

Knowledge Base

TCP/IP and NBT Configuration Parameters for Windows 2000 or Windows NT

PSS ID Number: 120642

Article Last Modified on 5/6/2003

The information in this article applies to:

- Microsoft Windows 2000 Server
 - Microsoft Windows 2000 Advanced Server
 - Microsoft Windows 2000 Professional
 - Microsoft Windows 2000 Datacenter Server
 - Microsoft Windows NT Workstation 3.5
 - Microsoft Windows NT Workstation 3.51
 - Microsoft Windows NT Workstation 4.0
 - Microsoft Windows NT Server 3.5
 - Microsoft Windows NT Server 3.51
 - Microsoft Windows NT Server 4.0
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This article was previously published under Q120642

For a Microsoft Windows XP version of this article, see [314053](#).

IMPORTANT: This article contains information about modifying the registry. Before you modify the registry, make sure to back it up and make sure that you understand how to restore the registry if a problem occurs. For information about how to back up, restore, and edit the registry, click the following article number to view the article in the Microsoft Knowledge Base:

[256986](#) Description of the Microsoft Windows Registry

SUMMARY

The TCP/IP protocol suite implementation for Windows NT 3.5x and 4.0 reads all of its configuration data from the registry. This information is written to the registry by the Network tool in Control Panel as part of the Setup process. Some of this information is also supplied by the Dynamic Host Configuration Protocol (DHCP) client service if it is enabled.

This reference defines all of the registry parameters used to configure the protocol driver, Tcip.sys, which implements the standard TCP/IP network protocols.

The implementation of the protocol suite should perform properly and efficiently in most environments using only the configuration information gathered by the Network tool in Control Panel and DHCP. Optimal default values for all other configurable aspects of the protocols have been encoded into the drivers.

There may be some unusual circumstances in customer installations where changes to certain default values are appropriate. To handle these cases, optional registry parameters can be created to modify the default behavior of some parts of the protocol drivers.

CAUTION: The Windows NT TCP/IP implementation is largely self tuning. Adjusting registry parameters without careful study may adversely affect system performance.

MORE INFORMATION

WARNING: If you use Registry Editor incorrectly, you may cause serious problems that may require you to reinstall your operating system. Microsoft cannot guarantee that you can solve problems that result from using Registry Editor incorrectly. Use Registry Editor at your own risk.

To change these parameters, use the following procedure:

1. Start Registry Editor (Regedt32.exe).
2. From the HKEY_LOCAL_MACHINE subtree, go to the following key:
\SYSTEM\CurrentControlSet\Services
3. Add a value to the key as described in the appropriate entry below by clicking **Add Value** on the **Edit** menu, typing the value, and then using the **Data Type** check box to set the value type.
4. Click **OK**.
5. Quit Registry Editor.
6. Reboot the computer to make the change take effect.

All of the TCP/IP parameters are registry values that are located under one of two different subkeys of

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services

Tcpip\Parameters
Adapter Name\Parameters\Tcpip

where *Adapter Name* refers to the subkey for a network adapter that TCP/IP is bound to, such as Lance01. Values under the latter key (s) are specific to each adapter. Parameters for which there may be both a DHCP and statically configured value may or may not exist depending on whether the system/adapter is DHCP configured and/or static override values have been specified. A reboot of the system is required for a change in any of these parameters to take effect.

IMPORTANT: The Windows NT 3.5 Resource Kit documentation was not updated properly from version 3.1, and lists a number of incorrect TCP/IP registry parameters. The parameters listed in this document should be used in their place. The Windows NT 3.5 TCP/IP stack was a complete rewrite, so many of the old parameters are no longer valid.

Standard Parameters Configurable Using Registry Editor

The following parameters are installed with default values by the Network tool in Control Panel during the installation of the TCP/IP components. They may be modified by using Registry Editor (Regedt32.exe).

DatabasePath

Key: Tcpiip\Parameters
 Value Type: REG_EXPAND_SZ - Character string
 Valid Range: A valid Windows NT file path
 Default: %SystemRoot%\system32\drivers\etc
 Description: This parameter specifies the path to the standard internet database files (HOSTS, LMHOSTS, NETWORKS, PROTOCOLS). It is used by the Windows Sockets interface.

ForwardBroadcasts

Key: Tcpiip\Parameters
 Value Type: REG_DWORD - Boolean
 Valid Range: 0 or 1 (False or True)
 Default: 0 (False)
 Description: Forwarding of broadcasts is not supported. This parameter is ignored.

UseZeroBroadcast

Key: *Adapter Name*\Parameters\Tcpiip

NOTE: In Windows 2000 and later this value is under the following key: **Key: Tcpiip\Parameters\Interfaces\ID for Adapter**

Value Type: REG_DWORD - Boolean
 Valid Range: 0 or 1 (False or True)
 Default: 0 (False)
 Description: If this parameter is set to 1 (True), then IP will use zeros- broadcasts (0.0.0.0) instead of ones-broadcasts (255.255.255.255). Most systems use ones- broadcasts, but some systems derived from BSD implementations use zeros- broadcasts. Systems that use different broadcasts will not interoperate well on the same network.

Optional Parameters Configurable Using Registry Editor

These parameters normally do not exist in the registry. They may be created to modify the default behavior of the TCP/IP protocol driver.

ArpAlwaysSourceRoute (new in NT 3.51)

Key: Tcpiip\Parameters
 Value Type: REG_DWORD - Boolean
 Valid Range: 0,1 (False or True)
 Default: 0 (False)
 Description: Setting this parameter to 1 will force TCP/IP to transmit ARP queries with source routing enabled on Token Ring networks. By default, the stack transmits ARP queries without source routing first and retries with source routing enabled if no reply was received.

ArpUseEtherSNAP

Key: Tcpiip\Parameters
 Value Type: REG_DWORD - Boolean
 Valid Range: 0,1 (False or True)
 Default: 0 (False)
 Description: Setting this parameter to 1 will force TCP/IP to transmit Ethernet packets using 802.3 SNAP encoding. By default, the stack transmits packets in DIX Ethernet format. It will always receive both formats.

DefaultTOS

Key: Tcpiip\Parameters
 Value Type: REG_DWORD - Number
 Valid Range: 0 - 255
 Default: 0
 Description: Specifies the default Type Of Service (TOS) value set in the header of outgoing IP packets. See RFC 791 for a definition of the values.

Note that DefaultTOS is not available in Windows 2000 and later.

DefaultTTL

Key: Tcpiip\Parameters
 Value Type: REG_DWORD - Number of seconds/hops
 Valid Range: 1-255
 Default: 32 for Windows NT version 3.51
 Default: 128 for Windows NT version 4.0
 Description: Specifies the default Time To Live (TTL) value set in the header of outgoing IP packets. The TTL determines the maximum amount of time an IP packet may live in the network without reaching its destination. It is effectively a limit on the number of routers an IP packet may pass through before being discarded.

EnableDeadGWDetect

Key: Tcpiip\Parameters
 Value Type: REG_DWORD - Boolean
 Valid Range: 0,1 (False, True)
 Default: 1 (True)
 Description: Setting this parameter to 1 causes TCP to perform Dead Gateway Detection. With this feature enabled, TCP will ask IP to change to a backup gateway if it retransmits a segment several times without receiving a response. Backup gateways may be defined in the Advanced section of the TCP/IP configuration dialog in the Network Control Panel.

EnablePMTUBHDetect

Key: Tcpiip\Parameters
 Value Type: REG_DWORD - Boolean
 Valid Range: 0,1 (False, True)
 Default: 0 (False)
 Description: Setting this parameter to 1 (True) causes TCP to try to detect "Black Hole" routers while doing Path MTU Discovery. A "Black Hole" router does not return ICMP Destination Unreachable messages when it needs to fragment an IP datagram with the Don't Fragment bit set. TCP depends on receiving these messages to perform Path MTU Discovery. With this feature enabled, TCP will try to send segments without the Don't Fragment bit set if several retransmissions of a segment go unacknowledged. If the segment is acknowledged as a result, the MSS will be decreased and the Don't Fragment bit will be set in future packets on the connection. Enabling black hole detection increases the maximum number of retransmissions performed for a given segment.

EnablePMTUDiscovery

Key: Tcip\Parameters

Value Type: REG_DWORD - Boolean

Valid Range: 0,1 (False, True)

Default: 1 (True)

Description: Setting this parameter to 1 (True) causes TCP to attempt to discover the Maximum Transmission Unit (MTU) or largest packet size) over the path to a remote host. By discovering the Path MTU and limiting TCP segments to this size, TCP can eliminate fragmentation at routers along the path that connect networks with different MTUs. Fragmentation adversely affects TCP throughput and network congestion. Setting this parameter to 0 causes an MTU of 576 bytes to be used for all connections that are not to machines on the local subnet.

ForwardBufferMemory

Key: Tcip\Parameters

Value Type: REG_DWORD - Number of bytes

Valid Range: *network MTU - some reasonable value smaller than 0xFFFFFFFF*

Default: 74240 (enough for fifty 1480-byte packets, rounded to a multiple of 256)

Description: This parameter determines how much memory IP allocates to store packet data in the router packet queue. When this buffer space is filled, the router begins discarding packets at random from its queue. Packet queue data buffers are 256 bytes in length, so the value of this parameter should be a multiple of 256. Multiple buffers are chained together for larger packets. The IP header for a packet is stored separately. This parameter is ignored and no buffers are allocated if the IP router is not enabled.

IGMPLevel

Key: Tcip\Parameters

Value Type: REG_DWORD - Number

Valid Range: 0,1,2

Default: 2

Description: This parameter determines to what extent the system supports IP multicasting and participates in the Internet Group Management Protocol. At level 0, the system provides no multicast support. At level 1, the system may only send IP multicast packets. At level 2, the system may send IP multicast packets and fully participate in IGMP to receive multicast packets.

KeepAliveInterval

Key: Tcip\Parameters

Value Type: REG_DWORD - Time in milliseconds

Valid Range: 1 - 0xFFFFFFFF

Default: 1000 (one second)

Description: This parameter determines the interval separating keep alive retransmissions until a response is received. Once a response is received, the delay until the next keep alive transmission is again controlled by the value of KeepAliveTime. The connection will be aborted after the number of retransmissions specified by TcpMaxDataRetransmissions have gone unanswered.

KeepAliveTime

Key: Tcip\Parameters

Value Type: REG_DWORD - Time in milliseconds

Valid Range: 1 - 0xFFFFFFFF

Default: 7,200,000 (two hours)

Description: The parameter controls how often TCP attempts to verify that an idle connection is still intact by sending a keep alive packet. If the remote system is still reachable and functioning, it will acknowledge the keep alive transmission. Keep alive packets are not sent by default. This feature may be enabled on a connection by an application.

MTU

Key: *Adapter Name*\Parameters\Tcip

NOTE: In Windows 2000 and later this value is under the following key:

Key: Tcip\Parameters\Interfaces*ID for Adapter*

Value Type: REG_DWORD Number

Valid Range: 68 - *the MTU of the underlying network*

Default: 0xFFFFFFFF

Description: This parameter overrides the default Maximum Transmission Unit (MTU) for a network interface. The MTU is the maximum packet size in bytes that the transport will transmit over the underlying network. The size includes the transport header. Note that an IP datagram may span multiple packets. Values larger than the default for the underlying network will result in the transport using the network default MTU. Values smaller than 68 will result in the transport using an MTU of 68.

NumForwardPackets

Key: Tcip\Parameters

Value Type: REG_DWORD Number

Valid Range: 1 - *some reasonable value smaller than 0xFFFFFFFF* Default: 50

Description: This parameter determines the number of IP packet headers allocated for the router packet queue. When all headers are in use, the router will begin to discard packets at random from the queue. This value should be at least as large as the ForwardBufferMemory value divided by the maximum IP data size of the networks connected to the router. It should be no larger than the ForwardBufferMemory value divided by 256, since at least 256 bytes of forward buffer memory are used for each packet. The optimal number of forward packets for a given ForwardBufferMemory size depends on the type of traffic carried on the network and will be somewhere in between these two values. This parameter is ignored and no headers are allocated if the router is not enabled.

TcpMaxConnectRetransmissions

Key: Tcip\Parameters

Value Type: REG_DWORD - Number

Valid Range: 0 - 0xFFFFFFFF

Default: 3 (in Windows NT)

Default: 2 (in Windows 2000)

Description: This parameter determines the number of times TCP will retransmit a connect request (SYN) before aborting the attempt. The retransmission timeout is doubled with each successive retransmission in a given connect attempt. The initial timeout value is three seconds.

TcpMaxDataRetransmissions

Key: Tcip\Parameters

Value Type: REG_DWORD - Number

Valid Range: 0 - 0xFFFFFFFF

Default: 5

Description: This parameter controls the number of times TCP will retransmit an individual data segment (non connect segment) before aborting the connection. The retransmission timeout is doubled with each successive retransmission on a connection. It is reset when responses resume. The base timeout value is dynamically determined by the measured round-trip time on the connection.

TcpNumConnections

Key: Tcpip\Parameters

Value Type: REG_DWORD - Number

Valid Range: 0 - 0xfffffe

Default: 0xfffffe

Description: This parameter limits the maximum number of connections that TCP may have open simultaneously.

TcpTimedWaitDelay (new in Windows NT versions 3.51 SP5 and later)

Key: Tcpip\Parameters

Value Type: REG_DWORD - Time in seconds

Valid Range: 30-300 (decimal)

Default: 0xF0 (240 decimal)

Description: This parameter determines the length of time that a connection will stay in the TIME_WAIT state when being closed. While a connection is in the TIME_WAIT state, the socket pair cannot be re-used. This is also known as the "2MSL" state, as by RFC the value should be twice the maximum segment lifetime on the network. See RFC793 for further details.

TcpUseRFC1122UrgentPointer

Key: Tcpip\Parameters

Value Type: REG_DWORD - Boolean

Valid Range: 0,1 (False, True)

Default: 0 (False)

Description: This parameter determines whether TCP uses the RFC 1122 specification for urgent data or the mode used by BSD-derived systems. The two mechanisms interpret the urgent pointer in the TCP header and the length of the urgent data differently. They are not interoperable. Windows NT defaults to BSD mode.

TcpWindowSize

Key: Tcpip\Parameters

Value Type: REG_DWORD - Number of bytes

Valid Range: 0 - 0xFFFF

Default: The smaller of 0xFFFF

OR

(The larger of four times the maximum TCP data size on the network

OR

8192 rounded up to an even multiple of the network TCP data size.)

The default is 8760 for Ethernet.

Description: This parameter determines the maximum TCP receive window size offered by the system. The receive window specifies the number of bytes a sender may transmit without receiving an acknowledgment. In general, larger receive windows will improve performance over high (delay * bandwidth) networks. For highest efficiency, the receive window should be an even multiple of the TCP Maximum Segment Size (MSS).

Parameters Configurable from the Network tool in Control Panel

The following parameters are created and modified automatically by the Network tool in Control Panel as a result of user-supplied information. There should be no need to configure them directly in the registry.

DefaultGateway

Key: *AdapterName*\Parameters\Tcpip

NOTE: In Windows 2000 and later this value is under the following key:

Key: Tcpip\Parameters\Interfaces*ID for Adapter*

Value Type: REG_MULTI_SZ - List of dotted decimal IP addresses

Valid Range: Any set of valid IP addresses

Default: None

Description: This parameter specifies the list of gateways to be used to route packets not destined for a subnet that the computer is directly connected to, and for which a more specific route does not exist. This parameter, if it has a valid value, overrides the DhcpDefaultGateway parameter.

Domain

Key: Tcpip\Parameters

Value Type: REG_SZ - Character string

Valid Range: Any valid DNS domain name

Default: None

Description: This parameter specifies the DNS domain name of the system. It is used by the Windows Sockets interface.

EnableDhcp

Key: *Adapter Name*\Parameters\Tcpip

NOTE: In Windows 2000 and later this value is under the following key:

Key: Tcpip\Parameters\Interfaces*ID for Adapter*

Value Type: REG_DWORD - Boolean

Valid Range: 0 or 1 (False or True)

Default: 0 (False)

Description: If this parameter is set to 1 (True), then the DHCP client service will attempt to configure the first IP interface on the adapter using DHCP.

Hostname

Key: Tcpip\Parameters

Value Type: REG_SZ - Character string

Valid Range: Any valid DNS hostname

Default: The computername of the system

Description: This parameter specifies the DNS hostname of the system, that will be returned by the "hostname" command.

IPAddress

Key: *Adapter Name*\Parameters\Tcpi

NOTE: In Windows 2000 and later this value is under the following key:

Key: Tcpi\Parameters\Interfaces*ID for Adapter*

Value Type: REG_MULTI_SZ - List of dotted- decimal IP addresses

Valid Range: Any set of valid IP addresses

Default: None

Description: This parameter specifies the IP addresses of the IP interfaces to be bound to the adapter. If the first address in the list is 0.0.0.0, then the primary interface on the adapter will be configured from DHCP. A system with more than one IP interface for an adapter is called "logically multihomed." There must be a valid subnet mask value in the SubnetMask parameter for each IP address specified in this parameter.

IPEnableRouter

Key: Tcpi\Parameters

Value Type: REG_DWORD - Boolean

Valid Range: 0 or 1 (False or True)

Default: 0 (False)

Description: Setting this parameter to 1 (True) causes the system to route IP packets between the networks that it is connected to.

NameServer

Key: Tcpi\Parameters

Value Type: REG_SZ - A space delimited list of dotted decimal IP addresses

Valid Range: Any set of valid IP address

Default: None (Blank)

Description: This parameter specifies the DNS name servers to be queried by Windows Sockets to resolve names.

SearchList

Key: Tcpi\Parameters

Value Type: REG_SZ - Delimited list of DNS domain name suffixes

Valid Range: Any set of valid DNS domain name suffixes (Space delimited for NT4 and earlier and Comma delimited for Win2000)

Valid Range: Any set of valid DNS domain name suffixes

Default: None

Description: This parameter specifies a list of domain name suffixes to append to a name to be resolved via the DNS if resolution of the unadorned name fails. By default, the value of the Domain parameter is appended only. This parameter is used by the Windows Sockets interface.

SubnetMask

Key: *Adapter Name*\Parameters\Tcpi

NOTE: In Windows 2000 and later this value is under the following key:

Key: Tcpi\Parameters\Interfaces*ID for Adapter*

Value Type: REG_MULTI_SZ - List of dotted decimal IP addresses

Valid Range: Any set of valid IP addresses.

Default: None

Description: This parameter specifies the subnet masks to be used with the IP interfaces bound to the adapter. If the first mask in the list is 0.0.0.0, then the primary interface on the adapter will be configured via DHCP. There must be a valid subnet mask value in the this parameter for each IP address specified in the IPAddress parameter.

Parameters Configurable via the Route.exe Command in Windows NT 3.51

In Windows NT 3.51, the route.exe command stores persistent IP routes as values under the Tcpi\Parameters\PersistentRoutes key. Each route is stored in the value name string as a comma-delimited list of the form:

destination,subnet mask,gateway

For example, the value representing a host route to destination 45.100.23.10 through gateway 131.110.0.1 would be named:

45.100.23.10,255.255.255.255,131.110.0.1

The value type is a REG_SZ. There is no value data (empty string). Addition and deletion of these values can be accomplished entirely using the route command. There should be no need to configure them directly.

Non-Configurable Parameters

The following parameters are created and used internally by the TCP/IP components. They should never be modified using Registry Editor. They are listed here for reference only.

DhcpDefaultGateway

Key: *Adapter Name*\Parameters\ Tcpi

NOTE: In Windows 2000 and later this value is under the following key:

Key: Tcpi\Parameters\Interfaces*ID for Adapter*

Value Type: REG_MULTI_SZ - List of dotted decimal IP addresses

Valid Range: Any set of valid IP addresses

Default: None

Description: This parameter specifies the list of default gateways to be used to route packets not destined for a subnet that the computer is directly connected to, and for which a more specific route does not exist. This parameter is written by the DHCP client service, if enabled. This parameter is overridden by a valid DefaultGateway parameter value.

DhcpIPAddress

Key: *Adapter Name*\Parameters\Tcpi

NOTE: In Windows 2000 and later this value is under the following key:

Key: Tcpip\Parameters\Interfaces*ID for Adapter*

Value Type: REG_SZ - Dotted decimal IP address

Valid Range: Any valid IP address

Default: None

Description: This parameter specifies the DHCP-configured IP address for the interface. If the IPAddress parameter contains a first value other than 0.0.0.0, then that value will override this parameter.

DhcpNameServer

Key: Tcpip\Parameters

Value Type: REG_SZ - A space delimited list of dotted decimal IP addresses

Valid Range: Any set of valid IP address

Default: None

Description: This parameter specifies the DNS name servers to be queried by Windows Sockets to resolve names. It is written by the DHCP client service, if enabled. If the NameServer parameter has a valid value, then it will override this parameter.

DhcpServer

Key: *Adapter Name*\Parameters\Tcpip

NOTE: In Windows 2000 and later this value is under the following key:

Key: Tcpip\Parameters\Interfaces*ID for Adapter*

Value Type: REG_SZ - Dotted decimal IP address

Valid Range: Any valid IP address

Default: None

Description: This parameter specifies the IP address of the DHCP server that granted the lease on the IP address in the DhcpIPAddress parameter.

DhcpSubnetMask

Key: *Adapter Name*\Parameters\Tcpip

NOTE: In Windows 2000 and later this value is under the following key:

Key: Tcpip\Parameters\Interfaces*ID for Adapter*

Value Type: REG_SZ - Dotted decimal IP subnet mask

Valid Range: Any subnet mask that is valid for the configured IP address

Default: None

Description: This parameter specifies the DHCP-configured subnet mask for the address specified in the DhcpIPAddress parameter.

IPInterfaceContext

Key: *Adapter Name*\Parameters\Tcpip

NOTE: In Windows 2000 and later this value is under the following key:

Key: Tcpip\Parameters\Interfaces*ID for Adapter*

Value Type: REG_DWORD

Valid Range: 0 - 0xFFFFFFFF

Default: None

Description: This parameter is written by the TCP/IP driver for use by the DHCP client service.

Lease

Key: *Adapter Name*\Parameters\Tcpip

NOTE: In Windows 2000 and later this value is under the following key:

Key: Tcpip\Parameters\Interfaces*ID for Adapter*

Value Type: REG_DWORD - Time in seconds

Valid Range: 1 - 0xFFFFFFFF

Default: None

Description: This parameter is used by the DHCP client service to store the time in seconds that the lease on the IP address for this adapter is valid for.

LeaseObtainedTime

Key: *Adapter Name*\Parameters\Tcpip

NOTE: In Windows 2000 and later this value is under the following key:

Key: Tcpip\Parameters\Interfaces*ID for Adapter*

Value Type: REG_DWORD - Absolute time in seconds since midnight of 1/1/70

Valid Range: 1 - 0xFFFFFFFF

Default: None

Description: This parameter is used by the DHCP client service to store the time at which the lease on the IP address for this adapter was obtained.

LeaseTerminatesTime

Key: *Adapter Name*\Parameters\Tcpip

NOTE: In Windows 2000 and later this value is under the following key:

Key: Tcpip\Parameters\Interfaces*ID for Adapter*

Value Type: REG_DWORD - Absolute time in seconds since midnight of 1/1/70

Valid Range: 1 - 0xFFFFFFFF

Default: None

Description: This parameter is used by the DHCP client service to store the time at which the lease on the IP address for this adapter will expire.

LLInterface

Key: *Adapter Name*\Parameters\Tcpip

NOTE: In Windows 2000 and later this value is under the following key:

Key: `Tcpip\Parameters\Interfaces\ID for Adapter`

Value Type: REG_SZ - NT device name

Valid Range: A legal NT device name

Default: Empty string (Blank)

Description: This parameter is used to direct IP to bind to a different link-layer protocol than the built-in ARP module. The value of the parameter is the name of the Windows NT device that IP should bind to. This parameter is in conjunction with the RAS component, for example.

T1

Key: `Adapter Name\Parameters\Tcpip`

NOTE: In Windows 2000 and later this value is under the following key:

Key: `Tcpip\Parameters\Interfaces\ID for Adapter`

Value Type: REG_DWORD - Absolute time in seconds since midnight of 1/1/70

Valid Range: 1 - 0xFFFFFFFF

Default: None

Description: This parameter is used by the DHCP client service to store the time at which the service will first try to renew the lease on the IP address for the adapter by contacting the server that granted the lease.

T2

Key: `AdapterName\Parameters\Tcpip`

NOTE: In Windows 2000 and later this value is under the following key:

Key: `Tcpip\Parameters\Interfaces\ID for Adapter`

Value Type: REG_DWORD - Absolute time in seconds since midnight of 1/1/70

Valid Range: 1 - 0xFFFFFFFF

Default: None

Description: This parameter is used by the DHCP client service to store the time at which the service will try to renew the lease on the IP address for the adapter by broadcasting a renewal request. Time T2 should only be reached if the service has been unable to renew the lease with the original server for some reason.

NBT

All of the NBT parameters are registry values located under one of two different subkeys of

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services

`Netbt\Parameters`

`Netbt\Adapters\Adapter Name`

where *Adapter Name* refers the subkey for a network adapter that NBT is bound to, such as Lance01. Values under the latter key(s) are specific to each adapter. If the system is configured via DHCP, then a change in parameters will take effect if the command `ipconfig /renew` is issued in a command shell. Otherwise, a reboot of the system is required for a change in any of these parameters to take effect.

Standard Parameters Configurable from Registry Editor

The following parameters are installed with default values by the Network tool in Control Panel during the installation of the TCP/IP components. They may be modified using Registry Editor (`Regedt32.exe`).

BcastNameQueryCount

Key: `Netbt\Parameters`

Value Type: REG_DWORD - Count

Valid Range: 1 to 0xFFFF

Default: 3

Description: This value determines the number of times NetBT broadcasts a query for a given name without receiving a response.

BcastQueryTimeout

Key: `Netbt\Parameters`

Value Type: REG_DWORD - Time in milliseconds

Valid Range: 100 to 0xFFFFFFFF

Default: 0x2ee (750 decimal)

Description: This value determines the time interval between successive broadcast name queries for the same name.

CacheTimeout

Key: `Netbt\Parameters`

Value Type: REG_DWORD - Time in milliseconds

Valid Range: 60000 to 0xFFFFFFFF

Default: 0x927c0 (600000 milliseconds = 10 minutes)

Description: This value determines the time interval that names are cached in the remote name table.

NameServerPort

Key: `Netbt\Parameters`

Value Type: REG_DWORD - UDP port number

Valid Range: 0 - 0xFFFF

Default: 0x89

Description: This parameter determines the destination port number to which NetBT will send name service related packets such as name queries and name registrations to WINS. The Microsoft WINS listens on port 0x89. NetBIOS name servers from other vendors may listen on different ports.

NameSrvQueryCount

Key: `Netbt\Parameters`

Value Type: REG_DWORD - Count

Valid Range: 0 - 0xFFFF

Default: 3

Description: This value determines the number of times NetBT sends a query to a WINS server for a given name without receiving a response.

NameSrvQueryTimeout

Key: Netbt\Parameters

Value Type: REG_DWORD - Time in milliseconds

Valid Range: 100 - 0xFFFFFFFF

Default: 1500 (1.5 seconds)

Description: This value determines the time interval between successive name queries to WINS for a given name.

SessionKeepAlive

Key: Netbt\Parameters

Value Type: REG_DWORD - Time in milliseconds

Valid Range: 60,000 - 0xFFFFFFFF

Default: 3,600,000 (1 hour)

Description: This value determines the time interval between keepalive transmissions on a session. Setting the value to 0xFFFFFFFF disables keepalives.

Size/Small/Medium/Large

Key: Netbt\Parameters

Value Type: REG_DWORD

Valid Range: 1, 2, 3 (Small, Medium, Large)

Default: 1 (Small)

Description: This value determines the size of the name tables used to store local and remote names. In general, Small is adequate. If the system is acting as a proxy nameserver, then the value is automatically set to Large to increase the size of the name cache hash table. Hash table buckets are sized as follows: Large: 256 Medium: 128 Small: 16

Optional Parameters Configurable from Registry Editor

These parameters normally do not exist in the registry. They may be created to modify the default behavior of the NetBT protocol driver.

BroadcastAddress

Key: Netbt\Parameters

Value Type: REG_DWORD - Four byte, little- endian encoded IP address

Valid Range: 0 - 0xFFFFFFFF

Default: The ones-broadcast address for each network.

Description: This parameter can be used to force NetBT to use a specific address for all broadcast name related packets. By default, NetBT uses the ones-broadcast address appropriate for each net (i.e., for a network of 11.101.0.0 with a subnet mask of 255.255.0.0, the subnet broadcast address would be 11.101.255.255). This parameter would be set, for example, if the network uses the zeros-broadcast address (set using the UseZeroBroadcast TCP/IP parameter). The appropriate subnet broadcast address would then be 11.101.0.0 in the example above. This parameter would then be set to 0x0b650000. Note that this parameter is global and will be used on all subnets that NetBT is bound to.

EnableProxyRegCheck

Key: Netbt\Parameters

Value Type: REG_DWORD - Boolean

Valid Range: 0 or 1 (False or True)

Default: 0 (False)

Description: If this parameter is set to 1 (True), then the proxy name server will send a negative response to a broadcast name registration if the name is already registered with WINS or is in the proxy's local name cache with a different IP address. The hazard of enabling this feature is that it prevents a system from changing its IP address as long as WINS has a mapping for the name. For this reason, it is disabled by default.

InitialRefreshTimeout

Key: Netbt\Parameters

Value Type: REG_DWORD - Time in milliseconds

Valid Range: 960000 - 0xFFFFFFFF

Default: 960000 (16 minutes)

Description: This parameter specifies the initial refresh timeout used by NBT during name registration. NBT tries to contact the WINS servers at 1/8th of this time interval when it is first registering names. When it receives a successful registration response, that response will contain the new refresh interval to use.

NOTE: In Windows 2000, the name for this parameter differs:

InitialRefreshT.O.

Key: HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\NetBT\Parameters

LmhostsTimeout

Key: Netbt\Parameters

Value Type: REG_DWORD - Time in milliseconds

Valid Range: 1000 - 0xFFFFFFFF

Default: 6000 (6 seconds)

Description: This parameter specifies the timeout value for Lmhosts and DNS name queries. The timer has a granularity of the timeout value, so the actual timeout could be as much as twice the value.

MaxDgramBuffering

Key: Netbt\Parameters

Value Type: REG_DWORD - Count of bytes

Valid Range: 0 - 0xFFFFFFFF

Default: 0x20000 (128 Kb)

Description: This parameter specifies the maximum amount of memory that NetBT will dynamically allocate for all outstanding datagram sends. Once this limit is reached, further sends will fail due to insufficient resources.

NodeType

Key: Netbt\Parameters

Value Type: REG_DWORD - Number

Valid Range: 1,2,4,8 (B-node, P-node, M-node, H-node)

Default: 1 or 8 based on the WINS server configuration

Description: This parameter determines what methods NetBT will use to register and resolve names. A B-node system uses broadcasts. A P-node system uses only point- to-point name queries to a name server (WINS). An M-node system broadcasts

first, then queries the name server. An H-node system queries the name server first, then broadcasts. Resolution via LMHOSTS and/or DNS, if enabled, will follow these methods. If this key is present it will override the DhcpNodeType key. If neither key is present, the system defaults to Bnode if there are no WINS servers configured for the network. The system defaults to Hnode if there is at least one WINS server configured.

RandomAdapter

Key: Netbt\Parameters

Value Type: REG_DWORD - Boolean

Valid Range: 0 or 1 (False or True)

Default: 0 (False)

Description: This parameter applies to a multihomed host only. If it is set to 1 (True), then NetBT will randomly choose the IP address to put in a name query response from all of its bound interfaces. Usually, the response contains the address of the interface that the query arrived on. This feature would be used by a server with two interfaces on the same network for load balancing.

RefreshOpCode

Key: Netbt\Parameters

Value Type: REG_DWORD - Number

Valid Range: 8, 9

Default: 8

Description: This parameter forces NetBT to use a specific opcode in name refresh packets. The specification for the NetBT protocol is somewhat ambiguous in this area. Although the default of 8 used by Microsoft implementations appears to be the intended value, some other implementations, such as those by Ungermann-Bass, use the value 9. Two implementations must use the same opcode to interoperate.

SingleResponse

Key: Netbt\Parameters

Value Type: REG_DWORD - Boolean

Valid Range: 0 or 1 (False or True)

Default: 0 (False)

Description: This parameter applies to a multihomed host only. If this parameter is set to 1 (True), then NBT will only supply an IP address from one of its bound interfaces in name query responses. By default, the addresses of all bound interfaces are included.

WinsDownTimeout

Key: Netbt\Parameters

Value Type: REG_DWORD - Time in milliseconds

Valid Range: 1000 - 0xFFFFFFFF

Default: 15,000 (15 seconds)

Description: This parameter determines the amount of time NBT will wait before again trying to use WINS after it fails to contact any WINS server. This feature primarily allows computers that are temporarily disconnected from the network, such as laptops, to proceed through boot processing without waiting to timeout out each WINS name registration or query individually.

Parameters Configurable from the Network Tool in Control Panel

The following parameters can be set via the Network tool in Control Panel. There should be no need to configure them directly.

EnableDns

Key: Netbt\Parameters

Value Type: REG_DWORD - Boolean

Valid Range: 0 or 1 (False or True)

Default: 0 (False)

Description: If this value is set to 1 (True), then NBT will query the DNS for names that cannot be resolved by WINS, broadcast, or the LMHOSTS file.

EnableLmhosts

Key: Netbt\Parameters

Value Type: REG_DWORD - Boolean

Valid Range: 0 or 1 (False or True)

Default: 1 (True)

Description: If this value is set to 1 (True), then NBT will search the LMHOSTS file, if it exists, for names that cannot be resolved by WINS or broadcast. By default there is no Lmhosts file database directory (specified by Tcpip\Parameters\DatabasePath), so no action will be taken. This value is written by the Advanced TCP/IP configuration dialog of the Network tool in Control Panel.

EnableProxy

Key: Netbt\Parameters

Value Type: REG_DWORD - Boolean

Valid Range: 0 or 1 (False or True)

Default: 0 (False)

Description: If this value is set to 1 (True), then the system will act as a proxy name server for the networks that NBT is bound to. A proxy name server answers broadcast queries for names that it has resolved through WINS. A proxy nameserver allows a network of Bnode implementations to connect to servers on other subnets that are registered with WINS.

NameServer

Key: Netbt\Adapters*Adapter Name*

NOTE: In Windows 2000 this value is under the following key:

Key: Netbt\Parameters\Interfaces*Tcpip_ID for Adapter*

Value Type: REG_SZ - Dotted decimal IP address (i.e. 11.101.1.200)

Valid Range: Any valid IP address

Default: blank (no address)

Description: This parameter specifies the IP address of the primary WINS server. If this parameter contains a valid value, it overrides the DHCP parameter of the same name.

NameServerBackup

Key: Netbt\Adapters*Adapter Name*

NOTE: In Windows 2000 this value is under the following key:

Key: Netbt\Parameters\Interfaces\Tcpip_ID for Adapter

Value Type: REG_SZ - Dotted decimal IP address (i.e. 11.101.1.200)

Valid Range: Any valid IP address.

Default: blank (no address)

Description: This parameter specifies the IP address of the backup WINS server. If this parameter contains a valid value, it overrides the DHCP parameter of the same name.

ScopeId

Key: Netbt\Parameters

Value Type: REG_SZ - Character string

Valid Range: Any valid DNS domain name consisting of two dot-separated parts, or a "*".

Default: None

Description: This parameter specifies the NetBIOS name scope for the node. This value must not begin with a period. If this parameter contains a valid value, it will override the DHCP parameter of the same name. A blank value (empty string) will be ignored. Setting this parameter to the value "*" indicates a null scope and will override the DHCP parameter.

Non-Configurable Parameters

The following parameters are created and used internally by the NetBT components. They should never be modified using Registry Editor. They are listed here for reference only.

DhcpNameServer

Key: Netbt\Adapters\Adapter Name

NOTE: In Windows 2000 this value is under the following key:

Key: Netbt\Parameters\Interfaces\Tcpip_ID for Adapter

Value Type: REG_SZ - Dotted decimal IP address (i.e. 11.101.1.200)

Valid Range: Any valid IP address

Default: None

Description: This parameter specifies the IP address of the primary WINS server. It is written by the DHCP client service, if enabled. A valid NameServer value will override this parameter.

DhcpNameServerBackup

Key: Netbt\Adapters\Adapter Name

NOTE: In Windows 2000 this value is under the following key:

Key: Netbt\Parameters\Interfaces\Tcpip_ID for Adapter

Value Type: REG_SZ - Dotted decimal IP address (i.e. 11.101.1.200)

Valid Range: Any valid IP address

Default: None

Description: This parameter specifies the IP address of the backup WINS server. It is written by the DHCP client service, if enabled. A valid BackupNameServer value will override this parameter.

DhcpNodeType

Key: Netbt\Parameters

Value Type: REG_DWORD - Number

Valid Range: 1 - 8

Default: 1

Description: This parameter specifies the NBT node type. It is written by the DHCP client service, if enabled. A valid NodeType value will override this parameter. See the entry for NodeType for a complete description.

DhcpScopeId

Key: Netbt\Parameters

Value Type: REG_SZ - Character string

Valid Range: a dot separated name string such as "microsoft.com"

Default: None

Description: This parameter specifies the NetBIOS name scope for the node. It is written by the DHCP client service, if enabled. This value must not begin with a period. See the entry for ScopeId for more information.

NbProvider

Key: Netbt\Parameters

Value Type: REG_SZ - Character string

Valid Range: _tcp

Default: _tcp

Description: This parameter is used internally by the RPC component. The default value should not be changed.

TransportBindName

Key: Netbt\Parameters

Value Type: REG_SZ - Character string

Valid Range: N/A

Default: \Device\

Description: This parameter is used internally during product development. The default value should not be changed.

Additional query words: prodnt tcp ip ntfajpr kbfaqw2knet

Keywords: kbenv kbinfo kbnetwork KB120642

Technology: kbwin2000AdvServ kbwin2000AdvServSearch kbwin2000DataServ kbwin2000DataServSearch kbwin2000Pro kbwin2000ProSearch kbwin2000Search kbwin2000Serv kbwin2000ServSearch kbWinAdvServSearch kbWinDataServSearch kbWinNT350search kbWinNT351search kbWinNT400search kbWinNTS350 kbWinNTS350search kbWinNTS351 kbWinNTS351search kbWinNTS400 kbWinNTS400search kbWinNTsearch kbWinNTSsearch kbWinNTW350 kbWinNTW350search kbWinNTW351 kbWinNTW351search kbWinNTW400 kbWinNTW400search kbWinNTWsearch

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