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**ExamInsight
For
Internet Security and Acceleration (ISA)
Server 2000 Enterprise Edition**

Examination 70-227

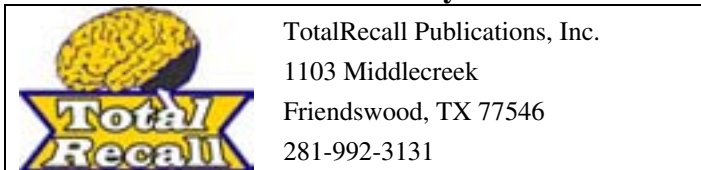
**Installing, Configuring, & Administering
Microsoft Internet Security and
Acceleration Server 2000
Enterprise Edition**



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Chapter 1: Installing ISA Server

The objective of this chapter is to provide the reader with an understanding of the following:

1. The role of ISA Server in the network.
2. The operating environment of ISA Server.
3. Installation modes and options.
4. System requirements.
5. Proxy Server 2.0 Upgrade.
6. Troubleshooting Q & A.

Getting Ready - Questions

- 1) What is a packet filter?
 - 2) What is the nature of a firewall?
 - 3) What protocols can an Internet firewall filter?
 - 4) Does ISA Server support anti-virus functions?
 - 5) Can ISA Server run on NT Server 4.0?
-



Getting Ready - Answers

- 1) A packet filter inspects and filters packets based on pre-defined rules.
 - 2) A firewall can be software, hardware, or a combination of both.
 - 3) TCP/IP only.
 - 4) No, ISA Server does not include anti-virus functions.
 - 5) No, ISA Server requires Windows 2000 with SP1.
-

I Introduction

ISA Server is a combination of a firewall and Microsoft Proxy Server. With Proxy Server, you can perform network address translation, caching and basic filtering. ISA Server has much stronger capabilities for network protection than the original Proxy Server. It is also tightly integrated with Windows 2000 and Active Directory. If you are familiar with Proxy Server, you will find that ISA Server is very easy to configure. This is because they share the same underlying concepts and theories.

A firewall is a hardware/software combination that acts as a point of access for traffic going in and out of an internal network. You can deploy ISA Server as a single bastion host or as part of a perimeter network. You can also use the various filters provided to protect your network.



II Pre-configuring network interfaces

To install ISA Server, you must first ensure that your Internet connectivity is configured properly. This means the router has to work properly, and that TCP/IP must be set up for the servers and clients in your network.

Verifying Internet connectivity

A firewall cannot control traffic that does not pass through it. Your ISA Server must have at least two network cards configured. The router is connected to the external interface of the ISA Server. The internal interface is connected to the internal network. If the router does not perform address translation, the external interface must be configured with a valid “true” IP address. Depending on the ISA Server configuration, the internal interface may use a “true” IP address or a private one. One thing for sure: the external interface and the internal interface must be on different subnets.

Verifying DNS name resolution

For ease of configuration and for filtering purposes, it is desirable for the Domain Name Service (DNS) to resolve names. Externally you may want your company or Web site name to be registered with InterNIC, the organization that coordinates the domain name registration activities. Internally, you should set up a DNS server that is integrated into the network to resolve internal names. Note that for tight integration with Active Directory, you should use the Active Directory integrated zone type.

Pop Quiz 1.1



Pop Quiz 1.1 Questions

- 1) What functions can ISA Server provide?
- 2) Which interface of ISA Server should use a “true” IP address?
- 3) Which interface of ISA Server should use a private IP address?
- 4) Can ISA Server control traffic that passes through it?
- 5) Can ISA Server control traffic that does not pass through it?



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Pop Quiz 1.1 *Answers*

- 1) Firewall, NAT, Caching.
- 2) External.
- 3) Internal.
- 4) Yes.
- 5) No.

Notes:



III ISA Server installation modes

ISA Server supports three different configuration modes. These modes are:

- Integrated mode.
- Firewall mode.
- Cache mode.

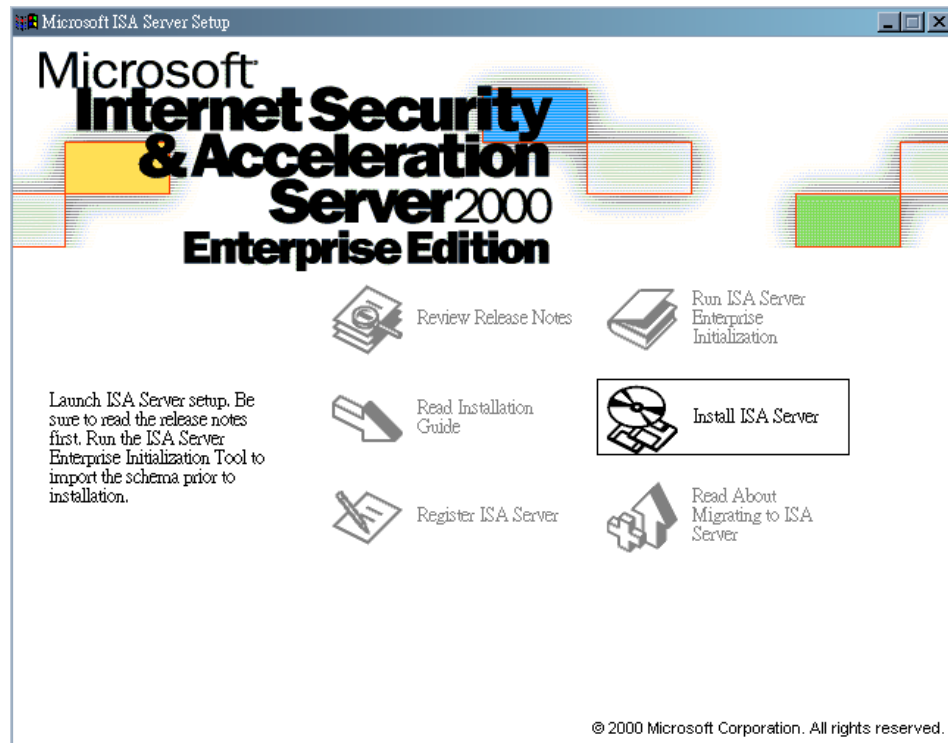


Figure 1.1. Microsoft ISA Server Setup Main Page



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You can install ISA Server as a firewall, a caching server, or both. As a firewall, ISA Server focuses on protecting the network and inspecting network traffic. As a caching server, ISA Server focuses on providing cached objects for the internal clients. To enjoy the best of both worlds, you can configure ISA Server to run in Integrated mode, which will provide secure and efficient Internet access and, at the same time, allow for secure processing of external requests to the internal servers.

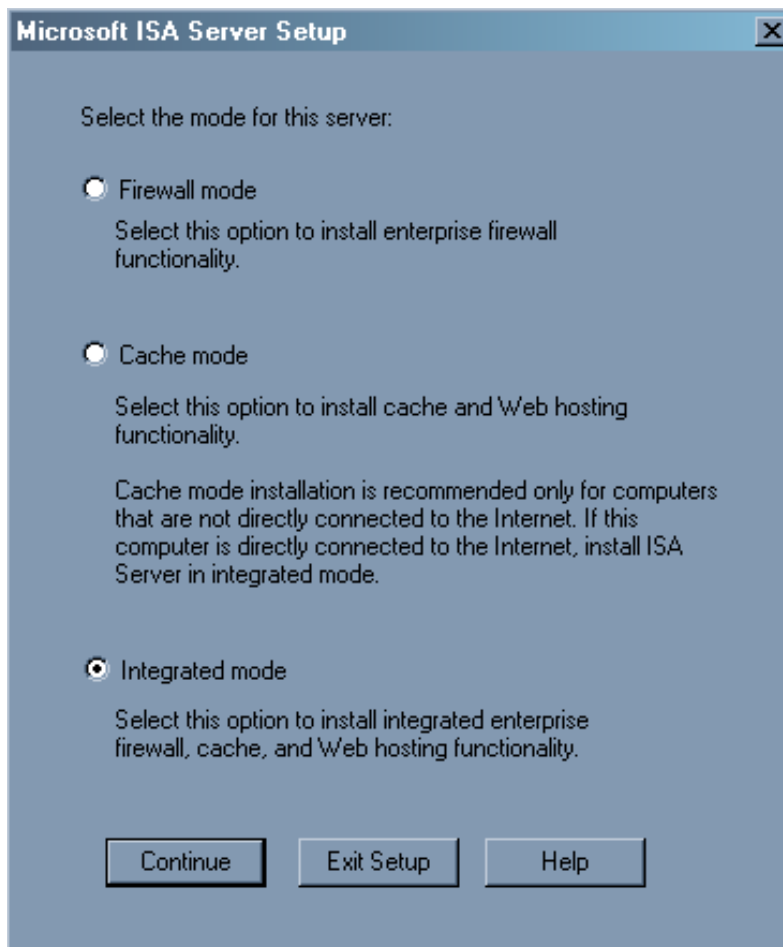


Figure 1.2. Microsoft ISA Server Setup

Before proceeding with the installation, you must have your hardware and software prepared. A minimum of a Pentium II 300 MHz processor is recommended. As a forward caching server that serves less than 250 users / a reverse caching server that handles less than 800 hits per second / a firewall, you need a minimum of



128MB RAM, although 256MB or more is always recommended. If the volume of traffic is high, consider a Pentium II 550MHZ or higher processor.

Another area of consideration is the storage space. ISA server requires 20MB of space. However, as a caching server, depending on the usage patterns of your users, it is not uncommon for a 10GB drive to fill up in couple days.

Your server should be running Windows 2000 Server or Advanced Server with SP1, or the Data Center version.

ISAAutorun.exe is the installation command you use to start the installation. The installation options available include ISA Services, which is a REQUIRED component for network traffic access control; Add-In Services, which includes the optional H.323 Gatekeeper for NetMeeting support and the optional Message Screener for SNMP filtering; Administration Tools, which includes the REQUIRED ISA Server Admin Tool and the OPTIONAL H.323 GateKeeper Admin Tool. Note that the Administration Tools can be installed on the same server or on another Windows 2000 computer.

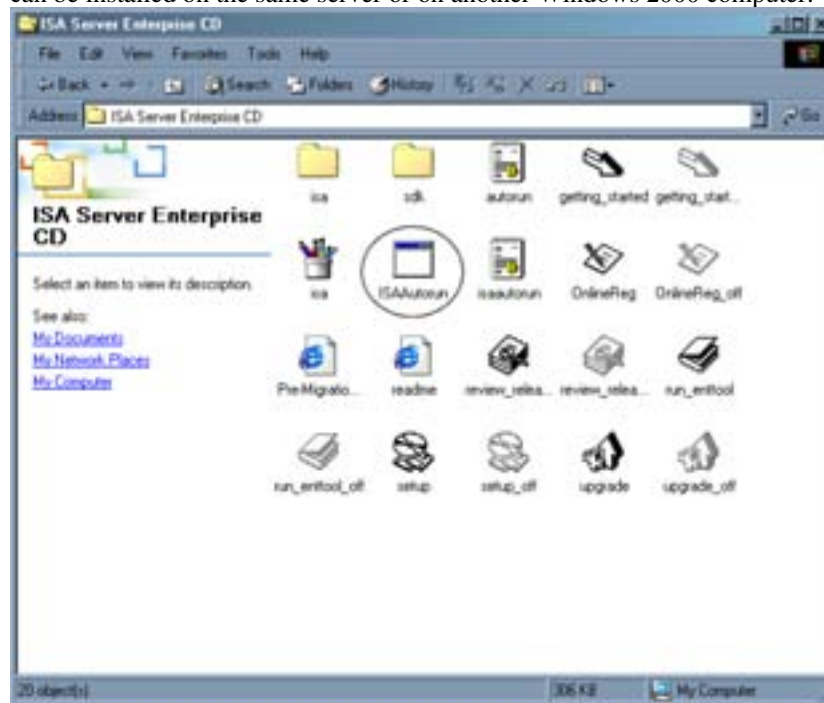


Figure 1.3. ISA Server Enterprise CD



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In addition to selecting the appropriate installation option, you can choose to install ISA Server in Firewall mode, Cache mode, or Integrated mode.

Local Address Table (LAT).

The Local Address Table (LAT) contains all the internal IP addresses used by hosts in the internal network. You must configure the LAT if you install ISA Server in Firewall mode or Integrated mode. The LAT determines how the internal computers connect to the Internet. Internal clients will automatically download the LAT updates from the ISA Server. Note that the private IP address ranges specified by Internet Assigned Numbers Authority (IANA) are:

10.0.0.0 – 10.255.255.255

172.16.0.0 – 172.31.255.255

192.168.0.0 – 192.168.255.255

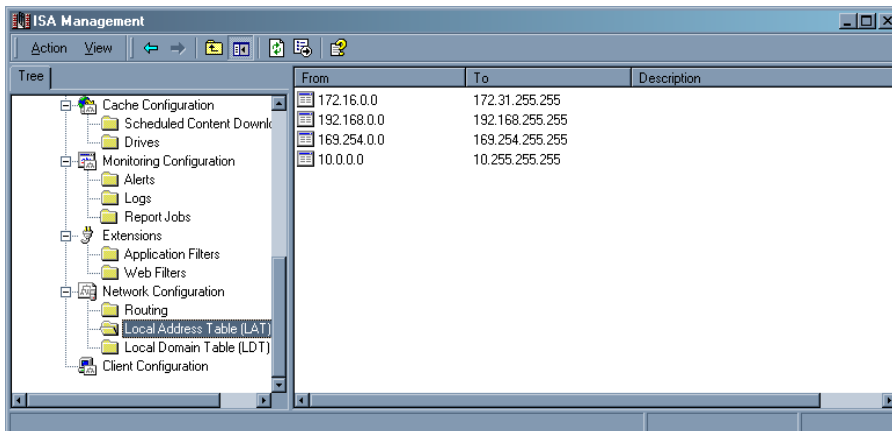


Figure 1.4. ISA Management

Constructing the LAT

To construct the LAT during setup, click Table in the setup dialog box. You may then add either the private IP address ranges or address ranges based on the Windows 2000 routing table. Keep in mind that you should only include addresses on the private network. NEVER add any external addresses.



Modifying the LAT

From the Internal IP Ranges box, you can add, edit or remove any entry. When you finish reviewing the settings, ISA Setup will complete the rest of the configuration for you.

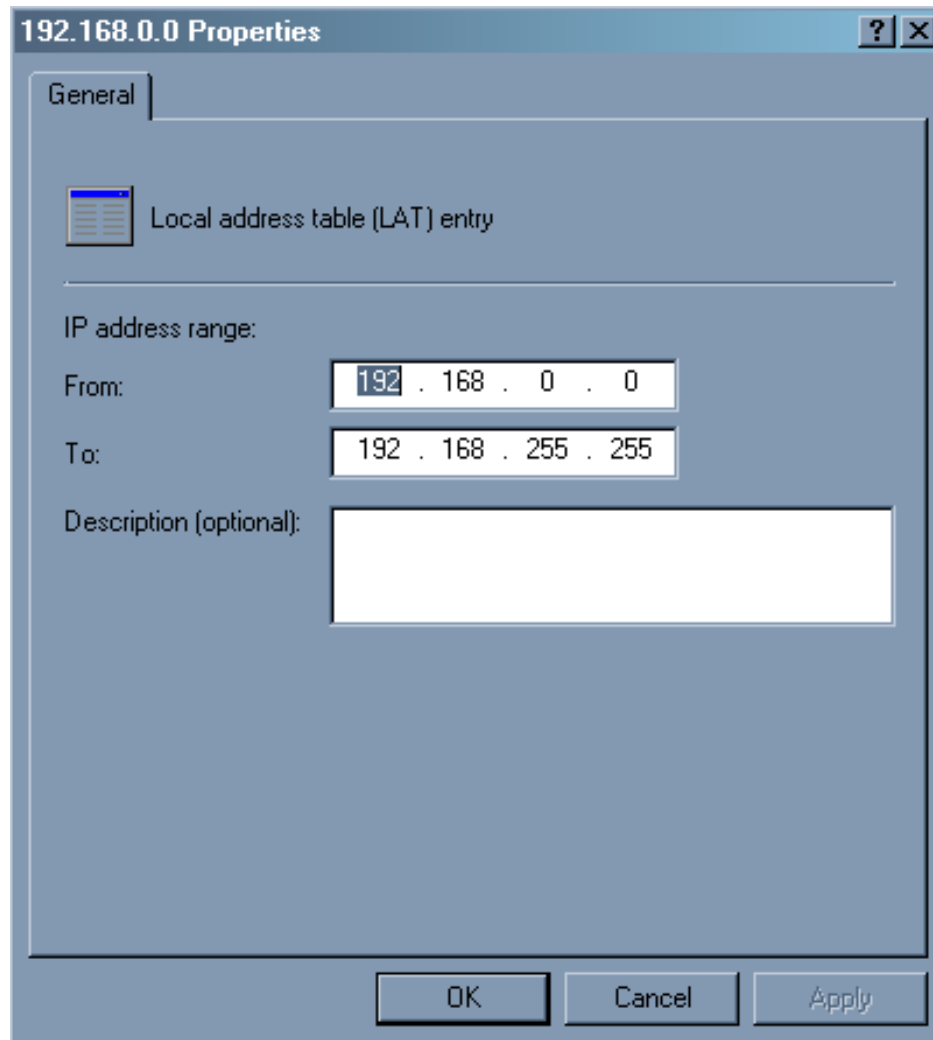


Figure 1.5. 192.168.0.0 Properties



The cache and configuration

You must configure the drive to use caching if you install ISA Server in Cache mode or Integrated mode. For optimal performance, you should have a drive dedicated for this purpose. The drive for caching must have a drive letter assigned!

In ISA Server, two types of caching objects are supported: HTTP object and FTP object. An *HTTP object* is an object that a client retrieves from a Web server by using the HTTP protocol. An *FTP object* is an object that a client retrieves from an FTP server by using the FTP protocol.

What makes ISA Server caching successful? Its RAM and disk caching functions allocate RAM for caching popular objects and other objects on disk. ISA Server places a cached object into the RAM cache first, and then writes multiple objects to the hard disk. The way the cache pre-fetches information automatically determines which objects to keep in its RAM cache based on how recently and how frequently the objects are accessed.

To ensure that the most frequently accessed objects are contained in the cache, ISA Server caches actively – it automatically retrieves the most updated version of an object from the Internet.



Calculating and Configuring the Size of the cache

Initially, the default cache size is set to 100MB if you have 150MB free space available. Additionally, you may want to add 0.5MB for each client that uses the web proxy function. The minimum cache size of 5MB is technically impractical and can be ignored.

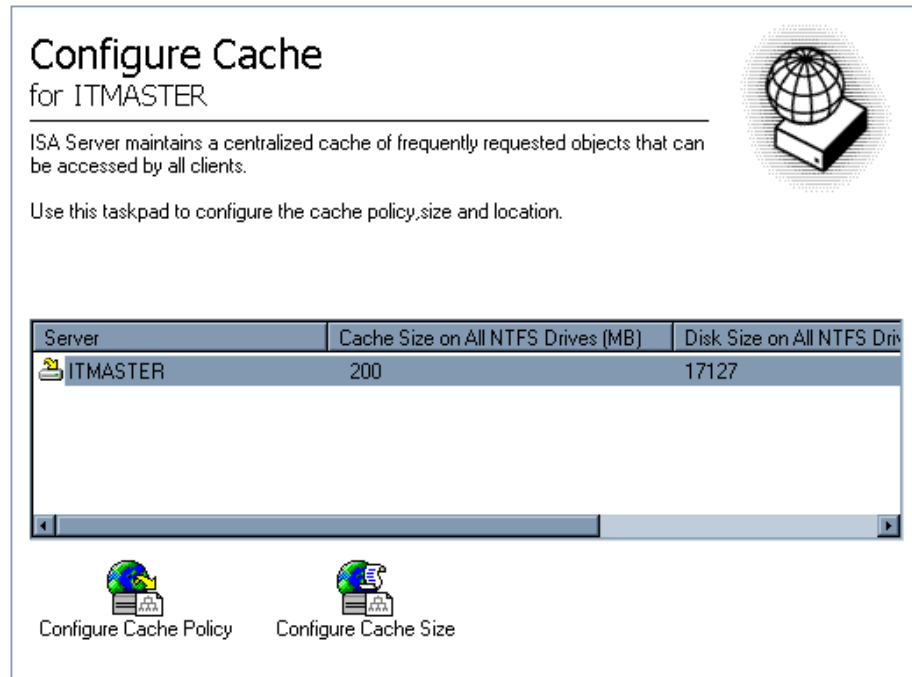


Figure 1.6. Configure Cache

Microsoft recommends 2 –4 GB of cache space for 250 users or less. If you have more than that number of users, 10GB per 2000 users is what you need.

Configuring HTTP Caching

You may enable HTTP caching by going into the console tree of ISA management and proceed through the following menu items:

Cache Configuration -> Configure Cache Policy -> Cache Configuration Properties – HTTP.



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