



PPTP VPN for Windows XP and Vista to 3Com X-family

Document Version:	1.1
Publication Date:	10 th May 2007
Description:	PPTP VPNs from Microsoft Windows XP and Vista to 3Com X-family
Product:	3Com X-family
3Com TOS Version:	2.5.1.6826
Windows XP version	Version 5.1 (Build 2600.xpsp_sp2_gdr.061219-0316 : Service Pack 2)
Windows Vista version	Ultimate Edition

Introduction

This document explains how to configure the 3Com X-family devices to terminate a Windows XP or Windows Vista VPN client using PPTP.

These instructions assume that your corporate network is attached to the LAN security zone of the X-family, and that external (Internet) traffic is on the WAN security zone.

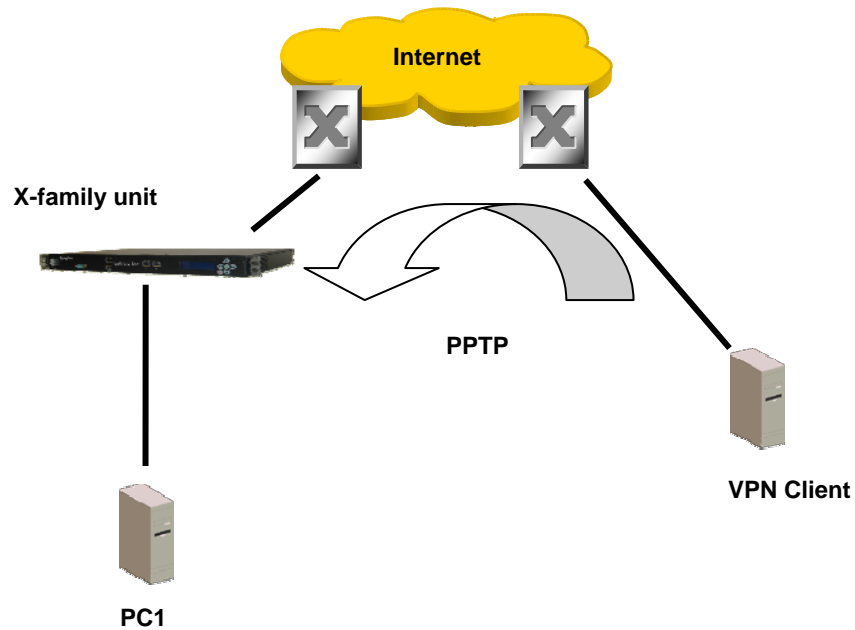
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1 Overview

PPTP uses the security attributes of a GRE tunnel with MPPE encryption for data transfer, and the Point-to-Point Tunneling Protocol to essentially make the client appear part of the Workplace network.

2 Network Configuration



IP Addresses for the following example setup are:

Device	Interface	Address	Mask	Gateway
Router	1 (to X-family unit)	10.10.20.1	255.255.255.0	
Router	2 (to VPN Client)	10.10.10.1	255.255.255.0	
X-family	external	10.10.20.147	255.255.255.0	10.10.10.1
VPN Client	external	10.10.10.147	255.255.255.0	10.10.20.1
PC1		192.168.1.100	255.255.255.0	192.168.1.254
VPN Client	Tunnel	192.168.1.x	255.255.255.0	192.168.1.254

3 Configuring Point-to-Point Tunneling Protocol (PPTP)

PPTP is the default client setup for earlier versions of Windows when creating a VPN to a remote workplace. It is quick and easy to setup but does have a downside of being less secure than alternatives like L2TP/IPSec.

3.1 High-level steps ...

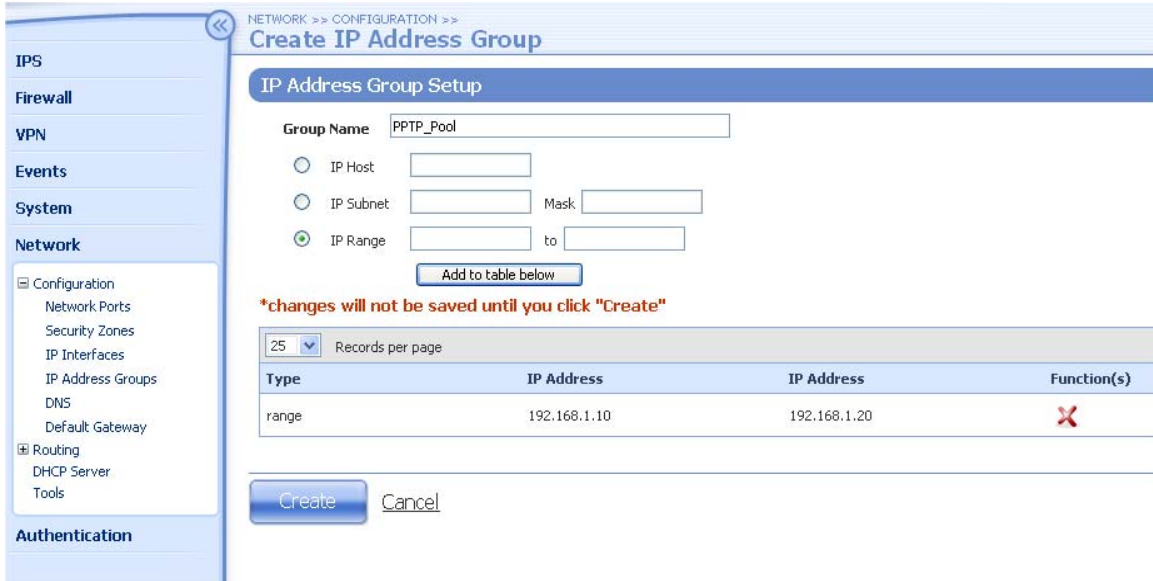
- Create an IP address pool for PPTP VPN clients – the X-family will issue addresses from this pool for use by the VPN clients. The range used needs to correspond to the subnets on the LAN security zone (or zone with which clients terminate onto) – but must not conflict with any DHCP IP pools either the inbuilt or external DHCP server.
- Configure and enable PPTP server on the X-family.
- Check firewall rules.
- Create a local-user account on X-family for VPN Client users.
- Configure the Windows client using dial-up networking.

3.1 3Com X-family Configuration for PPTP

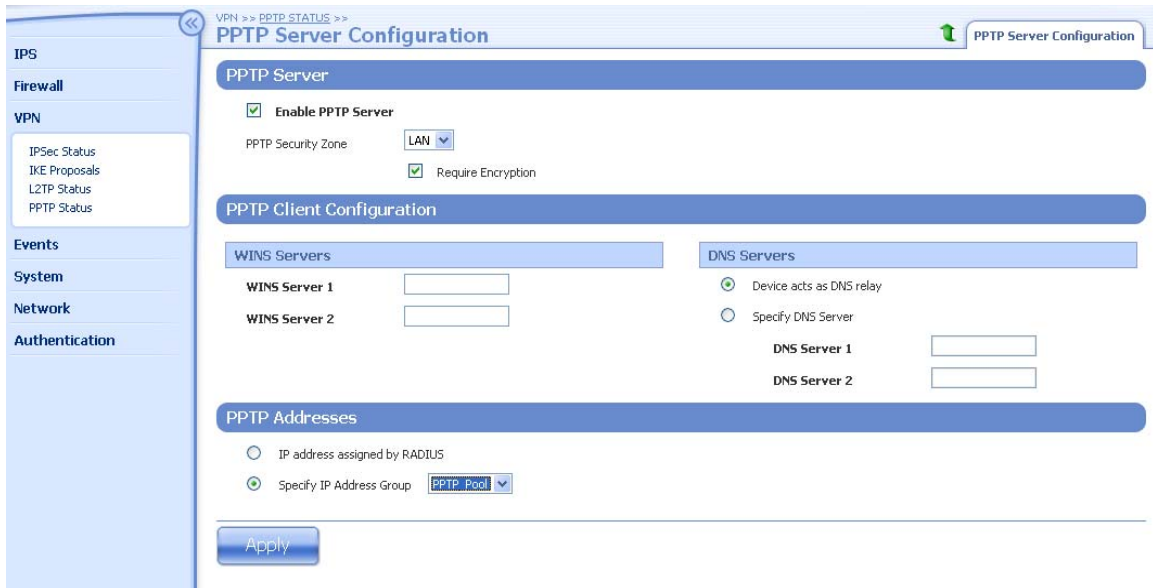
- 1) Login to your X-family web interface (LSM).
- 2) Create an IP address group for the PPTP IP Pool.
 - a) Click Network > Configuration > IP Address Groups in the navigation menu.
 - b) Click “Create Address Group”
 - c) Give the Group a name ie **PPTP_Pool**
 - d) Select the method to specify the address group. For this example we’ll select “IP Range”. Enter the Range e.g. **192.168.1.10 to 192.168.1.20¹**.
 - e) Click “Add to table below” to enter that range.
 - f) Add more ranges, subnets or hosts as required.
 - g) Click “Create” to commit the changes.

¹ You must ensure the address range meets the following criteria:

- a) It is part of the Security Zone the PPTP tunnel will be set to terminate within.
- b) The terminating Security Zone in the PPTP Server configuration is assigned to an *internal* virtual interface.
- c) The address range does not conflict with others used for DHCP server etc.



- 3) Enable PPTP Server on the X-family
 - a) Click VPN > PPTP Status in the navigation menu.
 - b) Click the tab in the top right "PPTP Server Configuration"
 - c) Click "Enable PPTP Server"
 - d) Set PPTP Security Zone to LAN².
 - e) Select "Require Encryption" - this will enable MPPE
 - f) Enter any DNS and WINS settings
 - g) Select the IP Address Group (IP group created in previous step – PPTP_Pool)
 - h) Click "Apply". The screen will refresh.



4) Check Firewall Policies.

² Note more sophisticated setups are possible here terminating in other zones but this is the simplest setup.

If you are using multiple security zones, and/or have changed the terminating zone from LAN, and/or have change the policy rules for traffic allowed to the X-family from the WAN, you should perform this step.

Note: Remember that the firewall rule table is ordered with traffic being matched top to bottom.

- a) Ensure that there are suitable firewall policy rules allowing traffic to/from other Security Zones and the Security Zone you have set for the PPTP Server.
- b) Ensure that there is a policy rule allowing the PPTP tunnel traffic to the WAN security zone³.

5) Create a User Account

1. Click Authentication > User List in the navigation menu.
2. Click “Create a New User” to create a new user.
3. Enter the username in the “Login” field - **note: this is case sensitive**. In this example we use “auser”.
4. Select User Type as “Local User”.
5. Under “Privilege Group” select “**Allow VPN Access**”.
6. Enter and confirm the password - **note: this is case sensitive**.
7. Click Create.

The screenshot shows a web-based configuration interface for creating a user. The left sidebar contains a navigation menu with categories like IPS, Firewall, VPN, Events, System, Network, and Authentication. The 'Authentication' section is expanded, showing 'User List' as the active page. The main content area is titled 'AUTHENTICATION >> Create User' and 'Enter User Information'. It includes a warning message about character requirements for usernames and passwords. The form contains several fields: 'Username' with the value 'auser', 'User Type' with radio buttons for 'TOS User' and 'Local User' (the latter is selected), 'Security Level' with a dropdown menu set to 'Operator', 'Privilege Group' with a dropdown menu set to 'Allow_VPN_access', 'Password' and 'Confirm Password' fields both masked with dots. At the bottom of the form are 'Create' and 'Cancel' buttons.

The X-family is now configured, now you need to configure the Windows clients...

3.2 Windows XP VPN Client Configuration with PPTP

Note: These instructions are for Windows XP. The same principle applies to other operating systems such as MAC OS and Linux.

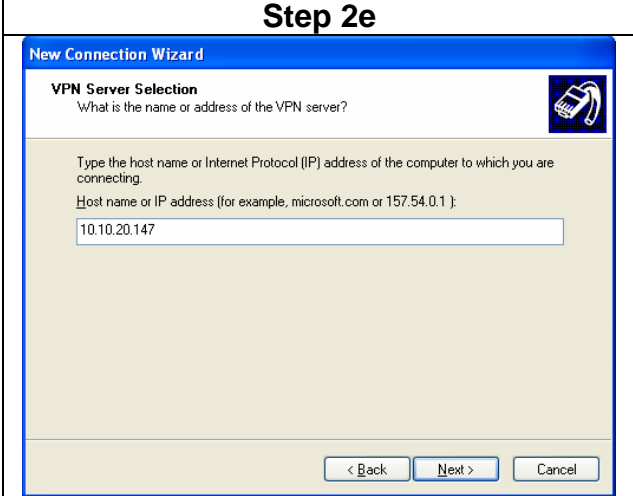


- 1) From Start Menu, select “Network Connections”

³ The default Service Group vpn-protocols and default firewall rules will allow this. PPTP requires the GRE and PPTP services to be allowed from the WAN to this-device security zones.

2) Click “Create a New Connection”

Windows XP then runs the New Connection Wizard:

<p style="text-align: center;">Step 2a</p> <p>New Connection Wizard</p> <p>Network Connection Type What do you want to do?</p> <p><input type="radio"/> Connect to the Internet Connect to the Internet so you can browse the Web and read email.</p> <p><input checked="" type="radio"/> Connect to the network at my workplace Connect to a business network (using dial-up or VPN) so you can work from home, a field office, or another location.</p> <p><input type="radio"/> Set up a home or small office network Connect to an existing home or small office network or set up a new one.</p> <p><input type="radio"/> Set up an advanced connection Connect directly to another computer using your serial, parallel, or infrared port, or set up this computer so that other computers can connect to it.</p> <p style="text-align: right;"> <input style="border: none;" type="button" value=" < Back "/> <input style="border: none;" type="button" value=" Next > "/> <input style="border: none;" type="button" value=" Cancel "/> </p>	<p style="text-align: center;">Step 2b</p> <p>New Connection Wizard</p> <p>Network Connection How do you want to connect to the network at your workplace?</p> <p>Create the following connection:</p> <p><input type="radio"/> Dial-up connection Connect using a modem and a regular phone line or an Integrated Services Digital Network (ISDN) phone line.</p> <p><input checked="" type="radio"/> Virtual Private Network connection Connect to the network using a virtual private network (VPN) connection over the Internet.</p> <p style="text-align: right;"> <input style="border: none;" type="button" value=" < Back "/> <input style="border: none;" type="button" value=" Next > "/> <input style="border: none;" type="button" value=" Cancel "/> </p>
<p>Connect to network at my workplace</p>	<p>Virtual Private Network</p>
<p style="text-align: center;">Step 2c</p> <p>New Connection Wizard</p> <p>Connection Name Specify a name for this connection to your workplace.</p> <p>Type a name for this connection in the following box.</p> <p>Company Name</p> <p><input type="text" value="Corporate Network"/></p> <p>For example, you could type the name of your workplace or the name of a server you will connect to.</p> <p style="text-align: right;"> <input style="border: none;" type="button" value=" < Back "/> <input style="border: none;" type="button" value=" Next > "/> <input style="border: none;" type="button" value=" Cancel "/> </p>	<p style="text-align: center;">Step 2d</p> <p>New Connection Wizard</p> <p>Public Network Windows can make sure the public network is connected first.</p> <p>Windows can automatically dial the initial connection to the Internet or other public network, before establishing the virtual connection.</p> <p><input checked="" type="radio"/> Do not dial the initial connection:</p> <p><input type="radio"/> Automatically dial this initial connection:</p> <p style="text-align: right;"> <input style="border: none;" type="button" value=" < Back "/> <input style="border: none;" type="button" value=" Next > "/> <input style="border: none;" type="button" value=" Cancel "/> </p>
<p>Give the connection a name</p>	<p>Select whether to dial another connection first</p>

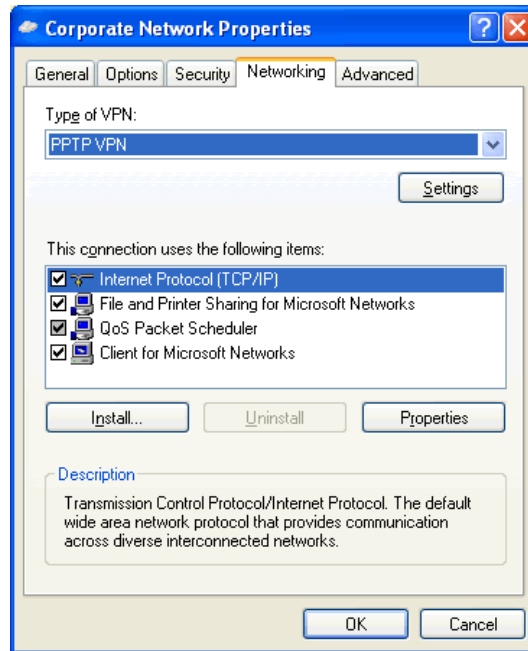
<p style="text-align: center;">Step 2e</p> 	<p style="text-align: center;">Step 2f</p> 
<p>Enter the public WAN IP address of X-family</p>	<p>Select whether this connection is shared.</p>
<p style="text-align: center;">Step 2g</p> 	
<p>Hit finish to complete the wizard</p>	

- 3) After creating the connection you will be prompted to connect for the first time. Enter the user details configured on the X-family to establish the VPN connection. This must match Step 4c – user name and password configured on the X-family.

Note: Remember both username and passwords are case sensitive



- 4) Final setup. It is recommended that (once connected) you force the client to use PPTP, even though this will be the default Windows XP will use. To do this:
- From Start Menu, select Network Connections
 - Select the connection for the PPTP tunnel and right click.
 - Click Properties
 - Select the Networking Tab
 - Under “Type of VPN” select PPTP VPN from pull-down list and click “OK”.



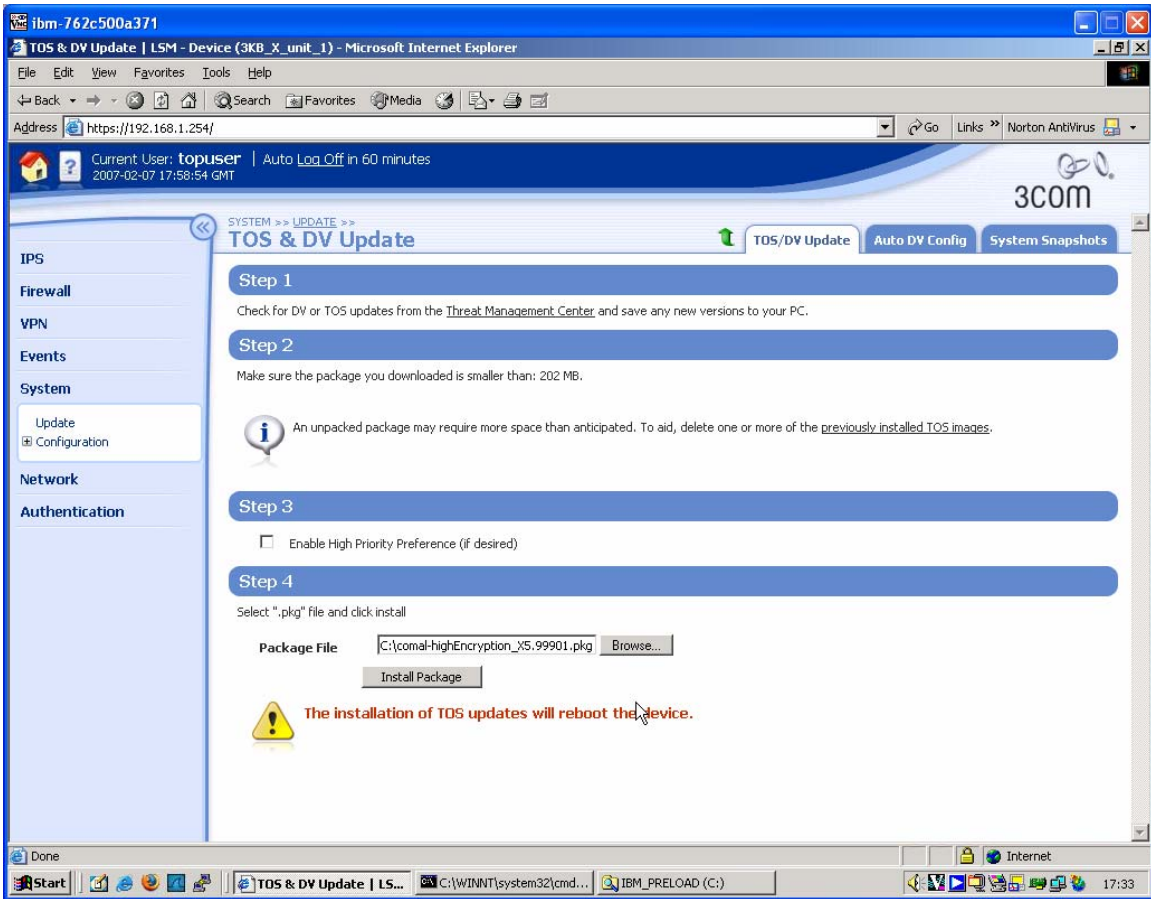
- f) Double click the connection to establish the VPN tunnel

Connection to X-family should now be established.

3.3 Load the Strong Encryption Package

Windows Vista ships with stronger encryption than earlier Windows versions. The encryption used by Windows Vista with PPTP is 128-bit MPPE. For export compliance reasons, the X-family products ship with weak encryption (40 and 64 bit MPPE in the PPTP case). To enable strong encryption, the Strong Encryption software package must be loaded. This package is only available to approved end users in approved locations.

1. Acquire the Strong Encryption package from either the TippingPoint TMC or 3Com download site and load it onto PC1. This will require completion of an export compliance form on the web site.
2. Open a browser on PC1, connect to <https://192.168.1.254> and login as the user you set up during the OBE.
3. Navigate to System -> Update, open the "TOS/DV Update" tab and complete the form as shown below with the path of the Strong Encryption package on PC1. Click "Install Package".



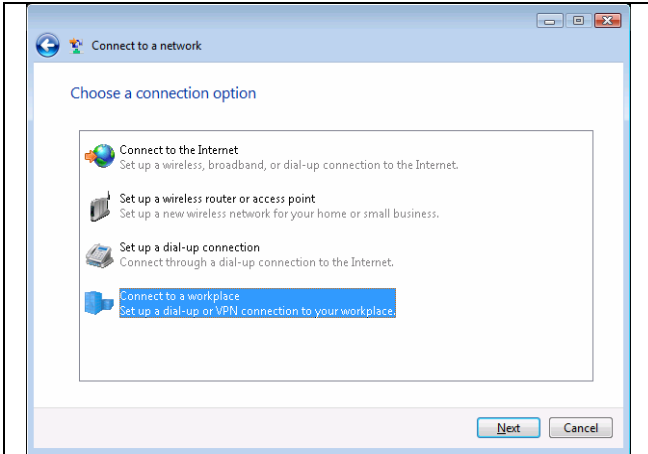
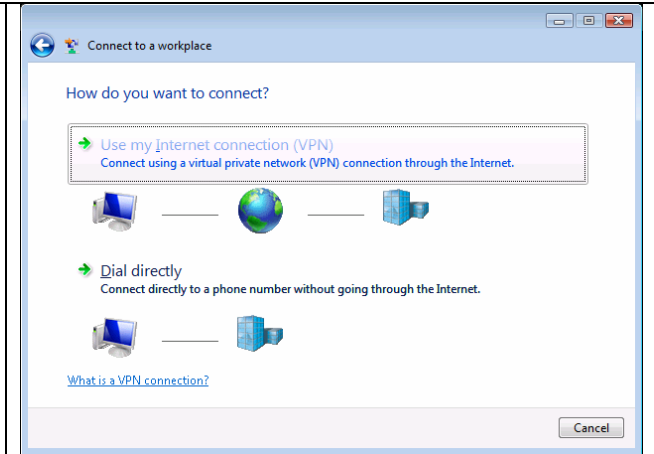
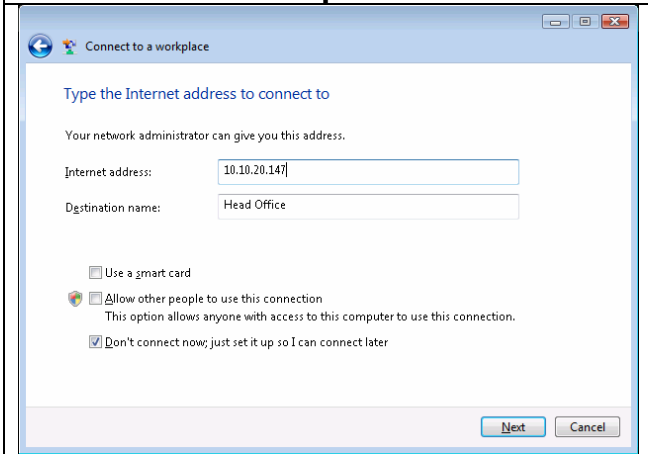
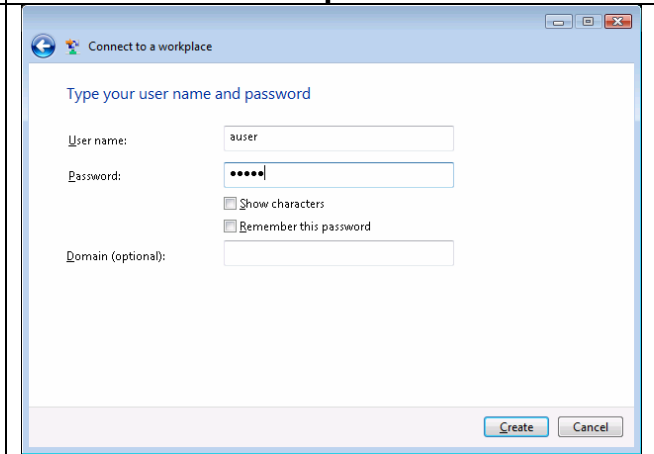
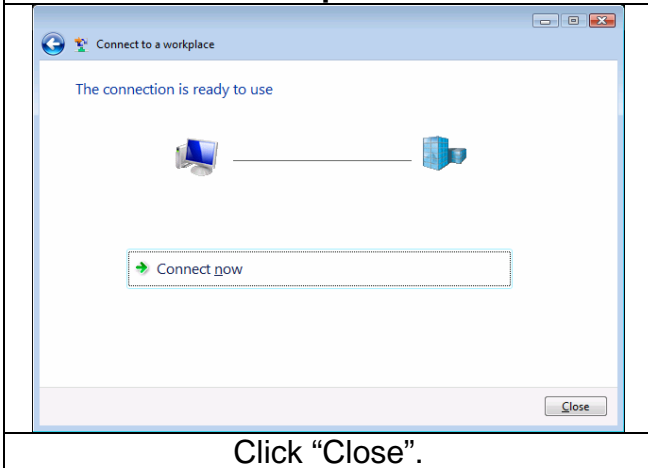
4. The package will be installed and the X-family device will reboot. The X-family device is ready to set up the VPN when reboot has completed.

3.4 Windows Vista Client Configuration with PPTP

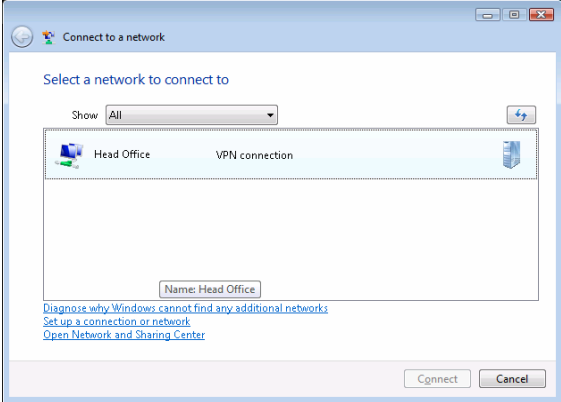
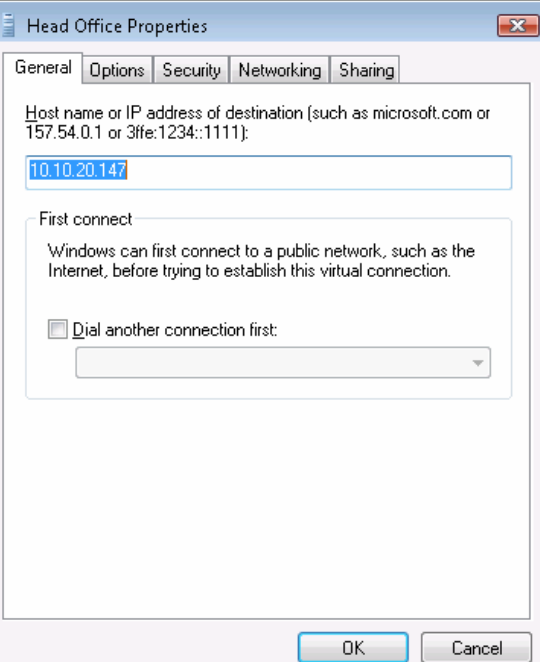
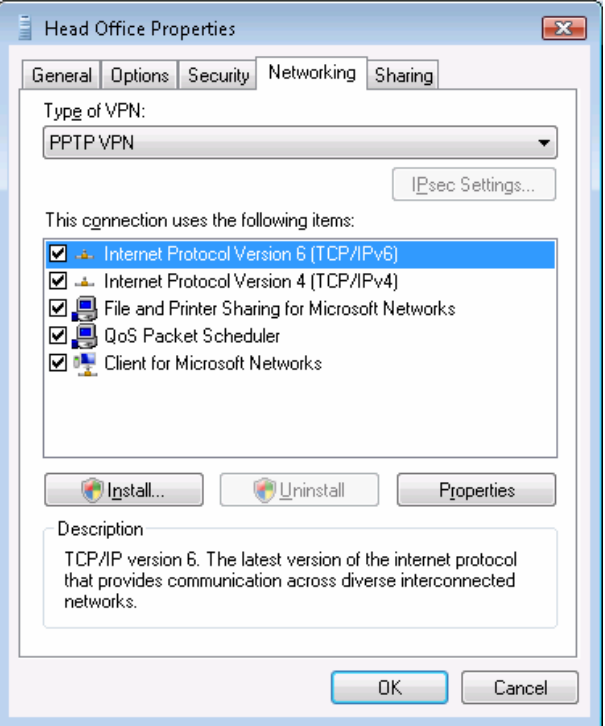
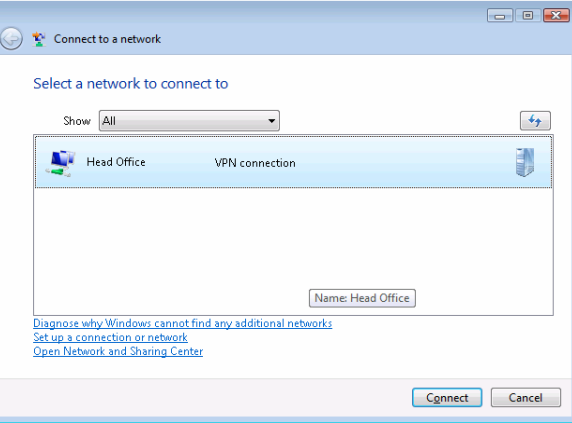
Note: These instructions are for Windows Vista. The same principle applies to other operating systems such as MAC OS and Linux.

- 1) From Start Menu, select "Connect To".
- 2) Click "Set up a Connection or Network".
Windows Vista then runs the New Connection Wizard...

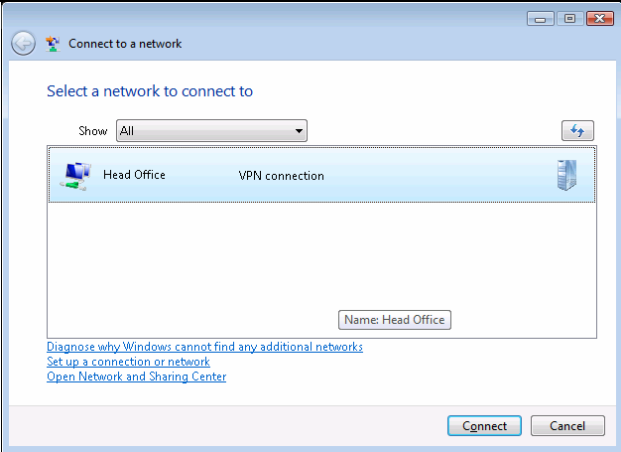

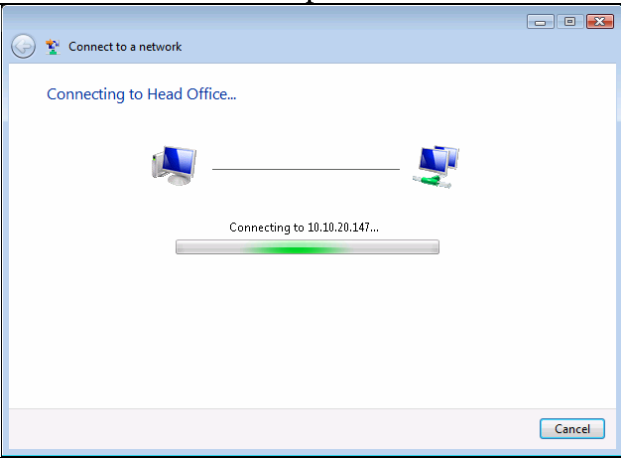
Step 2a	Step 2b
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<p align="center">Connect to network at my workplace Step 2c</p>	<p align="center">Virtual Private Network Step 2d</p>
	
<p align="center">Enter X-family IP address, give the connection a name, and check “Don’t connect now”.</p> <p align="center">Step 2e</p>	<p align="center">Enter User Name and Password and click “Create”.</p>
	
<p align="center">Click “Close”.</p>	

3) After creating the connection it is advisable to edit it to ensure that only PPTP connection is attempted. From Start Menu, select “Connect To”.

<p style="text-align: center;">Step 3a</p> 	<p style="text-align: center;">Step 3b</p> 
<p style="text-align: center;">Right click on Head Office and select Properties from the menu</p>	<p style="text-align: center;">Click on "Networking" tab</p>
<p style="text-align: center;">Step 3c</p> 	<p style="text-align: center;">Step 3d</p> 
<p>Under "Type of VPN" select PPTP VPN from pull-down list. Click "OK".</p>	<p>Click "Cancel".</p>

- 4) From Start Menu, select “Connect To”. Enter the user details configured on the X-family for the local user - this must match Step 8 where the local user name and password were configured on the X-family. **Note: Remember both username and passwords are case sensitive**

Step 4a	Step 4b
	
<p>Highlight “Head Office” and click “Connect”.</p>	<p>Enter userid and password and click “Connect”.</p>
<p>Step 4c</p>	
	
<p>VPN connecting...</p>	

Connection to X-family should now be established.

4 Troubleshooting PPTP Tunnel

The following is a list of things to check if the PPTP tunnel cannot be established or does not operate correctly:

- a) If you get an invalid username/password error:
 - Check the Local User username/password configured on the X-family matches the credentials entered on the VPN client.
- b) If using RADIUS, check the Troubleshooting RADIUS section in the separate RADIUS Technical Note
- c) If the client gets no response at all from the X-family:
 - Check the IP address configured for the PPTP client matches that of the external interface of the X-family.
 - Check the firewall policy rules allow PPTP and GRE as appropriate from the WAN zone to this-device. It is worth checking the Block Log on the X-family to see if the connection is being refused. This may require you to enable “Logging” on the Block rules in the firewall that you suspect may be blocking the request.
 - On the Windows client try forcing the VPN type to PPTP in Network Properties.
- d) If the client gets logged in but traffic does not flow:
 - Check that the local user on the X-Family has been configured with Allow_VPN_access privileges in the Authentication > User List dialogs.
 - Check that the terminating zone for the PPTP Server is associated with an internal virtual interface. For a Full Transparent Mode deployment you only have the external virtual interface, but you must ensure that the terminating zone is *not* the WAN zone.
 - Has the correct DNS server information been configured for the PPTP server?
 - Ensure that all firewalls on the client PC or between PC and the X-Family are configured to allow GRE traffic.
 - Try disconnecting and re-connecting.
- e) If Windows Vista will not connect.
 - Download the Strong Encryption software package from either the TippingPoint TMC or the 3Com download site and install it on the X-family device. This will automatically upgrade the device to accept 128 bit MPPE encryption. See the X-family to Windows Vista L2TP/IPSec Technical Note for details.
 - If the Strong Encryption package is not available for any reason, contact Microsoft and ask them how to downgrade Vista to low (40-bit or 64-bit) MPPE encryption.