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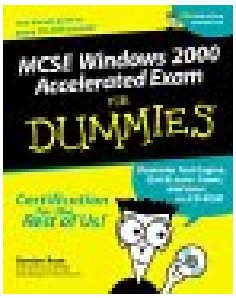
# 70-216 - Implementing and Administering a MS Windows 2000 Network Infrastructure

The Site!

This document contains dozens of CertTips covering exam objectives for the exam 70-216 - Implementing and Administering a MS Windows 2000 Network Infrastructure. The purpose of this document is to give you a lot of information, in a small amount




The book!

of space, that you can easily consume in a little bit of time. You may want to read over this document just before taking the exam, for instance, to refresh your memory with key information you'll need.

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**Installing, Confirguring, Managing, Monitoring and Troubleshooting DNS in a Window 2000 Network Infrastructure**

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Helpful reminder: You can use separate DNS name spaces for internal and external hosts, such as ActiveCert.local and ActiveCert.com

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Helpful reminder: By default in a Windows 2000 environment, Windows 2000 DHCP clients update their own A record in DNS and the DHCP server updates the client's PTR record.

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Helpful reminder: NSLOOKUP can be used to interactively query a DNS server, for troubleshooting or debugging purposes.

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Helpful reminder: An Active Directory-integrated DNS zone is one in which the zone information is stored in Active Directory and replicated automatically to other Active Directory-integrated zones.

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Helpful reminder: A reverse lookup zone is always based on the network id in reverse and the reserved in-addr.arpa domain. For instance, the reverse lookup zone for the network 192.168.1.0/24 is 1.168.192.in-addr.arpa.

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Helpful reminder: A DNS server can be configured to forward requests it is unable to answer to another DNS server.

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Helpful reminder: DHCP servers may be configured on a per scope basis to register DNS information for clients that do not support dynamic update.

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Helpful reminder: The secondary DNS servers automatically notified by default of zone changes by the primary name server are those that appear on the Name Servers tab in the Zone properties. You can create a separate notify list if you wish to.

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Helpful reminder: To pre-load the DNS resolver cache, simply edit and save the hosts file located in %systemroot%\system32\drivers\etc! To display the resolver cache, enter IPConfig /displaydns at a command prompt.

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Helpful reminder: The requirement for enabling secure, dynamic updates is simple: the zone must be hosted as an Active Directory-integrated DNS zone.

## Installing, Configuring, Managing, Monitoring and Troubleshooting DHCP in a Windows 2000 Network Infrastructure

Helpful reminder: You can configure a DHCP server to ping an address it intends to lease from one to five times to ensure that the address is not already in use.

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Helpful reminder: You must be a member of the Enterprise Admins group to authorize a DHCP Server in Active Directory.

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Helpful reminder: Windows 2000 DHCP servers must be authorized in Active Directory before they will function in a domain environment.

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Helpful reminder: A DHCP Relay Agent can be used to connect DHCP clients with a DHCP server when the clients otherwise have no means of reaching the DHCP server directly. This happens when the DHCP server is located on another subnet and the router(s) between the client and the router(s) does not support RFC 1542. The Relay Agent is installed as a routing protocol as opposed to a service in Windows 2000.

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Helpful reminder: The only Windows 2000 service or component that can affect the dynamic allocation of multicast addresses is DHCP, which supports the dynamic allocation of multicast addresses.

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Helpful reminder: The way to configure individual machines options in DHCP is to create separate reservations for them and set options, such as default gateway addresses, etc., for the reservation. (Note: client reservations in Windows NT 4.0 did not support such options.)

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Helpful reminder: You can move the DHCP service between computers. You must copy the HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\DhcpServer\Configuration portion of the registry on the source machine to the target machine. You must also reconcile the scopes on the target machine.

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Helpful reminder: You authorize a DHCP server in Active Directory using the DHCP MMC snap-in.

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Helpful reminder: A DHCP scope must be activated before addresses from it can be assigned to computers.

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Helpful reminder: DHCP user classes make it possible to configure different scope options defined in the same DHCP scope to be assigned to different computers. For example, it would be possible to assign laptop computers shorter leases than desktop computers using user classes. User classes are defined on client computers using IPConfig: **IPConfig /setclassid "ADAPTER_NAME" CLASS_NAME**.

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Helpful reminder: The DHCP Server service can be moved between servers by moving the DHCP database and registry settings between computers. The scope must be reconciled on the new DHCP server.

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Helpful reminder: DHCP applies reservations based on the MAC address of the DHCP client.

## Configuring, Managing, Monitoring and Troubleshooting Remote Access in a Windows 2000 Network Infrastructure

Helpful reminder: To have scope options assigned to RAS clients along with basic IP addressing information, install the DHCP relay agent on the RRAS server.

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Helpful reminder: By default, any user whose account has the Remote Access Permission set to Allow Access (which can be configured in the dial-in tab of the user account properties dialog box) is able to make a dial-up connection to a newly installed RRAS server.

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Helpful reminder: Mixed-mode domains do not allow the use of some RAS policy options, such as checking group memberships.

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Helpful reminder: The ordering of steps an RRAS server takes to verify the validity of an incoming connection attempt is: 1) Check Remote Access policy conditions, 2) Check user dial-up property configuration, and 3) Check policy profile settings.

## Installing, Configuring, Managing, Monitoring and Troubleshooting Network Protocols in a Windows 2000 Network Infrastructure

Helpful reminder: The standard Network Monitor can only be used to view data originating from or destined to the system where it is running. To view all traffic on the local network segment, the SMS network monitor can be used.

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Helpful reminder: NWLink must be configured to support the appropriate frame types (typically using manual frame type detection) when used to communicate with Netware servers and more than one frame type is in use on the network.

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Helpful reminder: To advertise a client/server application to Netware users, a Windows 2000 Server computer must be running NWLink and SAP as well as have a unique internal network number.

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Helpful reminder: The DNS suffix is used to allow clients to resolve relatively qualified domain names.

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Helpful reminder: A network destination of 0.0.0.0 in the routing table is used when no other entries in the table match the destination address. The gateway address associated with the entry in the routing table should be that of the default gateway.

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Helpful reminder: To arrive at a subnet mask based on the number of networks required, solve **(2 ^ n) - 2 >= (number of required subnets)** for n. Add the decimal values for the n-most high-order (left most) bits in a byte together to arrive at the decimal value for the mask.

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Helpful reminder: You can use Network Monitor (Tools menu, "Identify Network Monitor Users") to determine who on a given segment is also running Network Monitor.

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Helpful reminder: You can use the Netshell command (Netsh.exe) to configure your network interfaces, DHCP, WINS and RRAS from the command line (or in batch files).

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Helpful reminder: In order to enable Gateway Service for Netware, you must have created an NTGateway group on the Netware server and added the account whose credentials match the Gateway Service for Netware account.

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Helpful reminder: Automatic Private IP Addressing will be used if DHCP-enabled clients do not receive a DHCP lease offer.

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Helpful reminder: Some protocols and services use multiple TCP/IP ports for communication. This must be taken into account when planning a packet filtering policy on routers and firewalls.

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Helpful reminder: When using IPSec, the IPSec header portion of a TCP/IP packet is also known as the Authentication Header (AH). AHs provide for the verification of the sender and verification of the integrity of the packet payload.

## Installing, Configuring, Managing, Monitoring and Troubleshooting WINS in a Windows 2000 Network Infrastructure

Helpful reminder: WINS supports both push and pull replication. In Windows 2000, WINS supports persistent connections for WINS replication partners that must communicate frequently. Burst mode handling, another new WINS feature, affects how WINS handles client registrations, and has nothing to do with WINS replication.

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Helpful reminder: NetBIOS node types can be used to control the sequence of events to be used in NetBIOS name resolution.

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Helpful reminder: You must specify a backup path for WINS before it will automatically backup the database (every three hours, by default).

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Helpful reminder: To make the services of WINS available to non-WINS clients, install a WINS proxy agent on each network segment that includes non-WINS clients.

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Helpful reminder: After 1/8 of the time to live (TTL) of a successful WINS registration has expired, the WINS client will attempt to renew its registration. If the WINS client does not receive a response from the WINS server, it will continue to attempt to renew its registration every two minutes until one-half of the TTL has expired.

## Installing, Configuring, Managing, Monitoring and Troubleshooting IP Routing in a Windows 2000 Network Infrastructure

Helpful reminder: When Internet Connection Sharing is enabled on a Windows 2000 computer, the LAN interface over which it is shared is automatically assigned an IP address of 192.168.0.1.

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Helpful reminder: Multicast scope boundaries block the transmission of multicast traffic. Mutlicast scope boundaries are configured on multicast routers on the interface over which the multicast traffic should be blocked.

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Helpful reminder: You can create an IP tunnel (IP-in-IP interface) between routers to allow traffic not otherwise supported by one of the routers, such as IGMP traffic, to be transmitted between the routers.

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Helpful reminder: When configuring two-day demand-dial connections, you need to ensure that the demand-dial interfaces are configured with the same name as the user account that is used by the calling router

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Helpful reminder: You can not configure a default gateway address on a demand-dial routing interface. You can configure static routes, however.

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Helpful reminder: RIP is broadcast oriented and slow to converge. RIP is appropriate for small networks of fewer than 50 subnets.

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Helpful reminder: By default, host and default routes are not sent or accepted by RIP routers. You can change that behavior by accessing the advanced properties for RIP bound to an interface.

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Helpful reminder: The two primary means that Windows 2000 provides for preventing demand-dial connections are demand-dial filters and dial-out hours.

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Helpful reminder: A Virtual Private Network, or VPN, is used to "tunnel" a connection between two computers across a public network, such as the Internet.  PPTP and L2TP are supported in Windows 2000 for creating VPNs.

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Helpful reminder: OSPF is appropriate in large networks for its short convergence time, security, and configurability.

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Helpful reminder: RIP Authentication can be used to control which routers can participate in RIP operations.

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Helpful reminder: You can use both RIP peer filters and RIP v.3 password authentication to secure RIP communications between routers.

## Installing, Configuring and Troubleshooting Network Address Translation (NAT)

Helpful reminder: When NAT processes an outbound packet, it modifies the source address and source port so that an external client can respond. The remapped port allows that NAT server to map the incoming traffic back to the originating host.

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Helpful reminder: Public access to a resource server that is behind a NAT server and is configured with a private IP address can be accomplished by creating a port mapping on the NAT server when that NAT server has a single public address, or by using an address pool when the NAT server has multiple public addresses (as supplied by an ISP, for instance). When using an address pool, one of the public addresses in the address pool is mapped on the NAT server to the internal resource server.

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Helpful reminder: Internet Connection Sharing is designed for small offices with a single internet connection.

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Helpful reminder: The Network Address Translation protocol needs to have one public and one private interface configured.

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Helpful reminder: The RRAS service is already installed on a Windows 2000 Server computer -- you need only to enable it.

## Installing, Configuring, Managing, Monitoring and Troubleshooting Certificate Services

Helpful reminder: In order to publish certificates in a domain, a certificate authority must be a member of the Cert Publishers group in the domain.

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Helpful reminder: Microsoft supports both standalone and enterprise certificate authorities (CAs). Enterprise CAs are always integrated with Active Directory. Standalone CAs can be integrated with Active Directory, but are not by default.

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Helpful reminder: Using a commercial root Certificate Authority (CA) as the parent CA of a subordinate enterprise or standalone CA ensures that users will automatically trust the certificates issued by the CA. For instance, all major browsers are configured to trust the major CAs, such as Verisign and Thawte.

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Helpful reminder: In order to ensure the integrity of EFS, you must remove the administrator account's recovery key. This can be done in the local security policy on each client system.

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Helpful reminder: Configuring recovery agents in a domain setting requires an Enterprise Certificate Authority.

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Helpful reminder: A CA must be a member of the Cert Publishers group in a Windows 2000 domain in order to publish certificates from that domain.

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Helpful reminder: You must install an Enterprise CA in order to be able to issue certificates for domain users.

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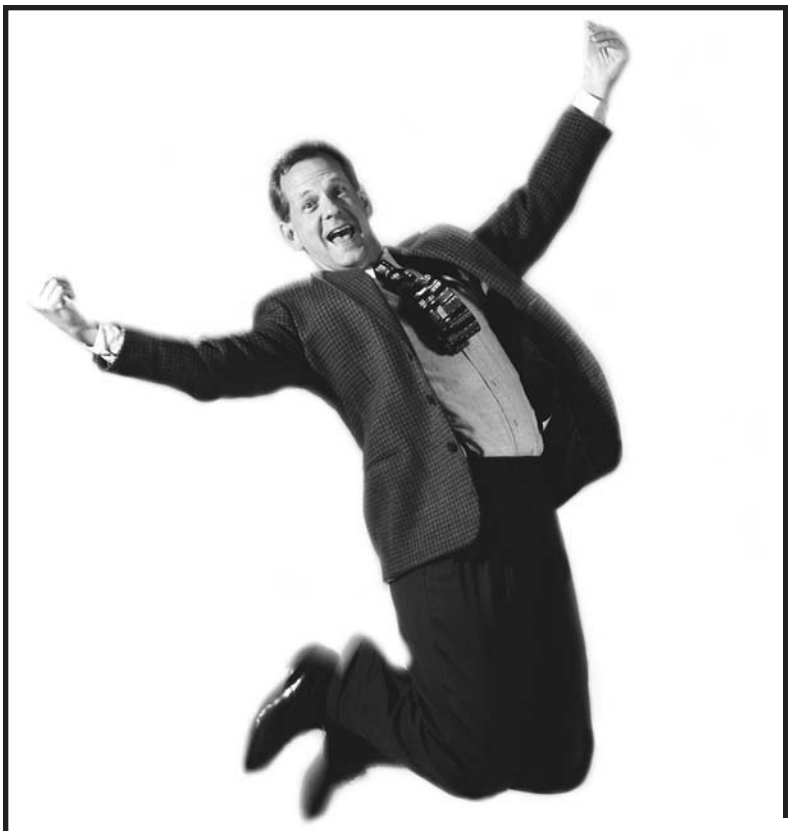

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