VPN End to End – Appendix A: Microsoft 2003 PPTP

Appendix A: Microsoft 2003 PPTP

Technical Notes for use with Vodafone Mobile Connect services

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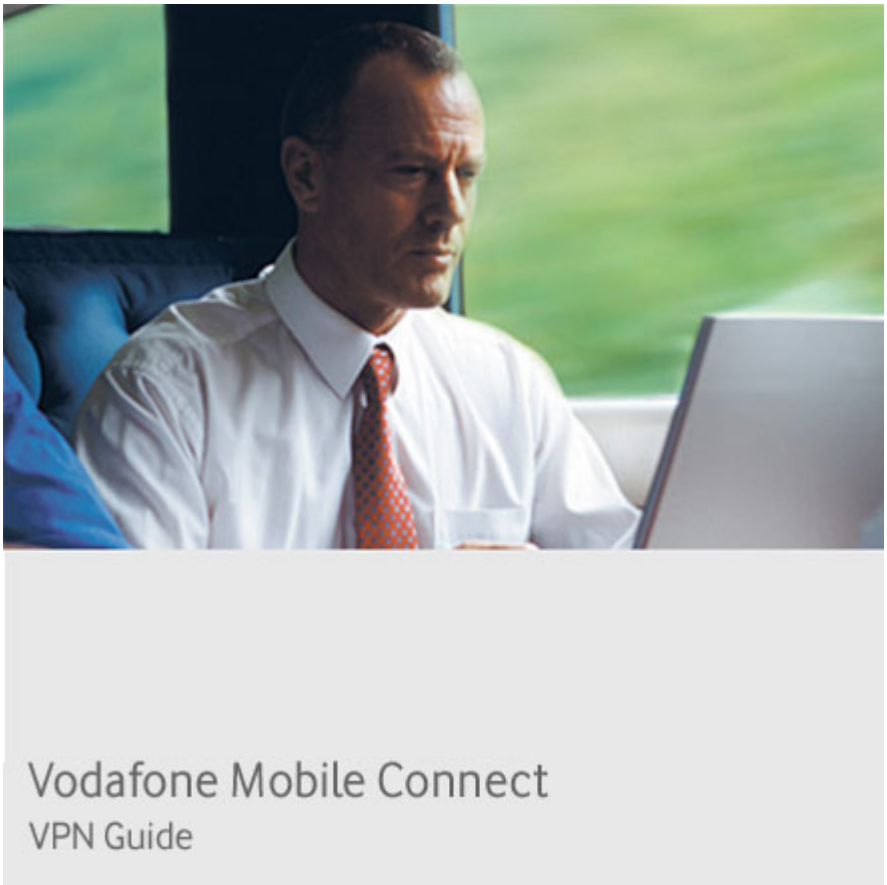

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Scope

This document presents results of installation, configuration, and operations testing of VPN components with the Vodafone Mobile Connect service. The document is not intended to be a tutorial on VPN concepts nor does it supersede or replace the vendor's documentation. The reader is referred to the VPN vendor for definitive guidance on the proper and recommended use of their product. While Vodafone Group has taken care to ensure that the information contained herein is accurate, no responsibility can be accepted for errors, omissions, or inaccuracies.

Document History

Version	Date	Reason
1.0	October 2003	Initial release using GPRS network. Client documentation included in main document.
2.0	May 2006	Creation of separate document for client configuration. Update to new versions of VPN software and focus on 3G network performance.
3.0	May 2007	Editorial changes & R9 review

File Reference

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1 Executive summary

This Appendix is in addition to the detailed document for Microsoft Windows 2003 PPTP VPN Server and describes the setup and update process in a detailed way with example screen shots taken from the initial processes.

Furthermore logging and additional functionality is available in the appropriate chapters.

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2 VPN Gateway Installation and Configuration

The following description is intended for network administrators who are familiar with networking and IP concepts. The Server has to be integrated into the internal company network. The Server setup therefore has to comply with the configuration of the internal networking. This description is intended to allow a network administrator not yet familiar with the Windows PPTP VPN to configure a VPN with UMTS/GPRS usage.

2.1 Initial setup

The Microsoft Windows VPN solution is based on the standard Windows 2003 installation. After basic installation of Microsoft Windows 2003 Server install also the latest service pack as well as the latest updates and patches using the Microsoft download web page (http://windowsupdate.microsoft.com). You can install the Server on any machine which meets the minimum system requirements for this operating system. For detailed information please refer to the following web page: http://www.microsoft.com/windowsserver2003/evaluation/sysreqs/default.mspx.

Be sure the IP-addresses are configured correctly on the server for the public and private interface. The default gateway should be entered only for the public interface.

Note: You can either place the Server besides or behind your Firewall. We recommend placing it behind the Firewall and opening the appropriate ports for VPN connection to the Server. See the chapter “Which protocols are supported” above for port description.

Now there is a need to configure the server to act as a VPN concentrator. In order to achieve this Routing and Remote Access must be configured. Afterwards an IPSec policy has to be created and depending on the authentication method a certificate must be implemented or the server must be prepared for using “Pre shared Key” authentication. For the tests we use “Pre shared Key” authentication.

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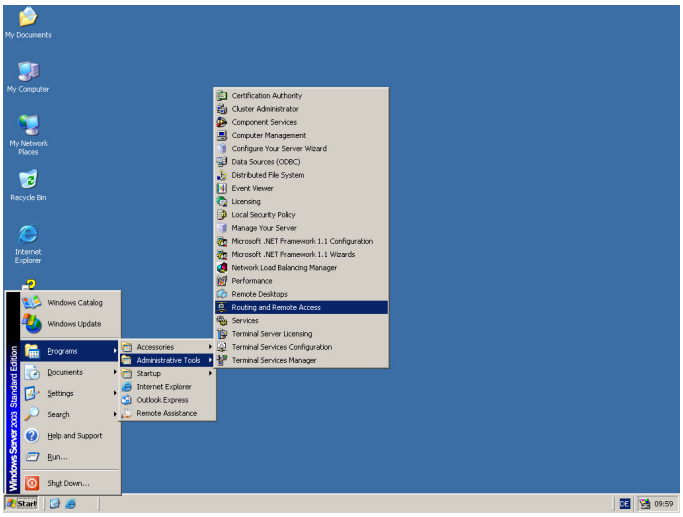
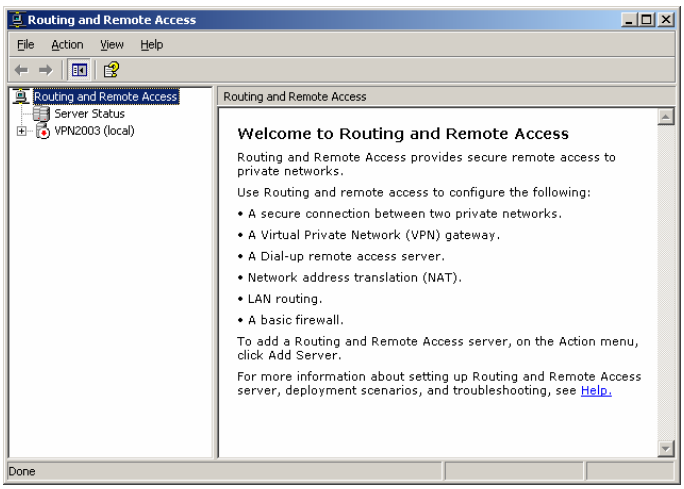
2.2 Routing and Remote Access configuration

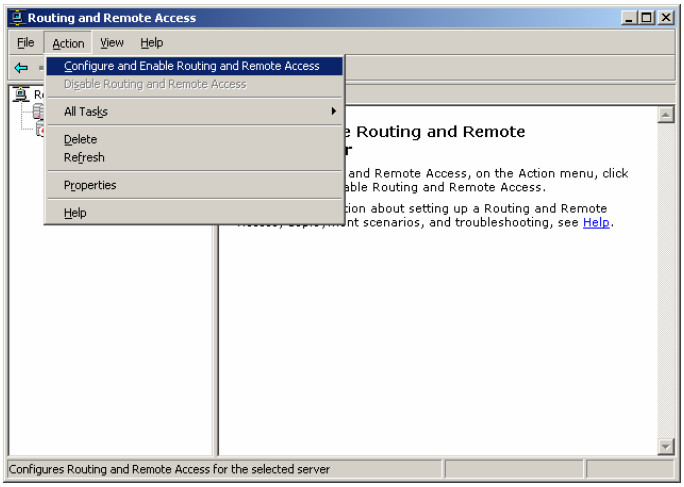
- Open “Routing and Remote Access” from the Administrative Tools.



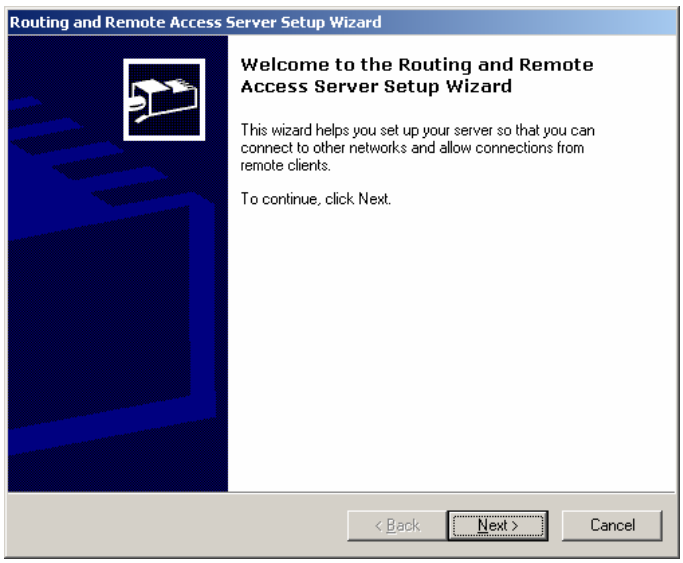
- The following screen shows that “Routing and Remote Access” is by default installed but not configured on a Microsoft Windows 2003 Server.



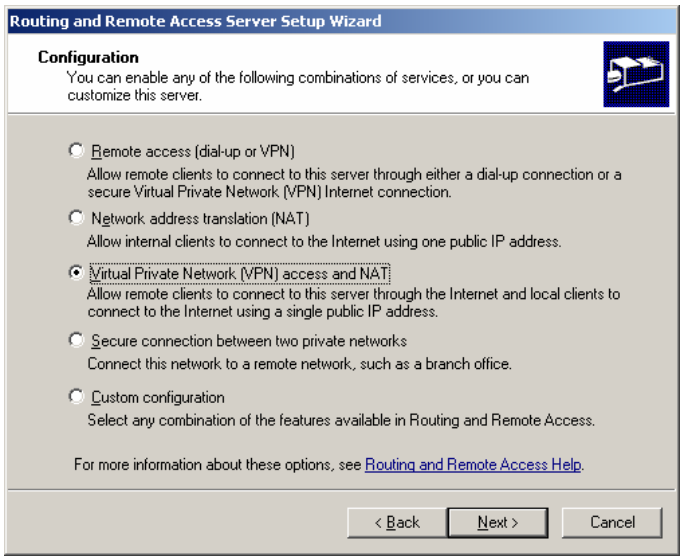
- From the “Action” menu entry select “Configure and Enable Routing and Remote Access”



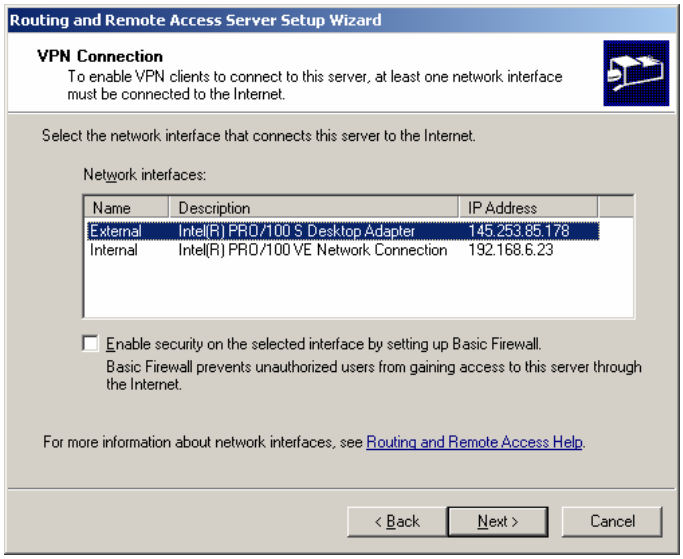
- On the “Welcome” window click on “Next”.



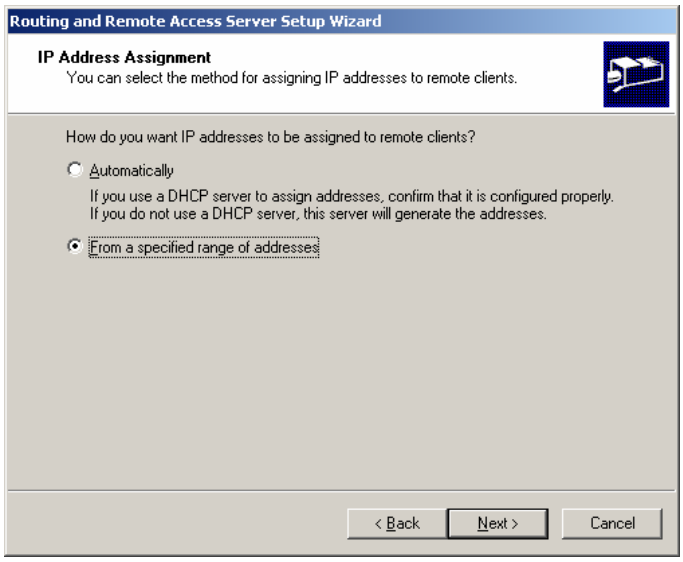
- On the next window select “Virtual Private network (VPN)” as the service to be enabled with Routing and Remote Access.



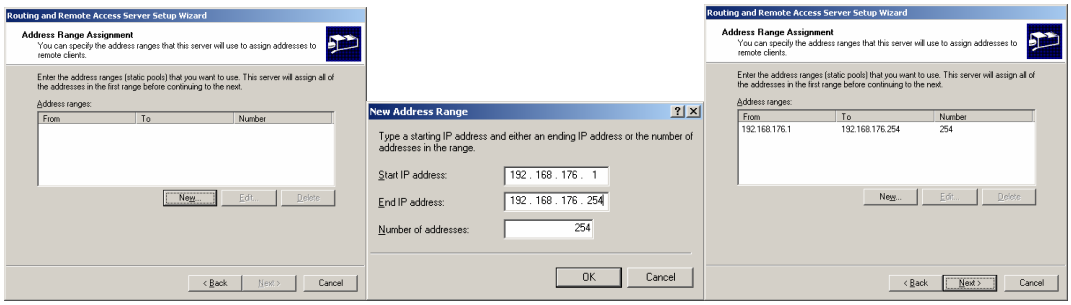
- On the “VPN Connection” window verify the interface settings. In case the VPN server is behind the corporate firewall, which is the recommended scenario, there is no need to enable a Basic Firewall on the VPN server.



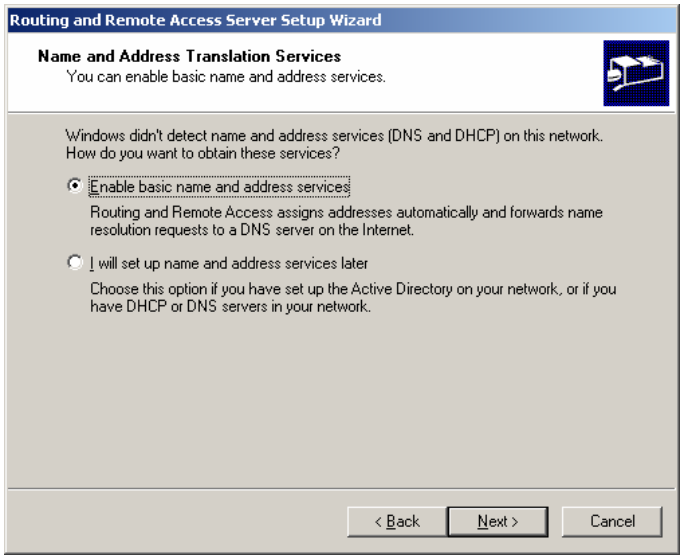
- After selecting “Next” you can configure either the clients will receive an IP-address automatically from a DHCP server in the internal LAN or from a specified range of addresses configured within the Routing and Remote Access service.



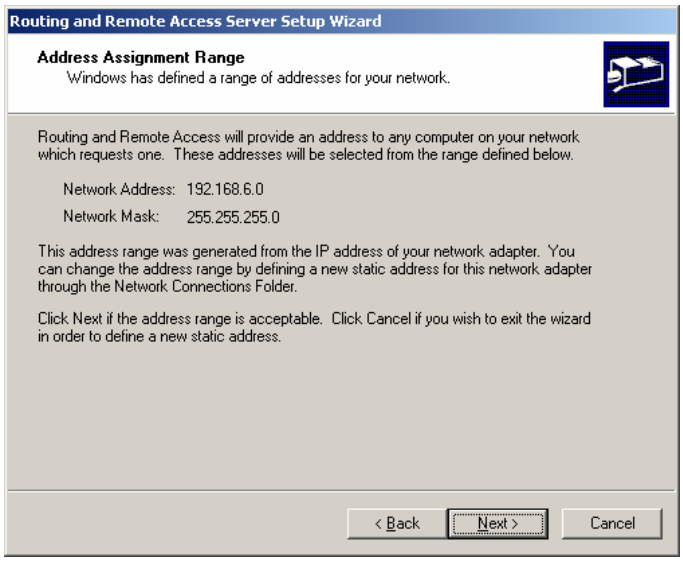
- In case a specified range of addresses was selected, this range must be defined on the following window.



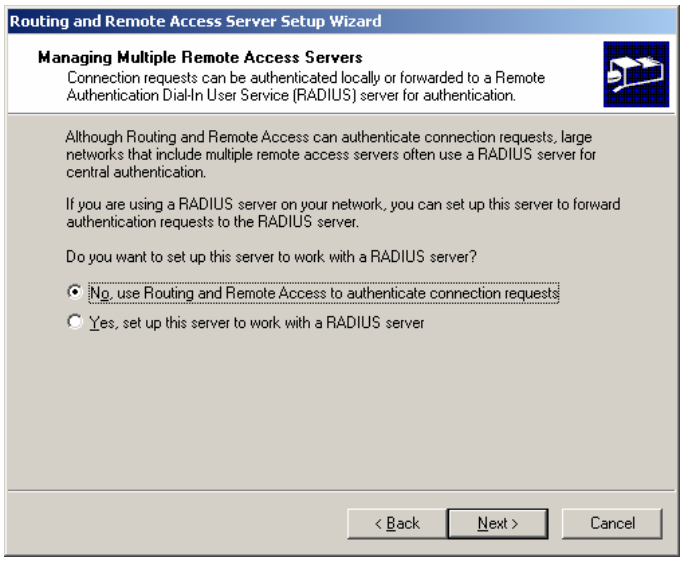
- Since the role of the server is to act as a VPN concentrator DHCP and DNS do not need to be configured. In this case basic name and address services should be selected.



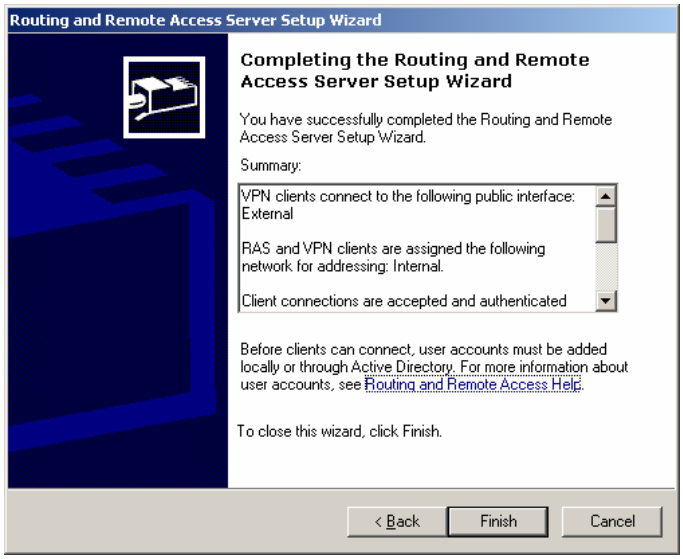
- On the next screen verify the address assignment range based on the IP address from the private interface and click on “Next”.



- On the following screen you can choose how to authenticate users. You can select the VPN Server internal users or using a RADIUS server. We used the default setting " Use Routing and Remote Access to authenticate connection requests"



- The last window of the "Routing and Remote Access" configuration shows a summary of the settings. Click on "Finish".



- After done verify that the service is started automatically (green point on the server icon is visible). Otherwise it is also possible to start "Routing and Remote Access" manually. Use right-click on the server entry and select "All Tasks" -> "Start". Now you've finished the base configuration.

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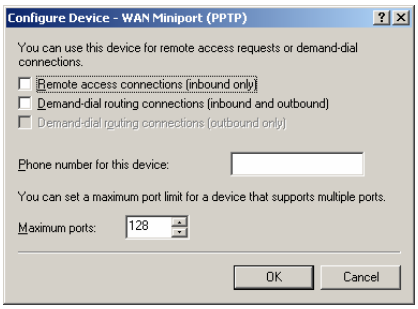
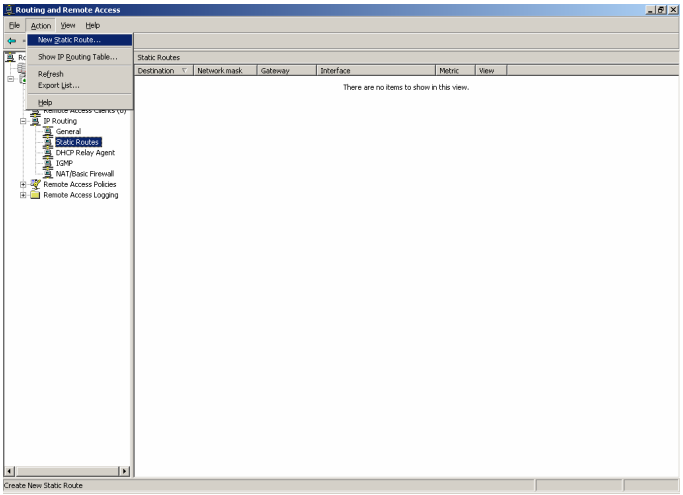
2.3 Advanced settings

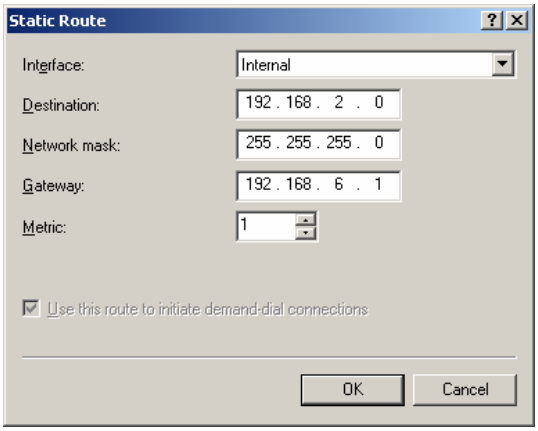
- Since in this configuration we use only PPTP all other protocols which are by default added to the Routing and Remote Access service can be disabled. In the Routing and Remote Access select “Ports” and open the properties. PPTP and L2TP are enabled with 128 ports for each protocol. Also the number of connections (ports) can be limited in this window. Select “PPTP”, click on “Configure” and uncheck the setting “Remote access connections”.



- In case the VPN server is not directly connected with the private interface to the corporate LAN, a static route must be defined within the “Routing and Remote Access” service. Navigate to “IP routing” -> “Static Routes” and select “New Static Route”.



- Insert the corresponding route entries.

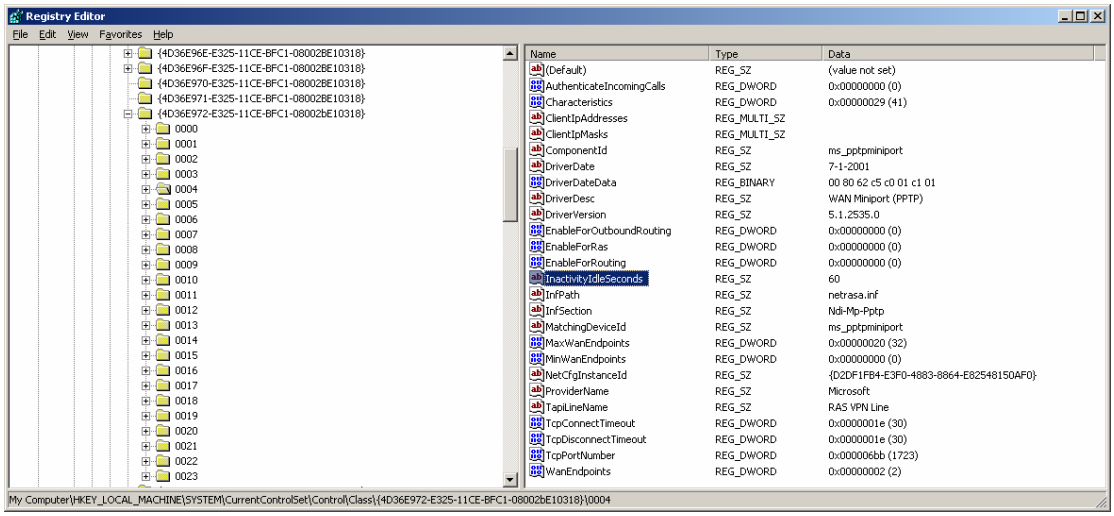


2.4 PPTP keep alive messages

Keep alive messages are supported by default and configurable in the Registry of the Windows 2003 Server and the Windows XP Client. The frequency of a keep alive message is set by default to 60 seconds. This can be adjusted by altering the registry. To alter the default, on both ends of the connection server and client, the following registry parameter must be added to the system:

HKEY_LOCAL_MACHINE\System\CurrentControlSet\Control\Class\{4D36E972-E325-11CE-BFC1-08002bE10318}\0004\

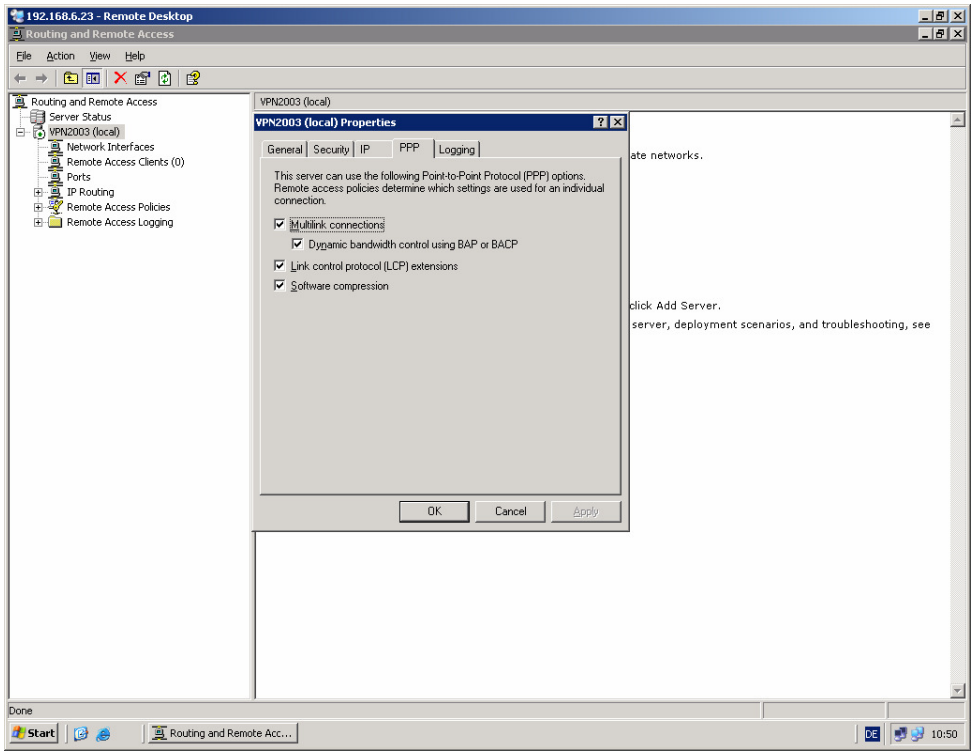
InactivityIdleSeconds: REG_DWORD: default: 60
(number of seconds PPTP will go with no activity on the control channel)



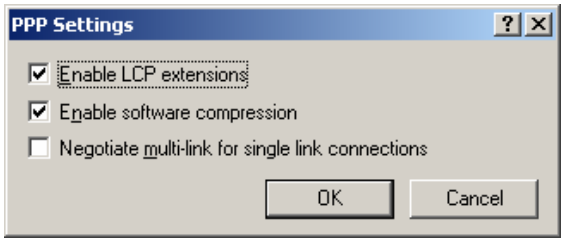
2.5 Data compression

Data compression using LZS compression algorithm is available and can be enabled on the server as well as on the client. On the server this setting is located in the “PPP” tab of the server properties within the Routing and Remote Access configuration. On the client this setting is located in the properties of the VPN type within the “Network” tab. Enabling data compression might speed up the data transmission rate of VPN users.

Server:



Client:



Note that software compression was shown to have little benefit for most environments. The benefit of compression should be reviewed in light of the cost of processor load for both the client and server.

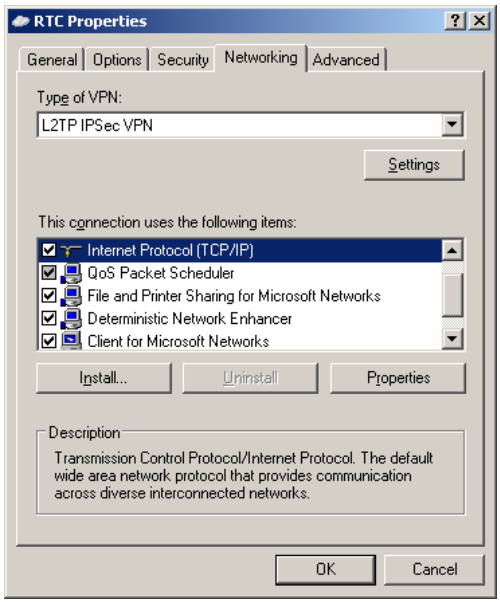
3 Configuration of Split Tunnelling

Split Tunnelling is supported and will be configured on the client. This feature is disabled by default. There is no possibility to allow or disallow this functionality on the server.

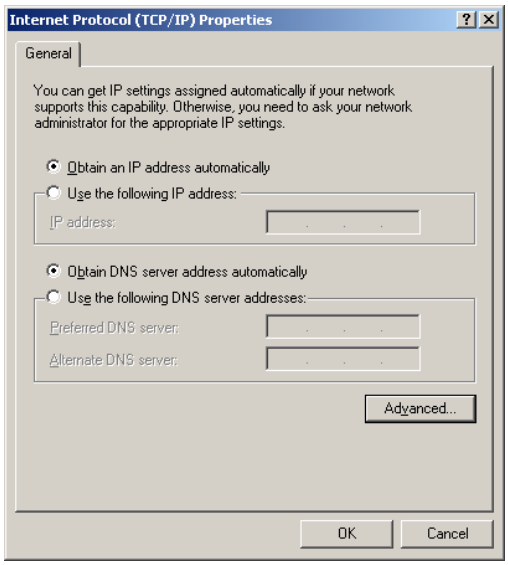
Recommendation: Split tunnelling should be disabled as it creates a security vulnerability at the client end. It is illustrated here for completeness.

Enabling or disabling split tunnelling can be configured on the client; this setting is located in the following window:

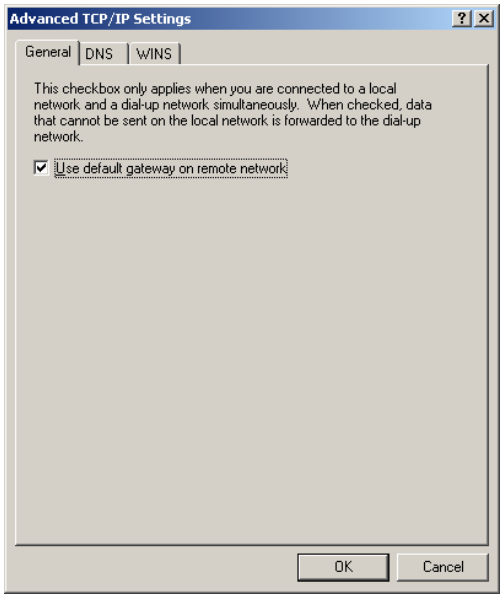
- open the properties of the VPN connection
- select the networking tab
- Highlight the “Internet Protocol (TCP/IP)” and click on the “Properties” button.



- On the “General” tab of the TCP/IP properties click on the “Advanced” button

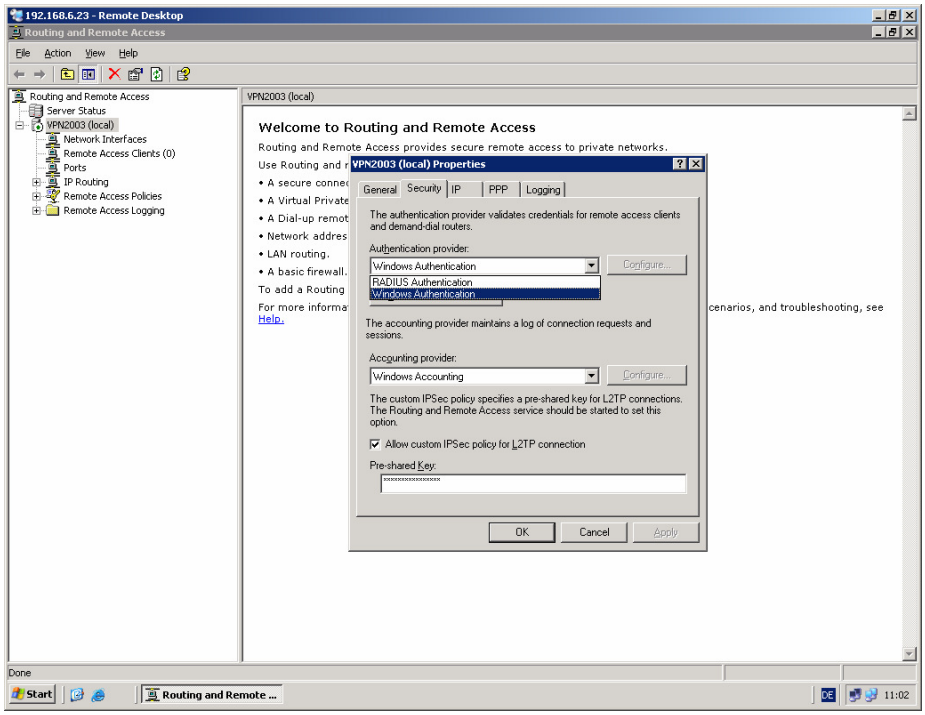


- In the Advanced TCP/IP window check the “Use default gateway on remote network” setting in order to disable split tunnelling or uncheck this setting in case split tunnelling should be enabled.

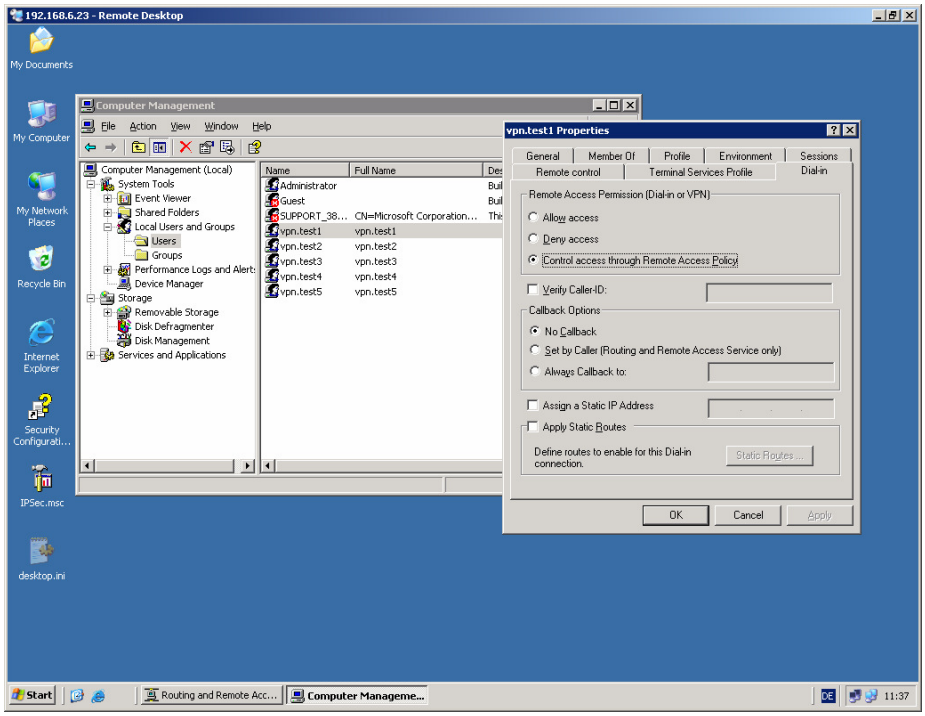


4 User Management and Profile Handling

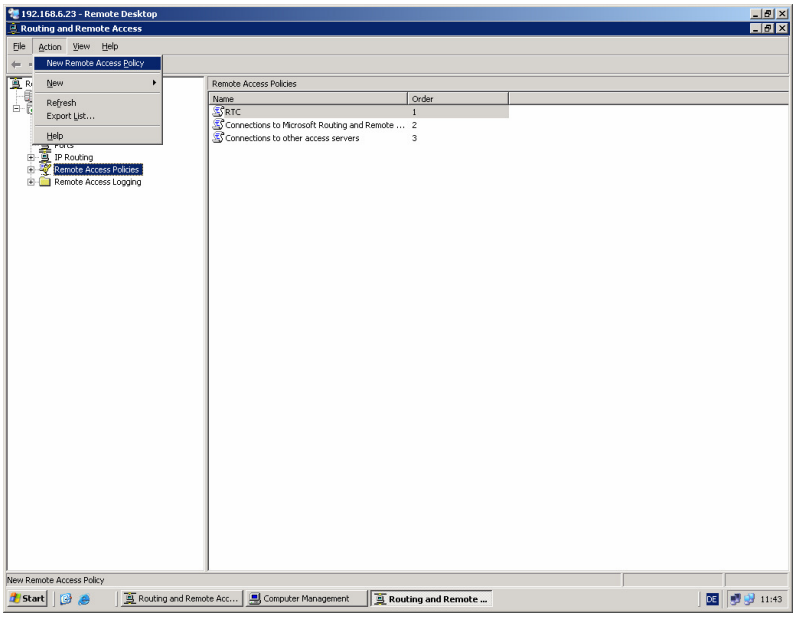
Integrated user management and external authentication using a RADIUS server are supported. You can choose it in the Security tab of the Server properties.



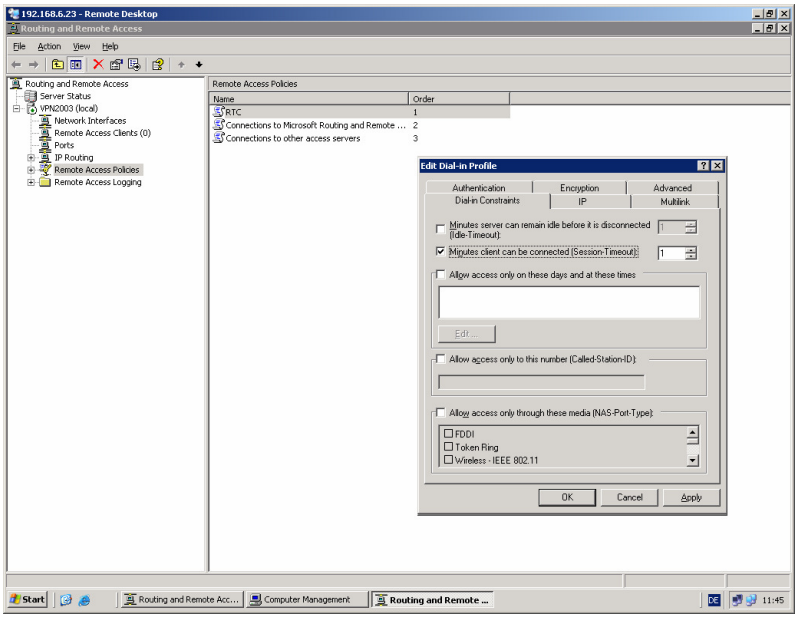
- For the Windows Authentication method local users must be created. In the “Dial-In” tab of the user properties, permissions can be established. There is the possibility to set it either to “Allow access” or “Control access through Remote Access Policy”.



- In case the control is managed through a “Remote Access Policy” this policy has to be created within the “Routing and Remote Access” service on the Server. Navigate to “Remote Access Policies” and select “New” -> “Remote Access Policy” from the right-click contextual menu or from the “Action” menu entry



- All Profile settings can be changed from the policy properties using the button “Edit Profile”



Another possibility to create a client profile is using the “Connection Manager Administration Kit”. This administration kit allows an administrator to create a connection

profile on the server for the clients. This application can then be distributed to and installed by the clients. On the client side using the “Options” tab, logging to a file can be disabled or enabled.

For more information about the “Connection Manager Administration Kit” please refer to the Microsoft documentation on the following web page:

http://technet2.microsoft.com/WindowsServer/en/Library/be5c1c37-109e-49bc-943e-6595832d57611033.mspx

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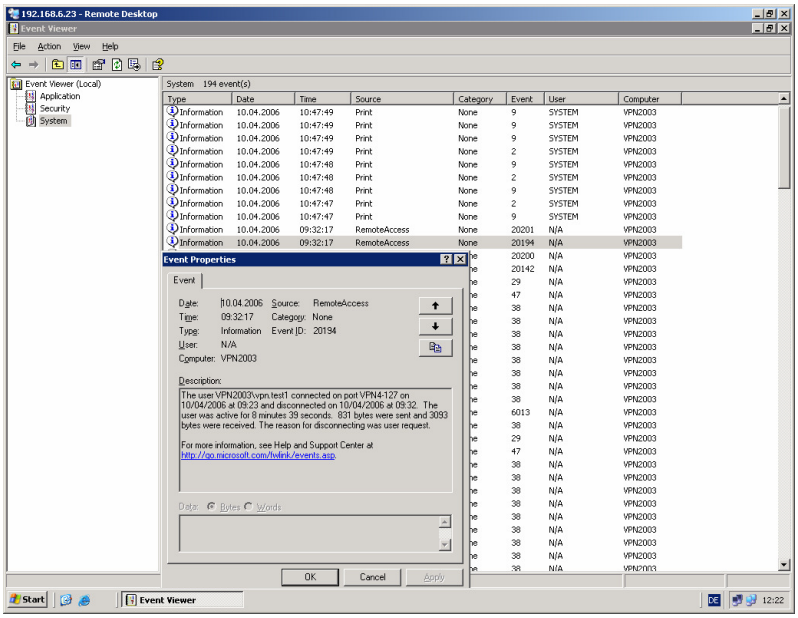
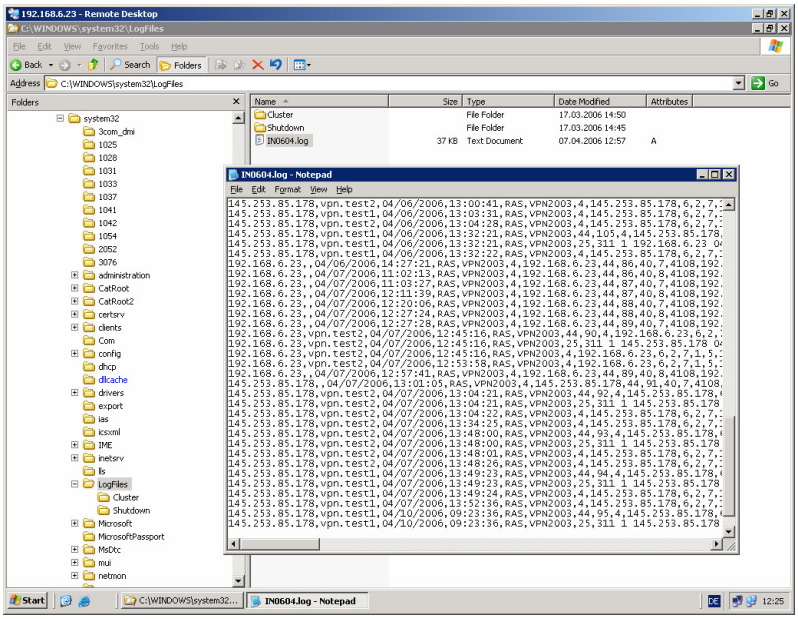
5 Logging

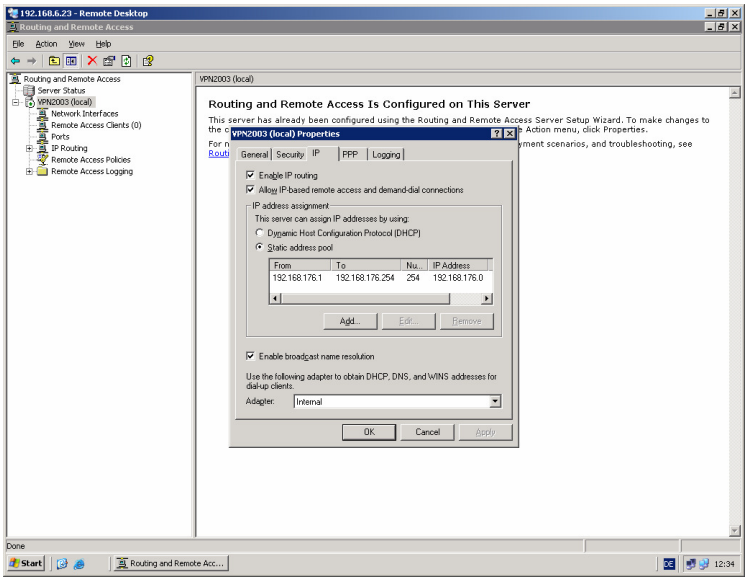
Event logging is available in the Microsoft Windows Event Viewer as well as in logging files created in the “%windir%\tracing” and “%windir%\system32\logfiles” directories. The Event Viewer shows events for connection and disconnection as well as the time and transferred amount of data during this connection.

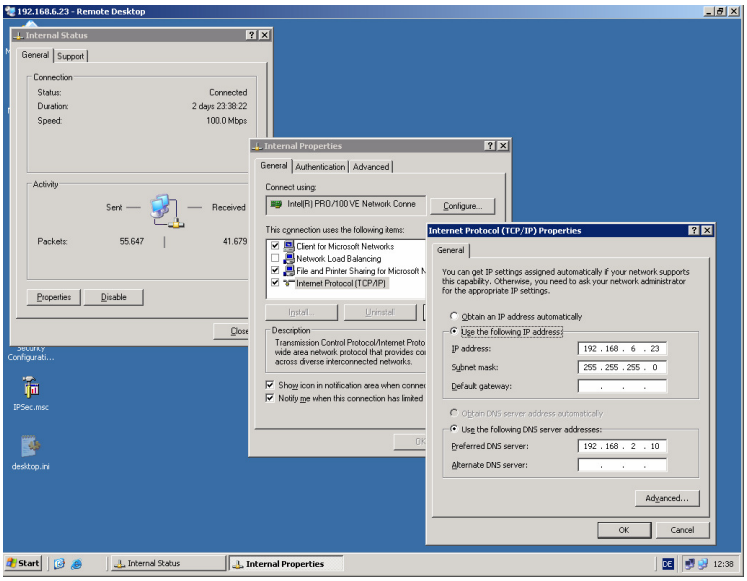




6 Name Resolution

DNS and WINS configuration is integrated in the “Routing and Remote Access” configuration. In the Server properties navigate to the “IP” tab and select the interface to obtain DNS and WINS addresses for the clients. Make sure the selected interface through which the clients contain the DNS or WINS addresses. After connection establishment DNS server IP address is assigned by the Server to the Client as primary/secondary DNS server for resolving host names.





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