

GATEWAY6™ CLIENT RELEASE NOTES





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# **Gateway6™ Client Version 5.0 Release Notes**

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# About This Guide

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This document provides information on Gateway6 Client releases, such as new features, bug fixes and changes. This document together with the other Release Notes should be read first.

## Gateway6 Documents

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This table presents the Gateway6 documentation package.

<b>Title</b>	<b>Part-Number</b>	<b>Content</b>
<i>Gateway6 HexOS Release Notes</i>	<i>HEX-DC-0006-18</i>	Provides information on HexOS releases, such as new features, bug fixes and changes.
<i>Gateway6 Client Release Notes</i> (This document)	<i>HEX-DC-0007-05</i>	Provides information on Gateway6 Client releases, such as new features, bug fixes and changes.
<i>Gateway6 Client with HAP6 Release Notes</i>	<i>HEX-DC-0009-01</i>	Provides information on Gateway6 Client with HAP6 releases, such as new features, bug fixes and changes. This document, together with the <i>Gateway6 HexOS Release Notes</i> and the <i>Gateway6 Client Release Notes</i> , should be read first.
<i>Gateway6 Documentation Guide</i>	<i>HEX-DC-0002-07</i>	Describes the Gateway6 documentation package, introduces the HexOS software, and describes the CLI (Command Line Interface) command modes and basic features.
<i>Gateway6 Quick Setup Guide</i>	<i>HEX-DC-0001-07</i>	Provides hardware installation procedures and minimal software configuration procedures.
<i>Gateway6 HexOS Configuration Guide</i>	<i>HEX-DC-0004-09</i>	Shows you how to configure the Gateway6 using the CLI.
<i>Gateway6 HexOS Command Reference</i>	<i>HEX-DC-0003-10</i>	Describes the four main types of Gateway6 commands: <ul style="list-style-type: none"><li>▶ Management and protocol-independent commands</li><li>▶ Interface and access list commands</li><li>▶ Tunnel broker commands</li><li>▶ Logging and troubleshooting commands</li></ul>
<i>Gateway6 Client Guide</i>	<i>HEX-DC-0005-07</i>	Explains how to configure and use the Gateway6 Client.
<i>Gateway6 Client with HAP6 Guide</i>	<i>HEX-DC-0008-01</i>	Explains how to configure and use the Home Access Platform.

## Obtaining Documentation

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The Gateway6 documents are supplied as Portable Document Format (PDF) files on the Gateway6 Software & Documentation CD-ROM. Printed copies of these documents are also available.

The Software & Documentation CD-ROM also contains HexOS image files, Gateway6 Client software, the latest documentation updates, as well as HexOS software and copyright information. You can also find these items on the Hexago corporate Web site.

## **Revision**

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This document describes the Gateway6 Client version 5.0.

The revision number of this document is 05.



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# Introduction

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This document lists the key information regarding the new releases of the Gateway6 Client. When listing a bug fix or enhancement, the Hexago ticket number is displayed whenever possible.

Please contact the Hexago support team if you notice any issues or wish to obtain an updated image: [support@hexago.com](mailto:support@hexago.com).

## **CD-ROM Content**

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The *Gateway6 Software and Documentation CD-ROM* contains HexOS image files, Gateway6 client software, Gateway6 documentation, and HexOS software and copyright information. The CD-ROM content is also available in an archive format on the Hexago corporate Web site.

The CD-ROM structure is described in this table.

<b>File or Directory</b>	<b>Description</b>
Hexago_Gateway6_Notes.pdf	This file contains important information to be read before installing the software.
Documentation/	This directory contains the documentation files in PDF format.
HexOS/	This directory contains the HexOS image files to be installed on the Gateway6.
Client/	This directory contains the Gateway6 Client software (source and binary for most platforms).
template_html/	This directory contains a copy of the HTML files used by the HTTP server to provide the Web interface for user and tunnel creation.



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# Gateway6 Client Version 5.0 (2007-05-14)

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## New Features

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### Linksys WRT and OpenWRT Whiterussian RC6 Support (#2321)

The Gateway6 Client has been ported from OpenWRT (a Linux distribution for embedded devices) to the Linksys WRT platform. You can now use the Linksys WRT54G(S) line of home gateways to obtain an IPv6 connection through the Freenet6 service or any other Hexago Gateway6 TSP tunnel service.

A readme is provided at [http://www.go6.net/4105/file.asp?file\\_id=126](http://www.go6.net/4105/file.asp?file_id=126), and the product downloads are available at <http://www.go6.net/4105/download.asp>.

The Gateway6 Client has also been ported to the OpenWRT Whiterussian RC6 platform. More information can be found at <http://www.openwrt.org>.

### Gateway6 Client Utility for Windows Vista (#3633)

A new Windows Vista application has been developed to configure the Gateway6 Client and perform relatively simple tasks for non-technical users, such as viewing and changing configuration settings, starting/stopping the Gateway6 Client, monitoring a local Gateway6 Client and displaying status information. Many enhancements and new features have been added, including online Help.

## Gateway6 Client Changes and Improvements

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- ▶ The text in the log window of the Gateway6 Client Utility for Windows can now be selected and copied to the clipboard for your convenience (#3446).
- ▶ A minimize button has been added to the interface of the Gateway6 Client Utility for Windows (#3502).
- ▶ The status messages and colors used in the Gateway6 Client Utility for Windows have been reworked to more accurately reflect the status of the Gateway6 Client (#3570).
- ▶ The keepalive feature used by IPv6-in-UDP-in-IPv4 tunnels is now supported by Windows Vista (#3601).
- ▶ The Gateway6 Client distribution manual pages for the UNIX distribution of the Gateway6 Client have been updated (#975).
- ▶ The product README now includes information regarding operating system-specific dependencies (#3672).
- ▶ Clients now have the option of requesting a prefix whose length is shorter than the length offered by the tunnel server. It is not possible, however, to request a prefix longer than that offered by the tunnel server (#3741).
- ▶ The terms *TSP Listener* and *HTTP Listener* are deprecated and have since been replaced throughout the Gateway6 and HexOS documentation and source code by the equivalents *TSP Server* and *HTTP Server*, respectively (#3766).
- ▶ If the `retry_delay` option is not specified in the Gateway6 configuration file, the client now has a default value of 30 seconds. In previous versions of the Gateway6 Client, the default was only 1 second (#3458).
- ▶ French language support has been added to the Gateway6 Client Utility setup (#3755).

## Bug Fixes

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- ▶ The automatic reconnection feature is now user controlled for the Gateway6 Client Utility for Windows. As such, when a tunnel expires due to a keepalive timeout, a popup window is displayed allowing the user to choose whether or not to reconnect. Behavior in previous versions, whereby multiple clients using the same login credentials and broker clashed to gain control over the same connection, has been corrected. (#3685).
- ▶ The UDP socket is now properly connected and bound to a local IPv6 source address when requesting an IPv4-in-IPv6 tunnel under Windows. Note that this issue does not apply to IPv6-in-IPv4 tunnels or to other operating systems (#3354).
- ▶ In instances where the Gateway6 server is unavailable to establish a tunnel, the Gateway6 Client Utility no longer needlessly reserves a Windows handle for reconnection purposes (#3622).
- ▶ A memory leak issue that occurred when a Gateway6 Client attempted to reconnect after a keepalive timeout has been corrected (#3724).
- ▶ The Gateway6 Client must send a tunnel creation acknowledgment string ("`<tunnel action='accept' />`") to the Gateway6 server as part of the tunnel negotiation process. If authentication by the Gateway6 server was delayed for whatever reason (ex: ambient network conditions or sluggish reaction time by the RADIUS server), the Gateway6 Client reported the error as "Not able to write TSP request to server socket" in previous versions of the Gateway6 Client. This situation is now reported as "No RUDP Reply" (#3658).
- ▶ In previous versions of the Gateway6 Client, once a delegated prefix had been requested, the tunnel server always sent it as part of subsequent tunnel establishments, even if it were no longer requested. The prefix is now sent only if explicitly requested (#3666).
- ▶ If a previous version of the Gateway6 Client fell back to TCP, it would not make any subsequent attempts to use RUDP. A condition on the retry delay has since been added so the process no longer sleeps between UDP and TCP attempts. It now only sleeps following the TCP attempt, before UDP is potentially tried again (#3459).

## Known Issues

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- ▶ It has been reported that, when presented with a list of potential brokers with which to create a tunnel, the Gateway6 Client will not always successfully select the following server on the list if the session with the first server entry fails. (#3555)
- ▶ The Gateway6 Client does not currently offer 64-bit support for Windows Vista. (#3740)
- ▶ Some users running Windows Vista may discover they are unable to reconnect to the Gateway6 service when switching from IPv6-in-UDP-in-IPv4 tunnel mode to IPv6-in-IPv4 tunnel mode. This issue will be addressed in an upcoming release of the Gateway6 Client. (#3748)

### WORKAROUND

In such circumstances, full functionality can be restored simply by rebooting the computer running the Gateway6 Client. As an alternative, advanced users can choose instead to manually reconfigure the tunneling interface, as described below.

1. Open the *Windows Network and Sharing Center* and identify Hexago's Virtual Multi-Tunnel Adapter on your computer. This is the `<interface name>` you will need for the rest of the workaround.
2. Open a command prompt with administrator privileges.

3. List the addresses configured on this interface by issuing the following command:

```
netsh interface ipv6 show address interface="<interface name>"
```

4. Delete the IPv6 address assigned to the interface by issuing the following command at the command prompt (on a single line):

```
netsh.exe interface ipv6 delete address  
interface="<interface name>" address=<IPv6 address to delete>
```



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# Gateway6 Client Version 4.2.1 (2006-10-30)

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## **Bug Fix**

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- ▶ Current Windows Gateway6 client (v2) doesn't support Windows Server 2003 (#2344).





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# Gateway6 Client Version 4.2 (2006-09-15)

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## New Features

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### Multi-Site Operation

Gives access the closest broker site and provides redundancy.

### NAT Traversal Support to MacOS X (Darwin) (#3400)

This table lists the encapsulation modes supported by the Gateway6 Client on the supported operating systems:

Client OS	IPv6 in IPv4 encapsulation(v6 v4)	IPv6 over UDP IPv4 encapsulation (IPv4 NAT traversal) (v6udpv4)	IPv4 in IPv6 encapsulation (v4v6)
Windows: NT, 2000	Yes	No	No
Windows: XP, 2003	Yes	Yes	Yes
MacOSX 10.3+	Yes	Yes	No
Linux (Kernel 2.4+)	Yes	Yes	No
FreeBSD 5.0+	Yes	Yes	Yes
NetBSD 1.6+	Yes	No	No
OpenBSD 3.0+	Yes	No	No
Solaris 9+	Yes	No	No

Other platforms and operating systems not listed above might work but are not officially supported.

If the Gateway6 Client is configured as an IPv4 router and requests an IPv4 prefix for its attached network, the prefix is negotiated by the client and the tunnel broker, but the Gateway6 Client does not yet implement the advertisement of this prefix on the attached network, for example, by configuring a DHCP server.

The DTD of the current TSP protocol version (2.0.0) already supports IPv4 in IPv6 encapsulation, using the **v4v6** keyword.

This implementation conforms to the IETF draft-blanchet-v6ops-tunnelbroker-tsp-03.txt and draft-bound-dstm-exp-04.txt specifications.

Refer to the *Gateway6 Client Configuration Guide* for additional information (#3256).

## Changes

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- ▶ Migration Broker becomes Gateway6.
- ▶ TSP Client becomes Gateway6 Client.

## Bug Fix

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- ▶ In Windows GUI, logs were not displayed after a clear, and in some instances, log rotation would not be caught by the GUI application (#3484) (#3494).



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# TSP Client Version 4.1 (2006-05-26)

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## **Bug Fixes**

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- ▶ Added support for rotating log files (#3443). Instead of growing the log file and using disk space, the client will now create timestamped log files to allow for a better management of the logging.
- ▶ Clean up logging messages (#3121). A lot of work has been done to improve the log messages wording and levels to make troubleshooting simpler. We also removed the -v option and include it in the configuration file. Under Windows, those using the Graphical User Interface will be able to control the logging from the advanced configuration.



## New Features

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### IPv4-in-IPv6 Tunnel Encapsulation

The IPv4 in IPv6 tunnel encapsulation method (v4v6), also known as Dual-Stack Transition Mechanism (DSTM), is now supported on some client platforms, as shown in this table. HexOS 4.0 supports IPv4 in IPv6 tunnel encapsulation on the broker side.

The TSP Client `tspc.conf` file is enhanced for v4v6 by these variables:

Variable	Value	Description
<code>tunnel_mode</code>	<code>v4v6</code>	To request a v4v6 tunnel, set the <code>tunnel_mode</code> variable to “v4v6”.
<code>if_tunnel_v4v6</code>	<i>interface name</i>	Specify the OS interface name for v4v6 tunnels. Specific to the Client operating system. For Windows, this variable is ignored since Windows uses dynamic allocation of interfaces.
<code>server_address</code>	<i>IPv6 address</i>	Specify the IPv6 address (and optionally the port number) of the TSP server on the broker. The format is an IPv6 address. If a port number is specified, the IPv6 address must be inside brackets, such as <code>[2001:db8:1:1::1]:3999</code> , per RFC 2732.
<code>client_v6</code>	<i>ipv6 address</i> <code>auto</code>	Specify the IPv6 address used by the client for its tunnel endpoint. If the variable is set to <code>auto</code> , the TSP Client uses the address provided by the operating system.

This table lists the encapsulation modes supported by the TSP Client on the supported operating systems:

Client OS	IPv6 in IPv4 encapsulation(v6 v4)	IPv6 over UDP IPv4 encapsulation (IPv4 NAT traversal) (v6udpv4)	IPv4 in IPv6 encapsulation (v4v6)
Windows: NT, 2000	Yes	No	No
Windows: XP, 2003	Yes	Yes	Yes
MacOSX 10.3+	Yes	No	No
Linux (Kernel 2.4+)	Yes	Yes	No
FreeBSD 5.0+	Yes	Yes	Yes
NetBSD 1.6+	Yes	No	No
OpenBSD 3.0+	Yes	No	No
Solaris 9+	Yes	No	No

Other platforms and operating systems not listed above might work but are not officially supported.

If the TSP Client is configured as an IPv4 router and requests an IPv4 prefix for its attached network, the prefix is negotiated by the client and the tunnel broker, but the TSP Client does not yet implement the advertisement of this prefix on the attached network, for example, by configuring a DHCP server.

The DTD of the current TSP protocol version (2.0.0) already supports IPv4 in IPv6 encapsulation, using the **v4v6** keyword.

This implementation conforms to the IETF draft-blanchet-v6ops-tunnelbroker-tsp-03.txt and draft-bound-dstm-exp-04.txt specifications.

Refer to the *TSP Client Configuration Guide* for additional information (#3256).

## Windows Graphical User Interface

The Windows TSP Client now has a graphical user interface (GUI) to configure and manage the TSP Client. Refer to the *TSP Client Configuration Guide* for additional information (#1610).

## Changes

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- ▶ When the client is running as a Windows service, it cannot request user input. When using the PASSDSS-3DES-1 authentication mode, the mode requires the client to accept the broker keys the first time it connects to the broker. When the client runs as a Windows service, is using the PASSDSS-3DES-1 authentication mode, and is connecting the first time to a new broker, it now automatically accepts the broker keys and writes a logging record (#3096,3407).
- ▶ The Windows installer does not offer to open the `tspc.conf` configuration file anymore. Instead, it offers to open the graphical user interface to configure the client (#3362,3364).
- ▶ The Windows installer for TSP Client 4.0 refuses to install on Windows 2000, since Windows 2000 does not have the facilities to support the 4.0 features. For Windows 2000 support, use the TSP Client version 3.0 (#3429).

## Bug Fixes

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- ▶ TCP fragmented packets are now correctly handled by the client (#3164).
- ▶ Byte-ordering for IPv6-UDP-IPv4 tunnels on big-endian platforms, such as PowerPC(MacOSX) and Sparc(Solaris), is now correctly handled by the client (#2603, 3334).
- ▶ The “=” character is now correctly supported in a user password (#3389).
- ▶ Openbsd was missing as a target in the make help message(#3422). Under Windows, the IPv6 stack is no longer reset each time a tunnel is negotiated, so the IPv6 configuration of other interfaces remains unchanged. However, when switching from v4v6 to v6anyv4, the v4 addresses on the v4v6 interface are not removed and no reset is done on the v6v4 interface on Windows XP without service pack (#3348).

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# TSP Client Version 3.0 (2005-03-31)

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## **Documentation Change**

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The HexOS and TSP Client now have separate Release Notes documents, titled: *Hexago Gateway6 HexOS Release Notes* and *Hexago Gateway6 TSP Client Release Notes*. This will enable different release paths for these components. Please read both documents.

## **New Features**

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### **PassDSS Authentication Mechanism (#2821)**

A new authentication mechanism between the TSP Client and the broker, named PASSDSS, is added to the existing mechanisms (anonymous, plain, digest-md5). This PASSDSS mechanism is useful for RADIUS deployments where the RADIUS server does not support the authentication mechanism of the TSP Client.

The PassDSS authentication mechanism is implemented in the TSP Client and HexOS (Advanced version). The `auth_method` variable in the `tspc.conf` configuration file can be set to `passdss-3des-1` to force this authentication mechanism (#2821). Since the certificate of the broker is sent and verified by the TSP Client, the TSP Client user is prompted to accept the broker certificate the first time it connects to that broker.

The authentication method is documented in the IETF draft-newman-sasl-passdss-01.txt.

### **Windows Service (#2319)**

The Windows version is now implemented as a Windows service. It installs itself as a Windows service by default. Starting the client manually is no longer required and the DOS box of the client is no longer shown. When running as a service, the client starts automatically at boot. This behavior can be changed in the Services area of the Control Panel. To start or stop the client manually, use the Services panel or the command line "net {start | stop} tsp".





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# TSP Client Version 2.1.1 (2004-12-06)

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## **Bug Fixes**

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- ▶ Added support for Windows XP Service Pack 2 (#2233, 2406, 2529).
- ▶ Windows TSP Client as an IPv6 router on the same link was not forwarding packets (#2485).
- ▶ Windows TSP Client as an IPv6 router was not setting the IPv6 address properly (#2486).



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# TSP Client Version 2.1 (2004-07-21)

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## New Features

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- ▶ Keepalive was only for v6udp4 tunnels. It is now available for v6v4 tunnels (#2166).
- ▶ Windows installer has a new flag (/S) to do unattended installation without user interaction (#2424).
- ▶ By default, the `tspc.conf` file now points to `anon.freenet6.net` as the default broker for anonymous mode (#2353).

## Bug Fixes

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- ▶ OS implementations differ on setting MTU on tunnel interface. Now client forces to 1280 (#273, 1991, 1983).
- ▶ Fixed checksums of ICMP echo packets were not computed correctly on some platforms (#1992,1993).
- ▶ Man pages are updated (#2051).
- ▶ Improved information on log output and error messages (#1730, 1731, 1884, 1709, 2399).
- ▶ Handling changes in Microsoft Windows netsh syntax between releases and SPs (#1630, 2426, 2125).
- ▶ Fixed Solaris script. It did not work if run twice (#2022).
- ▶ Fixed Windows script. Now the script reports errors correctly to the TSP Client (#2154).
- ▶ Source code for all platforms is now synched with new client code architecture (#2052, 2210, 2212, 2213, 2214).
- ▶ Loopback route is now correctly handled in all cases (#2351).
- ▶ Fixed Windows forwarding when using a prefix (#2351).
- ▶ Removed RIPng execution and NDP when in host mode on Solaris (#2351).
- ▶ Linux template fails when tunnel interface doesn't exist (#2381).
- ▶ Case sensitivity of a template keyword disabled use of router mode (#2043, 2061).
- ▶ `tsp_version` variable in configuration file was not useful, so was removed (#2030).
- ▶ Client crashes when receiving `keepalive=0` by the broker (#2186).
- ▶ Improved makefile (#2017, 2027).
- ▶ Merged all Windows versions templates to a single template (#1986).
- ▶ Merged all freebsd versions templates to a single template (#1976).
- ▶ Improved error processing in the freebsd template script (#1721).
- ▶ Improved comments and instructions in the `tspc.conf` configuration file (#1711).
- ▶ `template` variable in `tspc.conf` was ignored when trying to use another template script file (#1925).
- ▶ Extraneous messages are removed from the windows installer process (#2219).
- ▶ Improved handling of keepalive messaging (#2348).
- ▶ Improved handling and error messages on Linux when the kernel does not support IPv6 (#2384).
- ▶ Improved handling and error messages on the Windows 2000 client template (#2434).
- ▶ Improved handling of case in templates (#2301).
- ▶ Specified port number in `tspc.conf` file was not working properly on Windows (#2354).
- ▶ Improved error message when missing user information in `tspc.conf` file (#1980).
- ▶ Improved handling of errors by the Windows installer (#2151, 2158).



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# TSP Client Version 2.0 (2004-02-13)

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## New Features

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- ▶ NAT traversal feature:
  - ☞ Available for FreeBSD and Linux. Labeled as v2.0.
  - ☞ For the other platforms, use the previous versions of the client.
- ▶ Consolidated FreeBSD template script (freebsd.sh). Note that the **template** variable in the `tspc.conf` file must be updated to **freebsd (template=freebsd)**.
- ▶ A new document describing the TSP Client in detail is available (*Migration Broker TSP Client Guide*).
- ▶ The TSP Client on Windows is now packaged in an executable installer. The installer uncompresses the TSP Client executable and configuration files on disk and also installs a new Windows interface driver. That interface is displayed as “TUN interface” in the network elements and is used for NAT traversal only. It is normal that this interface is disconnected if NAT traversal is not used. The installer now also checks for previously installed versions of the TSP Client. Please also note that the warning concerning the driver signature upon installation is normal.

## Bug Fixes

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- ▶ Fixed Windows XP with Update (IPv6 firewall is on by default) (#1600).
- ▶ Fixed Windows XP persistent routes (#1887).
- ▶ Enhanced debug messages and logging.
- ▶ Fixed FreeBSD 5.X script (changed gifconfig to ifconfig) (#1637).
- ▶ Fixed FreeBSD/Linux/Windows loopback route install with wrong prefix (#1722).
- ▶ Fixed FreeBSD/Linux/Windows route advertisement with wrong prefix (#1722).
- ▶ Fixed FreeBSD/Linux/Windows/NetBSD MTU mismatch (#1983).
- ▶ Fixed `tspc.conf` template information (#1711).
- ▶ Fixed Windows configuring prefix in router mode (#1923, 1924).
- ▶ Improved Linux requirements on modprobe ipv6 (#2012).

## Tunnel Setup Protocol (TSP) Changes

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- ▶ The DTD of the TSP is enhanced to support NAT traversal and the TSP protocol version is now 2.0.0. XML changes are:
  - ☞ New tunnel encapsulation mode: `v6udpv4`. The client can request a `v6anyv4` encapsulation mode.
  - ☞ New `keepalive` request and response parameter.



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# TSP Client Version 1.2 (2003-09-10)

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## **Bug Fixes**

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- ▶ Fixed bug in handling IPv4 address over 127.0.0.0/8 in the TSP Client.
- ▶ Fixed the usage of ping6 under Windows Server 2003.
- ▶ Fixed wrong route command in TSP Client NetBSD shell script.
- ▶ Fixed ping operation for Windows client with no DNS resolution.
- ▶ Fixed HTML pages display using Lynx browser.





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# TSP Client Version 1.1 (2003-08-13)

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## **New Features**

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- ▶ Added client template for Windows Server 2003.

## **Bug Fixes**

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- ▶ Fixed crash for some configurations of static tunnels.
- ▶ Fixed **show startup-config** problem in Rescue mode.
- ▶ Fixed problem of HTTP/TSP server not responding.
- ▶ Fixed hang in TSP processing of aborted sessions.
- ▶ Fixed bad handling of parsable characters in CLI.
- ▶ Fixed index mismatch in **show ipv6 route**.



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# TSP Client Version 1.0 (2003-05-21)

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## **New Features**

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- ▶ Initial release.



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Part number HEX-DC-0007-05

