

- In the Replication Partners dialog box, select the WINS servers to which you want to send a replication trigger, and then choose the Push or Pull button, depending on whether you want to send the trigger to push partners or pull partners. Optionally, you can check the Push With Propagation box if you want the selected WINS server to propagate the trigger to all its pull partners.

• If Push If Push With Propagation is not checked, the selected WINS server will not propagate the trigger to its other partners.

• If Push With Propagation If Push With Propagation is checked, the selected WINS server sends a propagate push trigger to its pull partners after it has pulled in the latest information from the source WINS server. If If it does not need to pull in any replicas because it has the same or more up-to-date replicas than the source WINS server, it does not propagate the trigger to its pull partners.

• To start replication immediately

• In the Replication Partners dialog box, choose the Replicate Now button.

~~Managing Static Mappings~~

Fuller. None

Sort [l]rder

0 Sort Static Happings by LP Address

® Sort Statrc Happings by Computer Name

8 'M 4NN1EP [UUh]

121 xm-ANN | EP [n3h1

844-ANN | Er {2 | h]

8 x \, J1wr [nnh]

8 \u | MY [n3h]

8 \ ' \ J | HY [2Uh]

3 \ \ nn | ~mLn [nnh1

11.1u1.41.12

11 1u1.41.12

11 111 41 12

11.11] 5.B?.5B

11.1 [15.B?.5B

11.105.6?.56

11.1u1.43 58

Close

Sgt. Filter

4 .4

Add Happings

[Mort Happings

Edit Mapping Delete Mapping

Help

Static mappings are permanent lists of computer name-to-IP address mappings that cannot be

challenged or removed, except when the administrator removes the specific mapping. You use the Static Mappings command in WINS Manager to add, edit, import, or delete static mappings

for ~~clients~~clients on the network that are not WINS enabled.

Important

If DHCP is also used on the network, a reserved (or static) IP address will override any WINS

server settings. Static mappings should not be assigned to WINS-enabled computers.

~~Chapter 5 Installing and Configuring WINS Servers~~

~~————~~To view static mappings

1. From the Mappings menu, choose the Static Mappings command. ~~Static,~~

~~ings~~ • (local)

~~F-ter:None~~

~~————~~

11.101.43.56

~~1-~~

~~————~~.....

~~SortOrder~~ ———

~~0 Sort Static Mappings by IP Address~~

~~@Sort Static Mappings by Computer H_name~~

~~i~~

~~!~~

~~Cauuon~~

~~Caution~~ You cannot cancel changes made to the WINS database while working in the Static

Mappings dialog box. You must manually delete any entries that are added in error or

manually add back any entries that you mistakenly delete. This is because all changes to

the WINS database made in this dialog box take effect immediately.

2. In the Static Mappings dialog box, select ~~aSort~~ a Sort Order option, either by IP address or by

computer name. This selection determines the order in which entries appear in the list of

static mappings.

3. To edit or add ~~amapping~~ a mapping, follow the procedures described in "Adding Static Mappings" and

~~I~~

~~.i~~

~~Installing and Configuring WINS Servers~~

~~Managing Static Mappings~~

~~8of27~~

"Editing Static Mappings" later in this chapter.

~~4. ———~~

~~..~~To remove existing static mappings, select the mappings you want to delete from the ~~lis~~ list,

and then choose the Delete Mapping button.

5. —

To limit the range of mappings displayed in the list of static mappings, choose the Set Filter button and follow the procedure in "Filtering the Range of Mappings" later in this chapter.

To ~~turn~~ turn off filtering, choose the Clear Filter button.

6. —

When you finish viewing or changing the static mappings, choose the ~~Close~~ Close button.

€ç1. . . .

M 94

Qame: " Type

LP Address:

@ Qnique

O Qmup

O Internet Group

O M.u|\ih0|-ned

'Usa-apears1

3

Managing Static Mappings

Adding Static Mappings

You can add static mappings to the WINS database for specific IP addresses using two methods:

• —

1 Type static mappings in ~~adialog~~ dialog box

• —

" Import files that contain static mappings

~~ifl~~ To add static mappings to the WINS database by typing entries

1. ~~In~~ In the Static Mappings dialog box, choose the Add ~~Mappings~~ Mappings button.

~~!Sj Add Static Mappings~~

~~Name: Type j \ \a apears1 @! !nique !PAddress:~~

~~0 _!i10up~~

~~,, .103 .41 .q 0 Internet G10up~~

~~±~~

~~0 Multihomed~~

2. In the Name box of the Add Static Mappings dialog box, type the computer name of the

system for which you are adding ~~astatic~~ static mapping. (~~ifl~~ if you ~~wan~~ want, you do not need to type

two backslashes, because WINS ~~Manager will~~ Manager will add these for you.)

3. In the IP Address box, type the address for ~~the~~ the computer.

If Internet Group or Multihomed is selected as the Type option, the dialog box shows

additional controls for adding multiple addresses. Use the down-arrow button to move the

address you type into the list of addresses for the group. Use the up-arrow button to ~~change~~

change the order of ~~aselected~~ a selected address in the list.

4. Select ~~a~~Type ~~a~~Type option to indicate ~~whether~~Whether this entry is ~~a~~unique ~~a~~unique name or ~~a~~kind ~~a~~kind of group with ~~a~~special ~~e~~special name, as described in the following list.

Installing and Configuring WINS Servers 9 of 27

Type option Meaning

Unique Unique name in the database, with one address per name.

Group ~~Normal~~Normal group, where addresses of individual members are not stored. The client broadcasts name packets to normal groups.

~~Chapter 5 Installing and Configuring WINS Servers~~

~~Type option Meaning~~

Internet group Groups with NetBIOS names that have ~~0x1C~~0x1C as the 16th byte. An internet group stores up to 25 addresses for members. The maximum number of addresses is 25. For

members. The maximum number of addresses is 25. For

registrations after the 25th address, WINS overwrites a replica address or, if none is present, it overwrites the oldest registration.

Multihomed Unique name that can have more than one address (multihomed computers). The maximum number of addresses is 25. For registrations after the 25th address, WINS overwrites a replica address or, if none is present, it ~~overwrites~~overwrites the oldest registration.

Important

For internet group names defined in this dialog box (that is, added statically), make sure that the primary domain controller (PDC) for that domain is defined in the group if the PDC is running Windows NT Advanced Server version 3.1.

For more information, see "Managing Special Names" later in this chapter.

5. Choose the Add button.

The mapping is immediately added to the database for that entry, and then the boxes are

cleared so that you can add another entry.

6. Repeat this process for each static mapping you want to add to the database, and then

choose the Close button.

Important

Because each static mapping is added to the database when you choose the Add button,

you cannot cancel work in this dialog box. If you make a mistake in entering a name or

address for a mapping, you must return to the Static Mappings dialog box and delete the mapping there.

You can also import entries for static mappings for unique and special group names from any

file that has the same format as the LMHOSTS file (as described in Chapter 6, "Setting Up

LMHOSTS"). Scope names and keywords other than #DOM are ignored. However, normal

group and multihomed names can be added only by typing entries in the Add Static Mappings dialog box.

~~...~~To import a file containing static mapping entries

1. In the Static Mappings dialog box, choose the Import Mappings button.
2. In the Select Static Mapping File dialog box, which is similar to the standard Windows 'N' Open dialog box, specify a filename for a static mappings file by typing its name in the box,

or select one or more filenames in the list, and then choose the OK button to import the file.

The specified file is read, and ~~astatic~~a static mapping is created for each computer name and address. If the #DOM ~~keyword~~Keyword is included for any record, an internet group is created (if it is not already present), and the address is added to that group.

UK

Cancel

1 Help

Managing Static Mappings

Editing Static Mappings

You can change the IP addresses in static mappings owned by the WINS server you are currently administering.

~~...~~To edit a static mapping entry

1. In the Static Mappings dialog box, select the mapping you want to change and choose the Edit Mapping button, or double-click the mapping entry in the list.

~~Computer~~nl

Compute|Name: ~~\\ClingFree~~'\\[I]ingFree

Mapping Type: Unique

~~IP~~ Address: ~~111!... .10 1 .9 .9 .9 ,~~

i i i

You can view, but not edit, the Computer Name and Mapping Type option for the mapping in the Edit Static Mappings dialog box.

2. In the IP Address box, type a new address for the computer, and then choose the OK button.

The change is made in the WINS database immediately.

Note

If you want to change the computer name or group type related to ~~aspecific~~a specific IP address, you must delete the entry and redefine it in the Add Static Mappings dialog box.

~~Chapter 5~~ Installing and Configuring WINS ~~Servers~~Servers 10 of 27

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Managing Static Mappings

Filtering the Range of ~~Mappings~~Nappings

You may want to limit the range of IP addresses or computer names displayed in the Static Mappings or Show Database dialog boxes.

You can specify a portion of the computer name or IP address or both when filtering the list of mappings.

-----To filter mappings by address or name

1. In the dialog box for Static Mappings or Show Database, choose the Set Filter button.

Criteria

Computer ~~Harne~~Mama:

~~-----:;-----|~~

~~IP Address: 111 .101 -----|~~

2. In the Set Filter dialog box, type portions of the computer name, address, or both in the Computer Name or IP Address boxes.

You can use the asterisk (*) wildcard for portions of the name or address or both. For

example, you could type \\acct* to filter all computers with names that begin with acct.

However, for the address, ~~awildcard~~a wildcard can be used only for a complete octet. That is, you

can type 11.101.*.*, but you cannot enter 11.1*.1.1 in these boxes.

3. ~~Choose~~Chouse the OK button.

The selected range is displayed in the Static Mappings or Show Database dialog box. The

filtered range will remain until you clear the filter.

~~A message~~A message will tell you ~~if no~~if no mappings are found to match the range you specified, and the

list of mappings ~~will~~Will be empty.

If ~~a filter~~a filter is in effect for the range of mappings, ~~the~~the Clear Filter button is available for restoring

the entire list.

-----To clear the filtered range of mappings

• In the Static Mappings or Show Database dialog box, choose the Clear Filter button.

~~The~~The list now shows all mappings found in the database.

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IP Address:

Help

Managing Static Mappings

Managing Special Names

WINS recognizes special names for several types ~~of groups~~of groups, including a normal group,

multihomed, and internet group. This section describes these groups and presents some

background details to help you understand how WINS manages these groups.

Normal Group Names

~~A group~~A group name does not have an address associated with it. It can be valid on any subnet and

can be registered with more than one WINS server. ~~A group~~A group's timestamp shows the last time

for any change received for the group. ~~If the~~If the WINS server receives a query for the group name,

it returns FFFFFFFF (the ~~limited~~limited broadcast address). The client then broadcasts on the subnet.

The group name is renewed when any member of the group renews the group name.

Multihomed Names

~~A multihomed~~A multihomed name is ~~a single~~a single, unique name storing multiple addresses. A multihomed device

is ~~a computer~~a computer with multiple network cards and/or multiple ~~IP~~IP addresses bound to NetBIOS over

TCP/IP. ~~A multihomed~~A multihomed device with multiple IP addresses can register one or more addresses

by sending one address at a time in a special name registration packet.

~~A multihomed~~A multihomed name in

a ~~WINS~~WINS database can have one or more addresses. The timestamp for the record reflects any

changes made for any members of the name.

Each multihomed group name can contain a maximum of 25 IP addresses.

~~When~~When you configure TCP/IP manually on ~~a Windows~~a Windows NT computer, you use the Advanced

Microsoft TCP/~~IP~~IP dialog box to specify the ~~IP~~IP address and other information for each adapter

on a multihomed computer.

Internet Group Names

The internet group name is read as configuration data. When dynamic name registrations for

internet groups are received, the actual address (rather than the subnet broadcast address) is

stored in the group with a timestamp and the owner ID, which indicates the WINS server

registering that address.

The internet group name (which has a 16th byte ending in ~~0x1C~~0x1C reserved for domain names,

as described in the following section) can contain ~~a maximum~~a maximum of 25 IP addresses for primary

and backup domain controllers in a domain. Dynamically registered names are added ~~if the~~if the list

is not static and ~~has~~has fewer than 25 members. If the list has 25 members, WINS removes a

replica member (that is, ~~a member~~a member registered by another WINS server) and adds the new

member. ~~If all~~If all members are owned by this WINS server, the oldest member is replaced by the

new one.

~~Chapter 5 Installing and Configuring WINS Servers~~

WINS gives precedence over remote members to members in an internet group name that

registered with it. This preference means that the group name always contains the

geographically closest Windows NT Server computers. To establish the preference of

members of internet groups registered with other WINS servers under the \Partners\Pull key in

the Registry, ~~a precedence~~a precedence is assigned for each WINS partner as ~~a value~~a value of the MemberPrec

Registry parameter. Preference should be given to WINS servers near the WINS server you are configuring. For more information about the value of this parameter, see its entry in

"Advanced Configuration Parameters for [WINS](#)" later in this chapter. [Installing and Configuring WINS Servers 120f27](#)

WINS always returns a negative response.

The internet group name is handled specially by WINS, which returns the 24 closest Windows

NT Server computers in the domain, plus the domain controller. The name ending in 1 C is also

used to discover [a Windows](#) NT Server computer in [a domain](#) when [a computer](#) running

Windows NT Workstation or Windows NT Server needs [a server](#) for pass-through authentication.

If your network still has domain controllers running Windows NT Advanced Server version 3.1

to be included in the internet group name, you must add these to the group manually using

WINS Manager. When you manually add such [a computer](#) to the internet group name, the list

becomes static and no longer accepts dynamic updates from [WINS](#)-enabled computers.

For information about related issues in LMHOSTS for #DOM entries, see "Designating Domain

Controllers Using #DOM" in Chapter 6, "Setting Up LMHOSTS."

How WINS Handles Special Names

Special names are indicated by a 16th byte appended to the computer name or domain name.

The following table shows some special names that can be ~~defined~~ [defined](#) for static entries in the Add

Static Mappings dialog box.

Special Names for Static [Mappings](#)

~~Name ending~~—Usage ~~How WINS handles queries~~

~~0x1E~~ ~~A normal~~ [A normal](#) group. Browsers

broadcast to this name and listen

on it to elect a master ~~WINS always returns the limited broadcast address~~

~~(FFFFFFFF).~~ browser. The

broadcast is done on the local

subnet and should not cross

routers.

~~0x1D~~—Clients resolve this name to access

[Name ending](#)

[0x1 E](#)

[How WINS handles queries](#)

[WINS always returns the limited broadcast](#)

[address \(FFFFFFFF\).](#)

[0x1D](#)

the master browser for server lists.

There is one master browser on a

subnet. ~~WINS always returns a negative response~~

[controller registers this name.](#)

If the node is h-node or m-node, the client broadcasts a name query to resolve the name. For registrations, WINS returns a positive response even though the names are not put into the database.

~~Special Names for Static Mappings (continued)~~

~~Name ending Usage How WINS handles queries~~

~~0x1C The internet group name, WINS treats this as an internet group, which contains a list of the where each member of the group must specific addresses of systems renew its name individually or be that have registered the name. released.~~

The internet group is limited ~~The domain controller registers~~ to 25 names. (Note, however, that ~~this name.~~ there is no limit for #DOM entries in LMHOSTS.)

WINS returns ~~a positive~~ a positive response for a ~~adynamie~~ dynamic registration of a static ~~1C~~ 1C name, but the address is not added to the list.

When a static 1 C name is replicated that clashes with a dynamic ~~1C~~ 1C name on another WINS server, a union of the members is added, 7 and the record is marked as static.

The following illustrates a sample NetBIOS name table for a Windows NT Server domain controller, such as the list that appears if you type nbtstat -n at the command prompt. This

table shows the 16th byte for special names, plus the type (unique or group).
NetBIOS Local Name Table ~~Name Type Status~~

Status

Registered

Registered

Registered

0x1C The internet group name, which contains a list of the specific addresses of systems that have registered the name. The domain

Name Type

~~<0C29870B> Unique Registered ANNI EP5 <20> UNIQUE Registered ANNI EP5 <00> UNIQUE Registered ANN I EPDOM <00> GROUP Registered ANNI EPDOM <1C> GROUP Registered ANNI EPDOM <1B> UNIQUE Registered ANNI EP5 <03> UNIQUE Registered ANNI EP5 <1E> GROUP Registered ANNI EP5 <10> UNIQUE Registered .._MSBROWSE <01> GROUP Registered~~

ANNI EP5

ANNI EP5

<20>

<00>

UNIQUE

UNIQUE

UNIQUE

ANNI EPDOM

ANNI EPDOM

ANNI EPDOM

ANNIEP5
ANNIEP5
ANNIEP5
MSBROWSE
<00>
<1C>
<1B>
<()3>
<1E>
<1D>
<()1>
GROUP
GROUP
UNIQUE
LMHQUE
GROUP
LHHQUE
GROUP
Registered
Registered
Registered
Registered
Registered
Registered
Registered

Example NetBIOS Name Table for a Windows NT Domain Controller

~~Chapter 5 Installing and Configuring WINS Servers~~

As shown in this example, several special names are identified for both the computer and the

domain. These special names include the following:

- ~~0x0~~ 0x0 (shown as <00> in the example), the redirector name, which is used with net view.

- ~~0x1~~ 0x3, the Messenger service name for sending messages.

- ~~MSBROWSE1~~ -1\ASBROWSE, the name master browsers broadcast to on the local subnet to announce their domains to other master browsers. WINS handles this name by returning the broadcast address FFFFFFFF.

- ~~0x1B1~~ 0x1B, the domain master browser name, which clients and browsers use to ~~contact~~ Contact the domain master browser. ~~AdomainA~~ domain master browser gets the names of all domain master browsers. When WINS is queried for the domain master browser name, it handles the query like any other name query and returns its address. WINS assumes that the computer that registers ~~adomaina~~ domain name with the ~~1B1B~~ 1B character is

the domain controller. This name is registered by the browser running on the domain controller. This ensures that the domain controller is in the internet group name list that is returned when a l C name is queried, for which WINS always returns the address of the lB1B name along with the members of a ~~lCname-~~ lC name.

Address Display Server Statistics

~~C) Ccomputer Name Only [8] Auto Refresh
 (ED LP Address Only Interval [Seconds]:
 O Computer Name [IP Address] Computer Names
 C-' IE Address [Computer Name] @ N lflanager-Compatible
 lrliscellaneous
 Ealidate Cache of "Known" WINS Servers at Startup Time
 >< Confirm Qeletion of Static lflappings 8: Cached WINS servers
 New Pull Partner Default Configuration
 Qtart Time:
 Qeplication Interval [h:m:s]: :
 New Push Partner Default Configuration
 Ll pdate Count:
 BU *;
 Dx Cancel L* .Hyip
 B:[IU am
 4 Q *E
 9l, .vç~~

~~Setting Preferences for WINS Manager -1 DUI]~~

You can configure several options for administration of WINS servers. The commands for

controlling preferences are on the Options menu.

~~-----~~To display the status bar for help on commands

- From the Options menu, choose the Status Bar command.

When this command is active, its name is checked on the menu, and the status bar at the

bottom of the WINS Manager window displays descriptions of commands as they are **highlighted**

hightighted in the menu bar.

~~.,-----~~To set preferences for WINS Manager

1. From the Options menu, choose the Preferences command.
2. To see all the available preferences, choose the Partners button in the Preferences dialog box.

~~----- Preferences~~

~~Address Display Selvel Statntics -----~~

~~O CQmpute- Name Only [8] Auto Re!lesh
 @!P Address Only ln!eival (Seconds): 160
 O Compute! .H_ame OP Address)~~

~~Compute! Names~~

~~O lfAddress (Compute! Name) [8] -!.AN Manage!-Compatible~~

Miscellaneous-----

~~0 Validate Cache of "Known" \IIINS Selves at Start-up Time
[8] Confirm Deletion of Static Mappings & Cached WINS selves
Start Time: 11:00 a.m.
Replication Interval (h:m:s): :[]I:[]I
New Push Path Default Config: JUFalio
Update Count: 11-000~~

3. Select an Address Display option to indicate how you want address information to be displayed throughout WINS Manager-as computer name, IP address, or an ordered combination of both.

Note

Remember that the kind of address display affects how ~~a connection~~ a connection is made to the WINS ~~server for IP addresses, the connection is made via TCP/IP, for computer names, the connection is made via named pipes.~~

~~Chapter 5 Installing and Configuring WINS Servers~~ Sewers
Setting Preferences for WINS Manager

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4.

5.

6.

7.

8.

9.

10.

server - for IP addresses, the connection is made via TCP/IP, for computer names, the connection is made via named pipes.

Check Auto Refresh if you want the statistics in the WINS Manager window to be refreshed

automatically. Then enter a number in the Interval box to specify the number of seconds

between refresh actions.

WINS Manager also refreshes the statistical display automatically each time an action is

initiated while you are working in WINS Manager.

~~5.~~

Check the LAN Manager-Compatible check box if you want computer names to adhere to the LAN Manager naming convention.

LAN Manager computer names are limited to 15 characters, as opposed to 16-character

NetBIOS names used by some other sources, such as Lotus Notes®. In LAN Manager names, the 16th byte is used to indicate whether the device is a server, workstation, messenger, and so on. When this option is checked, WINS adds and imports static mappings with 0, ~~0x03~~, and ~~0x20~~ as the 16th byte.

All Windows networking, including Windows NT, follows the LAN Manager convention. So

this box should be checked unless your network accepts NetBIOS name from other sources.

~~6.~~

Check Validate Cache Of Known WINS Servers At Startup Time if you want the system to query the list of servers each time the system starts to find out if each server is available.

~~7.~~

~~If you~~ If you want ~~a warning~~ a warning message to appear each time you delete a static mapping or the cached name of a WINS server, check the Confirm Deletion Of Static Mappings And Cached WINS Servers option.

~~8.~~

In the Start Time box, type a time to specify the default for replication start time for new pull partners. Then specify values for the Replication ~~Interval~~ Interval to indicate how often data replicas will be exchanged between the partners. The minimum value for the Replication ~~Interval~~ interval is 40 minutes.

~~9.~~

In the Update Count box, type ~~a number~~ a number to specify ~~a default~~ a default for how many registrations and changes can occur locally before a replication trigger is sent by this server when it is a push partner. The minimum value is 5.

~~10.~~

When all options are set for your preferences, choose ~~the~~ the OK button.

Managing the WINS Database

The following files are stored in the ~~\systemroot~~ \systemroot \SYSTEM32\WINS\ directory ~~that~~ that is created when you set up a WINS server:

•

JET.LOG is a log of all transactions done with the database. This file is used by WINS to recover data if necessary.

•

SYSTEM.MDB ' SYSTEMMDB is used by WINS for holding information about the structure of its database.

•

WINS.MDB WINSMDB is the WINS database file.

•

WINSTMP.MDB ' WINSTMPMDB is a temporary file that WINS creates. This file may remain in the \WINS directory after a crash.

You should back up these files when you back up ~~other~~ other files on the WINS server.

Caution

The JET.LOG, ~~SYSTEM.MDB, WINS.MDB~~SYSTEMMDB, WINSMDB, and WINSTMP.MDBWINSTMPMDB files should not be removed or tampered with in any manner. Like any database, the WINS database of address mappings needs to be cleaned and backed up periodically. WINS Manager provides the tools you need for maintaining the database. This section describes how to scavenge (clean), view, and back up the database. For information on restoring and moving the WINS database, see "Troubleshooting WINS" later in this chapter.

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Managing the WINS Database

Scavenging the Database

The local WINS database should periodically be cleared of released entries and old entries that were registered at another WINS server but did not get removed from this WINS database for some reason. This process, called scavenging, is done automatically over intervals defined by the relationship between the Renewal and Extinct intervals defined in the Configuration dialog box. You can also clean the database manually. For example, ~~if you want~~if you Want to verify old replicas immediately instead of waiting the time interval specified for verification, you can manually scavenge the database.

~~Chapter 5 Installing and Configuring WINS Servers~~

~~—~~To scavenge the WINS database

- ~~'~~' From the Mappings menu, choose the Initiate Scavenging command.

The database is cleaned, with the results as shown in the ~~following~~following table.

State before scavenging State after scavenging
Owned active names for which the Renewal Marked released ~~the Renewal~~
interval has expired

Owned released name for which the Extinct Marked ~~extinct~~extinct
~~the Extinct~~ interval ~~has expired~~

~~Owned extinct names for which Deleted~~

~~the Extinct timeout has expired~~

~~Replicas of extinct names for which Deleted the Extinct timeout~~ has expired

Replicas of active names for which the Verify Revalidated

~~the Verify~~ interval has expired

~~Replicas of extinct or deleted names Deleted~~

For information about the intervals and timeouts that govern database scavenging, see

"Configuring WINS Servers" earlier in this chapter.

~~After~~After WINS has been running for a while, the database may need to be compacted to improve

WINS performance.

~~—~~To compact the WINS database

1. At the WINS server, stop the Windows Internet Name Service using the Control Panel

Services option or by typing net stop wins at the command prompt.

2. Run ~~COMPACTf.EXE~~COMPACTEXE (which is found in the \systemroot\systemroot\SYSTEM32 directory).
3. Restart the Windows Internet Name Service on the WINS server.

~~134 TCPnP~~

. Installing and Configuring WINS Servers 150f27

Owned extinct names for which the Extinct timeout has expired

Deleted

Replicas of extinct names for which the Extinct timeout has expired

Deleted

Replicas of extinct or deleted names Deleted

Class

8.619

5 elFilter

§;3;§2§§ 38

Fiefresh

_lletele Uwner

8 xx-- MSBHUWSE-[01 h]

8 \ 'u4.-ANN|EP2 [UUh]

8 xm-ANN|EP2 [u3h]

8 am-ANN|EP2 [2nh]

8 am-ANN|EPDoM [nuh]

8 mm-ANNIEPDnM [1 Bh]

8 KM4.-ANN|EPDUH [1 Ch]

8 um-aNN|EPDuH [1Eh1]

11.1n3.41.12

11 1u3 41 12

11.1u3.41.12

11 1o3.41.12

11 1u3 41 12

11.1U3.41.12

11 1I]3.41.12

11 1u3.41.12

J

v'

v*

J

Jv

'

=

v"

v'

5:20134 4:14:43 PM

5/20/44 4:14:50 PM

5.»*2U.»"94 4:14:49 PH

5;2 [];94 4:14:50 PH

5:20:94 4:14:49 PM

5f20/94 4:14:43 PH

5:20/94 4:14:49 PM

5J'2U/94 4:14:43 PH

Managing the WINS Database

Viewing the WINS Database

ff f11 © Sort by Computer Plame
Select Owner: H' h l ID 'Q es O Sort by llmeslamp
CJ Sort by '3` ersion ID
Filter: None
Hppings A S Timestamp 'hferision ID

4. If you want to ~~view~~View only a range of mappings, choose the Set Filter button and follow the procedures described in "Filtering the Range of Mappings" earlier in this chapter. To ~~turn~~turn off filtering, choose the Clear Filter button.

5. Use the scroll bars in the Mappings box to view entries in the database. Then choose the Close button when you are finished viewing.

~~Chapter 5 Installing and Configuring WINS Servers~~

As ~~shown~~Show in the Mappings list, each registration record in the WINS database includes these elements:

Item

F

3*

Computer name

IP address

A or S

Timestamp

Version ID

Meaning

Unique

Group, internet group, or multihomed ~~Computer name~~

The NetBIOS computer name. ~~IP address~~

The assigned Internet Protocol address. ~~A or S~~

Whether the mapping is active (dynamic) or static. ~~Timestamp~~

Shows when the record was registered or updated. When a replica is stored in the database, its timestamp is set to the current time on the receiving WINS server. ~~Version ID~~ ~~Unique~~

A unique hexadecimal number assigned by the WINS server during name registration, which is used by the ~~server~~seNer's pull partner during replication to find new records.

You can also use the Show Database dialog box to remove all references to a specific WINS server in the database, including all database entries owned by the ~~WINS~~WINS server.

~~...~~ To delete a specific WINS ~~server~~seNer's entries in the database

- In the Show Database dialog box, select a WINS server in the Select Owner list, and then choose the Delete Owner button.

c:"4users"~.def ault

Directcriesi

New Directory_H_emeZ

1. Run ~~REGEDT32.EXE~~. REGEDT32.EXE.
 2. In Registry Editor, select the HKEY_LOCAL_MACHINE window, and then select this key:
~~SYSTEM\CurrentControlSet\Services~~SYSTEM\CurrentControlSet\Services
 3. From the Registry menu, choose Save Key.
 4. ~~In~~In the Save Key dialog box, specify the path where you store backup versions of the ~~WINS~~WINS database files.
- For information about restoring the WINS database, see the following section, "Troubleshooting ~~WINS~~WINS."

Troubleshooting WINS

This section describes some basic troubleshooting steps for common problems and also

describes how to restore or rebuild the WINS database.

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Troubleshooting WINS

Basic ~~WINS~~WINS Troubleshooting

These error conditions can indicate potential problems with the WINS

~~server~~server:

•

The administrator can't connect to a WINS server using WINS Manager. The message

that appears might be, "The RPC ~~server~~server is unavailable."

•

1 The WINS Client service or Windows Internet Name Service may be down and cannot be restarted.

The first troubleshooting task is to make sure the appropriate services are running.

~~—~~To ensure the WINS services are running

1. Use the Services option in Control Panel to verify that the WINS services are ~~running~~running.

In the Services ~~dialog~~dialog box for the client computer, Started should appear in the Status

column for the WINS Client service. For the WINS server itself, Started should appear in

the Status column for the Windows ~~Internet~~Internet Name ~~Service~~Service.

2. If a necessary service is not started on either computer, start the service.

The following describes solutions to common WINS problems.

~~—~~To locate the source of "duplicate name" error messages

- Check the WINS database for the name. ~~If there~~If there is a static record, remove it from the database of the primary WINS server.

~~—Or—~~

Set the value of MigrateOn in the Registry to 1, so the static records in the database can

be updated by dynamic registrations (after WINS successfully challenges the old address).

———To locate the source of "network path not found" error messages on a WINS client

- Check the WINS database for the name. ~~If the~~If the name is not present in the database, check whether the computer uses b-node name resolution. ~~If so~~If so, add a static mapping for it in the WINS database.

~~If the~~If the computer is configured as a p-node, m-node, or h-node and if its IP address is different from the one in the WINS database, then it may be that its address changed recently and the new address has not yet replicated to the local WINS server.

To get the latest records, ask the WINS server that registered the address to perform a push replication with propagation to the local WINS ~~server~~server.

———To discover why a WINS server cannot pull or push replications to another WINS server

1. Confirm that the router is working.
2. Ensure that each server is correctly configured as either a pull or push partner:

- ~~If ServerA~~If ServerA needs to perform pull replications with ServerB, make sure it is a push partner of ServerB.

- If ServerA needs to push replications to ServerB, it should be ~~a pull~~a pull partner of WINS

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ServerB.

To determine the configuration of a replication partner, check the values under the ~~\Pull~~\Pull and ~~\Push~~ keys in the Registry, as described in "Advanced Configuration Parameters for WINS" later in this chapter.

—V To determine why WINS backup is failing consistently

- Make sure the path for the WINS backup directory is on a local disk on the WINS ~~server~~server. WINS cannot back up its database files to a remote drive.

~~Chapter 5 Installing and Configuring WINS Servers~~ [Troubleshooting WINS](#)

Restoring or Moving the WINS Database

This section describes how to restore, rebuild, or move the WINS database.

Restoring ~~a~~a WINS Database

If you have determined that the Windows Internet Name Service is running on the WINS

server, but you cannot connect to the server using WINS Manager, then the WINS database ~~is~~is

not available or has become corrupted. If a WINS ~~server~~server fails for any reason, you can restore

the database from a backup copy.

You can use the menu commands to restore the WINS database or restore it manually.

~~_____~~ To restore a WINS database using menu commands

1. From the Mappings menu, choose the Restore Database command.
2. In the Select Directory To Restore From dialog box, select the location where the backup files are stored, and then choose the OK button.

~~_____~~ To restore a WINS database manually

1. In the ~~\systemroot~~\systemroot~~\sysfemroof~~\sysfemroof\SYSTEM32\~~WINS~~WINS\NS directory, delete the JET.LOG, JET* .LOG, ~~WINS~~WINS.TMP, and ~~SYSTEM.MDB~~SYSTEMMDB files.

2. From the Windows NT Server installation source, copy ~~SYSTEM.MDB~~SYSTEMMDB on the WINS server. The installation source can be the Windows NT Server compact disc, the installation floppy disks, or a network directory that contains the master files for Windows NT Server.

3. Copy an uncorrupted backup version of ~~WINS.MDB~~WINSMDB to the ~~\systemroot~~\systemroot~~sysz'emroof~~'emroof\SYSTEM32\~~WINS~~WINS directory.

4. Restart ~~the~~the ~~Uwe~~Uwe Windows ~~Internet~~Internet Name Service on the WINS server. Restarting and Rebuilding ~~aDowna~~Down WINS Server

In rare circumstances, the WINS server may not boot or a STOP error may occur. If the WINS server is down, follow these steps to restart.

~~_____~~ To restart a WINS server that is down

1. Turn off the power to the server and ~~wait~~Wait one minute.
2. Turn on the power, start Windows NT Server, and logon under an account with Administrator rights.

3. At the command prompt, type net start wins and press ~~ENTER~~Enter.

~~If~~If the hardware for the WINS server is malfunctioning or other problems prevent you from running Windows NT, you ~~will~~Will have to rebuild the WINS database on another computer.

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~~IJ).~~ To rebuild a WINS ~~server~~server

1. If you can start the original WINS ~~server~~server using MS-DOS, use MS-DOS to make backup

copies of the files in the ~~systemroot~~systemroot\~~sysfemroof~~sysfemroof\SYSTEM32\~~WINS~~WINS directory. If you cannot start the computer with MS-DOS, you will have to use the ~~last~~last backup version of the WINS database ~~files.~~files.

2. Install Windows NT Server and Microsoft TCP/IP to create a new WINS server using the

same hard drive location and ~~systemroot~~systemroot\~~sysfemroof~~sysfemroof directory. That is, if the original server stored the

WINS files on ~~C:\WINNT~~C:\WINNT~~CZ\WLNNT~~CZ\WLNNT35\SYSTEM32\~~WINS~~WINS, then the new WINS server should use this

same path to the WINS files.

3. Make sure the WINS services on the new server are stopped, and then use Registry Editor

to restore the WINS keys from backup ~~files~~fiies.

4. Copy the WINS backup files to the ~~\systemroot~~sysfemroof\SYSTEM32\WINS\WINS directory.

5. Restart the new ~~7~~. rebuilt WINS server.

Moving the WINS Database

You may find a situation ~~where~~Where you need to move a WINS database to another computer. To

do this, follow these steps.

~~1J)~~—To move a WINS database

1. Stop the Windows Internet Name Service on the current computer.

2. Copy the \SYSTEM32\WINS\WINS directory to the new computer that has been configured as a WINS

WINS server.

Make sure the new ~~directory~~directory is under exactly the same drive letter and path as on ~~the~~lwe old

computer.

If you must copy the files to a different directory, copy ~~WINS.MDB~~WINSMDB, but not ~~SYSTEM.MDB~~SYSTEMMDB.

Use the version of ~~SYSTEM.MDB~~SYSTEMMDB created for that new computer.

3. Start the Windows Internet Name Service on the new computer. WINS will automatically

use the .MDB and .LOG files copied from the old computer.

~~Chapter 5~~ Installing and Configuring WINS Servers 21 of 27

Advanced Configuration Parameters for WINS

This section presents configuration parameters that affect the behavior of WINS and that can

be modified ~~only~~only through Registry Editor. For some parameters, WINS can detect Registry

changes immediately. For other parameters, you must restart the Windows

~~Internet~~internet Name

Service for the changes to take effect.

~~Caution~~Cauhon

You can impair or disable Windows NT if you make incorrect changes in the Registry while

using Registry Editor. Whenever possible, use WINS Manager to make configuration changes,

rather than using Registry Editor. If you make errors while changing values with Registry Editor,

you will not be warned, because Registry Editor does not recognize semantic errors.

~~...~~ToTc make changes to WINS configuration using Registry Editor

1. Run ~~REGEDT32.EXE~~REGEDT32EXE from File Manager or Program Manager, or at a command prompt,

type start regedt32 and press ENTER.

When the Registry Editor window appears, you can press ~~F1~~F1 to get Help on how to make

changes in Registry Editor.

2. In Registry Editor, click the ~~window titled~~Window titted

HKEY_LOCAL_MACHINE On ~~Local~~Locai Machine,

and then click the icons for the SYSTEM subtree until you reach the appropriate subkey,

as described later in this section.

The following describes the value entries for WINS parameters that can only be set by adding an entry or changing values in Registry Editor.

Advanced Configuration Parameters for WINS

Registry Parameters for ~~WINS Servers~~ svms Sewers

The Registry parameters for WINS servers are specified under the following key:

~~.\SYSTEM\CurrentControlSet~~ CurrentControlSet \Services\Wins\Parameters

This subkey lists all the ~~nonreplication~~ nonreplication-related parameters needed to configure a WINS ~~server~~ ser \er.

It also contains a \Datafiles subkey, which lists all the files that should be read by ~~WINS~~ WINS to initialize or reinitialize its local database.

DbFileNm

Data type = REG_ EXPAND_ SZ

Range = path name

Default = %SystemRoot%\system32\wins\wins.mdb

Specifies the full path name for the WINS database file.

DoStaticDataInIt

Data type = REG_ DWORD

Range = 0 or 1

Default = 0 (~~false~~ false-that is, the WINS server does not initialize its database)

~~If this~~ If this parameter is set to a non-zero value, the WINS server will initialize its database with

records listed in one or more files listed under the \Datafiles subkey. The initialization is

done at process invocation and whenever ~~a change~~ a change is made to one or more values of the

\Parameters or \Datafiles keys (unless the change is to change the value of DoStaticDataInIt to 0).

The following parameters in this subkey can be set using the options available in the WINS

Server Configuration dialog box:

LogDetailedEvents

LogFilePath

LoggingOn

RefreshInterval ~~Rp|OnlyWCofPnrs TombstoneInterval~~

Rp|OnlyWCnfPnrs

TombstoneInten/al (extinction interval)

TombstoneTimeout (extinction timeout) ~~VerifyInterval~~

~~Chapter 5 Installing and Configuring WINS Servers~~ VVrifyIntewal

Also, the \Wins\Parameters\Datafiles key lists one or more files that the WINS server should

read to initialize or reinitialize its local database with static records.

~~If~~ If the full path of the file is

not listed, the directory of execution for the WINS server is assumed to contain the data file.

The parameters can have any names (for example, DF1 or DF2). Their data types must be

REG_ sz or REG_ EXPAND_ sz.

Important

The \Wins\Performance ~~key~~Key contains ~~values~~values used for WINS performance counters that can be viewed in Performance Monitor. These values should be maintained by the system, so do not change these values.

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Advanced Configuration Parameters for WINS

Registry Parameters for Replication Partners

The \Wins\Partners key has two subkeys, \Pull and ~~\Push~~Push, under which are subkeys for the IP

addresses of all push and pull partners, respectively, of the WINS server. Parameters for Push Partners

~~A~~push partner, listed under the \Partners\Pull key, is one from which a WINS server pulls

replicas and from which it can expect update notification messages. The following parameter

appears under the IP address for ~~aspecific~~a specific push partner. This parameter can be set only by

changing the value in Registry Editor:

~~MemberPrec~~MemberPrec

Data type = REG_~~DWORD~~DWORD

Range = 0 or 1

Default = None

Specifies the order of precedence for this WINS partner. 0 indicates low precedence, and

1 indicates high precedence. Notice that dynamically registered names are always high

precedence. When a 1C name is pulled from this WINS partner, the addresses contained

in it are given this precedence level. The value can be 0 (low) or 1 (high). Set this value to

1 if this WINS server is ~~servings~~near a geographic location that is nearby. The ~~following~~following parameters appear under this subkey and can be set in the WINS Server

Configuration dialog box:

..

~~\SYSTEM\CurrentControlSet~~\SYSTEM\CurrentControlSet\Services\Wins\~~Partners\PullPa~~rtners\Pull

InitTimeReplication CommRetryCount

The following parameters appear under this subkey and can be set using the Preferences

dialog box:

..

~~\SYSTEM\CurrentControlSet~~\SYSTEM\CurrentControlSet\Services\Wins\~~Partners\PullPa~~rtners\Pull<Ip Address>

SpTime (Start Time for pull partner default configuration) TimeInterval (Replication Interval)

For SpTime, WINS replicates at the set time if it is in the future for that day. ~~After~~After that, it

replicates every number of seconds specified by TimeInterval. If SpTime is in the past for that

day, WINS replicates every number of seconds specified by TimeInterval, starting from the

current time (if InitTimeReplication is set to 1).

Parameters for Pull Partners

~~A pull~~ A pull partner of a WINS server, listed under the \Partners\Push key, is one from which it can

expect pull requests to pull replicas and to which it sends update notification messages. The

following parameters appear under this subkey and can be set using the options available in

the WINS Server Configuration dialog box:

~~.~~

~~\SYSTEM\CurrentControlSet\CurrentControlSet\Services\Wins\Partners\Partners\Push~~

~~InitTimeReplication~~

~~RplOnAddressChg~~

~~InitTimeReplicationRplOnAddressChg~~

~~The~~ The following parameter appears under this subkey and can be set using the options available

~~. Installing and Configuring WINS Servers 23 of 27~~

in the Preferences dialog box:

~~.~~

~~\SYSTEM\CurrentControlSet\CurrentControlSet\Services\Wins\Partners\Partners\Push\<Ip Address>~~

~~UpdateCount~~

~~Chapter 5 Installing and Configuring WINS Servers~~

~~Planning a Strategy for WINS Servers~~

The planning issues for implementing WINS servers are similar to those for implementing

DHCP servers, as described in Chapter 4, "Installing and Configuring DHCP Servers." Most

network administrators will be installing both kinds of servers, so the planning and

implementation tasks will be undertaken jointly for DHCP and WINS servers.

This section provides some additional planning issues for WINS servers.

~~. Installing and Configuring WINS Servers~~

~~Planning a Strategy for WINS Servers~~

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~~Planning a Strategy for WINS Servers~~

~~Planning for Server Performance~~

~~A WINS~~ A WINS server can typically service 1500 name registrations per minute and about 760 queries

per minute. ~~There~~ There is no built-in limit to the number of records that a WINS server can replicate

or store.

Based on ~~these~~ these numbers, and planning for large-scale power outage where many computers will

come on line simultaneously, the conservative recommendation is that you plan to include

one WINS server and a backup server for every 10,000 computers on the network.

Two factors can particularly enhance WINS server performance. WINS performance increases almost 25 percent on a computer with two processors. Also, using NTFS as the file system also improves performance. After you establish WINS servers in the internetwork, you can adjust the Renewal interval. Setting this interval to reduce the numbers of registrations can help tune server response time. (The Renewal interval is specified in the WINS Server Configuration dialog box.)

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[Planning a Strategy for WINS Servers](#)

Planning Replication Partners and Proxies

In one possible configuration, one WINS server can be designated as the central server, and all other WINS servers can be configured as both push partner and pull partner of this central server. Such a configuration ensures that the WINS database on each ~~server~~server contains addresses for every node on ~~the WAN~~the WAN. Another option is to set up a chain of WINS ~~servers~~servers, where each server is both the push partner and pull partner with a nearby WINS server. In such ~~a configuration~~a configuration, the two servers at the ends of the chain would also be push and pull partners with each other. Other replication partner configurations can be established for your site's needs. Only a limited number of WINS proxies ~~should~~should be designated on each domain, so that a limited number of computers are using resources to respond to broadcast name requests.

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[Planning a Strategy for WINS Servers](#)

Planning Replication Frequency Between Hubs

~~A major~~A major tuning issue for WINS ~~servers~~servers is replication frequency. You want replication to occur frequently enough that any server being down will not interfere with the reliability of name query responses. However, for longer wide area network (WAN) lengths, you do not want replication to interfere with network throughput. For multiple network hubs interconnected by WAN links, replication frequency can be configured to be low compared to the replication frequency of multiple WINS servers at a single

hub. For long WAN links, infrequent replication ensures that the links are available to carry client traffic without ~~WINS~~ affecting throughput. For example, the WAN servers at a central site might be configured to replicate every 15 minutes. Replication between WAN hubs of a greater distance might be scheduled for every 30 minutes. Replication between ~~servers~~ on different continents might replicate twice a day.

~~North America~~

~~Australia~~

~~1'10|'1h~~

~~Alwenca~~

~~8 minutes~~

Example of an Enterprise-Wide Configuration for WINS Replication

~~CHAPTER 6~~

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~~'12 hours~~

~~Australia ,~~

~~, 15 minLrEs=~~

~~4.b~~

~~4~~

Setting Up LMHOSTS

The LMHOSTS file is commonly used on Microsoft networks to locate remote computers for network file, print, and remote procedure services and for domain services such as ~~logons~~ Logons, browsing, replication, and so on.

You ~~will~~ want to use LMHOSTS for smaller networks or to find hosts on remote networks that

are not part of the WINS database (since name query requests are not broadcast beyond the

local subnet). ~~If~~ If WINS servers are in place on an internetwork, users do not have to rely on

broadcast queries for name resolution, since WINS is the preferred method for name

resolution. With WINS servers in place, therefore, LMHOSTS may not be necessary.

This chapter presents ~~the~~ the following topics:

- 1 Editing the LMHOSTS file
- ' Using LMHOSTS with dynamic name resolution

~~Editing the LMHOSTS File~~

~~Chapter 6 1of8~~

The LMHOSTS file used by Windows NT contains mappings of IP addresses to Windows NT

computer names (which are NetBIOS names). This file is compatible with Microsoft LAN

Manager 2.x TCP+/IP LMHOSTS files.

You can use Notepad or any other text editor to edit the sample LMHOSTS file that is

automatically installed in the
\~~systemroot~~\SYSTEMsystemroot\SYSTEM\32\DRIVERS\ETC directory.
This section provides some basic ~~rules~~rules and guidelines for LMHOSTS.

Setting Up LMHOSTS

Editing the LMHOSTS File

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Editing the L|v|Hosts~

Rules for LMHOSTS

The following rules apply for entries in LMHOSTS:

1 Each entry should be placed on a separate line.

1 The IP address should begin in the first column, ~~followed~~followed by the corresponding computer name.

1 The address and the computer name should be separated by at least one space or tab.

1 NetBIOS names can contain uppercase and lowercase characters and special characters. ~~If a~~

If a name is placed between double quotation marks, it will be used exactly as entered. For

example, "AccountingPDC" is ~~amixed~~a mixed-case name, and "HumanRscSr \0x03" generates a

name with ~~aspecial~~a special character.

Note

In Microsoft networks, a NetBIOS computer name in quotes that is less than 16 characters

is padded with spaces. ~~If you~~If you do not want this behavior, make sure the quoted string is 16

characters ~~long~~long.

1 The # character is usually used to mark the start of ~~a comment~~a comment.

However, it can also

designate special keywords, as described in this section.

~~Chapter 6 Setting Up LMHOSTS~~

The keywords listed in the following table can be used in LMHOSTS under Windows NT. (LAN

Manager 2.x, which also uses LMHOSTS for NetBIOS over TCP/IP name resolution, treats

these keywords as comments.)

~~LMHOSTS Keywords~~ Keyword #PRE

~~#DOM:<domain>~~

~~#INCLUDE <filename>~~

~~#BEGIN ALTERNATE~~

~~#END ALTERNATE~~

~~\0xnn~~

~~Meaning~~ Added after an entry to cause that entry to be preloaded into the name cache. By default, entries are not preloaded into the name cache but are parsed only after WINS and name query broadcasts fail to resolve a name. #PRE must be appended for entries that also appear in #INCLUDE statements; otherwise, the entry in #INCLUDE is ignored.

#DOM:<domain> Added after an entry to associate that entry with the domain specified by <domain>. This ~~keyword~~Keyword affects how the Browser and Logon services behave in routed ~~TCP/IP~~TCP/IP environments. To preload a #DOM entry, you must also add the #PRE keyword to

the line.

#INCLUDE <filename> Forces the system to seek the specified <filename> and parse it as if it were local. Specifying a Uniform Naming Convention (UNC) <filename> allows you to use a centralized LMHOSTS file on a server. ~~if~~ the server is located outside of the local broadcast area, you must add a mapping for the server before its entry in the #INCLUDE section and also append #PRE to ensure that it preloaded.

Setting Up LMHOSTS

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LMHOSTS Keywords

Keyword Meaning

#BEGIN ALTERNATE Used to group multiple #INCLUDE statements. Any single successful #INCLUDE causes the group to succeed.

#END ALTERNATE Used to mark the end of an #INCLUDE grouping.

\0xnn Support for nonprinting characters in NetBIOS names. Enclose the NetBIOS name in double quotation marks and use ~~\0xnn~~ \0xnn /

the NetBIOS name in double quotation marks and use \0xnn

notation to specify a hexadecimal value for the character. This allows custom applications that use special names to function properly in routed topologies. However, LAN Manager ~~TCP/IP~~ TCP/IP does not recognize the hexadecimal format, so you surrender backward compatibility if you use this feature.

Note that the hexadecimal notation applies only to one character in the name. The name should be padded with blanks so the special character is last in the string (character 16).

~~150 TCPnP~~

The following example shows how all of these keywords are used:

```
102.54.94.98 localsrv /I #PRE
102.54.94.97 trey #PRE /I #DOM:networking #net group's PDC
102.54.94.102 "appname \0x14" #special app server
102.54.94.123 popular #PRE #source server
/IBEGIN ALTERNATE #INCLUDE \\localsrv\public\lmhosts #adds LMHOSTS from this
server #INCLUDE \\trey\public\lmhosts #adds LMHOSTS from this server
/IEND ALTERNATE
```

In the above example:

1 The ~~server~~ server named ~~localsrv~~ localsrv and trey are specified so they can be used later in an

#INCLUDE statement in a centrally maintained LMHOSTS file.

1 The server named "appname ~~\0x~~ \0x14" contains a special character after the 15

characters in its name (including the blanks), so its name is enclosed in double quotation marks.

1 The ~~server~~ server named popular is preloaded, based on the #PRE keyword.

#BEGIN ALTERNATE

#INCLUDE \\localsrv\public\lmhosts

#INCLUDE \\trey\public\lmhosts

#END ALTERNATE

~~Guidelines for~~ #adds LMHOSTS from this server

#adds LMHOSTS from this server

When you use a host table file, be sure to keep it up to date and organized. Follow these guidelines:

±

Update the LMHOSTS ~~file~~file whenever a computer is changed or removed from the network.

±

Because LMHOSTS files are searched one line at a time from the beginning, list remote computers in priority order, with the ones used most often at the top of the file, followed by remote systems listed in #INCLUDE statements. Finally, the #PRE entries should be left for the end of the file, because these are preloaded into the cache at system startup time and are not accessed later. This increases the speed of searches for the entries used most often. Also, any comment lines add to the parsing time, because each line is processed individually.

±

Use #PRE statements to preload popular entries and servers listed in #INCLUDE statements into the local computer's name cache.

~~Chapter 6~~ Setting Up LMHOSTS

~~Using~~Editing the LMHOSTS ~~with Dynamic Name Resolution~~File

Guidelines for LMHOSTS

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On networks that do not use WINS, the broadcast name resolution method used by

Windows NT computers provides a simple, dynamic mechanism for locating resources by

name on ~~a~~TCPa TCP/IP network.

Because broadcast name resolution relies on ~~IP~~IP-level broadcasts to locate resources,

unwanted effects can occur in routed IP topologies. In particular, resources located on remote

subnets do not receive name query requests, because routers do not pass IP-level broadcasts.

For this reason, Windows NT allows you to manually provide computer name and IP address

mappings for remote resources via LMHOSTS~~-.y~~

This section describes how the LMHOSTS file can be used to enhance Windows NT in routed

environments. This section ~~includes~~includes the following topics:

• Specifying remote servers in LMHOSTS

•

~~Designating~~Designating primary domain controllers using #DOM

• Using centralized LMHOSTS files

Setting Up LNIHOSTS

Name Resolution

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