

# SPEED TOUCH HOME

## Advanced User Guide



Status Released

Change Note B D Fa a22087

**Short Title** CD-UG Speed Touch Home

All rights reserved. Passing on and copying of this document, use and communication of its contents not permitted without written authorization from Alcatel.

# Contents

<b>1</b>	<b>Welcome to the Speed Touch</b> .....	<b>11</b>
1.1	Conventions .....	12
<b>2</b>	<b>Speed Touch Tour</b> .....	<b>13</b>
2.1	Delivery Check .....	14
2.2	Speed Touch at a Glance .....	15
2.2.1	Introducing the Speed Touch Home ....	15
2.2.2	Front Panel .....	15
2.2.3	Rear Panel .....	15
2.2.4	LEDs .....	16
2.2.5	Ethernet and ATMF-25 .....	17
2.3	System Requirements .....	18
<b>3</b>	<b>Connecting the Speed Touch Home</b> .....	<b>21</b>
3.1	Cables and Connectors .....	22
3.2	Ethernet Interface .....	24
3.2.1	Single PC Configuration .....	24
3.2.2	Multiple PC Configuration .....	25
3.3	ATMF-25 Interface .....	26
3.4	ATMF-25 & Ethernet Interface .....	26
3.5	The ADSL Line .....	27
3.6	Power Supply .....	28
<b>4</b>	<b>ADSL Connectivity</b> .....	<b>29</b>
4.1	ADSL Exposed .....	30
4.2	Enabling ADSL .....	31
4.3	Splitter & Filters .....	31
4.3.1	Central Splitter .....	32
4.3.2	Distributed Filters .....	34
<b>5</b>	<b>Packet Services</b> .....	<b>35</b>
5.1	Introduction .....	36
5.2	Selection Criteria .....	36
5.3	Packet Services at a Glance .....	37
5.3.1	IEEE 802.1D Transparent Bridging ....	37
5.3.2	PPP-to-PPTP Relaying .....	37
5.3.3	Simultaneous Use of both Packet Services	37
5.4	Internet and Corporate Access vs. LAN-to-LAN Interconnection .....	38
5.4.1	Internet / Large Corporate Access .....	38

5.4.2	LAN-to-LAN Interconnection .....	38
5.5	Summary .....	39
<b>6</b>	<b>IEEE 802.1D Transparent Bridging .....</b>	<b>41</b>
6.1	Connect & Go .....	42
6.2	Features .....	42
6.3	Bridging Defaults .....	43
6.3.1	Phonebook Entries .....	43
6.3.2	Default Bridge Settings .....	43
6.4	Bridging Configuration .....	44
6.4.1	Remote Organization .....	44
6.4.2	Bridge Ports .....	45
6.4.3	Your Computer .....	45
6.5	Using Bridging .....	45
6.6	Advanced Concepts .....	46
6.7	Sample Configuration .....	46
<b>7</b>	<b>PPP-to-PPTP Relaying for Windows 9x .....</b>	<b>47</b>
7.1	Connect & Go .....	48
7.2	Features .....	49
7.3	PPP-to-PPTP Relaying Defaults .....	49
7.3.1	Phonebook Entries .....	49
7.3.2	Default Relay Settings .....	49
7.4	Requirements .....	50
7.4.1	Remote Organization .....	50
7.4.2	Speed Touch Home .....	50
7.4.3	Your Computer .....	50
7.4.4	TCP/IP .....	50
7.5	Configuring Dial-Up Networking for Windows 9x ..	51
7.6	Using PPP-to-PPTP Relaying for Windows 9x .....	56
7.6.1	Establishing a PPP/PPTP Connection ....	56
7.6.2	Releasing a PPP/PPTP Connection .....	57
7.6.3	Advanced Concepts .....	58
7.7	Downloading and Installing Dial-Up Networking Upgrade for Windows 95 .....	59
7.7.1	System Requirements .....	59
7.7.2	Download Procedure .....	59
7.7.3	Installing MSDUN .....	62
7.8	Configuring and Using Tunnelling on Windows NT Platforms .....	65
7.8.1	Installing PPTP on a Windows NT Platform	65
7.8.2	Creating a New PPTP Phonebook Entry .	70
7.8.3	Logging on to a VPN Server through a Tunnel Session .....	73

7.8.4	Tearing down a Tunnel Session .....	76
<b>8</b>	<b>ATM Forum-25.6 Interface Configuration .....</b>	<b>77</b>
<b>9</b>	<b>Configuring IP .....</b>	<b>79</b>
9.1	General IP Information .....	80
9.1.1	IP Addresses and Subnet Masks .....	80
9.1.2	Private vs. Public Addresses .....	81
9.1.3	Choosing an IP Address .....	82
9.2	Packet Services and IP Addressing .....	83
9.2.1	Bridging and IP Addresses .....	83
9.2.2	PPP-to-PPTP Relaying and IP Addresses ..	84
9.3	Your Speed Touch Home and IP Addressing .....	86
9.3.1	Static IP Configuration .....	86
9.3.2	Automatic IP Configuration: DHCP .....	87
9.4	Your PC(s) or LAN and IP Addressing .....	91
9.4.1	Viewing the IP Address Setting of your PC	91
9.4.2	Configuring a Static IP Address on your PC .....	93
9.4.3	Configuring a Dynamic IP Address on your PC .....	93
<b>10</b>	<b>DNS .....</b>	<b>95</b>
10.1	Using DNS .....	96
10.2	Configuring your Local Network for DNS - Automatic IP Configuration .....	97
10.3	Non-local DNS .....	97
<b>11</b>	<b>Lost Speed Touch .....</b>	<b>99</b>
11.1	Resetting Speed Touch Home's IP Address .....	100
11.1.1	Ping-of-Life .....	100
11.2	Reset to Original Defaults .....	104
11.2.1	Ping-to-Defaults .....	105
11.2.2	Push Button .....	106
<b>12</b>	<b>Speed Touch Home Local Configuration .....</b>	<b>107</b>
12.1	Web Interface .....	108
12.1.1	Configuring your Web Browser .....	108
12.1.2	Speed Touch Home's Web Pages Principles .....	109
12.1.3	Initial Setup Page .....	112
12.1.4	The System Setup Page .....	114
12.1.5	The Phonebook Page .....	115
12.1.6	The Routing Page .....	117
12.1.7	The PPTP Connections Page .....	119
12.1.8	The Bridging Page .....	122

12.1.9	The DHCP Page .....	126
12.1.10	The DNS Page .....	130
12.1.11	The Software Upgrade Page .....	131
12.2	Command Line Interface .....	133
12.2.1	Telnet Access .....	133
<b>13</b>	<b>Software Upgrade .....</b>	<b>135</b>
13.1	Software Download from the Network .....	136
13.2	Software Upload from a PC .....	136
<b>14</b>	<b>Advanced Networking Concepts .....</b>	<b>137</b>
14.1	ATM Connectivity .....	138
14.1.1	Overview .....	138
14.1.2	ATM and your Speed Touch Home .....	139
14.1.3	ATM & CPE Interfaces .....	140
14.1.4	Summary .....	140
14.2	Direct Connect vs. Dial-up .....	141
14.3	Advanced Bridging Concepts .....	142
14.3.1	Introduction .....	142
14.3.2	Bridge Ports .....	142
14.3.3	Bridge Operation .....	143
14.3.4	Multiprotocol .....	144
14.3.5	Amount of Devices Supported .....	144
14.3.6	Plug & Play Bridging .....	145
14.4	Advanced Tunneling (PPP/PPTP) Concepts .....	146
14.4.1	Point-to-Point Tunneling .....	146
14.4.2	Tunneling from behind an IP Router .....	147
14.4.3	PPP-to-PPTP Relaying .....	148
14.4.4	Establishing PPP/PPTP Connections .....	149
14.4.5	Simultaneous PPP/PPTP Sessions .....	155
14.4.6	Supported LAN Protocols .....	155
14.4.7	Limitations .....	155
<b>15</b>	<b>Troubleshooting .....</b>	<b>159</b>
	<b>Abbreviations .....</b>	<b>161</b>
	<b>Appendix A Product Code Tables .....</b>	<b>163</b>
	<b>Appendix B Hardware Reference .....</b>	<b>167</b>
	<b>Appendix C Speed Touch Default Factory Settings .....</b>	<b>171</b>
	<b>Appendix D Safety .....</b>	<b>173</b>
	<b>Appendix E Agency Regulatory Notices .....</b>	<b>177</b>
	<b>Index .....</b>	<b>179</b>

## Figures

Figure 1	Delivery Check .....	14
Figure 2	Front Panel of the STHome .....	15
Figure 3	Rear Panel of the STHome .....	15
Figure 4	Rear panel with Ethernet Interface .....	17
Figure 5	Rear panel with Ethernet and ATMF-25 Interface .....	17
Figure 6	Rear View for connecting the Speed Touch Home .....	22
Figure 7	Rear View for connecting the Speed Touch Home .....	24
Figure 8	STHome Single PC Configuration .....	24
Figure 9	STHome Multiple PC Configuration .....	25
Figure 10	Rear View for connecting the Speed Touch Home .....	26
Figure 11	Rear View for connecting the Speed Touch Home .....	28
Figure 12	POTS and ADSL Frequency Spectra .....	30
Figure 13	The Centralized Splitter .....	32
Figure 14	The Distributed Filter .....	34
Figure 15	Sample Bridging Configuration .....	46
Figure 16	Make New Connection Window .....	51
Figure 17	VPN Server Window .....	52
Figure 18	Successful Creation of a New Dial-Up Networking Connection Window .....	53
Figure 19	New 'Corporate' Icon created in Dial-Up Networking Folder .....	53
Figure 20	'Corporate' Properties Windows .....	54
Figure 21	'Connect To' Window .....	56
Figure 22	'Connected To Corporate' Window .....	57
Figure 23	Microsoft Website Contents Page .....	59
Figure 24	'Download Center' Web Page .....	60
Figure 25	'Save As...' Window .....	61
Figure 26	The 'Run' Window .....	62
Figure 27	'Dial-Up Networking 1.3' Window .....	62
Figure 28	'End-User License Agreement' Window .....	63
Figure 29	'Copying Files...' Window .....	63
Figure 30	'Restart' Window .....	64
Figure 31	'Network' Window .....	66
Figure 32	'Select Network Protocol' Window .....	66
Figure 33	'PPTP Configuration' Window .....	67
Figure 34	'Setup Message' Window .....	67
Figure 35	'Remote Access Setup' Window .....	68
Figure 36	'Add RAS Device' Window .....	68
Figure 37	'Configure Port Usage' Window .....	69
Figure 38	Dial-Up Networking Window .....	70
Figure 39	'New Phonebook Entry Wizard' Window .....	71
Figure 40	'Server' Window .....	71
Figure 41	'Phone Number' Window .....	72
Figure 42	Alternate 'Phone Numbers' Window .....	72
Figure 43	'New Phonebook Entry Wizard' Window .....	73

Figure 44	'Dial-Up Networking' Window .....	74
Figure 45	'Connect to Corporate' Window .....	74
Figure 46	'Connecting To' Window .....	75
Figure 47	'Dial-Up Networking Monitor' Window .....	75
Figure 48	Selection menu .....	84
Figure 49	(a) 'Corporate' Server Types Properties Window (b) Corporate 'TCP/IP Settings' Window .....	85
Figure 50	'Specify an IP Address box' in Corporate's 'TCP/IP Settings' Window .....	85
Figure 51	A Single PC connected to your STHome. ....	86
Figure 52	A work group connected to your STHome. ....	86
Figure 53	The STHome as DHCP Client .....	89
Figure 54	The STHome as DHCP Server .....	89
Figure 55	Network Window .....	91
Figure 56	TCP/IP Properties Window .....	92
Figure 57	'Arp -a' Command .....	101
Figure 58	'Arp -a' Command .....	102
Figure 59	Ping 10.0.0.145 .....	102
Figure 60	Welcome Web Page .....	109
Figure 61	'Initial Setup' Web Page .....	112
Figure 62	'System Setup' Web Page .....	114
Figure 63	'Phonebook' Web Page .....	115
Figure 64	'Routing' Web Page .....	117
Figure 65	'PPTP Connections' Web Page .....	119
Figure 66	PPP ATM Format (RFC 2364:PPP over AAL5). ....	120
Figure 67	PPP/PPTP Tunnel Format. ....	120
Figure 68	'Bridge Configurations' Web Page .....	122
Figure 69	'Bridge Data' Web Page, Part 1 .....	124
Figure 70	'Bridge Data' Web Page, Part 2 .....	125
Figure 71	'DHCP Configuration' Web Page .....	126
Figure 72	Advanced 'DHCP Server Configuration' Web Page .....	128
Figure 73	'DNS Configurations' Web Page .....	130
Figure 74	'Software Upgrade' Web Page .....	131
Figure 75	ATM End-to-End Connectivity .....	139
Figure 76	Simplified Bridge Architecture .....	142
Figure 77	PPTP-to-PPP Advanced Network .....	147
Figure 78	Network Protocol Architecture .....	148
Figure 79	All ATM Channels to a Single Remote Destination .....	149
Figure 80	A single ATM Channel is used for any Destination .....	150
Figure 81	Multiple ATM Channels are used for any Destination .....	150
Figure 82	Configuring 'Alcatel_pptp' in Phonebook (a) and PPTP Connections Web Pages (b) .....	152
Figure 83	VPN Server + Specific Virtual Connection Specified .....	152
Figure 84	'Connect To' Window .....	153
Figure 85	Example of a Specific and an any Destination Connection ..	153
Figure 86	Speed Touch Home Product Code .....	163



Figure 87 MDI-X Internal Crossover ..... 169  
 Figure 88 MDI-X to MDI-X External Crossover ..... 169

## Tables

Table 1	STHome LED Status Overview .....	16
Table 2	STHome Packet Services .....	39
Table 3	Default Bridging Phonebook Entries .....	43
Table 4	Bridge Defaults Table .....	43
Table 5	Default PPP/PPTP Phonebook Entries .....	49
Table 6	Relay Defaults Table .....	49
Table 7	IP Address Blocks used for Private Purposes Only .....	81
Table 8	IP address Classes and Default Netmasks .....	113
Table 9	Default Phonebook Entries .....	116
Table 10	"X Field" Specification .....	164
Table 11	"Y Field" Specification .....	164
Table 12	"Z Field" Specification .....	164
Table 13	"S Field" Specification .....	165
Table 14	"H Field" Specification .....	165
Table 15	Connector Pinout .....	167
Table 16	Power Adapters for Speed Touch Home .....	168
Table 17	Default Bridging Phonebook Entries .....	171
Table 18	Bridging Parameters .....	171
Table 19	Default Relaying Phonebook Entries .....	172
Table 20	ATMF VPI/VCI Values .....	172
Table 21	Ethernet VPI/VCI Values .....	172

# 1 Welcome to the Speed Touch

Welcome to the Alcatel **Speed Touch** Asymmetric Digital Subscriber Line (ADSL) modem.

From now on, your online experience shall be greatly enhanced due to the high speed Internet access that ADSL technology delivers.

Over the past five years, **Alcatel DSL** has evolved from the drawing boards to operational products. This technological breakthrough coincides with an ever increasing demand for better Internet access.

This **Speed Touch Home Advanced User Manual** is an addition to the User Manual delivered with the **STHome**.

It contains some additional information on **STHome**'s features and provides you with technical background on networking capabilities.

For readability, the **Speed Touch Home** will be referred to as **STHome** further in this User Manual.

Prior to connecting the **Speed Touch Home**, read the Safety Instructions (See Appendices D and E).

## 1.1 Conventions

The following words and symbols mark special messages throughout this document:



---

**WARNING:** Text written in this manner indicates that failure to directions could cause bodily harm or loss of life.

---



---

**CAUTION:** Text written in this manner indicates that failure to directions could result in damage to equipment or loss of information.

---

---

TIP

---

---

**TIP:** Text written in this manner indicates that the following presents an alternative, which may be more convenient for the user.

---

### **Note**

Text written in this manner indicates that the following presents clarifying information, specific instructions, commentary, or interesting information.

## 2 Speed Touch Tour

This chapter aims to familiarize you with the **Speed Touch Home**.

The topics described in this chapter are:

- ▶ Delivery Check
- ▶ **STHome** at a Glance:
  - Features
  - Front Panel
  - LED Description
  - Rear Panel
- ▶ System Requirements:
  - ADSL Connectivity
  - Remote Organization
  - Ethernet and/or ATM-F-25
  - Your Operating System
  - Local Configuration of your **STHome**

## 2.1 Delivery Check

Prior to installation, inspect the **Speed Touch Home** for damage. Make sure the box contains all the components (See figure 1):

- ▶ The **Speed Touch Home**(\*)
- ▶ Power supply adapter with 2m (6.56ft.) connecting cable
- ▶ 2m Ethernet/ATMF straight-through cable (RJ45/RJ45), referred to as **LAN cable** in this document
- ▶ 2m ADSL cable (RJ11/RJ11, RJ14/RJ14), referred to as **ADSL cable**
- ▶ A CD-rom, containing the **STHome** User Guide



Figure 1 Delivery Check

In the event of damaged or missing items, contact your local dealer for further instructions.

**Note** (\*) For product coding and physical differences, all available versions are described in Appendix A.

## 2.2 Speed Touch at a Glance

### 2.2.1 Introducing the Speed Touch Home

Your **Speed Touch Home** is an ADSL modem used for Internet access, or remote Local Area Network (LAN) access at very high speed (up to 8Mbps downstream) via the ADSL Line.

The **STHome** supports the Bridging and PPP-to-PPTP Relaying packet services.

In reading this manual you will soon discover that the **STHome** is more than just an ADSL modem, it's actually a **toolbox** containing various building blocks enabling maximum flexibility for all your specific network needs.

### 2.2.2 Front Panel

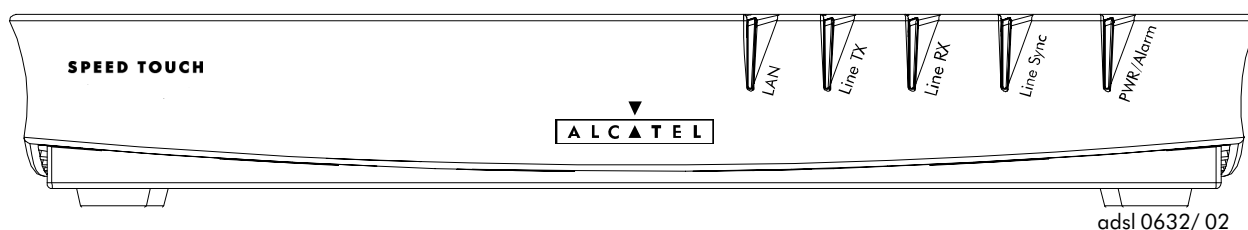


Figure 2 Front Panel of the **STHome**

### 2.2.3 Rear Panel

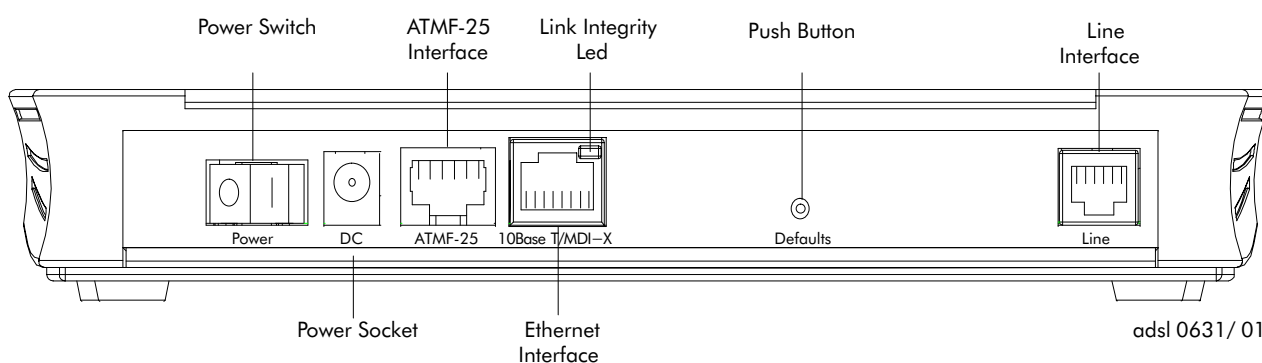


Figure 3 Rear Panel of the **STHome**

## 2.2.4 LEDs

As seen in figure 2, the **Speed Touch Home** is equipped with 5 Light Emitting Diodes (LEDs) on its front panel.

Following table explains the functions of the LEDs:

Table 1 **STHome LED Status Overview**

Indicator			Explanation
Name	Color	State	
LAN	green	flashing	data is flowing from/to the Ethernet interface
		off	no activity on the Ethernet interface
Line TX	green	flashing	ATM cells are being sent over the ADSL line
		off	no transmission activity
Line RX	green	flashing	ATM cells are being received via the ADSL Line
		off	no reception activity
Sync	green	on	ADSL line synchronization achieved
		flashing	during initialization of the ADSL line
PWR/Alarm	green	on	power on, normal operation
	red	flashing	power on, selftest pending
		on	power on, selftest failed

**Note** There is also one LED on the rear panel. It indicates the state of the Ethernet wiring (See figure 3). Assuming the **STHome** and PC are properly connected and powered on, this LED should be continuously green.



## 2.2.5 Ethernet and ATMF-25

There are two **Speed Touch Home** versions: Ethernet only and Ethernet + ATMF-25 (See figures 4 and 5).

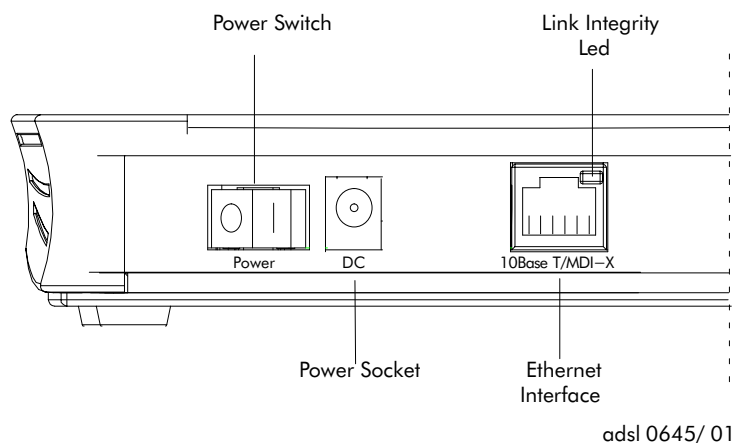


Figure 4 Rear panel with Ethernet Interface

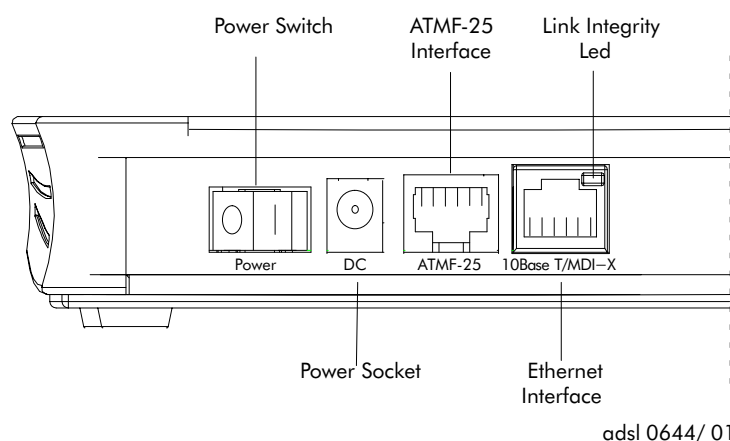


Figure 5 Rear panel with Ethernet and ATMF-25 Interface

Due to its inherent support for networking, Ethernet will be your natural choice for creating a small LAN. See Chapter 3 for hardware setup and Chapter 5 for application/service setup.

The ATMForum 25.6 interface provides excellent protocol transparency and Native Asynchronous Transfer Mode (ATM) application support. However it is your ATMF-25 PC-NIC that will actually determine networking capabilities. See Chapter 3 for hardware setup and Chapter 8 for application/service setup.

## 2.3 System Requirements

The **Speed Touch Home** requires the following hardware and system configuration:

- ADSL** ADSL service must be enabled on your telephone line. Read Chapter 4 first for instructions.
- ATM** The ADSL modem relies on ATM Technology for its wide area communications. Refer to section 14.1 for advanced information.

All packet services use ATM's Virtual Channel (VC)s for accessing the ADSL Line. **Virtual Path Identifier (VPI)/Virtual Channel Identifier (VCI)** are 2 numbers that together uniquely identify a VC.

Therefore, the parameters on which the packet service is enabled in the **STHome**, must match with the following information from your remote organization:

### Remote Organization

- ▶ The **type of protocol(s)** that are supported at the remote end of the ATM virtual connections.
- ▶ The **ATM/AAL5 encapsulation type (per protocol)** that is configured at the remote end of the connection.

In the event of **STHome** default differences, change them via the local web pages (See Chapter 12).

The VPI and VCI values of the VCs, default cross-connected between the ADSL Line and the packet service's interface, are listed in Appendix C.

Additionally, the remote organization may provide you with:

- ▶ A **User Account**, i.e. User Name and Password, for Internet access via an ISP or corporate location access.

Additional User Accounts might be required for access to specific secured servers.

### Ethernet

- ▶ A Personal Computer (PC)/workstation with an Ethernet 10Base-T PC-Network Interface Card (NIC) installed;
- ▶ For local networking, a 10Base-T hub and the necessary connection cables.

- ATMF-25**
- ▶ A PC/workstation with an ATMF-25 PC-NIC installed;
  - ▶ For advanced networking, a workgroup ATM switch supporting ATMF-25 interfaces.

- Operating System**
- ▶ When the **SHome** is used in *Bridging* mode, it does not put any requirements on the Operating System (OS), all you need is an Ethernet PC-NIC.
  - ▶ When the **SHome** is used in *PPP-to-PPTP Relaying* mode, the OS must support local tunneling based on the PPP/PPTP protocol.
  - ▶ If the *ATMF-25 interface* on the **SHome** is used, see the manual of your ATMF-25 PC-NIC for additional requirements.

- Local Speed Touch Configuration**
- ▶ Command Line Interface (CLI):
    - A TCP/IP protocol stack;
    - A Telnet application.
  - ▶ HyperText Transfer Protocol (HTTP)/HyperText Markup Language (HTML):
    - A TCP/IP protocol suite;
    - A Web browser (Netscape, Internet Explorer).



## 3 Connecting the Speed Touch Home

This chapter describes how to connect your **Speed Touch Home**.

The topics discussed are:

- ▶ Information on Cables and Connectors
- ▶ The Ethernet Interface on the **STHome**
- ▶ The ATM-F-25 Interface
- ▶ Concurrent Use of both Interfaces
- ▶ ADSL Connectivity
- ▶ **STHome** Power Supply

## 3.1 Cables and Connectors

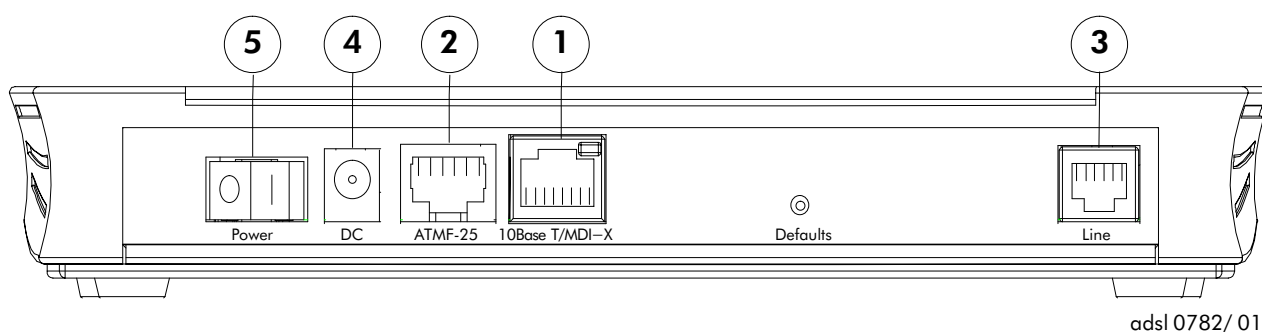
The following connectors, switches and cables are involved:

- Cables**
- ▶ An RJ11/RJ11 (RJ14/RJ14) cable, referred to as the **ADSL cable** further in this document
  - ▶ A straight-through RJ45/RJ45 (Ethernet/ATMF) cable, referred to as the **LAN cable**
  - ▶ The Power adapter

For information on how to identify the *ADSL* or *LAN* cable, please turn to Appendix B.

**Connectors** To connect the **STHome**, following interfaces and switches at the back of your **STHome** will be used:

- ▶ ① The **10Base-T/MDI-X Ethernet interface**, marked "10BASE-T/MDI-X"
- ▶ ② The (optional) **ATM Forum-25 interface**, marked "ATMF-25"
- ▶ ③ The **ADSL line interface**, marked "LINE"
- ▶ ④ The power receptacle
- ▶ ⑤ The power switch



adsl 0782/ 01

Figure 6 Rear View for connecting the **Speed Touch Home**

Please follow the numbers on the figures 6, 7, 10 and 11 to complete the connection procedure for the **STHome**.

---

**TIP**

---

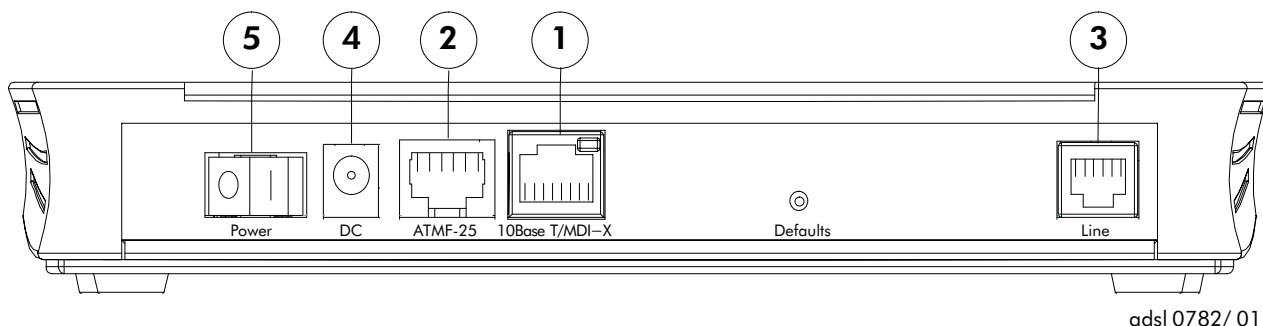
---

**Using other LAN cables**

You can use *LAN cables* other than the one provided in the box. However, make sure that it has the correct layout:

- A **straight-through** cable has to be used for the connection between the **STHome** and your PC or between the hub and the PCs on your LAN. This is because the **STHome** Ethernet interface and the hub's Ethernet interfaces are both of type Medium Dependent Interface Crossed (MDI-X) and your PC is of type Medium Dependent Interface (MDI).
  - A **crossover** cable is to be used between the **STHome** and hub. This is because the Ethernet interface on a hub and **STHome** are **both** of type MDI-X.
  - Some hubs contain switchable MDI/MDI-X ports. You can use a **straight-through** cable on these, provided that the appropriate port is put in MDI mode.
-

## 3.2 Ethernet Interface



adsl 0782/ 01

Figure 7 Rear View for connecting the **Speed Touch Home**

The Ethernet port **1** is a 10Base-T **Half Duplex** Ethernet interface of type MDI-X connecting to either a single PC or a work group hub.

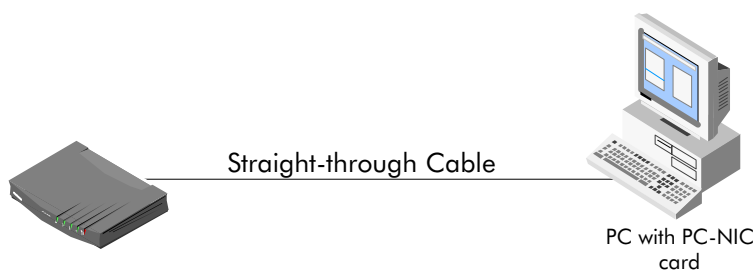


### 10Base-T Half Duplex Interfacing

Make sure the 10Base-T port(s) of your PC(s) is configured for either **Auto Negotiation** or **Half Duplex**.

**Never configure the 10Base-T Ports for Full-Duplex !**

### 3.2.1 Single PC Configuration



adsl 0530/ 03

Figure 8 **STHome** Single PC Configuration

Use the *LAN cable*, to connect the Ethernet interface **1** of the **STHome** to the Ethernet port on your PC.



Assuming the **Speed Touch Home** and PC are properly powered on, the Link Integrity LEDs on both your PC and **STHome** should be continuously green. This indicates that the link between the **STHome** and PC is correct. If not, check the cable layout according to Appendix B.

**Note** Your PC may have a build-in Ethernet port. If not, you must firstly install an Ethernet PC-NIC.

### 3.2.2 Multiple PC Configuration

The most convenient way to connect a Local Area Network (LAN) with multiple users to your **STHome** is via an Ethernet hub.

Use a *crossover LAN cable* to connect the *Ethernet interface* 1 to an MDI-X port of your hub.

Use *straight-through LAN cables* to make the connections between the MDI-X hub ports and the PC's or workstation's MDI Ethernet ports.

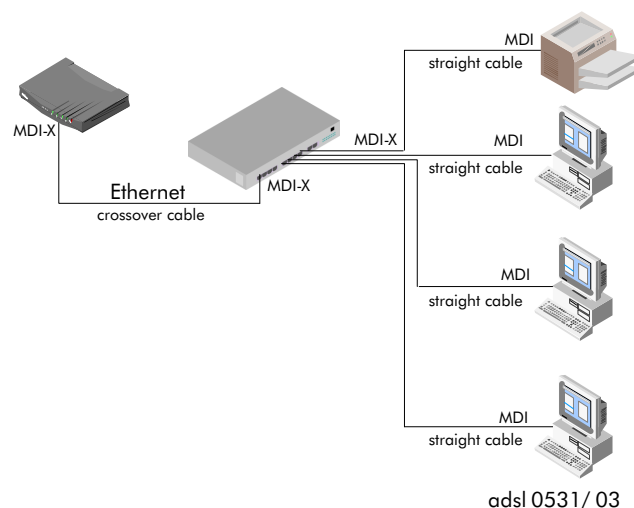


Figure 9 **STHome** Multiple PC Configuration

Assuming the **STHome** and hub are properly powered on, the Link Integrity LEDs on both hub port and **STHome**, should be continuously green. This indicates that the link between the **STHome** and hub is correct. If not check the cable layout according to Appendix B.

### 3.3 ATMF-25 Interface

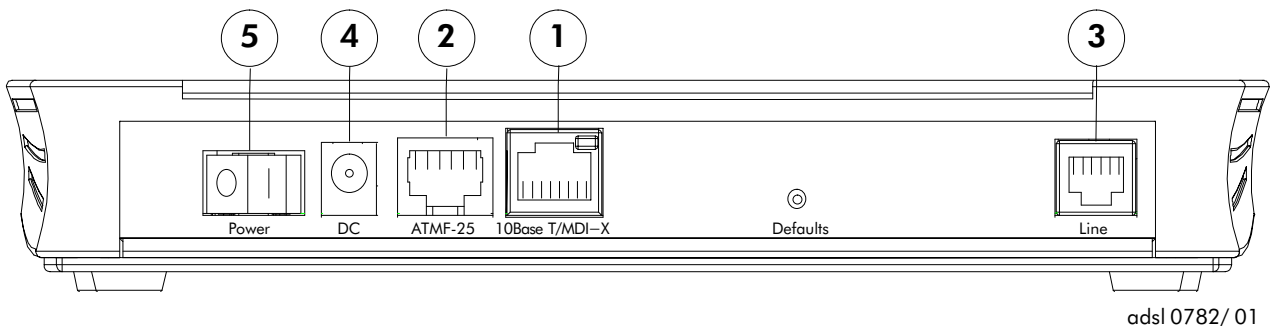


Figure 10 Rear View for connecting the **Speed Touch Home**

The (optional) *ATMF port* (2) on the **Speed Touch Home** is an ATM Forum 25.6 Mbit/s compliant interface of type *ATM Network Equipment*.

- ▶ Connect the PC (with an ATMF PC-NIC card of type *ATM End Equipment*) directly to the ATMF interface (2) via the *LAN cable*.
- ▶ To connect multiple PCs to the ATMF interface, an ATM switch is required.

Use a *crossover cable* between ATMF interface (2) and the ATM switch, since both are of type “*Network Equipment*”.

### 3.4 ATMF-25 & Ethernet Interface

The **STHome** version equipped with an Ethernet **and** ATMF-25 interface is designed for the **concurrent use** of both interfaces.

Therefore, the configurations described in sections 3.2 and 3.3 remain equally valid when used simultaneously. There is no performance penalty on this simultaneous use except for the sharing of the upstream and downstream ADSL bandwidth.

## 3.5 The ADSL Line

Please read Chapter 4 prior to connecting your **Speed Touch Home** to the ADSL line.

- Enabling ADSL** As soon as your ADSL provider enables ADSL service on your telephone line, two "channels" coexist on the single twisted-pair:
- ▶ the standard voice channel reserved for your regular telephone service;
  - ▶ the ADSL channel that will transport data to and from your PC(s).

- Preconditions** Firstly a **central splitter** or **distributed filters** must be installed in order to prevent the ADSL channel from disturbing the phone channel and vice versa.



---

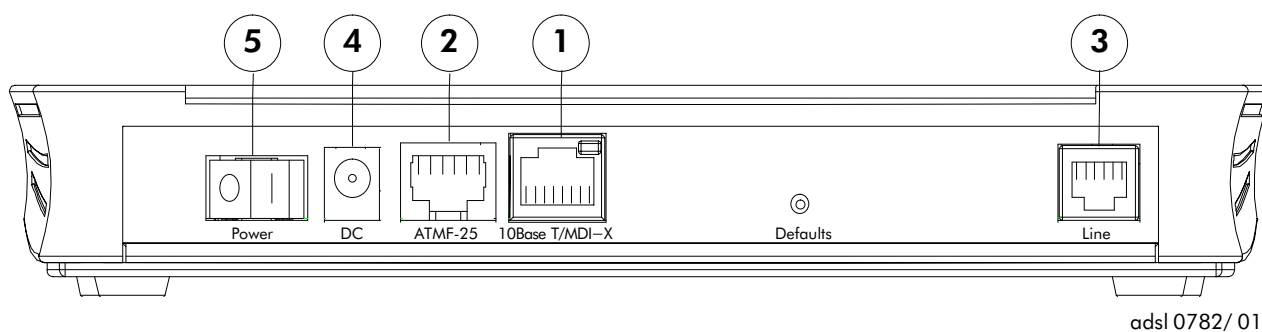
**In all cases contact your ADSL Service Provider about splitter/filters installation !**

Public telephone lines carry voltages that **can cause electric shock**. Only install splitter/filters yourself if these are qualified for that purpose. Other splitter/filters may **only** be installed by **qualified service personnel**.

---

- Connecting** To connect, proceed as follows:
- ▶ Plug the ADSL cable into the 'Line' port **3**.
  - ▶ Plug the other end into the wall socket terminating ADSL service.

## 3.6 Power Supply



adsl 0782/ 01

Figure 11 Rear View for connecting the **Speed Touch Home**

The **Speed Touch Home** is delivered with a modular external power adapter of 120 V<sub>AC</sub>/60Hz (US standard) or 230 V<sub>AC</sub>/50Hz (European standard) converting to:

- ▶ 9V<sub>DC</sub>/1A unregulated output voltage for passive splitter versions ;
- ▶ 12V<sub>DC</sub>/1A unregulated output voltage for active splitter versions.

See Appendix B for connector layout and output specifications.

Proceed as follows to connect the power supply adapter :

### Connecting

- ▶ Plug the power adapter's coaxial jack into receptacle **4**.
- ▶ Plug the power supply adapter into the mains outlet.

### STHome Start Up

- ▶ Turn on the **STHome** with the power switch **5**.
- ▶ Check the visual indicators on top of the **STHome** (See section 2.2.2). The visual indicator marked "PWR/Alarm" initially flashes red, indicating that the **STHome** is performing a self test.
- ▶ If the self test was successful, the "PWR/Alarm" indicator shows continuous green.
- ▶ At this point, the **STHome** is ready for ADSL connectivity.

## 4 ADSL Connectivity

ADSL is state-of-the-art modem technology used for unlocking the potential bandwidth of the widely available public telephone network.

This chapter contains:

- ▶ A brief Introduction of ADSL Technology
- ▶ Focuses on In-House ADSL Installation
- ▶ Important Information on connecting the **Speed Touch Home**

## 4.1 ADSL Exposed

ADSL is short for **Asymmetric Digital Subscriber Line**. This somewhat cryptic name is best explained in straightforward terms:

- ▶ **Line**, because ADSL uses the ordinary existing copper line, known as “local loop”, that runs between your home or office premises and one of the telephone operators’ main switching exchanges, known as a central office.
- ▶ **Subscriber**: that’s you. Because this is what service providers or operators call their customers or end users.
- ▶ **Digital**, because ADSL is used to transmit digital signals, just like those that make up computer files.
- ▶ **Asymmetric**, because ADSL can transmit data much faster from the Internet towards the end user than the other way around. It is rather like having a major highway in one direction and a one-lane road in the other.

Because Plain Old Telephone Service (POTS) and ADSL occupy distinct frequency spectra (See figure 12), ADSL service can coexist with conventional telephone service.

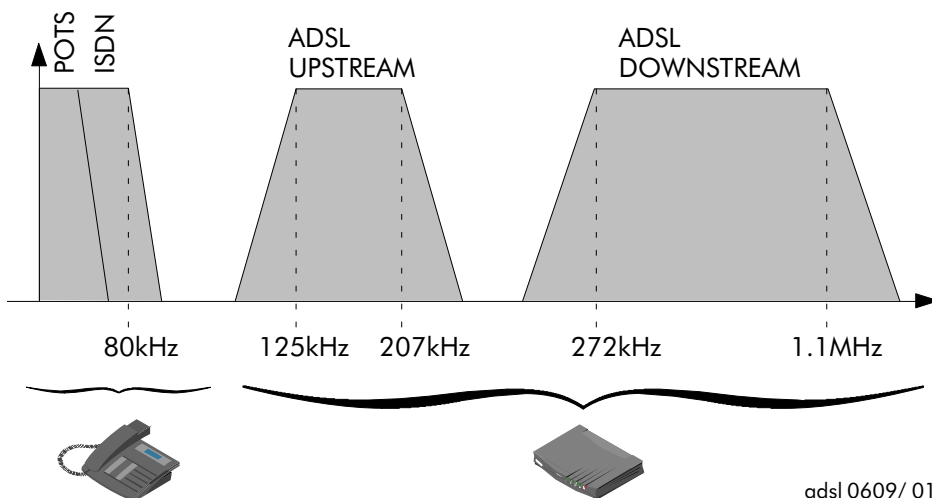


Figure 12 POTS and ADSL Frequency Spectra

As a result, your telephone lifeline service will never be affected by any possible **Speed Touch Home** failure.

## 4.2 Enabling ADSL

Prior to using the **Speed Touch Home**, you **MUST** contact your ADSL provider. He will inform you whether the ADSL service is already enabled. If not, he will advise you on how to proceed.

Your ADSL provider must provide you with:

- ▶ A telephone line which supports ADSL service;
- ▶ Guidelines for in-home cabling;
- ▶ A splitter or filters to decouple conventional phone service and ADSL service.

## 4.3 Splitter & Filters

Next to existing Plain Old Telephone Service (POTS) signals, ADSL signals are added to the wires in Central Offices. Although POTS and ADSL occupy distinct channels, they might influence one another.

In devices such as phones, modems, answering machines and fax machines (collectively referred to as telephony devices) ADSL signals can cause audible noise and hence possible audible disruption may occur. Telephony devices in turn can interfere with ADSL signals, causing deterioration in data throughput.

To avoid this mutual interference, an electronic central splitter or distributed filters need to be installed. As the names implies: a splitter splits or combines signals while filters prevent signals from entering or escaping from devices.

As a variety of configurations are (being) deployed, ask your ADSL provider for advice. He will usually prefer one solution rather than another. This following chapter is intended to highlight only the most important aspects.

### 4.3.1 Central Splitter

In the below configuration the public telephone line terminates into a splitter.

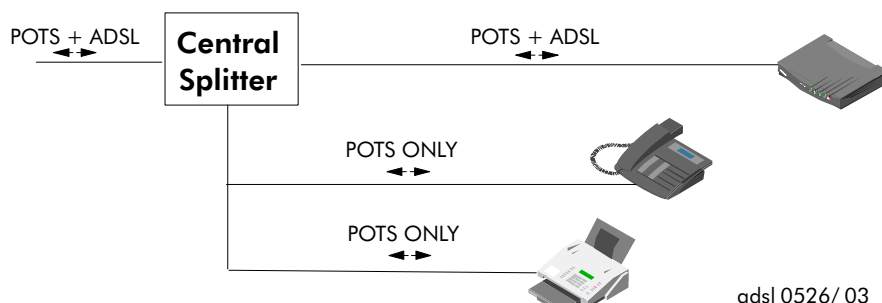


Figure 13 The Centralized Splitter

The central splitter is installed as follows:

- ▶ The POTS/ADSL line is connected to the splitter input.
- ▶ One output, containing POTS signals only, is connected to the existing in-house POTS network.
- ▶ The other output, containing POTS and ADSL, is either connected to:
  - A dedicated spare wire pair in the existing telephone cable.
  - A newly installed cable if no spare wire pair is available (Ensure that the installed cables are of sufficient quality).

Depending upon the existing electrical wiring and sockets, ADSL should now be present on all of your wall sockets. In case of a new dedicated cable, ADSL service is only present on those wall sockets attached to this cable.

Inside the **Speed Touch Home**, dedicated filters remove the POTS signals, consequently only the ADSL remains to be processed by the modem.

**Outdoor** The central splitter can be either external or internal to your home. If **external**, it is installed by the ADSL provider/operator in what is often referred to as Network Interface Device (NID).

**Note** The NID is mostly an outdoor enclosure terminating and securing the public telephone cable. For the telephone operator it is the demarcation point between the **public** and **private** section of your line.



**Indoor** Although **indoor** splitters come in various configurations, their working principles are identical to those of the outdoor's. Depending on splitter type and your ADSL provider procedures, you are allowed to install the splitter yourself. For more information, check the booklet that is supplied with the indoor splitter.



---

**In all cases contact your ADSL Service Provider about splitter installation.**

Public telephone lines carry voltages that **can cause electric shock**.

You may only install splitters yourself if these are qualified for that purpose. Other splitters may **only** be installed by **qualified service personnel**.

---

### 4.3.2 Distributed Filters

In this configuration, the combined POTS/ADSL signals are distributed over the complete in-house wiring.

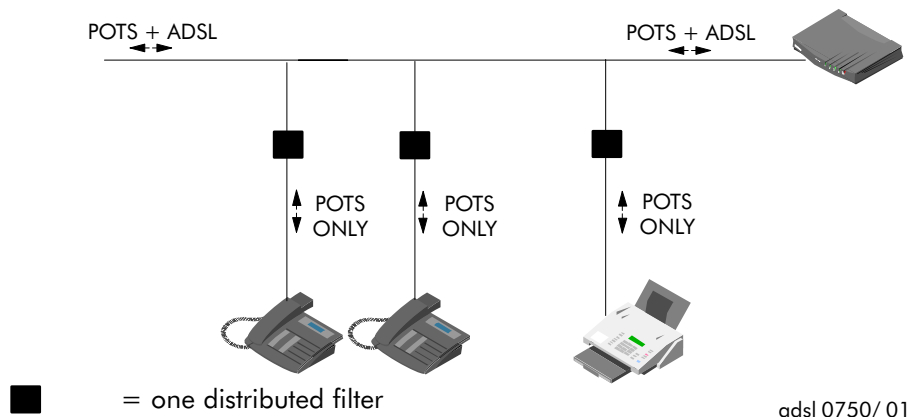


Figure 14 The Distributed Filter

If your wall sockets are fully wired you can connect your **Speed Touch Home** to any wall outlet supporting POTS service.

For optimum ADSL performance and for telephony device protection from the ADSL signals, **always insert filters in front of any connected telephony device** inside your house.



#### ADSL Connector Pinning

Depending whether a central splitter or distributed filters are applied, the ADSL line can be terminated on different pins of the ADSL wall socket(s).

Therefore, a crossover adapter might be necessary.

## 5 Packet Services

This chapter is about selecting the appropriate packet service for your application.

The following topics are highlighted:

- ▶ A brief Description of the supported Packet Services
- ▶ Selection Criteria for a specific Service
- ▶ Internet Access vs. Private LAN Interconnection

## 5.1 Introduction

The **Speed Touch Home** offers two different packet services.

A **packet service** can be defined as:

*“The actions that need to be performed on every data packet in order to filter or forward packets to the next device in the communication chain.”*

The following services are available:

- ▶ IEEE 802.1D Transparent Bridging
- ▶ PPP-to-PPTP Relaying

## 5.2 Selection Criteria

The criteria below can help you to select the most appropriate packet service for your application:

- ▶ The configuration required by your ISP or corporate LAN administrator.
- ▶ The application protocol you want to use (within the boundaries of the remote end).
- ▶ The session aspect: an “Always-on” connection or a connection that is established when needed, i.e. “Dial-up”.
- ▶ Connectivity to a single or simultaneously to multiple remote network(s).
- ▶ Security features such as identification, authentication and encryption.

## 5.3 Packet Services at a Glance

### 5.3.1 IEEE 802.1D Transparent Bridging

The **Speed Touch Home IEEE 802.1D Bridging** packet service offers complete protocol transparency and has inherent configuration simplicity. Yet it provides excellent forwarding performance.

### 5.3.2 PPP-to-PPTP Relaying

In contrast to *Bridging*, which provides an "Always-On" type of connection, *PPP-to-PPTP Relaying* supports a session concept. It offers identification, authentication and encryption. Similar to *Bridging*, *PPP-to-PPTP Relaying* is multiprotocol and offers complete TCP/IP transparency.

An important advantage of *PPP-to-PPTP Relaying* is that it avoids the complexity of a router, yet to a certain extent, it provides identical features.

### 5.3.3 Simultaneous Use of both Packet Services

Both packet services can be active **at the same time** !  
This is possible without any restriction.

## 5.4 Internet and Corporate Access vs. LAN-to-LAN Interconnection

By reading this manual, you will discover that the **STHome** is actually a networking toolbox. It contains various building blocks, designed for flexible combination, yielding a wealth of networking solutions.

The two most prominent applications highlighted in this manual are:

- ▶ High speed Internet access or large corporate access. Although the objective (Internet vs. Intranet access) is different, the networking model/configuration is almost identical.
- ▶ Private Wide Area Network (WAN)/Local Area Network (LAN) interconnection: multiple PCs or workstations on a LAN are interconnected via public or private wide area ADSL/ATM networks to devices on remote LANs.

### 5.4.1 Internet / Large Corporate Access

Traditionally this application requires the user to open a session by dialing to an access server. Prior to accessing corporate resources or the Internet, this server will ask you to identify and authenticate yourself.

The most appropriate **Speed Touch Home** configuration is then **PPP-to-PPTP Relaying** (See Chapter 7 for more information).

In this case, your ISP or corporate network administrator will most likely determine which networking model to use.

### 5.4.2 LAN-to-LAN Interconnection

In this scenario, users are less concerned about session concept. Their networking experience should be as if they are part of a large and widely dispersed LAN.

For this purpose configure the **STHome** for **IEEE 802.1D Bridging** (See Chapter 5 for more).

Independent of your application, the protocols supported at both ends of the connection must be mirror images of each other for successful communication.

In this LAN-to-LAN scenario you determine the end-to-end set-up yourself.

TIP

**Only typical solutions are presented in this manual.**

However, this does not prevent you from experimenting with various configurations and settings. An optimal solution may be discovered through experimentation. You can also try a combination of the presented solutions.

## 5.5 Summary

All **Speed Touch Home**'s packet services can be summarized in the following table:

Table 2 **STHome** Packet Services

Interface	Packet Service	Application Protocol	See Chapter
10Base-T Ethernet	IEEE 802.1D Bridging	Multiprotocol	8
	PPP-to-PPTP Relaying	TCP/IP, IPX/SPX, NETBEUI	9
ATMF-25	The supported packet services depend on the functionality, offered by the drivers included with the ATMF-25 PC-NIC you purchased.		

All subsequently examples, use the Transmission Control Protocol (TCP)/Internet Protocol (IP) suite because it is widely available. However the **STHome** can also cope with other protocols. This is because the **STHome** is a true multiprotocol device.

**Note** Using TCP/IP implies in most cases configuring IP addresses either on your PC(s), on your **STHome** or on both. Please refer to section 9.4 for instructions on how to configure one on your PC(s) and section 9.3 for one on your **STHome**.





## 6 IEEE 802.1D Transparent Bridging

The topics covered in this chapter include:

- ▶ Connect & Go for Bridging
- ▶ Bridging Features
- ▶ Default Bridging Settings
- ▶ Bridging Configuration
- ▶ Using Bridging

## 6.1 Connect & Go

1. Connect your **Speed Touch Home** and PC(s) as described in Chapter 3.
2. Configure *Public* IP addresses on your PC(s) according to the preferred method of your service provider:
  - A **Static** IP address (See section 9.4.2)
  - A **Dynamic** IP address (See section 9.4.3)
3. At this point you are online and applications can be started, e.g. a Web browser (Netscape Navigator or Internet Explorer).

## 6.2 Features

IEEE 802.1D Bridging characteristics:

- ▶ Platform and Operating System (OS) independent
- ▶ Simple to configure and to use
- ▶ True multiprotocol support
- ▶ No performance limitations
- ▶ No theoretical constraints on the number of attached users (There is a practical limit with respect to performance of 16 PCs).
- ▶ Concurrent access to multiple remote destinations

## 6.3 Bridging Defaults

### 6.3.1 Phonebook Entries

Table 3 *Default Bridging Phonebook Entries*

Name	VPI Value	VCI Value	State
Br1	8	35	Configured
Br2	8	36	Free
Br3	8	37	Free
Br4	8	38	Free

### 6.3.2 Default Bridge Settings

Table 4 *Bridge Defaults Table*

Setting	Default Value
ATM Encapsulation Method	RFC1483 LLC/SNAP for Bridged PDUs (FCS not preserved)
Bridge Port State	1 Port in Forwarding State
Ageing Time	5 Minutes
<b>Speed Touch Home</b> DHCP Mode	No DHCP

## 6.4 Bridging Configuration

### 6.4.1 Remote Organization

The remote access server must support:

- ▶ RFC1483 **Bridged PDU Encapsulation on ATM**.

Additionally the remote organization must provide you with:

- ▶ the **VPI/VCI** values of the virtual channels on which the Bridging service is enabled. In the event of default differences (see table 3 for **Speed Touch Home**'s original cross-connections), adapt them using the local web pages as described in Chapter 12.
- ▶ **In case of Internet access, IP parameters** to be supplied for your PC(s) are:
  - The PC's own IP address;
  - A Subnet Mask;
  - The IP address of the default gateway;
  - The IP addresses of the primary and secondary Domain Name System (DNS) server;
  - The local DNS Domain name;
  - Optionally, the IP addresses and port numbers of proxy servers.

Should you want connectivity to multiple remote organizations, additional sets of these parameters need to be supplied.

**Note** Remote organization may distribute IP parameters automatically, e.g. via Dynamic Host Configuration Protocol (DHCP). If so, it will require you to configure your PC(s) to support this automatic procedure. See section 9.4.3 for more information.



---

#### Bridging and DHCP

DHCP is by default **disabled** for the **STHome**. This is to avoid conflicts with the DHCP server of your Internet Service Provider (ISP).

---

## 6.4.2 Bridge Ports

The **Speed Touch Home** comes with one preconfigured Bridge port, i.e. Br1 by default. As this port is put in **Forwarding** state, frames can be transmitted and received **without** any configuration action.

If connectivity with multiple remote destinations is required additional ports (up to four) must be configured and put in Forwarding state. If not, leave the configuration as is, to conserve ADSL upstream bandwidth.

**Note** The **STHome**'s Internal settings can be changed via the local web pages (e.g. configuring additional ports). For more, please read Chapter 12.

## 6.4.3 Your Computer

Bridging, does not impose specific requirements to your PC's networking protocol layers.

i.e. It operates seamlessly with TCP/IP, IPX/SPX and Appletalk to name but a few examples. Just make sure that these are properly installed and configured. Your network administrator or ISP may be able to provide you with the necessary instructions.

For the TCP/IP protocol, your ISP or corporate network administrator will assign you an IP address or instruct you to enable DHCP for automatic IP address configuration. See section 9.4.3 for instructions on setting up your PC's IP parameters.

## 6.5 Using Bridging

From this point on, using Bridging is rather straight-forward. Turn on both your **STHome** and PC, start your Web browser and you are on the Internet.

This form of remote network access is sometimes referred to as "Always-on". No connection must be established prior to connectivity.

However, the remote organization might present you with a welcome screen asking for a User Name and Password prior to granting access to secured servers or the Internet.

## 6.6 Advanced Concepts

In section 14.4 some additional background information is provided. The topics covered are:

- ▶ Bridge Ports and their possible States
- ▶ Bridge Operation
- ▶ Advanced Background Information on using Bridging

## 6.7 Sample Configuration

Figure 15 shows a configuration example:  
One PC is connected to an ISP while another one is connected to a remote LAN.  
Both connections are made via the **Speed Touch Home**.

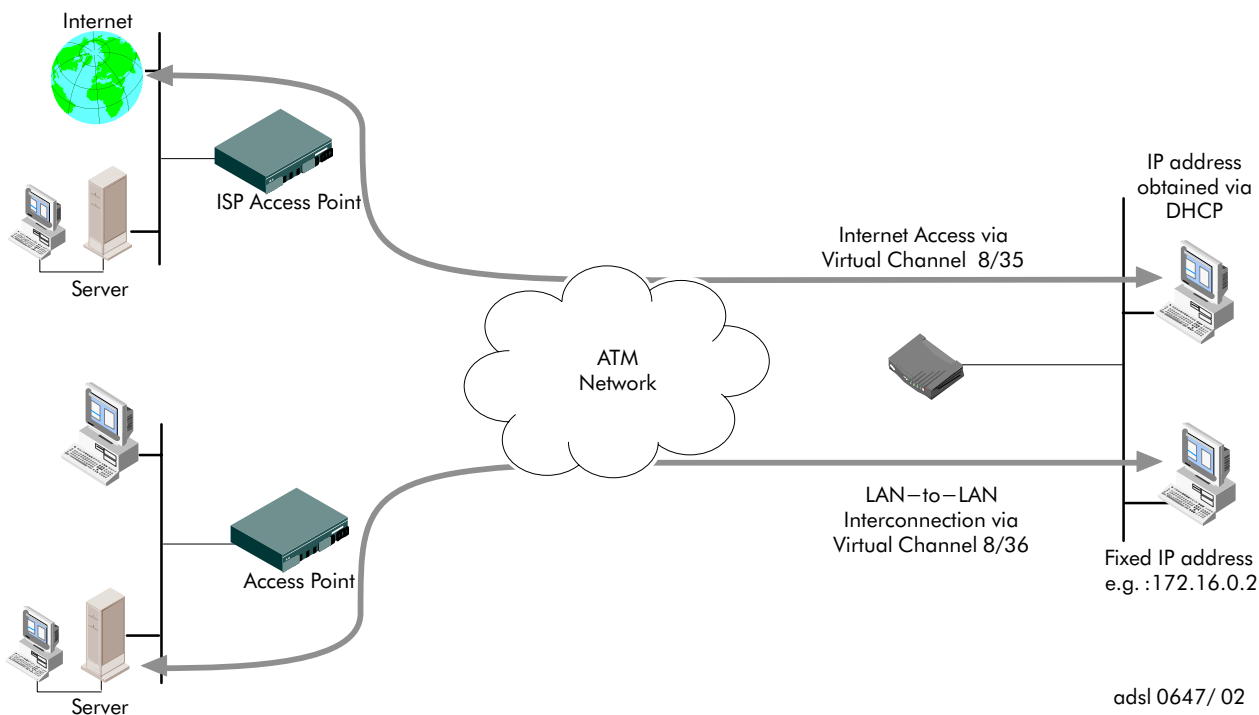


Figure 15 Sample Bridging Configuration

**Note** The **STHome** inherently supports multiple protocols. However some operators might embed restrictions into the Bridge. In this way only traffic that passes through the Bridge filter is allowed on the ADSL line. Please contact your ADSL service organization for more information.

## 7 PPP-to-PPTP Relaying for Windows 9x

This chapter covers configuring and using the PPP-to-PPTP Relaying (PPP/PPTP) mode of the **Speed Touch Home**.

The following topics are dealt with:

- ▶ Connect & Go for PPP-to-PPTP Relaying
- ▶ PPP/PPTP Features
- ▶ Default Relaying Parameters
- ▶ Requirements for using PPP-to-PPTP Relaying
- ▶ Configuring Dial-Up Networking
- ▶ Using PPP-to-PPTP Relaying
- ▶ Upgrade Procedures for Windows 95 Users
- ▶ Tunneling on Windows NT Platforms

## 7.1 Connect & Go

- Initial Configuration**
1. Connect your **Speed Touch Home** and PC(s) as described in Chapter 3.
  2. Determine your PC's OS. If:
    - **Windows 98** : Continue with step 5.
    - **Windows 95** : Continue with step 3.
    - **Windows NT** : Go to section 7.8 for configuration and tunneling usage in Windows NT.
  3. Download the Dial-Up Networking Upgrade for Windows 95 as described in section 7.7.2.  
Continue with step 4.
  4. Install Dial-Up Networking Upgrade for Windows 95 as described in section 7.7.3.  
Continue with step 5.
  5. Configure a *Private* IP address on your PC, e.g. 10.0.0.1.  
For detailed information, see section 7.4.4.  
Continue with step 6.
  6. Configure your PPP/PPTP application as described in section 7.5.  
Continue with to step 7.
- Use**
7. Establish the connection by double-clicking the icon of the appropriate PPP/PPTP connection (See section 7.6.1).
  8. You are now connected: start your application (e.g. a Web browser).
- Note** **Windows NT**  
In case of Windows NT please go to section 7.8.



## 7.2 Features

PPP-to-PPTP Relaying has the following features:

- ▶ Standard "Dial-up" behavior
- ▶ Security through identification, authentication and encryption
- ▶ Multiprotocol support depending on PPTP implementation, e.g. for MS Windows: TCP/IP, IPX/SPX and NETBEUI
- ▶ Complete TCP/IP protocol transparency  
No Network Address Translation (NAT) is required.
- ▶ Concurrent access to multiple remote destinations (depending on provisioning)
- ▶ 12 concurrent virtual channels supported; all can be assigned to PPP/PPTP. However, the actual amount might be restricted by the ADSL provider.

## 7.3 PPP-to-PPTP Relaying Defaults

### 7.3.1 Phonebook Entries

Table 5 Default PPP/PPTP Phonebook Entries

Name	VPI Value	VCI Value	State
RELAY_PPP1	8	48	Configured
RELAY_PPP2	8	49	Configured
RELAY_PPP3	8	50	Configured
RELAY_PPP4	8	51	Configured

### 7.3.2 Default Relay Settings

Table 6 Relay Defaults Table

Setting	Default Value
ATM Encapsulation Method	RFC2364 VC MUX for PPP PDUs

## 7.4 Requirements

### 7.4.1 Remote Organization

The remote access server must support RFC2364 **PPP Encapsulation** on ATM, at the remote end of the virtual channel.

Additionally the remote organization must provide you with:

- ▶ The **VPI/VCI** values of the virtual channels on which the PPP service is enabled. In the event of default differences (see table 5 for **STHome**'s original cross-connections), adapt them using the local web pages as described in Chapter 12.
- ▶ The remote organization will supply you with a **User Account** for access to its network or the Internet.

Should you want connectivity to multiple remote organizations, additional sets of these parameters need to be supplied.

### 7.4.2 Speed Touch Home

The **Speed Touch Home** comes with 4 preconfigured PPP/PPTP connections (See table 5).

### 7.4.3 Your Computer

Your PC must support the Point-to-Point Protocol (PPP) and Point-to-Point Tunneling Protocol (PPTP).

e.g. All Microsoft platforms (Windows 9x, Windows NT Client and Windows NT Server) support PPP and PPTP.

### 7.4.4 TCP/IP

PPP is carried in ATM cells over the ADSL line. However, on the Ethernet segments between the **STHome** and your PC(s), PPTP tunnels are used instead.





Therefore, prior to establishing PPTP tunnels, IP addresses must be properly configured in both machines initiating and terminating the tunnel.

To configure an IP address, or enable DHCP in your PC(s), see section 9.4.

**Note** Your **STHome** has a default "Net10" IP address: 10.0.0.138. For configuring another IP address on your **STHome**, see section 12.1.3.

## 7.5 Configuring Dial-Up Networking for Windows 9x

To configure a new connection on a Windows 9x platform, to an ISP, or your corporate headquarters, proceed as follows:

1. Double-click  on your desktop.  
My Computer
2. Double-click .  
Dial-Up  
Networking
3. Activate the 'Make New Connection' application by  
double-clicking .  
Make New  
Connection
4. When first use of Dial-up Networking, the 'Welcome to Dial-Up Networking' window appears.  
Click .
5. The 'Make New Connection' window appears (see figure 16).

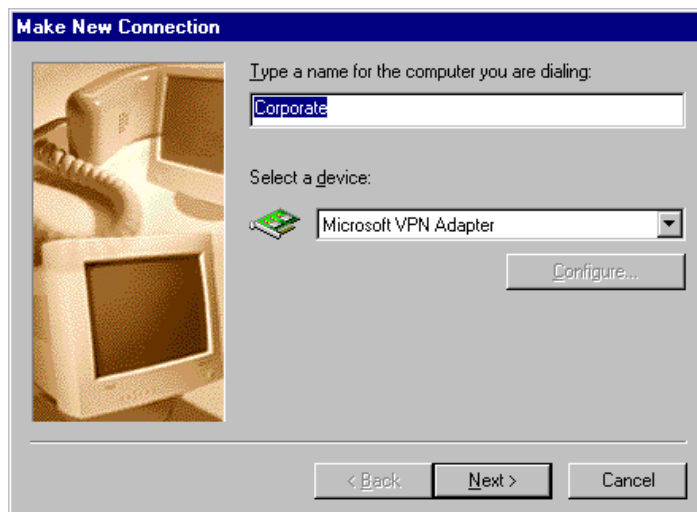


Figure 16 Make New Connection Window

6. In the first input field, type the name or alias of the organization you are connecting to. This name will appear below the newly created icon at the end of this procedure.
7. In the 'Select a device' listbox, you must select the 'Microsoft VPN Adapter' for PPTP tunneling.

8. Click .

**Note Windows 95 Users**

If Dial Up Networking has not been upgraded, you cannot select the 'Microsoft VPN Adapter'. Upgrade according section 7.7.

9. The *VPN Server* window appears (See figure 17).

Enter the DNS hostname or IP address of the Virtual Private Network (VPN) server.

In this case the VPN Server is your **Speed Touch Home**.  
The default IP address for the **STHome** is 10.0.0.138.  
Its default hostname is "SpeedTouch".

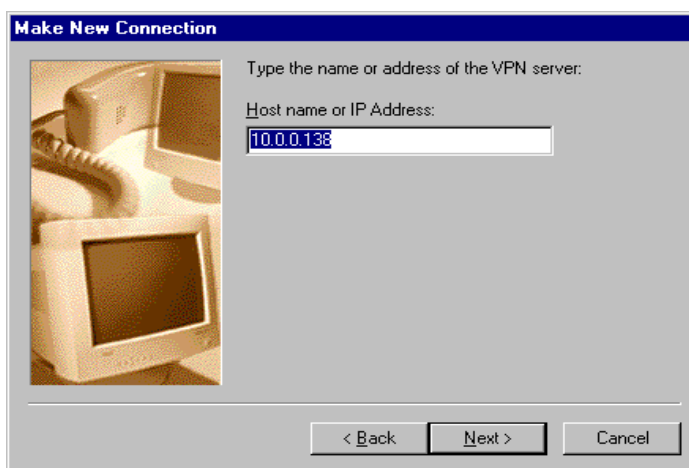


Figure 17 VPN Server Window

Click .

**Note** "VPN server" is another name for PPTP server.

10. A window appears announcing that you have successfully installed a new Dial-Up Networking connection (See figure 18).

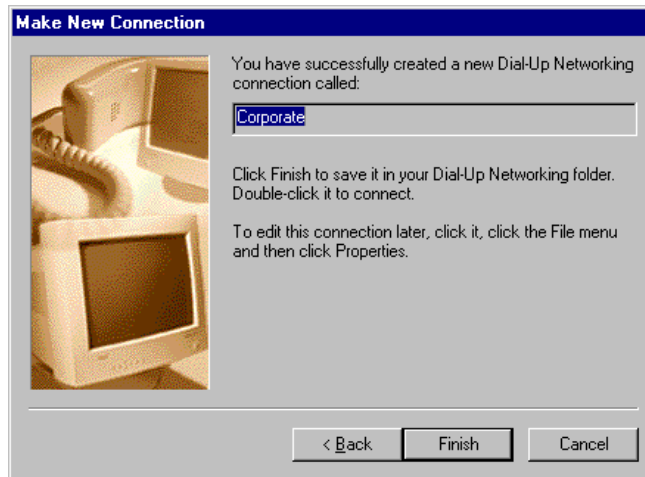


Figure 18 Successful Creation of a New Dial-Up Networking Connection Window

Press the  button.

A new icon with the name of the connection that you have just created will be added to your Dial-Up Networking folder (See figure 19).

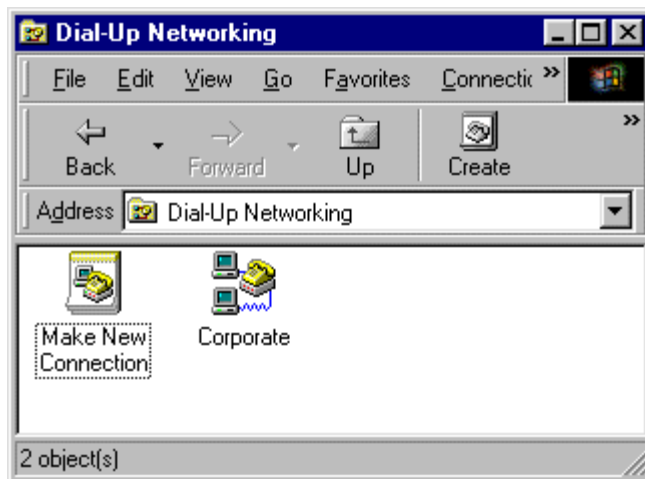



Figure 19 New 'Corporate' Icon created in Dial-Up Networking Folder

11. Click  and select 'Properties'.

Corporate

12. The 'Corporate' properties window appears (See figure 20):

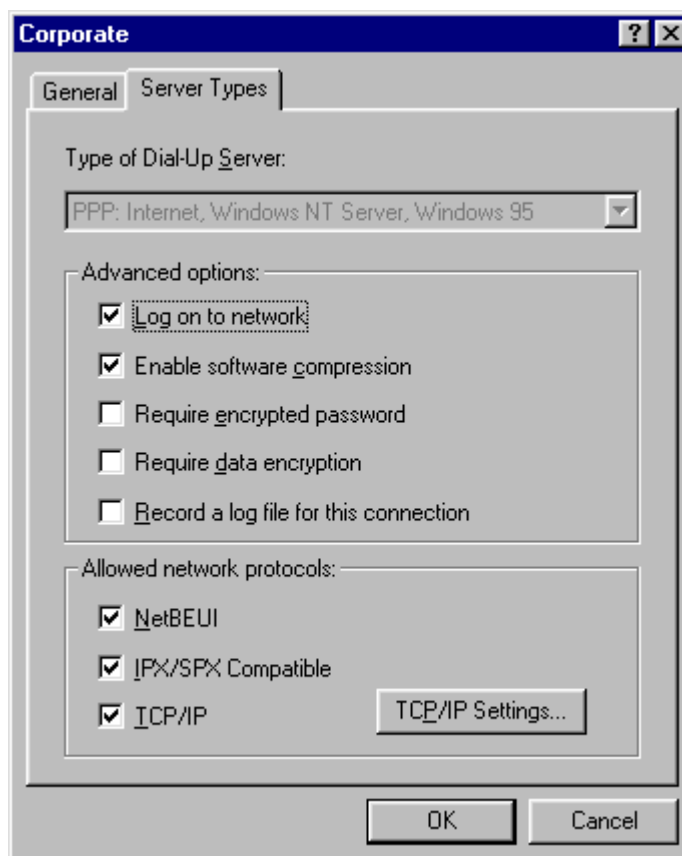



Figure 20 'Corporate' Properties Windows

Select the 'Server Types' tab.


13. Disable the protocols that you will not use e.g. IPX/SPX, NETBEUI.

Now your connection is configured.

14. For your convenience, you can create a shortcut to the icon on your desktop.

Drag  to your desktop.

Corporate

The program will ask if you want to create a shortcut to the selected item. Select .

A copy of the selected icon will appear on your desktop.

---

**TIP**

---

**Creating multiple icons for multiple destinations**

You can create a unique icon for each of your destinations. This can be accomplished by repeating the steps – starting with step 5. – for each destination.

---


**Note**

Using specific virtual channels to multiple destinations is described in the advanced configurations, section 14.4.4.

## 7.6 Using PPP-to-PPTP Relaying for Windows 9x

### 7.6.1 Establishing a PPP/PPTP Connection

After configuring the connection, establish the connection as follows:

1. Double-click  in the Dial Up Networking folder.  
Corporate

or:

- Double-click the shortcut  on your desktop.  
Corporate

**Note** If you have created an icon per connection, select the appropriate.

2. The 'Connect To' window appears (See figure 21).  
Fill in the 'User name' and 'Password'.

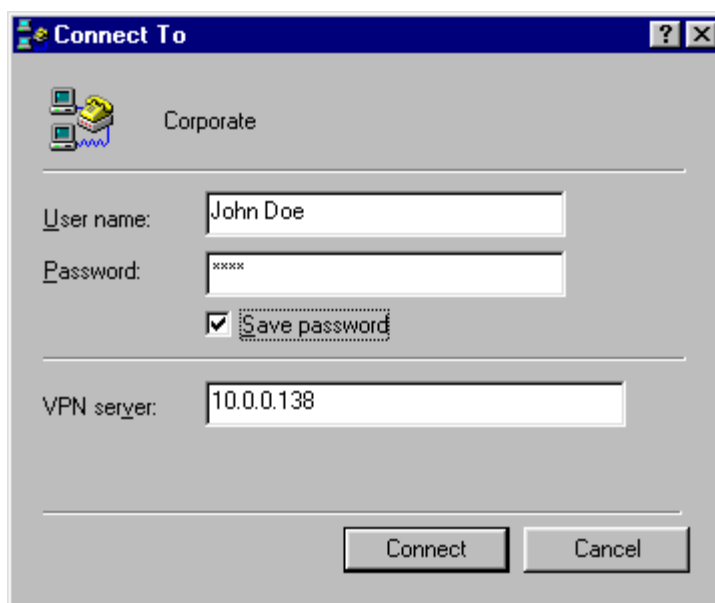


Figure 21 'Connect To' Window

Click  .



## TIP

**Saving your password**

If you want the current Dial-Up connection application to remember your User Name and Password, tick the 'Save Password' box (✓). The next time you establish this connection, both values are displayed automatically.

Make sure, that you have logged into Windows 9x when you boot your PC.

3. The 'Connecting To Corporate' window appears shortly before being minimized in the system tray.

You can check the status of the connection by double-clicking the icon in the system tray.

A 'Connected To Corporate' window will pop up, showing the status of the connection. (See figure 22).

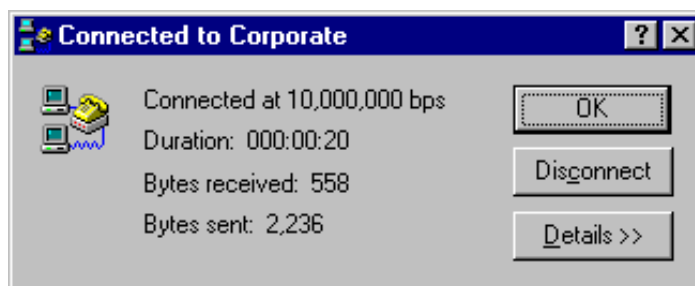


Figure 22 'Connected To Corporate' Window

4. You can now open your application, e.g. a browser.

## 7.6.2 Releasing a PPP/PPTP Connection

To release a PPP/PPTP connection, proceed as follows:

1. If minimized, double-click the connection icon on the taskbar.
2. In the 'Connected to Corporate' window, click **Disconnect** (See figure 22).

The PPP/PPTP connection no longer exists.

### 7.6.3 Advanced Concepts

In section 14.4 the following advanced features, background information and configuration possibilities are described:

- ▶ Advanced Point-to-Point Tunneling Information
- ▶ Tunneling from behind an IP Router
- ▶ Establishing specific PPP/PPTP Sessions
- ▶ Simultaneous PPP/PPTP Sessions
- ▶ Some Limitations

## 7.7 Downloading and Installing Dial-Up Networking Upgrade for Windows 95

This section explains how to download and install the “Windows Dial-Up Networking 1.3 Performance and Security Upgrade for Windows 95”.

### 7.7.1 System Requirements

The Windows 95 workstation must meet the following minimum requirements :

- ▶ Pentium-class processor 90MHz or higher;
- ▶ 16MB of memory;
- ▶ Windows compatible modem.

### 7.7.2 Download Procedure

To download the “Windows Dial-Up Networking 1.3 Performance and Security Upgrade for Windows 95” from the World Wide Web (WWW):

1. Browse to the Microsoft website at location ‘http://www.microsoft.com’ by entering this address in the Uniform Resource Locator (URL) field of your Web browser (see figure 23).

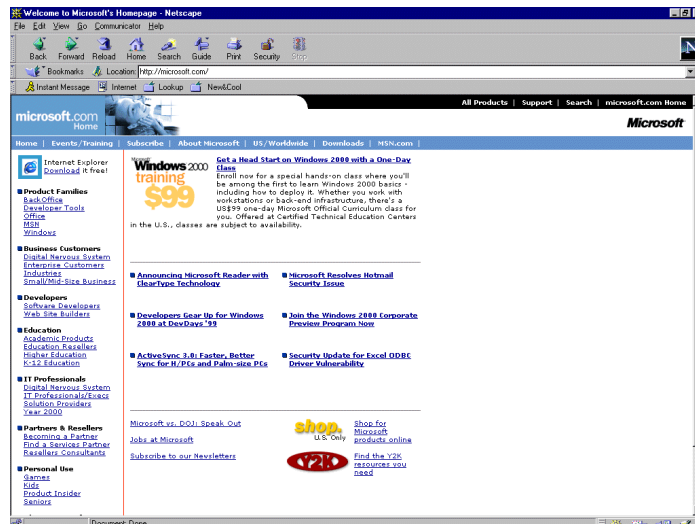


Figure 23 Microsoft Website Contents Page

2. Click the ‘Downloads’ button in the Microsoft homepage’s taskbar.

3. You will be guided to Microsoft's 'Download Center' (See figure 24):

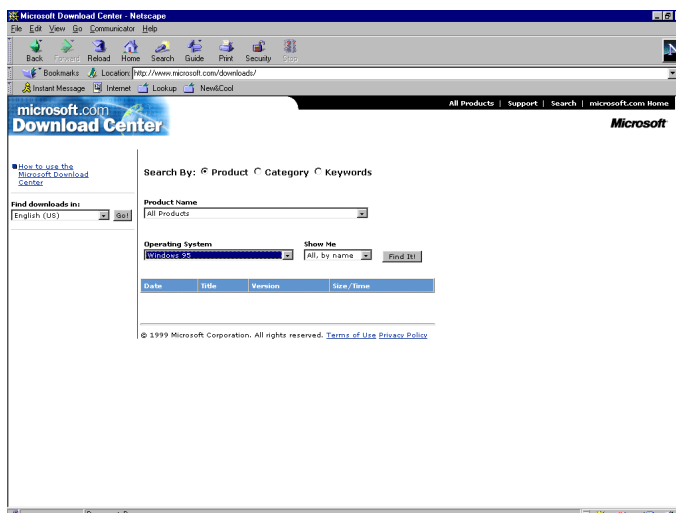


Figure 24 'Download Center' Web Page

In this web page, select  as the Operating System. Click .

4. In the result list, look for the following title: [Dial-Up Networking Performance & Security Upgrade](#) and select it by clicking.
5. A 'Read me first' web page pops up, informing how the download will progress. click .
6. After going through Microsoft's 'Profile Center', you get to the 'Licence Agreement' web page. Click  to accept.

**Note** You can also use Microsoft's Search Tool to locate the Upgrade file. Therefore, search on 'MSDUN13.EXE'.

7. In the following web page you are able to select Dial-Up Networking's GUI language. When this is done, click .
8. The next web page, allows you to choose the nearest download site. Select one and click .

9. A 'Save As...' window pops up (see figure 25), asking you to specify a location for the MSDUN13.exe file to be downloaded.

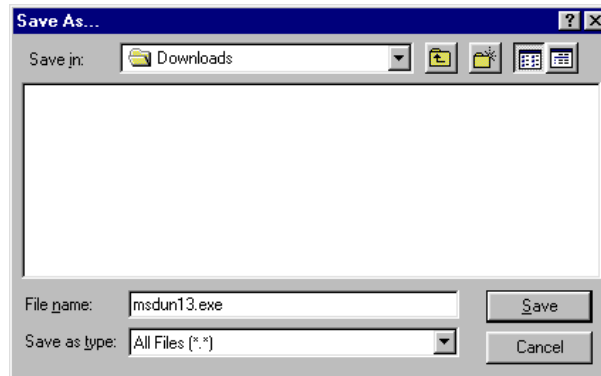



Figure 25 'Save As...' Window


10. Specify a location for the storage and click  to execute the download.

## 7.7.3 Installing MSDUN

If the download was successful, proceed with installing the Dial Up Networking Upgrade. Save your work and exit all applications (except your Web browser) before beginning the installation process.

**Note** If you have installed Windows 95 from a CD-rom, you will need to have the Windows 95 CD-rom ready prior to start the installation process.

To install the MSDUN13.EXE file proceed as follows:

1. Click , and select 'Run' from the menu list.
2. The 'Run' window appears (See figure 26):

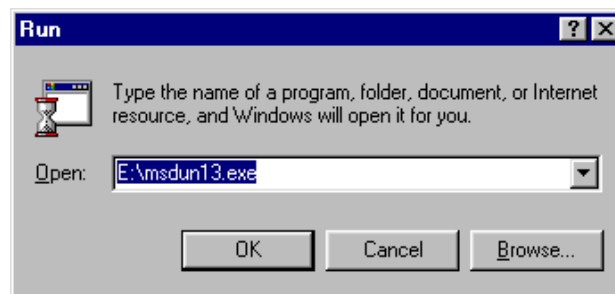
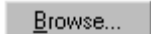


Figure 26 The 'Run' Window

Specify the path (the one that you specified during the download procedure) for the MSDUN13.EXE file in the 'Open' box. You can also browse to the file by selecting the  button.

Click .

3. The system will ask if you want to start the MSDUN13 installation:

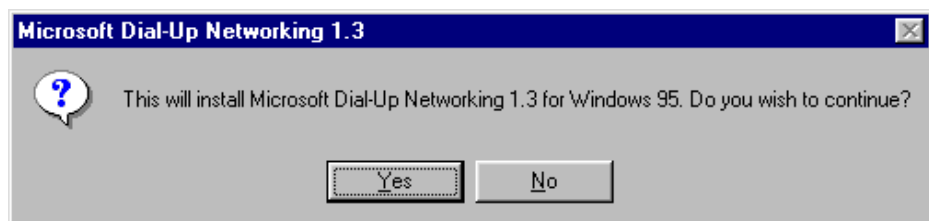
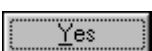


Figure 27 'Dial-Up Networking 1.3' Window

Click .

4. The 'End-User License Agreement' window appears:

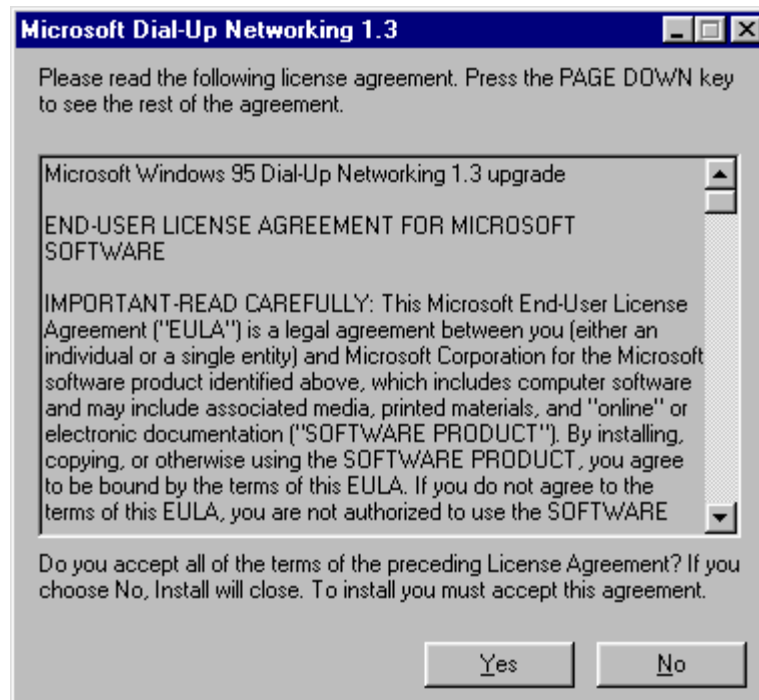
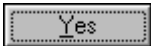


Figure 28 'End-User License Agreement' Window

This license agreement must be accepted to start the installation. To do so, click .

5. The installation starts:

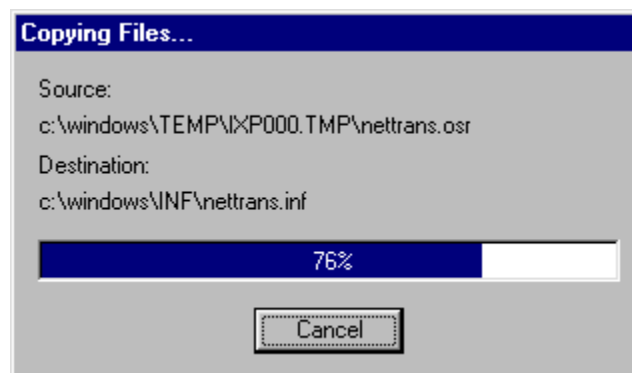


Figure 29 'Copying Files...' Window

During the installation, setup will ask you to restart your computer twice:

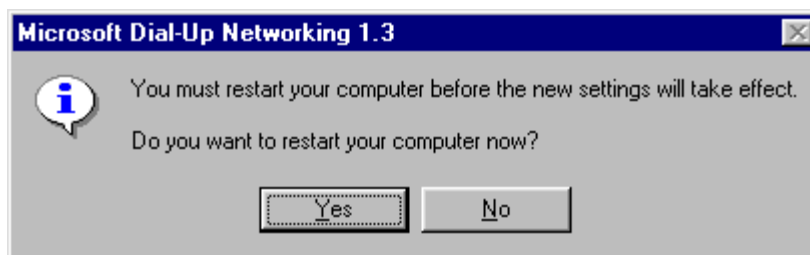


Figure 30 'Restart' Window

Proceed each time by clicking .

6. Upon restart, the installer will rebuild your driver twice: once for Dial-Up-Networking and once to enable Virtual Private Networking.

After installation you have the fully updated Dial-Up Networking application, required to use PPP-to-PPTP Relaying.



## 7.8 Configuring and Using Tunnelling on Windows NT Platforms

This section describes how to create and setup a PPTP Dial-Up connection over standard telephone lines and Virtual Private Network connections over IP networks such as the Internet on a Windows NT platform.




### ATTENTION

Make sure that 'Microsoft Service Pack 3' has been installed on your PC before you start creating tunnel sessions.

### 7.8.1 Installing PPTP on a Windows NT Platform

Before you can start creating tunnels, the PPTP Network Protocol must be added to your Windows NT platform.

To install the PPTP networking protocol, proceed as follows:

1. Double-click  on your desktop.  
My Computer
2. Double-click  .  
Control Panel
3. Double-click  .  
Network
4. The 'Network' window appears (See figure 31).

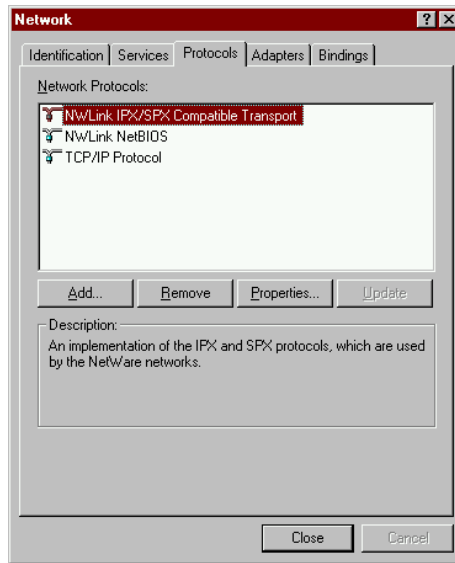



Figure 31 'Network' Window

Select the 'Protocol' tab and click .

5. The 'Select Network Protocol' window appears (See figure 32).

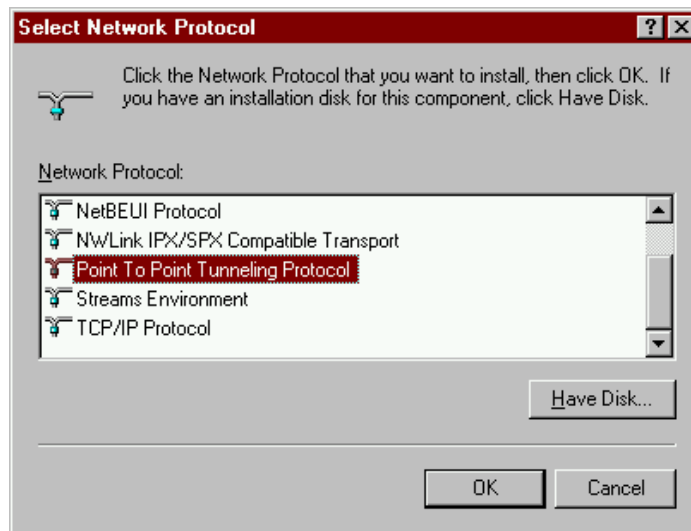


Figure 32 'Select Network Protocol' Window

Click on the scroll button in the dialog box and select the 'Point-to-Point Tunneling Protocol' from the list.

Click .

6. Setup now needs to copy some Windows NT files and prompt you for the proper path to the installation files. Specify the path and click .

The installation will load all necessary PPTP files.

7. The 'PPTP Configuration' box appears (See figure 33).

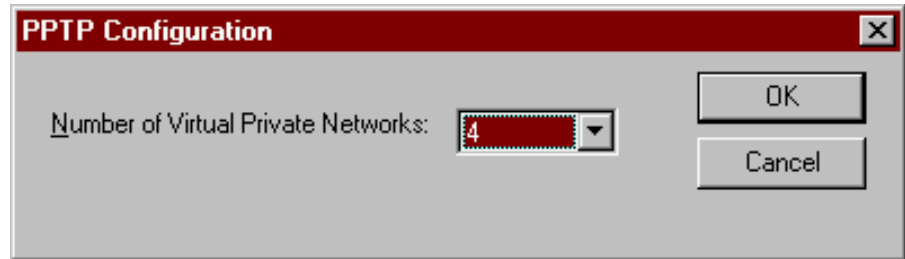


Figure 33 'PPTP Configuration' Window

This box presents you with a key question : how many Virtual Private Networks do you want to enable for access to this server.

Click the scroll box, and for example, pick '4' to create a maximum number of four remote PPTP concurrent connections to this Remote Access Services (RAS) server.

Click  to continue.

8. The Setup Message (See figure 34) appears.

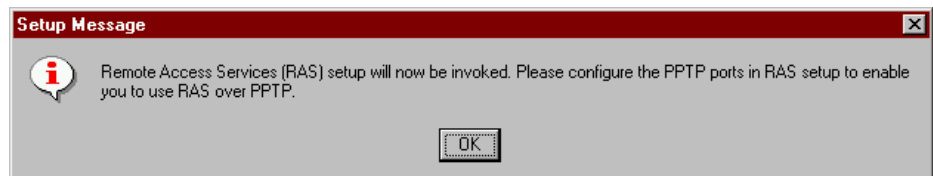


Figure 34 'Setup Message' Window

Click  to continue. This will initiate configuration of the RAS, to which you will add the new PPTP VPN ports.

**Note** You have now completed the first part of the installation, adding PPTP as a remote protocol. The remaining steps of the installation configure RAS for PPTP.

9. The 'Remote Access Setup' window appears (See figure 35) and lists a modem that is already setup in RAS.

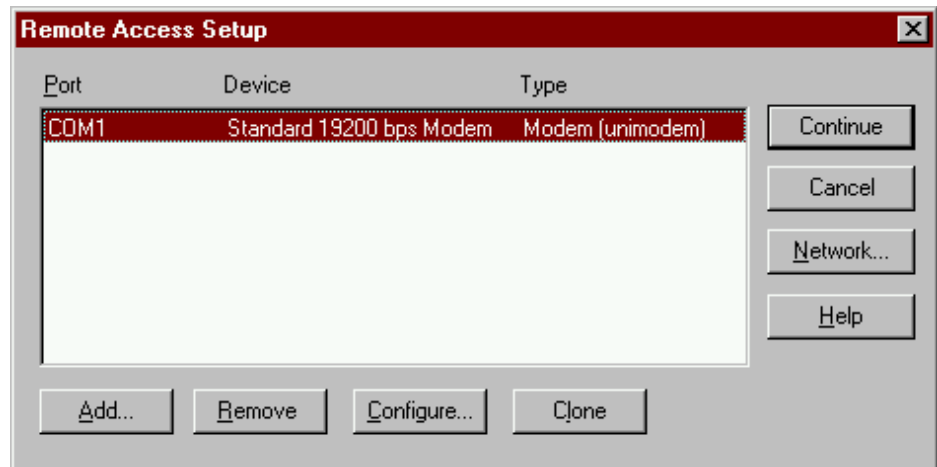


Figure 35 'Remote Access Setup' Window

To add the new VPN ports to 'RAS', click  .

10. The 'Add RAS Device' window appears (See figure 36).

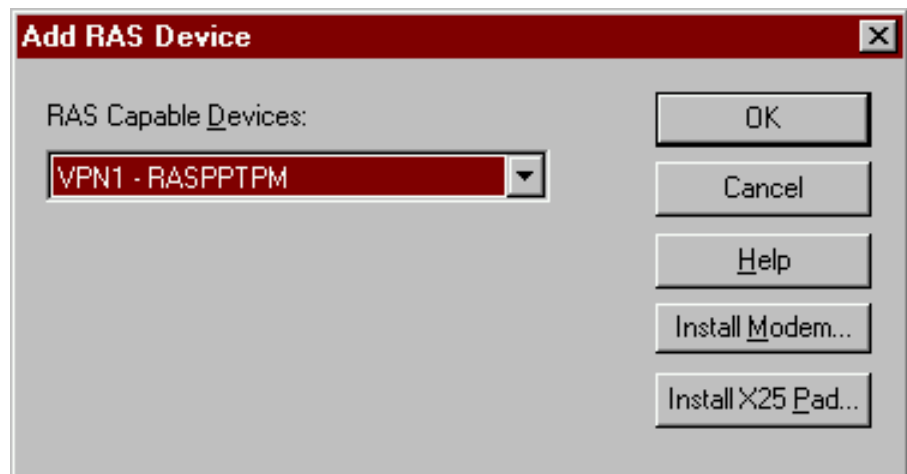


Figure 36 'Add RAS Device' Window

Each port must be added individually. To do so double-click on the correct port and click the  button. The 'Remote Access Setup' window; figure 35 returns.

Repeat steps 9. and 10. until all VPN ports are listed in the 'Remote Access Setup' window. Then proceed with step 11.

11. At this point, by default the ports are configured for dial-in only. To change this select a port and click **Configure...** in the 'Remote Access Setup' window.
12. The 'Configure Port Usage' window appears (See figure 37).

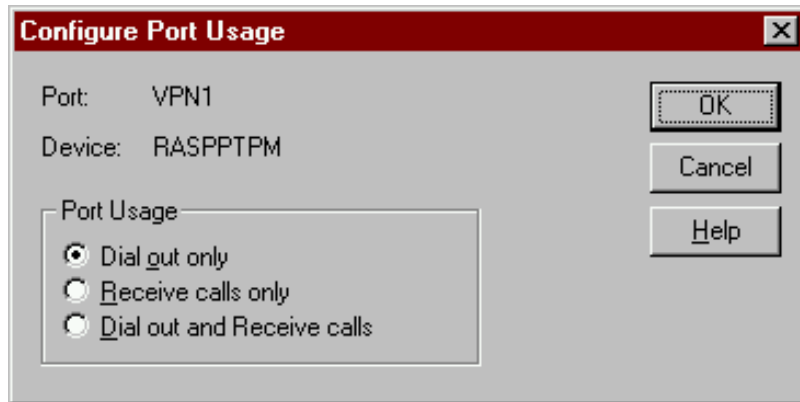


Figure 37 'Configure Port Usage' Window

Select the 'Dial-out only' option and click **OK**.

13. Steps 11. and 12. can be performed for each port (if necessary), then proceed with step 14.
14. In addition you can also define which tunneled protocols you will allow through the VPNs.

To do so highlight each port and click **Network...**.

In the 'Network Configuration' window enable or disable the protocols you want and click **OK**.

**Note** You can enable or disable IP, IPX or NETBEUI sessions for each port.



15. Click **Continue** and finally **Close**.

The RAS application will inform you it needs to be restarted in order for the changes to take effect. Click **Yes** to restart.

## 7.8.2 Creating a New PPTP Phonebook Entry

The following procedure tells how you can create a tunnel session for use with the corporate LAN or dial-up transport. A tunnel session contains the IP address of a PPTP server and your User Account information on that server. You can create as many tunnel definitions as you need for different accounts or different PPTP servers.

To create a tunnel session to your headquarters or a PPTP server:

1. Double-click  .  
My Computer
2. Double-click  .  
Dial-Up Networking
3. The 'Dial-Up Networking' window appears (See figure 38).

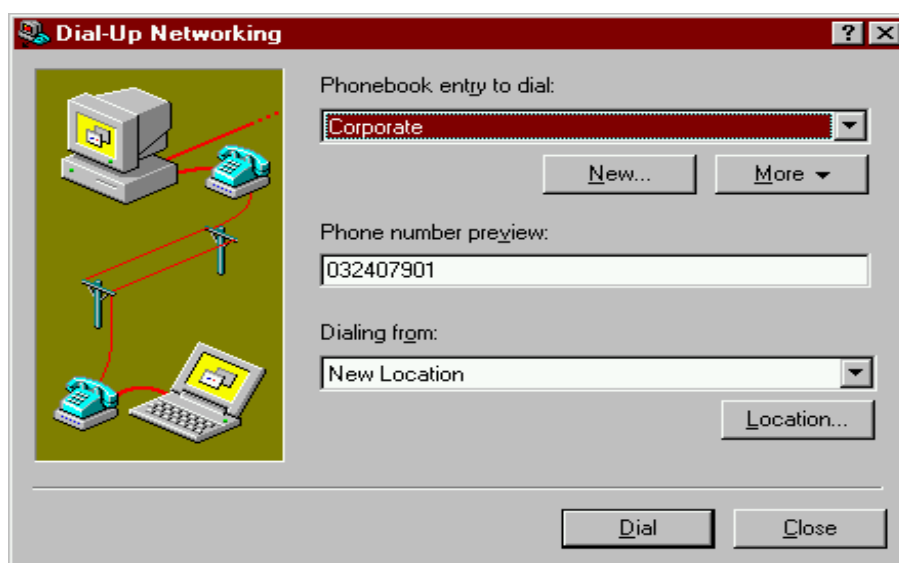
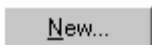


Figure 38 Dial-Up Networking Window

The Phonebook entry selection box lists all existing tunnels. (If the Phonebook was empty, a window appears to inform you that no entries exist in the phonebook and asks if you want to add an one.)

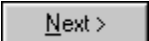
Click  to create a new tunnel.

4. The 'New Phonebook Entry Wizard' window appears (See figure 39).



Figure 39 'New Phonebook Entry Wizard' Window

5. Enter a name for the tunnel you are creating (the tunnel will be saved in the phonebook under this name).

Click .

6. The 'Server' window appears (See figure 40).

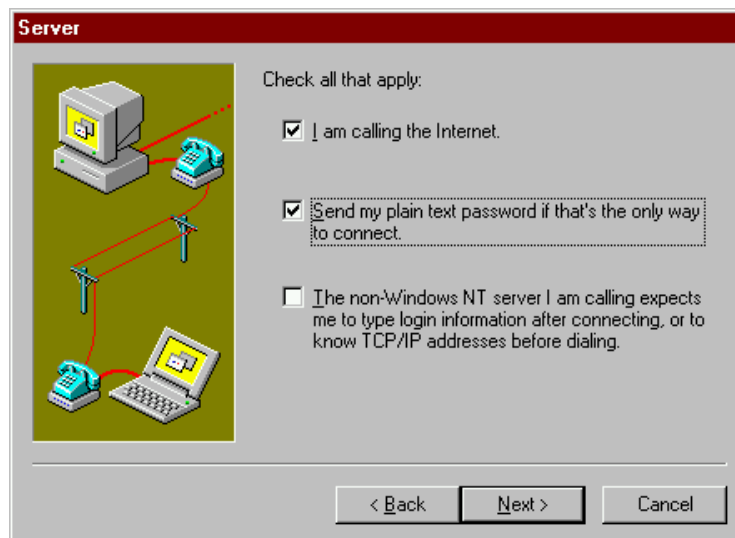


Figure 40 'Server' Window

Activate all the options that apply to your tunnel.

Click .

7. The 'Phone Number' window appears (See figure 41).

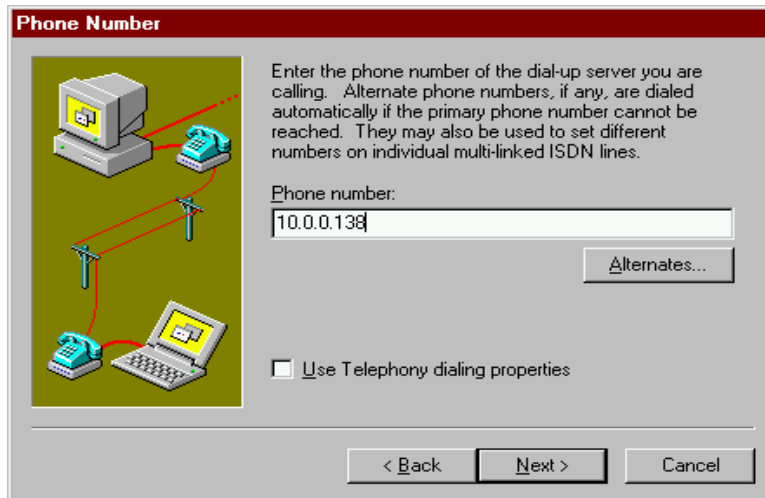



Figure 41 'Phone Number' Window

Enter the 'Phone number' of the dial-up server you are calling.

Click .

**Note Multiple Phone Numbers**

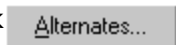
You can assign more than one phone number to each entry. This might be useful if you have a pool of phone numbers to connect to. To do so, click . A window appears (See figure 42), allowing you to add phonenumber to the pool.



Figure 42 Alternate 'Phone Numbers' Window




8. The 'New Phonebook Entry Wizard' window appears (See figure 43).





Figure 43 'New Phonebook Entry Wizard' Window

This window tells you that the new tunnel creation was successful.

Click  to save the tunnel definition and to add the Phonebook entries to scroll-list.

### 7.8.3 Logging on to a VPN Server through a Tunnel Session

When the tunnel session to your VPN server has been created, proceed as follows to log on:

1. Double-click  .  
My Computer
2. Double-click  .  
Dial-Up  
Networking

## TIP

**Creating a shortcut**

If you intend to regularly log on to a VPN using a PPTP tunnel, it may be useful to create a shortcut to it on your desktop.

3. The 'Dial-Up Networking' window appears (See figure 38).



Figure 44 'Dial-Up Networking' Window

Select the tunnel you want to set up in the phonebook selection box and click  .

4. The 'Connect to' window appears (See figure 45).



Figure 45 'Connect to Corporate' Window

Enter your password for the VPN server. To save your password, 'tick Save password' (✓).

5. Enter the optional information in the 'Domain' box. This is only required by some Microsoft NT VPN servers.

Click .

6. The 'Connecting To' window appears (See figure 46):



Figure 46 'Connecting To' Window

This window informs you of the status of the connection process. Once the connection is established, an icon representing the connection appears on your system tray.

While your session is running, you can view the connection status via clicking the Dial-Up icon in the system tray. The following window will pop up (See figure 47):

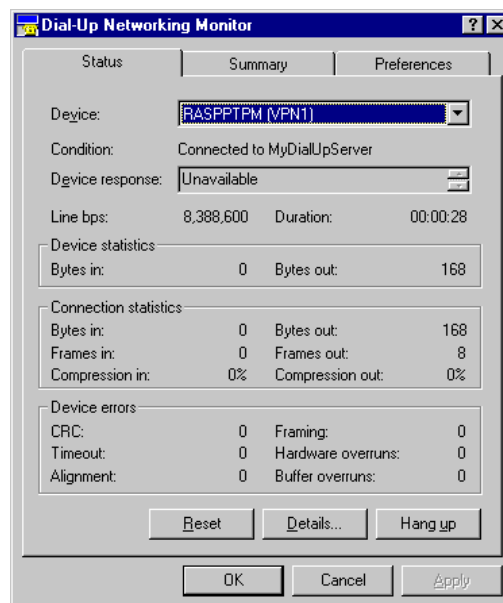



Figure 47 'Dial-Up Networking Monitor' Window

**Note** Steps 4 and 5 need only be executed the first time the tunnel is set up. After the tunnel is set up, the 'Connecting to' window will directly appear on your desktop.

## 7.8.4 Tearing down a Tunnel Session

To uninstall a tunnel, proceed as follows :

1. Click the appropriate connection icon on your system tray to pop up the '*Dial-Up Networking Monitor*' window (See figure 47).
2. Click .

The network connection to your ISP no longer exists.

## 8 ATM Forum-25.6 Interface Configuration

If your terminal equipment is connected to the ATMF interface, ATM service is delivered into the PC. This implies that ATM cells sourced by PC applications are captured by the ATMF-25.6 interface and cross-connected, or switched to the ADSL line.

The **Speed Touch Home**'s ATM Forum 25.6 interface is completely transparent to upper protocol layers. The packet services depend solely on your PC-NIC's capabilities. Consult your PC-NIC documentation for information on service configuration.

The VPIs/VCIs of the virtual channels, default cross-connected between the ADSL Line and the ATMF-25 interface, are listed in Appendix C.

Connectivity is only possible if your PC-NIC is sending and receiving ATM cells on one (or more) of these virtual channels.



## 9 Configuring IP

From the previous chapters, it is clear that the TCP/IP protocol suite plays a crucial role. Not only for the various networking capabilities of the **Speed Touch Home**, but also for its internal configuration.

Due to the flexibility and the multitude of TCP/IP features, numerous configurations are possible.

The purpose of this chapter is to highlight some general IP parameters and to highlight a few possible IP configurations for the below purposes:

- ▶ Internet access via your ISP or corporate network;
- ▶ Private LAN-to-LAN interconnections over the ADSL/ATM network;
- ▶ Local IP connectivity towards other PCs on your LAN.

This is covered in the following sections:

- ▶ General IP Information
- ▶ The Packet Services and IP
- ▶ Your **STHome** and IP
- ▶ Your PC(s) or LAN and IP

## 9.1 General IP Information

### 9.1.1 IP Addresses and Subnet Masks

An IP address is a 32-bit number that uniquely identifies a computer on your network or the Internet. This number is commonly represented in “dotted quad” format. Each octet (8 bits) is represented as a decimal number. Dots are used as octet separators (e.g. 10.0.0.138).

Historically, an IP address consists of two parts: a network part and a host part. The network part identifies the network on which a host resides. The host part identifies a particular host on a given network. The dividing line between the network part and the host part can be derived from the Netmask or Subnet Mask.

The 1 bits in the Subnet Mask represent the contiguous leading bits of the IP address that has network significance.

For example, an IP address is 172.16.0.2 and the Subnet Mask is 255.255.255.0.

The binary notation of the IP address equals:  
10101100.00010000.00000000.00000010.

The dotted quad notation of the Subnet Mask equals:  
11111111.11111111.11111111.00000000.

Since all the 1-bits of the Subnet Mask have network significance, the network part of the IP address would be:

```

      10101100.00010000.00000000.00000010
AND  11111111.11111111.11111111.00000000
      10101100.00010000.00000000

```

```

or thus   172.      16.      0
The subnet part is the remaining part  00000010
or thus                                     2.

```

A more up to date representation of Subnet Masks do not refer to a Subnet Mask, but to a prefix length. The prefix number equals the number of ones in the Subnet Mask. For example the Subnet Mask 255.255.255.0 could also be written as the prefix /24.

For example:

- ▶ IP Address 10.0.0.138
- ▶ Net Mask 255.255.255.0

With the prefix method this will be written as :

- ▶ prefix address 10.0.0.138/24

In the routing table of the **Speed Touch Home** this notation will be used.



## 9.1.2 Private vs. Public Addresses

In the examples throughout this document Private IP addresses are used for local IP configurations. Private IP addresses are defined in RFC1918 Address Allocation for Private Internets. This RFC is categorized as "Best Current Practice".

Private hosts do not require access to hosts in other enterprises or to the Internet. Therefore it is sufficient for the host to have an IP address that is unique within the enterprise but may be ambiguous between enterprises and on the Internet.

► **Private IP Address:**

In principle if an IP address is assigned to a host and the connectivity is limited to intra enterprise communication only, the IP address can be assumed to be privately held. The limitation however is that communication between enterprises and connection to the Internet itself via those private IP addressed PCs is not possible and even not allowed.

► **Public IP Address:**

Is an officially assigned IP address by an Internet Registry and is guaranteed to be **worldwide unique**. As a consequence the host to which the address is assigned has worldwide Internet connectivity.

IANA (the Internet Assigned Number Authority) defined blocks of IP addresses for private purposes:

Table 7 *IP Address Blocks used for Private Purposes Only*

From:	To:	Addressing purpose:
10.0.0.0	10.255.255.255	1 Class A network number
172.16.0.0	172.31.255.255	16 contiguous Class B network numbers
192.168.0.0	192.168.255.255	256 contiguous Class C network numbers

## 9.1.3 Choosing an IP Address

Regardless of your application, IP addresses must always be configured at both ends of the connection.

Prior to configuring an IP address, you must choose a suitable one. Below a few criteria are listed that may influence your choice.

**Public** Public IP addresses are required when accessing the Internet. Each host on the Internet must have a unique IP address. If not, IP packets cannot be routed. For end-to-end IP communication your ISP or LAN administrator will supply you with a Public IP address.

**Private** Private IP addresses are to be used for local IP communication. E.g. configuring the **Speed Touch Home** or dumping files to your local printer. For this purpose it is best to choose addresses from the private ranges declared by the Internet Assigned Number Authority (IANA). Further nor, all examples will be given with 10.x.x.x private addresses, sometimes referred to as **"Net10"** IP addresses.

**Public & Private** In most networking scenario's, *Private* and *Public* IP addresses will be in use simultaneously, e.g.:

▶ **PPP-to-PPTP Relaying**

In this configuration, one IP layer is carried into another. Otherwise stated: on your local (home) LAN the *Public* IP layer is carried inside a *Private* IP layer (a so called IP Tunnel).

**Local vs. End-to-End** In the various configurations, multiple IP addresses are in use at the same time, however their scope will differ. The Public IP addresses will run end-to-end, Private IP addresses will remain local.

**Automatic vs. Static** Both Public and Private IP addresses can either be *statically* configured, or can be distributed *automatically* (dynamically) via DHCP.

Again, for end-to-end IP communication, your ISP or LAN administrator will decide on the method. For local configuration you can choose the method yourself.

## 9.2 Packet Services and IP Addressing

### 9.2.1 Bridging and IP Addresses

Basically, Bridging does not require any IP address at all: neither in your PC(s), nor in your **Speed Touch Home**. However, in case of Internet access or private IP networking, your PC(s) must be configured for TCP/IP.

If your ISP or corporate administrator:

- ▶ Provides you with an IP address, see section to configure it on your PC;
- ▶ Requires you to use DHCP, see section to configure DHCP on your PC.

Alternatively, a second but *Private* IP address can be manually configured for local IP communication. It depends on your OS whether it supports this combination.

e.g. Microsoft supports Logical Multihoming via Registry keys.



---

#### Bridging & DHCP

For the **STHome**, DHCP is by default **disabled**. This is to avoid conflicts with the DHCP Server of your ISP.

Setting the DHCP modes of your **STHome** is described in section 9.3.2.

---

## 9.2.2 PPP-to-PPTP Relaying and IP Addresses

Prior to using PPTP, local IP addresses must be configured. The use of these IP addresses is limited to the local network.

**Private IP** Consequently you are free to choose any IP address as long as it is compatible with your local network and is unique in that same network.

As the **Speed Touch Home** has a preconfigured “Net10” address (10.0.0.138), you should configure IP addresses like 10.0.0.1, 10.0.0.2, ... on your PCs.

These addresses can be configured automatically via **STHome’s** DHCP server ability. For more information, see section 9.3.2.

**Public IP** For PPP/PPTP, a second set of (Public) IP addresses having end-to-end scope, will automatically be negotiated via the PPP protocol.

Both Public and Private IP addresses are active simultaneously because of PPTP tunneling. In fact two “nested” IP layers exist: the Public IP layer which is carried within the Private IP layer on the local LAN.

**PPP IP Address Negotiation** By default the Microsoft PPP/PPTP application automatically negotiates the Public IP address. This can be checked by following procedure:


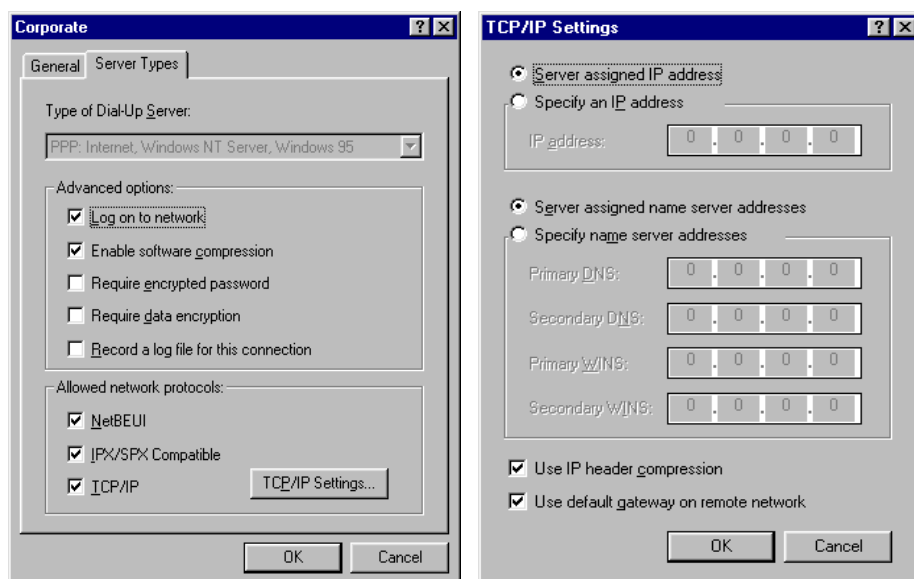
1. Right-click the appropriate  and select ‘Properties’ from the selection menu (See figure 48).



Figure 48 Selection menu

As a result the ‘Corporate’ window pops up. There you select the ‘Server Types’ tab to view the TCP/IP parameter information (See figure 49a).



(a) 'Corporate' Server types      (b) 'Corporate' TCP/IP Settings

Figure 49      (a) 'Corporate' Server Types Properties Window  
(b) Corporate 'TCP/IP Settings' Window

Here, select **TCP/IP Settings...**.

- The 'TCP/IP Settings' window appears (See figure 49b), showing you that the PPP/PPTP application for 'Corporate' is set for using a **Server assigned IP address**.

In case your ISP or corporate administrator instructs you to use a Static IP address for PPP/PPTP, you tick 'Specify an IP Address' and supply one in the input field (See figure 50):

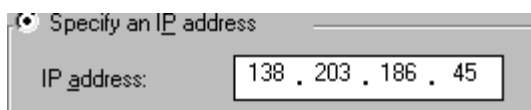


Figure 50      'Specify an IP Address box' in Corporate's 'TCP/IP Settings' Window

## 9.3 Your Speed Touch Home and IP Addressing

### 9.3.1 Static IP Configuration

The **Speed Touch Home** comes with a preconfigured “**Net10**” IP address i.e. 10.0.0.138.

To configure a “User Defined” IP address, browse to the **STHome** local web pages and configure an “Extra” IP address on the ‘Initial Setup’ web page as described in section 12.1.3

#### Sample Configurations ▶ Single PC Configuration

In the below drawing, a simple configuration is given: one PC attached to the **Speed Touch Home**. It is most applicable to Bridging and PPP-to-PPTP Relaying.

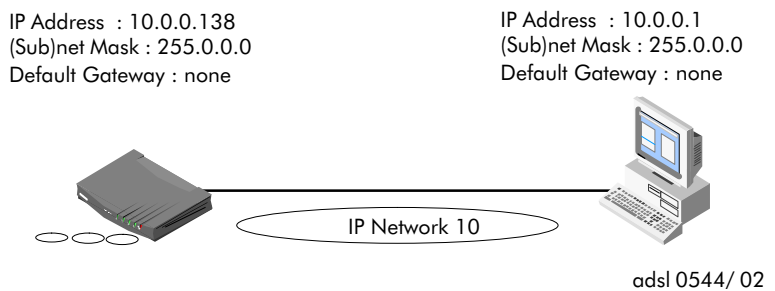


Figure 51 A Single PC connected to your **STHome**.

#### ▶ Small Work Group Configuration

You can setup a local workgroup around the **STHome** as shown in the below drawing. Notice that the default gateways in the PCs point to the **STHome**.

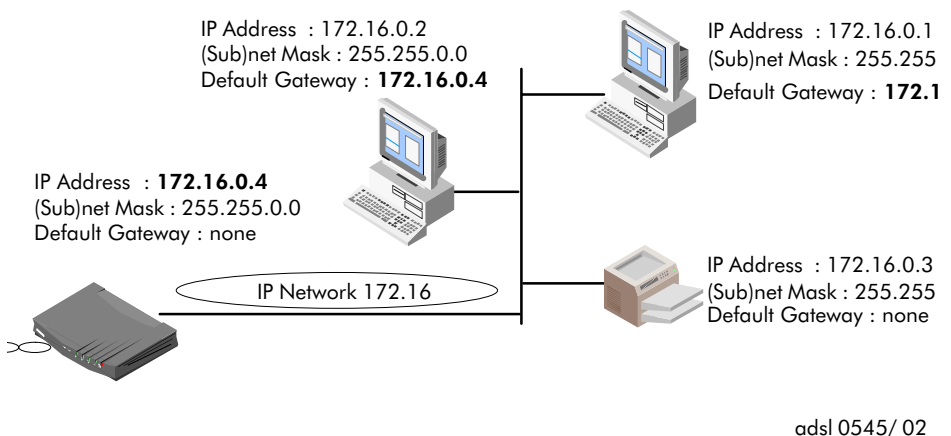


Figure 52 A work group connected to your **STHome**.

## 9.3.2 Automatic IP Configuration: DHCP

DHCP is short for **Dynamic Host Configuration Protocol** and is part of the TCP/IP protocol suite. It provides a framework for passing configuration information to hosts on a TCP/IP network.

The intention is for individual hosts to extract their IP parameters from a central server, rather than configuring them manually.

A computer supporting DHCP, requires the following IP parameters:

- ▶ its own IP Address and Subnet Mask;
- ▶ the IP Address of the Default Gateway;
- ▶ the IP Addresses of the Primary and Secondary DNS Servers.

DHCP operates in Client/Server mode: a computer in its booting stage acts as a DHCP Client and emits DHCP requests. These are intercepted by a DHCP Server on the same network which responds with DHCP replies. This task can also be performed by the **Speed Touch Home**.

Depending on the size and complexity of your network, a few DHCP configurations can be envisaged:

- ▶ Simple IP network: no DHCP, i.e. see static configuration earlier in this chapter;
- ▶ Medium sized network: **STHome** acting as DHCP Server;
- ▶ Advanced local network: **STHome** acting as DHCP Client.

## Configuring the STHome for Auto DHCP

One of the **Speed Touch Home** features is that it can automatically revert from DHCP Client to DHCP Server. At boot time the **STHome** probes for 20 seconds to check whether a DHCP Server is available on the network. If so, it will act as a DHCP Client. If no response is received within the specified time limit, the **STHome** becomes a DHCP Server.

To setup the **STHome** for Auto DHCP, browse to the **STHome** local

web pages and tick  Auto DHCP . For Client timeout (seconds) :

more information, refer to 12.1.9.



### Automatic IP Addressing

Operating systems supporting Automatic IP Addressing, might initially not establish IP connectivity with the **STHome**. This is because the IP Address they assimilated is not within the **STHome** range. **To prevent this problem, please turn on your PC(s) after the STHome has come online.**

Indeed, when the **STHome** is in Auto DHCP (default setting), it will first operate as a DHCP Client. After 20 seconds it switches to DHCP Server mode, but this might be too late as some clients will already selected an automatic IP Address.

Automatic IP Addressing is a feature allowing DHCP Clients to assign themselves an IP Address. This happens when there is no DHCP Server on the network or when the server is temporarily down. After automatic assignment, the DHCP Client will issue DHCP requests at regular instances. If the DHCP Server is back online, the client will now lease an address from the server.



### Configuring the STHome as DHCP Client

For advanced networks, the role of DHCP Server might be performed by an IP node other than the **Speed Touch Home** on the local LAN. Typically such functions are attributed to home gateways: computers having better networking capabilities than the other hosts on the home LAN.

All local PCs remain configured as DHCP Clients, including the **STHome**.

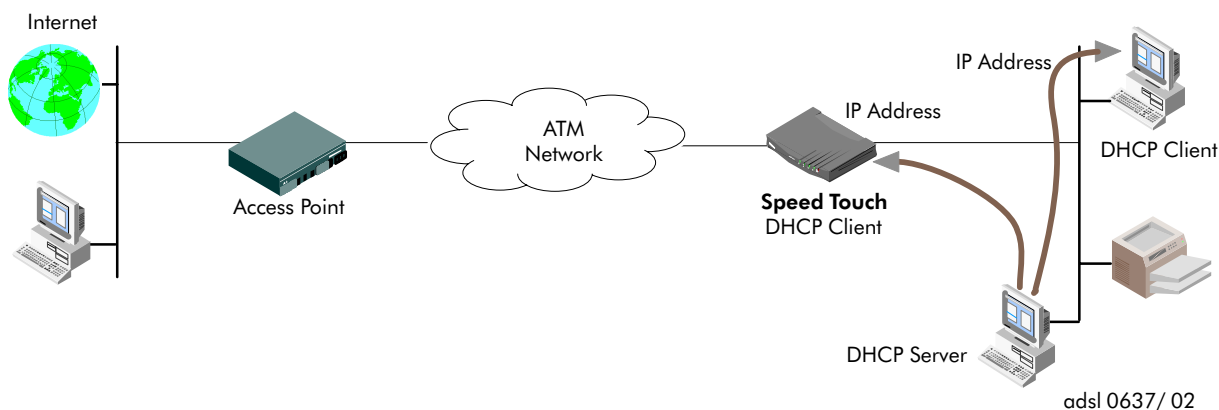


Figure 53 The **STHome** as DHCP Client

To setup the **STHome** as DHCP Client, tick  DHCP client . For more information, refer to section 12.1.9.

### Configuring the STHome as DHCP Server

For small home LANs it might be worthwhile to configure all of your PCs as DHCP Clients, and the **Speed Touch Home** as the DHCP Server. In this configuration each time a computer starts, it will obtain its IP configuration from the **STHome**.

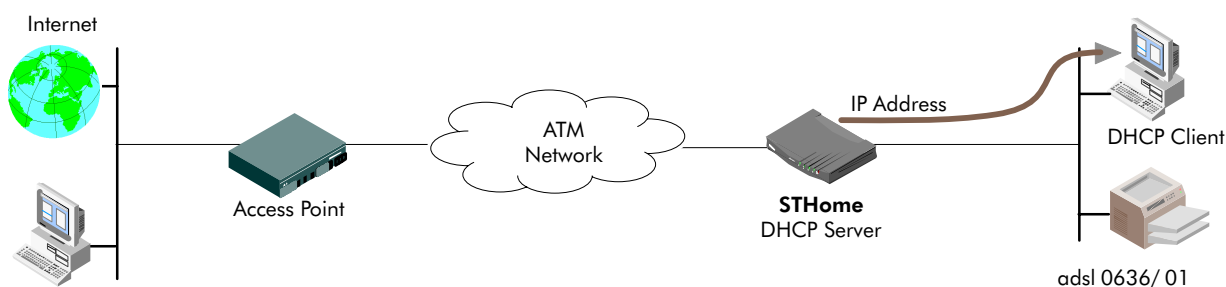


Figure 54 The **STHome** as DHCP Server

To setup the **STHome** as DHCP Server, tick  DHCP server . For more information, refer to section 12.1.9.

**Note** This setting might cause side effects with Bridging (See section 9.2.1).

**Configuring your IP network without DHCP**

To setup the **Speed Touch Home** without DHCP, tick  No DHCP . For more information, refer to section 12.1.9.

**Note** This configuration might be necessary for Bridging configurations.




**Default STHome DHCP Configuration**

For the **STHome**, DHCP is by default **disabled**. This is to avoid conflicts with the DHCP Server of your ISP.

## 9.4 Your PC(s) or LAN and IP Addressing

### 9.4.1 Viewing the IP Address Setting of your PC

To check the IP settings of your PC(s), proceed as follows:

1. Double-click  on your desktop.  
My Computer
2. Double-click  to open the 'Control Panel' folder.  
Control Panel
3. In this folder, double-click  .  
Network
4. The 'Network' window appears (See figure 55).

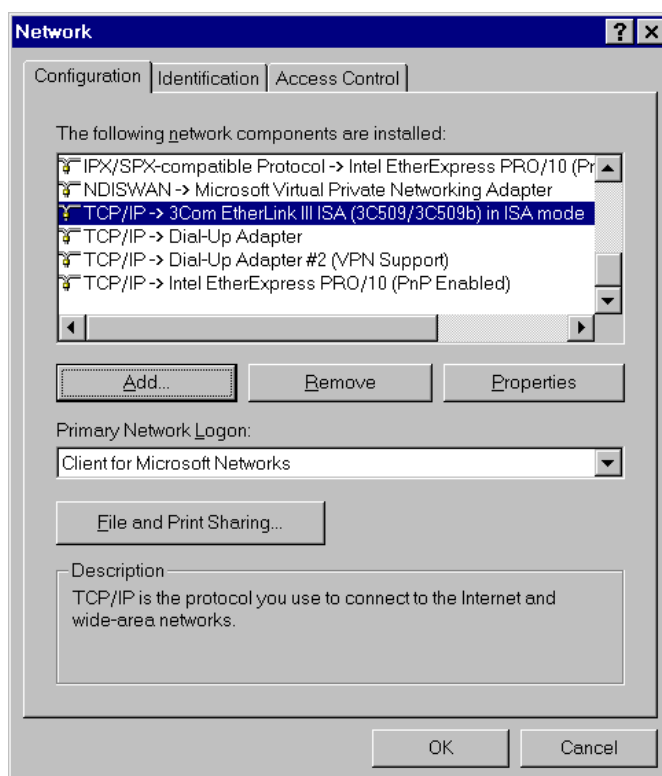
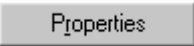


Figure 55 Network Window

Select the 'Configuration' tab.

5. Select 'TCP/IP Protocol -> <network adapter>' and press the  button.

**Note** <network adapter> is a placeholder for the name of the type of physical network adapter installed in your PC.

6. The 'TCP/IP Properties' window appears (See figure 56) where you select the 'IP Address' tab.

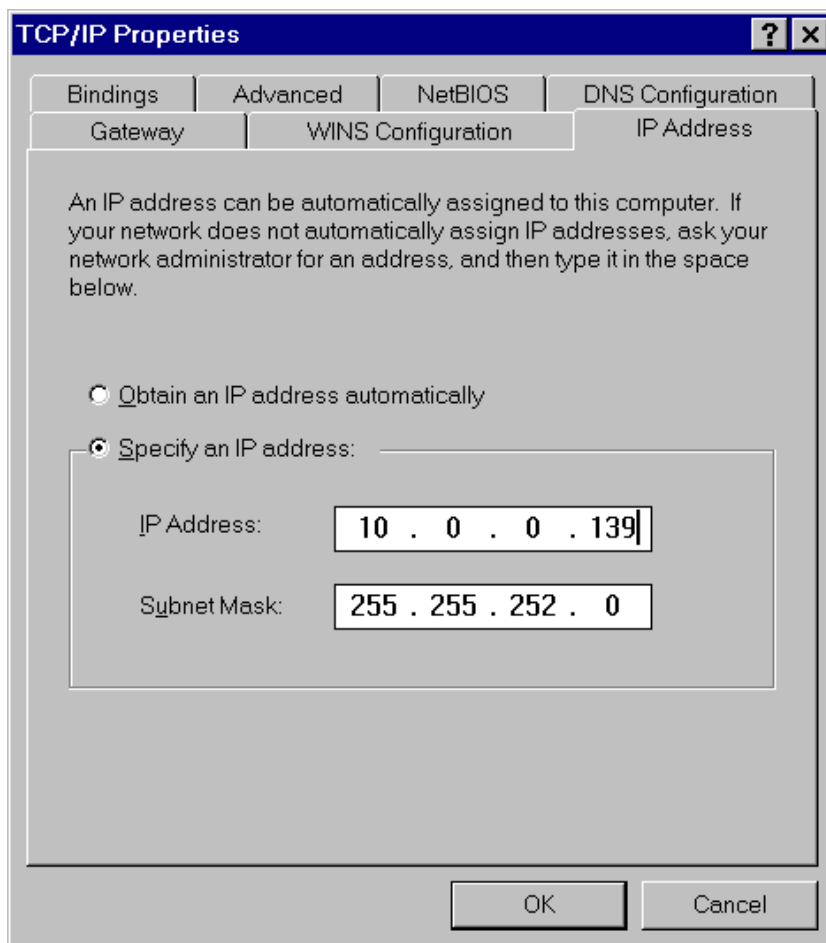


Figure 56 TCP/IP Properties Window

In this 'TCP/IP Properties' window, you can view the PC's IP setting. In the above example (See figure 56) the PC is configured with a Static Private IP Address.

## 9.4.2 Configuring a Static IP Address on your PC

Corporate LANs mostly use Static IP Addresses, so consult your LAN administrator to obtain an IP Address and a Subnet Mask.

This section describes how you can configure the IP Address of your PC. The following instructions assume a Windows 95/98 environment:

1. Go to the '*TCP/IP Properties*' window as described in section 9.4.1.

2. Tick  **Specify an IP address** and type your IP Address in the '*IP Address*:' field and your Subnet Mask in the '*Subnet Mask*' field.

Click  to save the changes and exit the window.

3. You are now back in the Network window.

Click .

4. Some configuration files will be copied on your hard disk.

A '*Setting Changes*' message will ask if you wish to restart your computer. Answer .

5. After reboot your PC will come online with the static IP Address you configured.

## 9.4.3 Configuring a Dynamic IP Address on your PC

If your ISP or Corporate Network supports DHCP, this allows your PC to acquire initialization parameters (IP addresses, masks, etc.) automatically. These initialization parameters are valid for a limited period (usually a few hours). When they expire, new parameters are obtained automatically. Therefore your PC must be properly configured to use BOOTP/DHCP.

The following instructions to enable DHCP assume a Microsoft Windows 95 or Windows 98 environment :

1. Go to the '*TCP/IP Properties*' window as described in section 9.4.1.

2. Tick  **Obtain an IP address automatically** to specify that the PC must obtain his IP Address from a DHCP server.

Click .

3. You are now back in the Network window.

Click  .

4. Some configuration files will be copied on your hard disk.

A 'Setting Changes' message will ask if you wish to restart your computer. Answer  .

After the PC has finished restarting, it will acquire its own IP address from the DHCP server using BOOTP/DHCP.

## 10 DNS

IP addresses are fundamental to the operation of the Internet. They not only uniquely identify Internet nodes but also allow IP routers to forward datagrams to their destinations.

IP addresses, being 32-bit numbers, are ideally suited for computers but are far from usable to humans.

Therefore the Internet Engineering Steering Group (IESG) designed a system called Domain Name System (DNS). Basically DNS is a hierarchical system of servers resolving computer names to IP addresses.

This chapter describes **Speed Touch Home**'s DNS abilities:

- ▶ Some General Information on DNS
- ▶ Configuring your LAN for DNS
- ▶ Non-local DNS

## 10.1 Using DNS

Most computer users confront with DNS without actually realizing it. e.g. When you type *www.alcatel.com*, into the URL field of the Web browser.

Your browser must resolve *www.alcatel.com* into an Alcatel IP address in order for the HTTP request to end up in the Alcatel WWW server.

Most of the time your ISP or corporate network performs this DNS resolving. There are however situations where local DNS resolving and DNS proxying is required.

The **Speed Touch Home** can be configured to perform this task.

The same mechanism for resolving computer names to IP addresses when browsing the Internet, applies to your local network. Instead of using the IP addresses for a local IP node e.g. 10.0.0.138 for the **STHome**, give your nodes names and let a local DNS server do the resolving.



## 10.2 Configuring your Local Network for DNS - Automatic IP Configuration

**Speed Touch Home**'s DNS server is active by default, so nothing has to be configured.

In the DNS scenario, it is assumed that the DHCP is used for IP parameter distribution.

During PC start-up, TCP/IP launches a DHCP request on the local network. One of the fields in the DHCP request contains the computer name e.g. *YourPC*.

The **STHome** reacts by intercepting this request and returns a DHCP reply containing:

- ▶ The IP address for his computer, e.g. 10.0.0.1
- ▶ The local domain name, e.g. *local.net* (default)
- ▶ The IP address of the local DNS server, e.g. 10.0.0.138 being the **STHome** (default)

A second PC, named *MyPC*, is turned on and is configured via a DHCP as below:

- ▶ The IP address for his computer, e.g. 10.0.0.2
- ▶ The local domain name, i.e. *local.net*
- ▶ The IP address of the local DNS server, i.e. 10.0.0.138

For example, it is now possible to ping both PCs by referring to their computer name instead of their IP addresses.

The mechanism as follows:

1. Issue a *ping YourPC* on *MyPC*.
2. Via this command, *MyPC* launches a DNS request: essentially asking: "What is the IP address of *YourPC* ?"
3. As the **STHome** is the DNS server it will respond with the appropriate IP address being 10.0.0.1.
4. The ping utility in *MyPC* will now submit the ping to 10.0.0.1 which may eventually reply.

## 10.3 Non-local DNS

The **STHome** resolves names within the local domain i.e. *local.net*. All other domain names, e.g. *Alcatel.com* cannot be resolved and are forwarded over the appropriate link on the ADSL line.



## 11 Lost Speed Touch

Non accessibility to your **Speed Touch Home** may occur if wrongly configured or simply by forgetting the preconfigured IP address.

Due to the flexible nature of the **STHome**, you may end up in a situation where restoring all of the original defaults is the only solution.

The **STHome** has tools to cope with these situations:

**Reset the IP address** To reset the IP address, without involving other configurational settings:

- ▶ *Ping-of-Life*

**Original Defaults** To perform a reset to the original manufacturing defaults, including the IP address:

- ▶ *Ping-to-Defaults*
- ▶ Push Button

All methods are described in the following sections.

## 11.1 Resetting Speed Touch Home's IP Address

### 11.1.1 Ping-of-Life

The *Ping-of-Life* is a method to reset the IP address of the **Speed Touch Home** without changing other settings.

The principle is fairly simple, a special ping packet will deliver an IP address to your **STHome**.

The steps to be performed are:

- ▶ Pre-configure the intended IP address and a special Medium Access Control (MAC) group address in the ARP cache of one of your PCs;
- ▶ Turn of the **STHome**, turn it on again and allow the self test to end (takes about 30 seconds). Now ping this IP address within 60 seconds;
- ▶ If everything goes well, your **STHome** has assimilated this IP address.

**Note** Most TCP/IP packages support the *ARP* and *PING* command. The *Ping-of-Life* can be executed from any PC on your local network.



---

#### IP Addresses and Subnet Masks

Make sure that the intended **STHome** IP address and your PC share the same IP (sub)network.

If not, the ping will be submitted with the MAC address of the default router instead of the special MAC group address.

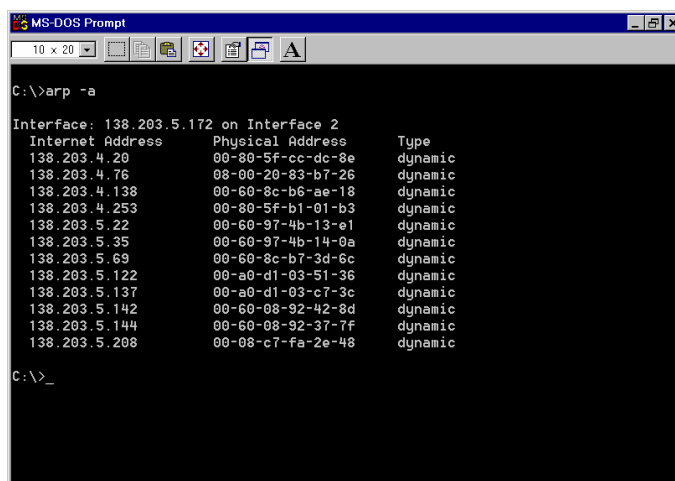
---

The procedure for Windows 98 is described below. Small differences may occur for other platforms.

1. Open the DOS box from the Windows 98 taskbar.
2. In DOS, execute command:

```
arp -a
```

The result will be as shown in figure 57.



```

MS-DOS Prompt
10 x 20
C:\>arp -a

Interface: 138.203.5.172 on Interface 2
Internet Address      Physical Address      Type
138.203.4.20          00-80-5f-cc-dc-8e     dynamic
138.203.4.76          08-00-20-83-b7-26     dynamic
138.203.4.138         00-60-8c-b6-ae-18     dynamic
138.203.4.253         00-80-5f-b1-01-b3     dynamic
138.203.5.22          00-60-97-4b-13-e1     dynamic
138.203.5.35          00-60-97-4b-14-0a     dynamic
138.203.5.69          00-60-8c-b7-3d-6c     dynamic
138.203.5.122         00-a0-d1-03-51-36     dynamic
138.203.5.137         00-a0-d1-03-c7-3c     dynamic
138.203.5.142         00-60-08-92-42-8d     dynamic
138.203.5.144         00-60-08-92-37-7f     dynamic
138.203.5.208         00-08-c7-fa-2e-48     dynamic

C:\>_

```

Figure 57 'Arp -a' Command

3. Now add a static entry to the PC's ARP cache, according to the syntax below:

```
arp -s <STHome IP address> 01-90-D0-80-01-01
```

<STHome IP address> is a placeholder for the IP address to be assigned to the **Speed Touch Home**.

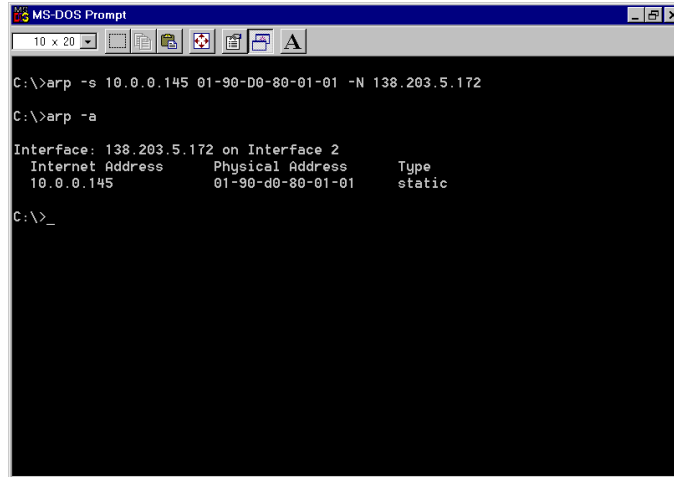
In the subsequent example, 10.0.0.145 will be used.

The MAC address: 01-90-D0-80-01-01 is a special MAC group address from Alcatel on which the **STHome** will react.

For the example the command is thus:

```
arp -s 10.0.0.145 01-90-D0-80-01-01
```

4. You can verify if this step was successful by executing the **arp -a** command a second time (See figure 58).



```
MS-DOS Prompt
10 x 20
C:\>arp -s 10.0.0.145 01-90-D0-80-01-01 -N 138.203.5.172
C:\>arp -a
Interface: 138.203.5.172 on Interface 2
Internet Address      Physical Address      Type
10.0.0.145           01-90-d0-80-01-01    static
C:\>_
```

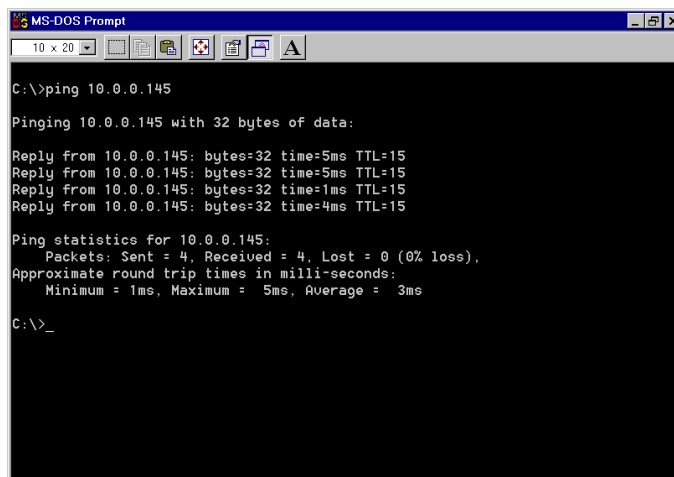
Figure 58 'Arp -a' Command

5. Turn off the **Speed Touch Home**.
6. Turn on again and wait for 30 seconds to allow the selftest to end.
7. Ping the IP address you just entered in the ARP cache within 60 seconds (see figure 59):

**ping <STHome IP address>**

For this example the command is:

**ping 10.0.0.145**



```
MS-DOS Prompt
10 x 20
C:\>ping 10.0.0.145
Pinging 10.0.0.145 with 32 bytes of data:
Reply from 10.0.0.145: bytes=32 time=5ms TTL=15
Reply from 10.0.0.145: bytes=32 time=5ms TTL=15
Reply from 10.0.0.145: bytes=32 time=1ms TTL=15
Reply from 10.0.0.145: bytes=32 time=4ms TTL=15
Ping statistics for 10.0.0.145:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 5ms, Average = 3ms
C:\>_
```

Figure 59 Ping 10.0.0.145

8. If successful, the **STHome** has configured this IP address and will reply to the ping.
9. You may clear the entry in the ARP cache by issuing the following command:

```
arp -d <STHome IP address>
```

Leaving the entry in the ARP cache does not harm the general operation.

---



---

**TIP**


---



---

**'Ping -t' command**


---

You can avoid waiting 30 and then 60 seconds by proceeding as follows:

1. If step 5. of the previous procedure is executed, continue as below:
  2. Ping the IP address with the command:
 

```
ping -t <STHome IP address>.
```
  6. Turn on the **STHome**.
  7. After the selftest, the **STHome** will reply to the ping.
  8. Terminate the continuous ping by pressing CTRL-C.
- 

**Note** If your PC is equipped with multiple PC-NICs, make sure that the procedure is applied to the one connected to the **STHome**. Therefore modify the arp-syntax as follows:

```
arp -<a, s, d> <STHome IP address>
-N <interface IP address>
```

In this syntax, <Interface IP address> identifies the particular PC-NIC.

## 11.2 Reset to Original Defaults

The following procedures will reset **all** of the **Speed Touch Home**'s configurable values back to their original defaults, including the IP address.



---

### Reset to Defaults vs. the STHome IP Address

A reset to original defaults, also implies the **STHome**'s IP address is reset to 10.0.0.138. It is possible that your **STHome** needs another IP address according your LAN configuration.

Therefore, you may have to execute a *Ping-of-Life* after performing a reset to original defaults

---



## 11.2.1 Ping-to-Defaults

The first method to reset all settings to the original defaults is the *Ping-to-Defaults*.

The technique is identical to that used for the *Ping-of-Life*, except that another MAC address is used, i.e. **01-90-D0-80-01-FF**.



### Ping-to-Defaults vs. Internal Settings

Attention is required when performing a *Ping-to-Defaults* as it will overwrite all previous settings and changes them to the original default values.

The following steps will cause the **SHome** to revert to the default values:

1. Add the following to the ARP cache:

```
arp -a <IP address within subnet> 01-90-D0-80-01-FF
```

This **<IP address within subnet>** can be any address within your subnet as long as it is not used by any other member of your local network.



### IP Addresses and Subnet Masks

Make sure that the intended **SHome** IP address and your PC share the same IP (sub)network.

If not, the ping will be submitted with the MAC address of the default router, instead of the special MAC Group address.

2. Turn of the **SHome** and turn it on again.
3. The **SHome** performs a self test. Wait for the self test to end.
4. Ping the IP address you have chosen in step 1.:  

```
ping <IP address within subnet>
```

5. You **must** clear the entry in the ARP cache by issuing the following command :

```
arp -d <IP address within subnet>
```

**Note** The IP address used to perform a Ping-to-Defaults is not assimilated by your **Speed Touch Home**. The **STHome** will restart with the original defaults, including the default IP address 10.0.0.38.

6. If needed, reconfigure the **STHome**'s IP address.

## 11.2.2 Push Button

The small push button entitled "Defaults" is located on the rear panel of the **STHome**.

The procedure to revert **all** of the **STHome** configurable values back to their original defaults is as follows:



---

### Push Button vs. Internal Settings

Attention is required when using the push button as it will overwrite all previous settings and changes them to the original values.

---

1. Use a pencil to press the push button at the back of the **STHome**;
2. Release the button. Via the flashing front panel LEDs, you will notice that the **STHome** will reboot.
3. Finally, it will come online with the original defaults.
4. If needed, reconfigure the **STHome**'s IP address.

## 12 Speed Touch Home Local Configuration

The **Speed Touch Home** can be configured in two different ways:

- ▶ Using a Web Browser
- ▶ Through a Command Line Interface via Telnet

## 12.1 Web Interface

The **Speed Touch Home** comes with integrated local configuration capabilities. This feature is based on the "HTTP Server/Web browser Concept". It allows configuration of your **STHome** via a Web browser from any local PC via the Ethernet interface.

### 12.1.1 Configuring your Web Browser

To configure your **STHome**, make sure your Web browser is **not using a proxy server**. The procedure to disable proxy settings depends on the Web browser that you are using.

- Netscape Navigator**
1. Select '*Edit*' from the toolbar.
  2. Select '*Preferences*'.
  3. In the '*Category*' box select *Advanced, Proxies*.
  4. Tick the option button '*Direct Connection to the Internet*'.

- Microsoft Explorer**
1. Right-click the '*Internet*' icon.
  2. From the pop-up menu select '*Properties*'.
  3. Clear the '*Use Proxy Server*' check box.

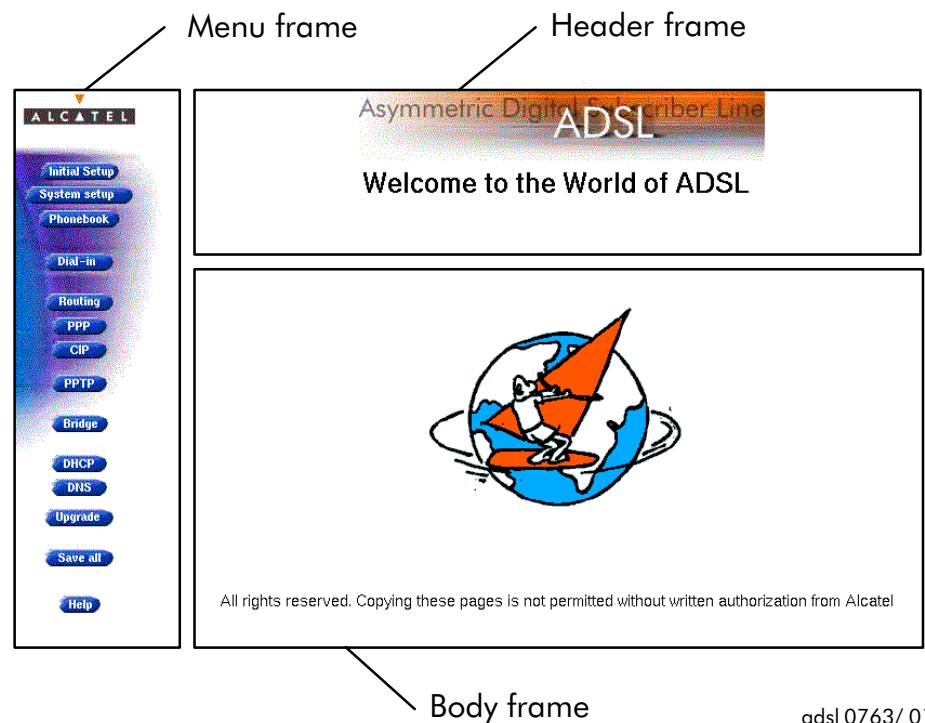
After configuring your **STHome**, do not forget to reset your browser to its original settings !

**Note** Since several versions of these Web browsers exist, the proxy settings might be located in other menus than the ones described above. Consult the documentation of your browser for more information on proxy settings.

## 12.1.2 Speed Touch Home's Web Pages Principles

To access the **Speed Touch Home's** web pages proceed as follows:

1. Start the Web browser on your PC or workstation.
2. Contact the **STHome** by entering its IP address or DNS hostname in the URL field.  
The default **STHome** address is 10.0.0.138.  
Its default hostname is "SpeedTouch".
3. The 'Welcome to the World of ADSL' web page appears (see figure 60):



adsl 0763/ 01







Figure 60 Welcome Web Page

**Speed Touch Home's** web pages can be divided into three sections (See figure 60):

- ▶ A horizontal bar, referred to as **Menu frame** hereafter
- ▶ A vertical pane, referred to as **Header frame** hereafter
- ▶ The user field, referred to as **Body frame** hereafter

### Header Frame Buttons

The **Header frame** is present in all of the **STHome** web pages. Command buttons:

-  To let all changes made take effect. Use the  button to make the changes permanent.
-  To save changes in permanent storage.
-  To recall original default settings within the content of the topic.. Use  to make these default settings persistent again.
-  To reveal the more advanced items for a particular topic.

### Menu Frame Buttons

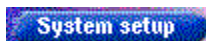
The **Menu frame** is generic for all **STHome**'s web pages. Each button represents a **STHome** configuration subject.



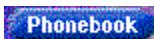
Click this button to return to the *Welcome* page.



Pops up the '*Initial Setup*' page, allowing you to configure user defined IP parameters for the **STHome**. (See section 12.1.3)



Pops up the '*System Setup*' page, allowing you to set a password for restricting access to the **STHome**. (See section 12.1.4)



Pops up the '*Phonebook*' page, allowing you to consult or store connectivity information. (See section 12.1.5)



Pops up the '*Routing*' page, allowing you to configure settings for very specific IP configurations. (See section 12.1.6)



Pops up the '*PPTP Configuration*' page, allowing you to set the PPP-to-PPTP Relaying parameters. (See section 12.1.7)



Pops up the '*Bridge Configuration*' page, allowing you to set the Bridging parameters. (See section 12.1.8)

**DHCP**

Pops up the '*DHCP Configuration*' page, allowing you to configure **STHome**'s DHCP server/client mode. (See section 12.1.9)

**DNS**

Pops up the '*DNS Configuration*' page, allowing you to configure **STHome**'s DNS server. (See section 12.1.10)

**Upgrade**

This button allows you to upgrade the **STHome** software from the local network. (See section 12.1.11)

**Save all**

To save all the changes made in permanent memory.

**Help**

To access the online help pages.

**Note**

Pressing **Dial-in**, **PPP** or **CIP** has no meaning and will result in an error message.

On most pages, **Action** fields are found.

Two actions can be performed from these fields:

- ▶ **Add** ( **Add** )
- ▶ **Delete** ( **Delete** )

## 12.1.3 Initial Setup Page

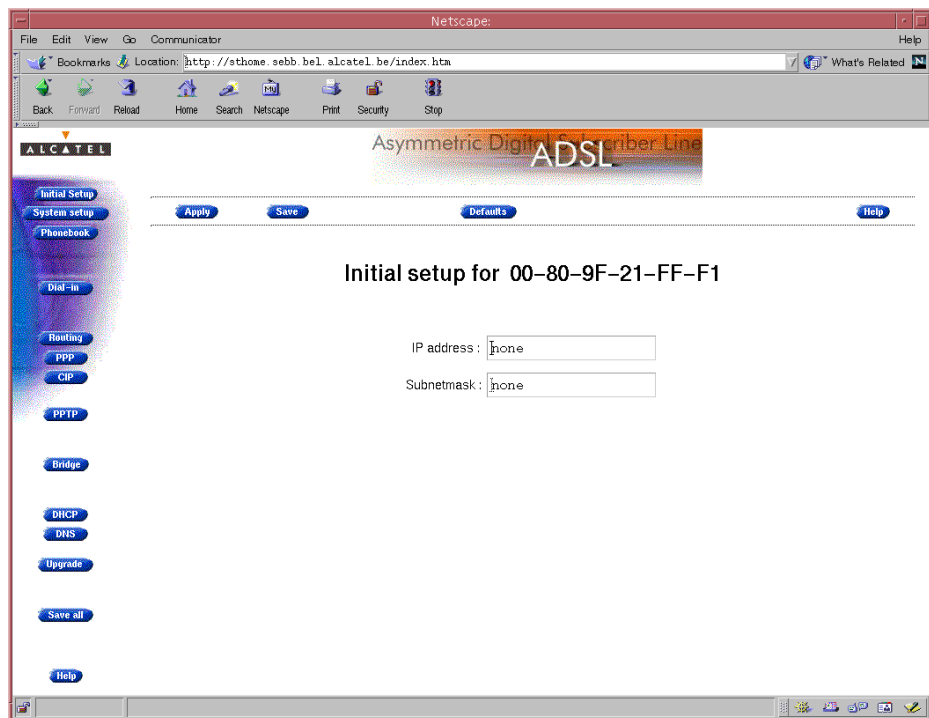


Figure 61 'Initial Setup' Web Page

The **Speed Touch Home** relies heavily on the TCP/IP Protocol for its internal operation. IP requires a minimum set of parameters for its proper operation:

- ▶ IP address
- ▶ Netmask

These parameters can be configured manually using this 'Initial Setup' page, or automatically via the 'DHCP Configuration' page (See section 12.1.9 for more).

These IP parameters are for local communication only.

As the **STHome** IP layer supports logical multi-homing (one interface supporting multiple IP addresses), the manually configured IP address and the automatically required IP address are both active at the same time.

Parameters on this page (See also figure 61):

- ▶ **Speed Touch Home MAC address**

The unique Medium Access Control (MAC) address of the **STHome** is displayed as "Initial setup for xx-xx-xx-xx-xx-xx". It is used to identify your **STHome** on the LAN.



▶ **IP Address**

In this field you can configure a user defined IP address for the **Speed Touch Home**. This IP address will show up as **“Extra”** in the **STHome** Routing Table (See section ).

▶ **Netmask / Subnet Mask**

If you want to apply subnetting in your local network, fill out a suitable Subnet Mask.

If left blank, this field represents the default Netmask associated with the particular IP address.

Below you can find the default Netmasks for the various IP address classes:

Table 8 *IP address Classes and Default Netmasks*

<b>IP Address Class</b>	<b>Default Netmask</b>	<b>Example (Private IP)</b>
A (1.x.x.x to 126.x.x.x)	255.0.0.0	10.x.x.x
B (128.0.x.x to 191.255.x.x)	255.255.0.0	172.16.x.x
C (192.0.0.x to 223.255.255.x)	255.255.255.0	192.168.x.x

## 12.1.4 The System Setup Page

The 'System Setup' page allows you to protect your **Speed Touch Home** settings by configuring a system password. Just type it into the 'Password' field. A User ID is not required.

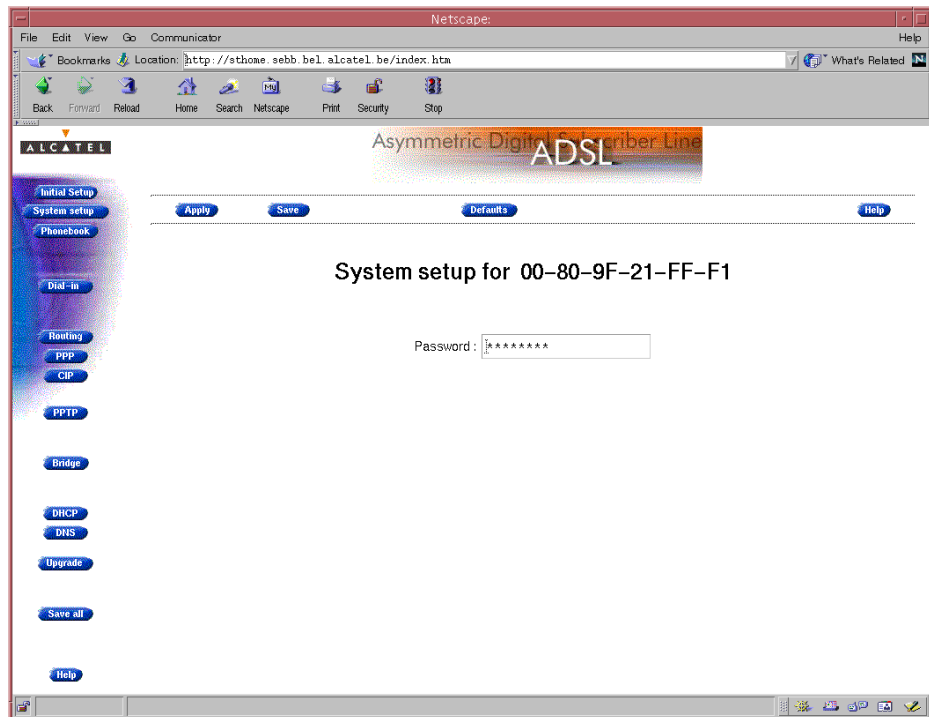


Figure 62 'System Setup' Web Page

**Note** If a password is supplied, asterisks will appear in the input field.

The next time that you wish to access a local web page, the browser will request for a password. Supply the password in the appropriate field to acquire full control over the **Speed Touch Home** again.

**Note** **Lost System Password**  
Should you lose or forget your password, a **hardware reset to defaults** must be performed. See section 11.2.2 for more.

## 12.1.5 The Phonebook Page

**Definition** The **Speed Touch Home** Phonebook is like any ordinary phonebook: “A repository for names and numbers”. In contrast to a standard phonebook though, it contains additional connectivity information.

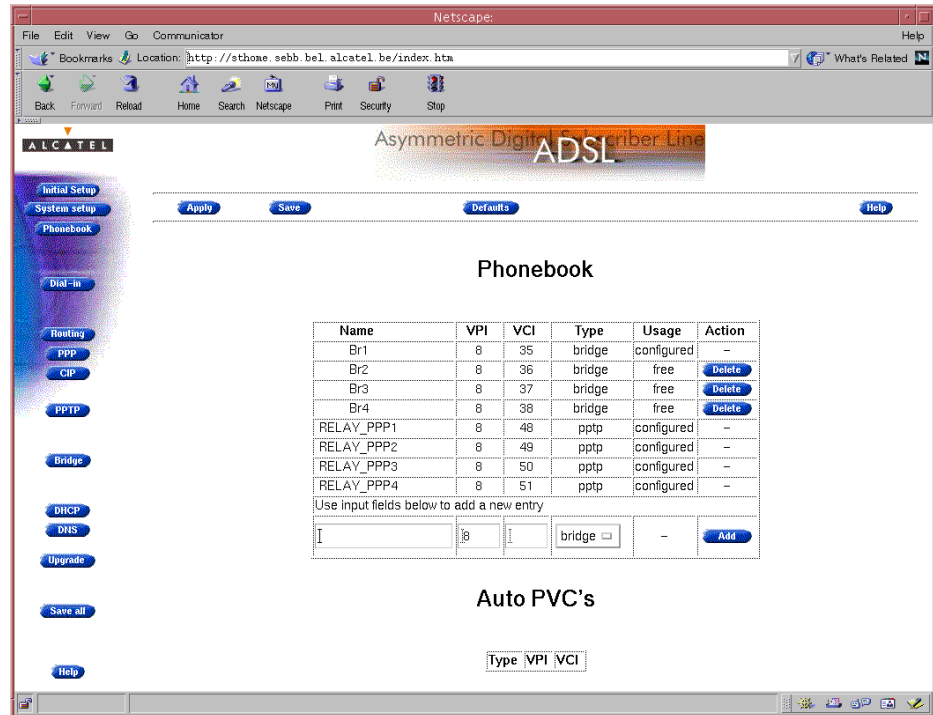


Figure 63 'Phonebook' Web Page

The **STHome** Phonebook (See figure 63) contains 5 columns:

► **Name**

This column shows the names or aliases of the virtual connections. Any name can be given to an entry.



### Phonebook Entries Name

PPP/PPTP Relaying Phonebook Entries **may not start with capital 'P' or capital 'T'**.

This has to do with routines reused from standard dial-up applications, checking for “Pulse” or “Tone” dialing in the ‘VPN Server’ input field.

▶ **VPI/VCI**

The VPI/VCI columns list the VPI/VCI values of the ATM virtual channels that are terminated on the Ethernet port.

The **Speed Touch Home** VPI values can range from 0 up to 15; its VCI values from 32 to 511.

▶ **Type**

Represents the packet service that is supported on the VC: either Bridging or PPTP.

▶ **Usage**

Is a read only column, indicating the state of the virtual channel (e.g. configured, free).

### Using the Phonebook

The main function of the **STHome** Phonebook is to present an instant overview of all possible connection entries and their status.

Entries in the Phonebook can be added or changed at will. However, connections that are in use or configured in other pages cannot be deleted.

### Configuration

As Phonebook entries do not consume **STHome**'s communications resources, you are free to store all your favoured connections for reference at a later date.

The first time the Phonebook is consulted, it will show the original defaults.

Table 9 Default Phonebook Entries

VPI/VCI	Name	Packet Service	State
8/35	Br1	Bridging	Forwarding
8/36	Br2	Bridging	Disabled
8/37	Br3	Bridging	Disabled
8/38	Br4	Bridging	Disabled
8/48	RELAY_PPP1	PPP-to-PPTP Relay	Configured
8/49	RELAY_PPP2	PPP-to-PPTP Relay	Configured
8/50	RELAY_PPP3	PPP-to-PPTP Relay	Configured
8/51	RELAY_PPP4	PPP-to-PPTP Relay	Configured

### Note

If your **STHome** is equipped with an ATM-F-25.6 interface, VPI 0 to 7 are cross-connected between the ADSL port and the ATM-F interface.

## 12.1.6 The Routing Page

Click  to activate the **Speed Touch Home's 'Routing'** page:

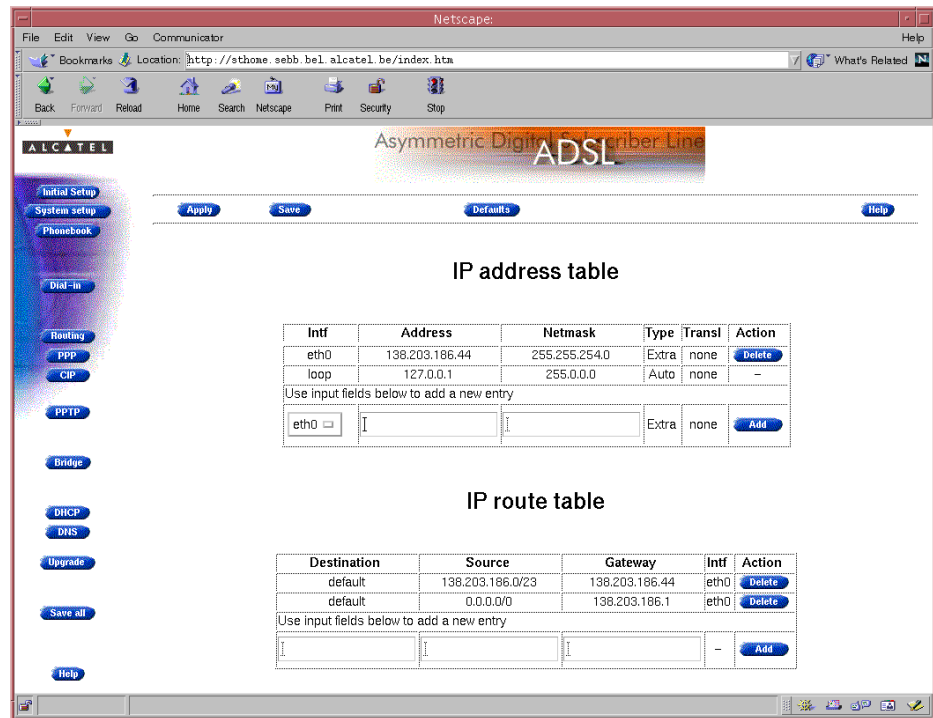


Figure 64 'Routing' Web Page

This 'Routing' web page (See figure 64) consists of two tables:

**IP Address Table** This table summarizes all IP addresses configured on any **STHome** interface .

The following fields are shown in the *IP address table*:

► **Intf**

Indicates the interface (Intf) to which the IP parameter set was assigned to.

It can take several values depending on the packet services that are active. The Ethernet (eth0) and the Loopback (loop) are always present.

► **Address**

Shows the IP address of the interface.

► **Netmask**

If available, it shows the Netmask of the interface.

▶ **Type**

Indicates the origin of the IP parameters and can take following values:

- *Automatic*  
The parameters were acquired automatically through DHCP. For more information see the 'Initial Setup' page.
- *Extra*  
Implies that an additional IP parameter set was added through the 'Initial Setup' page.

▶ **Transl**

This field has no meaning for the STHome and will always show 'None'.

To add an IP address, an interface must be selected and the address and Netmask in dotted decimal notation specified.

**Note** Deleting an IP address automatically removes all related routes in the tables.

## IP Route Table

Although the **Speed Touch Home** has no real IP Routing functionality, it has the flexibility to access machines in other networks than its own. The IP Route table recalls these specific routes (See figure 64).

Similar to the IP address table, a number of routes are preconfigured.

In special circumstances, routes can be added manually to the routing information base, using the bottom row of the table.

In order to add a route to the routing table the following specific fields must be filled out:


- ▶ **Destination IP prefix**
- ▶ **Source IP prefix**
- ▶ **Gateway IP address**
- ▶ **Intf**

**Note** An IP prefix is the combination of an IP address and (Sub)Netmask: e.g. 10.0.0.138/32. See section 9.1 for more.

The criteria for a route to be valid are:

- ▶ The destination and source entries must contain correct prefixes.
- ▶ The gateway must have a direct connection.

## 12.1.7 The PPTP Connections Page

Click  to recall the **Speed Touch Home 'PPTP Connections'** table. This table presents relevant PPP/PPTP connection information.

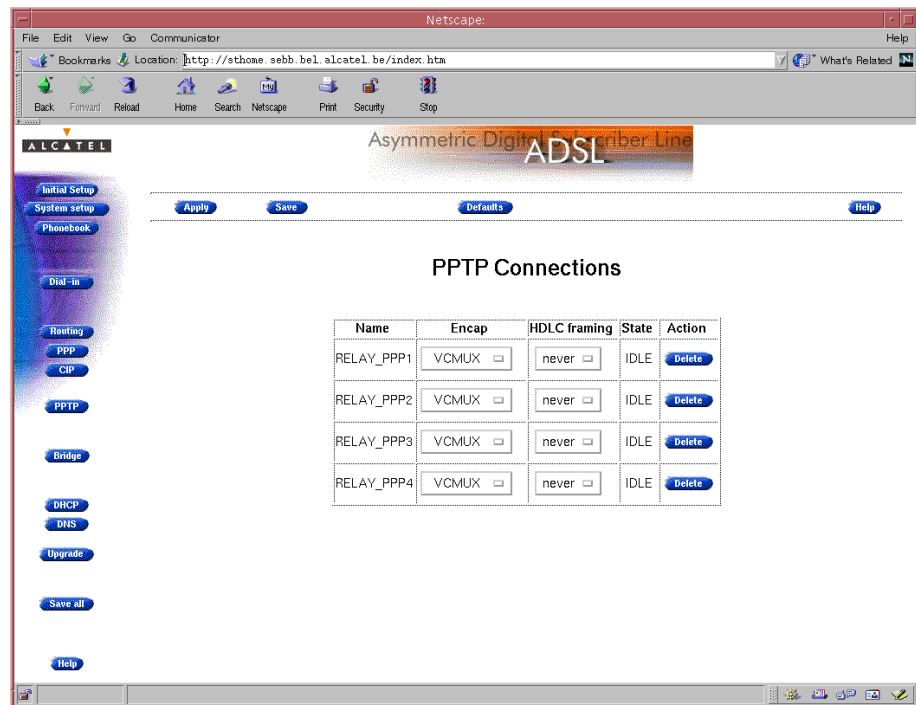


Figure 65 'PPTP Connections' Web Page

The following fields are part of the 'PPTP Connections' table:

- ▶ **Name**  
Indicates the Phonebook name of the PPTP entry.
- ▶ **Encaps**  
Encapsulation/Decapsulation refers to the encapsulation/decapsulation of PPP packets in/from ATM Adaption Layer (AAL)5/ATM.

**Note** Note: Encapsulation/Decapsulation will be further referred to as 'Encaps' for readability.

The **STHome** is compliant with Request For Comments (RFC) 2364 "PPP Over AAL5" and supports both the Logical Link Control (LLC)/Network Link Protocol Identifier (NLPID) method and the VC MultipleXing (MUX) method. By default the Encaps method is set to VC MUX.

► **High-level Data Link Control (HDLC) Framing**

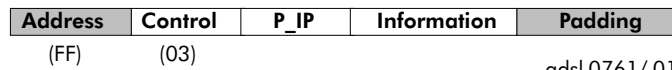
PPP packets arriving via a PPTP tunnel and PPP packets Encapsulated on ATM connections differ in format. The PPP format on AAL5 follows RFC 1661 “Point-to-Point Protocol (PPP)”, see figure 66, whereas the PPP format within a tunnel follows “Point-to-Point Tunneling Protocol (PPTP)”, see figure 67.

The latter format has two additional bytes in front of the packet (FF 03) inherited from another Encapsulation, i.e. RFC 1662 “PPP in HDLC-like framing”.



adsl 0760/ 01

Figure 66 PPP ATM Format (RFC 2364:PPP over AAL5).



adsl 0761/ 01

Figure 67 PPP/PPTP Tunnel Format.

In order to cope with these PPP packet differences, the **Speed Touch Home** adapts to the different formats on a ‘per connection’ base. Although RFC2364 is quite clear with regards to PPP format on AAL5, the **STHome** offers a configuration possibility if interoperability problems should arise.

The PPP/AAL5 format configuration options are:

- **never**  
The **STHome** will make sure that FF–03 will never be found in front of a PPP packet Encapsulated on an AAL5/ATM connection, independent of the actual format of the PPP packets in the tunnel. This is the **default** setting and follows RFC 2364.
- **always**  
The **STHome** will make sure that FF–03 is always in front of a PPP packet encapsulated on an AAL5/ATM connection. Although not supported by RFC 2364, some equipment may rely on this format.
- **keep**  
The **STHome** will not change the PPP packet arriving via a tunnel, that is, it will keep the two bytes in front of packet when it encapsulates it.



▶ **State**

The **Speed Touch Home** allows multiple users to connect to different remote organizations simultaneously. However this has a price, as every time somebody browse through the **STHome** a connection is no longer available for other users. From the moment a connection is made, the state field changes from '*IDLE*' to '*In Use (xxx.xxx.xxx.xxx)*'. The number in brackets is the IP address of the PC currently using the connection.

**Note**

This configuration possibility applies only to the **upstream** direction !

In the **downstream** direction, the **STHome** will always make sure that FF-03 is in front of the packet before it is put on the tunnel.

## 12.1.8 The Bridging Page

The **Speed Touch Home** contains an IEEE 802.1D compliant Transparent Bridge that can be reconfigured via this local web page.

In principle for Bridging nothing needs to be configured for proper operation as it is a Plug & Play device. However, should interoperability problems occur, you can easily change the default settings according to the information supplied by the remote organization (ISP or corporate network).

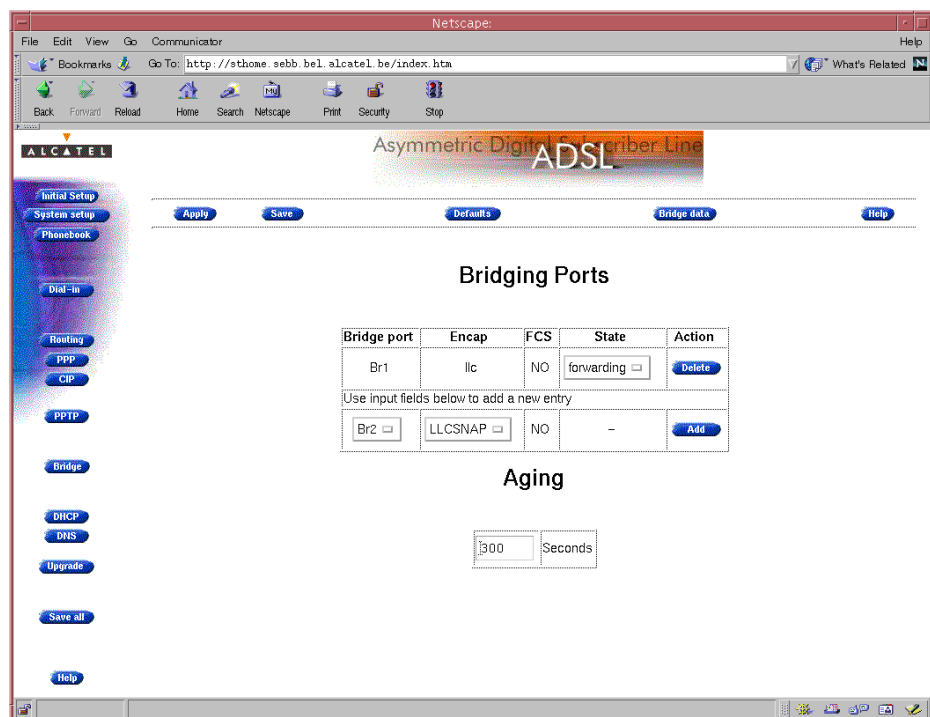


Figure 68 'Bridge Configurations' Web Page

### Bridge Configuration Page

Two tables are found on this page (See figure 68). the first is the 'Bridging Ports' table. It contains the following information:

#### ► Bridge Port

One of the characteristics of a data bridge is the number of supported Bridge ports. A Bridge port is in fact the logical equivalent of an interface. By default the **STHome** supports one local port (Ethernet interface) and four remote ports. Only the remote ports are shown in the table.

▶ **Encaps**

Encapsulation/Decapsulation refers to the Encapsulation/Decapsulation of Ethernet or IEEE 802.3 frames into/from AAL5/ATM.

The **Speed Touch Home** is compliant with RFC 1483 "Multiprotocol Encapsulation over ATM Adaptation Layer 5" and supports both the LLC/Sub–Network Access Protocol (SNAP) method and the VC MUX method for Bridged Ethernet V2.0/IEEE 802.3 PDUs.

By default the Encaps method is set to LLC/SNAP.

▶ **Frame Check Sequence (FCS)**

Is part of the RFC 1483 Encaps method and indicates whether the last four bytes of the MAC frames (Medium Access Control frames, commonly referred to as Ethernet or IEEE 802.3 frames), will be preserved or not.

By default the FCS of MAC frames to be bridged, will not be preserved and is therefore set to **NO**.

▶ **State**

This field allows you to change the state of the individual LAN ports. The following possibilities are available:

- **forwarding** :Traffic flows through this port.
- **disabled** : No traffic can flow through this port.
- **learning** : The port is in learning state.

**Note**

By default only one Bridge port (Br1) is in forwarding state. The 3 other Bridge ports (Br2, Br3 and Br4) are set 'Disabled'. The maximum number of remote bridge ports supported is four. Deleting bridge ports might be useful if you want to use more than the 8 PPP/PPTP ATM connections currently available.

The second table is in fact only a box containing the **Ageing** timer of the bridge internal database.

If the ageing time of a MAC entry has expired, this entry will be removed from the database.

The default value of 300s (5 minutes) needs only to be modified in exceptional cases. The permitted range is from 10 seconds to 12 days which is compliant with the IEEE 802.1D bridging standard.

**Bridge Data Page** Click **Bridge data** to show all of the MAC addresses in the Bridging database (See figure 69 and 70).

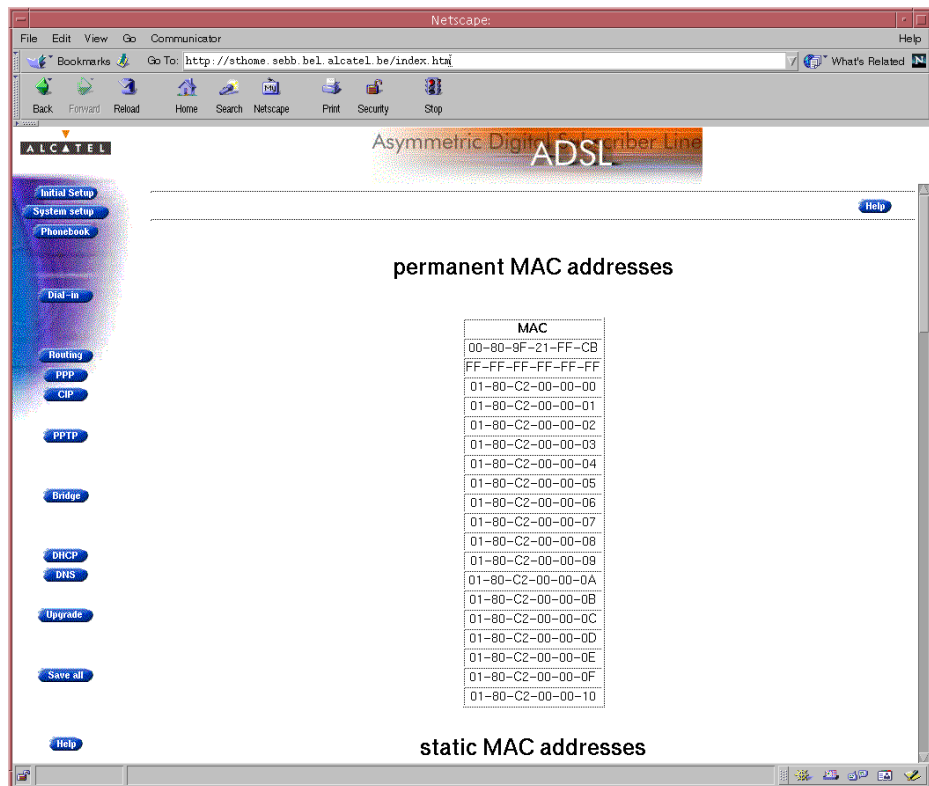


Figure 69 'Bridge Data' Web Page, Part 1

The MAC addresses are spread over 3 tables:

- ▶ **Permanent MAC Addresses** Table (See figure 69)  
The following MAC addresses are resident inside the Bridge:
  - The own MAC address of the **Speed Touch Home**:  
e.g. 00-80-9F-05-0B-A0
  - The MAC broadcast address:  
FF-FF-FF-FF-FF-FF
  - The Bridge group MAC address:  
01-80-C2-00-00-00
  - The 16 reserved MAC addresses of IEEE802.1D:  
From 01-80-C2-00-00-01  
up to 01-80-C2-00-00-0F
  - The all LANs Bridge management group MAC address:  
01-80-C2-00-00-10
- ▶ **Static MAC Addresses** (See figure 69)  
Currently no Static MAC addresses are configured.

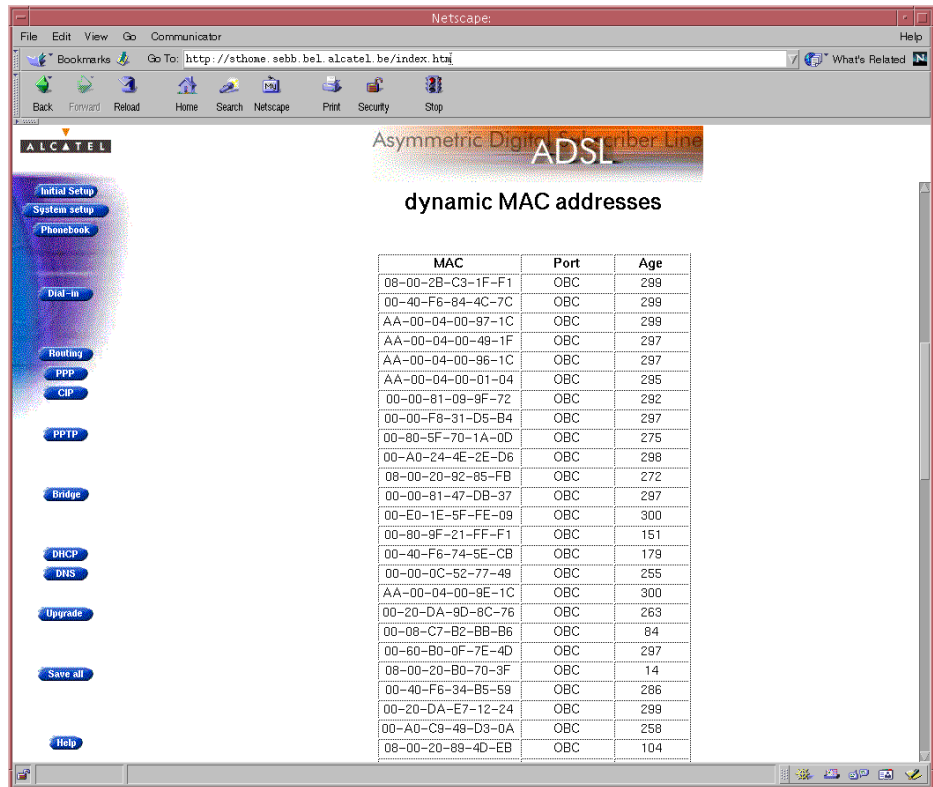


Figure 70 'Bridge Data' Web Page, Part 2

► **Dynamic MAC Addresses** Table (See figure 70)

These MAC addresses are learned and aged by the Bridge.

All MAC addresses in this list are automatically entered and removed by the **Speed Touch Home** Bridge entity.

The Learning process adds MAC addresses received on any of its ports, while the ageing process removes them, when their ageing time has expired.

## 12.1.9 The DHCP Page

This page (See figure 71) allows you to change the **Speed Touch Home** DHCP server/client settings.

Depending on the size and complexity of your network a few DHCP configurations can be envisaged:

- ▶ Simple IP network: no DHCP, i.e. see static configuration earlier in this chapter.
- ▶ Medium sized network: **STHome** acting as DHCP server.
- ▶ Advanced local network: **STHome** acting as DHCP client.

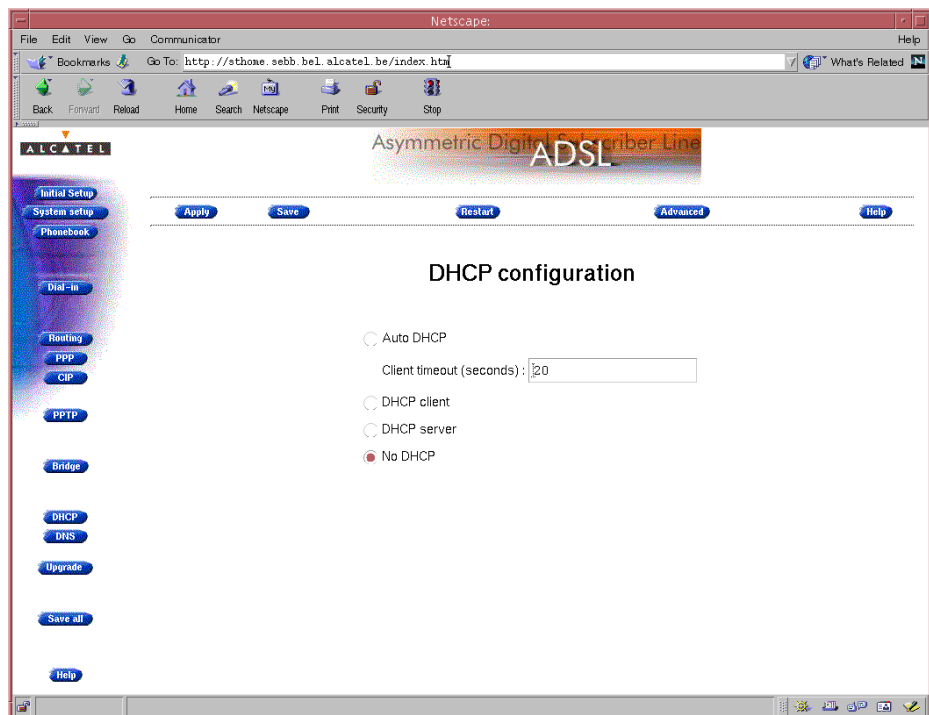


Figure 71 'DHCP Configuration' Web Page

The following configurations are possible:

Auto DHCP

▶ Client timeout (seconds) :

In this mode the **Speed Touch Home** probes the local network to verify whether or not, it is the only active DHCP Server. If there is another DHCP server on the network, the **STHome** slips into the role of DHCP client. If no response is given after a certain time (client-timeout), the **STHome** will act as DHCP server.



### Automatic IP Addressing

Operating systems supporting Automatic IP addressing, might initially not establish IP connectivity with the **STHome**. This because the IP address they assimilated is not within the **STHome** range. **To prevent this problem, please power on your PC(s) after the STHome has come online.**

▶  DHCP client

For advanced networks, the role of DHCP server might be performed by an IP node other than the **STHome** on the local LAN. Typically such functions are attributed to home gateways: computers having better networking capabilities than the other hosts on the home LAN.

▶  DHCP server

For small home LANs it might be interesting to configure all your PCs as DHCP clients and the **Speed Touch Home** as DHCP Server. In this configuration each time a computer boots, it will obtain its IP configuration from the **STHome**.

**Note** This setting might create side effects with Bridging.

▶  No DHCP

The network DHCP is disabled. All members of the network have fixed IP addresses.

This is the **STHome** default DHCP mode.

If the **Speed Touch Home** is configured for Auto DHCP or DHCP server, additional configuration must be done. Click **Advanced** to access the 'DHCP server configuration' web page.

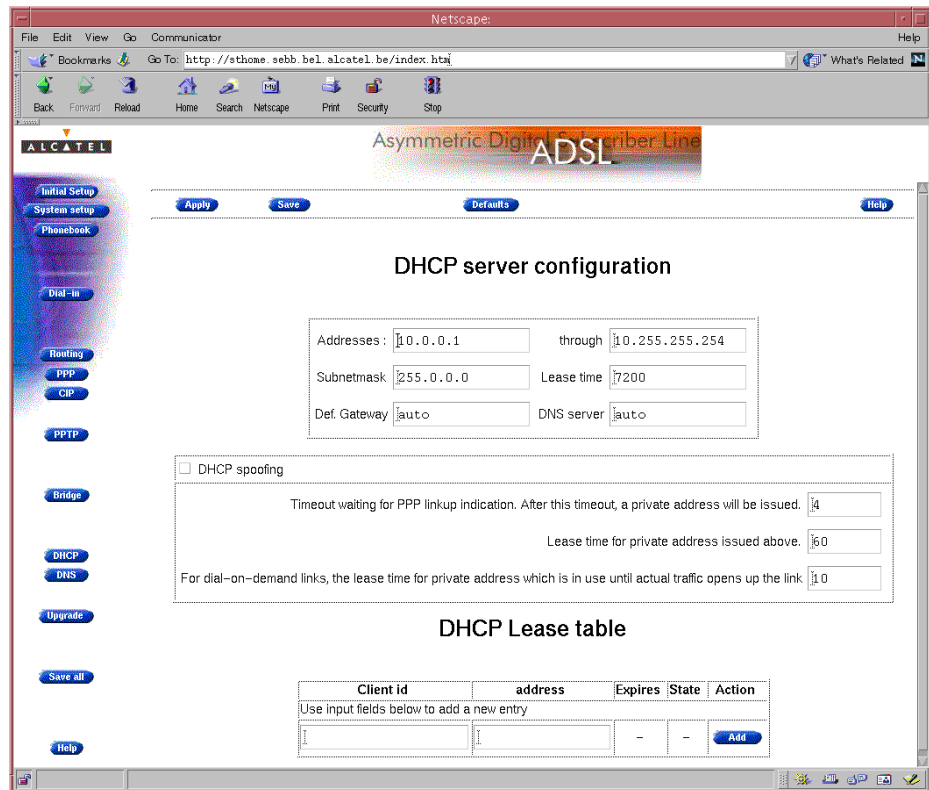


Figure 72 Advanced 'DHCP Server Configuration' Web Page

Three fields are found on this web page (See figure 72):

► **DHCP Server Configuration** Field

This field allows you to specify the **STHome** DHCP Server features. The available DHCP Server options are:

- *Addresses ... through ...*

Allows you to set the range of IP addresses that the DHCP Server can choose an IP address from for lease.

- *Subnet Mask*

Is needed to specify the subnetting applied to the local network, scoped by the DHCP Server. The default yields no subnetting.

- *Lease Time*

Specifies the time (Lease Time) IP addresses can be assigned to a device by DHCP.



- *Default Gateway*

Allows you to specify the IP address of the default gateway. By specifying '*auto*', there will be referenced to the 'Routing' web page settings.

- *DNS Server*

Allows you to specify the IP address of the DNS Server. By specifying '*auto*', there will be referenced to the 'DNS Configuration' web page settings.

▶ **DHCP Spoofing** Field

This field has no meaning for the **Speed Touch Home** and will result in an error message when used.

▶ **DHCP Lease Table**

This table allows you to manually assign IP addresses to devices, with the possibility to let this lease expire after some specified time. To add such a lease you must specify:

- *Client ID*

- *Address*

Necessary to fill in the lease IP address

- *State*

Indicates if the lease is on (device is up, running and using the lease), off (device is unreachable), or has expired (Timeout timer expired).

## 12.1.10 The DNS Page

Click **DNS** to access the web page which allows you to configure your **Speed Touch Home** as local DNS server.

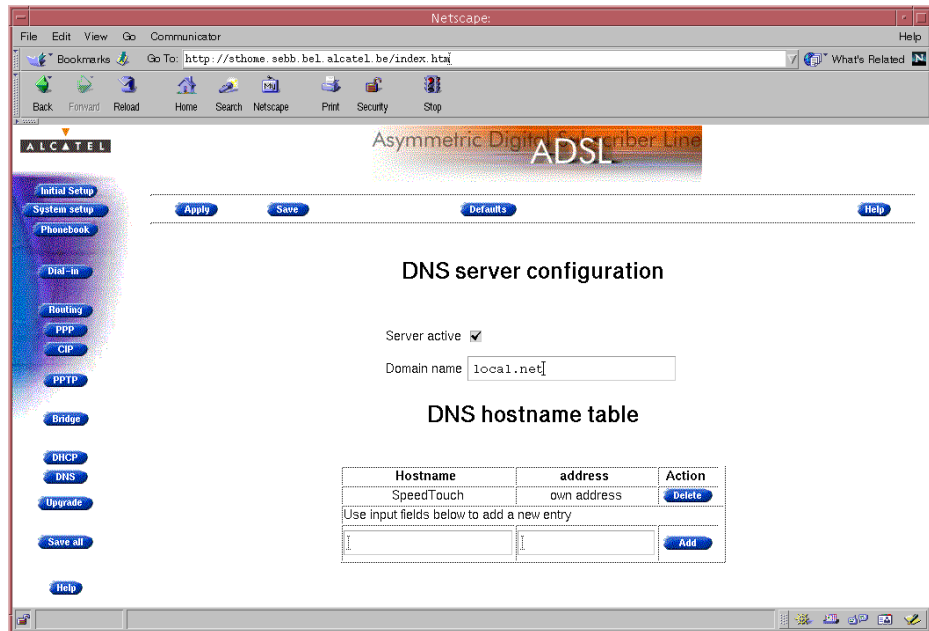


Figure 73 'DNS Configurations' Web Page

The following can be found on this web page (See figure 73):

### ► DNS Server Configuration Field

- **Server active**  
This option button activates or deactivates the **STHome** DNS server.
- **Domain Name**

In this field, you specify the domain name of your local network. This name is then used by the DNS server to complete the device's DNS Name. By default the domain name is set to '*local.net*'.

### ► DNS Hostname Table


Should the devices not reveal their hostname in the DHCP request, or even worse: if they do not support DHCP, static entries can be added to the **Speed Touch Home**'s local DNS database. To do so, add the hostname and corresponding IP address of these devices via the bottom row of the table.

**Note** Care should be taken to keep the database consistent.

## 12.1.11 The Software Upgrade Page

The **Speed Touch Home** supports two software upgrade possibilities:

- ▶ A new version of the software can be **downloaded** from the ADSL network to your **STHome**. This feature is controlled by the ADSL provider. At some point in time he might decide to upgrade the software in your **Speed Touch Home**. This download will happen almost unnoticed. You will be able to see a change in the software version if you browse to the **STHome's** 'Software Upgrade' page.
- ▶ or you can **upload** new **STHome** software packages from a PC on your local LAN.

Click  to display the 'Software Upgrade' page which allows you to upload the new(er) software.

Prior to performing the upgrade, the software must be readily available on either a floppy, a CD-rom or resident on your hard disk.

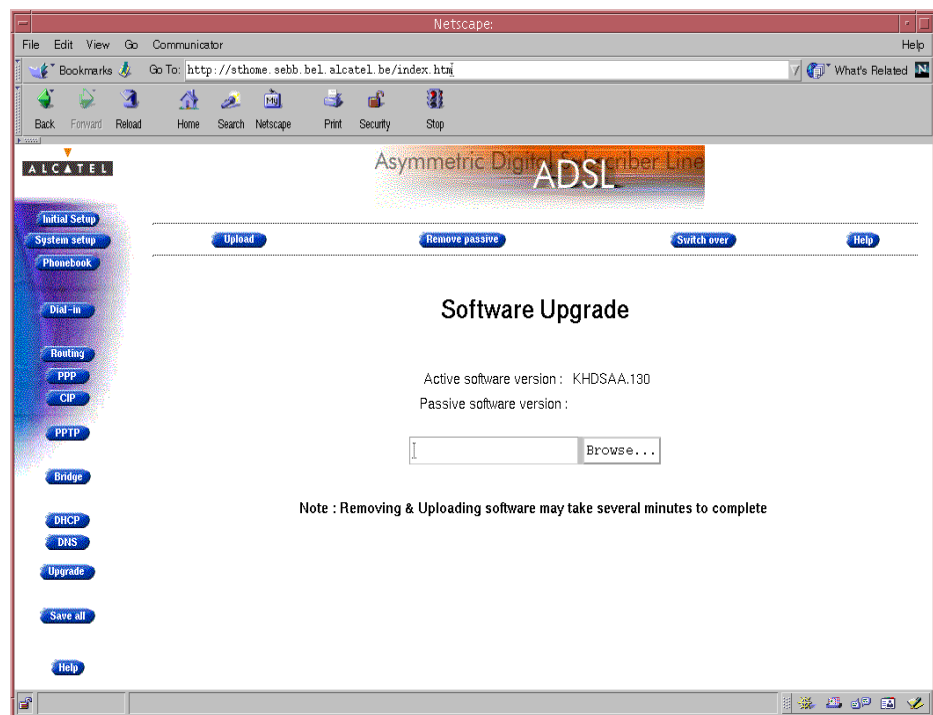


Figure 74 'Software Upgrade' Web Page

The following fields are found on this web page:

▶ **Active Software Version**

Indicates the software version that the **STHome** is currently using.

▶ **Passive Software Version**

Indicates the software version resident in, but not used by the **Speed Touch Home**. This could be a newer version which is yet to be switched to active, but also a dormant older version.

▶ **Software Path Input Field**

This field allows you to specify the path to the **STHome** software upgrade package to be uploaded. You can also browse to it, using the 'Browse' button.

In the header frame the following buttons can be found:

- ▶ The **Upload** button starts the upload process: the software package indicated by the path, specified in the 'Software Path Input' field, will be transferred to the **STHome** to become the passive software version there.

Prior to starting an upload:

- A software package must be located by the 'Software Path Input' field.
  - The passive software version field must be empty. This can be done by clicking **Remove passive**.
- ▶ Click **Remove passive** to remove the passive software version from the **STHome**.
- ▶ Clicking **Switch over** switches active and passive software versions after a successful upload. Your **STHome** will reboot and come online again with the new version.

## 12.2 Command Line Interface

As mentioned in the introductory part, the **Speed Touch Home** exhibits a Command Line Interface (CLI). The CLI can be accessed only via the Ethernet interface.

### 12.2.1 Telnet Access

Via a PC connected to the Ethernet interface of the **STHome** you can execute CLI commands. You must first gain access to the **STHome** by opening a TCP/IP Telnet session.

To execute CLI commands via Telnet proceed as follows:

1. From a PC, open a Telnet session and supply the IP address or DNS name of the **STHome**:

```
/home/johndoe{01}%telnet SpeedTouch
Trying 10.0.0.138...
Connected to SpeedTouch.local.net.
Escape character is '^]'.
```

2. The **STHome** will prompt you with: **User:**
3. You need not to specify a username, just press 'Enter'.
  - if no system password is configured, the **STHome** CLI banner will appear on your PC's screen.
  - if a system password is configured, you must supply this password prior to gaining CLI access:  
**SpeedTouch (00-11-22-33-44-FF)**  
**Password:#####**



## 13 Software Upgrade

The **Speed Touch Home** supports two software upgrade possibilities:

- ▶ A new version of the software can be **downloaded** from the ADSL network to your **STHome**.
- ▶ You can **upload** new **STHome** software packages from a PC on your local LAN.



Both features, presented in this chapter, are simultaneously supported. However the final result depends on the ADSL provider's policy.


## 13.1 Software Download from the Network


This feature is controlled by the ADSL provider. At some point in time he might decide to upgrade the software in your **Speed Touch Home**. This download will happen almost unnoticed. You will be able to see a change in the software version if you browse to the **STHome**'s 'Software Upgrade' page.

## 13.2 Software Upload from a PC

The procedure to upload software from a PC is as follows:

1. A valid **STHome** software package must reside either on your hard disk or on a floppy disk, to be inserted in your PC. For new software upgrades, please contact your ADSL provider or ISP.
2. Start your Web browser and browse to the **STHome** web pages (See Chapter 12 for more information).
3. From the **STHome** Welcome web page, click  and the 'Software Upgrade' page appears. This web page will show the **STHome** package that is actually running. It is labeled 'Active software version'.
4. Click the 'Browse' button next to 'Passive software version' and locate the new **STHome** software package on either your hard disk or floppy.
5. If the correct package is selected click the  button. From this point, the software package will be transferred from your PC to the **STHome**.

**Note** Prior to upload, you must remove the old passive version from the system, i.e. the passive version field must be empty. To do so, click .

6. After a successful transfer, two software versions are stored on the **STHome**. Click  to activate the uploaded version.

Your **STHome** will restart and come online again with the new version. Browsing to the 'Software Upgrade' page shows that the active and passive versions (prior to the upgrade) have trade places.

For information on the Upgrade web pages, see section 12.1.11.



# 14 Advanced Networking Concepts

The topics, presented in this chapter are:

- ▶ ATM Connectivity
- ▶ Direct Connect vs. Dial-Up
- ▶ Advanced Bridging
- ▶ Advanced Tunneling

## 14.1 ATM Connectivity

### 14.1.1 Overview

All data arriving at, and departing from, your **Speed Touch Home** via the ADSL Line is carried in ATM cells.

ATM is a connection-oriented packet switching technology using fixed-size packets, called *cells*. These cells consist of a header and a payload and are switched through a public or private ATM network depending on the contents of the header. End-to-end connections are formed by cross-connecting individual ATM segments in ATM switches.

#### Virtual Channels

ATM uses Virtual Channels (VC)(s) to create individual communication links between network nodes. ATM uses two types of VCs:

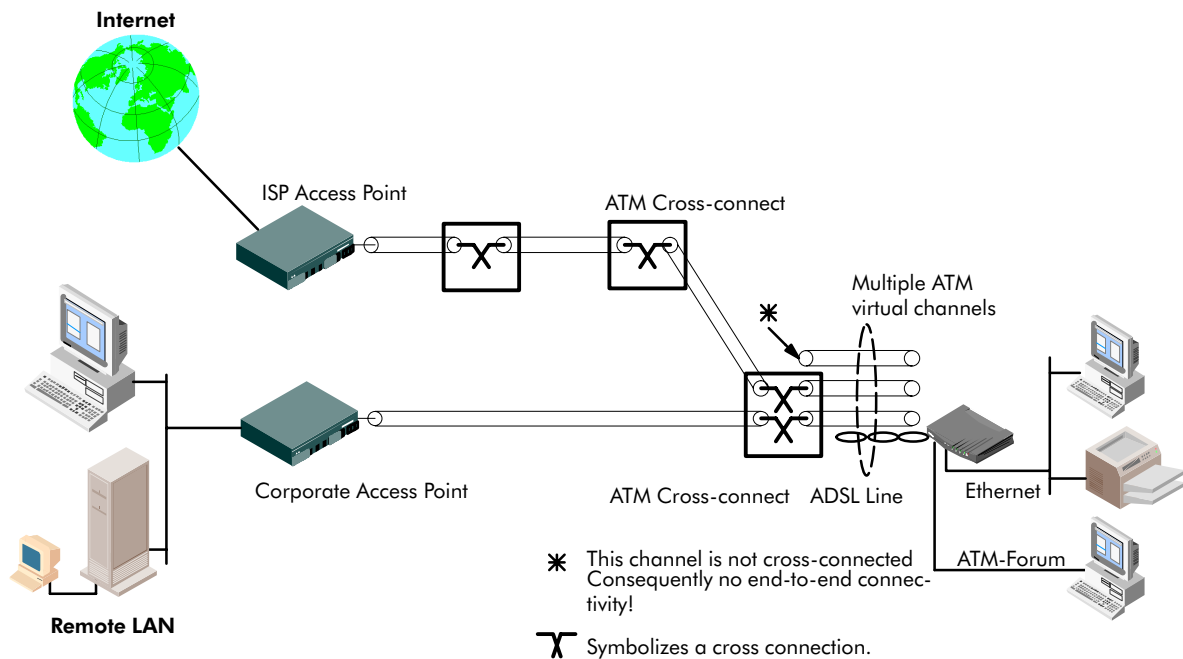
- ▶ Permanent Virtual Channels (PVC)(s) are static connections between network nodes that are configured statically. The nodes of the connection operate as if they were connected by a dedicated physical line.
- ▶ Switched Virtual Channels (SVC)(s) are similar to voice telephone network connections. These are temporary connections between any two end points on the network and are configured via signaling. SVCs are created dynamically for each session and released when the information exchange is complete.

Currently all **STHome** ATM connections are static , i.e. PVCs.

#### Channel Identifiers

Each ATM cell carries two labels, VPI and VCI as part of its header. An ATM channel, commonly referred to as *virtual* channel, is fully identified by these two labels. Therefore, multiple ATM channels can reside on your ADSL line.

## 14.1.2 ATM and your Speed Touch Home



adsl 0546/ 02

Figure 75 ATM End-to-End Connectivity

Practically speaking, a number of virtual channels to one or multiple remote destination(s) can start from/are terminated at the **Speed Touch Home**. By default, a number of channels are terminated in the **STHome** for Ethernet; others are cross-connected to the ATMF-25.6 interface (if equipped).

As current ATM connections are static, a particular VPI/VCI value can be seen as an alias for the remotely connected organization. See Appendix C for the specific default ATMF and Ethernet VPI/VCI values.

End-to-end ATM connectivity is the responsibility of local operators. There might be regional differences in the type and number of ATM channels that are cross-connected. If problems are encountered, check with your local operator for more information.

### 14.1.3 ATM & CPE Interfaces

ATM traffic arriving at the **Speed Touch Home** is switched to either the Ethernet interface or the ATMF-25 interface depending on the VPI/VCI values in the individual cells.

ATM virtual channels can transport all forms of protocols. However, at both endpoints – where the ATM channels are terminated – the same protocol must be supported. If not, there will be no end-to-end connectivity.

**Note** Not all **STHome** variants support two interfaces.

**ATMF-25** This interface does not terminate ATM connections, it just switches ATM cells between the ADSL and ATMF-25 port. It is the ATMF-25 PC-NIC that actually initiates or terminates ATM channels. It is important to check in advance which protocols are supported by the PC-NIC driver. At least RFC 1483 and RFC 2364 should be fully implemented.

**Ethernet** This interface terminates a number of ATM connections and extracts frames from arriving cells, and encapsulates frames in departing cells.

Only frames recognized/supported by the **STHome** on a particular ATM connection are extracted or encapsulated.

Currently the supported encapsulations are:

- ▶ For Bridged connections:  
RFC 1483, Ethernet V2.0/IEEE 802.3 bridged PDUs for both the LLC/SNAP method and VC MUX method;
- ▶ For PPP/PPTP connections:  
RFC 2364, PPP PDUs for both the LLC/NLPID method and VC MUX method;

### 14.1.4 Summary

Your ISP or corporate LAN administrator will provide you with the following:

- ▶ The **VPI/VCI** values of the virtual channels to which the **STHome** is cross-connected;
- ▶ The **protocols** that are supported on these virtual connections.

## 14.2 Direct Connect vs. Dial-up

Basically the **Speed Touch Home** offers two solutions to access remote information infrastructures: "Direct Networking" and "Dial-Up Networking".

**Direct Networking** **Direct Networking** relates to how the network connection is experienced by the user. The connection is **always-active**, thus no actions are necessary.

Direct Networking is what is typically experienced on a LAN. Initial configuration of all networking nodes in the end-to-end network is still required, but this must only be performed once when the service is enabled.

Powering the local PCs and the **STHome** is enough to enable the user to interact with the network, once the initial configuration is done.

**Dial-Up Networking** In this mode, there is initially no connectivity; you must explicitly request a connection by "**dialing up**" the network.

The remote organization will require you to identify and authenticate yourself. Before you are allowed to access its resources, it will request you to supply your personal User Account.

**Speed Touch Home** The **STHome** supports both solutions independently whether you are using the Ethernet or the ATMF-25 interface.

Although the transparent character of the ATMF-25 interface supports both networking modes, the PC applications will determine whether you use the Direct or Dial-Up mode.

For the Ethernet interface the scenario is more complicated as you will see below:

- ▶ Direct and continuous connectivity is accomplished via the IEEE 802.1D Transparent data bridge in the **STHome**. Applications sending out broadcasts asking for servers are automatically forwarded by the bridge. Please refer to section 14.3 for more information.
- ▶ Dial-Up relies on the standard PPP protocol family and local tunneling using the industry PPTP protocol. See section 14.4 for more information on PPP and PPTP.

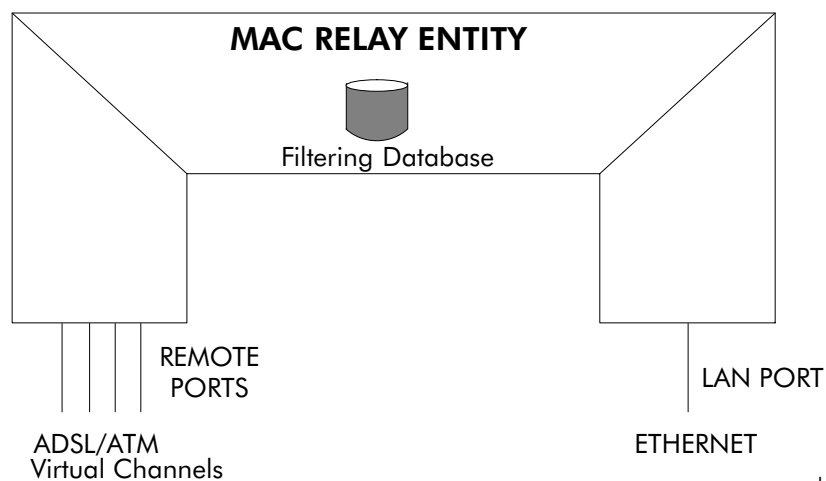
## 14.3 Advanced Bridging Concepts

### 14.3.1 Introduction

Bridging is a LAN technology that transparently relays Ethernet frames between Bridge ports. Depending on the destination MAC addresses of Ethernet frames, the Bridge makes decisions whether to forward or discard frames.

Central to the operation of a data bridge is its filtering database. All forwarding and filtering actions are based on information in this database.

### 14.3.2 Bridge Ports



adsl 0633/ 01

Figure 76 Simplified Bridge Architecture

Ethernet frames are relayed between the LAN port and the ADSL/ATM ports. The ADSL/ATM ports, sometimes referred to as virtual ports, are cross-connected over the public network to remote destinations.

Ports exhibit different “port states”:

**Forwarding State** If a port is in “forwarding state”, it participates in the relaying of frames. In addition, source MAC addresses of frames arriving in the bridge via this port are stored in the filtering database.

**Note** To conserve ADSL bandwidth, only put the ports that are cross-connected in forwarding mode.

**Learning State** If a port is in the “learning” state, it only submits information to the filtering database. It does not participate in the relaying of frames.

**Disabled State** A port in this state, does not participate in the relaying of frames nor does it update the filtering database.

Ports can be enabled/disabled via the **Speed Touch Home** web pages.

### 14.3.3 Bridge Operation

**Learning** If the **STHome** bridge is active, the filtering database is empty. Over time it is filled with entries via the **Learning** mechanism. All Ethernet frames arriving at ports, are inspected for their source MAC address, and put into the filtering database along with the port ID that the frames arrived on.

**Ageing** Entries in the filtering database are removed after a certain time has elapsed (Ageing Time). This process is referred to as Ageing. The learning and **Ageing** process make the Bridge Plug & Play. Both keep the filtering database up-to-date with the current network configuration. E.g. suppose a PC-NIC is replaced, the old MAC address is aged (and will be consequently discarded), while a new MAC address will be remembered.

**Flooding** If an Ethernet frame arrives, the destination MAC address is searched in the filtering database. If the destination MAC address is not found (implying it is currently unknown), it is forwarded to all ports in the Forwarding state (**Flooding**), except the one the frame arrived on.

Broadcast and Multicast MAC addresses are always flooded.

**Forwarding** If an Ethernet frame arrives with a destination MAC address that is found in the filtering database (implying it is currently recognized), it is **forwarded** to the port that is associated with that entry. The difference with flooding is that forwarding is more selective.

**Filtering** Taking the previous step in account, if the destination MAC address is found on the same port as the frame arrived on, it is **Filtered**, i.e. silently discarded. Indeed, it makes little sense to forward the frame on this port as the destination is directly connected.

**Isolation** The Alcatel Multiport Bridge in the **Speed Touch Home** provides **Isolation** between remote ports. i.e. Frames (including broadcasts) arriving via ADSL/ATM ports will **never** be forwarded/flooded to another ADSL/ATM port.

### 14.3.4 Multiprotocol

Bridging actions are performed on Ethernet or MAC frames. The contents of the MAC frame is not of importance to the Bridge.

Consequently it makes no difference whether your PCs or workstations use TCP/IP, Appletalk, IPX/SPX or any other protocol suite.

This implies that any protocol that you are currently using for your applications can be transported to remote destinations and vice-versa.

### 14.3.5 Amount of Devices Supported

Via the dynamic learning and ageing mechanism of the **STHome** Bridge, the number of PCs that can be connected to either the local or virtual ports is theoretically unlimited. Practically the Bridge database can hold as many as 256 entries simultaneously.

Assume a sample configuration of four 4 remote ports and one local port (Ethernet interface). If all systems are evenly distributed over all ports, you could connect around 50 systems per port to completely fill the database.

This is of course a theoretical example as the upstream bandwidth is limited to 1 Mbit/s maximum. Should only one virtual port be in use, the 256 entries can be divided over two ports (virtual port and Ethernet port).



### 14.3.6 Plug & Play Bridging

The **Speed Touch Home** Bridge is a '**Plug & Play**' device. Via the bridge *learning* and *ageing* mechanism, it discovers at which side of the Bridge machines are located.

Through this knowledge it is able to keep traffic, submitted to your local printer, from crossing the Bridge. Yet it allows frames, belonging to sessions with remote machines, to pass over the ADSL Line.

## 14.4 Advanced Tunneling (PPP/PPTP) Concepts

### 14.4.1 Point-to-Point Tunneling

Tunneling is a well known method to transport a protocol over a network that actually does not support this protocol, e.g. IPX packets can be wrapped in IP, ready to be routed over an IP network. At the destination the IPX packets are decapsulated and consequently available in their original format again.

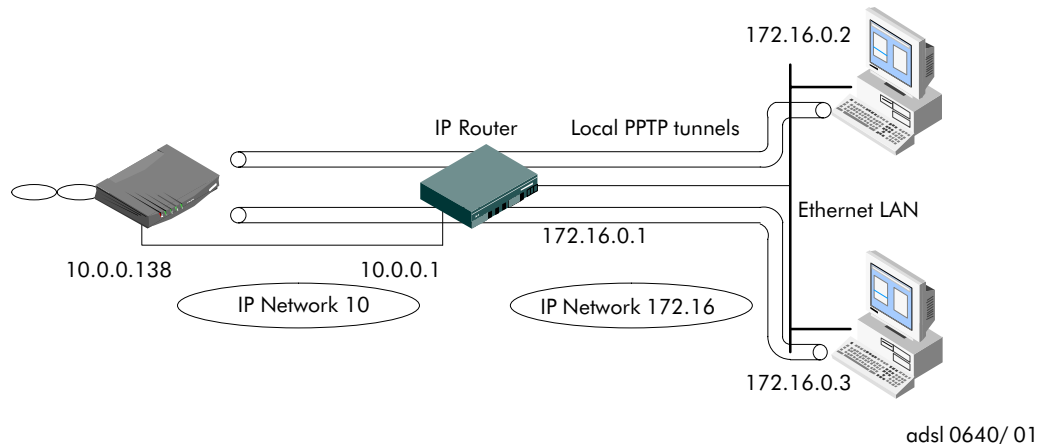
Tunneling applied to the **Speed Touch Home** implies:

- ▶ Tunnels have a local scope.  
PPTP tunnels are established between two peers on the local IP network: local PCs initiate tunnels, the **STHome** terminates these tunnels.
- ▶ IP tunnels are established and released for the duration of a session;
- ▶ the protocol carried inside the tunnels is PPP. Various protocols can be carried inside the PPP packets.

The net result of PPTP tunneling is that PPP packets can cross the local Ethernet segment between the **STHome** and the client computer and vice versa. This would otherwise not be possible as PPP is designed to run on point to point connections, e.g. Dial-Up connections, whereas Ethernet is a shared medium.

## 14.4.2 Tunneling from behind an IP Router

The **Speed Touch Home** allows local tunneling from behind a router. This requires a few special settings in both the **STHome** and your PCs/workstations.



adsl 0640/ 01

Figure 77 PPTP-to-PPP Advanced Network

### ► **STHome**

You must specify the default route for the **STHome** via the **STHome** local web pages. In this example, the IP address of the default router would be 10.0.0.1, which is the IP address of the Ethernet interface of the CPE router connected to the **STHome**.

### ► PCs or workstations:

For each PC you must add a route to the internal routing table. This route must point to the **STHome**. For PCs equipped with Windows operating systems, proceed as follows:

1. Select 'Start' from the Windows taskbar.
2. Select 'Programs'.
3. Select 'MS-DOS' prompt.
4. In the DOS window, execute the command:

```
route add <Destination IP address> <Gateway IP address>
```

In the example: `route add 10.0.0.138 172.16.0.1`

To verify IP connectivity, you can ping the **STHome**. If it responds, setting up tunnels is possible.

### 14.4.3 PPP-to-PPTP Relaying

By double-clicking dial-up icons, PPTP tunnels are established between the **Speed Touch Home** and PCs on your LAN. Simultaneously, PPP sessions are established with remote destinations.

The **STHome** relays all PPP-traffic inside PPTP tunnels to ATM virtual channels. In this way it is as if ATM virtual channels are **extended** to your PC(s).

The figure below provides an overview of the end-to-end architecture. In the figures only two tunnels are shown, but in reality there could be several.

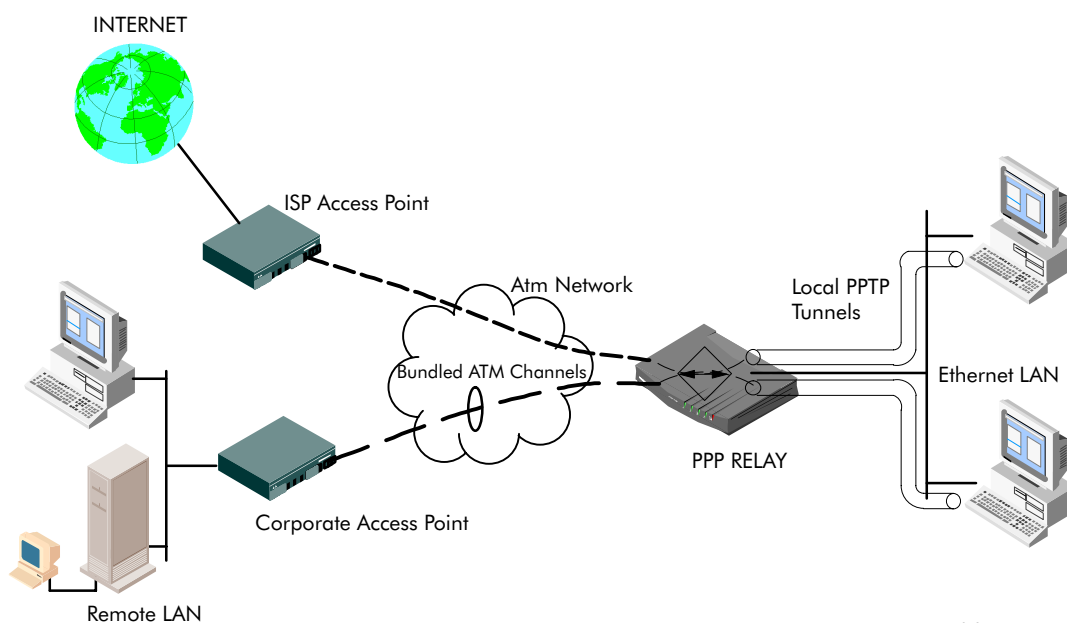


Figure 78 Network Protocol Architecture

PPTP tunneling is based on the IP protocol. Consequently, IP connectivity must exist between your PCs and the **STHome** prior to establish local tunnels. Configuration of the **STHome** IP functions is explained in Chapter 9.

Various platforms support PPTP. However, subsequent examples will be given for Windows 95, Windows 98 and Windows NT only. Other OSs will have similar behaviour and it is left to the user to apply the explanation to the specific environment.

PPTP might not always be included with your OS. However, there are third-party PPTP clients commercially available for your OS, e.g. Tunnelbuilder from Network TeleSystems Inc. ([www.nts.com](http://www.nts.com)).

## 14.4.4 Establishing PPP/PPTP Connections

A double-click on a previously created connection icon is all that is required to set up a session with your ISP or your corporate headquarters.

By default, the **Speed Touch Home** is configured for four PPP/ATM connections. The **STHome** is however capable of managing **up to 12 PPP/ATM channels simultaneously**. This can be achieved by deleting all other packet service entries.

However, check with your ISP/corporate headquarters to ensure that these connections are cross-connected then in the Wide Area Network (WAN) and hence that end-to-end connectivity is assured.

**Any Destination** If the 'VPN Server' field is left unchanged, i.e. only the IP address of the **STHome** (or its corresponding DNS hostname) is visible, the **STHome** automatically establishes "a connection" between a PPTP tunnel and an **idle** ATM virtual channel (See figure 79).

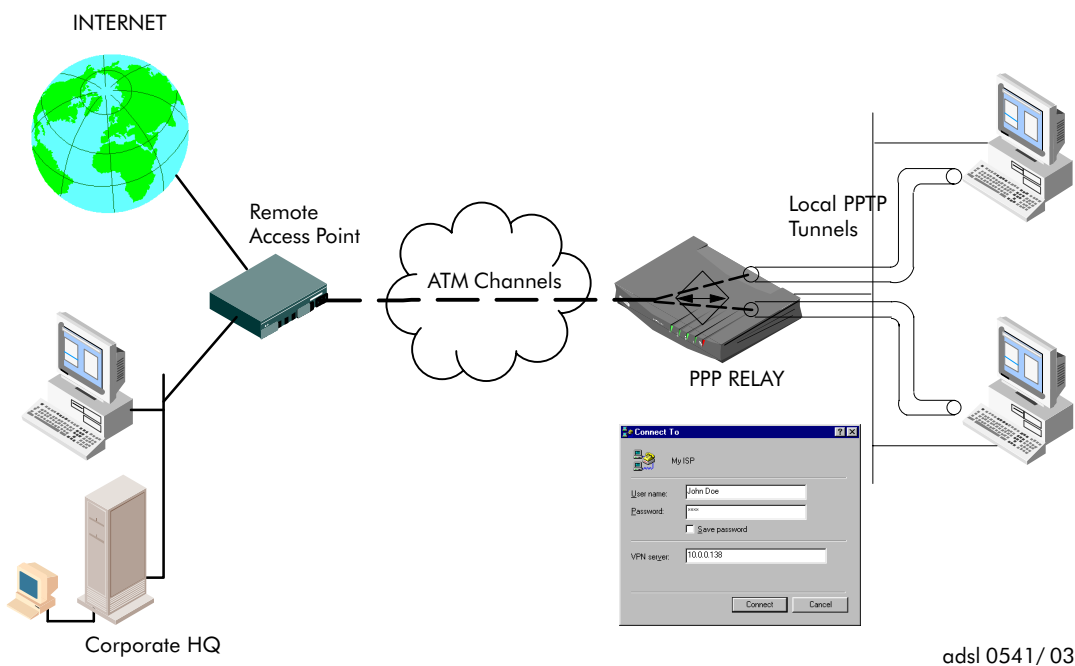


Figure 79 All ATM Channels to a Single Remote Destination

This is the simplest scenario and works best if all ATM channels are attached to the same remote destination.

Two situations are possible:

► **Single ATM Channel to any destination**

In this scenario, the ISP supplied one ATM channel for connectivity. It is most applicable when a single PC is connected to the **Speed Touch Home** (See figure 80).

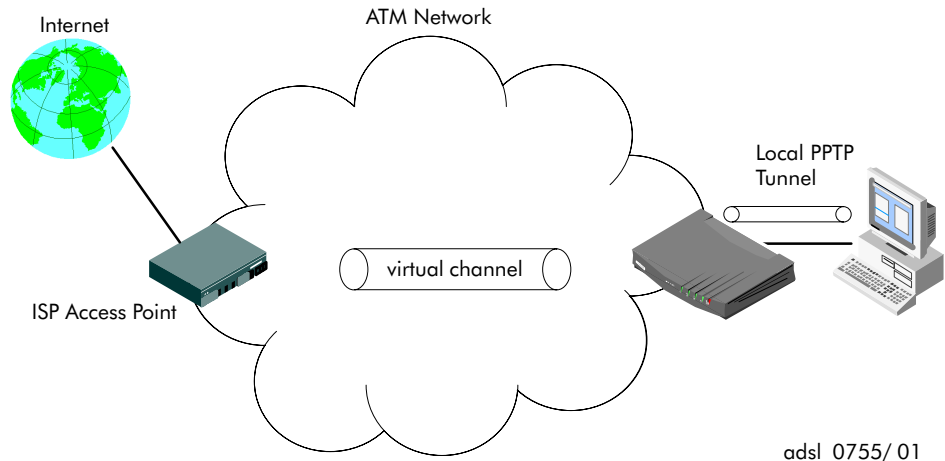


Figure 80 A single ATM Channel is used for any Destination

► **Multiple ATM Channels to any destination**

In this scenario, the ISP supplied multiple ATM channels, all directed to the same destination. This implies that several PCs can connect to this destination at the same time (as long there is an idle channel left). Therefore, this is most applicable with a **SHome** connected to a LAN (See figure 81).

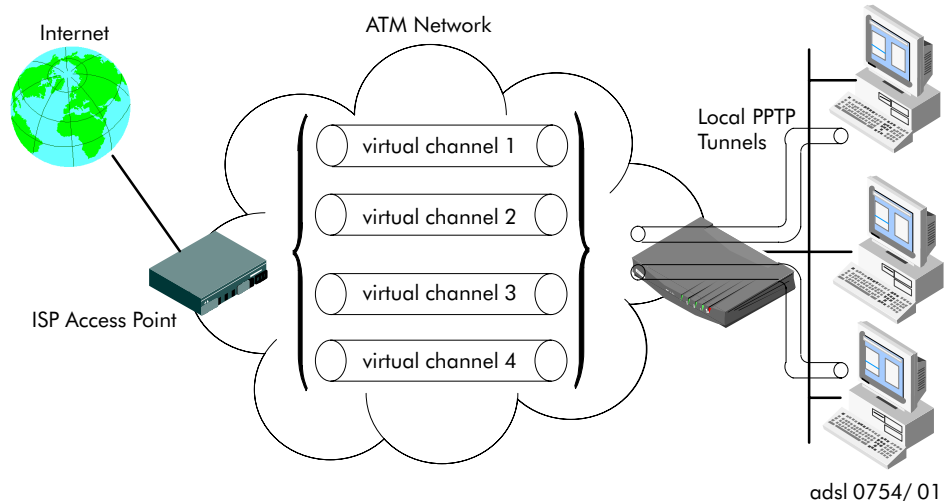


Figure 81 Multiple ATM Channels are used for any Destination

**Specific Destination** Multiple remote organizations might be connected to your **Speed Touch Home**, e.g., your private ISP and your corporate headquarters.

In this case, the **STHome**'s ATM channels will be split over both locations. For example, 6 ATM channels could be provisioned to your ISP and 6 channels to your corporate.

You need to check with your ISP and your corporate LAN administrator to verify which cross-connections exist between the ATM virtual channels and the locations.

By modifying the 'VPN Server' field in the 'Connect To' window, it is possible to explicitly indicate which remote destination you want to connect to.

By inserting the appropriate **Phonebook name** in the 'VPN Server' field of the 'Connect To' window, you can specify the ATM channel to use (See figure 84 to see an example).

**Customizing PPTP Connections** Via the **STHome**'s web pages you can add PPTP entries in addition to the defaults (RELAY\_PPPx). For your convenience, give them names of your choice (in the name field). See section 12.1.5 for more.



### Phonebook PPTP Connection Entry Names

PPP/PPTP Phonebook Entries **may not start with capital 'P' or capital 'T'**.

The **STHome** is capable of managing **up to 12 PPP/ATM channels simultaneously**. This can be done by deleting all other packet service entries.

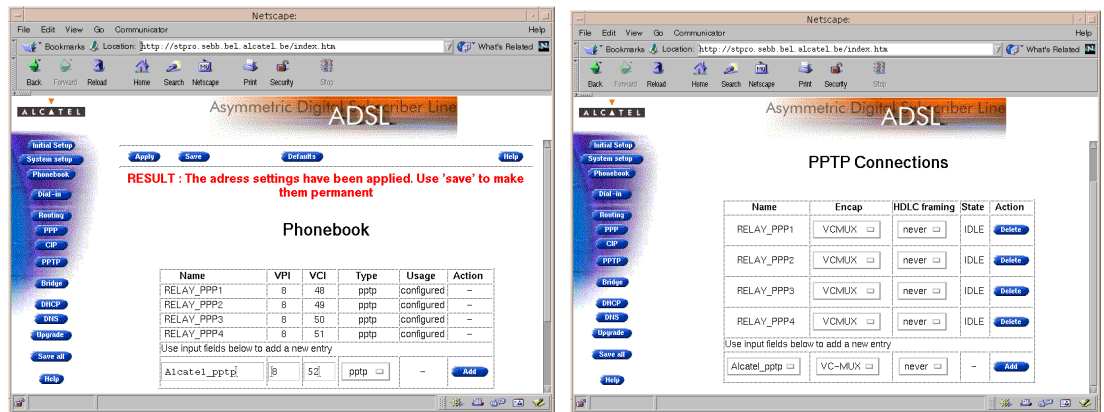
The name that you gave the PPTP connections in the Phonebook can be issued to specify the virtual channel to be used by a particular PPP/PPTP session.

When configuring a Dial-Up connection (see section 7.5), you can specify the virtual channel to be used by this connection (in step 9. of the steplist in section 7.5).

To do this, add the PPTP connection's name (specified in **STHome**'s Phonebook) next to the DNS hostname or IP Address of your **STHome** (by default respectively "SpeedTouch" or 10.0.0.138).

**Example** For creating a Dial-Up connection to the corporate 'Alcatel', which has to use the virtual channel, named 'Alcatel\_pptp', do the following:

- ▶ Configure a PPTP connection entry, named 'Alcatel\_pptp', in **Speed Touch Home's** Phonebook (Figure 82a) and enable it by adding it to the ptp connections (Figure 82b). Refer to sections 12.1.5 and 12.1.7 for more information;



(a) Phonebook

(b) PPTP Connections

Figure 82 Configuring 'Alcatel\_pptp' in Phonebook (a) and PPTP Connections Web Pages (b)

- ▶ Create a Dial-Up Networking Icon, named 'Alcatel', according section 7.5;

In step 9. (See section 7.5), you not only specify the VPN Server (in your case the **STHome**), but also the virtual channel 'Alcatel\_pptp' to be used:

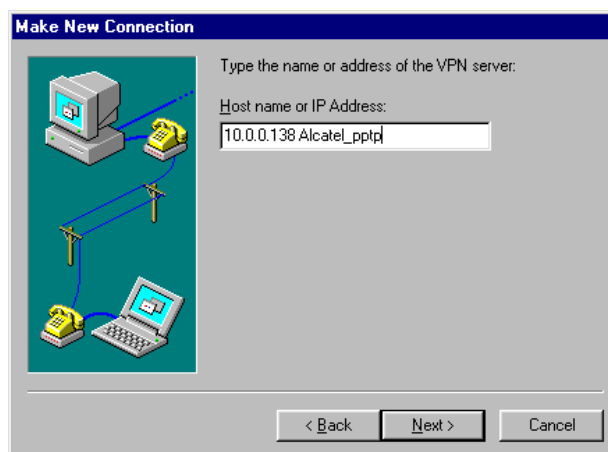


Figure 83 VPN Server + Specific Virtual Connection Specified



- ▶ Double-click the 'Alcatel' Icon to establish the PPP/PPTP connection. The following Dial-Up window will appear:

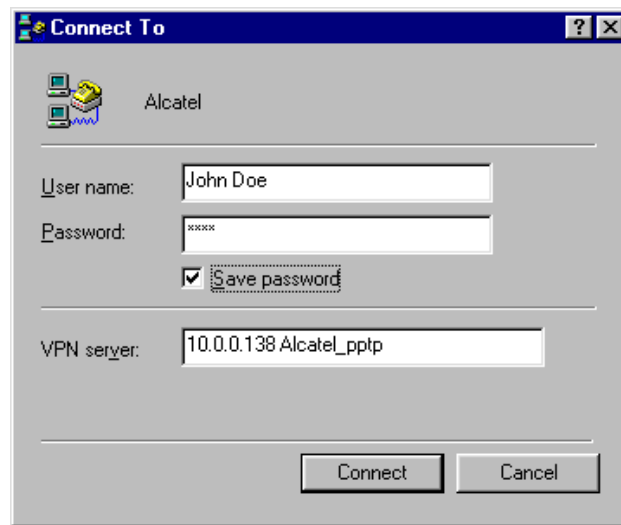
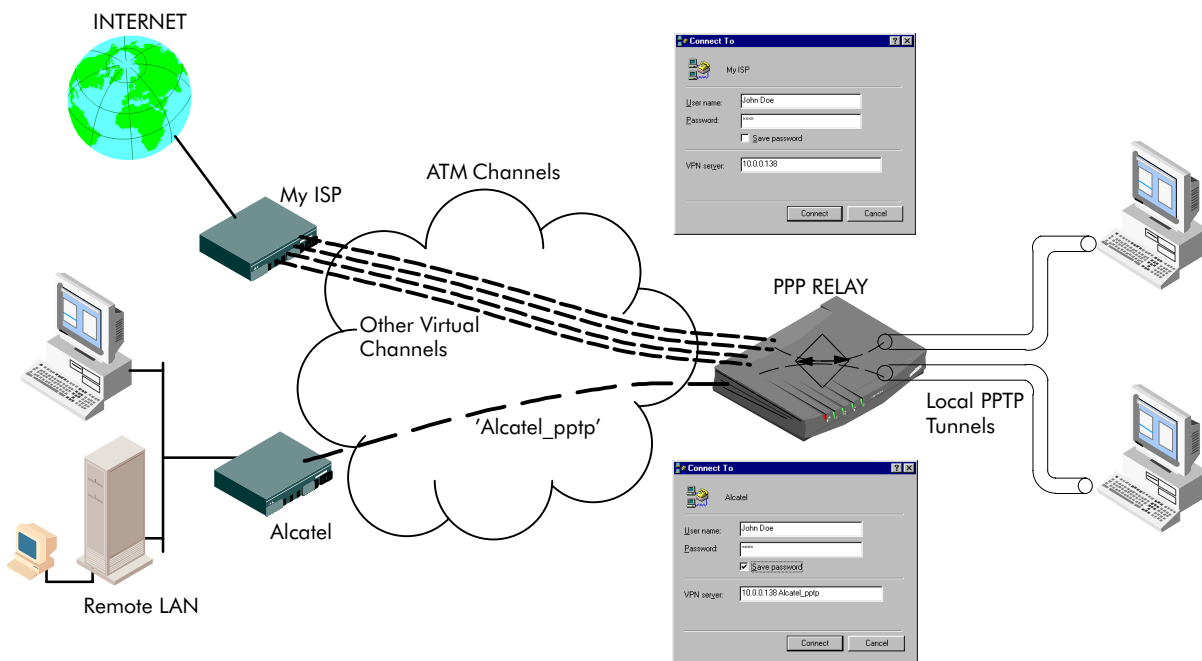


Figure 84 'Connect To' Window

As can be seen in the 'VPN Server' field, the virtual channel to be used is specified by its name. Consequently, this PPP/PPTP session will always use **this** virtual channel for establishing a connection to the 'Alcatel' corporation.



adsl 0543/ 03

Figure 85 Example of a Specific and an any Destination Connection

**Note** “Any destination” ATM channels (i.e. connections without specified virtual channels) can be used as “Specific destination” channels. This can be done by adding the name of the virtual channel to be used in the “VPN Server” field, each time you establish the connection.

**Note** Two factors are of importance when using this procedure:

- The Dial-Up Networking application will in fact look up a match between the string, specified next to the VPN server’s DNS hostname or IP address ( in the previous example ‘Alcatel\_pptp’).

If however, several PPTP connections entries exist, with names starting with ‘Alcatel\_pptp’ (e.g. Alcatel\_pptp1, Alcatel\_pptp2, etc.) it can not be determined which of these will be used to establish the connection.

This can be advantageous too: if a selection of virtual channels may be used by a particular PPP/PPTP connection, then just give them names with a stringmatch in the beginning of the name (as in the above example).

- In the event no match is found in the Phonebook, or if the specified virtual channel is already used, the Dial-Up application will use the first available idle PPTP connection found in the PPTP connections table. Consequently, the virtual channel to be used is undetermined.

## 14.4.5 Simultaneous PPP/PPTP Sessions

Tunneling does not influence your local communication; you may add as many machines as your local network supports. However there is an upper limit to the number of simultaneous **outbound** connections.

Unlike Bridging, an ATM/PPP channel cannot be shared by multiple users. Every user establishing a tunnel requires one ATM virtual channel. Therefore, any user on the local network can initiate tunnels as long as there are idle ATM channels.

By default, the **Speed Touch Home** supports **four** simultaneous PPP/ATM channels. The **STHome** is however capable of managing **up to 12 simultaneous PPP/ATM channels**. This can be done by deleting all other packet service entries in the Phonebook.

If all PPP/ATM channels are in use and a user tries to set-up a new tunnel, the **STHome** will refuse the request and an error message will appear.

## 14.4.6 Supported LAN Protocols

All forms of protocol can be transported within PPTP tunnels.

It is the PPTP client, however, which is the limiting factor. Some OSs allow only specific protocols to be transported within PPTP tunnels (e.g. TCP/IP, IPX/SPX or NETBEUI in the case of Windows 95/98).

## 14.4.7 Limitations

Below are some known limitations of the most popular platforms currently in use:

▶ **One Tunnel**

Windows 95/98 only allows you to set up one tunnel at a time. This means that you cannot connect to both your ISP and your Corporate Headquarters simultaneously from one PC.

▶ **Tunneling within a Tunnel**

Tunneling within a tunnel is not possible with Windows 95/98 due to its single tunnel limitation.

**Note** **Windows NT does not share these two limitations.**

It is possible to set up multiple tunnels and are consequently able to simultaneously connect to multiple remote destinations. A tunnel within a tunnel is also possible, assuring better end-to-end security.

▶ **Lost Local Connectivity**

After setting up a tunnel, communication with local machines may be lost. This is because Windows 95/98 adds a new default gateway to its routing table. This new default gateway points to the tunnel. As TCP/IP is designed to use only one default gateway, connectivity through the original gateway will be lost.

As soon as the tunnel is terminated, connectivity through the original default gateway is possible again.

You can circumvent this problem by manually adding routes to local destinations in the **Speed Touch Home**'s routing table (See section 12.1.6).



## 15 Troubleshooting

Problem	Solution
<b>Speed Touch Home</b> modem does not work (no visual indicator on top lights up)	Make sure the <b>STHome</b> modem is plugged in
	Make sure the <b>STHome</b> modem is turned on
ATMF connection does not work	Make sure the cable is securely connected to ATMF-25 connector
Ethernet connection does not work	Make sure the cable is securely connected to 10BASE-T connector and that you are using the correct cable type for your Ethernet equipment
Poor <b>Speed Touch Home</b> modem performance	Make sure the <b>STHome</b> modem is installed as described in the instructions provided in this user guide
	Make sure the <b>STHome</b> modem has adequate ventilation. Place the modem on an even, hard surface. Do not stack books or paper on the modem.
	Make sure in-house wiring is routed away from possible sources of interference, such as electrical wiring
Power/Sync LED is constantly green, but no traffic passes through	Restart the <b>STHome</b> modem
Power/Sync LED remains constantly Red	Restart the <b>STHome</b> modem

If the troubleshooting tips listed above have not resolved the problem, contact your local distributor for assistance.



## Abbreviations

AAL	ATM Adaption Layer
ADSL	Asymmetric Digital Subscriber Line
ATM	Asynchronous Transfer Mode
CLI	Command Line Interface
DHCP	Dynamic Host Configuration Protocol
DNS	Domain Name System
DTE	Data Terminal Equipment
FCS	Frame Check Sequence
HDLC	High-level Data Link Control
HTML	HyperText Markup Language
HTTP	HyperText Transfer Protocol
IANA	Internet Assigned Number Authority
IESG	Internet Engineering Steering Group
IP	Internet Protocol
ISDN	Integrated Service Digital Network
ISP	Internet Service Provider
LAN	Local Area Network
LLC	Logical Link Control
MAC	Medium Access Control
MDI	Medium Dependent Interface
MDI-X	Medium Dependent Interface Crossed
MUX	MUltipleXing
NIC	Network Interface Card
NID	Network Interface Device
NLPID	Network Link Protocol Identifier
OS	Operating System
PC	Personal Computer
POTS	Plain Old Telephone Service
PPP	Point-to-Point Protocol
PPTP	Point-to-Point Tunneling Protocol
PVC	Permanent Virtual Channels



RAS	Remote Access Services
RFC	Request For Comments
ROW	Rest Of the World
SNAP	Sub–Network Access Protocol
SVC	Switched Virtual Channels
TCP	Transmission Control Protocol
URL	Uniform Resource Locator
VC	Virtual Channel
VC	Virtual Channels
VCI	Virtual Channel Identifier
VPI	Virtual Path Identifier
VPN	Virtual Private Network
WAN	Wide Area Network
WWW	World Wide Web

## Appendix A Product Code Tables

The exact functionality of the **Speed Touch Home** modem depends on the model that you have purchased. Each model has a unique eight part **product code**. The product code is printed on one of the labels that can be found on the underside of the **STHome** housing.

The product code reflects the functionality of your **STHome** as explained below.

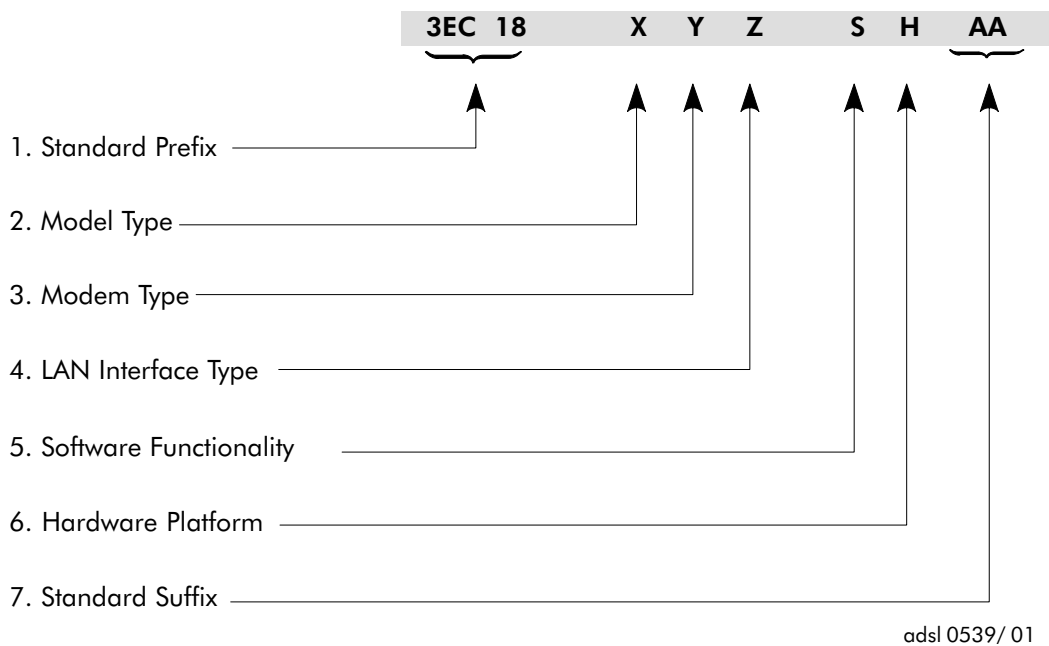


Figure 86 Speed Touch Home Product Code

**X field** The 'X field' reflects the physical specifications of your **Speed Touch Home** as listed in table 10.

Table 10 "X Field" Specification

X	AC/DC	Plug Type	Wire A/B	Splitter Power *
2	110V/9V	US	2/5	–
3	220V/12V	ROW**	1/2	5/6
4	220V/12V	UK&Sing	1/2	5/6
5	220V/9V	UK/Sing	3/4	–
6	220V/9V	ROW	3/4	–
7	220V/9V	AUS	3/4	–
8	110V/9V	US	3/4	–
9	220V/9V	Korea	3/4	–

**Note** \* The remote splitter power will be supplied through the line connector via the **STHome**.

\*\*Rest Of the World (ROW)

**Y field** The 'Y field' specifies the modem type (See table 11).

Table 11 "Y Field" Specification

Y	Modem Type
0	Full rate, G.dmt, ANSI T1.413 only, POTS overlay
1	G.Lite only, POTS overlay
2	Full Rate (ETSI), Integrated Service Digital Network (ISDN) Overlay
3	Multimodem (FR, G.Lite, ANSI)

**Z field** The 'Z field' specifies the interface type (See table 12).

Table 12 "Z Field" Specification

Z	Interface type
4	10Base-T interface
5	ATMF-25 & 10Base-T interface

**S field** The '*S field*' specifies the default software package (See table 13).

Table 13 "S Field" Specification

<b>S</b>	<b>Default Software Package</b>
B	Bridging + PPTP

**H field** The '*H field*' specifies the Hardware Platform (See table 14).

Table 14 "H Field" Specification

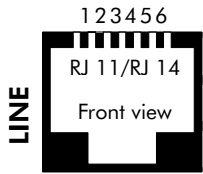
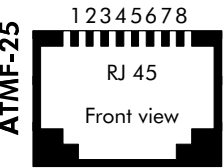
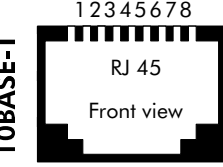
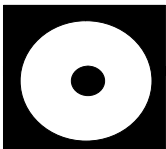
<b>H</b>	<b>Hardware Platform</b>
C	R3.2 (3MB FLASH/ADNTF)
E	R3.2 (Korea, without Power Supply)



## Appendix B Hardware Reference

### B.1 Connector Pinout

Table 15 Connector Pinout

Connector	Pin No.	Signal Name	Function	X-Field Specification
 <p>LINE</p>	1	Wire A	Subscriber line wire A	3, 4
	2	Wire A	Subscriber line wire A	2
		Wire B	Subscriber line wire B	3, 4
	3	Wire A	Subscriber line wire A	5, 6, 7, 8, 9
	4	Wire B	Subscriber line wire B	
	5	Wire B	Subscriber line wire B	2
		+12V <sub>DC</sub>	Power supply for remote splitter	3, 4
	6	GND	Power supply for remote splitter	3, 4
 <p>ATMF-25</p>	1	Rx+	Receive data from DTE* (+)	
	2	Rx-	Receive data from DTE* (-)	
	7	Tx+	Transmit data to DTE* (+)	
	8	Tx-	Transmit data to DTE* (+)	
 <p>10BASE-T</p>	1	Rx+	Receive data from DTE* (+)	
	2	Rx-	Receive data from DTE* (-)	
	3	Tx+	Transmit data to DTE* (+)	
	6	Tx-	Transmit data to DTE* (-)	
 <p>DC</p>	Inner	+12V <sub>DC</sub>	Power supply adapter connection (+)	
	Outer	GND	Power supply adapter connection (-)	

**Note** \*Data Terminal Equipment (DTE)

**Note** Connector pins not mentioned are not connected.

## B.2 Power Supply Adapter

The **Speed Touch Home** is equipped with one of the following portable power supply adapters listed in table 16. Due to the special characteristics of the output class II AC adapter, use only the **AULT Incorporated** types or equivalents listed in the table. As you see, the plugtype depends on the product code's "X-field" specification (See also Appendix A).

Table 16 Power Adapters for **Speed Touch Home**

X-Field	AC/DC	Plugtype	AULTInc. Model (or equivalent)
2	110V/9V	US	P48-091000-Axxxx
3	220V/12V	ROW	D48-121000-Axxxx
4	220V/12V	UK	F48-121000-Axxxx
5	220V/9V	UK	F48-091000-Axxxx
6	220V/9V	ROW	D48-091000-Axxxx
7	220V/9V	AUS	E48-091000-Axxxx
8	110V/9V	US	P48-091000-Axxxx
9	220/9V	KOR	Q48-091000-Axxxx

The supplied adapter has the following output specifications:

- ▶ 9V<sub>DC</sub>/1A unregulated output voltage for passive versions  
or
- ▶ 12V<sub>DC</sub>/1A unregulated output voltage for active versions
- ▶ Maximum 860 mV<sub>eff</sub> ripple voltage
- ▶ Maximum 1A output current
- ▶ Limited power source (according to IEC/EN 60950, sub-clause 2.11).

### B.3 Straight-through Cable Layout (LAN Cable)

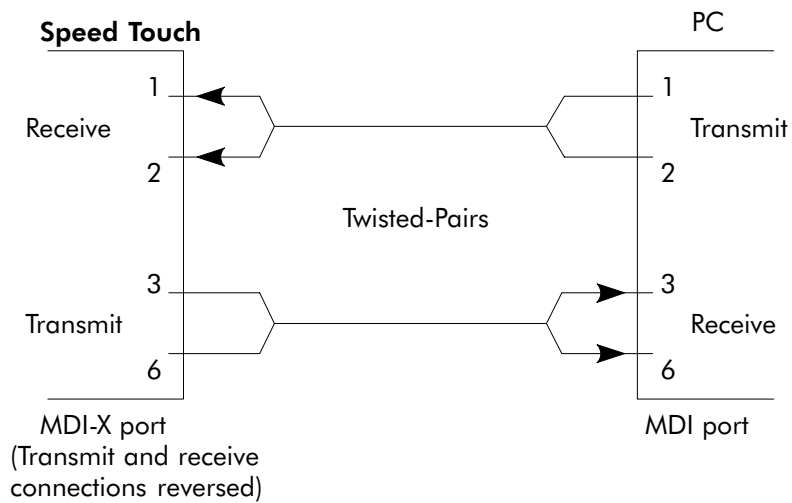


Figure 87 MDI-X Internal Crossover

### B.4 Crossover Cable Layout

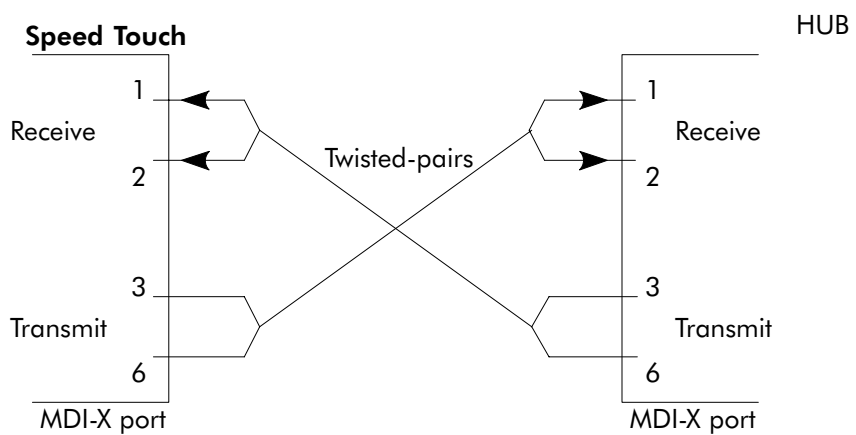


Figure 88 MDI-X to MDI-X External Crossover





## Appendix C Speed Touch Default Factory Settings

### C.1 Global Speed Touch Home Default settings

<b>IP Address</b>	10.0.0.138
<b>DNS Name</b>	SpeedTouch
<b>DNS Domain Name</b>	local.net
<b>DNS Server Mode</b>	<b>STHome</b> set as DNS server
<b>DHCP Mode</b>	No DHCP

### C.2 IEEE 802.1D Transparent Bridging and related defaults

#### Phonebook Entries

Table 17 Default Bridging Phonebook Entries

Name	VPI Value	VCI Value	State
Br1	8	35	Configured
Br2	8	36	Free
Br3	8	37	Free
Br4	8	38	Free

**ATM Encapsulation** RFC1483 LLC/SNAP for Bridged PDUs (FCS not preserved)

#### Bridge Parameters

Table 18 Bridging Parameters

Parameter	Default value	Description
FCS Preservation	OFF	Frame Check Sequence
Compression	OFF	Tinygram Compression

**Bridge Configuration** 1 Port (Br1) set in Forwarding state

**Ageing Time** 5 minutes

## C.3 PPP-To-PPTP Relaying Defaults

### Phonebook Entries

Table 19 Default Relaying Phonebook Entries

Name	VPI Value	VCI Value	State
RELAY_PPP1	8	48	Configured
RELAY_PPP2	8	49	Configured
RELAY_PPP3	8	50	Configured
RELAY_PPP4	8	51	Configured

**ATM Encapsulation** RFC2364 VC MUX for PPP PDUs

## C.4 Global Default VPI/VCI Values

### ATMF Interface

Table 20 ATMF VPI/VCI Values

VPI	VCI	Service Channel
0..5	0..511	End-user defined

### Ethernet Interface

Table 21 Ethernet VPI/VCI Values

VPI	VCI	Service Channel
0	21	ADSL/ATM Loopback Channel
1	21	
8	35..38	Bridging Service
8	48..51	PPTP/PPP Relaying Service
8	16	SNMP Agent Communication Channel
15	64	SW Download Channel

## Appendix D Safety

This Appendix provides basic Safety Information on your **Speed Touch Home**.

Prior to using the **STHome**, read this Appendix carefully.

### D.1 Safety Instructions

▶ **Read and understand all instructions**

Follow all warnings and instructions marked on the product.

▶ **Climatic conditions**

The **STHome** equipment is intended for:

- **In-house stationary desktop use**; the maximum ambient temperature may not exceed 40°C (104°F).
- It must **not** be mounted in a location exposed to direct or excessive solar and/or heat radiation.
- It **must not** be exposed to heat trap conditions and **must not** be subjected to water or condensation.
- It must be installed in a **Pollution Degree 2 environment**.

▶ **Cleaning**

Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

▶ **Water and moisture**

Do not use this product near water, for example, near a bathtub, wash bowl, kitchen sink, laundry tub, in a wet basement or near a swimming pool.

▶ **Power supply adapter**

The **Speed Touch Home** comes with a portable power supply adapter.

Due to the special characteristics of the output of the class II AC adaptor, only use the models or equivalent listed in the power adapter table in Appendix B.

▶ **Power sources**

The powering of this product must adhere to the power specifications indicated on the marking labels. If you are unsure of the type of power supply to your home, consult your product dealer or local power company.

The **mains socket outlet** must be **close to the equipment** and easily accessible.

The **STHome** equipment is **not** intended to be connected to **an IT-type** power system.

▶ **Power cord protection**

Do not allow anything to rest on the power cord. Do not locate this product where the cord will be subject to persons walking on it.

▶ **Overloading**

Do not overload wall (mains) outlets and extension cords as this increases the risk of fire or electric shock.

▶ **Servicing**

To reduce the risk of electric shock, do not disassemble this product. None of its internal parts are user-replaceable; therefore, there is no reason to access the interior. Opening or removing covers may expose you to dangerous voltages. Incorrect reassembly could cause electric shock if the appliance is subsequently used.

If service or repair work is required, take it to a qualified service dealer.

▶ **Damage requiring service**

Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

- When the power supply cord or plug is damaged or frayed.
- If liquid has been spilled into the product.
- If the product has been exposed to rain or water.
- If the product does not operate normally.
- If the product has been dropped or damaged in any way.
- If the product exhibits a distinct change in performance.

▶ **Modem/Telephone use**

Avoid using a modem/telephone (other than a cordless type) during an electric storm. There is a slight risk of electric shock caused by lightning.

Do not use the telephone to report a gas leak in the vicinity of the leak.

If **telephone service** is required on the same line, a **central splitter** or **distributed filter(s) must be installed** for optimal ADSL performance. Depending on your ADSL configuration and type of splitter/filters, installation must be carried out by **qualified service personnel**. Consult your Telephone Company or ADSL Service Provider for instructions.

**STORE THESE INSTRUCTIONS CAREFULLY !**

## D.2 Safety Standards

The **Speed Touch Home** complies with the following safety standards:

- ▶ EN 60950, 2<sup>nd</sup> ed. (1992), including amendments 1 (1993), 2 (1993), 3 (1995) and 4 (1997)
- ▶ IEC 60950, 2<sup>nd</sup> ed. (1991), including amendments 1 (1992), 2 (1993), 3 (1995) and 4 (1996)

The external interfaces on the rear panel are classified as follows:

- ▶ **Line:** TNV circuit, subjected to overvoltages (TNV-3)
- ▶ **10Base T/MDI-X:** SELV circuit
- ▶ **ATMF-25:** SELV circuit
- ▶ **DC (Power socket):** connection to coaxial plug from the power supply adaptor

## Appendix E Agency Regulatory Notices

### E.1 US FCC Class B Notice

#### Federal Communications Commission (FCC) Statements

This device has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to guarantee this device doesn't harmfully interfere with, or harmfully be interfered by other devices.

#### Radio Frequency Interference Statement

Note: this equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. This equipment generates, uses and can radiate radio frequency energy. If not installed and used in accordance with the instructions, it may cause interference to radio communications.

The limits are designed to provide reasonable protection against such interference in a residential situation. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment on and off, the user is encouraged to try correct the interference by one or more of the following measures:

- ▶ Reorient or relocate the receiving antenna of the affected radio or television.
- ▶ Increase the separation between the equipment and the affected receiver.
- ▶ Connect the equipment and the affected receiver to power outlets on separate circuits.
- ▶ Consult the dealer or an experienced radio/TV technician for help.

#### Modifications

Changes or modifications not expressly approved by Alcatel could invalidate the users authority to operate this equipment.

### E.2 Canadian DOC Class B Notice

#### Notification of Canadian RF Interference Statements

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of the Canadian Department of Communication.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicable aux appareils numérique de classe B prescrites dans le règlement sur le brouillage radioélectrique édicté par le Ministère des Communications du Canada.



### E.3 European Community Declaration of Conformity

Alcatel declare , sole responsibility that this product, to which this declaration relates ,is in conformity with the following standard(s) and other common practices:

- ▶ **EN 50081-1:** 1992, Electromagnetic Compatibility – Generic emissions standard – Part 1: Residential, commercial and light industry following the provisions of The Electromagnetic Compatibility Directive, 89/336/EEC.
- ▶ **EN 50082-1:** 1992, Electromagnetic Compatibility – Generic immunity standard – Part 1: Residential, commercial and light industry following the provisions of The Electromagnetic Compatibility Directive, 89/336/EEC.
- ▶ **EN 60950:** 1992, Safety of Information Technology Equipment, including Electrical Business Equipment.

# Index

## Numbers

10Base-T Interfacing, 24

## A

ADSL, 30

- Asymmetric, 30
- Digital, 30
- Line Interface, 22
- Pinning, 34
- Subscriber, 30
- Wiring, 34

ADSL cable, 22

ATM, 18

ATM & CPE Interfaces, 140

ATMF Interface, 22

## B

Bridge

- ageing, 143
- filtering, 144
- flooding, 143
- forwarding, 143
- isolation, 144
- learning, 143
- ports, 142

Bridging, 142

## C

Command Line Interface, 133

- Telnet, 133

Connecting

- ADSL Line, 27
- ATMF-25 Interface, 26
- Ethernet interface, 24
- Power Supply, 28

Connectivity through Ethernet

- Multiprotocol, 144
- Number of Machines Support, 144
- Plug and Play, 145

Connectors, 22

Crossover Cable Layout, 169

## D

DHCP, 126

DHCP Web Page, 126

Dial-up, 141

Direct Connection, 141

DNS, 95, 130

DNS Web Page, 130

## E

Ethernet Interface, 22, 24

## F

Filter, 34

Filters, 27

Front Panel, 15

## I

Initial Setup Web Page, 112

Interfaces, 22

IP Address, address classes, 113

IP address, 80

IP Address classes, 113

IP Routing, 118

## L

LAN cable, 22

- crossover, 23
- straight-through, 23

LED indicators, 16

Line interface, 22

Local Configuration, 107

**M**

MAC Address, 112, 124

**O**

Online Help, 111

**P**

Phonebook Web Page, 115

Ping-of-Life, 100

Ping-to-Defaults, 105

Power Connector, 22

PPP-to-PPTP Relay, 47

PPP-to-PPTP Relaying  
Advanced, 148  
any destination, 149  
phonebook names, 151  
specific destination, 151

Product Code Tables, 163

**R**

Rear Panel, 15

**S**

Software Upgrades, 131

Speed Touch

Connector Pinout, 167  
Initial Setup, 112  
IP Address, 112  
MAC Address, 112  
System Password, 114

Speed Touch Local Webpages, 108  
accessing the local pages, 109  
Bridge Configuration, 122  
Initial Setup, 112  
Phonebook, 115  
Routing Table, 117  
configuring your browser, 108  
DHCP, 126  
DNS, 130  
PPTP Connections, 119  
Software Upgrade, 131  
System Setup, 114

Splitter, 27, 32

Straight-through Cable Layout, 169

Subnet mask, 80

System Requirements, 18

System Setup Web Page, 114

**T**

Troubleshooting, 159

Tunneling, 146

**V**

Virtual Channels, 18, 138

VPI/VCI, 18