172.16.22.5
Remote Net #1	192.168.2.0/24
Remote Net #2	
Remote Net #3	
Copy TOS	Yes
Connectivity Check	Always

Kentrox Q2300 Option 2: Using a VPN Gateway Client and Tunnel Policy

Once logged into the Router, Select the VPN Option, then Select Global Settings

Global Settings – Option 2	
VPN Interface	ipwan [71.10.10.4]
Local ID	VPN Interface
	ipwan
Egress TOS Action	Copy
Ingress TOS Action	Copy
Egress DF Bit Action	clear
Enable Strict Encryption	Checked
Enable Dynamic VPN	Unchecked

Once Configured, Select and Add a Client Gateway

Client Gateway → Client Configuration – Option 2	
Gateway	ipo [Name must start with a letter]
Remote ID Type	Email
Email	vpnphone2
Authentication Type	Pre Shared Key
Pre Shared Key	1234567890
Negotiation Mode	Aggressive **
Diffie Hellman Group	2 **
Phase 1 Encryption Hash	3DES-Sha **
Lifetime Format	Secs
Lifetime [secs]	432000 [Important] **
Enable Gateway	Checked
NAT Traversal Configuration	
Enable NAT Traversal	Checked
Enable UDP Checksum	Checked

** The Kentrox Router requires that all these values match. If these do not match, you will receive a No_Proposal_Chosen Error in the Kentrox Logs. The VPN Remote Phone does not have a configuration option for the Lifetime value. This value can usually be viewed in the Kentrox VPN Log.

Once the Client Gateway has been added Add a Tunnel to the Client Gateway Profile

Tunnel Configuration	
Tunnel Name	ipot [Name must start with a letter]
Local Address	User Defined
	192.168.2.0/24
Enable Tunnel	Checked
Phase 2 Configuration	
Transform	ESP **
Authentication	Sha **

Encryption	3DES
Diffie Hellman Group	2 **
Lifetime Format	Secs
Lifetime [secs]	432000 [Important] **

Kentrox Option 2: VPN Remote Phone Settings

VPN Remote Phone Configuration – Option 2	
VPN Profile	Generic PSK
Server	71.10.10.4
IKE ID	Vpnphone2
PSK – (Pre Shared Key)	1234567890
IKE Parameters	
IKE ID Type	User-FQDN
Diffie Hellman Group	2
Encryption ALG	3DES
Authentication ALG	Sha1
IKE Xchange Mode	Aggressive
IKE Config Mode	Disabled
IPSEC Parameters	
Encryption ALG	3DES
Authentication ALG	Sha1
Diffie Hellman Group	2
VPN Start Mode	Boot
Password Type	Save in Flash
Encapsulation	4500 – 4500
Protected Nets	
Virtual IP	172.16.22.5
Remote Net #1	192.168.2.0/24
Remote Net #2	
Remote Net #3	
Copy TOS	Yes
Connectivity Check	Always

Issued by:
 Avaya SSD Tier 4 Support
 Contact details:-
 EMEA/APAC
 Tel: +44 1707 392200
 Fax: +44 (0) 1707 376933
 Email: gsstier4@avaya.com

NA/CALA
 Tel: +1 732 852 1955
 Fax: +1 732 852 1943
 Email: IPOUST4ENG@Avaya.com

Internet: <http://www.avaya.com>
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