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Setting Up Your Site Hierarchy

In this book, I'll discuss the steps you need to take to ensure that Systems Management Server (SMS) 2003 is administrated successfully to provide powerful management across the enterprise. My main focus will be SMS 2003 with Service Pack 1, but I will cover SP2 features as well. I'll guide you through the inner workings of SMS 2003 and help you gain control of all aspects of systems management. This book organizes SMS 2003 into sections that are paired with each SMS feature and administrative task. Each section includes a brief description of the feature or reason for the administrative task and explains where SMS 2003 can be used to fill the void. I will discuss ways to improve SMS 2003 by site reconfigurations, the use of scripts, SMS Admin Console extensions, and third-party tools to extend SMS 2003 and enhance your ability to administer an SMS 2003 site hierarchy.

Desktop management has improved considerably over the past few years, and with SMS 2003 Microsoft has risen to the challenge. Although SMS 2003 has many features that help it deliver an end-to-end solution for desktop management, some standard practices are required to ensure that it is utilized to its fullest potential. This book will help you discover these techniques so you can successfully administer an SMS 2003 environment.

SMS 2003 Administrator's Reference is designed to provide a comprehensive introduction and overview of administrating SMS 2003. By using *real-world* examples, this book will help you become more competent in the basic skills necessary for administrating SMS 2003 and it will show you how to use advanced SMS functions to administer your SMS environment.

SMS 2003 offers solutions for key issues in management throughout the enterprise, including:

- Hardware/software inventory
- Software distribution
- Software metering
- Remote tools
- Microsoft update management

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Overview

SMS 2003 is a packaged solution that offers powerful desktop administration tools for managing computer hardware and software, distributing software, and troubleshooting remotely. In this chapter, I briefly introduce you to the key features of SMS 2003 and describe the components that make up an SMS 2003 hierarchy.

SMS 2003 provides various components and tools to help organizations monitor asset management, distribute software to clients within the network, track hardware and software changes, conduct remote administration, and create reports and queries based on the information collected within the SMS environment.

Software distribution, remote tools, software metering, security update distribution, hardware inventory, and software inventory are key features of SMS 2003. SMS 2003 can generate reports quickly and easily so you can monitor your environment and perform software updates, ensure licensing compliance, and schedule hardware replacement.

SMS 2003 provides administrators the ability to quickly distribute software to every client within the SMS hierarchy or to a single client. Software distribution can be distributed based on a schedule, or it can be set to install during log in.

SMS 2003 has software metering that actually works. It allows administrators to track when a program was last used and how long it was open. By tracking software usage, administrators can make sure they have only the software packages that are actually needed so they won't overbudget.

With SMS Remote Tools, the SMS 2003 administrator or help desk personnel can troubleshoot and remotely support clients across the SMS hierarchy. With remote support, the administrator can provide assistance without physically going to a client's location, just as if he were sitting at the client's location.

The latest viruses and software flaws have made the ability to easily administer extremely important. With SMS 2003, you can use the built-in tools to install software updates so that your clients' Microsoft security and third-party software is always up-to-date. With the release of the Inventory tool for Microsoft updates, you can quickly manage critical updates for Microsoft Windows, Microsoft Office, Microsoft SQL Server, Microsoft Exchange Server, Microsoft Internet Information Services, and many other Microsoft software packages.

Dell provides a tool to allow Dell system administrators to keep drivers and BIOSs up-to-date. Other computer manufacturers are working with Microsoft to provide tools for their systems as well.

SMS 2003 provides rich reporting through default queries and reports or through customized queries and reports. Many reports and queries are built into SMS 2003 by default, but SMS 2003 provides a simple way to add customized reports and queries.

SMS 2003 can deploy Microsoft operating system upgrades using the OS Deployment tool, which is provided as an add-on to SMS 2003. The OS Deployment tool allows you to quickly and easily upgrade your client's OS without losing any of the customizations the clients had on their workstations. These and many other SMS 2003 features are discussed in the following chapters.

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Site Hierarchy

When you install SMS 2003, you create an *SMS site*. An SMS site is identified by its three-character *site code*. This site code, which must be unique for your organization, is used to identify SMS clients. The site code can be numerical, alphabetical, or alphanumerical. The SMS site defines the resources that will be managed, including computers, users, groups, and other resources. An SMS site consists of an SMS site server, SMS clients, and site systems.

Throughout this book, I will use 000 as the site code and SRV-Z28 as the SMS server. With any luck, someone at General Motors will see the publicity I'm giving their Camaro and give me a new 2008 Camaro. If you aren't a Chevy Camaro fan, you are really missing out. If you don't appreciate the power and beauty of the Chevrolet Camaro, you will have to feign an interest in American muscle cars or imagine a Ferrari instead.

SMS has two types of site servers — primary site and secondary site. The first site you install is a *primary site*. A primary site stores the SMS information in the SMS site database, which is a SQL Server database. SMS stores client data, client configuration, and status information about the enterprise within the site database. A secondary site has no site database; it sends all its collected information to the primary site server. The primary site server processes all the collected data and stores it within the site database. For an overview of the steps required to install an SMS primary server, refer to Appendix A.

When your organization has multiple sites, you must decide which site will be the parent and which sites will be the child sites in the organization's hierarchy. An SMS hierarchy has a central site that acts as the parent site with no other sites above it. (A secondary site attaches to and reports to the primary site. A secondary site is always a child site to a primary site. A primary site can be either a child site or a parent site.)

The central site is the highest-level primary site within an organization, and all the SMS sites within the organization report to the central site.

SMS Server Roles

An SMS site server's functionality defines the role of the site system. SMS 2003 provides five site roles that can be installed in any combination on a Windows 2000 server or a Windows Server 2003 server. A site system server can be a management point, client access point (CAP), server locator point (SLP), reporting point, and/or a distribution point. These site server systems do not require an SMS server license.

A management point provides the primary contact for the advanced clients to communicate to the site servers. Advanced clients use the management point to obtain information about advertisements and distribution points; they send data to the management points, which in return, send that information to the SMS site server.

A client access point (CAP) is very similar to a management point, except that a CAP is specifically used for the legacy client(s). The CAP processes all the data collected from the legacy client.

The server locator point (SLP) provides the location of the client access point (CAP) for the legacy clients, along with the assigned site details for the advanced clients.

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The *reporting point* is the server that houses the code used for web-based reporting. The reporting point also provides web-based querying to the site database. *Distribution points* hold the package source files for the advertisements within the site.

Whenever you install SMS on a system, you create an SMS site; any SMS server that performs any of the roles of a SMS server is a *site system*.

The central site server can manage all the sites within the hierarchy. Configuration changes made from the central site server will be moved down the hierarchy to the sites below it. A central site server collects all of the information from any client within your organization.

I'll discuss the various roles later. For now, I'll concentrate on connecting a child site to a parent site.

Connecting Child Sites to Parent Sites

Any site that reports to a parent site is a child site. A child site can be another primary site or secondary site, but connecting a child site to a parent site is the same no matter what. A child site does not have a local SQL server database. Instead, it points to its parent server for access to the SMS site database.

Child sites send all the data they collect to their assigned parent site. This data includes inventory data, software and hardware information, discovery data, and site status messages. A child site can receive collection information, packages, and advertisements from any of the primary sites directly above it in the hierarchy. It can send data up to only its immediate parent site.

You can install a secondary site using the SMS Administrator console or using the SMS 2003 CD. There are many reasons why you would need to install a secondary site using a particular setup option. I'll explain these options so you will be able to use the one that best fits your hierarchy's requirements.

In an SMS environment that has a parent site with a connected child site, information is passed among the various sites based on their individual roles. Parent sites send data relating to management instructions down to the child sites, but the child sites send resources and client data to the parent sites. Basically, management and configuration data flows from the top to the bottom, and the child sites report their data up to the parent.

As I stated earlier, the steps for installing a primary site server are discussed in Appendix A of this book.

Installing a Secondary Site

Installing a secondary site from a CD is very similar to installing a primary site. To do so, follow these steps:

1. Run Setup.exe. The Systems Management Server Setup Wizard Welcome page, as shown in Figure 1-1, will appear.
2. Click Next. The Setup option will appear. (This is the same screen that appears when you install a primary site.) Choose Install An SMS Secondary Site and click Next. This will take you to the Systems Management Server License Agreement page, as shown in Figure 1-2.

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Figure 1-1



Figure 1-2

3. Read the agreement. If you agree to the terms, click the I Agree radio button and then click Next.
4. The Product Registration page will appear. Enter the appropriate information for your environment and click Next.
5. The Systems Management Site Information page, as shown in Figure 1-3, allows you to configure the Site Code, Site Name, and Site Domain. Carefully enter the information and then choose Next.
6. You will be asked which type of security mode you want to use to run SMS 2003 within your environment. For now, use the Advanced Mode. (I discuss the various security modes in Chapter 3.)

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Figure 1-3

7. The Installation Options page, as shown in Figure 1-4, will appear. You can use these options to customize the server environment you install on your SMS secondary site. Configure these setup parameters and then click Next.



Figure 1-4

8. Configure the Parent Site Identification when you are prompted. On the Parent Site Information/ Identification page, you will need to set up the Parent Site Code, Parent Site Server name, and the initial Network Connection Type of LAN Sender. Click Finish to finish installing your secondary site.

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9. To install a secondary site from within the SMS Administrator console, expand the site hierarchy and then right-click Site Code and choose New, as shown in Figure 1-5.

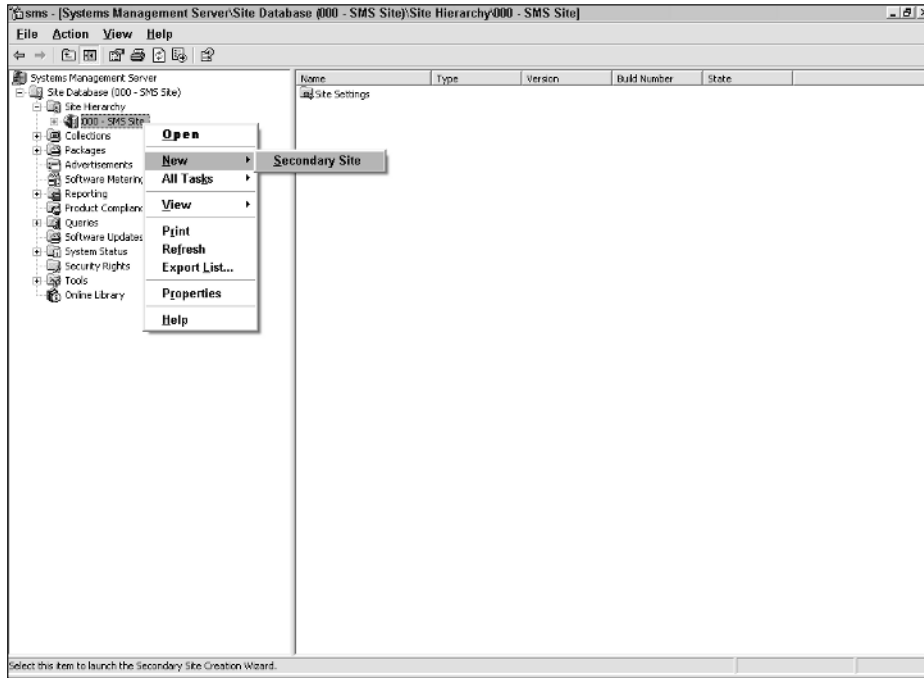


Figure 1-5

The Welcome To The Create Secondary Site Wizard, as shown in Figure 1-6, will appear.



Figure 1-6

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10. Click Next to create a new secondary site; this will bring up the Secondary Site Creation Wizard, as shown in Figure 1-7. The wizard will ask for the Site Code and Site Name. Use the Comment section to document any comments you might have.

The screenshot shows a dialog box titled "Secondary Site Creation Wizard" with a close button (X) in the top right corner. The main heading is "Site Identity" with the instruction "Specify a unique identity for the new secondary site." Below this, a paragraph reads: "Type a three-character alphanumeric site code and a site name to identify the new site. This information must be unique throughout the SMS system. You can also type a comment." There are three input fields: "Site code:" (a small text box), "Site name:" (a larger text box), and "Comment:" (a large text area). At the bottom, there are three buttons: "< Back", "Next >", and "Cancel".

Figure 1-7

11. After you complete the Wizard, click Next. The Secondary Site Wizard will appear. Enter the necessary information for your environment and choose Next. You'll be prompted for the Installation Source Files page, as shown in Figure 1-8.

The screenshot shows a dialog box titled "Secondary Site Creation Wizard" with a close button (X) in the top right corner. The main heading is "Site Server" with the instruction "Specify the site server for the new secondary site." Below this, a paragraph reads: "Type the names of the domain and server where the new secondary site components will be installed. You can also specify the directory to install the components in." There are four input fields: "Site server domain:" (text box), "Site server:" (text box), "Processor platform:" (a dropdown menu showing "Intel>86 and compatible"), and "Installation directory:" (text box containing "C:\SMS"). At the bottom, there are three buttons: "< Back", "Next >", and "Cancel".

Figure 1-8

12. There are two options for getting the installation files to the secondary site — transferring installation files to the secondary site or using the installation files at the secondary site. Using the installation files at the secondary site can help reduce network traffic during the installation phase. Select the appropriate option to indicate where the installation files are located, and then click Next. The SMS Security Information page will appear, as shown in Figure 1-9.

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Figure 1-9

13. Select the Advanced Security Mode if your system can use it. If the environment is not capable of using the Advanced Security Mode, select the Standard Security Mode and fill out the Service Account Name and Password information. Click Next. In Chapter 2, I will discuss the two modes you can use to run your SMS 2003 environment.
14. The Addresses To Secondary Site page, as shown in Figure 1-10, appears. Use this window to configure the type of address you'll use to connect the secondary site to the parent site. Choose the address type based on the connection between the secondary site and the parent site. If there is a LAN or WAN connection, choose the Standard Sender as the address type. However, if there is a dial-up connection between the two sites, then you might need to choose Asynchronous RAS Sender.



Figure 1-10

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- 15.** If you choose Yes to create a new address, the New Address To Secondary Site page will appear, as shown in Figure 1-11. You will be prompted for the Address Type, Destination Site Server, and the Account on the secondary site server. If you are using the Advanced Security Mode, you will not have the option to change these settings. Enter the appropriate data in the fields.

I will discuss the various addresses available within SMS 2003 in Chapter 4.



Figure 1-11

- 16.** The New Address To Parent Site page will appear. The information for this part of the Secondary Site Creation Wizard is basically the same information as in Figure 1-10. After you enter this information, a list of your selections will appear in the New Secondary Site Characteristics box (see Figure 1-12). Verify your settings by selecting New Secondary Site from the Primary Site in the drop-down list and click Finish to begin the installation process. See Figure 1-13.



Figure 1-12

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Figure 1-13

Attaching a Child Site to a Parent Site

To attach a child site to a parent site, you will need to open the SMS Administrator console, navigate to the site, right-click the site code, and choose Properties. In the Site Properties dialog box, on the General tab, click Set Parent Site, as shown in Figure 1-14.

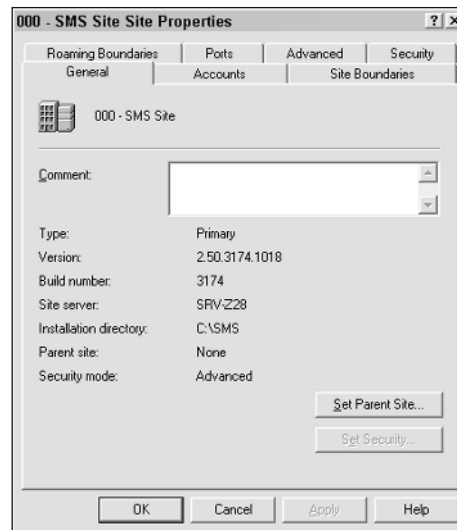


Figure 1-14

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On the Set Parent Site dialog box, specify the parent site information and click OK to close.

After your child site is attached, data will flow from the parent site to the child site and vice versa. The child will report information about the clients before the parent site sends any specific site information to the child site. Collection, advertisements, and packages at the parent sites will replicate down to the child sites. Collected data from the child sites will flow up to the parent sites.

Site Boundary Management

Site boundaries and *roaming boundaries* are key components you need to consider when you design and plan your SMS hierarchy. An SMS site is defined by the site boundary. A *site* is a collection of clients based on boundaries defined by IP subnets, Active Directory sites, or both. When you plan your SMS hierarchy, you will need to decide which type of boundary you will be using.

IP subnets, Active Directory sites, or a configuration of both, make up the SMS site boundaries. You need to carefully plan these options prior to installing your SMS site; you can modify them at any time after the initial site has been set up. Site boundaries cannot overlap any other SMS sites. They must be unique.

An advanced client can move around various site boundaries and from one organization to the next, even when the client is still installed. In version 2.0, legacy clients uninstalled on their own.

The ability to move across boundaries is called *roaming*. Because of the way an advanced client handles site boundaries, roaming is available only with an advanced client.

Advanced clients are assigned only to primary sites. This advanced feature allows clients to roam from site to site. This site boundary gives the client the ability to roam from primary sites to secondary sites while still being managed by SMS. Legacy clients can be installed only to a primary site or a secondary site, but not both. If a legacy client roams out of its site, the client will be uninstalled.

With the advanced client, you can set up roaming boundaries so the SMS site can still distribute software to the advanced client no matter where the client is within the SMS hierarchy.

To manage your site boundaries, use the Site Boundaries tab, as shown in Figure 1-14. The Site Boundaries tab is located on the Site Properties dialog box. You must add the IP subnet or Active Directory site to the New Site Boundary dialog box. The site boundaries must be defined accurately according to the IP subnets and/or the AD sites in which this site will be managed.

Roaming Boundaries

Roaming boundaries are a little different from site boundaries. They allow you to specify which site an advanced client can use to obtain information from a distribution point. These Roaming Boundaries settings tell the advanced client which sites they are allowed to connect to so that they can obtain site configuration data and software distribution when they are roaming. Roaming boundaries are used to

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enable advanced clients to move from their original, installed IP subnet or Active Directory–based site to another site or subnet.

Roaming boundaries allow clients to travel between sites within the hierarchy without uninstalling the client. Roaming boundaries ensure that the client can still communicate with a distribution point. Advanced clients use their roaming boundaries to access any distribution point within the site hierarchy. They will connect to any distribution point within the site, and they can use that distribution as a local distribution point or as a remote distribution point. Roaming boundaries define how an advanced client interacts with and locates distribution points. If an advanced client is set to use a remote distribution point, it will use the settings when no local distribution point is available. The settings for the various distribution points are discussed in Chapter 2.

Roaming boundaries provide access to any distribution point for the advanced client within the site hierarchy. Roaming boundaries allow clients to move between sites while the client software is still installed, and they can still be managed from within the SMS hierarchy.

When a distribution point is set up as a local distribution point, the advanced client will have two options when it runs advertisements. The advanced client can use the distribution point as if it were locally available, and it can run the advertisement from the distribution point or download the program from the distribution point. However, if the distribution point is set up as a remote distribution point, the advanced client will have three options when it runs advertisements. The advanced client can be forced to download the program from a remote distribution point, to run the program from a remote distribution point, or to not run the program. These settings are shown in Figure 1-15.

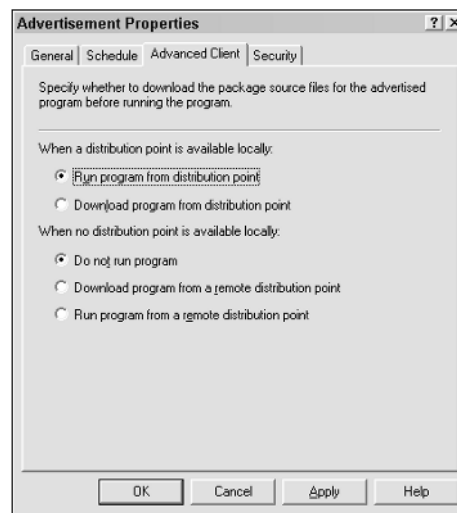


Figure 1-15

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Active Directory

Extending the Active Directory schema improves the client's ability to locate site systems and roaming boundaries. SMS 2003 does not require Active Directory; however, its use is highly recommended. Extending the Active Directory schema allows SMS objects to be published into Active Directory, which utilizes Global Client Roaming. This feature lets an advanced client roam to sites that are above its installed site within the hierarchy. To utilize this feature, the client does not need to be uninstalled and reinstalled each time it roams to a different site.

Extending the schema for Active Directory requires a domain account that specifically has rights to extend the schema as a member of the Schema Admin group. As such, you'll need to work with your Active Directory administrator in order to extend the scheme. Most Active Directory administrators will need to know why you want to extend the scheme. When the schema is extended, SMS 2003 does not require WINS and computer browsing services, which are huge bandwidth hogs.

To extend the schema, you can either use the SMS Setup Wizard or use the EXTADSCH.EXE Command Line tool, which is included on the SMS 2003 CD. You can extend the schema when you the install SMS 2003, as shown in Figure 1-16, or after you have already set up SMS 2003.



Figure 1-16

Integration with Active Directory (AD) allows you to identify users and computers within your network that you can manage from within SMS 2003. If you use organizational units within your Active Directory, you will be able to manage SMS clients based on these organizational units within your AD structure. Active Directory allows SMS site boundaries to be defined based on AD rather than IP subnets, which provides more control over your environment.

SMS clients can use AD to discover resources specific to SMS. SMS will poll the Active Directory server to identify computer accounts, security groups, or users within the Active Directory. You can specify which containers in the Active Directory SMS will gather information and set up polling intervals so you can adjust the amount of time that SMS spends gathering information from AD.

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Three methods are used for Active Directory Discovery. The Active Directory User Discovery method queries an Active Directory server to determine users and the user groups to which they belong within Active Directory. The Active Directory System Discovery method queries an Active Directory to retrieve Active Directory container information, such as computers and servers. The System Discovery method gathers information, such as the computer name, IP address, and Active Directory container name. The Active Directory System Group Discovery method gathers information about organizational units, global groups, universal groups, and other groups from the Active Directory. I will discuss the Active Directory Discovery methods in more detail in Chapter 5.

Summary

SMS 2003 includes many systems management advances, and it has many features to help administrators manage systems within an organization. This chapter covered how to set up site hierarchies and the steps needed to set up secondary sites.

Now that you've been introduced to the terminology and learned how to set up a secondary site within SMS 2003, it's time to turn to *roles*. In Chapter 2, I'll focus on site system roles and how to manage them. You'll learn about the various roles that SMS 2003 offers and how SMS 2003 installations use these roles. I will discuss each of the system roles and give examples of how to assign them to various servers within the organization.

